



**water & sanitation**

Department:  
Water and Sanitation  
REPUBLIC OF SOUTH AFRICA

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**LICENCE IN TERMS OF CHAPTER 4 OF THE  
NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998) (THE ACT)**

I, **Margaret-Ann Diedericks**, in my capacity as Director-General in the Department of Water & Sanitation acting under authority of the powers delegated to me by the Minister of Water and Sanitation hereby authorise the following water uses in respect of this licence.

SIGNED: .....

DATE: 19 November 2015

**LICENCENO:15/M30B/ACGI/3736**  
**FILE NO: 27/2/2/M230/12**

**1. Licensee:**

**Postal Address:**

**Transnet SOC Limited: Manganese Export**  
14 Harrowdene Office Park  
Western Service Road  
Woodmead  
Johannesburg  
2157

**2. Water Uses**

- 2.1 Section 21(c) of the Act: Impeding or diverting the flow of water in a watercourse; subject to the conditions set out in Appendices I and II.
- 2.2 Section 21(i) of the Act: Altering the bed, banks, course or characteristics of a watercourse; subject to the conditions set out in Appendices I and Appendix II.
- 2.3 Section 21 (g) of the Act: Disposing waste in a manner which may detrimentally impact on a water resource subject to the conditions set out in Appendices I and III.

**B 06335**

### 3. Properties in respect of which the licence is issued

**Table 1:** Properties on which water use will be exercised

Property Description	Title Deed Number	Registered Owner
Portion 0 of Property No. 342, Port Elizabeth RD	T587/9/876	Coega Development Cooperation (Pty) Ltd
Portion 0 of Property No. 643, Port Elizabeth RD	T8208/1927	Idzikowsky Erich Claus Dieter
Portion 0 of Property No. 329, Port Elizabeth RD	T37192/2013	Coega Development Cooperation (Pty) Ltd
Portion 0 of Property No. 291, Port Elizabeth RD	T82/3/885	Coega Development Cooperation (Pty) Ltd
Portion 0 of Property No. 329, Port Elizabeth RD	T37192//2013	Coega Development Cooperation (Pty) Ltd
Remainder of Tankatara Trust No.643, Port Elizabeth RD	T289/2010	Tankatara Property (Pty) Ltd

### 4. Licence and Review Period

- 4.1 This licence is valid for a period of forty (40) year(s) from the date of issuance; it may be reviewed at intervals of not more than five (5) years after issuance.

### 5. Definitions

“Any terms, words and expressions as defined in the National Water Act, 1998 (Act 36 of 1998) shall bear the same meaning when used in this licence”.

“Department” means the Department of Water and Sanitation

“The Provincial Head” means the Head of Provincial Operations: Eastern Cape, Department of Water and Sanitation, Private Bag X 7485, King William’s Town, 5600.

“Report” refers to the report entitled:

- I. DW781: Section 21 (c) & (i) Water Use Supplementary Information Questionnaire dated 01/2014 compiled by Scherman Colloty and Associates Environmental and Aquatic Management Consulting;
- II. Final Scoping and Environmental Impact Assessment Report Volume 1 & Volume 2, dated 09/2013 compiled by CSIR;
- III. Final Environmental Management Programme (EMP), dated 09/2013 compiled by CSIR;
- IV. Geotechnical Study, dated 04/2013 compiled by Moore Spence Jones (Pty) Ltd Consulting Geotechnical, Environmental and Civil Engineers;

- V. Integrated Water and Waste Management Plan (IWWMP) dated 09/2013 compiled by Scherman Colloty and Associates Environmental and Aquatic Management Consulting; and
- VI. All other related documentations and communication (emails, letters, verbal, etc) related thereto.

**7. Description of the activity**

This licence authorises Transnet SOC Limited (Ltd) for the construction of Manganese Export Facility and Associated Infrastructure in the Coega Industrial Development Zone (IDZ) in terms of Section 21 (c) , (i) and (g) water use activities. The activities on site include demolishing and construction of a bridge across the Coega River and upgrade and/or construction of culverts within 500 m radius from the boundary of wetlands, as well as establishing the two (2) stormwater control ponds for disposing the contaminated stormwater from the facility activities. The project and its associated activities are located in Quaternary Catchment M30B in the Mzimvubu to Tsitsikamma Water Management Area, in the Eastern Cape Provincial Operations.

## APPENDIX I

### General conditions for the licence

1. This licence is subject to all applicable provisions of the National Water Act, 1998 (Act 36 of 1998).
2. The responsibility for complying with the provisions of the licence is vested in the Licensee and not any other person or body.
3. The Licensee must immediately inform the Provincial Head of any change of name, address, premises and/or legal status.
4. If the properties in respect of which this licence is issued are subdivided or consolidated, the Licensee must provide full details of all changes in respect of the properties to the Provincial Head within 60 days of the said change taking place.
5. If a water user association is established in the area to manage the resource, membership of the Licensee to the Association is compulsory. Rules, regulations and water management stipulations of such association must be adhered to.
6. The Licensee shall be responsible for any water use charges and/or levies imposed by a Responsible Authority.
7. While effect shall be given to the Reserve as determined in terms of the Act, where a desktop determination of the Reserve has been used in issuance of a licence, when a comprehensive determination of the Reserve has finally been made; it shall be given effect to.
8. The licence shall not be construed as exempting the Licensee from compliance with the provisions of any other applicable Act, Ordinance, Regulation or By-law.
9. The licence and amendment of this licence are also subject to all the applicable procedural requirements and other provisions of the Act, as amended from time to time.
10. The Licensee shall conduct an annual internal audit on compliance with the conditions of this licence. A report on the audit shall be submitted to the Provincial Head within one month of finalisation of the audit.
11. The Licensee shall appoint an independent external auditor to conduct an annual audit on compliance with the conditions of this licence. The first audit shall be conducted within six (6) months of the date of issuance of this licence and a report on the audit shall be submitted to the Provincial Head within one month of finalisation of the report.
12. Any incident that causes or may cause water pollution must be reported to the Provincial Head or a designated representative within 24 hours.

13. Notices prohibiting unauthorised persons from entering water use premises must be displayed.
14. If the water use/s described in this licence is not exercised within three (3) years of the date of this licence, the authorisation will be withdrawn. Upon commencement of the water use, the Licensee must inform the Provincial Head in writing.

**APPENDIX II**

**Section 21(c) of the Act:** Impeding or diverting the flow of water in a watercourse; and  
**Section 21(i) of the Act:** Altering the bed, banks, course or characteristic of a watercourse

**1. GENERAL**

1.1 This licence authorises Transnet SOC Ltd for Section 21 (c) & (i) water use activities for the construction of Manganese Export Facility and Associated Infrastructure in the Coega IDZ as indicated in Table 3:

**Table 3:** Section 21 (c) & (i) water uses authorised

Water Use Activity	Property Description	Dimensions (meters)	Co-ordinates (Start & End of alteration)	
Section 21(c) & (i)	Portion 0 of Property No. 643, Port Elizabeth RD	W=5.3 L=220.0 H=3.5	33° 42' 02.77" S 25° 42' 00.39" E	33° 42' 02.92" S 25° 42' 01.87" E
Section 21(c) & (i)	Portion 0 of Property No. 643, Port Elizabeth RD	W1.3 L=180.0 H=2.5	33° 42' 19.12" S 25° 42' 00.58" E	33° 42' 19.33" S 25° 42' 02.30" E
Section 21(c) & (i)	Portion 0 of Property No. 329, Port Elizabeth RD	W=1.3 L=170.0 H=2.5	33° 42' 22.10" S 25° 41' 57.62" E	33° 42' 22.93" S 25° 42' 01.87" E
Section 21(c) & (i)	Portion 0 of Property No. 329, Port Elizabeth RD	W=1.3 L=180.0 H=2.5	33° 42' 26.03" S 25° 41' 57.62" E	33° 42' 26.60" S 25° 42' 01.26" E
Section 21(c) & (i)	Portion 0 of Property No. 329, Port Elizabeth RD	W=1.3 L=55.0 H=5.0	33° 42' 38.45" S 25° 41' 57.73" E	33° 42' 38.66" S 25° 41' 59.64" E
Section 21(c) & (i)	Portion 0 of Property No. 329, Port Elizabeth RD	W=1.6 L=55.0 H=7.0	33° 43' 03.58" S 25° 41' 53.84" E	33° 43' 01.78" S 25° 41' 55.90" E
Section 21(c) & (i)	Portion 0 of	W=1.6	33° 43' 16.75" S	33° 43' 17.18" S

Water Use Activity	Property Description	Dimensions (meters)	Co-ordinates (Start & End of alteration)	
	Property No. 329, Port Elizabeth RD	L=15.0 H=5.0	25° 41' 51.07" E	25° 41' 52.33" E
Section 21(c) & (i)	Portion 0 of Property No. 329, Port Elizabeth RD	W=1.3 L=15.0 H=3.0	33° 43' 32.09" S 25° 41' 41.50" E	33° 43' 26.51" S 25° 41' 42.68" E
Section 21(c) & (i)	Portion 0 of Property No. 329, Port Elizabeth RD	W=112.2 L=15.0 H=2.0	33° 43' 39.03" S 25° 40' 23.16" E	33° 43' 39.34" S 25° 40' 23.81" E
Section 21(c) & (i)	Portion 0 of Property No. 291, Port Elizabeth RD	W=1.3 L=15.0 W=5.0	33° 43' 52.79" S 25° 40' 08.44" E	33° 43' 52.79" S 25° 40' 08.87" E
Section 21(c) & (i)	Portion 0 of Property No. 291, Port Elizabeth RD	W=1.3 L=15.0 H=3.0	33° 44' 02.55" S 25° 40' 02.82" E	33° 44' 21.77" S 25° 40' 02.03" E
Section 21(c) & (i)	Portion 0 of Property No. 291, Port Elizabeth RD	W=3.5 L=10.0 H=1.5	33° 44' 40.20" S 25° 39' 59.83" E	33° 44' 40.42" S 25° 40' 00.52" E
Section 21(c) & (i)	Portion 0 of Property No. 291, Port Elizabeth RD	W=1.6 L=25.0 H=5.0	33° 44' 45.13" S 25° 39' 56.74" E	33° 44' 45.38" S 25° 39' 57.17" E
Section 21(c) & (i)	Portion 0 of Property No. 291, Port Elizabeth RD	W=3.5 L=15.0 H=2.0	33° 45' 00.58" S 25° 39' 36.22" E	33° 45' 00.79" S 25° 39' 40.14" E
Section 21(c) & (i)	Portion 0 of Property No. 291, Port Elizabeth RD	W=1.3 L=15.0 H=1.0	33° 45' 12.82" S 25° 39' 28.94" E	33° 45' 13.28" S 25° 39' 29.48" E
Section 21(c) & (i)	Portion 0 of Property No. 342, Port Elizabeth RD	W=10.4 L=10.0 H=70.0	33° 45' 42.40" S 25° 39' 38.70" E	33° 45' 43.60" S 25° 39' 39.60" E
Section 21(c) & (i)	Portion 0 of Property No. 342, Port Elizabeth RD	W=1.9 L=10.0 H=80.0	33° 45' 42.40" S 25° 39' 38.70" E	33° 45' 43.60" S 25° 39' 39.60" E

1.2 The Licensee must carry out and complete all the activities listed under condition 1.1 according to the following:

1.2.1 Reports submitted to the Department, specifically:

- I. DW781: Section 21 (c) & (i) Water Use Supplementary Information Questionnaire dated 01/2014 compiled by Scherman Colloty and Associates Environmental and Aquatic Management Consulting;
- II. Final Scoping and Environmental Impact Assessment Report Volume 1 & Volume 2, dated 09/2013 compiled by CSIR;
- III. Final Environmental Management Programme (EMP), dated 09/2013 compiled by CSIR;
- IV. Geotechnical Study, dated 04/2013 compiled by Moore Spence Jones (Pty) Ltd Consulting Geotechnical, Environmental and Civil Engineers;
- V. Integrated Water and Waste Management Plan (IWWMP) dated 09/2013 compiled by Scherman Colloty and Associates Environmental and Aquatic Management Consulting; and
- VI. All other related documentations and communication (emails, letters, verbal, etc) related thereto.

1.3 No activity must take place within the 1:100 year flood line or the delineated riparian habitat, whichever is the greatest, or within 500 m radius from the boundary of any wetland unless authorised by this licence.

1.4 The conditions of the authorisation must be brought to the attention of all persons (employees, sub-consultants, contractors etc.) associated with the undertaking of these activities and the Licensee must take such measures that are necessary to bind such persons to the conditions of this licence.

1.5 A copy of the water use licence and reports set out under condition 1.2.1 must be on site at all times.

1.6 Contractors responsible for construction activities through the wetland areas must sign a declaration stating that they will adhere to all stipulations of the Environmental Management Plan relating to wetland / stream crossing.

1.7 A suitably qualified person(s), appointed by the Licensee, and approved in writing by the Provincial Head must be responsible for ensuring that the activities are undertaken in compliance with the specifications as set out in reports submitted to the Department or the Provincial Head and the conditions of this licence.

## 2. FURTHER STUDIES AND INFORMATION REQUIREMENTS

2.1 For water use activities outlined in Table 3:



- 2.1.1 No fundamental alterations of the work method statements, site plan/s and drawings are allowed, unless a modification is requested and granted by the Provincial Head in writing; and
- 2.1.2 No site activities must occur beyond the proposed site location of the erosion and sedimentation controls and marked limits of disturbance.

### 3. PROTECTIVE MEASURES

#### 3.1 Storm Water Management

- 3.1.1 Storm water management practices must be constructed, operated and maintained in a sustainable manner throughout the project and for the water use activities set out in condition 1.1 and must include but are not limited to the following:
  - 3.1.1.1 Increased runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the watercourse(s).
  - 3.1.1.2 Storm water must be diverted from construction works and roads must be managed in such a manner as to disperse runoff and to prevent the concentration of storm water flow.
  - 3.1.1.3 The velocity of storm water discharges must be attenuated and the banks of the watercourses protected.
  - 3.1.1.4 Storm water leaving the Licensee's premises must in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises.
  - 3.1.1.5 Drainage next to the roads must be diverted away from the water course(s) to ensure that any contaminated runoff does not flow directly into the watercourse(s) as a storm water discharge.
  - 3.1.1.6 Sheet runoff from paved surfaces and access roads need to be curtailed.
  - 3.1.1.7 Storm water discharge points with energy dissipaters must be constructed strategically in and around infrastructure to discharge storm water into the surrounding area to avoid concentration of discharges.
  - 3.1.1.8 Appropriate measures must be implemented to avoid or minimise damming or ponding of water, as well as soil erosion and scouring as a result of increased and concentrated storm water runoff.
  - 3.1.1.9 Contaminated run-off must not be disposed of into the storm water system, as it can result in the contamination of nearby water bodies such as the Coega River.

This is an offence in terms of the National Water Act, 1998 (Act no. 36 of 1998). Run-off from concrete batching operations must be contained and sediments allowed settling.

3.1.1.10 The contractor must prevent discharge of any pollutants, such as cements, concrete, lime, chemicals and fuels into any water sources such as the Coega River, and the storm water system.

3.1.1.11 Run-off related to construction activities from workshop/truck washing areas, and other associated activities, must be suitably treated and disposed of.

### **3.2 Structures, Construction Plant and Materials**

3.2.1 Necessary erosion prevention measures must be employed to ensure the sustainability of all structures.

3.2.2 The height, width and length of structures must be limited to the minimum dimension necessary to accomplish the intended function.

3.2.3 Structures must not be damaged by floods exceeding the magnitude of floods occurring on average once in every 100 years.

3.2.4 Structures must be non-erosive, structurally stable and must not induce any flooding or safety hazard.

3.2.5 Culverts must be constructed to allow instream organisms to migrate during both high and low flow conditions.

3.2.6 Structures must be inspected regularly for accumulation of debris, blockage, erosion of abutments and overflow areas-debris must be removed and damages must be repaired and reinforced immediately.

3.2.7 Detailed crossing methodologies for each individual wetland crossed by the proposed activities must be developed once detailed designs are completed. The crossing methodology must be approved by a wetland specialist in consultation with the construction contractor. Crossing methodologies must take flooding into account; it remains the responsibility of the civil engineer to ensure that the structures are constructed to withstand flood events.

3.2.8 The temporary construction area must be located outside the regulated areas, i.e. within the 1:100 year floodline or delineated riparian habitat, whichever is greatest and/or within a 500m radius from the boundary of a wetland. This includes storage areas and washing areas which are within the temporary construction area. The construction area must be recovered and removed one (1) month after construction has been completed.

3.2.9 Chemical storage areas and toilet facilities must be located outside the extent of the watercourse(s).

- 3.2.10 During construction, erosion berms must be installed to prevent gully formation, according to the slope.
- 3.2.11 All areas affected by construction must be rehabilitated upon completion of the construction phase of the development. Areas must be reseeded with indigenous vegetation species as required, and the use of seed nets is recommended to prevent erosion.
- 3.2.12 Areas of conservation importance and sensitivity must be avoided in the construction of culverts.
- 3.2.13 No construction is allowed within the 1:100 year floodline and/or delineated riparian habitat, whichever is the greatest, or within 500 m radius from the boundary of any wetland unless authorised in this license.
- 3.2.14 All procedures and recommendations regarding engineering procedures and method statements discussed in the Geotechnical assessment must be implemented and incorporated in the EMP.

### 3.3 Water Quality

- 3.3.1 The Licensee shall sample the water quality weekly (during construction) and monthly (operation) for the mentioned variables in (Table 4) at monitoring points both upstream and downstream of the activities and report to the Regional Head within thirty (30) days after the results of each sampling event is received:

**Table 4:** Water quality parameters relevant for sampling.

Variable	Limit
Temperature (°C)	<10% variation
pH	6.0 – 8.5
Electrical conductivity (EC) (mS/m)	<50
Suspended solids (SS) (mg/l)	<25
Dissolved oxygen (mg/l)	≥6
Turbidity (NTU)	<3
Secchi disk depth (m)	≥1 meter
Alkalinity (mg CaCO <sub>3</sub> /l)	<100
*PO <sub>4</sub> (mg/l)	<0.5
O <sub>2</sub> (as N) (mg/l)	<6

- 3.3.2 The variables may be amended on discretion of the Provincial Head. Only an accredited (SANS 17025) laboratory to be used for analysis.
- 3.3.3 Biological monitoring for fish, crabs and benthic algae must be conducted.
- 3.3.4 Monitoring must continue for three (3) years after the cessation of the activities listed in tables 2 and 3.

- 3.3.5 Monitoring must be undertaken as set out in section 5.
- 3.3.6 Activities that lead to elevated levels of turbidity of any watercourse(s) must be prevented, reduced, or otherwise remediated. Activities must be scheduled to take place during dry seasons when flows are lowest where reasonably possible. If this is not possible and if management measures have not been provided for in the reports submitted to the Provincial Head, the Licensee must submit such to the Provincial Head for a written approval before these activities commence. Natural in-stream hydrology is to be used to determine which months constitute the low flow months.
- 3.3.7 The Licensee must ensure that the quality of the water to downstream water users does not decrease because of the water use activities listed in tables 2 and 3.
- 3.3.8 A qualified person must be appointed to assess the quality of water both upstream and downstream of the activities prior to commencement of construction.
- 3.3.9 Pollution of and disposal/spillage of any material into the watercourse must be prevented, reduced, or otherwise remediated through proper operation, maintenance and effective protective measures.
- 3.3.10 Under no circumstances is any solid waste to be burned or buried on or in the vicinity of the site.
- 3.3.11 No cement batching must occur on site.
- 3.3.12 Areas in and around the rivers must not be cleared, graded and ditched/trenched more than a week before the construction. The aim is to prevent erosion and sedimentation and the collection of run-off trench water which has high sediment content.
- 3.3.13 During the construction and operation phase erosion and siltation measures must be implemented e.g. the use of temporary silt traps downstream of construction areas must be implemented.
- 3.3.14 Where possible, silt fences/barriers or other relevant measures must be installed along the edge of streams and wetlands to prevent soil erosion and ingress of runoff water carrying silt from the catchment of the wetland (i.e. the slopes surrounding the wetland) to enter the water body.
- 3.3.15 For the proposed activities, wetlands must not be viewed in isolation from the surrounding slopes/catchment, as eroded material or other potential pollutants emanating from the surrounding non-wetland areas adjacent to the wetland boundaries may enter the wetland and cause significant pollution of the wetland.
- 3.3.16 In cases where seepage water is removed from the cable trench as part of a dewatering process, this water may contain high silt load, which could have a

detrimental effect if discharged back into the wetland. It is thus recommended that water from dewatering operations be cleaned of silt prior to the water being discharged into the wetland.

- 3.3.17 Vehicles and other machinery must be serviced well above the 1:100 year flood line or delineated riparian habitat, whichever is the greatest and outside a 500 m radius from the boundary of a wetland. Oils and other potential pollutants must be disposed off at an appropriate licensed site, with the necessary agreement from the owner of such a site.
- 3.3.18 Any hazardous substances must be handled according to the relevant legislation relating to transport, storage and use of the substance.
- 3.3.19 No hazardous materials (such as oil) must be kept within 50m of the edge of a wetland buffer zone.
- 3.3.20 All reagent storage tanks and reaction units must be supplied with a bunded area built to the capacity of the facility and provided with sumps and pumps return the spilled material back into the system. The system must be maintained in a state of good repair and standby pumps must be provided.
- 3.3.21 The Licensee has to indicate to the Provincial Head within sixty (60) days after issuance of this licence, the strategic placement of bio-swale, bio-filters, silt, litter and hydrocarbon (oil) traps to minimise the risk of pollutants entering the natural drainage system of the area.
- 3.3.22 The Licensee shall ensure that all waste/wastewater generated from the operations will be handled and disposed using an authorised facility.
- 3.3.23 Ablution toilet facilities to be used by construction workers during construction phase of the project must be regularly emptied and their contents must be disposed off into the Fishwater Flats Wastewater Treatment Works.
- 3.3.24 Any re-fuelling of construction vehicles should occur on a hardened surface, within a designated re-fuelling area where any spills can be contained.
- 3.3.25 Hazardous storage areas must be bunded with an impermeable liner to protect water quality or groundwater and surface water contamination. As such, it is noted that the construction of bunded area must be 110 percent capacity per tank.

### 3.4 Flow

- 3.4.1 All areas with a high potential for ground water discharge must be excluded from development i.e. pans and 50 m buffer and a 32 m buffer for rivers unless authorised by this licence.
- 3.4.2 Energy dissipaters, for example gabion structures must be utilized at the downstream point of culverts.
- 3.4.3 Structures to be designed in a way to prevent the damming of stream/river water and not impact on the flow of the water, during the construction and operational phases of all developments.
- 3.4.4 There will be possible drying out of seeps and wetlands (and dams) as a result of the railway network. Adequate measures must be put in place to prevent this impact and allow rehydration of the wetland.
- 3.4.5 The development may not impede natural drainage lines.
- 3.4.6 The diversion structures may not restrict river flows by reducing the overall river width or obstructing river flow.
- 3.4.7 Where possible, construction activities must occur during dry (winter months) when water levels and seepage in wetlands/streams are lower.
- 3.4.8 Bank filling must restore the channel shape and bed level to pre-construction condition.
- 3.4.9 Where flow in watercourse is permanent, the trench must be staged across part of the channel to maintain flows. Flows must not be stopped.
- 3.4.10 If any riparian vegetation depends on subsurface flow; this flow cannot be cut off. There must be a continuous allowance of the flow to infiltrate.

### **3.5 Riparian and Instream Habitat (Vegetation and Morphology)**

- 3.5.1 Activities (including spill clean-up) must start up-stream and proceed into a down-stream direction, so that the recovery processes can start immediately, without further disturbance from upstream works.
- 3.5.2 Operation and storage of equipment must not take place within the 1:100 year flood line or delineated riparian habitat, whichever is the greatest or within 500 m radius from the boundary of any wetland unless authorised in this license.
- 3.5.3 When undertaking biodiversity assessments, prior to the onset of construction, the edge/boundary of each wetland crossed by the proposed infrastructure must be clearly demarcated in the field with poles, sticks, or any solid structure that will last

for the duration of the development. These indicators must be coloured as follows: red-indicating the edge / boundary of the wetland orange – indicating the edge of the buffer zone.

- 3.5.4 Habitat destruction must be limited to what is absolutely necessary for the construction of the infrastructure, including construction of new infrastructure.
- 3.5.5 Wetland soils must not be compacted as this could alter the hydrology of the wetland, restrict plant growth, and lead to erosion within the wetland.
- 3.5.6 The construction of infrastructure in instream habitat must be managed and strictly controlled to minimize damage to this area.
- 3.5.7 Clay material for clay plugs (if these are used) must not be sourced from the wetland, but rather from a commercial source.
- 3.5.8 As a general principle, and especially in high erodibility wetlands, the trench must be excavated and backfilled in as short a time as possible to minimise the risk of disturbance to wetland soils.
- 3.5.9 In sandy wetlands where the risk of development of erosion and knick points is high, temporary drainage of water through the wetland can be considered to minimise the risk of erosion.
- 3.5.10 In high erodibility wetlands effort must be taken to ensure that the trench is excavated, backfilled and vegetation blocks re-instated in as short a time as possible. The less the time that the trench is opened, the less the risk of development of erosion developing. This entails that all activities such as stringing, welding, pressure testing etc. of the cable.
- 3.5.11 Where trenches are dug through seasonal and permanent sections of wetlands (where seepage is thus likely to be a factor) the sides of trenches must be stabilised through shoring up or battering back to ensure that the trenches do not collapse, causing potential loss of wetland soils and siltation of water within the wetland.
- 3.5.12 Where trenches occur within wetlands, impermeable clay layers or hard plinthites must be recreated/ restored to reinstate the sub-surface hydrology and to ensure that perched water tables supporting wetland habitats are kept intact. Contractors undertaking trench excavation must ensure that any impermeable layers encountered within the wetland, and their depths are noted. In the event of the need to disrupt a previously impermeable layer such as ferricrete, measures must be taken to ensure that the non-permeability of this layer is restored.
- 3.5.13 Low ground pressure tracked excavators must be used in all wetlands to minimise damage (especially compaction) to wetland soils. The excavators must operate on a running track (e.g. excavator mats, timber rip rap work pads etc.) which must be constructed to protect underlying vegetation. This running track must be removed immediately after backfilling and any damage to vegetation must be rehabilitated.

The construction of the running track must be planned so that it is undertaken in advance of topsoil and vegetation stripping and right of way preparations crews working in a logical linear progression in order to avoid disturbance and minimisation of the footprint.

- 3.5.14 Indigenous riparian vegetation, including dead trees, outside the limits of disturbance indicated in the site plans must not be removed from the area.
- 3.5.15 Trees must be clearly marked to ensure that construction workers avoid them so that they will not be impacted upon by the blasting activities.
- 3.5.16 Loss of vegetation must be limited as far as possible and must it occur, rehabilitation is essential.
- 3.5.17 Vegetation must be removed in squares by means of 'turfing', to a depth of approximately 50 cm to ensure that the organic layer and topsoil are removed in an intact state, whilst retaining the root zone of the vegetation and herbaceous vegetation in an intact state.
- 3.5.18 The vegetation blocks must be placed on the opposite side of the running track / work platform to the trench line on a strip of geo-textile membrane. The vegetation blocks must be stockpiled in such a way that the vegetation has sufficient water and sunlight to survive. Care must be taken not to overly wet the vegetation, as this would result in minerals leaching out of the soils and the possible erosion and collapse of the blocks.
- 3.5.19 As far as practicable immediately after the backfilling of the trench has been completed, the vegetation blocks must be returned and bedded in to their original position of removal, and care must be taken to retain the original order / position of the blocks so as to retain the distribution of vegetation characteristic to each hydrological zone within the wetland as far as possible.
- 3.5.20 Alien and invader vegetation must not be allowed to further colonise the area, and all new alien vegetation recruitment must be sustainably eradicated or controlled.
- 3.5.21 The methods for alien species removal, guidelines and procedures must be used accordingly and pre-caution and the duty of care must be taken with regards to the use of herbicides.
- 3.5.22 The management of alien vegetation to increase the run-off to the wetlands must be included in the Rehabilitation Plan.
- 3.5.23 Existing vegetation composition must be maintained or improved by maintaining the natural variability in flow fluctuations. Rehabilitated areas shall have a vegetation basal cover of at least 15% at all times.



- 3.5.24 Recruitment and maintaining of a range of size classes of dominant riparian species in perennial channels must be stimulated.
- 3.5.25 Encroachment of additional exotic species and terrestrial species in riparian zones must be discouraged.
- 3.5.26 Accumulation of woody debris on terraces by periodic flooding must be discouraged.
- 3.5.27 Existing flood terraces and deposition of sediments on these terraces to ensure optimum growth, spread and recruitment of these species must be maintained.
- 3.5.28 All reasonable steps must be taken to minimise noise and mechanical vibrations in the vicinity of the watercourses.
- 3.5.29 Necessary erosion prevention mechanisms must be employed to ensure the sustainability of all structures and activities and to prevent instream sedimentation.
- 3.5.30 During construction, footprint of the construction area as it traverses wetlands must be kept as narrow as possible to ensure least potential damage to wetlands / rivers being crossed. This includes non-saturated wetlands in which temporary zone is the dominant hydrological zone.
- 3.5.31 Soils that have become compacted through the water use activities must be loosened to an appropriate depth to allow seed germination.
- 3.5.32 Any disturbance to the riparian zone that can cause undercutting and/or bank slumping must be prevented. Disturbed areas must be rehabilitated.
- 3.5.33 The protection of wetland vegetation from damage through the implementation of measures such as the use of running tracks must be implemented to prevent soil erosion.
- 3.5.34 Slope/bank stabilisation measures must be implemented with a 1:3 ratio or flatter and vegetated with indigenous vegetation immediately after the shaping. The edges of the gabions must be rounded where possible.
- 3.5.35 Stockpiling of removed soil and sand must be stored outside of the 1:100 flood line or delineated riparian habitat, whichever is the greater, or outside the 500 m radius from the boundary of any wetland (this excludes vegetation bocks removed from the trench) to prevent being washed into the river and must be covered to prevent wind and rain erosion.
- 3.5.36 The working right of way limit must be restricted to the minimum required to complete the work. This will limit compaction of the soils and vegetation by the heavy machinery and prevent the vehicles from sinking in to the wet/moist soil.
- 3.5.37 As much indigenous vegetation growth as possible must be promoted within the

proposed development area in order to protect soil and to reduce the percentage of the surface area which is paved.

- 3.5.38 Run-off from paved surfaces must be slowed down by the strategic placement of berms.
- 3.5.39 Trenching must be carried out in accordance with normal practices & guidelines as approved by the wetland specialist within sensitive areas.
- 3.5.40 Additional disturbances from temporary coffer dams or diverting flows around the work site, vehicle and machinery accessing and crossings, material stockpile, etc. must be minimised.
- 3.5.41 Adequate bank stabilisation measures must be implemented. Only riparian vegetation in the immediate path of the cable shall be removed.
- 3.5.42 A wetland specialist must be present when construction takes place on the wetland.

### **3.6 Biota**

- 3.6.1 The Licensee must take all reasonable steps to allow movement of aquatic species, including migratory species.
- 3.6.2 All reasonable steps must be taken not to disturb the breeding, nesting and/or feeding habitats and natural movement patterns of aquatic biota.
- 3.6.3 Species such as tortoises, burrowing reptiles and mammals, that will suffer direct mortality must be removed and relocated.
- 3.6.4 The current level of diversity of biotopes and communities of animals, plants and micro-organisms must be maintained.
- 3.6.5 Construction activities must not pose a migratory barrier to the birds, amphibians and insects inhabiting the watercourses.
- 3.6.6 All nearby populations of *Cyclopia pubescence* should be fenced off, protected and managed.
- 3.6.7 No harvesting of indigenous plants and animals in and adjacent to the construction area.

## **4 REHABILITATION AND MANAGEMENT**

- 4.1 The Licensee must embark on a systematic long-term rehabilitation programme to restore the watercourse(s) to environmentally acceptable and sustainable conditions after completion of the activities, which must include, but not be limited to the

rehabilitation of disturbed and degraded riparian areas to restore and upgrade the riparian habitat integrity to sustain a bio-diverse riparian ecosystem.

- 4.2 Impacts must be adequately mitigated with reference to the EMP dated (09/2013) and Integrated Water and Waste management Plan dated (03/2013) and all specifications addressed in these documents.
- 4.3 All disturbed areas must be re-vegetated with an indigenous seed mix in consultation with an indigenous plant expert, ensuring that during rehabilitation only indigenous shrubs, trees and grasses are used in restoring the biodiversity.
- 4.4 Laying, backfilling and restoration of vegetation must occur in as short a time period as possible. If possible, this process must occur within one day, and if the wetland crossing section is too long for this to be practical, the section must be divided into sub-sections in which the pipeline is laid, backfilled and vegetation returned in a short time period before construction in the next sub-section is initiated. It is critical that cable laying occur in the dry winter.
- 4.5 All areas affected by construction must be rehabilitated upon completion of the construction phase of the development. Areas must be reseeded with indigenous vegetation species as required, and the use of seednets is recommended to prevent erosion.
- 4.6 In areas where there is no vegetation present, a seeding mixture suitable for wetland conditions must be used.
- 4.7 Close monitoring of development of head cuts during construction (precursors to donga erosion) and the correct rehabilitation of wetland vegetation after the construction must take place.
- 4.8 A botanist familiar with the vegetation of the area must monitor the rehabilitation success and alien plant removal on an annual basis.
- 4.9 Species of conservation concern must be used accordingly as per site specific requirements during rehabilitation. However, those that require permit must obtain so. The types of species must be incorporated into the EMP.
- 4.10 Critical Biodiversity Areas must be kept natural and where degraded, rehabilitation must occur.
- 4.11 An active campaign for controlling invasive species must be implemented within disturbed zones to ensure that it does not become a conduit for the propagation and spread of invasive exotic plants.
- 4.12 Rehabilitation of disturbed instream and riparian habitats must occur during and after completion of construction. Any material removed from the in-stream or riparian zone must be returned and bedded in their original position as far as practicably possible. An aquatic ecologist must oversee this process.

- 4.13 Topsoil must be stripped and redistributed.
- 4.14 Stockpiles and overburden must be removed or rehabilitated after construction.
- 4.15 Compacted and disturbed areas must be shaped to natural forms and to follow the original contour. In general cut and fill slopes and other disturbed areas must not exceed 1:3 (v:h) ratio, it must be protected, vegetated, ripped and scarified parallel with the contour.
- 4.16 The Provincial Head will sign a release form indicating that rehabilitation was done satisfactory according to specifications as per this license.
- 4.17 A photographic record must be kept as follows and submitted with reports as set out in section 5:
  - 4.17.1 Dated photographs of all the sites to be impacted before construction commences;
  - 4.17.2 Dated photographs of all the sites during construction on a monthly basis; and
  - 4.17.3 Dated photographs of all the sites after completion of construction, seasonally.
- 4.18 Rehabilitation structures must be inspected regularly for the accumulation of debris, blockages instabilities and erosion with concomitant remedial and maintenance actions.
- 4.19 A comprehensive and appropriate rehabilitation and management programme to restore the watercourse(s) to environmentally acceptable and sustainable conditions after construction must be developed and submitted to the Provincial Head for a written approval before construction commences.
- 4.20 Wetland crossings must be visited by a wetland specialist prior to construction to determine baseline conditions. This must be repeated during and after rehabilitation measures have been implemented to assess the success of rehabilitation and erosion control measures.

## **5 MONITORING AND REPORTING**

- 5.1 The Provincial Head must be notified in writing one week prior to commencement of the licensed activities and again upon completion of the activities.
- 5.2 Six (6) monthly monitoring reports must be submitted to the Provincial Head until otherwise agreed in writing with the Provincial Head.



- 5.3 A monitoring program for alien plants must be devised to detect and quantify any alien plants that may establish.
- 5.4 A qualified and responsible scientist must be retained by the Licensee who must give effect to the various licence conditions and to ensure compliance thereof pertaining to all activities impeding and/or diverting flow of watercourses as well as alterations to watercourses on the properties as set out in condition 1.1.
- 5.5 The Licensee must conduct internal and external audit as per condition 10 and 11 of Appendix I.
- 5.6 The audit reports must include but are not limited to:
- 5.6.1 A record of implementation of all mitigation measures including a record of corrective actions; and
  - 5.6.2 Compensation measures for damage where mitigation measures have failed to adequately protect the in-stream and riparian habitat or any other characteristic of the watercourses.
- 5.7 The Licensee must conduct intensive daily environmental audits during the construction in sensitive areas. A qualified independent auditor must undertake this audit.
- 5.8 The Licensee must apply in writing to the Provincial Head for alternative reporting arrangements for which written approval must be provided.
- 5.9 A wetland specialist must be appointed to monitor the compliance to the wetland management and rehabilitation plan and conditions in this license pertaining to impacts on wetlands and provide specialist advice for corrective actions and compile audit reports which must be submitted to the Provincial Head.
- 5.10 An environmental officer must be appointed for the lifespan of the project and for the period after that until the department is satisfied that the rehabilitation and monitoring program had been implemented successfully and the primary and secondary impacts are managed adequately.

## **6 OTHER WATER USERS**

- 6.1 The Licensee must attempt to prevent adverse affect on other water users. All complaints must be investigated by a suitable qualified person and if investigations prove that the Licensee has impaired the rights of other water users, the Licensee must initiate suitable compensative measures.

## **7. POLLUTION PREVENTION, INCIDENTS AND MALFUNCTIONS**



- 7.1 Pollution incidents shall be dealt with in accordance with the Act.
- 7.2 Any incident that may cause pollution of any water resource must immediately be reported to the Provincial Head.
- 7.3 If surface and/or groundwater pollution has occurred or may possibly occur, the Licensee must conduct, and/or appoint specialists to conduct the necessary investigations and implement additional monitoring, pollution prevention and remediation measures to the satisfaction of the Provincial Head.
- 7.4 The Licensee shall keep all records relating to the compliance or non-compliance with the conditions of this licence in good order. Such records shall be made available to the Provincial Head within 14 (fourteen) days of receipt of a written request by the Department for such records.
- 7.5 The Licensee shall keep an incident report and complaints register, which must be made available to any external auditors and the Department.

## **8 BUDGETARY PROVISIONS**

- 8.1 The water user must ensure that there is a budget sufficient to complete and maintain the water use and for successful implementation of the rehabilitation programme as set out in this license.
- 8.2 The Department may at any stage of the process request proof of budgetary provisions for rehabilitation and closure of project.



**APPENDIX III**

**Section 21 (g) of the Act: Disposing of waste in a manner which may detrimentally impact on a water resource**

**1. STORAGE OF WATER CONTAINING WASTE AND WASTE SLUDGE**

1.1 The Licensee is authorised to dispose a maximum quantity of contaminated stormwater run-off from the activities as set out in Table 5:

**Table 5:** Section 21(g) water uses authorised

<b>Purpose/ Activity</b>	<b>Capacity (m<sup>3</sup>)</b>	<b>Property</b>	<b>Co-ordinates</b>
Stockyard stormwater control dam – for the collection & disposal of contaminated runoff from the Stockyard facilities.	59 000 m <sup>3</sup>	Portion 0 of Property No.342, Port Elizabeth RD	33° 45' 57.07" S 25° 40' 15.18" E
Quay stormwater control dam – for the collection & disposal of contaminated runoff from the Quay areas.	11 000 m <sup>3</sup>	Remainder No 643 of Tankatara Farm, Port Elizabeth RD	33° 47' 40.51" S 25° 41' 03.50" E

1.2 The quantity of contaminated stormwater runoff to be disposed in terms of this licence may not be exceeded.

**2 GROUNDWATER MONITORING**

2.1 The Licensee must develop and implement a groundwater monitoring network which must be set as an early warning system to detect any pollution caused by seepage from the stormwater control dams and its associated infrastructure within six (6) months from the date of issuance of this licence. This must include a hydro census on boreholes within a 1 km radius of the stormwater control ponds, and analysis of the quality of water from these boreholes. This groundwater monitoring network must be submitted for approval to the Provincial Head prior to implementation.

2.2 The quality of groundwater resource must be monitored by taking samples quarterly at groundwater monitoring points identified in consultation with the Provincial Head. Each sample shall be analysed for the variables and at frequencies, as set out in Table 6 and/ or any other variable as may be required from time to time by the Provincial Head. The results of the analysis must be submitted to the Provincial Head.

**Table 6:** Groundwater monitoring frequency

Variable	Frequency
Electrical Conductivity (mS/m)	Quarterly
Sodium (mg/l)	Quarterly
Magnesium(mg/l)	Quarterly
Calcium(mg/l)	Quarterly
Chloride(mg/l)	Quarterly
Sulphate(mg/l)	Quarterly
Nitrate(mg/l)	Quarterly
Fluoride(mg/l)	Quarterly

- 2.3 The Licensee shall submit to the Provincial Head a concise report in which all sources of pollution are identified.
- 2.4 Monitoring boreholes must be equipped with a seal and a lid according to the Departmental standards.
- 2.5 If groundwater pollution has occurred, or may possibly occur, the Licensee must conduct the necessary investigations, and implement additional monitoring and rehabilitation measures which must be to the satisfaction of the Provincial Head.
- 2.6 The Licensee must ensure that all activities that might have impact on groundwater be managed and included in the monitoring network.
- 2.7 The date, time and monitoring point in respect of each sample taken shall be recorded together with the results of the analysis.

### 3. SLUDGE MANAGEMENT

- 3.1 Wastewater sludge from the stormwater control ponds and other solids waste, for instance grit and screenings must be handled, stored, transported, utilised or disposed of in such a manner as not to cause any odour, flies, health hazard, secondary pollution or other nuisance.
- 3.2 Sludge emanating from the stormwater disposal activities must be quantified, analysed, dealt with according to the requirements of chapter 5 of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008) and the "**Guideline for the Utilisation and Disposal of wastewater sludge**" (volume 1-5), Research Commission Report No TT 261/06, March 2006, as amended from time to time and any updates thereafter, to the satisfaction of the Provincial Head.
- 3.3 Any wastewater sludge or any other solids waste may be alienated for utilisation or disposal thereof, only in terms of written agreement and provided that the responsibility for complying with the requirements contained in this licence is accepted by Licensee and such other party, jointly and separately.

### 4. REPORTING





4.1 The information required shall be submitted monthly to the Provincial Head, under reference **27/2/2/M230/12**, within one (1) month of the close of the period concerned.

## **5. METHODS OF ANALYSIS**

5.1 Analyses shall be carried out in accordance with methods prescribed by and obtainable from the South African Bureau of Standards (SABS), in terms of the Standards Act, Act 30 of 1982.

5.2 The Licensee must conduct annual wastewater analysis by an accredited laboratory at the point where wastewater will be disposed (maturation ponds and sludge lagoons).

5.3 The methods of analysis shall not be changed without prior notification to and written approval by the Provincial Head.

## **6. SPECIAL LICENCE CONDITIONS**

6.1 Contaminated run-off must not be disposed of into the stormwater system, as it can result in the contamination of nearby water bodies such as the Coega River. Run-off from concrete batching operations must be contained and sediments allowed to settle.

6.2 The contractor must prevent discharge of any pollutants, such as cements, concrete, lime, chemicals and fuels into any water sources such as the Coega River, and the storm water system.

6.3 Run-off related to construction activities from workshop/truck washing areas, and other associated activities, must be suitably treated and disposed of.

6.4 Any re-fuelling of construction vehicles should occur on a hardened surface, within a designated re-fuelling area where any spills can be contained.

6.5 Hazardous storage areas must be bunded with an impermeable liner to protect water quality or groundwater and surface water contamination. As such, it is noted that the construction of bunded area must be 110 percent capacity per tank.

6.6 Ablution toilet facilities to be used by construction workers during construction phase of the project must be regularly emptied and their contents must be disposed off into the Fishwater Flats Wastewater Treatment Works or any nearest authorised wastewater treatment works. Records of such must be kept for tracking purposes and must be made available to the Regional Head or his/her representative on request.

6.7 The dirty stormwater control dams must be designed, constructed, maintained and operated to have a minimum freeboard of 0.8 metres above full supply level, unless specifically authorised by this licence.



[END OF LICENCE]