
Environmental Management Audit

- NEMA EIA Reg 34 audit –

April 2022

Rehabilitation of the Distillery Road Bridge Stellenbosch

DEA&DP Reference: 16/3/3/1/B4/45/1064/20

FINAL REPORT

26 APRIL 2022

Prepared by:
Christine Rabie

Prepared for:
Aecom

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Abbreviations

AIS	Alien Invasive Species (as listed by NEMBA)
DEA&DP	Department of Environmental Affairs & Development Planning
EA	Environmental Authorisation (<i>Ref: 16/3/3/1/B4/45/1064/20 issued 20 May 2021</i>)
ECO	Environmental Control Officer
EO	Environmental Officer (from the Contractor)
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme (<i>Environmental Management Programme: for the Proposed Rehabilitation of the Distillery Road Bridge, Stellenbosch, SLR, January 2021</i>)
NEMA	National Environmental Management Act (No 107) of 1998
NEMBA	National Environmental Management: Biodiversity Act (No 10) of 2004
MS	(Environmental) Method Statement
MSDS	Material Safety Data Sheet
RE	Resident Engineer

Designations and Definitions

Auditor: The external independent environmental auditor, Mrs Christine Rabie from Christine Rabie Environmental Management Solutions, who undertook this environmental management audit.

Contractor (principal): Martin & East

EA Holder: Stellenbosch Municipality

Evidence: Written records or physical evidence or observations or oral statements given during interviews. Where possible oral statements are collaborated between more than one independent party.

Resident Engineer: Responsible for overseeing the contractual implementation of the works on behalf of the EA Holder. Provided by Aecom for this project.

Site/Development: Project site located at the road bridge on Distillery Road , Stellenbosch and specifically the area that contains the activities authorised by the EA (refer to sections B and C of the EA).

Site Agent: Ricardo De Sa from Martin&East

1 INTRODUCTION

1.1 BACKGROUND

Christine Rabie Environmental Management Solutions was appointed by Aecom on behalf of the EA Holder, the Stellenbosch Municipality, to undertake an external environmental audit of this project's compliance with the conditions of the Environmental Authorisation (EA) Ref: 16/3/1/B4/45/1064/20, issued by the Department of Environmental Affairs & Development Planning (DEA&DP) on 20 May 2021, as well as the Environmental Management Programme (EMPr) for the project, dated January 2021.

The development site is located at the existing road bridge on Distillery Road adjacent to the Bosman's Crossing Heritage site as shown in *Figure 1* below.



Figure 1. Development Site (Figure sourced from project EMPr, SLR 2021)

The development comprises (refer to the EA section B):

- The phased demolition of the deck of the existing bridge structure to allow traffic accommodation during the rehabilitation of the structure;
- Excavation within the riverbed and banks to construct the foundations of new bridge supports, including piling. Each abutment would comprise an abutment wall of approximately 14m² and 13 x 375mm diameter circular piles;

- Construction of a new bridge super and substructure on the same footprint of the demolished bridge, which is wider and longer than the existing bridge (approximately 23.5m long x 7.2m wide); and
- Provision of a wider road surface and sidewalk for the bridge approaches to accommodate two lanes of vehicle and pedestrian / non-motorised traffic in accordance with the planning requirements for this urban area.

Construction commenced on the site on 31 January 2022 and at the time of the audit, on 20 April 2022, the construction programme was in month 3, with piling works nearing completion. Martin&East is the principal Contractor for the project and at the time of the audit, the piling subcontractor, Franki-Pile was also established and actively working on site.

1.2 SCOPE AND TERMS OF REFERENCE

The EA requires in Condition E.14, external auditing of the conditions of contained therein as well as the EMPr, within 3 months of the commencement of the listed activities i.e. before 29 April 2022. This audit assesses the development's level of compliance with the conditions of the EA and the outcomes of the EMPr, in order to confirm compliance and to identify any issues requiring further attention. This is dealt with in the report that follows.

This audit and related report fulfils the requirements for external environmental audits as detailed in Regulation 34 of the NEMA (National Environmental Management Act (No 108) of 1998) EIA (Environmental Impact Assessment) Regulations as well as Condition E.14 of the EA, which are as described hereafter. The terms of reference for the audit were developed from these requirements as well as from current best management practice for environmental audits of this nature.

1.2.1 EA requirements

Condition 14 of the EA requires the Holder of the EA to appoint an independent external auditor (not the ECO) to conduct an audit on compliance with the conditions of the issued Authorisation and EMPr, within 3 months of the commencement of the construction phase (i.e. before 29 April 2022), per the requirements of Section 34 of the NEMA EIA Regulations 2014 (as amended). A further external audit will be required within 3 months after completion of the construction phase. The EA holder must notify all potential and registered I&AP's of the submission of audit reports within 7 days thereof and make the report available to them on request.

1.2.2 NEMA EIA Regulation 34 Requirements

NEMA Regulation 34 requires the holder of the Authorisation to ensure that compliance with the conditions of the EA and EMPr is audited by an independent person with relevant environmental auditing expertise and submit an environmental audit report to the competent authority (in this case, the DEA&DP) at intervals as indicated in the EA and including the contents specified in Appendix 7 of the NEMA EIA Regulations 2014 (as amended).

The Appendix 7 content requirements are tabulated as follows. The corresponding section number of this report where this is addressed is provided here as a cross reference to demonstrate that this report includes the required content.

Appendix 7 of the NEMA Regulations requirement	Corresponding section in this audit report
(1) Provide recommendations regarding the need to amend the EMPr;	Section 4

(2a) Report on the level of compliance with the conditions of the EA and the EMPr and the extent to which the avoidance, management and mitigation measures provided for in the EMPr achieve the objectives and outcomes of the EMPr;	Section 3
(2b) Identify and assess any new impacts and risks as a result of undertaking the activity;	Section 4
(2c,d) Evaluate the effectiveness of the EMPr and any shortcomings;	Section 4
(2e) Identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr.	Section 4
(3.1 a) contain the details of the independent person who prepared the environmental audit report and their expertise;	Section 6
(3.1 b) declaration that the independent auditor is independent;	Section 6
(3.1 c) indication of the scope of, and the purpose for which, the environmental audit report was prepared;	Section 1
(3.1 d) description of the methodology adopted in preparing the audit report;	Section 2
(3.1 e) indication of the ability of the EMPr to sufficiently provide for the avoidance, management and mitigation of the environmental impacts associated with the undertaking of the activity on an ongoing basis and the closure of the facility and ensure compliance with the provisions of the EA and EMPr	Section 4
(3.1 f) a description of any assumptions made, and any uncertainties or gaps in knowledge;	Section 1.3
(3.1 g) a description of any consultation process that was undertaken during the course of carrying out the environmental audit report;	Section 2
(3.1 h) summary and copies of any comments that were received during any consultation process; and	n/a
(3.1 i) any other information required by the competent authority.	EA Condition 15 described in section 1.2.2 that follows.

1.2.3 Terms of reference for this audit

The terms of reference for this audit are as follows:

- **Prepare for the audit** - review the background information available on the development, the conditions of the issued EA and requirements of the EMPr and develop an audit checklist based on the outcomes required by the conditions and EMPr;
- **Audit - site inspection, interviews and document review:** Conduct a site inspection, interview* relevant management and construction personnel/project consultants and review

- submitted documentary evidence to verify compliance of the development with the Conditions of the EA and EMPr requirements(* interviews can be done at the time of the site inspection, telephonically or information can be requested via-email);
- **Review the EMPr** in terms of its effectiveness and scope to mitigate environmental risks/impacts on the site, based on the findings of the site inspection and compliance audit and recommend EMPr amendments if deemed required;
 - **Draft audit report** of findings and recommendations and issue draft to relevant project personnel to check for accuracy and fairness and provide any missing information;
 - **Finalise the audit report** and submit to the DEA&DP within the required time frames.

1.3 ASSUMPTIONS AND LIMITATIONS

Assumptions are:

- It is assumed that all information received from the project personnel/consultants is accurate and correct.

Limitations to the study are:

- This is not a full Legal Compliance Audit (compliance with all applicable environmental legislation). The audit is restricted to requirements of the EA Conditions and EMPr requirements applicable to this project and relevant to the current phase of works (construction).
- The audit inspection observes a moment in time and cannot verify the management of all activities or record all contraventions/issues that are not directly observable or documented.
- The environmental audit findings and conclusions are based solely upon the observations of the auditor and information provided to the auditor by interviewed parties, which the auditor assumes to be correct. Wherever possible, verification in terms of visual inspection or examination of supporting documentation was used to confirm information provided. The auditor cannot be held responsible for findings and conclusions which resulted from inaccurate information, information being withheld from the auditor or which were not available during the course of the audit.

2 METHODOLOGY

2.1 Approach

The auditor tabulated the requirements from the EA and EMPr in the Audit Checklist in Section 2.2 that follows. These are the items which have been investigated and assessed during the audit. The audit inspection was undertaken on the 20 April 2022 by Christine Rabie, accompanied by the Development's appointed Environmental Control Officer, Mr Vincent Masefield and the principal Contractor's Environmental Officer (EO), Morné Otto.

Documentary evidence was supplied by the ECO and/or inspected on site as follows:

- **Environmental Authorization**, Ref: 16/3/3/1/B4/45/1064/20 issued 20 May 2021.
- **Environmental Management Programme**, (*Environmental Management Programme: for the Proposed Rehabilitation of the Distillery Road Bridge, Stellenbosch, SLR, January 2021*)).
- **DEA&DP Acknowledgement of Receipt of Notice of Commencement**, Andrea Thomas, dated 14 February 2022.
- **DEA&DP Compliance Audit Inspection**, findings memo from site inspection undertaken on 24 February 2022, Andrea Thomas, dated 9 March 2022.

- **Environmental Awareness Induction Register 21 February 2022 and Induction Content**, viewed in the site file.
- **ECO Environmental Inspection Reports**: February, March and April 2022, Ecosense cc.
- **Environmental Method Statements** (Site Establishment, Construct platforms for piling rig, Cement and Concrete Batching, Water Course Management, Vegetation Clearing, Solid Waste Management) – viewed in the site file of the principal Contractor.
- **Labour Report** – monthly reports generated by principal Contractor – sample report viewed for 7 March 2022.
- **Material Safety Data Sheets (MSDS) for petrol and Notification of Construction Commencement to DEA&DP**, dated 24 January 2022, Ecosense cc.
- **Waste Disposal Register, disposal slips** - viewed in the site files of principle Contractor.

The Audit Checklist was completed following the site inspection, interviews, and review of documentary evidence, where compliance with each authorisation condition and EMPr requirement (applicable to the construction phase) was assessed and classified. Recommendations are made based on the findings of the compliance audit as well as the review of the relevance of the EMPr to the current site conditions.

3 COMPLIANCE AUDIT

3.1 Compliance Checklist: Notes and key to compliance columns:

Compliance = where a condition of the EA/EMPr has been complied with and there is no evidence of significant environmental impact or damage, or where impact was expected, that the required mitigation actions were undertaken to address such impact or damage.

N/A = Not Applicable = where a condition of the EA/EMPr is not currently applicable to the project (reason to be motivated) e.g. the phase of work.

Non Compliance = where a condition of the EA/EMPr has not been complied with. Comment will be made regarding whether there is evidence of or potential for any significant environmental impact or damage or legal liability as a result of the non-compliance.

Noted – where a condition of the EA/EMPr is not related to a specific action required of site management but rather a general statement.

Partial Compliance = where a condition of the EA/EMPr has been complied with for the most part but minor additional management/administration action is required and recommended to gain full compliance.

The completed Compliance Checklist of findings follows:

3.2 Compliance Audit Findings:

Item	EA/EMPR Ref	Specification	Compliance			Comments
			Yes	No	Part	
A COMPLIANCE WITH EA CONDITIONS						
1.	E.1	The holder is authorised to undertake the listed activities specified in EA Section B, accordance with and restricted to Activity Alternative 5 and Design Alternative 3; as described in the BAR dated January 2021 on the site as described in Section C of the EA.	✓			The audit site inspection confirms that the constructed elements on site are in line with the authorised activities per section B and C of the EA. This is also confirmed in the ECO reports.
2.	E.2	The Environmental Authorisation is valid for a period of five years from the date of issue, within which commencement must occur.	✓			Construction commenced on 31 January 2022. This falls within the validity period of the EA issued on 20 May 2021.
3.	E.3	The development must be concluded within ten years from the date of commencement of the listed activity.	n/a			Construction has not yet been completed but is anticipated by early 2023, well within the validity period of the EA.
4.	E.4	The holder shall be responsible for ensuring compliance with the conditions by any person acting on his/her behalf, including an agent, subcontractor, employee or any person rendering a service to the holder.	Noted			Noted.
5.	E.5	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 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.	n/a			No changes/deviations have been observed or reported pertaining to works undertaken on site to date and no intention of application for changes/deviations has been reported to the auditor.
6.	E.6	Seven (7) calendar days' notice, in writing, must be given to the Competent Authority before commencement of construction activity. 6.1. The notice must make clear reference to the site details and EIA Reference number given above. 6.2. The notice must also include proof of compliance with the following conditions described herein: Conditions: 7,8,9 and 11	✓			Notification of Construction Commencement was submitted to DEA&DP on 24 January 2022 by Ecosense, on behalf of the applicant. This was done within the minimum 7 days prior to construction commencement (31 January 2022). The required refence number and site details are provided in the header of the Notification. The Notice included proof of compliance with EA conditions 7,8,9 and 11.
						Receipt was acknowledged by the DEA&DP on 14 February 2022, confirming compliance for 6,8,9, 10 and 11. The sufficiency of proof of compliance of Condition 7 was queried – this was responded to by Ecosense and compliance confirmed as accepted by the DEA&DP in writing on 9 March 2022.

Item	EA/EMPr Ref	Specification	Compliance			Comments
			Yes	No	Part	
7.	E.7	The holder must in writing, within fourteen (14) calendar days of the date of this decision, notify all registered Interested and Affected Parties ("I&APs") of –				Proof was contained within the Notification of Construction Commencement submitted to the DEA&DP on 24 January 2022 and follow up e-mail issued by Ecosense on 21 February 2022. Acceptance/confirmation of this EA condition was provided by the DEA&DP in their letter dated 9 March 2022.
		7.1.1. the outcome of the application; 7.1.2. the reasons for the decision as included in Annexure 3; 7.1.3. the date of the decision; and 7.1.4. the date when the decision was issued.				
		7.2. Draw the attention of all registered I&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 Of the EA;				
		7.3 draw the attention of all registered I&APs to the manner in which they may access the decision;				
		Provide the registered I&APs with: 7.4.1. the name of the holder (entity) of this Environmental Authorisation, 7.4.2. name of the responsible person for this Environmental Authorisation, 7.4.3. postal address of the holder, 7.4.4. telephonic and fax details of the holder, 7.4.5. e-mail address, if any, of the holder, 7.4.6. the contact details (postal and/or physical address, contact number, facsimile and e-mail address) of the decision-maker and all registered I&APs in the event that an appeal is lodged in terms of the National Appeal Regulations, 2014 (as amended).	✓	Construction commenced on 31 January 2022, which is more than 20 days after the notification of the I&APs.		
	E.8	The listed activities, including site Preparation, must not commence within 20 calendar days from the date the holder notifies the registered I&APs of this decision. 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.	✓			No appeals were lodged.
9.	E.9	The draft Environmental Management Programme ("EMPr") submitted as part of the application for Environmental Authorisation is hereby approved and must be implemented.	✓			Yes , as monitored and reported on in the monthly ECO reports.
10.	E.10	The EMPr must be included in all contract documentation for all phases of implementation.	✓			Proof of compliance with this condition was submitted to the DEA&DP in the commencement letter dated 24 January 2022.

Item	EA/EMPr Ref	Specification	Compliance			Comments
			Yes	No	Part	
11.	E.11	The holder must appoint a suitably experienced environmental control officer ("ECO") before commencement of any land clearing or construction activity to ensure compliance with the EMPr and the conditions contained herein	✓			The appointed ECO is Mr Vincent Masefield of Ecosense, as verified within the Notification of Construction Commencement submitted to the DEA&DP on 24 January 2022.
12.	E.12	A copy of the Environmental Authorisation, EMPr, MMP, audit reports and compliance monitoring reports must be kept at the site of the authorised activity, and must be made available to anyone on request, including a publicly accessible website.	✓			Confirmed on site in the environmental management file of the principal Contractor by the auditor on 20 April 2022. Refer to Photo 1 in the Photo Sheet in Appendix 1 of this report. It is noted that the ECO monitoring reports are retained as digital records on the EO's site laptop.
13.	E.13	Access to the site referred to in Section C above 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.	✓			Confirmed for the site visit by the DEA&DP undertaken on 24 February 2022, as evidenced by their written correspondence dated 9 March 2022.
14.	E.14	In terms of Regulation 34 of the NEMA EIA Regulations, 2014 (as amended), the holder must conduct environmental audits to determine compliance with the conditions of the Environmental Authorisation and the EMPr. The Environmental Audit Report must be prepared by an independent person (not the ECO appointed in terms of condition 12 above) and must contain all the information required in Appendix 7 of the NEMA EIA Regulations, 2014 (as amended).	✓			Confirmed by this audit report submitted by external auditor Christine Rabie, who has 19 years of experience in auditing compliance with EA's and EMPr's and is a certified and currently registered Environmental Scientist with SACNASP (Reg. No 400055/17). This audit report complies with the content requirements of Appendix 7 of the NEMA EIA regulations, as confirmed in section 1.2.1 of this report.
15.	E.15	The holder must undertake an environmental audit and submit an Environmental Audit Report to the Competent Authority within three months after commencement of the construction phase. The final Environmental Audit Report must be submitted to the Competent Authority within three months after completion of the construction phase of the development. The holder must, within 7 days of the submission of each of the above-mentioned reports to the Competent Authority, notify all potential and registered I&APs of the submission and make the report available to anyone on request and on a publicly accessible website (if applicable).		n/a		No heritage resources (not previously assessed/reported on) have been discovered. (Pers. comm. ECO Vincent Masefield and EO Morné Otto, and also per ECO reports).

Item	EA/EMP Ref	Specification	Compliance			Comments
			Yes	No	Part	
		not be further disturbed until the necessary approval has been obtained from Heritage Western Cape.				
		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 artifacts and bone remains; structures and other built features with heritage significance; rock art and rock engravings; and/or graves or unmarked human burials including grave goods and/or associated burial material.				
16.	E.16	A qualified archaeologist and/or palaeontologist must be contracted where necessary (at the expense of the holder) to remove any heritage remains. Heritage remains can only be disturbed by a suitably qualified heritage specialist working under a directive from the relevant heritage resources authority.	✓			Health & Safety Agents, Eppen-Burger & Associates, have been contracted to undertake monthly site audits and ensure compliance with the relevant occupational health and safety requirements.
17.	E.17	The relevant requirements with respect to occupational health and safety must be adhered to at all times.				

Item	EA/EMPr Ref	Specification	Compliance		Comments			
			Yes	No				
B COMPLIANCE WITH OUTCOMES OF THE EMPr section 4.1 and 4.2: Planning and Construction Phases								
NOTE: EMPr required Outcomes are highlighted in bold text under the specification section, followed by Actions/Methods which are indicated as bullet points. It is noted that this audit section is principally concerned with the development's compliance in achieving the required EMPr Outcomes. It is noted that actions/methods set out in the EMPr may be amended by the project team as required to practically achieve the required Outcomes, but EMPr Outcomes cannot be amended without following a formal EMPr Amendment and DEA&DP approval process.								
PLANNING PHASE EMPr								
1.	3.1.1	Compliance documentation: Compliance with legislative requirements	✓		Required approvals and permits are in place, including the EA issued by the DEA&DP, General Authorisation issued by the Department of Water and Sanitation for work in the water course, and Heritage Permits for partial demolition and restoration of the historic Distillery Road bridge structure as issued by Heritage Western Cape.			
2.	3.1.2	Construction Site Planning: Damage to the environment is avoided or minimized.	✓		Construction camp is in the prescribed location, is fenced and contractor signage is up at the entrance (refer to Photos 2 and 3). Approved (by RE) Method Statement for Site Establishment was viewed on the site file. It is noted that a satellite plant and storage area has been established by the piling sub-contractor, Franki Pile, in a fenced/demarcated area on the downstream east bank of the river and that this is required close to the works area – refer to Photo 4.			
3.		Effective Housekeeping	✓		Confirmed at site camp, large trees provide shade, bin provided, camp is fenced away from river so no access possible. Refer to Photo 5.			
4.		Safe supply of Drinking water	✓		Tap with municipal potable water supplies the site for drinking water. Refer to Photo 5 in the Photo Sheet.			
5.		Clean and well maintained ablution facilities provided in suitable locations	✓		2 toilets provided by principal contractor Martin & East and 2 toilets by sub-contractor Franki-Pile, which was sufficient for staff numbers reported on site (min 1 toilet per 15 staff). Toilets are accessible at site camp and secure. Refer to Photos 6 and 7 in the Photo Sheet.			
6.		Prevention of community conflict and unsupervised activities	✓		Confirmed, no living accommodation on site.			
7.		Successful site rehabilitation - Pre-construction photographs on record to guide rehabilitation	✓		Pre-construction photographs confirmed on record by/with the ECO, Vincent Masefield.			

Item	EA/EMPR Ref	Specification	Compliance			Comments
			Yes	No	Part	
8.	3.1.3	Local employment is maximised as far as possible	✓			Monthly Labour report, including report on meeting the contract specified local labour targets, is issued by the Contractor as reported by Site Agent, Ricardo de Sa.
		CONSTRUCTION PHASE EMPR				
9.	4.1.1	Construction camp: General Aesthetics: A clean organized site is maintained	✓			The construction camp and area is neat and tidy, material, equipment and plant is neatly stored in designated areas. Due to its location and siting between the trees, the construction camp is sufficiently visually screened.
10.	4.1.2	Construction camp: Lights: Disturbance to road traffic and surrounding community is avoided or minimised	✓			No complaints or issues reported/recorded regarding lighting.
11.	4.1.3	Site demarcation and no-go areas: Access to No-go areas is prevented	X			Painted droppers are used to demarcate the no-go areas at the river and at Bosman's Crossing (Refer to Photos 8 and 9) and staff have been inducted accordingly (as confirmed by the ECO).
		River and Bosman's Crossing Provincial Heritage Site is clearly demarcated as a no-go area, demarcation kept maintained.				The area disturbed by works on the downstream west bank is greater than 15 meters working area from the edge of the Distillery Road Bridge as indicated on the EMPR Site Development Plan, the actual area disturbed by construction is closer to 25 meters downstream of the bridge.
		- Staff do no enter private properties or no-go areas.				
		- Rehabilitation and clean-up of all areas impacted outside of designated construction areas.				

RECOMMENDATIONS:

- a) Contractor to follow the ECO's recommendation in April ECO report for re-enforcing the Bosman's Crossing heritage area no-go area delineation by closing the gap in the delineation and installing additional no-entry signage.

Item	EA/EMPr Ref	Specification	Compliance			Comments
			Yes	No	Part	
12.	4.1.4	Site clearing: Riparian vegetation clearing: Unnecessary removal of indigenous vegetation prevented	✓			b) The EMPr designated 15 m working area downstream of the bridge, the downstream river no-go area, is to be clearly demarcated on site and respected. c) The east bank test piling area and disturbed west bank area outside the downstream 15m designated works area must be rehabilitated to the ECO and RE's satisfaction as soon as possible.
13.		Site clearing: Topsoil: Minimal loss of topsoil	✓			The approved method statement for Vegetation Clearing was viewed on the Contractor's site file. It is unclear whether litter was removed prior to vegetation clearing but no litter was observed in the site clearing soil stockpiles on site. Tree branches have been mulched (refer to Photo 12), tree stumps cut up and awaiting disposal, stockpiles of cleared reeds and soil was observed just outside the site camp fence and will need to be resolved when the site camp area is rehabilitated (refer to Photo 3). Topsoil (suitable for recovery) has been removed from the site and stockpiled separately in the site camp (> 30 meters away from the river). Stockpiles confirmed <2m high. No signs of erosion, plastic cover, compaction or AIS. Refer to Photo 13.
14.		Site clearing: subsoil: Effective management of subsoil	✓			Sub-soil confirmed stockpiled separately at the site camp (> 30 meters away from the river). No signs of erosion or AIS. Refer to Photo 14.
15.		Site clearing: Stockpiling: Damage to the environment is avoided or minimized.	✓			As far as possible this is the case. Due to space constraints in the site camp and accessibility to the works, some construction material e.g. concrete pipes has been stockpiled within the disturbed construction area closer to the works within 30m of the river. No environmental damage was recorded as a result.

Item	EA/EMPr Ref	Specification	Compliance			Comments
			Yes	No	Part	
16.	4.1.5	Materials handling and storage: Storage of hazardous substances: Effective containment, handling, storage and disposal of hazardous substances	X			<p>No approved method statement for containment, handling, storage and disposal of hazardous substances + Emergency Plan was observed on file. Small quantities of fuel/oil/grease are stored inside lockable site containers at the site camp.</p> <p>No crash barriers required as there are no overhead fuel tanks/bulk stores. MSDS for fuel and diesel is on file.</p> <p>An oil drum at the Martin & East site camp was not provided with a serviceable drip tray (too shallow, deformed and damaged) - refer to Photo 15.</p> <p>The sub-contractor, Franki Pile had a satellite hazardous substances store storage closer than 30 m from river – refer to Photo 16.</p> <p>No disposal of any hazardous waste has been reported to date. Bins designated for hazardous waste have been established at the site camp (refer to Photo 18).</p>
						<p>RECOMMENDATION:</p> <p>d) MSDS for containment, handling, storage and disposal of hazardous substances + emergency plan (including spill response procedure) must be submitted by the Contractor for the approval of the ECO and RE.</p> <p>e) Franki Pile to remove hazardous material storage from within 30m of the river.</p> <p>f) Martin&East to ensure drip trays are fit for purpose when used in storage areas under fuel/oil drums.</p>
17.		Materials handling and storage: Storage/use of equipment: Spillage of hazardous substances from equipment is prevented	✓			Gensets observed on site supplied with drip tray. Refer to Photo 17.
18.	4.1.6	Refuelling and maintenance: Refuelling: Spillages during refuelling is avoided	✓			Equipment is stored at the site camp when not in use.
						No refuelling was observed during the audit inspection.

Item	EA/EMPR Ref	Specification	Compliance			Comments
			Yes	No	Part	
19.		<ul style="list-style-type: none"> - Spill kit / fire extinguishers available <p>Refuelling and maintenance: Maintenance of vehicles, plant and equipment. Contamination of the environmental as a result of maintenance activities is prevented</p> <ul style="list-style-type: none"> - Plant in good working order - Drip trays during servicing - Washing for urgent maintenance only - Hazardous substances and waste water correctly disposed of - Designated maintenance areas 	✓			<p>No servicing/washing of plant or leaking plant observed on site during the audit.</p> <p>No disposal of hazardous waste reported to date.</p>
20.	4.1.7	<p>Accidental leaks and spills: Contamination of the environment as a result of accidental leaks and spills is prevented</p> <ul style="list-style-type: none"> - MS in place for leaks and spills - River protected from hazardous material spills - Appropriate response to spills, big spills reported to authorities - Contaminated material correctly disposed of - Downstream spills addressed with specialist advice if flora and fauna show signs of deterioration - Spill kit available 	✓			<p>No approved MS for the management of leaks and spills – this would be part of the MS recommended by audit item 16 (therefore not rated as non-compliant again here).</p> <p>No major spills reported/specialist input required. Minor spills were reported in the April 2022 ECO report but were resolved on site by the time of this audit.</p> <p>Both the principal and sub-Contractor has a spill kit available on site – refer to Photos 18 and 19.</p>
21.	4.1.8	<p>Waste management: Hazardous waste: Contamination of the environment as a result of waste management is prevented</p> <ul style="list-style-type: none"> - MS in place for management of hazardous waste - Safe appropriate storage/transport/disposal/recycling of used oil and records of safe disposal maintained - E-waste considered hazardous waste 	✓			<p>An approved MS for the management of hazardous waste is in place (in the Solid Waste Management MS).</p> <p>No disposal of hazardous waste to date has been reported. Bins for hazardous waste have been provided - refer to Photo 18.</p>
22.		<p>Waste management: General waste: Contamination of the environment as a result of waste management is avoided</p> <ul style="list-style-type: none"> - MS in place for management of general waste - Appropriate waste minimization/re-use/recycling/ disposal of waste - Disposal records retained on site file 	✓			<p>An approved MS for the management of general waste is in place (in the Solid Waste Management MS).</p> <p>Bins/skips are in place at the site camp.</p> <p>Disposal register/records were viewed on file.</p>

Item	EA/EMPR Ref	Specification	Compliance			Comments
			Yes	No	Part	
		<ul style="list-style-type: none"> - Sufficient bins/designated waste areas provided, site free of litter 				Tree branches were recycled into chipped mulch for use in rehabilitation work and scrap metal was recovered from the demolition work for recycling (collection slip on file).
23.		Waste management: Wastewater: Contamination of the environment as a result of wastewater management is prevented	✓			An approved MS for the management of wastewater is in place (part of the Site Establishment MS).
		<ul style="list-style-type: none"> - MS in place for management of wastewater - No release/disposal of wastewater into the environment - Conservancy tank for effluent waste water - Appropriately maintained chemical toilets 				A conservancy tank has been installed at the site camp to store effluent from the container ablution unit. No release of wash/waste water into the environment was observed or reported. Chemical toilets are maintained weekly (service slips are on record).
24.	4.1.9	Erosion and sedimentation control: Soil loss and sedimentation of water resources are prevented	X			An approved MS is in place for erosion and sedimentation control (contained in the Water Course Management MS).
		<ul style="list-style-type: none"> - MS in place for erosion and sedimentation control - Construction access corridor demarcated - Measures to prevent migration of fines from the works into the river e.g. cut-off trenches, strawbales, geofabric - Work on banks undertaken in summer months - Dewatering water not pumped directly into river - Rehabilitation/revegetation undertaken as soon as works completed in an area of river bank, stabilisation of banks to prevent erosion, areas of compaction addressed. - Erosion runnels backfilled 				The construction access area upstream of the bridge is well demarcated with pegs, the allowable 15 meters construction access area downstream of the bridge is not well demarcated – refer to audit item 11 for recommendations.
						Work on the banks has so far been undertaken in the dry months to date but risks of erosion increase as we now progress through autumn. In the auditor's opinion, insufficient bank containment measures have been implemented around the site of the works e.g. bund of sand bags at the foot of the destabilised banks in the working area to contain silt or cement laden runoff from entering the river during works or heavy rain – refer to Photo 20 which clearly shows signs of bank erosion. Also excavated material is situated on the low west downstream river banks and susceptible to washing downstream if heavy rains are experienced.
						RECOMMENDATION: g) Erosion to be repaired, river banks to be stabilized and stockpiles of excavated materials on the river bank to be

Item	EA/EMPr Ref	Specification	Compliance		Comments
			Yes	No	
25.	4.1.10	Working within the watercourse: Impacts on freshwater ecosystems are avoided or minimised	✓		removed as soon as possible as soon as possible to avoid sedimentation of the river during heavy rains.
		- Limit disturbance footprint to that min. necessary for the works and demarcate the working area - Remove rubble/debris/cleared vegetation from water after clearing/construction completed - Avoid diversion of river if possible (summer work), if necessary no more than 25 meters length and ECO on site - Work from downstream side of bridge where possible - Upstream work limited to east bank only - Silt screens/sandbags/settling ponds to reduce turbidity - Rehabilitate with indigenous vegetation, remove Alien Invasive plant Species (AIS)			Most of the work has been undertaken from the area downstream of the bridge and upstream work was limited to the east bank. It was noted in audit item 11 that the downstream disturbed works area is greater than 15meters downstream of the bridge specified in the EMPr and not factored into this audit item's compliance rating No diversion of the river has yet been undertaken to date. A weir of straw bales (refer to Photo 21) have been placed below the works to reduce turbidity, travel of silt downstream and further to this, the water course downstream of the works is heavily vegetated (refer to Photo 22). This will contribute significantly to limiting the spread of silt in the river channel to a localized area near to the works area. Rehabilitation is to follow once the construction works have been completed.
26.	4.1.11	Traffic accommodation: Safe traffic management	✓		A Traffic safety officer is appointed – Marais LeGrange from Martin&East. A stop-go is in place with flagmen. A pedestrian walkway is accommodated over the bridge.
27.	4.1.12	Cement and concrete batching: Contamination of the environment as a result of batching is prevented	x		Due to the need for piling of bridge supports, cement is unavoidably used close to the river. There is evidence of spilled cement in the area of the piling works (including test piling site), evidence of cement runoff into the river and also an incident of cement laden water entering the river from the piling works is reported in the April 2022 ECO report. Better containment of cement laden runoff at the foot of the bank/works e.g. use of sand bag containment or settlement pond as recommended by the EMPr would have mitigated this issue. Since the piling contract is all but complete, this will now have to be addressed as part of their clean up prior to leaving site.

Item	EA/EMPR Ref	Specification	Compliance			Comments
			Yes	No	Part	
		Unused cement bags were wrapped in plastic wrap, secure against the weather. Used cement bags have been stored separately in designated bulk bag bins (refer to Photo 23). This is not stored out of the weather and it is possible that if left out in a heavy rain that some leaching could occur out of the bottom of the bag bins.				<p>RECOMMENDATION:</p> <p>h) Careful clean-up of all cement/concrete spillage will need to be undertaken around the piling operation works area to the express satisfaction of the ECO and RE in response to an Incident and Rectification report to be issued.</p> <p>i) Dispose of empty cement bags or place in weather proof bags, prior to rains.</p>
28.	4.1.13	Fire control: Effective fire prevention and control	✓			No specific approved MS is in place for Fire prevention and control but provision of firefighting equipment, emergency numbers etc is included in the Site Establishment MS and deemed sufficient. No unapproved fires observed/reported on site. Martin&East have appointed Marais Legrange to oversee the Contractor's fire response team on site (pers. comm. Ricardo de Sa) and Morne Otto is the Emergency coordinator (pers. comm Morne Otto). A designated smoking area has been provided in the site camp (refer to Photo 24).
29.	4.1.14	Noise control and working hours: Noise disturbance to neighbouring properties is avoided or minimised	✓			No noise complaints have been recorded to date (complaints register system is in place), nor has the ECO recorded any dust issues in the ECO reports.
30.	4.1.15	Dust control: Dust generation is minimised	✓			No dust complaints have been recorded to date (complaints register system is in place), nor has the ECO recorded any dust issues in the ECO reports. The topsoil and subsoil stockpiles are located in a protected area where there is no dust risk to sensitive receptors.

Item	EA/EMPR Ref	Specification	Compliance		Comments
			Yes	No	
		<ul style="list-style-type: none"> - Compliance with National Dust Control Regulations (2013) - Material loads covered if dust risk during transportation - Appropriate dust suppression measures if dust generation is unavoidable 		Since the area of construction disturbance is fairly limited and the project is heading into the wet season, additional dust mitigation is not likely to be required or practical at this time, but the ECO would continue to monitor this and advise on additional mitigation if required.	
31.	4.1.16	Protection of natural features, flora and fauna: Damage and disturbance to flora and fauna is prevented or minimised	✓		No undue damage to flora or fauna has been observed on site or reported. No pesticide/herbicide use reported.
		<ul style="list-style-type: none"> - No wood collection for fires - No hunting, trapping, disturbance of wildlife, feeding of wild animals - No domestic pets on site - Aquatic/riparian biota free movement maintained - No defacement of natural features outside of the work area/rehabilitated as required - Vegetation clearing kept to minimum required - No unapproved use of herbicide or pesticide 			
32.	4.1.17	Cultural heritage: Impacts on cultural heritage resources are prevented or minimised	✓		<p>No damage to the Bosman's Crossing Provincial Heritage site was observed or reported.</p> <p>No previously undocumented heritage finds have been reported.</p> <p>Only 2 Oak trees were removed to facilitate the construction work.</p> <p>RECOMMENDATION:</p> <p>j) The two oak trees that were removed will require that the project plants two new trees in the surrounding area. This must be followed up in the post-construction audit.</p>
33.	4.1.18	Site rehabilitation: Successful restoration of disturbed areas	n/a		Construction is still very much active (month 3 of a 12 month construction contract). Therefore site rehabilitation is not applicable at this time.
		<ul style="list-style-type: none"> - On completion of the project, the Contractor shall ensure that all structures, equipment, materials, waste, rubble, notice boards and temporary fences used during the construction operation are removed - Revegetate disturbed portions of the riparian zone with specified locally indigenous plants 			

Item	EA/EMPr Ref	Specification	Compliance			Comments
			Yes	No	Part	
34-	4.1.19	<p>Alien vegetation control: Effective alien vegetation (AIS) control</p> <ul style="list-style-type: none"> - MS in place for AIS vegetation management - AIS plants removed as required by RE/ECO - Control of AIS germinating in areas disturbed by construction works and storage areas - AIS removal by qualified service provider and correctly disposed of (off-site) 	✓			<p>No MS is in place for the removal of AIS. Removal of AIS would be restricted to the works area (the EMPr is not very clear on the location of the clearing). Since vegetation, including AIS has been removed from the works area to facilitate the construction works, this would likely be restricted to follow up clearing of new AIS plants within the works area as part of the rehabilitation work prior to construction close out.</p> <p>RECOMMENDATION:</p> <p>k) Undertake a final sweep of the site during the rehabilitation phase of the construction works and remove any Alien and Invasive plant Species (AIS) prior to construction closure. The ECO can assist in identifying the plants to be removed. Since the plants are likely to be small seedlings/saplings, it is not anticipated that a specialist service provider would be required if manual removal (pulling/digging out) is utilized as opposed to herbicide work (which must be undertaken by a registered Pest Control Officer).</p>

4 EMPR REVIEW

4.1 Scope of the EMPR review

This EMPR review is restricted to the section relevant to the preceding and current phase of the development, namely the planning and construction phases as dealt with in section 4.1 and 4.2: of the EMR.

4.2 Relevance/shortcomings of the EMPR

No new impacts or risks have been identified through the course of this audit that were not addressed in the originally approved EMPR. The construction phase specifications of the EMPR is deemed relevant and effective to manage the anticipated risks for the remainder of the construction contract. No amendments to the presented Outcomes of the EMPR are recommended by the auditor at this time, nor were suggested by the project ECO or EO.

Sufficiency of the maintenance phase specifications should be assessed during the post construction completion audit.

4.3 Recommendations for EMPR amendment

No EMPR amendments are recommended by the auditor at this time.

5 CONCLUSIONS & SUMMARY OF RECOMMENDATIONS

This construction phase audit of the EA/EMPR conditions found **4 Non-compliances out of a total 34 audit items**.

The following recommendations arose from the audit findings:

- a) Contractor to follow the ECO's recommendation in April ECO report for re-enforcing the Bosman's Crossing heritage area no-go area delineation by closing the gap in the delineation and installing additional no-entry signage.
- b) The EMPR designated 15 m working area downstream of the bridge, which is the downstream river no-go area, is to be clearly demarcated on site and respected.
- c) The east bank test piling area and disturbed west bank area outside the 15 m downstream designated works area must be rehabilitated to the ECO and RE's satisfaction as soon as possible.
- d) MS for containment, handling, storage and disposal of hazardous substances + emergency plan (including spill response procedure) must be submitted by the Contractor for the approval of the ECO and RE.
- e) Franki Pile to remove hazardous material storage from within 30m of the river.
- f) Martin&East to ensure drip trays are fit for purpose when used in storage areas under fuel/oil drums.
- g) Erosion to be repaired, river banks to be stabilized and stockpiles of excavated materials on the river bank to be removed as soon as possible as soon as possible to avoid sedimentation of the river during heavy rains.
- h) Careful clean-up of all cement/concrete spillage will need to be undertaken around the piling operation works area to the express satisfaction of the ECO and RE in response to an Incident and Rectification report to be issued.
- i) Dispose of empty cement bags or place in weather proof bags, prior to rains.

- j) The two oak trees that were removed will require that the project plants two new trees in the surrounding area. This must be followed up in the post-construction audit.
- k) Undertake a final sweep of the site during the rehabilitation phase of the construction works and remove any Alien and Invasive plant Species (AIS) prior to construction closure. The ECO can assist in identifying the plants to be removed. Since the plants are likely to be small seedlings/saplings, it is not anticipated that a specialist service provider would be required if manual removal (pulling/digging out) is utilized as opposed to herbicide work (which must be undertaken by a registered Pest Control Officer).

NB NOTE: It is the responsibility of the EA holder or their agents to notify all potential and registered I&APs of the submission of this audit report within 7 days of issue to the DEA&DP and make the report available to anyone on request and on a publicly accessible website.

The next external compliance audit is required within 3 months of the completion of construction activities as authorised in the EA. This is expected by March/April 2023.

6 DECLARATIONS & CREDENTIALS OF THE INDEPENDENT AUDITOR

The auditor, as undersigned, declares their independence and expertise to undertake this audit and that every effort was made to conduct this audit in a thorough, professional, objective and fair manner.

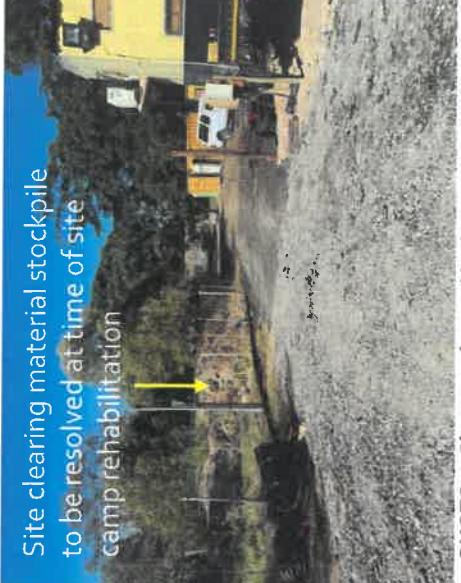
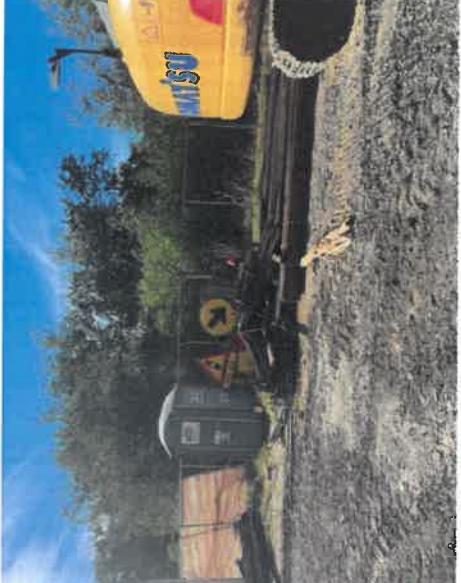
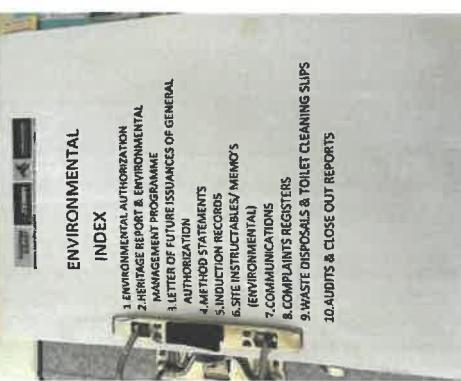


Signed by **Christine M.M Rabie** on **26 April 2022**

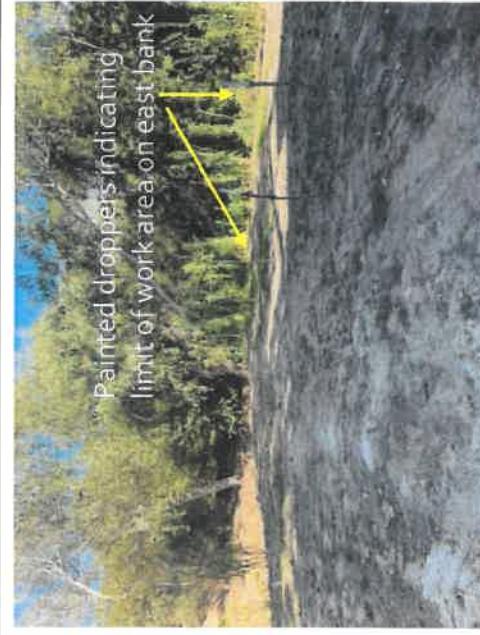
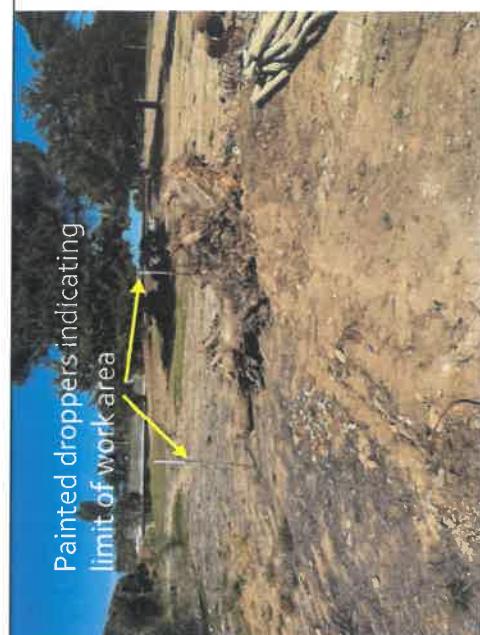
- B.Tech Environmental Management; ND Landscape Technology
- Professional Natural Scientist certified by the South African Council for Natural Scientific Professions in the field of Environmental Science – Reg. No. 400055/17
- 19 years of directly applicable EA and EMPr environmental compliance auditing experience.

APPENDIX 1 – Audit Photo Sheet

AUDIT REPORT APPENDIX 1: Audit PHOTO SHEET: April 2022

 <p>Site clearing material stockpile to be resolved at time of site camp rehabilitation</p>	<p>PHOTO 2: Site camp located in the previously disturbed area as required and fenced away from the river</p> 
 <p>PHOTO 3: Gated entrance with signage to principle Contractor's site camp</p>	<p>PHOTO 4: Fenced satellite plant, waste bin and storage area, required by Franki Pile close to the works</p> 
 <p>PHOTO 5: Tap and bin at site camp</p>	<p>PHOTO 6: One of the toilets provided by the principal contractor</p> 

AUDIT REPORT APPENDIX 1: Audit PHOTO SHEET: April 2022



AUDIT REPORT APPENDIX 1: Audit PHOTO SHEET: April 2022



PHOTO 15: Drip tray not fit for purpose for this hydrocarbon storage drum



PHOTO 18: Martin&East spill kit and (orange) wheelie bins designated for hazardous waste



PHOTO 14: Subsoil stockpile on site



PHOTO 17: Gen set supplied with drip tray and fire extinguisher



PHOTO 13: Topsoil stockpile on site



PHOTO 16: Franki pile haz mat locker within 30 m of the river

AUDIT REPORT APPENDIX 1: Audit PHOTO SHEET: April 2022



PHOTO 21: Weir of silt trapping straw bales



PHOTO 22: A designated smoking area and bin has been provided in the site camp.



PHOTO 20: Works area – insufficient bank protection against fines washing into the river

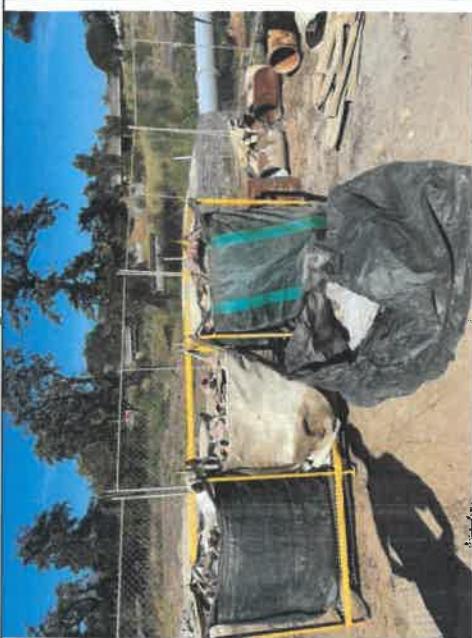


PHOTO 23: Empty cement bag waste bin storage



PHOTO 19: Franki-pile spill kit

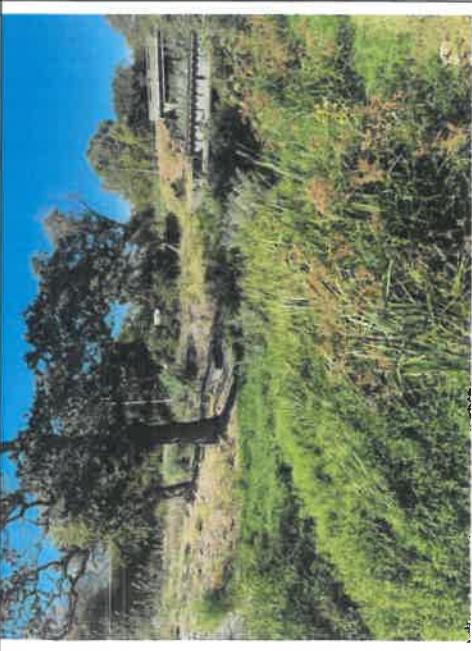


PHOTO 22: River channel just downstream of the works is heavily vegetated which will significantly limit silt travel downstream of the works

Note: All photos were taken by the auditor on 20 April 22