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## ENVIRONMENTAL MONITORING REPORT 05 FOR THE RIVERBANK MAINTENANCE AT SAN MARINO, KEURBOOMSTRAND, PLETTENBERG BAY



*Drone footage following storm surge*

|                            |                                                |
|----------------------------|------------------------------------------------|
| <b>Compiled by</b>         | HillLand Environmental (Pty) Ltd               |
| <b>HillLand Reference</b>  | PLE23/1011/33                                  |
| <b>Date</b>                | 15 November 2023, report period – October 2023 |
| <b>DEADP reference no.</b> | 6/3/3/1/D1/6/0014/20                           |
| <b>DEADP case officer</b>  | Jessica Christie                               |
| <b>NEAS reference no.</b>  | WCP/EIA/0000960/2021                           |
| <b>Date of EA</b>          | 14 March 2022                                  |

Ref: PLE23/1011/33

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FOR THE RIVERBANK MAINTENANCE AT SAN MARINO, KEURBOOMSTRAND,  
PLETTENBERG BAY**

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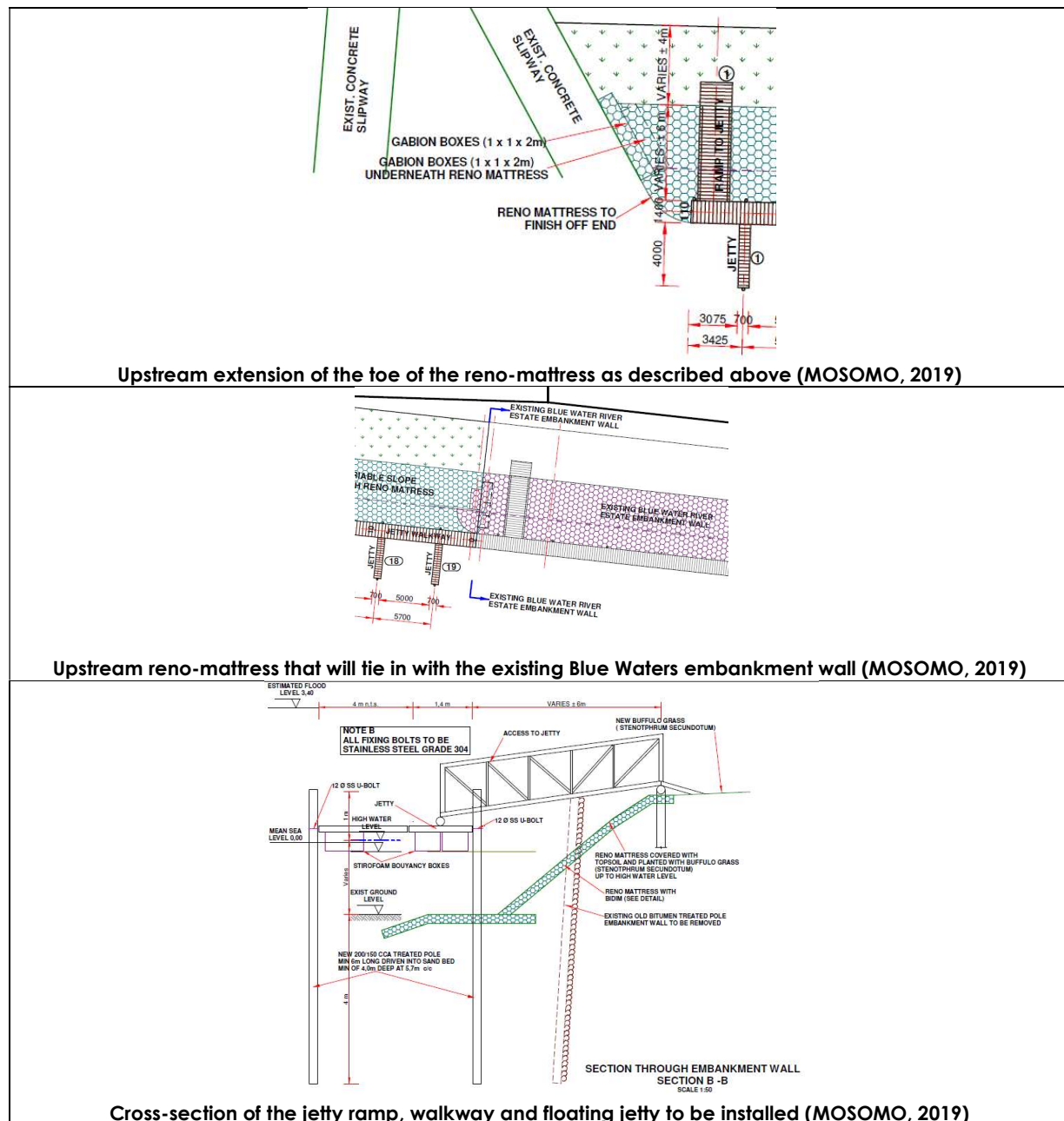
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| This document is distributed as follows: |                                                                                            |
| Submitted to:                            | DEADP GEORGE OFFICE (REGION 3) –<br>CASE OFFICER: JESSICA CHRISTIE                         |
| Copies to:                               | APPLICANT: SAN MARINO HOA<br>BITOU MUNICIPALITY: ANJE TALJAARD<br>SANRAL : NICOLE ABRAHAMS |

This report monitors compliance against the Final Environmental Management Programme (EMPr) (Ref: PLE22/1011/26, dated 25 March 2022) and Environmental Authorisation (EA) issued on the 14<sup>th</sup> March 2022 for the riverbank maintenance and addition of floating jetties at San Marino.

The project entails the removal of the existing mooring poles and riverbank retaining structure and the installation of a new engineering design retaining structure. Floating jetties will be installed to replace the current mooring system for the boats.





## 2 ADDITIONAL ADMINISTRATIVE INFORMATION

- The Final EMPr was submitted for approval to DEADP on the 22<sup>nd</sup> March 2022 in terms of the EA. No formal approval letter received from DEADP.
- Notification of commencement was provided to DEADP (George office), Bitou Municipality, CapeNature (Keurbooms manager) and SANRAL on the 1<sup>st</sup> September 2022. The letter highlighted the anticipated commencement of activities in 2023, following the Easter Holiday.
- Formal commencement was on the 18<sup>th</sup> April 2023.

### 3 ACTIVITIES UNDERTAKEN

The construction sequence as highlighted in the EMPr has been provided below. The points marked in **bold** have been completed/are in progress. Points not marked in bold will follow.

The construction sequence as highlighted in the EMPr is provided below:

1. **Rescue any *Zostera* rhizomes from with the working area** – the sand deposition dynamics of the system had changed since the assessment phase and sand deposition had resulted in the *Zostera* bed being located in deeper water outside of the working area. These will not be affected and rescue was no longer required. Similarly, as there were no *Zostera* beds in the working area it was not necessary for seahorse rescue, as any seahorses would be located in deeper water (they cannot survive exposure at low tide). – no change, *Zostera* beds are already establishing well with the riverbank maintenance implemented.
2. **The current mooring poles were removed and replaced.** - Creosote poles that had been extensively heat treated and aged were used.

As a result of the steepness and distance from the bank to the new position of the pole, a machine was used at low tide. All 19 new poles were installed during low tide over two days (19<sup>th</sup> and 20<sup>th</sup> April 2023). – complete

3. **Excavation for a level working platform for the reno mattress base / toe was done at low tide.** – all excavate material placed within the working zone and used to hand fill sandbags. Any organisms within the sand had opportunity to move back into the river during high tide. Toe reno mattresses installed other than at the termination sections on either site - termination at SANRAL slipway ongoing.

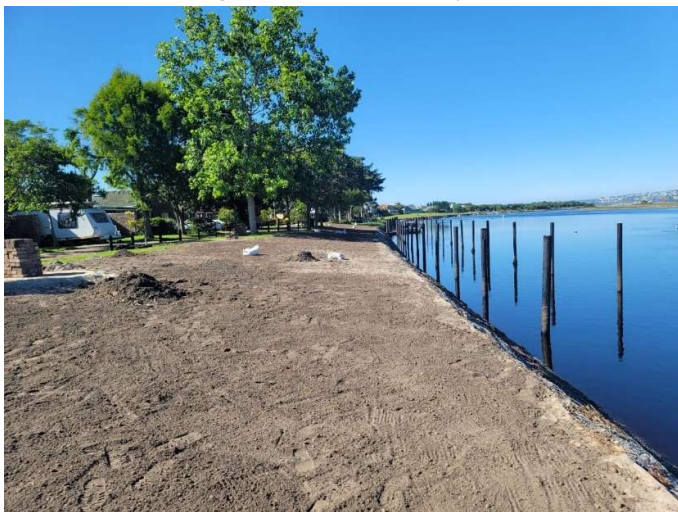


*Repair of slipway in progress*

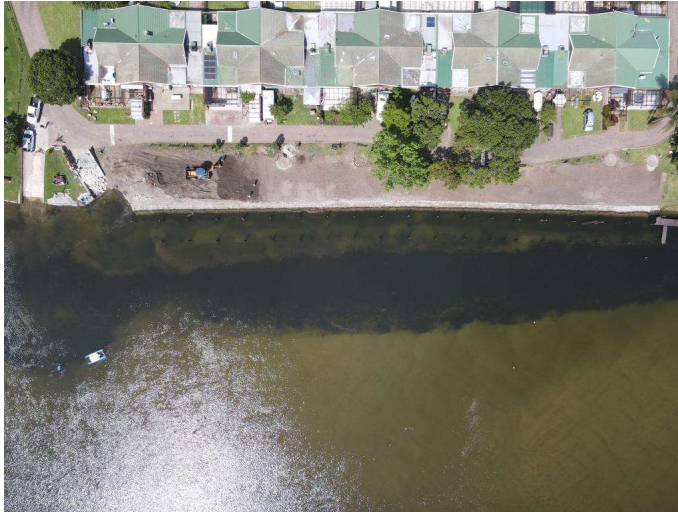


*Termination in progress*

4. A silt curtain was attached to the mooring poles to define the working area and ensure that any silt movement was restricted to the working area. Silt curtain has been removed as work is currently restricted to the bank.
5. A Geofabric layer was attached to the reno mattress toe basket on shore and was lowered into place with the toe basket so as to lie under the toe and up the slope. Overlap was allowed between the baskets to go under the next set of baskets placed.  
– Completed
6. Two (2) rows of sandbags will be placed along the low tide water level contour to form the leading edge of protections against erosion – these will lie behind the reno mattresses which make up the bank protection. – Completed
- 7 Sand excavated from the working area is used to fill the bags and the tidal range wetting the bags ensures that they are well compacted – Completed
- 8 A layer of in situ organic material will be placed over the reno mattresses in the inter-tidal zone and up the bank – completed



*Material covered place over the reno mattresses. Planting of indigenous vegetation to follow (31 October 2023)*



*Drone footage of the site (26 October 2023 supplied by contractor)*

- 9 Indigenous riparian vegetation will be used to vegetate the embankment on completion to create a natural aesthetic – still to be done.** A quote has been requested from a local specialist for the rehabilitation phase as the salt marsh vegetation needs to be specifically sourced to plant as plugs into the reno mattresses.
- 10 The installation of nineteen (19) narrow floating jetties (four (4) metre in length and five (5) metres apart), to be attached to the replaced mooring poles at water's edge where access will be gained from timber walkways (ramps) extending from the existing riverbank – in progress**



*Jetties being assembled on the bank/lawn*

**11 ECO inspections done on the following dates:**

- 07 June 2023
- 22 June 2023
- 27 June 2023
- 4 July 2023
- 14 July 2023
- 26 July 2023
- 31 July 2023
- 4 August 2023
- 11 August 2023
- 22 August 2023
- 30 August 2023
- 7 September 2023
- 13 September 2023
- 20 September 2023
- 13 October 2023
- Updates provided by the contractor following flood event and storm surge: 17 and 26 September 2023
- 31 October 2023

**4 CONCLUSION**

The holder and contractor are compliant with the EA and EMPr. No penalties for non-compliance have been issued to date.

ECO monitoring will continue as required until the installation of the riverbank structures and rehabilitation are completed. Ad hoc inspections will then be done to monitor rehabilitation progress.

The installation of the jetties will follow upon availability of funds.

**5 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR) AND ENVIRONMENTAL AUTHORISATION (EA) CHECKLIST**

This section provides compliance notes with the conditions/recommendations set out in the Final EMPr and EA:

| Pre-construction Phase                                                                                                                                                                                                                                                                                                                             | Yes / Compliance | No / Non-compliance | Comments                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|---------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Induction is required for <b>all contractors prior</b> to them commencing on site.                                                                                                                                                                                                                                                                 | ✓                |                     | Induction done with the contractor by the ECO prior to commencement (18 <sup>th</sup> April 2023)                               |
| The contractor and Site Agent shall, prior to the commencement of activity involving construction, maintenance or rehabilitation, give the ECO a written plan setting out the following: <ul style="list-style-type: none"> <li>• Construction methods anticipated</li> <li>• Location of the construction camp (should it be required)</li> </ul> | ✓                |                     | This was discussed at the first site inspection.<br><br>Construction site camp as agreed with the HOA in the boat parking area. |

|                                                                                                                                                                                                                                                                                                                                 |   |  |                                                                                                                                                                                                                                                                                              |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> <li>• Solid waste</li> <li>• Wastewater</li> <li>• Erosion and sedimentation / destabilisation control</li> <li>• Access to the site (as per the EMPr)</li> <li>• Fire control</li> <li>• Signage</li> </ul> <p>The ECO is to approve the method statement before the work may commence.</p> |   |  | <p>Materials stored in this area until needed and moved to the working area on the riverbank.</p> <p>Gabion rock offloaded in the concrete slipway area as required.</p> <p>No further requirements.</p>                                                                                     |
| Final positioning of the riverbank maintenance must be established on-site before excavation works are to commence                                                                                                                                                                                                              | ✓ |  | <p>As discussed prior to commencement.</p> <p>Work area defined by the mooring poles.</p>                                                                                                                                                                                                    |
| Existing steps into the estuary must be removed                                                                                                                                                                                                                                                                                 | ✓ |  | All existing steps removed                                                                                                                                                                                                                                                                   |
| Clear demarcation of the working zone must be implemented                                                                                                                                                                                                                                                                       | ✓ |  | <p>Out of water: Working zone demarcated using orange construction netting.</p> <p>In the water: Working zone demarcated using the mooring poles and a curtain silt fencing. Work has been completed in the water and are restricted to the bank, as such, the silt curtain was removed.</p> |
| Any indigenous plants that are deemed worth rescuing are to be properly bagged, stored and maintained in a temporary nursery established on-site (to be used in rehabilitation) or the plants in question are to be immediately transplanted out of the building footprint.                                                     | ✓ |  | <p><i>Zostera</i> rescue was not necessary as the siltation of the area meant that the <i>Zostera</i> beds were located in deeper water outside of the working area.</p>                                                                                                                     |
| Existing <i>Zostera capensis</i> (eelgrass) plants that are located within the footprint of the riverbank maintenance should be rescued if possible and transplanted to areas unaffected by the upgrade so as to establish new areas of growth.                                                                                 | ✓ |  |                                                                                                                                                                                                                                                                                              |
| No fauna and flora beyond the working zone may be affected, disturbed and / or removed - demarcation of working zone must be adhered to                                                                                                                                                                                         | ✓ |  | Work only undertaken within the demarcated working zone.                                                                                                                                                                                                                                     |
| Inspection of the site by the ECO prior to commencement of earthworks and the transplanting of eelgrass beds prior to commencement of work within the estuary                                                                                                                                                                   | ✓ |  | Inspection undertaken and the <i>Zostera</i> beds located in deeper water outside of the working zone.                                                                                                                                                                                       |
| Lawn from the work areas be removed as sod to replace when work is complete in the garden areas to restore stockpile sites and areas where machinery has moved and damaged the lawns.                                                                                                                                           | ✓ |  | Grass lawns will be replaced on completion of the contract                                                                                                                                                                                                                                   |
| All cut vegetation shall be disposed of off-site at an approved disposal site. Stockpiling of cut vegetation shall only be permitted in areas indicated by the ECO. <b>No</b> cut vegetation shall be burnt on site.                                                                                                            |   |  | Cut exotic trees was disposed of and the trees will be replaced with indigenous trees.                                                                                                                                                                                                       |
| The affected work area needs to be cleared of all listed invasive plants before construction is complete. Ongoing alien vegetation control should be implemented throughout the operational phase of the development.                                                                                                           |   |  | No alien clearing required to date. Exotic trees along the bank removed.                                                                                                                                                                                                                     |
| All working areas are to be restricted to the immediate bank and lawn areas.                                                                                                                                                                                                                                                    | ✓ |  | Compliant – working area consists of the lawn area, riverbank and the working zone within the water up to the mooring poles.                                                                                                                                                                 |
| Stockpile sites for the sand and reno-mattresses must be agreed with the residents and the ECO. No work below the toe of the reno-mattress slope is permitted.                                                                                                                                                                  | ✓ |  | <p>Stockpiling within the demarcated area.</p> <p>No work beyond the toe. Tie-in with SANRAL slipway is in progress. Tie in with Blue Water completed.</p>                                                                                                                                   |
| All construction activities must be restricted to the demarcated areas to ensure that no further disturbance into the surrounding area occurs.                                                                                                                                                                                  | ✓ |  | Construction restricted to the demarcated working zone.                                                                                                                                                                                                                                      |

|                                                                                                                                                                                                                                                                                               |   |  |                                                               |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|---------------------------------------------------------------|
| No encroachment or activities may take place outside demarcated areas                                                                                                                                                                                                                         | ✓ |  | No encroachment occurred                                      |
| No-Go areas will be required to be demarcated, where feasible, by the contractor to ensure that they are visible at all times, to all personnel.<br>Methods of demarcation will be agreed with the ECO and may include danger tape, rope, fencing, shade cloth, mulch bags, wire fencing etc. | ✓ |  | Demarcated as specified above.                                |
| Adjacent properties to the construction site may not be entered by any construction staff if permission is not granted by the owner.                                                                                                                                                          | ✓ |  | No access required other than as agreed with the HOA and ECO. |

| Construction Phase                                                                                                                                                                                                                         | Yes/Compliance | No/Non-compliance | Comments                                                                                            |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------|-----------------------------------------------------------------------------------------------------|
| GENERAL REQUIREMENTS                                                                                                                                                                                                                       |                |                   |                                                                                                     |
| The contractor shall appoint a responsible agent to ensure that they comply with this EMPr and all its conditions.                                                                                                                         | ✓              |                   | Contractor has a site agent.                                                                        |
| A local contractor using local labour must be used for the construction phase of this project. "Local" implies people within the Plettenberg Bay / Keurbooms/ Craggs area.                                                                 | ✓              |                   | Local contractor has been employed. JB Civils.                                                      |
| No work on public holidays or weekends permitted to avoid disturbance to local residents and visitors. Work hours will be determined by the tidal fluctuations and periods when the work area is accessible                                | ✓              |                   | No work on these days – work commenced after the Easter and school holidays as agreed with the HOA. |
| Ablution facilities (chemical toilets) are to be provided on-site for use of the staff. These are to be located away from the river, secured so that they cannot blow away and be serviced regularly.                                      | ✓              |                   | Ablution facilities provided for the workers                                                        |
| DEMARICATION OF NO-GO AREAS                                                                                                                                                                                                                |                |                   |                                                                                                     |
| all areas outside that of the defined works is deemed a no-go area                                                                                                                                                                         | ✓              |                   | Compliant – demarcation is done as described above. No work done outside of this area.              |
| All construction activities must be restricted to the demarcated areas to ensure that no further disturbance into the surrounding area occurs.                                                                                             | ✓              |                   |                                                                                                     |
| No encroachment or activities may take place outside the work areas.                                                                                                                                                                       | ✓              |                   |                                                                                                     |
| No-Go areas will be required to be demarcated, where feasible, by the contractor to ensure that they are visible at all times, to all personnel.                                                                                           | ✓              |                   |                                                                                                     |
| CONTRACTOR SITE CAMP AND STORAGE OF CONSTRUCTION MATERIAL                                                                                                                                                                                  |                |                   |                                                                                                     |
| If a camp site is to be set up, during construction it needs to be on the lawn adjacent to the work being undertaken as agreed to by the HOA and ECO.                                                                                      | ✓              |                   | Site camp location agreed to                                                                        |
| A fenced-off area / bin with a secure lid must be created within the camp site for refuse and waste management.                                                                                                                            | ✓              |                   | Compliant                                                                                           |
| Refuse is to be collected in two separate containers, one for recyclable materials (glass, metal, paper and plastic) and the other for non-recyclable materials. These are to be disposed of at the various approved waste disposal sites. | ✓              |                   | Compliant                                                                                           |
| No accommodation with the exception of a night watchman is permitted on-site by contractors or their staff during the construction period.                                                                                                 | ✓              |                   | None required                                                                                       |
| No open fires are to be permitted.                                                                                                                                                                                                         | ✓              |                   | Compliant                                                                                           |
| Storage of all materials required for the contract must occur within this camp site, or otherwise approved area (by the ECO).                                                                                                              | ✓              |                   | Compliant – approved by the ECO and HOA                                                             |

|                                                                                                                                                                                                                                                                                                                             |                |                   |                                                                                                                                                                                                                                                                                              |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Appropriate signage must be erected at the construction site to ensure that safety regulations are adhered to.                                                                                                                                                                                                              | ✓              |                   | Compliant and landowners of San Marino have been made aware of the activities that will be undertaken. The construction drawings were available laminated and attached to a tree on site (they have subsequently been removed by a home owner) as are all the necessary safety requirements. |
| The pre-determined location of stockpile sites to be approved by the ECO and landowner, <b>prior</b> to commencement of stockpiling.                                                                                                                                                                                        | ✓              |                   | Compliant – all stockpile sites approved by the ECO and HOA.                                                                                                                                                                                                                                 |
| All stockpile sites to be properly demarcated.                                                                                                                                                                                                                                                                              | ✓              |                   | Compliant                                                                                                                                                                                                                                                                                    |
| Silt protection measures around stockpile sites will be required where materials pose a risk of washing/ blowing into the Keurboom River.                                                                                                                                                                                   |                |                   | None required                                                                                                                                                                                                                                                                                |
| FIRE PROTECTION                                                                                                                                                                                                                                                                                                             |                |                   |                                                                                                                                                                                                                                                                                              |
| No open fires or naked flames for heating or cooking shall be allowed anywhere on site.                                                                                                                                                                                                                                     | ✓              |                   | Compliant                                                                                                                                                                                                                                                                                    |
| Cigarettes may not be disposed of onsite and must be disposed of properly in receptacles for this purpose.                                                                                                                                                                                                                  | ✓              |                   |                                                                                                                                                                                                                                                                                              |
| No burning of waste on ANY PART of the site should be permitted.                                                                                                                                                                                                                                                            | ✓              |                   |                                                                                                                                                                                                                                                                                              |
| The contractor shall identify the authorities responsible for fighting fires in the area and shall liaise with them regarding procedures should a fire start. The contractor shall also ensure that all the necessary telephone numbers etc. are posted at conspicuous and relevant locations in the event of an emergency. | ✓              |                   |                                                                                                                                                                                                                                                                                              |
| WASTE MANAGEMENT                                                                                                                                                                                                                                                                                                            |                |                   |                                                                                                                                                                                                                                                                                              |
| The contractor shall ensure that sufficient disposal facilities are available                                                                                                                                                                                                                                               | ✓              |                   | Compliant, the site is in a neat and tidy condition with no litter.                                                                                                                                                                                                                          |
| Disposal of all waste materials must be done at suitable facilities. No dumping of any waste material on or off site is permitted.                                                                                                                                                                                          | ✓              |                   |                                                                                                                                                                                                                                                                                              |
| The contractor shall ensure that the site is maintained in a neat and tidy condition and kept free of litter (it is very important that no litter enters the estuary).                                                                                                                                                      | ✓              |                   |                                                                                                                                                                                                                                                                                              |
| Waste storage containers shall be covered, tip-proof, weatherproof and scavenger proof. The waste storage area shall be fenced off to prevent wind-blown litter.                                                                                                                                                            | ✓              |                   |                                                                                                                                                                                                                                                                                              |
| Construction sequence                                                                                                                                                                                                                                                                                                       | Yes/Compliance | No/Non-compliance | Comments                                                                                                                                                                                                                                                                                     |
| REMOVAL OF EXISTING TIMBER POLES                                                                                                                                                                                                                                                                                            |                |                   |                                                                                                                                                                                                                                                                                              |
| The retaining wall could be kept in place until the section of the bank has been excavated thereby acting as a physical barrier and limiting the transport of sediment into the estuary as much as possible.                                                                                                                | ✓              |                   | Retaining wall has been kept in place.                                                                                                                                                                                                                                                       |
| The existing creosote-treated retaining poles should be stockpiled separately once removed. These poles will not be disposed of but rather reused or recycled on-site or within the local area for fencing or other purposes as needed. The poles will not, however, be used within the water again.                        | ✓              |                   | Most of the poles was completely rotten. They will not be reused.                                                                                                                                                                                                                            |

|                                                                                                                                                                                                                                                                                                          |   |  |                                                                 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|-----------------------------------------------------------------|
| If the treated timber is not reused it will need to be disposed of at an appropriate hazardous waste landfill and certificates of delivery need to be kept on file.                                                                                                                                      |   |  | Not yet removed - may remain in-situ within the bank.           |
| <b>PUMPING OF SAND FROM THE ESTUARY FOR FILLING THE SANDBAGS</b>                                                                                                                                                                                                                                         |   |  |                                                                 |
| Sand required to fill the sandbags (geotextile bags) must be pumped from areas that are devoid of and in distant proximity to any submerged aquatic vegetation to prevent any unnecessary destruction to the instream habitat.                                                                           |   |  | Not yet required                                                |
| The sand should be mined from near the middle of the estuarine watercourse to prevent the disturbance to the banks of the estuary.                                                                                                                                                                       |   |  | Not yet required – may not be necessary.                        |
| It is recommended that the Estuarine Specialist is in attendance before the first pumping commences to brief the contractor and ensure that they understand the requirements.                                                                                                                            |   |  |                                                                 |
| The filling of the sandbags and the correct compaction of the bags must be done before the systematic placement of the bags along the riverbank                                                                                                                                                          | ✓ |  | Compliant – engineer ensuring compaction requirements were met. |
| <b>PACKING AND PLACING OF RENO-MATRESS</b>                                                                                                                                                                                                                                                               |   |  |                                                                 |
| The reno-matresses are to be packed within the designated work areas (lawns) and to be carried to the bank for placement by small machine and rapid attachment and anchoring.                                                                                                                            | ✓ |  | Compliant – all work undertaken within the demarcated area      |
| As the work is limited by the tidal fluctuation most mattresses will need to be pre-packed and lifted to position to make maximum use of the limited construction window due to the tides (refer to Section 5.1). As soon as the mattresses are placed they should be secured into position as directed. | ✓ |  | Compliant                                                       |

|                                                                                                                                                                                                                                                                          |  |  |                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|------------------|
| <b>TOPSOILING RENO-MATRESS</b>                                                                                                                                                                                                                                           |  |  |                  |
| The placement of topsoil over the reno-matresses ensures that good vegetation cover can be achieved.                                                                                                                                                                     |  |  | Not yet required |
| The stockpiled topsoil is to be placed over the reno-matresses to a depth of 20 cm. This will subside into the mattresses over time, but plant roots will bind the soil and keep the mattresses covered. Topsoil, if not sufficient from the site, needs to be imported. |  |  | Not yet required |

Installation of floating jetties not to be undertaken within this contract period.

|                                                                                                                                                                                                       |  |  |  |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|--|--|
| <b>ASSEMBLAGE AND INSTALLATION OF FLOATING JETTY</b>                                                                                                                                                  |  |  |  |
| The floating jetty structures should, as far as possible, be assembled on land to minimise the amount of time spent working within in the estuary and associated disturbance to the inter-tidal zone. |  |  |  |
| The jetty installation sites should be clearly demarcated and accessed directly from the bank to avoid unnecessary trampling of inter-tidal areas that are not earmarked for jetty installation       |  |  |  |

|                                                                                                                                                                                                                      |   |  |                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|------------------------------------------------------------------------|
| <b>ALIGNMENT WITH BLUE WATERS</b>                                                                                                                                                                                    |   |  |                                                                        |
| The southern-most end of the new bank construction must align with the existing Blue Water Estate. The transition from these "tie-in" points to the alignment of the new bank should follow a gentle, curved path to | ✓ |  | The structure does tie in with neighbouring, Blue Water's, structures. |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |   |  |                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|--|------------------------------------------|
| minimise localised disturbance to flow patterns and sediment transport"                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |   |  |                                          |
| <b>HEAVY MACHINERY WORKS</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |   |  |                                          |
| All machinery should be readily serviced and inspected for leaks. Machinery needing repairs should not be used for construction at the site until repaired and fully operational.                                                                                                                                                                                                                                                                                                                                                                         | ✓ |  | Machinery in a well-maintained condition |
| Any work or maintenance on the machinery should be done far away from the watercourse, preferably in a work yard or on a concrete surface.                                                                                                                                                                                                                                                                                                                                                                                                                |   |  | No maintenance required.                 |
| Refuelling of the machinery must take place away from the watercourse and on a concrete surface to prevent seepage.                                                                                                                                                                                                                                                                                                                                                                                                                                       | ✓ |  | Compliant                                |
| All machinery should be parked off-site, and away from the edge of the watercourse when not in use" (Confluent Environmental, 2021).                                                                                                                                                                                                                                                                                                                                                                                                                      | ✓ |  | Compliant                                |
| <b>HERITAGE RESOURCES</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |   |  |                                          |
| Should any heritage remains be exposed during excavations or any other actions on the site, these must immediately be reported to the Provincial Heritage Resources Authority of the Western Cape, Heritage Western Cape. Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from Heritage Western Cape. Heritage remains may only be disturbed by a suitably qualified heritage specialist working under a directive from the relevant Heritage Resources Authority. |   |  | No discoveries                           |

- Rehabilitation will only be undertaken after installation. Therefore, compliance with the rehabilitation phase of the EMP has not yet been noted. As indicated above a quote has been requested from the specialist so that the preparation for the rehabilitation can be done.

| REHABILITATION PHASE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | Yes/Compliance | No/Non-compliance | Comments |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-------------------|----------|
| <b>PLANTING OF THE RIVERBANK</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                |                   |          |
| Indigenous plants must be planted along the reno-matress construction to create a riparian zone and further stability to the banks. Also improving the general biodiversity and ecological connectivity of the riverbanks.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |                |                   |          |
| Planting of the reshaped riverbank is to occur sequentially as that portion of the bank maintenance has been completed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                |                   |          |
| <b>Salt Marsh type vegetation:</b> <ul style="list-style-type: none"> <li>To be sourced as cuttings locally</li> <li>These can be prepared in advance in seed trays so that rooted cuttings are available for planting as the sections of the bank are complete.</li> <li>To be planted into the areas from 1 m above the high water mark to the normal low tide mark.</li> <li>Zonation of the Keurbooms estuary salt marsh type plants must be used to guide the replanting. (i.e. plant the species in the same area along the salinity profile as the area from which the cuttings were sourced).</li> <li>No nursery-grown plants should be used to not introduce genetic variance to the system.</li> </ul> |                |                   |          |
| <b>Riparian zone (above the normal high tide mark)</b> <ul style="list-style-type: none"> <li>Sod the bank from above the high-water mark to the top of the existing river bank with</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                |                   |          |

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| <p>a combination of <i>Stenotaphrum secundatum</i> (Buffalo Grass) and <i>Cynodon dactylon</i> (Kweek Grass) in order to ensure that there is a rapidly binding grass that can protect the topsoil while the more long term species establish themselves.</p> <ul style="list-style-type: none"> <li>The use of sod pegged onto the slope will ensure that the topsoil is protected from abnormally high tidal and wave action.</li> <li>The sods should <b>NOT</b> be mowed but must be allowed to grow naturally. A 2 m setback from the crest of the created slope should be instated wherein no mowing of the grasses may occur except to gain access to the jetties.</li> <li>Plant a selection of coastal forest and fynbos seedlings in clusters up the slope in order to create habitat without blocking views etc.</li> <li>Each bush clump should consist of approximately three (3) trees species and four to five (4 – 5) shrub species.</li> <li>The bush-clumps are to be spaced approximately 10 – 15 m apart within the 2 m setback from the crest of the slope and approximately 5 – 10 m apart along the riparian zone of the slope.</li> </ul> |  |  |  |
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| <b>E. CONDITIONS OF AUTHORISATION</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                                                                                                                                                                         |
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| <p><b>Scope and Validity Period of authorisation</b></p> <p>1. This Environmental Authorisation is granted for the period from date of issue until <b><u>30 September 2030:</u></b></p> <p>2. The non-operational component (construction phase) of the Environmental Authorisation is subject to the following: 2.1 The Holder must start with the physical implementation of all the authorised listed activities on the site within 24-months from the date of issue.</p> <p>2.2 The Holder must conclude the physical implementation of all the authorised listed activities on the site by <b><u>31 March 2027.</u></b></p> <p>2.3 The holder must finalise the post construction rehabilitation and monitoring requirements within a period of 6-months from the date the development activity (construction phase) is concluded.</p> <p><b>Note:</b> Failure to complete the post construction rehabilitation and monitoring requirements at least six-months prior to expiry of the validity period of an environmental authorisation may result in the Holder not being able to comply with the environmental auditing requirements in time.</p> <p>3. The post-construction and maintenance component (operational phase) of this Environmental Authorisation is granted until <b><u>31 March 2030</u></b> during which period maintenance to the reno-mattresses and jetties and monitoring requirements and reporting must be finalised.</p> <p><b>Note:</b> The maintenance monitoring requirements should be completed at least six (6) months prior to expiry of the validity period of an environmental authorisation to ensure the Holder is able to comply with the environmental auditing requirements in time.</p> <p>Failing which, this Environmental Authorisation shall lapse, unless the environmental authorisation is amended in accordance with the relevant process contemplated in the Environmental Impact</p> | <p><b>Commencement undertaken well within the validity period. Completion with installation of floating jetties planned before the EA lapses</b></p> <p><b>To follow completion</b></p> |

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| Assessment Regulations promulgated under the National Environmental Management Act, 1998 (Act no. 107 of 1998).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                                                                                                    |
| <p>4. The Holder is authorised to undertake the listed activities specified in Section B above in accordance with the Preferred Alternative described in the FBAR dated 5 November 2021 on the site as described in Section C above.</p> <p>This Environmental Authorisation is only for the implementation of the Preferred Alternative for the site which entails:</p> <p>The Holder is herein authorised to undertake the following activity that includes the listed activities as it relates to the replacement of existing creosote timber poles and mooring buoys with the development of a sloping stepped sandbag foundation with vegetated reno-mattresses within the Keurbooms River Estuary at the San Marino complex.</p> <p>The proposed riverbank design will tie in with the existing embankment upgrade at Blue Waters River Estate and Silverstreams River Estate (located downstream of San Marino) and as such, will result in homogeneous riverbank protective measures with existing boat moorings on controlled floating jetty structures.</p> <p>The authorisation is for the Preferred alternative which entails the infilling, depositing, excavation and moving of sand of more than 5m<sup>3</sup> within 100 metres of the highwater mark of the estuary and the construction of structures and infrastructure for the purpose of:</p> <p>The replacement of the existing creosote timber poles and vertical riverbank retaining wall with a different designed retaining structure consisting of a structure that will consist of a sloping stepped sandbag foundation covered by reno-mattress construction which will be re-vegetated with indigenous vegetation that occurs naturally in the intertidal zone of the estuary (based on natural zonation). The reno-mattress will extend approximately 2-3 m beyond the line of the existing retaining wall sloping downwards into the estuary, meeting the bed of the estuary (approximately 2 m beyond the line of the existing retaining wall). The toe of the reno-mattress will extend approximately 2.5 m further into the estuary to the floating jetty walkway running parallel to the riverbank (adjacent to the existing SANRAL slipway). The downstream bank will tie in with the bank stabilisation at Blue Waters River Estate.</p> <p>The existing 19 moorings (buoy anchor) will be replaced with a floating jetty with mooring points for 19 boats which will be accessed by a gang plank from the shore. The jetty will be anchored to a 6 m long CCA treated timber pole (or suitable alternative) which will be driven into the sand bed (depth of 4 m). The 4 m x 0.7 m "fingers" of the jetty will be spaced 5 m apart extending into the estuary with the walkway removing the necessity to walk in the intertidal zone to access the boats.</p> <p>The works must be done in accordance with the design by MOSOMO (dated April 2019) Drawing number 949-San Marino-2 (Annexure 2).</p> | <p><b>Activities undertaken have been done in accordance with the approval - the construction drawings issued are by Dave Visser based on the Mosomo design as stipulated.</b></p> |
| 5. This Environmental Authorisation may only be implemented in accordance with an approved Environmental Management Programme ("EMPr").                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | <p><b>EMPr submitted for approval well in advance of the work commencing. 22<sup>nd</sup> March 2022 submitted, work commenced 18<sup>th</sup> April 2023.</b></p>                 |
| 6. The Holder shall be responsible for ensuring compliance with the conditions by any person acting on his/her behalf, including an agent, sub-contractor, employee or any person rendering a service to the Holder.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p><b>Holder is ensuring compliance</b></p>                                                                                                                                        |
| 7. Any changes to, or deviations from the scope of the alternative described in section B above must be accepted or approved, in writing, by the Competent Authority before such changes or deviations may be implemented. In assessing whether to grant such acceptance/approval or not, the Competent Authority may                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | <p><b>No deviations from the authorisation</b></p>                                                                                                                                 |

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| <p>request information in order to evaluate the significance and impacts of such changes or deviations, and it may be necessary for the Holder to apply for further authorisation in terms of the applicable legislation.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                    |
| <p><b>Notification and administration of appeal</b></p> <p>8. The Holder must in writing, within 14 (fourteen) calendar days of the date of this decision– 8.1. notify all registered Interested and Affected Parties (“I&amp;APs”) of – 8.1.1. the decision reached on the application;</p> <p>8.1.2. the reasons for the decision as included in Annexure 3;</p> <p>8.1.3. the date of the decision; and</p> <p>8.1.4. the date when the decision was issued.</p> <p>8.2. draw the attention of all registered I&amp;APs to the fact that an appeal may be lodged against the decision in terms of the National Appeal Regulations, 2014 (as amended) detailed in Section G below;</p> <p>8.3. draw the attention of all registered I&amp;APs to the manner in which they may access the decision;</p> <p>8.4. provide the registered I&amp;APs with the: 8.4.1. name of the Holder (entity) of this Environmental Authorisation,</p> <p>8.4.2. name of the responsible person for this Environmental Authorisation,</p> <p>8.4.3. postal address of the Holder,</p> <p>8.4.4. telephonic and fax details of the Holder,</p> <p>8.4.5. e-mail address, if any, of the Holder,</p> <p>8.4.6. contact details (postal and/or physical address, contact number, facsimile and e-mail address) of the decision-maker and all registered I&amp;APs in the event that an appeal is lodged in terms of the 2014 National Appeals Regulations (as amended).</p> <p>8.5. The listed activities, including site preparation, must not commence within 20 (twenty) calendar days from the date the applicant notified the registered I&amp;APs of this decision.</p> <p>8.6. In the event that an appeal is lodged with the Appeal Authority, the effect of this Environmental Authorisation is suspended until the appeal is decided i.e. the listed activities, including site preparation, must not commence until the appeal is decided.</p> | <p><b>Notification of EA and right to appeal was done by Hilland Environmental on the 14<sup>th</sup> March 2022 and no appeals were received. CA was copied in on the correspondence.</b></p>                     |
| <p><b>Written notice to the Competent Authority</b></p> <p>9. Seven calendar days' notice, in writing, must be given to the Competent Authority before commencement of any activities.</p> <p>9.1. The notice must make clear reference to the site details and EIA Reference number given above.</p> <p>9.2. The notice must also include proof of compliance with the following conditions described herein: <b>Conditions no.: 8, 11 and 13.</b></p> <p>9.3. Seven calendar days' notice, in writing, must be given to the Competent Authority on the commencement of any maintenance activities to any structures during the period that the environmental authorisation is valid.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | <p><b>Notification has been given to DEADP September 2022 indicating a commencement date of after the Easter holidays of 2023.</b></p> <p><b>The notice included compliance with the specified conditions.</b></p> |
| <p>10. Seven calendar days' written notice must be given to the Competent Authority on completion of the construction activities.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <p><b>Notice was given to DEADP, construction activities are in progress.</b></p>                                                                                                                                  |
| <p><b>Management of activity</b></p> <p>11. The draft or Environmental Management Programme (“EMPr”) submitted as part of the application for Environmental Authorisation must be amended and submitted to this Department prior to commencement of any activities on the site:</p> <p>11.1. The EMPr must be amended to incorporate the following —</p> <p>11.1.1. Incorporate all the conditions given in this Environmental Authorisation;</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | <p><b>The Final EMPr submitted 22<sup>nd</sup> March 2022.</b></p>                                                                                                                                                 |

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| 11.1.2. All monthly ECO reports to be submitted to the competent authority.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <b>This report constitutes of the 2<sup>nd</sup> ECO report that is submitted to DEADP covering the period 7<sup>th</sup> June – end July 2023</b> |
| 12. The EMPr must be included in all contract documentation for all phases of implementation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | <b>Compliant – EMPr in the contract awarded to JB Civils</b>                                                                                       |
| <p><b>Monitoring</b></p> <p>13. The Holder must appoint a suitably experienced Environmental Control Officer ("ECO"), for the duration of the construction and rehabilitation phases of implementation contained herein.</p> <p>14. The ECO must– 14.1. be appointed prior to commencement of any works (i.e. removal and movement of soil);</p> <p>14.2. ensure compliance with the EMPr and the conditions contained herein;</p> <p>14.3. keep record of all activities on the site; problems identified; transgressions noted and a task schedule of tasks undertaken by the ECO;</p> <p>14.4. remain employed until all development activities are concluded, and the post construction rehabilitation and monitoring requirements are finalised.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               | <b>Hilland Environmental has been appointed.</b>                                                                                                   |
| 15. A copy of the Environmental Authorisation, EMPr, any independent assessments of financial provision for rehabilitation and environmental liability, closure plans, audit reports and compliance monitoring reports must be kept at the site of the authorised activities and be made available to anyone on request, and where the Holder has website, such documents must be made available on such publicly accessible website.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | <b>Contractor and HOA have copies</b>                                                                                                              |
| 16. Access to the site referred to in Section C must be granted, and the environmental reports mentioned above must be produced, to any authorised official representing the Competent Authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                | <b>No visit undertaken to date</b>                                                                                                                 |
| <p><b>Auditing</b></p> <p>17. The Holder must, for the period during which the environmental authorisation and EMPr remain valid ensure the compliance with the conditions of the environmental authorisation and the EMPr, is audited.</p> <p>18. The frequency of auditing of compliance with the conditions of the environmental authorisation and of compliance with the EMPr, must adhere to the following programme: 18.1. Auditing during the non-operational phase (construction activities): 18.1.1. During the period which the development activities have been commenced with on site, the Holder must ensure annual environmental audit(s) are undertaken and the Environmental Audit Report(s) submitted annually to the Competent Authority.</p> <p>18.1.2. A final Environmental Audit Report for the construction phase (non-operational component) must be submitted to the Competent Authority within <b>three (3) months</b> of completion of the post construction rehabilitation and monitoring requirements.</p> <p>18.2. Auditing during the operational phase (post construction and maintenance activities): 18.2.1. During the post-construction and maintenance phase, the Holder must ensure annual environmental audit(s) are undertaken following the completion of the construction phase/post construction rehabilitation and monitoring requirements and such Environmental Audit Report(s) must be submitted annually to the Competent Authority.</p> <p><b>Note:</b> The final auditing requirements should be completed and submitted at least three months prior to expiry of the validity period of the environmental authorisation to ensure the Holder is able to comply with all the environmental auditing and reporting</p> | <b>No audit required yet.</b>                                                                                                                      |

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| <p>requirements and for the competent authority to be able to process it timeously.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                       |
| <p>19. The Environmental Audit Report(s), must– 19.1. be prepared and submitted to the Competent Authority, by an independent person with the relevant environmental auditing expertise. Such person may not be the ECO or EAP who conducted the EIA process;</p> <p>19.2. provide verifiable findings, in a structured and systematic manner, on– 19.2.1. the level of compliance with the conditions of the environmental authorisation and the EMPr and whether this is sufficient or not; and</p> <p>19.2.2. the ability of the measures contained in the EMPr to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity.</p> <p>19.3. identify and assess any new impacts and risks as a result of undertaking the activity;</p> <p>19.4. evaluate the effectiveness of the EMPr;</p> <p>19.5. identify shortcomings in the EMPr;</p> <p>19.6. identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr;</p> <p>19.7. indicate the date on which the construction work was commenced with and completed or in the case where the development is incomplete, the progress of the development and rehabilitation;</p> <p>19.8. indicate the date on which the maintenance/ rehabilitation was commenced with and the progress of the rehabilitation;</p> <p>19.9. include a photographic record of the site applicable to the audit; and</p> <p>19.10. be informed by the ECO reports.</p> |                                       |
| <p>20. The Holder must, within 7 calendar days of the submission of the audit report to the Competent Authority, notify all potential and registered I&amp;APs of the submission and make the report available to anyone on request and on a publicly accessible website (if applicable).</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                       |
| <p><b>Specific Conditions</b></p> <p>21. Should any heritage remains be exposed during excavations or any other actions on the site, these must immediately be reported to the Provincial Heritage Resources Authority of the Western Cape, Heritage Western Cape. Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from Heritage Western Cape. Heritage remains may only be disturbed by a suitably qualified heritage specialist working under a directive from the relevant Heritage Resources Authority.</p> <p>Heritage remains include: meteorites, archaeological and/or paleontological remains (including fossil shells and trace fossils); coins; indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artefacts and bone remains; structures and other built features with heritage significance; rock art and rock engravings; shipwrecks; and/or graves or unmarked human burials including grave goods and/or associated burial material.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                          | <p><b>No remains encountered.</b></p> |