

Technical / Management Options:

The General Manager or his appointed representative will ensure that the rehabilitation plan is followed, and that rehabilitated areas conform to the rehabilitation design.

Action	Time Schedule
1. Improve surface water runoff to as close to pre-mining conditions as possible.	
Rehabilitate the surface land use areas during the Decommissioning Phase to re-establish pre-mining surface drainage patterns (volumes and water quality) as far as practical (excluding the pre-mining internal drainage in the pan area that is located within the North Block area).	As per rehabilitation plan during the Operational and Decommissioning Phases.
Rehabilitation of the final void(s) will be undertaken in such a manner as to ensure slopes that promote free-draining surfaces.	Throughout Decommissioning Phase.
Monitoring of the mining surface area for subsidence or differential settlement will continue.	Throughout the Operational and Decommissioning Phases.
Surface subsidence and differential settlement of rehabilitated opencast pits will be repaired by backfilling and sloping operations. Excessive damming of water on the surface will be limited.	Throughout the Operational and Decommissioning Phases.
2. Ensure that rehabilitation is undertaken timeously to avoid potential pollution of surface water runoff due to exposed surface areas.	
Implement all rehabilitation activities during the Decommissioning Phase in such a manner as to ensure no further contribution to surface water pollution risks, due to the proposed rehabilitation activities itself, thus taking into consideration that during the decommissioning activities, disturbed surface land use areas will again be exposed, as was the case during the Construction Phase.	As soon as possible according to the rehabilitation plan during the Operational and Decommissioning Phases.
3. Ensure that erosion of rehabilitated areas is minimised.	
Implementation of erosion protection measures will be undertaken, if and when required.	Throughout the Operational and Decommissioning Phases.
Repair of damages due to erosion and scouring of rehabilitated areas will be performed following storm events.	Following storm events during Decommissioning Phase.
Contour (agriculture) berms will be implemented to control erosion of the rehabilitated surfaces.	Throughout the Operational and Decommissioning Phases.
The upslope diversion berm will only be removed once the down slope rehabilitation has established.	Throughout the Operational and Decommissioning Phases.
4. Ensure that a final long-term water management strategy is developed and implemented.	
As part of the long-term water management strategy development it still needs to be verified if final voids will be required for decant management purposes at Navigation West Section. Thus the final surface water management measures	Commencing during Operational Phase, but final implementation will be undertaken during

Action	Time Schedule
required to minimise and mitigate the possible impact on catchment yield will still be finalised.	Decommissioning Phase.
5. Ensure that utilisation and management of the water balance continues.	
The water balance will continue to be updated with data from water monitoring, and will continue to be utilised and managed.	During the Decommissioning Phase.

2.4.8.2 Water Quality

Objective	: To minimise the impacts on surface water quality.
Specific Goals	: Ensure that runoff water from rehabilitated areas does not impact on surface water quality. Ensure that compliance with legislative requirements is achieved. Ensure that surface decant is managed appropriately.

Technical / Management Options:

The General Manager or his appointed representative will ensure that rehabilitation of disturbed surface land use areas is conducted as specified, that the surface water-monitoring program is carried out, and that all rehabilitation activities are undertaken in compliance with legislative requirements.

Action	Time Schedule
1. Ensure that runoff water from rehabilitated areas does not impact on surface water quality.	
Implement rehabilitation measures to achieve the agreed end land use and land capability objectives, thereby improving the quality of surface water runoff from the rehabilitated areas.	Throughout the Operational and Decommissioning Phases.
All exposed soils will be seeded with the seed mix recommended in this document. This will reduce silt loads in surface water runoff. Note that seeding of the rehabilitated opencast workings will be ongoing during the Operational Phase, thus silt loads in surface water runoff will not be significant.	At all times during Decommissioning Phase.
Rehabilitation of the Pollution Control Pond and the Evaporation Pond will commence once the dirty water management areas have been rehabilitated and the need for retention of contaminated water no longer exists. This will contribute to the limitation of infiltration of affected water to the groundwater.	During the Decommissioning Phase.
The surface water quality monitoring program (described in detail in the report titled, "A Division of Anglo Operations Ltd. Landau Colliery. Navigation West Block Opencast. Inputs to the Environmental Impact Assessment and Environmental Management Programme for the Landau Colliery EMPR. Navigation West	On a monthly basis, throughout Decommissioning Phase, until Closure has been obtained.

Action	Time Schedule
Opencast (North Block). Surface Water". Report No: IPC/NAVWEST/P1/2006/01, dated February 2007, compiled by Inprocon Consultants cc., will continue.	
2. Ensure that compliance with legislative requirements is achieved.	
Implement rehabilitation measures in such a manner as to ensure compliance with the requirements of the relevant legislation, as well as with the surface water management designs (contained in the Environmental Impact Assessment report).	Throughout the Operational and Decommissioning Phases.
3. Ensure that surface decant is managed appropriately.	
Ensure that the decant management plan, which will have been developed during the Operational Phase, is implemented efficiently, and the effectiveness of the management measures audited.	During the Decommissioning Phase. Auditing of effectiveness of decant management plan will be undertaken on a quarterly basis.

2.4.9 Groundwater

Objective	: To minimise impacts on groundwater during Decommissioning Phase
Specific Goals	: Ensure that the requirements of all legitimate groundwater users downslope of the proposed mine are met. Prevent excessive leachate formation through the rehabilitated backfill area acting as a contamination source. Prevent or minimise seepage to groundwater that may increase groundwater contamination. Backfill open pits as part of the rehabilitation strategy so that positive runoff geometry can be obtained in order to prevent or minimise seepage formation. Implement the long-term groundwater management and mitigation measures based on the final outcome of the long-term groundwater management strategy (including decant management).

Technical / Management Options:

The General Manager or his appointed representative will ensure that the groundwater monitoring program is carried out timeously, and that the monitoring reports maintained at the mine office, are up to date. The General Manager or his appointed representative will ensure that a long-term groundwater management strategy is developed for Navigation West Section, and that the final rehabilitation and Closure plans are adjusted and implemented accordingly.

Action	Time Schedule
1. To ensure that the requirements of all legitimate groundwater users downslope of the proposed mine are met.	
Groundwater levels at all groundwater monitoring boreholes will be monitored to determine water levels. Adjacent landowners relevant to Navigation West Section, which show decreased yields (proven by a suitably qualified person to have been caused by this mining venture), will be compensated with an alternative supply of water.	On a quarterly basis during Decommissioning Phase.
The groundwater quality monitoring program will continue through the Decommissioning Phase. Groundwater quality reports will be compiled and maintained at the General Manager's office. The annual groundwater quality report will be made available to all Interested and Affected Parties on request, and submitted to the relevant Government Departments.	Monitoring will continue to be undertaken on a quarterly basis during Decommissioning Phase. Reports of groundwater monitoring will be submitted to the relevant Departments on an annual basis.
Additional monitoring boreholes will be drilled into the rehabilitated workings to monitor the groundwater rise and quality. The position of these monitoring boreholes will be determined.	Within one month of filling of the final void(s).
2. Prevent excessive leachate formation through the rehabilitated backfill area acting as a contamination source.	
Rehabilitation of the Pollution Control Pond and the Evaporation Pond will commence once the dirty water management areas have been rehabilitated and the need for retention of contaminated water no longer exists. This will contribute to the limitation of infiltration of affected water.	During the Decommissioning Phase.
The berms to divert clean water around dirty water management areas will be removed once the dirty water management areas have been sufficiently rehabilitated and re-vegetated.	During the Decommissioning Phase.
Excessive ponding on rehabilitated surfaces will be prevented.	Throughout the Operational and Decommissioning Phases.
3. To ensure that a long-term groundwater management strategy is developed and implemented.	
The migration of the groundwater plume will be verified through monitoring and modelling and suitable mitigation measures implemented, should it prove to be necessary, before Closure is applied for.	Throughout the Operational and Decommissioning Phases.
Monitoring of the in-pit water table will be undertaken until it can be confirmed if and when decant will occur and the possible extent thereof.	During Decommissioning Phase.

Action	Time Schedule
Through the proposed monitoring and calibration of the groundwater model during the Operational Phase (specifically regarding the potential decant and pollution plume movement) the Closure groundwater management strategy will be assessed.	Throughout the Operational and Decommissioning Phases.
The Closure groundwater management strategy will, amongst other, determine whether the rehabilitation of the open pit must cater for an in-pit evaporation facility, if a seepage capture system with an evaporation facility must be constructed outside of the rehabilitated opencast area or if treatment of the decant water will be necessary. The long-term groundwater management measures decided upon will be implemented prior to final rehabilitation of the Navigation West Section land use areas.	Planning will commence during Operational Phase, and implementation of the Closure Plan will take place during Decommissioning Phase.
Should monitoring results confirm the expected decant, the volume will be quantified through calibration of the groundwater model. Management / containment measures that will be implemented will aim at creating a situation where the impact from decant will not be measurable in the Grootspuit tributary.	Planning and design of decant management measures will take place during Operational Phase and will be implemented during Decommissioning Phase.
Some of the existing information and supporting reports used in the compilation of the Navigation West Section EIA document refer to the presence of an old adit in the Navigation West Section mine boundary area. Should its presence have been confirmed during the Construction Phase, the final closure of this adit will form part of the final rehabilitation strategy for the whole of the Navigation West Section.	Throughout the Operational and Decommissioning Phases.
Measures will be investigated during the Decommissioning Phase to ensure that a strategy is put in place that can be integrated with the overall Closure water management strategy of Anglo Operations Ltd. South African Coal Estates Operations in the nearby Landau (including Navigation), Kleinkopje and Greenside Collieries areas. The intention thereof will be to include the possible post-closure surface water-related impacts, which will be taken into consideration together with the long-term groundwater related impacts.	Throughout the Operational and Decommissioning Phases.

2.4.10 Air Quality

Objective	:	To minimise the impacts of the Decommissioning Phase activities on local air quality.
Specific Goals	:	Ensure that impacts from dust and diesel fumes generated by machinery on local air quality is minimised. Ensure that impacts from dust generated by blowing wind on local air quality is minimised.

Technical / Management Options:

The General Manager or his appointed representative will ensure that all machinery is in good running order, and that the re-vegetation programme is up to date.

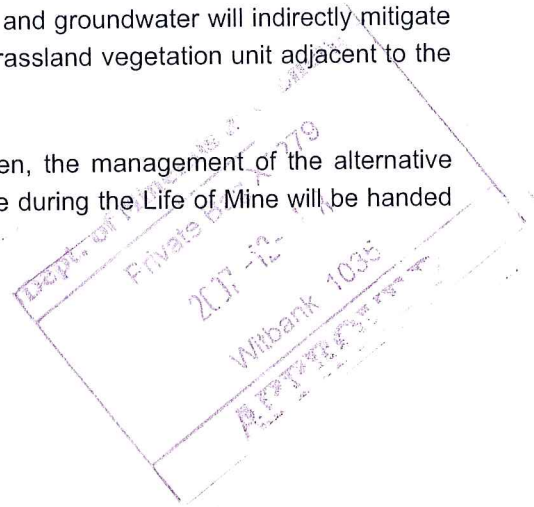
Action	Time Schedule
1. Ensure that impacts from dust and diesel fumes generated by machinery on local air quality is minimised.	
All machinery utilised on site will be in good repair, and well maintained.	Throughout Decommissioning Phase of mine.
All machinery will be fitted with the correct exhaust systems, which will be maintained and in good repair.	Throughout Decommissioning Phase of mine.
2. Ensure that impacts from dust generated by blowing wind on local air quality is minimised.	
Dust suppression will be undertaken during the Decommissioning Phase on haul roads and stockpiling areas where movement of machinery may generate dust, until the water management infrastructure is removed and the surface land use areas are rehabilitated.	Twice daily.
The rehabilitated workings will be seeded with the recommended seed mix. This will reduce dust generation.	At the beginning of each rainy season during the operational and Decommissioning Phases.

2.4.11 Sensitive Landscapes

No further impacts on sensitive landscapes are predicted to occur during the Decommissioning Phase.

Implementation of the mitigation measures for the management of Decommissioning Phase impacts on aspects such as soil, vegetation, animal life, surface water and groundwater will indirectly mitigate impacts on the remaining sensitive landscapes (e.g. Rocky Grassland vegetation unit adjacent to the Navigation West Section mining area, etc.).

Although no additional mitigation measures will be undertaken, the management of the alternative sensitive landscape that will have been conserved by the mine during the Life of Mine will be handed over to a capable and competent third party.



2.4.12 Noise and Vibration

Objective	:	To minimise the impacts of noise and vibrations on the health of people and the environment.
Specific Goals	:	Ensure that noise impacts on machine operators are minimised. Ensure that noise impacts on I&APs are minimised.

Technical / Management Options:

The Mine Safety officer will ensure that earplugs are issued and used. The General Manager or his appointed representative will ensure that noise impacts on the I&APs will be minimised during the Decommissioning Phase.

Action	Time Schedule
1. Ensure that noise impacts on machine operators are minimised.	
All machine operators will be issued with earplugs, and instructed on how to use them.	Whenever the operators are exposed to high noise levels during Decommissioning Phase of mine.
2. Ensure that noise impacts on I&APs are minimised.	
Rehabilitation activities requiring noisy machinery or that may generate significant noise (e.g. removal of redundant buildings) will be undertaken during the daytime, and will be limited on weekends.	During Decommissioning Phase.

2.4.13 Visual Aspects

No significant impacts are predicted to occur during the Decommissioning Phase.

The mitigation of impacts on other environmental aspects such as topography, soil, vegetation, surface water and air quality will ensure that the visual impacts of the Decommissioning Phase activities will be suitably mitigated. No additional mitigation measures will be necessary.

2.4.14 Socio-Economic Impacts

Objective	:	To minimise the impacts of Closure of the mine on the socio-economic environment.
Specific Goals	:	Reduce impact of Closure on mine employees.

Technical / Management Options:

The General Manager or his appointed representative will ensure that the Social and Labour Plan for Navigation West Section is implemented.

Action	Time Schedule
1. Reduce impact of Closure on mine employees.	
The Social and Labour Plan for Landau Colliery will continue to be implemented.	During Decommissioning Phase.
Employees will be skilled and career progressed through the human resources development programme, which will enable them to acquire skills that will help them re-enter the work place after closure of the mine.	During Operational Phase, continuing through Decommissioning Phase.
Anglo Operations Limited will, through the Social and Labour Plan (Processes pertaining to management of downscaling and retrenchments) and the relevant legislation, re-skill all employees to be retrenched. This will ensure that the employees affected by the closure of this mining operation can re-enter the workplace. Note, however, that the mine and the mining contractor may still use the employees in other mining projects, hence retrenchments may not occur.	During Decommissioning Phase.

2.4.15 Interested and Affected Parties

Objective	: To minimise the impacts on all Interested and Affected Parties
Specific Goals	: Maintain cordial relationships with all identified Interested and Affected Parties. Implement mitigation measures for the management of other environmental aspects.

Technical / Management Options:

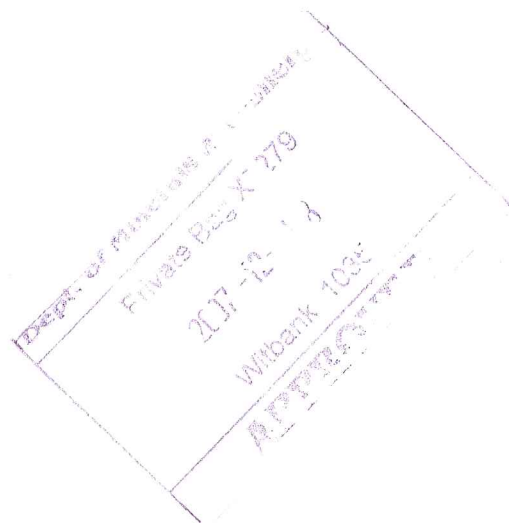
The General Manager or his appointed representative will maintain copies of the latest reports at his office, and will make these available to all Interested and Affected Parties upon request.

Action	Time Schedule
1. Maintain cordial relationships with all identified Interested and Affected Parties.	
Mine management will continue to maintain an open-door policy. The General Manager will maintain cordial relationships with all Interested and Affected Parties. Minutes of all meetings will be kept, and made available on request.	During Decommissioning Phase.

Action	Time Schedule
The Interested and Affected Parties Forum will continue through the Decommissioning Phase. Minutes of all meetings will be taken. These Minutes will include a record of all parties in attendance.	Forum will convene every six months during Decommissioning Phase.
2. Implement mitigation measures for the management of other environmental aspects.	
Implement mitigation measures for the management of other environmental aspects such as topography, soil, vegetation, surface water, air quality and noise.	During Decommissioning Phase.

2.4.16 Sites of Archaeological or Cultural Interest

No significant impacts are predicted to occur during the Decommissioning Phase. No mitigation measures will be necessary.



2.5 MINE CLOSURE

Objective	: To minimise all impacts of mining on the environment after Closure.
Specific Goals	: Ensure that surface water exiting the property will not have a significant increase in water-borne pollutants measured against the incoming surface water. Maintain post-mining land use as grazing land. Ensure that the area is free of erosion and has a self-sustaining vegetation cover. Ensure that the groundwater within the surrounding areas is fit for use. Ensure that no excessive subsidence / sloping of rehabilitated opencast areas takes place.

2.5.1 Infrastructure Areas

All mining infrastructure will have been removed during the Decommissioning Phase. All foundations will have been ripped, and the rubble placed in the final cut prior to backfilling. All haul roads will have been ripped, at 90° to the inherent slope, covered with topsoil and seeded with the seed mix recommended in this document.

No mining infrastructure will remain on Portion 2 of the farm Elandsfontein 309 JS, depending on the agreed end land use (e.g. certain surface water management infrastructure may remain to contain the expected decant water).

2.5.2 Ongoing Seepage Control

Various alternative management strategies are available for Post-closure groundwater management (subject to the final long-term groundwater management strategy), such as:

- Rehabilitation of the open pit in such a manner as to cater for an in-pit evaporation facility to contain the decant for evaporation, treatment and or utilisation,
- Implementation of a seepage capture system with an evaporation facility that is to be constructed outside of the rehabilitated opencast mining area,
- Collection of the poor quality decant for treatment and possible utilisation, and / or
- Diversion and / or pumping of poor quality decant to nearby underground mining areas for storage.

Various possible long-term groundwater management strategies are available and may consist of any of the above-mentioned strategies, a combination thereof or any other strategies that become viable based on the more detailed assessment that is to be undertaken during the Operational Phase, once more groundwater data is available to verify the findings of the groundwater model predictions. The

long-term groundwater management measures decided upon will be implemented prior to final rehabilitation of the Navigation West Section land use area.

2.5.3 Long Term Stability

Rehabilitation will be ongoing during the Operational and Decommissioning Phases. The post-mining surface topography will be modelled using suitable software to ensure that the rehabilitation that takes place will achieve the end land use objectives and will be free-draining. Subsequent shaping of the backfilled pits will allow for the re-establishment of natural runoff patterns.

No surface subsidence is expected, and the area will be rehabilitated in such a manner as to be free-draining. In addition, no steep gradients will remain which would be prone to erosion. Refer to Section 2.4.2 for more detail as to the management measures that will be implemented during the Decommissioning Phase to enable the mine to obtain the closure objectives in future.

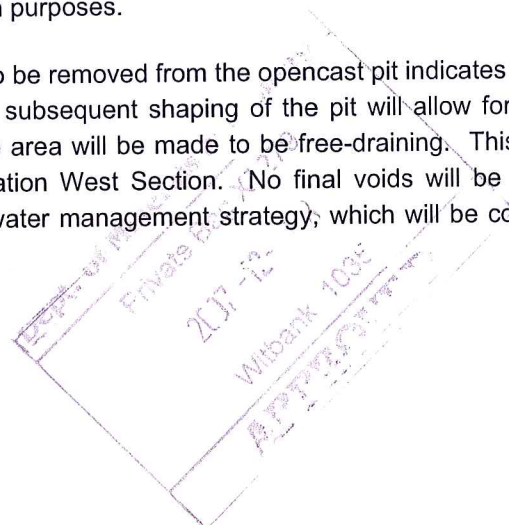
2.5.4 Final Rehabilitation (Erosion and Dust Control)

All rehabilitated areas will have been seeded with suitable species for rehabilitation purposes. No erosion is expected to occur following vegetation establishment, thus it is not anticipated that dust control will be necessary. However, the implementation of the measures listed in Section 2.4.10 will mitigate the impacts on the Decommissioning Phase impacts on air quality. Refer to Attachment 2 for the Material balance Report, following which a Rehabilitation Model will be prepared and submitted.

2.5.5 Final Rehabilitation (Roads and Final Voids)

Haul roads may remain in place after the Decommissioning Phase, depending on the end land use agreed upon. The roads will be graded during this phase, in order to remove any fine carbonaceous material build-up from the roads. These will then be ripped to 150mm, at 90° to the inherent slope, and seeded with suitable species for rehabilitation purposes.

Preliminary volumetric modelling of the material to be removed from the opencast pit indicates that the opencast pit will be rehabilitated to surface and subsequent shaping of the pit will allow for the re-establishment of natural runoff patterns, thus the area will be made to be free-draining. This will be verified during the Operational Phase of Navigation West Section. No final voids will be formed, unless this is required for the long-term groundwater management strategy, which will be confirmed during the Decommissioning Phase.



2.6 MONITORING ENVIRONMENTAL IMPACTS

During the impact assessment, potential impacts on the environment were identified. Mitigation measures were also recommended for the prevention and management of the anticipated impacts so as to minimise their potential effect on the environment. This section describes how the mine intends to ensure that the mitigation measures are being undertaken and that their effectiveness is proven.

The existing Landau Colliery monitoring programme will be extended to include the monitoring programme of Navigation West Section. This monitoring programme will be undertaken and results thereof used to determine the effectiveness of the Mitigation Measures. The General Manager will ensure that the all monitoring is conducted according to the approved Environmental Management Programme.

As part of the general terms and conditions for a mining right, in order to ensure compliance with the environmental management programme and to assess the continued appropriateness and adequacy of the environmental management programme, Anglo Operations Limited (Landau Colliery) will:

- Conduct monitoring on a continuous basis, at intervals as indicated in this Section of this EMP.
- Conduct internal performance assessments of the environmental management programme annually.
- Compile and submit an external performance assessment report to DME every two years in which compliance with the approved environmental management programme is demonstrated.

In line with Section 55 of the Mineral and Petroleum Resource Development Regulations R.527, dated April 2004, under the Mineral and Petroleum Resource Development Act, 2002 (Act 28 of 2002), the performance assessment report will as a minimum contain the following:

- Information regarding the period applicable to the performance assessment.
- The scope of the assessment.
- The procedure used for the assessment.
- The interpreted information gained from monitoring the approved environmental management programme.
- The evaluation criteria used during the assessment.
- The results of the assessment.
- Recommendations on how and when non-compliance and deficiencies will be rectified.

All information that must be submitted to the Regulatory Authorities (particularly the DME and, in some cases, the DWAF) has been summarised in Section 5 of this EMP.

2.6.1 Geology

The geological layers will be disturbed permanently and the coal seam will be removed. As a mitigatory measure all exposed coal will be removed and disturbed geological layers will be replaced in accordance with a rehabilitation programme for the Navigation West Section. Landau Colliery will develop a monitoring programme that will monitor the rehabilitation programme and in turn monitor the impacts and mitigatory measures on the geology. Aspects that will be included in the monitoring programme include:

- Whether rehabilitation is up to date.
- The successfulness of rehabilitation, in terms of soil, vegetation, ponding, etc.
- Compliance of rehabilitation with rehabilitation planning.

The environmental co-ordinator (Landau Colliery) will keep monthly records on the status of the rehabilitation.

2.6.2 Soil

The soil profile will be disturbed during the Construction and Operational Phases of the mining operation. As a mitigatory measure the stripping, stockpiling and replacement of the soil layers will be conducted as per the soil utilisation guide developed by the soil specialist. The General Manager or his appointed representative will ensure that rehabilitated areas are monitored for the type and depth of soil cover used, as well as ensuring that records of soil placement and package thickness are kept on a monthly basis during the Operational and Decommissioning Phases.

2.6.3 Topography

The topography of the Navigation West Section will be altered during the construction and Operational Phases of the mining operation. Mitigation of the impacts on topography will require that a mine surveyor regularly survey all voids and topographic highs since a rollover mining method will be used. The mine surveyor will also survey all rehabilitated voids and determine topographical heights within the rehabilitated areas. The regular surveying of the topography will be in essence the monitoring of the topography. The mine surveyor will therefore be responsible for the monitoring of impacts and mitigatory measures for topography at Navigation West Section. The environmental co-ordinator (Landau Colliery) will keep records / plans on the status of rehabilitated areas for auditing and environmental management purposes.

2.6.4 Natural Vegetation

A list of all vegetation species identified prior to mining is provided in the Navigation West Section Environmental Impact Assessment report that was compiled by Clean Stream Environmental

Services, and is titled "Anglo Operations Limited. Landau Colliery. Proposed Navigation West Section. Environmental Impact Assessment", with Reference Number AO/LND/NWS/02/2007, dated March 2007.

The mentioned vegetation species will be lost during the Construction and Operational Phases of the mining operation. In the process of rehabilitating the opencast pit, re-vegetation of the rehabilitated area will be carried out. Services of a suitably qualified person will be used to monitor the re-vegetation of the rehabilitated areas, as well as to determine the extent of invasion by declared weeds and alien plants. Records of the monitoring will be kept by the Landau Colliery environmental co-ordinator for future reference.

2.6.5 Land Capability

The ability of the soil to enable establishment and to maintain a vegetation cover over an area can be used to describe the land capability of an area. During the mining of the coal reserve the land capability of the pre-mining surface at Navigation West Section will be impacted. As a mitigation measure the mined out voids will be rehabilitated and made comparable to the pre-mining land capability as possible. For the monitoring of the impacts and mitigation on land capability at the Navigation West Section, the establishment and ability to maintain the established vegetation cover will be monitored.

2.6.6 Land Use

The present land use on Portion 2 of the farm Elandsfontein 309 JS is natural vegetation, grazing, maize cultivation as well as game farming. Mining of the coal reserve will impact on the pre-mining land uses. After mining the area will be rehabilitated to support an end land use of grazing. To ensure that the mitigation measures applied are acceptable, the percentage of rehabilitated areas that are available for the agreed end land use will be monitored. Rehabilitated areas will only be made available for the agreed end land use once the vegetation that has been established has been proven to be self-sustaining.

2.6.7 Surface Water

Surface water monitoring will be integrated into a total monitoring programme that will include all relevant disciplines (groundwater, air, soils, vegetation, topography, etc.) and will not be seen in isolation. The existing monitoring programme at Landau Colliery will be extended to also include the requirements for the proposed Navigation West Section, as described in the following part of this document.

