Visual Impact Assessment

for the Proposed SNNP IAIP Project, near Yirga Alem, Ethiopia

DECEMBER 2017
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FINAL

December 2017

Report Prepared by:
WSP Environmental
## Table of Contents

Table of Contents ........................................................................................................... 3
List of Abbreviations and Acronyms .............................................................................. 4
1 Introduction .................................................................................................................... 5
2 Project Location ............................................................................................................ 5
3 Scope of Work .............................................................................................................. 5
4 Objectives of the report ............................................................................................... 6
5 Legislative Framework ............................................................................................... 6
6 Study approach and methodology .............................................................................. 6
7 Description of the Affected Environment ................................................................... 7
   Study area in General ................................................................................................. 7
      Topography ........................................................................................................... 7
      Vegetation .......................................................................................................... 9
      Land use ............................................................................................................ 11
8 Landscape Character ................................................................................................. 13
   Sensitivities ........................................................................................................... 15
   Visibility from Viewpoints ...................................................................................... 15
9 Identification of Impacts (Findings) ......................................................................... 21
   Construction Phase ............................................................................................... 21
   Operational Phase ................................................................................................. 22
   De-Commissioning Phase ..................................................................................... 22
   Cumulative Impacts .............................................................................................. 23
   Assessment of the Significance of the Visual Impacts ........................................ 24
10 Mitigation and Management Measures ................................................................... 27
   Construction Phase ............................................................................................... 27
   Operational Phase ............................................................................................... 27
      Light Pollution ................................................................................................. 27
      Roads and / or road widening ........................................................................... 27
   Decommissioning Phase ..................................................................................... 27
   Cumulative Effects .............................................................................................. 27
11 Conclusion .................................................................................................................. 28
Appendix A: Photographs of site ................................................................................. 29
Appendix B: Visible area from eastern ridge ............................................................... 30
### List of Abbreviations and Acronyms

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>MoI</td>
<td>Ministry of Industry</td>
</tr>
<tr>
<td>IAIP</td>
<td>Integrated Agro-Industrial Park</td>
</tr>
<tr>
<td>MEFCC</td>
<td>Ministry of Environment, Forestry and Climate Change</td>
</tr>
<tr>
<td>ECO</td>
<td>Environmental Control Officer</td>
</tr>
<tr>
<td>ESIA</td>
<td>Environmental and Social Impact Assessment</td>
</tr>
<tr>
<td>ESMP</td>
<td>Environmental and Social Management Plan</td>
</tr>
<tr>
<td>GPS</td>
<td>Global Positioning System</td>
</tr>
<tr>
<td>IPDC</td>
<td>Industrial Park Development Corporation</td>
</tr>
<tr>
<td>ha</td>
<td>hectares</td>
</tr>
<tr>
<td>I&amp;APs</td>
<td>Interested and Affected Parties</td>
</tr>
<tr>
<td>km</td>
<td>kilometres</td>
</tr>
<tr>
<td>m</td>
<td>meters</td>
</tr>
<tr>
<td>m$^3$</td>
<td>Cubic meter</td>
</tr>
<tr>
<td>Ma</td>
<td>Mega-annum</td>
</tr>
<tr>
<td>masl</td>
<td>Meters above sea level</td>
</tr>
<tr>
<td>mm</td>
<td>millimetres</td>
</tr>
<tr>
<td>RTC</td>
<td>Rural Transformation Centre</td>
</tr>
<tr>
<td>ToR</td>
<td>Terms of Reference</td>
</tr>
<tr>
<td>VAC</td>
<td>Visual Absorption Capacity</td>
</tr>
<tr>
<td>VIA</td>
<td>Visual Impact Assessment</td>
</tr>
<tr>
<td>ZVI</td>
<td>Zone of Visual Influence</td>
</tr>
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</table>
1 INTRODUCTION
The Federal Democratic Republic of Ethiopia (FDRE) is proposing to develop an Integrated Agro-Industrial Park (IAIP) with associated Rural Transformation Centres (RTC) within the Southern Nations, Nationalities and Peoples’ Region (SNNP). This Visual Impact Assessment (VIA) has been undertaken on the SNNP Yirga Alem IAIP site only. The Dilla RTC will constitute a small, approximately 9.88 hectares (ha), industrial site comprising warehouses and distribution areas. The RTC is being proposed to be developed on the southern edge of Dilla Town. The Scoping Phase of the Environmental and Social Impact Assessment (ESIA) determined that a VIA of the RTC was not required. Therefore this report represents an assessment of the Yirga Alem IAIP only.

2 PROJECT LOCATION
The proposed Yirga Alem IAIP is located approximately 5 km to the southwest of the town of Yirga Alem in the Eastern SNNP Region, and approximately 1.5 km from the federal highway no. 8 which runs through the town of Aposto (Figure 1). The site is situated approximately 318 km from the capital city, Addis Ababa. Awassa is located approximately 45kms north of the site and Dilla approximately 52 km to the south. The location of the site affords it the opportunity to utilise the developed social infrastructure in terms of banking, financial, recreational and logistics support in the area. The site is geographically located between 742986.866 N to 745714.474 N, and 427277.856 E to 428892.869 E (UTM Coordinates) in the Sidama Zone and falls under the jurisdiction of Yirga Alem town.

Figure 1: Yirga Alem IAIP, SNNP Region (Google Earth Image)
This VIA is one of many specialist studies that have been undertaken by specialists as part of the ESIA. This assessment report should be read in conjunction with the relevant ESIA Report and other specialist studies. This report has been preceded by a Visual Scoping Study that was undertaken in the first phase of the assessment.

3 SCOPE OF WORK
During the first phase of the assessment (Scoping Phase) the scope of work included:

1. Undertake field studies to establish a baseline description of the visual characteristics of the landscape. The site visits were conducted on the 15 March 2017 which is the dry season (Belg); and again on 16 August 2017 which is the rainy season (Kiremt);
2. Defining the visual resources and sense of place of the area;
3. Identifying and mapping existing sensitive receptors, buffers, important viewpoints and view corridors;
4. Identifying and screening potential visual concerns;
5. Ensuring that the visual assessment will be in compliance with relevant standards, policies, laws and regulations; and
6. Providing recommendations for the impact assessment phase.

During the second phase of the assessment (Assessment Phase) the scope of work included:

1. Refining the baseline description of the visual character of the site and zone of visual influence (ZVI);
2. Refining the list of identified visual impacts resulting from the proposed installations (with consideration of any public and/or relevant authorities’ concerns);
3. Evaluating the visual impacts based on standard VIA rating criteria, namely:
   - Quality of landscape – the aesthetic excellence and significance of the visual resources and scenery;
   - Visibility – visibility from selected viewpoints;
   - Viewer sensitivity – the level of viewer sensitivity as influenced by the type and number of visual receptors.
4. Assessing the significance of the visual impacts, rated according to the WSP Significance Rating Methodology; and
5. Developing mitigation measures to reduce visual impacts and enhance any positive visual benefits.

4 OBJECTIVES OF THE REPORT

The goal of the VIA is not to predict whether individual receptors will find the IAIP facility attractive or not. Instead, the goal is to identify important visual characteristics of the surrounding landscape, especially the features and characteristics that contribute to scenic quality, as the basis for determining how and to what degree the proposed project will affect those scenic values.

Thus the primary aim of the impact assessment phase is to ensure that visual impacts are adequately assessed and considered so that the Ministry of Environment, Forestry and Climate Change (MEFCC) can decide if the proposed IAIP has unreasonable or undue visual impacts. The secondary aim is to identify effective and practical mitigation measures, where possible.

5 LEGISLATIVE FRAMEWORK

There is little legislation relating directly to visual impact assessments. However there are guidelines that provide direction for visual assessment as well as a number of laws which aim to protect visual resources and others that apply to specialists in general. The African Development Bank (AfDB) do not provide guidelines for visual impact assessments. The IFC Performance Standard 3: Resource Efficiency and Pollution Prevention provides limited guidance on visual impact assessments but does define pollution to include the creation of potential for visual impacts including light.

6 STUDY APPROACH AND METHODOLOGY

The following methodology was applied:

1. All the required data were collected, which included data on topography, existing visual character and quality, plans of the proposed development and other background information;
2. Fieldwork (2 seasonal site visits) was conducted, in March and August 2017. The objectives of the fieldwork were to:
   - familiarise the author with the site and its surroundings;
   - to identify key viewpoints/ corridors and visual receptors;
• ground truth the sensitivity of the landscape; and
• determine the distance from which visual impacts are likely to become discernible.

3. **Landscape characterisation** was done by mapping the site location and context and describing the landscape character and sense of place. This considered geological and topographical features, vegetation and land-use.

4. The **landscape quality** was described using visual appeal criteria.

5. **Visual sampling** was undertaken using photography from a number of points within the site. The location of the viewpoints was recorded and mapped on Google Earth Pro and photographs were taken. A selection of these are used in the assessment phase of the VIA to illustrate the likely zone of influence and visibility.

6. The **sensitivity of the landscape** was analysed, taking the following factors into consideration:

   - Slope and elevation;
   - Proximity of visual receptors (farmsteads and towns);
   - Proximity of major roads and scenic routes;
   - Nature reserves and National Parks; and
   - Other relevant features and buffer guidelines.

7. Visual concerns and potential **impacts were identified**;

8. The potential magnitude of visual impacts were **evaluated using standard VIA criteria** and rating methodologies; and

9. Potential visual impacts for each project phase, as well as cumulative impacts, were **assessed** using a methodological framework developed by WSP to meet the combined requirements of international best practice and Ethiopian Legislation.

### 7 DESCRIPTION OF THE AFFECTED ENVIRONMENT

This chapter describes the basic elements that have created and shaped the visual character and quality of the area and establishes the visual context against which visual impacts can be assessed.

#### STUDY AREA IN GENERAL

**TOPOGRAPHY**

A detailed topography survey was carried out by MACE during September and October 2016. In general the topography of the site varies between +1768.193 m to +1727.793 m with undulations at some portions of the site, gently sloping from the centre of the site towards the North, Southwest and Southeast directions.

The proposed IAIP masterplan layout, showing the survey contour lines and predominant slope, within the site boundary is shown in **Figure 2**.
Figure 2: Topography survey drawing of the IAIP site indicating predominate slope (Source: MACE)
VEGETATION

The Yirga Alem and Aposto area in general, and the IAIP site in particular, are located within the Somalia-Masai Acacia-Commiphora deciduous bushland and thicket system (Figure 3).

Figure 3: Layout showing vegetation systems in the area of the IAIP site (Source: Kindt, et al., 2015 & van Breugel, et al., 2015)

The Yirga Alem IAIP site consists of large open grassland areas, utilised predominantly for grazing with isolated areas ploughed for crop production, as well as plantations of (non-indigenous) *Eucalyptus* and other crops interspaced with areas of mixed vegetation. Figure 4 provides photographs showing the typical land cover of the IAIP site.

The site is considered highly disturbed due to the agricultural activities taking place. There are no designated or registered landscapes within the project area.

March 2017 dry season - (Belg)    August 2017 - rainy season (Kiremt)

View of the site showing grassland and disturbed woodland.    View of the site showing grassland and disturbed woodland.
Previous assessments show that the land cover of most of the western part of Yirga Alem area falls into the moderately cultivated category (Figure 5). The site is surrounded by dense shrubland to the west and perennial crop cultivation to the east.

Figure 4: Photographs showing typical land cover of the project area in the dry and wet seasons
Figure 5: Land Cover of Yirga Alem and Dilla Areas (source: Habtamu & Rapprick, 2014)

LAND USE

At the SNNP Yiga Alem IAIP site, 63ha or 30% of the area is currently used for residential dwellings and associated subsistence agriculture, and 153ha or 70% of the site is grassland. This distribution of land uses can be seen in Figure 6.
No surface water resources are located within the IAIP site, however; the Gidabo River runs parallel to the site in a south-westerly direction, approximately 600m west of the IAIP boundary. A total of seven (7) wetland habitats were identified on the IAIP site, which comprise of artificial and natural depressions. Figure 7 shows the location of the identified wetlands as well as the Gidabo River in relation to the site.
Figure 7: Wetland Units within the IAIP site

Significant areas of erosion are evident directly adjacent to the site, predominantly along the western boundary, as well as less extensive areas within the site boundary. The IAIP site boundary has been broadly determined by the presence of steep eroded gulley's (see Figure 8).

Figure 8: Erosion observed along the eastern boundary of the IAIP site (Source: ESIA Team site investigations)

8 LANDSCAPE CHARACTER

Landscape character is the description of the pattern of the landscape, resulting from particular combinations of natural (physical and biological) and cultural (land use) factors, as discussed above. It focuses on the inherent nature of the land.

Consultation with the community throughout the ESIA stages has identified that in the context of the development level of Ethiopia, visual impacts arising from such mega projects are considered by the local community receptors to be positive in general. This is because the IAIP/RTC structures represents to the overall modernization and development of the towns.
The site is surrounded by very low density residential and farmland areas, with dwellings being dispersed amidst the mixed farmland, which include Eucalyptus plantations, and dense shrubland areas.

The landscape of the site can be described as relatively flat with some undulations sloping in an outward direction from the centre of the site (refer to Figure 2 for topography of the site). The area to the west of the site includes deep erosion gulleys directly adjacent to the site extending in a westerly direction. The general topography of the area west of the site continues to slope gently downhill into the valley in which the Gidabo River flows. The average width of the Gidabo River is approximately 10-15 m and the height of the banks reach approximately 100 m in height in areas. Due to the erosion gulleys development and farming activities are limited to the west of the site. Additionally, due to the slope, visibility of the site is limited from the west.

To the east of the site the landscape slopes gently eastward to a drainage line that runs in a north-south direction parallel to the site. The area then slopes upwards to a ridge line approximately 300m eastwards of the site. The ridgeline rises above the level of the site in certain places making the site visible from certain areas from the east. There are limited dwellings on the ridgeline and majority of the area consists of Eucalyptus plantations and dense shrubland, further limiting the visibility of the site.

To the north and south of the site the areas slope gently away from the site. The site is also bordered to the north, east and south by tree plantations and dense shrubland, shirting the site predominantly from the north and south due to the low topographic gradient in these areas. The central portions of the site include clusters of dense shrubland and tree plantations which further break the skyline and prevent visibility of sections of the site from the open grassland areas.

The current land-use in the area does not significantly alter the natural visual character and the study area is sparsely populated. The patterns created by the agricultural activities, with few dwellings or other man-made structures add to the sense of openness and rural character of the site.

Figure 9: Photographs depicting the landscape features in the study area

A low ridge line runs along the length of the eastern side of the IAIP site, peaking approximately 300m east of the site boundary, providing topographic interest. The colours of the land are soft greens, browns and lush greens in the wetland areas, in the wet season and soft browns and greens in the dry season, which contrast with the high blue skies. The site is surrounded to the north, east and south by tree plantations and dense shrubland, shirting the site from view predominantly from the north and south due to the low topographic gradient in these areas. The central portions of the site include clusters of dense shrubland and tree plantations which further break the skyline and prevent visibility of sections of the site from the open grassland areas.

The current land-use in the area does not significantly alter the natural visual character and the study area is sparsely populated. The patterns created by the agricultural activities, with few dwellings or other man-made structures add to the sense of openness and rural character of the site.
This character is likely to change with the expansion of the Aposto and Yirga Alem towns. The proposed low level warehouse structures and associated horizontal infrastructure will create a more modern character which may positively dominate the immediate visual landscape, adding to the level of development of the area.

SENSITIVITIES

Visual constraints or sensitive features have been mapped. These included:

- **Topographic Features**
  - Steep slopes (gradients steeper than 1:5) are visually sensitive as construction activities (building of roads, warehouse construction etc.) require cut and fill which can result in scars that are visually prominent on steep slopes.

- **Surrounding homesteads**
  - There are dispersed dwellings located around the site. These residential areas are of very low density within agricultural plots.

- **Towns/urban areas**
  - The closest town, Aposto is situated approximately 3km to the east of the site, separated from the site by a low ridge line. The site is not visible from the town.

- **Roads**
  - The site is situated approximately 1.5km west of the federal highway No. 8 which runs through the town of Aposto (note: the site is approximately 3km from the highway via the existing road network).
  - Smaller dirt access roads occur across the area. These roads all carry low traffic volumes.

VISIBILITY FROM VIEWPOINTS

The potential visibility of the proposed project was further gauged by photographs, taken from 9 viewpoints. Figure 10 provides a locality map of the site showing the location and direction of each of the 19 photographs from each of the 9 viewpoints. Of these 9 viewpoints, 8 provide visibility context and these are discussed in Table 1 below. All 19 photographs are presented in Appendix A with the 8 viewpoints that provide visibility context included in Plate 1 to 8 below.

<table>
<thead>
<tr>
<th>VIEWPOINT</th>
<th>LOCATION DESCRIPTION</th>
<th>DIRECTION</th>
<th>VISIBILITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>VP 2B</td>
<td>Taken from the central ridgeline of the northern area of the site.</td>
<td>E</td>
<td>A low ridgeline runs parallel to the eastern boundary of the site, peaking approximately 300m east of the site. Eucalyptus plantations and mixed farmland interspersed with very low density dwellings. The eastern portion of the site will be visible from this ridgeline.</td>
</tr>
<tr>
<td>VP 3A</td>
<td>Taken from the north-west portion of the site.</td>
<td>N</td>
<td>The northern boundary of the site is bordered by Eucalyptus plantations and dense shrubland, interspersed with very low density dwellings. There are no elevated areas north of the site in close enough proximity to have clear views of the site. The dense shrubland and plantations limit visibility of the site from dwellings located in close proximity to the site.</td>
</tr>
<tr>
<td>VP 4A</td>
<td>Taken from within the western boundary of the site.</td>
<td>E</td>
<td>The boundary of the site is bordered by Eucalyptus plantations and dense shrubland, interspersed with very low density dwellings. The site is visible from the elevated section of the ridgeline running parallel to the site. The only receptors to the west of the site are limited dwellings. The dwellings are predominantly located along the lower portions of the ridge and therefore visibility of the site is limited due to the high vegetation.</td>
</tr>
<tr>
<td>VP 5</td>
<td>Taken from the south-west portion of the site</td>
<td>S</td>
<td>The southern boundary of the site is bordered by <em>Eucalyptus</em> plantations and dense shrubland, interspersed with very low density dwellings. There are no elevated areas south of the site in close enough proximity to have clear views of the site. The dense shrubland and plantations limit visibility of the site from dwellings located in close proximity to the site. The south eastern portion of the site is crossed by a high tension transmission line which dominates the skyline.</td>
</tr>
<tr>
<td>VP 6A</td>
<td>Taken from the south-east corner of the site</td>
<td>W</td>
<td>The site is located within the Gidabo River Basin. The general topography slopes downhill from the site in a westerly direction. The areas west of the site are therefore at a lower elevation than the site. Thus there are no elevated areas west of the site in close enough proximity to have clear views of the site.</td>
</tr>
<tr>
<td>VP 6C</td>
<td>Taken from the south-east corner of the site</td>
<td>NE</td>
<td>A central ridgeline runs along the centre of the site in a north-south lineation. The site slopes from the ridgeline in a westerly direction. The south eastern portion of the site is crossed by a high tension transmission line which dominates the skyline.</td>
</tr>
<tr>
<td>VP 7A</td>
<td>Taken from the lower eastern portion of the site looking south across the proposed IAIP site</td>
<td>S</td>
<td>The southern boundary of the site is bordered by <em>Eucalyptus</em> plantations and dense shrubland, interspersed with very low density dwellings. There are no elevated areas south of the site in close enough proximity to have clear views of the site. The dense shrubland and plantations limit visibility of the site from dwellings located in close proximity to the site.</td>
</tr>
<tr>
<td>VP 9B</td>
<td>Taken from within the western boundary of the site</td>
<td>W</td>
<td>The site is located within the Gidabo River Basin. The general topography slopes downhill from the site in a westerly direction. The areas west of the site are therefore at a lower elevation that the site. The ridgeline shown in the photos is located approximately 6.5km west of the site.</td>
</tr>
</tbody>
</table>
Figure 10: Location of contextual viewpoints
Plate 1: Viewpoint 2B (receptors along the ridgeline have clear views of the eastern portions of the site and northern section – refer to visibility layout provided in Appendix B)

Plate 2: Viewpoint 3A from the north-western corner of the site looking north (the site will be obscured by the tree line and will not be visible to dwellings located north of the site, no elevated areas north of the site in close enough proximity to have clear views of the site).
Plate 3: Viewpoint 4A taken from within the eastern portion of the site (receptors along the ridgeline have obscured views of the eastern portions of the site – refer to visibility layout provided in Appendix B)

Plate 4: Viewpoint 5 from south-eastern portion of the site (the site will be obscured by the tree line and will not be visible to dwellings located south of the site, no elevated areas south of the site in close enough proximity to have clear views of the site, high tension transmission line dominates the skyline)
Plate 5: Viewpoint 5A from the south-west corner of the site (general topography slopes downhill from the site in a westerly direction, no elevated areas west of the site in close enough proximity to have clear views of the site)

Plate 6: Viewpoint 6C the south-west corner of the site looking northwards across the site (site slopes from the ridgeline in a westerly direction. The south eastern portion of the site is crossed by a high tension transmission line which dominates the skyline)
Plate 7: Viewpoint 7A from within the site looking south across the site (the site will be obscured by the tree line and will not be visible, no elevated areas south of the site in close enough proximity to have clear views of the site)

Plate 8: Viewpoint 9B from within the site looking west (western portion of site may be visible to distant residential dwellers and farmers on ridge located approximately 6.5km west of the site, high tension line dominates the skyline)

9 IDENTIFICATION OF IMPACTS (FINDINGS)

During the Scoping Phase of the EIA, the following potential impacts were identified.

CONSTRUCTION PHASE

1. **Construction equipment and dust:** Construction activities will introduce new machinery and landforms into the landscape. Earthworks will mean that there will be mounds of soil stored around
the Project area. Construction vehicles, dust and equipment will have a visual impact on viewers and general visibility (clarity of the air) within close proximity to the site. The visual impacts during construction are over a limited time period and will be temporary.

2. **Clearing**: Areas of vegetation will be cleared, so there will be areas of exposed ground, increasing the visibility of contrasting soils, resulting in changes to the colour and texture of the site. Clearing vegetation will also result in increased windblown dust, reducing visibility of both day and night skies during high wind periods.

3. **Physical impact on landforms**: Earthworks may impact on the physical landscape form particularly of steeper slopes.

The visual effects of these changes will be confined to the adjacent areas and those on the higher reaches of the ridge to the east of the site, although the view will be obscured due to the nature of the sites topography (i.e. central ridgeline) and adjacent vegetation as the dwellings are predominantly located on the lower portions of the ridge.

The severity of the effect is assessed as **low negative** ([Table 2](#)), as these effects are largely confined to the construction period. Permanent effects on the landscape arising from development of the project are addressed under ‘operation’ below.

**OPERATIONAL PHASE**

1. **Intrusion on the sense of place and scenic landscape**: The rural character of the area is typical of the region. The area is characterised by undulating topography with dense shrubland and Eucalyptus plantations interspersed with farmland and low density dwellings. The presence of low lying sprawling industrial warehouses behind the compound wall structure will differ from the current visual landscape and will have an impact on the current nature of the landscape. However the impact is considered positive as the low level warehouse structures and associated horizontal infrastructure will create a more modern character which may positively dominate the immediate visual landscape and become a visual attractor for Aposto and Yirga Alem Town. Furthermore the site boundary has been located up to the existing deep erosion gulleys which are not inhabitable nor provide any land capacity and therefore present a visual buffer from any adjacent receptors. The visual impact of the park is seen as positive, representing progress and advancement in the agricultural sector through industrialisation as well as the growth and development of the towns.

2. **Lighting**: At night the landscape is observed differently as there is less visible context and lights are more likely to be seen in isolation. While white lights are contrasting to the night sky, they are in keeping with the colours typically observed in the night landscape. However, artificial light being used by the IAIP for night time security and safety to the occupants will result in light pollution in an area that currently has no artificial light. Light intrusion occurs when the light ‘spills’ beyond the boundary of the area being lit. ‘Light pollution’ or ‘obtrusive light’ can be a source of annoyance to people, harmful to wildlife, undermine enjoyment of the countryside or detract from enjoyment of the night sky. However, the IAIP is located to the west of an elevated ridge limiting its visibility to potential receptors. The largest impact is deemed to be on the residential areas immediately surrounding the site as well as those located on the ridge to the east of the site.

3. **Roads and / or road widening**: Access and on-site roads could also contribute to visual impacts during operations. In addition to vegetative clearing, roads may introduce long-term visual contrasts to the landscape colour and texture.

The visual effects of these changes will be confined to the adjacent areas and those on the higher reaches of the ridge to the east of the site, although the view will be obscured due to the nature of the sites topography (i.e. central ridgeline) and adjacent vegetation as the dwellings are predominantly located on the lower portions of the ridge.

The severity of the effects vary from moderate Negative to Moderate Positive ([Table 2](#)) as these effects are related to day-time and night-time.

**DE-COMMISSIONING PHASE**

1. **Construction equipment and dust**: In terms of visual impact the decommissioning process is anticipated to be broadly similar to that of the construction phase, effects on visual receptors and
landscape character during decommissioning are anticipated to be consistent with those assessed for the construction phase.

CUMULATIVE IMPACTS

Cumulative effects, relate to alterations to the perception of character arising from the visibility of the proposed development in conjunction with other developments within the study area. Such cumulative effects would be expected to arise during the latter stages of the construction phase and throughout the operational phase.

Limited information was made available regarding the proposed or future planned developments within the vicinity of the site. It is noted that the site boundary has been located up to the existing deep erosion gulleys on the western boundary which are not inhabitable nor provide any land capacity and therefore present a visual buffer from any adjacent receptors. The visual isolation of the site due to the gulleys, general topography and the pockets of dense vegetation and adjacent forested areas limits the chances of cumulative visual impacts.

No existing development is being undertaken within close vicinity of the site, however it is anticipated that additional developments will take place within the area to provide supporting services to the IAIP once operational. The proposed development will therefore ultimately have a cumulative positive impact for the area. During construction the impacts will be negative and will be related to dust and noise and will be temporary in nature. During the operational stage the IAIP and associated developments will have a positive impact in adding to the development of the area in terms of growth of the industrial nature of the area.
ASSESSMENT OF THE SIGNIFICANCE OF THE VISUAL IMPACTS

Based on the assessment in the section above, the visual impacts for each phase of the proposed project are assessed in the section below.

Table 2: Summary table of Visual Impact Significance Assessment

<table>
<thead>
<tr>
<th>Impact Number</th>
<th>Receptor</th>
<th>Description</th>
<th>Stage</th>
<th>Character</th>
<th>Ease of Mitigation</th>
<th>Pre-Mitigation</th>
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<td>Probability</td>
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**CONSTRUCTION**

Impact 1: Construction equipment and dust

Construction activities will introduce new machinery and landforms into the landscape. Earthworks will mean that there will be mounds of soil stored around the Project area. Construction vehicles, dust and equipment will have a visual impact on viewers and general visibility (clarity of the air) within close proximity to the site. The visual impacts during construction are over a limited time period and will be temporary.

Impact 2: Site clearing

Areas of vegetation will be cleared, so there will be areas of exposed ground, increasing the visibility of contrasting soils, resulting in changes to the colour and texture of the site. Clearing vegetation will also result in increased windblown dust, reducing visibility of both day and night skies.

Impact 3: Physical impact on landforms

Earthworks may impact on the physical landscape form particularly of steeper slopes.
<table>
<thead>
<tr>
<th>Impact Number</th>
<th>Receptor</th>
<th>Description</th>
<th>Stage</th>
<th>Character</th>
<th>Ease of Mitigation</th>
<th>Pre-Mitigation</th>
<th>Post-Mitigation</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
<td>Probability</td>
<td>Severity</td>
</tr>
<tr>
<td>Impact 1:</td>
<td></td>
<td></td>
<td>Operational</td>
<td>Positive</td>
<td>N/A</td>
<td>3</td>
<td>2</td>
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<td></td>
<td></td>
<td>The rural character of the area is typical of the region. The area is characterised by the undulating topography with dense shrubland and Eucalyptus plantations interspersed with farmland and low density dwellings. The western site boundary has been located up to the existing deep erosion gulleys which are not inhabitable nor provide any land capacity and therefore present a visual buffer from any adjacent receptors. The presence of low lying sprawling industrial warehouses behind the compound wall structure will differ from the current visual landscape and will have an impact on the current nature of the landscape. However the impact is considered positive as the low level warehouse structures and associated horizontal infrastructure will create a more modern character which may positively dominate the immediate visual landscape and become a visual attractor for Aposto and Yirga Alem Town. The visual impact of the park is seen as positive, representing progress and advancement in the agricultural sector through industrialisation as well as the growth and development of the towns.</td>
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<tr>
<td>Impact 2:</td>
<td></td>
<td></td>
<td>Operational</td>
<td>Negative</td>
<td>Low</td>
<td>3</td>
<td>2</td>
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<td>Artificial light being used by the IAIP for night time security and safety to the occupants will result in light pollution in an area that currently has no artificial light. ‘Light pollution’ or ‘obtrusive light’ can be a source of annoyance to people, harmful to wildlife, undermine enjoyment of the countryside or detract from enjoyment of the night sky. The largest impact is deemed to be on the residential areas immediately surrounding the site as well as those located on the ridge to the east of the site.</td>
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<td>Impact Number</td>
<td>Receptor</td>
<td>Description</td>
<td>Stage</td>
<td>Character</td>
<td>Ease of Mitigation</td>
<td>Pre-Mitigation</td>
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<td>Probability</td>
<td>Severity</td>
</tr>
<tr>
<td>Impact 3:</td>
<td>Roads and / or road widening</td>
<td>Access roads and on-site roads could also contribute to visual impacts during operations. In addition to vegetative clearing, roads may introduce long-term visual contrasts to the landscape colour and texture.</td>
<td>Operational</td>
<td>Negative</td>
<td>Low</td>
<td>3 1 3 N2</td>
<td>1 1 1 1 N1</td>
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<tr>
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<tr>
<td>Impact 1:</td>
<td>Construction equipment and dust</td>
<td>In terms of visual impact the decommissioning process is anticipated to be broadly similar to that of the construction phase, effects on visual receptors and landscape character during decommissioning are anticipated to be consistent with those assessed for the construction phase.</td>
<td>Decommissioning</td>
<td>Negative</td>
<td>Moderate</td>
<td>2 1 2 N2</td>
<td>1 1 1 1 N1</td>
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<td>CUMULATIVE</td>
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<tr>
<td>Impact 1:</td>
<td>Construction Noise and Air Quality Nuisance</td>
<td>There is no existing construction activities taking place in the area, should additional activities occur, the development will have a cumulative negative impact on the areas directly surrounding the site and to the east on the ridge. The impacts will be related to dust and noise and will be temporary in nature.</td>
<td>Construction</td>
<td>Negative</td>
<td>Moderate</td>
<td>3 1 3 N2</td>
<td>1 1 1 1 N1</td>
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<tr>
<td>Impact 2:</td>
<td>Operation - Visibility</td>
<td>During the operational stage additional developments will be in keeping with the industrial warehouses of the IAIP and will be marginally noticeable. The increased development will add to the overall development and modernisation of the area.</td>
<td>Operation</td>
<td>Positive</td>
<td>N/A</td>
<td>3 1 3 P2</td>
<td>3 1 3 P2</td>
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Significance: N3 - Moderate, N2 - Minor, N1 - Negligible
10 MITIGATION AND MANAGEMENT MEASURES

CONSTRUCTION PHASE

Impacts during construction comprise temporary changes to the landscape due to activities such as earthworks, storage of materials and use of machinery. These effects are temporary and assessed as minor to negligible. The effects are predominantly associated with dust impacts, these are addressed within the Air Quality Impact Assessment, as such no additional mitigation measures are proposed for the construction phase.

OPERATIONAL PHASE

LIGHT POLLUTION

The following mitigation measures can be implemented in order to minimise impacts from the lighting design of the facility:

- Light spills can be completely avoided by careful lamp design selection and positioning.
- Lighting near or above the horizontal should be avoided to reduce glare and sky glow (the brightening of the night sky).
- Good design, correct installation and ongoing maintenance are essential to the effectiveness of lighting schemes.
- Lighting schemes should be designed to ensure unnecessary or superfluous lighting is turned off when not needed. Apply ‘part-night lighting’ to reduce any potential adverse effects e.g. when a business is closed or, in outdoor areas, switching-off at quiet times between midnight and 5am or 6am.
- Impact on sensitive wildlife receptors throughout the year, or at particular times (e.g. on migration routes), may be mitigated by the design of the lighting or by turning it off or down at sensitive times.

ROADS AND / OR ROAD WIDENING

The following mitigation measures can be implemented in order to minimise impacts from permanent vegetation clearing and road construction:

- Establish vegetative screens /shelterbelts along highly visible roads.
- Natural vegetation must be re-established on disturbed areas after construction.
- Roads and drainage for runoff should be appropriately stabilised to avoid erosion and visual scars.

DECOMMISSIONING PHASE

A detailed rehabilitation plan must be prepared. Mitigation measures applicable to the construction phase are also applicable to decommissioning.

CUMULATIVE EFFECTS

The handling and transportation of materials which may generate dust must be avoided during high wind conditions.
11 CONCLUSION

The following findings and recommendations are pertinent:

- The proposed facility is situated in a rural area west of the town of Aposto. The area is of low visual value. The visual absorption capacity is relatively good primarily due to the undulating nature of the topography. Additionally the western boundary of the site is located up to the existing erosion gullies on the western boundary which are not inhabitable nor provide any land capacity and therefore present a visual buffer from any adjacent receptors. The visual isolation of the site due to the gulleys, general topography and the pockets of dense vegetation and adjacent forested areas limits the chances of visual impacts.

- Viewer numbers are higher to the east of the site due to the existing ridgeline, and lower to the north, south and west. Due to the nature of the viewer (local farmers) these inhabitants generally have a great affinity for the land and landscape. However since the farmer is the direct benefactor of the agricultural parks their sensitivity to the visual detractor will be less.

- Roads and associated infrastructure will result in a number of lesser visual impacts which can be mitigated.

- All of the negative impacts are minor before mitigation and with mitigation they are deemed negligible with the exception of the potential impact and community nuisance generated by light pollution. This impact is considered to be of moderate significance without mitigation which can be reduced to minor with mitigation.

- There are two positive impacts associated with the IAIP and that relates to sense of place, during operation as well as cumulatively. Overall the community consultation process undertaken as part of this ESIA has shown an overwhelming support of the project even by the project affected people. The community believe that a development of this scale and magnitude, offering large employment opportunities will uplift the whole community. The visual impact of the park is seen as positive, representing progress and advancement in the agricultural sector through industrialisation.

- The visual impacts can be completely reversed after decommissioning, if all the structures are removed and the land suitably rehabilitated and it is critical that decommissioning and rehabilitation are well controlled and enforced after the life of the facility.

- As with all natural resource evaluations, decisions regarding the project's appropriateness are complex, requiring the balancing of competing interests and values. The potential negative visual impacts can be mitigated to minor and below which is considered acceptable.
Appendix A: Photographs of site
## APPENDIX A

<table>
<thead>
<tr>
<th>#</th>
<th>VIEW POINTS</th>
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<td>1</td>
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<td>2A</td>
<td><img src="image2.jpg" alt="View Point 2A" /></td>
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<tr>
<td>3B</td>
<td><img src="image1" alt="Field Landscape" /></td>
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<tr>
<td>4A</td>
<td><img src="image2" alt="Tropical Forest" /></td>
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<td>6A</td>
<td>![View Point 6A Image]</td>
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<td>6B</td>
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<td><img src="image1.png" alt="Image" /></td>
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<tr>
<td>7A</td>
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<tr>
<td>7B</td>
<td><img src="image1.png" alt="Image of a green field with a small pond" /></td>
</tr>
<tr>
<td>8A</td>
<td><img src="image2.png" alt="Image of a dry landscape with a few trees" /></td>
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<td>VIEW POINTS</td>
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<td>8B</td>
<td><img src="image1.jpg" alt="Image 8B" /></td>
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<td>9C</td>
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Appendix B: Visible area from eastern ridge