

BASIC ASSESSMENT FOR THE PROPOSED PROVISION OF A THIRD TIPPLER AND ASSOCIATED INFRASTRUCTURE AT THE PORT OF SALDANHA

APPENDIX F: DETAILED IMPACT ASSESSMENT

An environmental impact assessment presents impacts of the proposed development and its alternatives on the environment. The impact assessment assumes that the proposed mitigation measures have been implemented and rates impacts to type, duration, likelihood of occurrence and significance.

1.1 Impact Rating Criteria

Identified impacts were rated using the following approach. Impacts were assigned a significance rating based on the rating of other criteria.

- Low – does not have an influence on the decision to proceed with the proposed project, provided that recommended mitigation measures are implemented;
- Medium – should influence the decision to proceed with the proposed project, provided that recommended mitigation measures are implemented; and
- High – would strongly influence the decision to proceed with the proposed project regardless of the implementation of recommended mitigation measures.

Table 1. Impact assessment criteria and rating scales

Criteria	Rating Scales	Description
Nature	Positive	This is an evaluation of the type of effect the construction, operation and management of the proposed development would have on the affected environment. Would it be positive, negative or neutral?
	Negative	
	Neutral	
Extent This refers to the spatial scale at which the impact will occur.	Low	Site-specific, affects only the development footprint
	Medium	Local (limited to the site and its immediate surroundings, including the surrounding towns and settlements within a 10 km radius);
	High	Regional (beyond a 10 km radius) to national
Duration This refers to the temporal scale at which the impact will occur.	Low	Short-term: 0-5 years, typically impacts that are quickly reversible within the construction phase of the project
	Medium	Medium-term, 6-10 years, reversible over time
	High	Long-term, 10-60 years, and continue for the operational life span of the development
Intensity This is a relative evaluation within the context of all the activities and the other impacts within the framework of the	Low	Where the impact affects the environment in such a way that natural, cultural and social functions and processes are minimally affected

Criteria	Rating Scales	Description
project. Does the activity destroy the impacted environment, alter its functioning, or render it slightly altered?	Medium	Where the affected environment is altered but natural, cultural and social functions and processes continue albeit in a modified way; and valued, important, sensitive or vulnerable systems or communities are negatively affected
	High	Where natural, cultural or social functions and processes are altered to the extent that the impact will temporarily or permanently cease; and valued, important, sensitive or vulnerable systems or communities are substantially affected.
Reversibility and irreplaceability This considers the ability of the impacted environment to return to its pre-impacted state once the cause of the impact has been removed. It is common cause that irreplaceable resources once destroyed cannot be recovered.	Low	Impacted natural, cultural or social functions and processes will return to their pre-impacted state within the short-term.
	Medium	Impacted natural, cultural or social functions and processes will return to their pre-impacted state within the medium to long term.
	High	Impacted natural, cultural or social functions and processes will never return to their pre-impacted state.
Probability The probability of the impact actually occurring, based on professional experience of the specialist with environments of a similar nature to the site and/or with similar projects. <u>Probability is defined as the probability of the impact occurring</u> , not as the probability of the activities that may result in the impact. The fact that an activity will occur does not necessarily imply that an impact will occur. For instance, the fact that a road will be built does not necessarily imply that it will impact on a wetland. If the road is properly routed to avoid the wetland, the impact may not occur at all, or the probability of the impact will be low, even though it is certain that the activity will occur.	Low	Improbable. It is highly unlikely or less than 50 % likely that an impact will occur.
	Medium	Distinct possibility. It is between 50 and 70 % certain that the impact will occur.
	High	Most likely. It is more than 75 % certain that the impact will occur or it is definite that the impact will occur.
Significance Impact significance is defined to be the <u>seriousness (consequence) of the impact, weighted by the probability of the impact actually occurring</u> . The following analogy provides an illustration: The consequence of an aircraft crashing is very high, but the risk is low enough that thousands of passengers happily accept this risk to travel by air on a daily basis. If the consequence and probability of an impact is high, then the impact will have a high significance. The significance defines the level to which the impact will influence the proposed development and/or environment. It determines whether mitigation measures need to be identified and implemented and whether the impact is important for decision-making.	Low	Low to very low: impacts will be localised and temporary. Impacts result in minor alterations to the environment and can easily be alleviated by the implementation of effective mitigation measures.
	Medium	Medium: impacts of moderate magnitude locally to regionally in the short term. The impact results in medium alterations to the environment and can be reduced or eliminated by the implementation of effective mitigation measures.
	High	High: impacts of high magnitude locally for longer than 6 years and/or regionally and beyond. The impact results in major alterations to the environment even if effective mitigation measures are implemented and will have an influence on decision-making.
Degree of confidence in predictions The degree of confidence in predictions based on available	Low	Low: The decision is affected by incomplete knowledge of the situation.

Criteria	Rating Scales	Description
information and specialist knowledge:	Medium	Medium: Most information for decision-making is known.
	High	High: The situation is well known leading to high confidence in the predictions made.

2 IDENTIFIED IMPACTS AND THEIR MITIGATION

Impacts identified by the EAP were evaluated and formally rated with input from specialist studies and the public participation process. Specific impacts are rated in the tables below, assuming effective mitigation is implemented. Mitigation measures to reduce negative impacts are also provided.

2.1 ALTERNATIVES 1 (PREFERRED), 2 AND 3

2.1.1 Planning and design phase

No undue negative environmental impacts are expected to arise during the planning and design phase of the project. This prediction is made with high confidence. Hence no rating table is provided.

2.1.2 Construction phase

Impacts associated with the construction phase will be short-term in nature and will be site specific. An exception may be the traffic impacts which could have a regional impact if commuters travelling between Saldanha and Langebaan need to use a detour during the alterations to the Camp Road bridge.

(a) Noise

Impact: Noise will result from the use of heavy machinery and vehicles by personnel on site during the construction phase.

Mitigation:

- Noisy demolition work, such as use of the wrecking ball or demolition hammer, is to be restricted to the hours 06:00 to 20:00 Monday to Saturday, unless work is necessary for the saving of life or property or for the safety of the work.
- No restriction on working hours is placed on other construction activities (e.g. concrete pouring) as the nearest occupied residences are more than 2 kilometres from site.
- All vehicles and machinery shall be fitted with appropriate silencing technology that shall be properly maintained.
- The use of all plant and machinery shall be appropriate to the task required in order to reduce noise levels and/or environmental damage.
- The Contractor shall comply with all relevant guidelines and regulations.

Alternative	Nature	Extent	Duration	Intensity	Reversibility Irreplaceability	Probability	Significance	Confidence
A1	Negative	Low	Low	Low	Low	High	Low	High
A2	Negative	Low	Low	Low	Low	High	Low	High
A3	Negative	Low	Low	Low	Low	High	Low	High

(b) Dust

Dust will result from clearing of vegetation, excavation of soil for the vault of the tippler and demolition activities. Use of untarred access roads will also result in dust. Dust may also accumulate on the wheels of vehicles and be transported to roads outside the port.

Mitigation:

- The Contractor shall be responsible for the control of dust arising from his operations and activities.
- Control measures shall include regular spraying of working/exposed areas and untarred roads with water at an application rate that will not result in soil erosion or runoff.
- Permanent access roads shall be treated with chemical stabilisers/ binders or paving.
- The excavation, handling and transport of erodible materials shall be avoided under high wind conditions.
- Soil stockpiles shall be wetted and/or sheltered from the wind with appropriate cover.
- Speed limits of 40 km/h shall be adhered to on untarred access roads to reduce fugitive dust generation.
- Drop heights of material when stockpiling should be minimised
- All vehicles leaving and accessing the site carrying friable material should be covered
- Under conditions of high dust generation construction vehicles must be washed before leaving site.

Alternative	Nature	Extent	Duration	Intensity	Reversibility Irreplaceability	Probability	Significance	Confidence
A1	Negative	Low	Low	Low	Low	Medium	Low	High
A2	Negative	Low	Low	Low	Low	Medium	Low	High
A3	Negative	Low	Low	Low	Low	Medium	Low	High

(c) Road traffic

Impact: The Camp Road bridge will need to be closed during the construction period if alternative 1 is used. Camp road links Saldanha to Langebaan and is used as a commuting route. Closing the road will cause traffic delays as commuters will have to use a longer detour. No detailed planning for alternative 2 and 3 has occurred with regard to the Camp Road bridge, it is therefore uncertain whether this impact will occur if either of these alternatives are implemented. The traffic impact is therefore rated neutral in the impact rating table below.

Mitigation:

- A traffic management plan shall be drawn up, this is the responsibility of the applicant.
- Publicise the period when the road will be closed and provide a detour for the public.
- All lane closures and erection of warning signs shall comply with the appropriate official municipal, provincial or SANRAL specifications governing road works.
- All traffic calming measures on the detour shall be constructed or erected according to the appropriate official municipal, provincial or SANRAL specifications governing road works.
- The traffic calming measures must meet the best practice geometric standard.

Alternative	Nature	Extent	Duration	Intensity	Reversibility Irreplaceability	Probability	Significance	Confidence
A1	Negative	Medium	Low	Low	Low	High	Low	High
A2	Neutral	NA	NA	NA	NA	NA	NA	Medium
A3	Neutral	NA	NA	NA	NA	NA	NA	Medium

(d) Interruption of rail operations

Impact: The tippler alternative 2 would require the crossing of existing rail lines leading to the port by the new approach and departure line for the tippler. There are far reaching safety implications caused by the rail crossing that would negatively impact on train and iron ore rake movements, conveyors to the port iron ore stock pile, as well as signalling. In contrast, no crossings of rail lines will be involved with alternatives 1 or 3 and rail operation would only be minimally disrupted when the connections are made between new and existing tracks.

Mitigation: The negative impacts are best avoided altogether by not pursuing the tippler 2 alternative.

Alternative	Nature	Extent	Duration	Intensity	Reversibility Irreplaceability	Probability	Significance	Confidence
A1	Negative	Low	Low	Low	Low	Low	Low	High
A2	Negative	Low	Medium	High	Medium	High	High	Medium
A3	Negative	Low	Low	Low	Low	Low	Low	Medium

(e) Interruption of steel processing operations

Impact: If alternative 1 is chosen, the demolishing of the Duferco Bridge and its replacement with a new structure may temporarily interfere with the transport of material between Saldanha Steel and Duferco Steel Processing. The Duferco bridge may not have to be replaced if alternatives 2 or 3 are implemented, although no detailed planning for this scenario has been performed by the engineers. Hence the impact is rated neutral and no further details are provided in the impact rating table below.

Mitigation:

- In mitigation the closure of the bridge must be coordinated by Transnet with both companies so that the flow of material can be managed.
- The new bridge should be completed before the old bridge is demolished.

Alternative	Nature	Extent	Duration	Intensity	Reversibility Irreplaceability	Probability	Significance	Confidence
A1	Negative	Medium	Low	Low	Low	High	Low	High
A2	Neutral	NA	NA	NA	NA	NA	NA	Medium
A3	Neutral	NA	NA	NA	NA	NA	NA	Medium

(f) Damage to or loss of biodiversity resources and sensitive vegetation

Impact: All three new tippler location alternatives will be located in an area of Saldanha Flats Strandveld. This vegetation type is poorly protected and classified as endangered. Additionally the tippler alternative 2 will also be located inside a Critical Biodiversity Area (CBA).

The 11 kV powerline relocation will occur in Saldanha Limestone Strandveld also classified as endangered, this vegetation has no formal protection. Construction activities may result in the damage to or destruction of endangered vegetation types.

CBAAs are required to attain biodiversity conservation targets. In systematic conservation planning they are accorded this status because they contain representative samples of biodiversity and threatened species (flora and fauna) where they can persist over the long term. They also contain abiotic features and processes indispensable for biodiversity conservation, such as providing a system of natural pathways (corridors) facilitating the movement of fauna and flora.

The footprint of the proposed tippler building, conveyors and associated rail lines road works are predicted to have a negative impact on biodiversity resources at each of the three alternatives. However, the intensity will be different for each option. The intensity will be lowest for the preferred option, especially if effective mitigation measures as described in the accompanying EMPr are implemented. A high ecological impact will occur for alternative 2 as it is located inside a CBA. Alternative 3 will pose a medium negative impact on the ecology as it would intrude on the edge of a vegetated dune belt that extends eastwards along the shore in the direction of Langebaan.

The movement of biota across the rail corridor is already influenced by the rail traffic. The presence of another tippler and additional railway lines will not change the intensity of this impact. The present impact is rated of medium-low negative status and no change to the impact is expected addition of another tippler and new rail lines.

Mitigation:

- Construction activities should be limited to the confines of the rail reserve, as much as is technically feasible.
- Clearing of vegetation should be kept to a minimum and must be introduced in a phased manner, where rehabilitation is immediately undertaken as soon as a section of construction is finished.
- The revegetation and habitat rehabilitation plan contained the EMPr must be adhered to
- No animals shall be harmed.
- Alien plants must be controlled.
- Fire control shall be implemented.
- Pollution of the surrounding veld by concrete residue, leftover tarmac, oils and other construction related chemicals must be prevented through a set of comprehensive material safety measures.
- Due diligence procedures must be adhered to at all times.
- An open space management plan is to be drawn up which also addresses plant rescue and protection of species of conservation concern.
- The preferred alternative (alternative 1) has the least impact on biodiversity resources and endangered vegetation; it is therefore recommended that this alternative is implemented.

Alternative	Nature	Extent	Duration	Intensity	Reversibility Irreplaceability	Probability	Significance	Confidence
A1	Negative	Low	High	Low	High	Low	Low	High
A2	Negative	High	High	High	High	High	High	High
A3	Negative	Low	High	Medium	High	Medium	Medium	High

(g) Landform

Impact: Alternative 3 will require excavation into the edge of a 20 m high vegetated dune, which forms part of a dune belt that extends eastwards along the shore in the direction of Langebaan. Not only would this require extensive earthworks but the presently stable dune could also become mobile threatening infrastructure by sand

being blown in by the wind. This impact will not occur if alternative 1 or 2 is chosen. Hence the impact is rated neutral and no further details are provided in the impact rating table below.

Mitigation: This impact is best avoided by not pursuing alternative 3.

Alternative	Nature	Extent	Duration	Intensity	Reversibility Irreplaceability	Probability	Significance	Confidence
A1	Neutral	NA	NA	NA	NA	NA	NA	High
A2	Neutral	NA	NA	NA	NA	NA	NA	High
A3	Negative	Low	High	High	High	High	High	High

2.1.3 Operational Phase

(a) Noise

Impact: Noise will be experienced during the operation of tippers. Noise will also be generated from the movement and stopping of trains on tracks leading to the tippler. Noise impacts will be long term and will persist as long as the tippler is in operation. The noise impacts will be local in extent.

Mitigation:

- The tippler is to be housed inside a tippler building.
- The tippler shall be serviced regularly and the building shall be well maintained
- All personnel shall wear hearing protection.
- There is no effective mitigation for train noise.

Alternative	Nature	Extent	Duration	Intensity	Reversibility Irreplaceability	Probability	Significance	Confidence
A1	Negative	Medium	High	Low	Low	Low	Low	High
A2	Negative	Medium	High	Low	Low	Low	Low	High
A3	Negative	Medium	High	Low	Low	Low	Low	High

(b) Dust

Impact: Iron ore dust is produced when loaded iron ore wagons are emptied at the tippers. At the existing tippers some of this dust has become fugitive and has contributed to the discolouration of the buildings, roads and the veld. Ore dust also adheres to the wheels of vehicles and is transported to roads outside the port. Conveyor belts are a source of ore dust, especially at transfer points. Dust impacts will be long term and will persist as long as the tippler is in operation.

Mitigation:

- Dust emissions at the tippler are largely controlled by the dust extractor equipment.
- Ensure the dust extractor equipment is well maintained, monitor dust emission from tippler regularly, immediately stop operations if the extraction system is faulty or out of operation for maintenance.
- Routine dust monitoring shall be conducted in the area surrounding the tippler.
- Dust emission from conveyor belts can be mitigated through fully enclosing conveyors, especially at transfer points.
- Dust suppression through spraying of water at transfer points can also be used to mitigate dust emissions.

The key premise of this Basic Assessment for environmental authorisation for a third tippler is that no net expansion of the iron ore export takes place. Should Transnet desire to operate three tippers simultaneously, the cumulative impacts of this action

would have to be assessed in a new investigation and the air quality licensing requirements would have to be revisited.

Alternative	Nature	Extent	Duration	Intensity	Reversibility Irreplaceability	Probability	Significance	Confidence
A1	Negative	Medium	High	Low	Low	Medium	Low	High
A2	Negative	Medium	High	Low	Low	Medium	Low	High
A3	Negative	Medium	High	Low	Low	Medium	Low	High

(c) Loss of biodiversity resources and endangered vegetation

Impacts: If alternative 2 is implemented there will be a permanent loss of a part of a CBA. This is a significant impact. If alternative 1 or 3 is implemented the permanent loss of Saldanha Flats Strandveld will occur on the construction footprint.

Mitigation:

- The permanent loss of a part of the CBA is best avoided by not pursuing alternative 2.
- The impact caused by alternatives 1 and 3 can be mitigated to a medium significance rating if the remaining intact vegetation type is conserved and its vitality is enhanced through appropriate protection measures, not all of which will be under Transnet's control.
- As a minimum, no further loss of Saldanha Flats Strandveld should be permitted by future port expansion activities
- Use of the presently available space shall be thoroughly optimised through the implementation of an open space management plan.

Alternative	Nature	Extent	Duration	Intensity	Reversibility Irreplaceability	Probability	Significance	Confidence
A1	Negative	Low	High	Low	High	Low	Medium	High
A2	Negative	High	High	High	High	High	High	High
A3	Negative	Low	High	Medium	High	Medium	Medium	High

(d) Economic

Impact: The installation of a third tippler will enable Transnet to continue to export iron ore at the current level without interruption. This benefit will accrue to all alternatives.

Mitigation: No mitigation is required for this positive impact.

Alternative	Nature	Extent	Duration	Intensity	Reversibility Irreplaceability	Probability	Significance	Confidence
A1	Positive	High	High	Medium	Low	High	High	High
A2	Positive	High	High	Medium	Low	High	High	High
A3	Positive	High	High	Medium	Low	High	High	High

(e) Other impacts

It is the considered opinion of the EAP that the other impacts identified during the construction phase are unlikely to persist into the operation phase, i.e. they are insignificant and no mitigation is required.

2.1.4 Decommissioning and closure phase

Tippler 3 is a necessary component of the operation of the Sishen - Saldanha Ore Line. This rail line will not be closed in the foreseeable future. Hence no impacts for this phase need to be rated and no rating table is provided.

2.2 NO-GO ALTERNATIVE (compulsory)

2.2.1 Planning and design phase

No undue negative environmental impacts are expected to arise during the planning and design phase of the do nothing option. This prediction is made with high confidence. Hence no rating table is provided.

2.2.2 Construction phase

If the no-go alternative is pursued no construction will take place. Hence no rating table is provided.

2.2.3 Operational phase

The no-go alternative in this case would mean the Port of Saldanha continues to operate using two iron ore tippers. The iron ore export capacity of South Africa would be capped at its present level or possibly reduced due to increasing maintenance requirement of the two existing tippers. There will be a loss in future iron or export earnings to South Africa.

If the proposed activity is not implemented, the existing tippers cannot be refurbished without interruption of the offloading activities. They would fail eventually due to old age. This would compromise the iron ore export capabilities of Transnet catastrophically.

In the no-go alternative the relocation of the Duferco bridge the relocation of the 11 kV powerline and the widening of the Camp Road bridge would not be required. The environmental impacts such as loss of vegetation would be avoided. Impacts on road and rail traffic would also not occur. The landform would remain intact.

	Nature	Extent	Duration	Intensity	Reversibility Irreplaceability	Probability	Significance	Confidence
Noise	Neutral	NA	NA	NA	NA	NA	No impact	High
Dust	Neutral	NA	NA	NA	NA	NA	No impact	High
Traffic	Neutral	NA	NA	NA	NA	NA	No impact	High
Landform	Neutral	NA	NA	NA	NA	NA	No impact	High
Vegetation	Neutral	NA	NA	NA	NA	NA	No impact	High
Biodiversity	Neutral	NA	NA	NA	NA	NA	No impact	High
Economic	Negative	High	High	Medium	Low	Medium	High	High

2.2.4 Decommissioning and closure phase

This part is not applicable to the no-go alternative, hence no rating table is provided.