EMA PROJECT NUMBER: 17355

KARO platinum

2025

CHIRUNDAZI DAM AND ASSOCIATED SUPPORTING INFRASTRUCTURE PROJECT

NON-TECHNICAL EXECUTIVE SUMMARY OF THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT AND ENVIRONMENTAL AND SOCIAL MANAGEMENT & MONITORING PLAN

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NON-TECHNICAL EXECUTIVE SUMMARY OF THE ENVIRONMENTAL AND SOCIAL IMPACT ASSESSMENT AND ENVIRONMENTAL AND SOCIAL MANAGEMENT & MONITORING PLAN

Prepared by

OMI SOLUTIONS (PTY) LTD

In association with (EMA Registered Consultant)

ATEG RESOURCES (PVT) LTD

On behalf of

KARO PLATINUM ZIMBABWE PRIVATE LIMITED

In respect of

EMA PROJECT NUMBER: 17355

Dated:

MARCH 2025

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NON-TECHNICAL EXECUTIVE SUMMARY

INTRODUCTION

Background and Project Motivation

Karo Platinum Private Limited Zimbabwe (Karo Platinum) Karo Platinum is in possession of a Mining Lease (ML) issued for Karo Platinum Mine. The ML Area (MLA) covers approximately 23 908 hectares along the Great Dyke, in the Mhondoro-Ngezi Platinum Group Metals Belt, near Selous in the Chegutu District, Mashonaland West Province, Zimbabwe. Karo Platinum propose to establish the Chirundazi Dam and associated supporting infrastructure, located east of Karo Platinum Mine within the area formerly known as the Choto Dam located along the Chirundazi River (hereafter referred to as 'the proposed Project'). The proposed Project aims to provide a reliable and sustainable water supply to Karo Platinum Mining operations, thereby reducing the Project's reliance upon groundwater resources. The proposed Project is a strategic initiative that addresses the operational needs of the Karo Platinum Mine while advancing national priorities under National Development Strategy 1 2021-2025 (NDS1) and Vision 2030. The proposed Project not only secures critical water resources supply for mining activities but also fosters community development, infrastructure growth, and economic empowerment, positioning it as a catalyst for sustainable development in the region. The proposed Project demonstrates Karo Platinum's commitment to responsible water management practices and sustainability by ensuring the optimal use of water resources while minimising environmental impacts.

Legislative Requirements

Section 97 of the Environmental Management Act [Chapter 20:27] (EMAct) requires companies, who intend to undertake an activity listed under the First Schedule of the Act, to apply for an Environmental Impact Assessment (EIA) Certificate by way of undertaking an Environmental and Social Impact Assessment (ESIA) process. The proposed Project triggers activity 1 and activity 12 of the prescribed projects under the First Schedule (section 2 and section 97) of the EMAct. OMI Solutions (Pty) Ltd (OMI) was appointed by Karo Platinum as an independent Environmental Assessment Practitioner to undertake the EIA Certificate application process by way of an ESIA for the proposed Project. Section 98(3) of the EMAct requires that any individual or company intending to carry out a certain prescribed project, such as the Chirundazi Dam, must enlist the services of an independent registered consultant to undertake an EIA before a project is certified to continue. In providing these services, OMI has partnered with Ateg Resources Private Limited (Ateg), an Environmental Management Agency (EMA) registered company, who has been responsible for the review of the final Environmental Prospectus Report, ESIA including Environmental and Social Management and Monitoring Plan (ESMMP) Reports; undertaking the stakeholder engagement process as well as the submission of the said reports to the EMA.

Objective of the ESIA

The main objective of an ESIA process is to identify and quantify potential impacts that may arise as a result of proposed activities. From this, mitigation and management measures are prescribed, based on the significance / risk of expected impacts, in an effort to prevent irreversible or irreplaceable adverse impact to the biophysical and socio-economic environment.

This ESIA Report has been compiled in accordance with section 99 of the EMAct including the specific requirements of the EMA as documented in the Environmental Prospectus approval letter issued on 20 December 2023. Additionally, the ESIA process conforms to the International Finance Corporation Performance Standards (IFC PS) on Environmental and Social Sustainability as the proposed Project falls under "Category A' of the IFC categories described as having the potential to cause 'irreversible' diverse and unprecedented damage.

PROJECT LOCATION

Regionally, the proposed Project is situated in the Mashonaland West Province of Zimbabwe, which is approximately 80 kilometres (km) south-west of Harare and 35 km south-east of Chegutu. On a local scale, the proposed Chirundazi Dam will be located east of Karo Platinum Mine's MLA, within the area formerly known as the Choto Dam located along the Chirundazi River. The Dam wall is situated within the Murauro Village, a village in Chegutu Rural District Council (RDC) Ward 3. The area to be affected by the Dam construction falls in three wards namely: Ward 3, Ward 4 and Ward 26. Murauro Village is under Chief Mashayamombe and headman Murombedzi. However, the Dam inundation zone spans along the Chirundazi River and covers areas under Shanduke Village and Muyengwa Village. The area earmarked for the development of the Chirundazi Dam is used by villagers from several surrounding villages such as Mazvanhi Village, Shanduke Village, Murauro Village, Muyengwa Village, Nyikadzino Village, Madenyika Village, Mususa Village, and Muchohonyi Village respectively. Refer to **Figure A** and **Figure B** below for the regional and local setting of the Project area.

Figure A: Regional setting of the proposed Project area

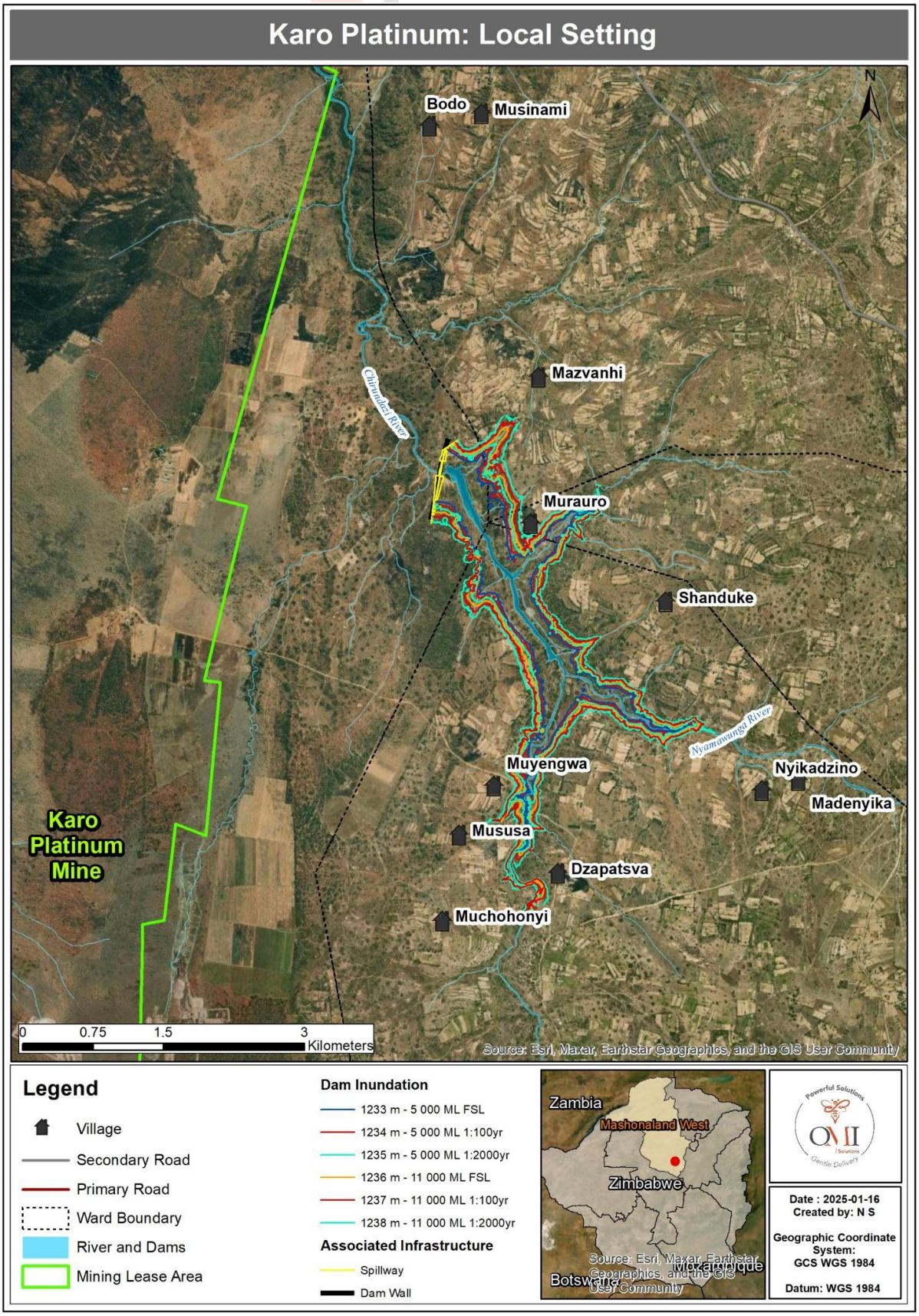

Figure B: Local setting of the proposed Project area

ENVIRONMENTAL AND SOCIAL IMPACT ASSSESSMENT PROCESS

The ESIA process undertaken for the proposed Project comprised the following steps:

Environmental Prospectus Report and Terms of Reference

The Environmental Prospectus Report inclusive of the Terms of Reference (ToR) was submitted to the EMA in December 2023. EMA issued correspondence, with a stamp dated 20 December 2023, regarding the submitted Environmental Prospectus Report and its accompanying ToR, requesting the information which has been addressed in this ESIA Report.

Desktop Assessment

A desktop assessment was conducted to provide an understanding of the planned activities for the proposed Project, reviewing available information and establishing information gaps that should be filled as part of the ESIA process.

Specialist Assessments

The Environmental Prospectus Report identified preliminary potential impacts anticipated to be associated with the proposed Project, requiring further assessment in the ESIA phase. Specialist assessments involved site visits which included verification of desktop studies and the gathering of baseline data relevant to identifying and assessing environmental and social impacts that may occur as a result of the proposed Project. The following specialist assessments were undertaken to address key issues identified in the Environmental Prospectus Report: Climate Change; Air Quality; Noise; Hydrogeological; Hydrological; Terrestrial and Freshwater Ecology; Visual; Socio-Economic; and Cultural Heritage and Palaeontological.

- Baseline determination: the environmental and socio-economic characteristics associated with the Project area, as well as the wider region were established through various methods as well as meetings, surveys, and interviews with relevant stakeholders undertaken by specialists.
- Significance / risk assessment: once the baseline determination was done the aspects that could lead to impacts were predicted and evaluated. The assessment included the analysis of the impacts identified to determine their nature, temporal and spatial scale, reversibility, magnitude, likelihood, extent and effect. Such detailed impact analysis requires professional judgement, and uses the input from relevant experts, including ecologists, biologists, sociologists and economists.

Stakeholder Engagement

Consultations were undertaken with local leadership, heads of departments from local government and ministries to obtain an understanding of stakeholders' views and concerns about the proposed Project. Various stakeholders were identified at the local, district, provincial and national level and consulted during the ESIA process. These stakeholders include individuals and organisations that may be directly or indirectly affected, either positively or negatively, by the proposed Project.

Compilation of the ESIA and ESMMP

Specialist assessments and other relevant information have been integrated into this ESIA & ESMMP Report, which aims to present all information in a clear and understandable format, suitable for easy interpretation by stakeholders and authorities, and to provide an opportunity for them to comment on the proposed Project and findings of the ESIA process. The ESMMP was prepared in terms of section 96 of the EMAct and aims to provide a framework within which the environmental and social impacts identified during the impact assessment are managed for the lifecycle of the Project.

ESIA Disclosure

The final ESIA Report accepted by the client will be disclosed for review by stakeholders and Interested and Affected Parties (I&APs).

PROJECT DESCRIPTION

Karo Platinum Mine's current water requirements are estimated to be approximately 2 100 Mℓ per annum (Mℓ/a) i.e. 2.1 Million cubic metres per year (Mm^3/yr) as per the ZINWA issued provisional water permit (Permit No. 2302), a figure that encompasses the needs of mining operations, processing activities at the concentrator plant, and ancillary uses such as dust suppression.

The Chirundazi Dam will be constructed at the lower catchment of the Chirundazi River where there is sufficient surface water runoff to supply the Dam and will be undertaken in two phases (Refer to **Figure C**).

- Phase 1: The Dam will have an initial storage capacity of 5 000 Mℓ. From this capacity, Karo Platinum will extract 2 100 Mℓ annually for operational purposes, leaving an additional 2 900 Mℓ available for environmental flow requirements and community use. This allocation ensures a balance between industrial needs and the sustainability of surrounding ecosystems and local communities' access to water resources.
- Phase 2: To support the establishment of a smelter on the Karo Platinum MLA, the Dam's capacity will be expanded to 11 000 Mℓ through the raising of the Dam wall. In this scenario too, surplus water will continue to support environmental flow requirements and potentially provide additional benefits to local communities, such as irrigation and other domestic or agricultural uses.

The phased development approach reflects the company's commitment to sustainable water management, ensuring that water resources are utilised efficiently and equitably. It also aligns with broader sustainability and resource stewardship principles, which are critical components of Karo Platinum's operational strategy and its contribution to regional development. The ESIA being undertaken for the proposed Project is for the 11 000 Mℓ Dam option.

Dam Surface Area

The Dam wall will be constructed below granite which is preferable for the construction of a dam. The depth of the Dam is expected to reach an average 11 m to 18 m (this is respectively for the capacities of 5 000 Mℓ and 11 000 Mℓ). The surface area of the 5 000 Mℓ Dam capacity is 138 ha, while that of the 11 000 Mℓ Dam capacity is 230 ha (Refer to **Figure C**).

Earth Embankment (Dam Wall) and Spillway

A mass gravity central overflow spillway is proposed. The construction of the overflow spillway requires rock in the riverbed section as well as in the foundations for the headwalls. The headwalls run the full width of the Dam wall. Approximately 11 000 m^3 of masonry rock material will be used to construct the spillway for the 5 000 Mℓ Dam option, with 67 000 m^3 of earthfill material required to construct the Dam wall. Similarly, 17 600 m^3 of masonry rock is required construct the spillway for the 11 000 Mℓ Dam option, with 140 000 m^3 of earthfill required to construct the Dam wall. Masonry rock material required for the construction of the spillway will be sourced from a quarry site and several borrow pits within the Dam basin (Refer to **Figure E**).

Material which is required for the construction of the spillway will be excavated up to the Full Supply Level (FSL) of each Dam option for each relevant phase. The quarry site and borrow pits will not be excavated more than 4.5 m deep and will be located on both the left and right banks of the Dam. Excavation will be the predominant method used to the borrow material; however, blasting will be

required in the south-eastern most quarry site for sourcing of rock material. Borrow and quarry material will be excavated up to the 100-year floodline of the 5 000 Mℓ Dam in Phase 1. The remainder of the borrow and quarry material, outside of the 100-year floodline of the 5 000 Mℓ Dam, will be used for the 11 000 Mℓ Dam in Phase 2. It is assumed that the material will be excavated from all the identified borrow pits and quarry site simultaneously during the Construction Phase. The rock from the south-eastern quarry site, will be broken in a conventional drill and blast operation. Blasting will be land based with no blasting taking place in the watercourse. Once blasted the rock is collected from the quarry and transported to the Dam site. Two temporary haul roads, located on the left bank and right bank of the Chirundazi River, will be used for the transportation of borrow and quarry material to the Dam wall site.

Additionally, twin 500 millimetre outlet pipes will be installed through the spillway cill for the controlled discharges and the water abstraction. The outlet pipes will also be off-centre near the left-hand riverbank and will be concrete encased along the base of the headwall.

Associated Supporting Infrastructure

The proposed Project location is approximately between 9 and 11 km away from the concentrator plant. The proposed Project will comprise the following supporting infrastructure:

- A 9.5 km access road. A 2.5 km section of the existing gravel road will require upgrading to a width of 4.5 m to accommodate construction vehicles.
- A 11 km water supply pipeline to transfer water from the Chirundazi Dam to the Mine and concentrator plant.
- A 11 kilovolt (kV) powerline and pole-mounted transformer feeding the pump station, located immediately adjacent to the Dam wall.
- Ancillary infrastructure such as low water crossing at a section of the District Road affected by the inundation of the Dam. At this stage, design culvert considerations will be made for the 5 000 Mℓ Dam option.

Refer to **Figure D** below.

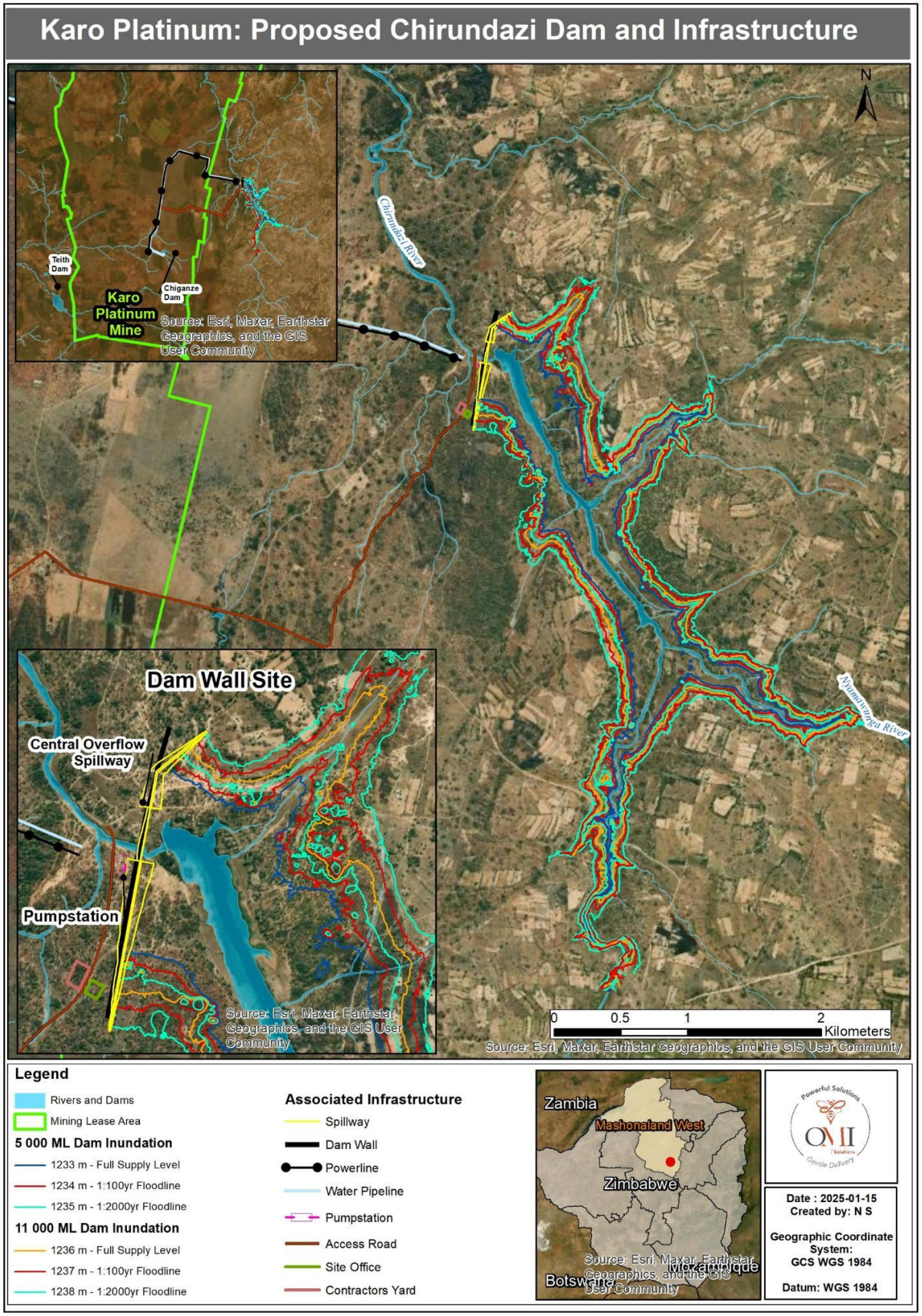

Figure C: Overview of the proposed Chirundazi Dam and associated support infrastructure

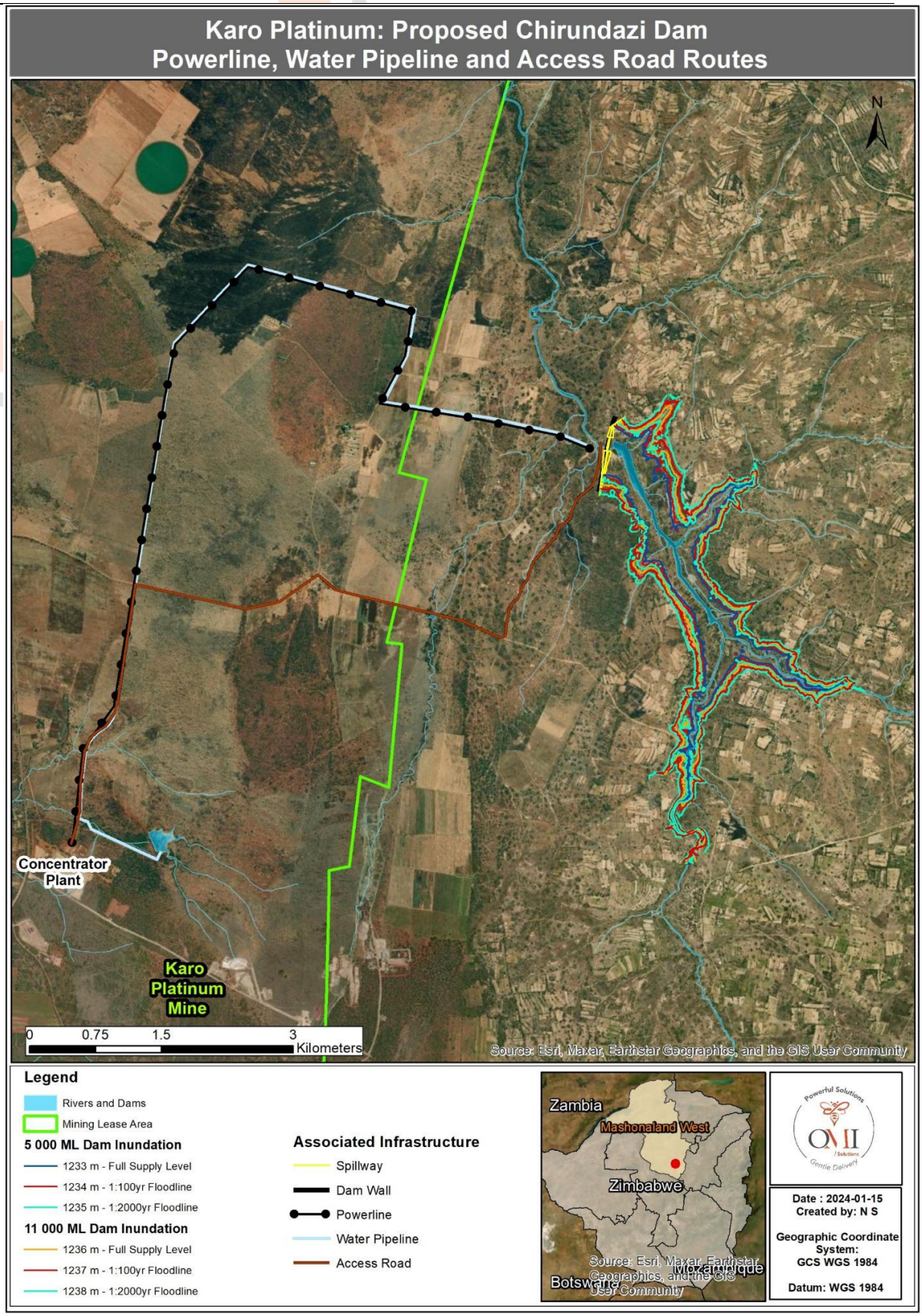

Figure D: Access road, water pipeline and powerline routes

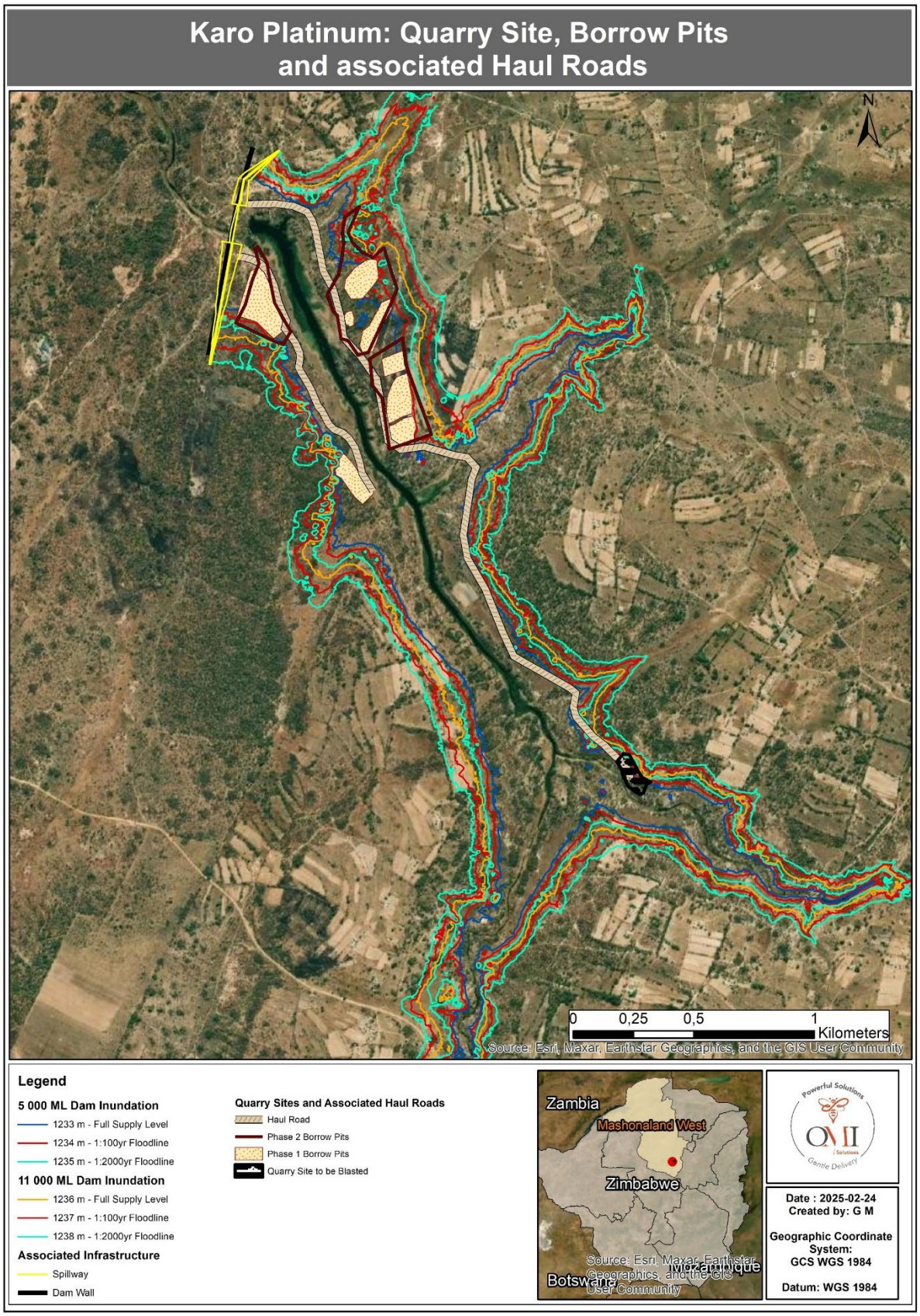

Figure E: Overview of the quarry site and borrow pits within the Dam basin

PROJECT ALTERNATIVES

Alternatives assist with selecting the most suitable option that has the least environmental, social, and financial impacts. The following alternatives have been considered for the proposed Project:

Water Supply Alternatives

Several studies have been carried out to investigate the alternative water sources available to provide water to Karo Platinum Mine. These covered both groundwater and surface water source options. Various water supply alternatives were considered before it was concluded that constructing the Chirundazi Dam along the Chirundazi River was the best option. The alternatives included boreholes, using existing dams in the vicinity of the project and constructing a dam along the Chirundazi River and Nyamawunga River. Electing to establish a dam along the Chirundazi River and Nyamawunga River was determined to be the most sustainable option without putting pressure on groundwater resources. While boreholes provide a supplementary option for localised water needs, they cannot meet the scale of demand required by the concentrator plant.

Location Alternatives

- Rivers options considered: Two river systems were considered to construct the Dam in namely the Mupfure River and Chirundazi River. The Mupfure River to the north of the MLA is a large river but is the furthest from Karo Platinum Mine. The Mupfure River has numerous demands on its normal flow and would require the construction of expensive infrastructure to store and transfer water to the Mine. Arising out of the investigation it was found that the Chirundazi River constitutes a more favourable river option.
- Dam sites considered: three proposed Dam locations were identified along a section of the Chirundazi River where there is sufficient runoff to meet the required demands. These potential sites identified were named Junction Site, Middle Site and Lower site. Constructing the Chirundazi Dam at the lower catchment of the Chirundazi River is the most viable as it offers technical advantages with regards to the construction costs and the management of flow volumes and sustainable solution to meet the operational water requirements of the Karo Platinum Mine. The chosen Dam location offers the highest potential for meeting water demands while balancing engineering feasibility and environmental and social considerations.
- Servitude options considered: two alternative routes to register a servitude of the powerline, water pipeline and access road, were considered. Karo Platinum optimised the two alternatives to determine the preferred alternative route for the powerline and water pipeline and access road. The route for the powerline and water pipeline chosen is the shortest route and avoids areas that have been identified for future open pit mining, while the route chosen for the access road considered slight adjustments to utilise existing roads as far as possible.

Material and Design Alternatives

Two spillway design options were considered for the Dam i.e. chute spillway and mass gravity central overflow spillway. With the chute spillway, engineering investigations showed good rock at the entrance to the spillway however this was not at the ideal level; in the line of the chute spillway return to the River. With the central overflow spillway, it was determined that the dolerite clays can be used for the embankment core. No rockfill toe will be required, however sand drains will be provided. In light of this, the selected preferred alternative design, which is the central spillway, offers technical advantages with regards to the construction costs and the management of flow volumes.

No-Go Alternative

The No-Go Alternative maintains the status quo with no construction of the proposed Chirundazi Dam. Therefore, no positive or negative impacts from the proposed Project will be realised. Should the Dam

not be constructed, Karo Platinum Mine will have limited available water sources and therefore be forced to extract groundwater for use by the operation. The amount of water required will significantly deplete the available groundwater and result in dewatering of surrounding areas. This will have a detrimental impact to the surrounding water users which are reliant on groundwater.

By foregoing the proposed Chirundazi Dam construction, the Mine can avoid potential environmental impacts associated with community disruption and resettlement and damming rivers or altering natural watercourses, thereby preserving ecosystems and habitats in the surrounding area.

PROJECT DEVELOPMENT PHASES

The proposed Project will be carried out in two development phases, namely a Construction Phase with an approximate duration of 9 months and Operational Phase running concurrent with the Life of Mine of 20 years. It is noted that the Dam will not be decommissioned but handed back to the Zimbabwean government for alternative uses once mining has been completed and no further need for water is required. Construction activities will commence once all the relevant permits have been obtained.

ENVIRONMENTAL AND SOCIO-CULTURAL SETTING

Climate

According to the Köppen Climate Classification The proposed Project area is situated in a temperate subtropical climate with dry winters, which is in a transition zone between climates of the Cwa and Cwb. This indicates that the climate in the area is temperate with dry winters and warm to hot summers. Cwa is monsoon-influenced humid subtropical, and Cwb is a subtropical highland climate.

Average monthly temperatures in Chegutu range between 12.3 ˚C and 24.2 ˚C. A minimum of 3.4 ˚C and maximum of 33.1 ˚C was reported in the months of June and November respectively. Available rainfall data suggest a Mean Annual Precipitation (MAP) ranging from 463.9 mm/yr to 1 239.0 mm/yr; the average rainfall is in the order of 709 mm/yr. The Mean Annual Evaporation (MAE) for the Project area ranges from 1200 to 1900 mm/yr. According to the LIS-modelled evapotranspiration (ET) data, the mean annual evapotranspiration is 617 mm/yr.

Additionally, the wind field of the proposed Project area is dominated by winds from the east and east-southeast. The average wind speed is 3.5 metres per second (m/s), and a maximum of 10 m/s was reported. Calm conditions where the wind speed drops below 1 m/s occurred for 9.8% of the time. Wind speeds above 5 m/s, typically associated with episodes of windblown dust, occurred around 10% of the time.

Air Quality

Various sources of atmospheric emissions, such as windblow dust, vehicle exhaust emissions, Karo Platinum Mine activities etc., that currently contribute to air pollution in the Project area were identified. These sources will, to some extent, contribute to levels of key criteria pollutants considered in this assessment i.e. PM_{10}, $PM_{2.5}$, CO, NO_2, and SO_2. Of the listed pollutants, only PM_{10} and $PM_{2.5}$ concentrations in the area are currently monitored and sampled by Karo Platinum, since June 2023. From the air quality monitoring, the following is noted:

- PM_{10} concentrations during this period were between 2.8 and 224 micrograms per cubic metre air (µg/m^3) with a four-month average concentration of 40.2 µg/m^3.
- From June to September 2023, 24-hour average $PM_{2.5}$ concentrations ranged between 1.5 and 197 µg/m^3. The average concentration over the four-month period is 31.9 µg/m^3.

- Both the National Ambient Air Quality Standards (NAQS) and World Health Organisation Air Quality Guidelines (WHO AQG) for 24-hour average $PM_{2.5}$ and PM_{10} concentrations are exceeded more than the permitted 3 to 4 days per year.
- Concentrations of both $PM_{2.5}$ and PM_{10} increased notably and concurrently in August 2023. This may indicate the introduction of a source of emission close to the monitoring point or may be related to the generally dustier conditions in rural areas at the end of the dry season.

Karo Platinum also conducts quarterly sampling of dust levels at select locations around their mining operations. Sampling results at Jonga Farm may be referred to as it is the closest sampling point to the proposed Project area. At this location, short-term (sub-hourly) PM concentrations appear to be in the order of 22 to 37 µg/m^3 based on the latest dry season sampling results.

Given the above findings, representative long-term $PM_{2.5}$ and PM_{10} concentrations were determined from the continuous monitoring data at Karo Platinum Mine. The data set does not contain a full year's data and the average concentrations over the four-month period are notably affected by outliers. The median of 24-hour average concentrations was adopted as the long-term baseline for $PM_{2.5}$ and PM_{10}, as $PM_{2.5}$: 21.4 and PM_{10}: 29.1.

Topography and Drainage

The proposed Project area is situated within a shallow valley amid relative topographic highs. Elevations range from approximately 1 380 metres above mean sea level (mamsl) to 1 220 mamsl. Topography slopes gradually downward in a north-westerly direction.

The Dam is situated within the Upper Mupfure Catchment in the greater Sanyati Catchment and is proposed to impound the Chirundazi and Nyamawunga Rivers. The Chirundazi River is a tributary of the Mupfure River, which ultimately confluences with Sanyati River 135 km north-west of the site. The Sanyati River flows into Lake Kariba at the border between Zimbabwe and Zambia. The entire Sanyati Catchment drains into Lake Kariba. Lake Kariba is the world's largest man-made lake and reservoir. Watercourses within the Project area are strongly seasonal, with flow only occurring during the summer rainfall period.

Geology

According to the Hydrogeological Map of Zimbabwe acquired from the Southern African Development Community Groundwater Management Institute, the proposed Dam site is underlain by basement granites and sandstones of the Upper Karoo Group. The Great Dyke can be found to the west of the proposed Dam site. The Great Dyke is an elongated intrusion comprised of layered mafic and ultramafic rock types such as norite, gabbro, and pyroxenites. A large-scale fault striking northwest – southeast crosscuts the site. Localised faults and dolerite dykes are found in proximity to the proposed Dam embankment as noted by Tim Broderick (2023) in his geological assessment of the area.

Hydrology

Runoff

Runoff is highly seasonal as is characteristic of most rivers in Zimbabwe. Flows start to increase in late November. High flows are experienced during the December to February period. Afterwards flows decrease, and most rivers dry up during the July to November period (IWRMS, 2021). The average runoff across all three hydrological response units associated with the Project area collectively is estimated to be equivalent to 140.2 mm/yr (or 19.8% of the MAP). This is approximately 24.9 Mm³/yr natural Mean Annual Runoff (NMAR) average for the surface area.

Irrigation and surface water use

Limited irrigation demand data is available for the Chirundazi Catchment, and it is limited to downstream of the proposed position of the Dam (nearing the inflow into the Mupfure River). It is assumed that tobacco irrigation takes place within the sub-catchments associated with the Chirundazi Catchments, as tobacco is one of the main crops grown in Zimbabwe. The total estimated irrigation use associated with the Chirundazi Catchment is in the order of 8.07 Mm^3/yr.

Surface water quality

Surface water quality results at the sampled Points of Interest (POI) in the Project area indicate that pH levels at sample POI2 downstream is slightly outside the recommended range for drinking water. The turbidity of all samples is above the guideline-recommended limit of 1 NTU (with 5 NTU being the allowed maximum). The turbidity ranges from 2.93 to 17.8 NTU. The sample is still, however, within the allowed maximum of 6 – 9 pH units. Most samples, except POI1 (downstream) and POI7 to POI10 (upstream), have aluminium levels above the guideline limits (WHO guideline, no limits stated in the Zimbabwean Water Standard ZWS 560:1997). POI5 and POI10 have elevated levels of iron above the guideline limits. At levels above 0.3 mg/l, iron stains laundry and plumbing fixtures. POI10 has slightly elevated Manganese levels.

Ecological Flow Requirements (EFR)

No gazetted EFR values could be obtained for the Chirundazi or Mupfure River. However, EFR was modelled by Ecology International (2024) at 12.52 % of the MAR. The recommended EFR are noted as follows:

- Minimum flows (drought flows) for the wetter months (December to June) be set between 0.015 m^3/s and 0.040 m^3/s. These are typically the flows that would be present in the River during drought conditions.
- Maintenance / baseflows for the wetter months be set between 0.010 m^3/s and 0.115 m^3/s. It should be noted that drought flows are included in these baseflows, so no additional flows are required during average rainfall years.
- Additionally, freshets were specified for specific high-flow months. These freshets should be linked to high rainfall-runoff events during summer and linked to spills from the Dam. Thus, if the Dam is spilling, these spills contribute towards the freshet releases and only the difference between spills and freshets need to be released.
- In summary, a minimum flow of 5.26% of MAR per annum should be maintained during the wetter months (December to June) while maintenance baseflows for the wetter months should be 2.03% of MAR per annum.

Low flows downstream of the Dam will be sustained by the controlled release from the low-level outlet pipes. The average river baseflows are of the order of 0.2 Mm^3 per month, and in the winter months they drop to less than 0.1 Mm^3. The Dam will be required to release at least the EFR for the downstream river reach. If this protocol is adhered to, then the low flows (normal dry weather flows) in the River will be sustained at the level adopted for the EFR. This has been taken cognisance of in the yield analysis modelling. Thus, the low-flow discharges from the Dam will be less than the present dry weather flows but will be sufficient to maintain the ecological requirements of the downstream reach of the river. Since there is no increase in dry weather flows, these discharges will not pose any problem with erosion.

Hydrogeology

Groundwater occurrence and flow within the Karo Platinum MLA is largely controlled by weathering and geological structures (contacts, fractures, faults, and dykes). The depth of weathering profiles increases from south to north.

Groundwater use

Groundwater is used for domestic purposes (washing of dishes and clothes, etc.), irrigation of crops, and as drinking water. Some locations utilise groundwater for a combination of the previously mentioned applications. Based on the data collected, relatively low volumes of groundwater are used per day. The reported daily usage ranged from as low as 40 litres per day (L/d) to 1500 L/d. Several of the locations visited during the hydrocensus were community boreholes. It is known that those in the community that do not have a private borehole or shallow well from which they can draw drinking water utilise these community boreholes as their primary source of potable water. The daily abstraction of these boreholes could not be ascertained during the hydrocensus due to the absence of informed individuals at these locations.

Groundwater levels

Groundwater levels from 13 locations were measured during the hydrocensus. Collected data suggests relatively shallow groundwater levels with levels ranging from 1.17 mbgl to 10.77 mbgl. The average measured water level is 4.78 mbgl.

Groundwater quality

Eighteen water samples were collected during the hydrocensus for the purpose of determining the water quality in and around the proposed Dam site. A piper plot was used to describe the chemical character of the collected samples. The piper plot indicates that the majority of the samples are characterised as calcium bicarbonate type waters, associated with recently recharged systems. Only two samples did not fall within this characterisation, these were BH06 and KHW06. BH06 is characterised as a sodium chloride type, associated with older water sources while KHW06 is characterised as a calcium chloride type a character commonly found in stagnant water sources.

Soil type and Agricultural Potential

The proposed Project area is characterised by a variety of soil types, including both sandy and clay soils with certain regions prone to erosion. Arenosol soils, characterised by greyish hues and sandy, sandy loamy, and loamy textures, dominated the Project area. Other significant soil groups include Acrisols, Luvisols, and Nitisols, each with specific characteristics like shrink-swell properties.

The Project area has been categorised into the Class III, Class IV, Class V, and Class VI categories based on the soil texture, depth, permeability, slope/topography, surface crusting, rockiness, climate, vegetation and the current activities on site. The Class III areas were mapped where the Haplic Acrisols soil groups were identified within the inundation area and associated infrastructure route. These soils have well-drained horizons and a loam or silty clay loam texture. This makes these soils more valuable from an agricultural perspective, particularly the cultivation of crops and they are used for subsistence agriculture. The Class IV land capability areas, with a spatial extent of 7.58%, are mapped where the Arenosols are located. Despite the deep nature of the soil profiles associated with these soils, the Arenosols have a sandy texture and a leached albic horizon. This limits their use for crop cultivation if irrigation measures are not used. The soils are furthermore often lacking in nutrients as a result of the leaching out of minerals from the albic horizon. The Class IV group is furthermore mapped where the strongly structured Luvisols and Nitisols are located. The strong structure associated with these soils limits their use and they have a moderate potential for crop cultivation. The Class V area is reserved for permanently saturated conditions and are thus mapped where the watercourse systems and wetland systems were identified. The Class VI areas were mapped where the shallow Dystric Leptosols are located. These soils predominantly consist of rocky outcrops and are thus not suited for crop cultivation. The areas in which they are located are more suited to livestock grazing activities.

Freshwater Ecology

Aquatic

The baseline results show that water quality is highly variable, with seasonal changes influencing conductivity and dissolved oxygen levels, reflecting the natural variability of nonperennial rivers. The ecological condition of the Chirundazi River was classified as moderately impaired, primarily due to dam-related inundation, while the riparian zones were affected by human activities such as subsistence agriculture. Invertebrate and fish habitats were assessed, revealing limited habitat diversity and a prevalence of generalist species adapted to the harsh conditions of non-perennial systems.

During the course of the present study, total of nine fish species were collected within the Chirundazi River catchment, three of which had not yet been recorded within the catchment. During the course of the present study, one fish Species of Conservation Concern (SCC) was identified, namely *Oreochromis cf. mortimeri* (Kariba Tilapia; currently listed as Critically Endangered). The identification of *O. cf. mortimeri* was based on consideration of known or expected distribution ranges for the species. Further genetic studies may however be required to confirm with confidence which species those collected within the Project area represent.

Wetlands

The desktop and field investigation identified 22 wetland systems were delineated within the Project area (the Chirundazi Dam zone of influence, and the water pipeline, powerline and access road route). These wetlands were classified as four floodplain systems associated with the Chirundazi River and the Nyamawanga River, and 18 seep systems. The wetlands were assessed with regards to their health according to the Wet-Health methodology. The wetlands received Largely Natural (PES Category B) and Moderately Modified (PES Category C) scores. Impacts to the wetlands stem are minimal and are associated with the use of the area and the catchments for agriculturally dominated activities as well as rural residential living. Ecosystem goods and services were calculated for all the wetland systems. Scores indicate moderately to highly functioning wetland systems. Highest scores received relate to flood attenuation, streamflow regulation, erosion control, sediment trapping, water quality (in the form of sediment, phosphate, and nitrate trapping), carbon trapping, and the maintenance of biodiversity. An Ecological Importance and Sensitivity (EIS) assessment was undertaken to rank the wetland in terms of the provision of goods and services or valuable ecosystem functions which benefit people**,** biodiversity support and ecological value. The EIS scores received for the wetland systems have been recorded as moderate and low. The extent of vegetation and the presence of open water within the majority of wetlands increases the use of these systems by both faunal and floral species including terrestrial, avian, aquatic, and semi-aquatic species. The dense vegetation within the wetlands furthermore provides refugia for feeding, breeding and protection and these systems act as ecological corridors.

Terrestrial Ecology

Various current impacts such as habitat loss, habitat degradation, habitat fragmentation, alteration of species richness and diversity were observed in the Project area.

Vegetation and Floral

The following vegetation communities were identified within the Area of Influence (AoI):

- Woodlands and Bushveld: Miombo Woodland; Mixed Woodland; Open Terminalia Woodland; Open Thornveld and Mopane Veld.
- Rocky Habitats : Rocky Thicket and Open Rocky Outcrops.
- Hydromorphic Systems: Floodplain; Riparian and Side Streams and Sedges.

- Transformed Areas: Dichrostachys clumps; Crop Fields; Community Dwellings; Cleared areas and Borrow Pits.

Each vegetation type is characterised by dominant species, ecological functions, and varying degrees of anthropogenic impact, such as clearing for firewood, farming, and grazing. Notable examples include the Miombo Woodlands, which dominate the landscape and provide diverse ecosystem services, the Rocky Thickets, which host a high diversity of woody species and are less impacted by human activities due to their rocky nature and limited suitability for grazing and crop farming and the wetland systems which provide habitat for a number of faunal assemblages.

A number of species that are considered Near-Threatened or Threatened (SCC) were found within the Project area, including the globally Vulnerable epiphytic orchid *Ansellia africana*. A number of alien invasive species were also identified scattered through the Area of Influence (AoI), but dominant between community dwellings and the crop fields and gardens.

Fauna

The baseline results identified five primary faunal habitats within the AoI: Closed Woodland, Open Woodland, Rocky Outcrop, Wetland, and Anthropogenic based habitat, tying in with the vegetation communities in the AoI. Closed Woodlands, characterised by miombo, mopane, and acacias, are highly fragmented due to human activities, while the Open Woodland have been largely converted to a savanna-like landscape. Rocky Outcrops, particularly near water sources, support a diverse range of fauna, whereas Wetlands provide crucial refuges for species in this dry region. Anthropogenic habitats, altered by human activities, support a limited number of adaptable species, which tend to proliferate in these environments. The avifauna in the region is diverse, with 430 species identified, including several of conservation concern. The AoI also supports a variety of mammals, with 30 species recorded during the field survey, including SCC. This included the rare habitat specialist Speke's Hinged Tortoise (*Kinixs lobatsiana*) and the Cape Clawless Otter. Reptile species, as well as 21 amphibian species, were also recorded during the field surveys. With regards to invertebrates, 30 butterfly species and 32 species of Odonata (dragonflies and damselflies) were recorded.

The baseline results highlight the importance of the region's diverse habitats in supporting both common and conservation-sensitive fauna species.

Site Sensitivity and Critical Habitat

From the baseline data gathered a Sensitivity Analysis and Critical Habitat Assessment (CHA) was conducted with a summary of the results provided below:

Habitat	**Critical Habitat Assessment**	**Site Ecological Importance**	
Wetlands: Floodplain, Seeps, Riparian, Side Streams and Sedge Communities and Main Stream	**Critical**	**Very High**	**5**
Rocky Habitats: Rocky Thicket and Open Rocky Outcrops	**Natural**	**High**	**4**
Intact Closed Woodland: Miombo Woodland **and** Mixed Woodland	**Natural**	**High**	**4**
Open Woodland: Mopane Veld, Open *Terminalia* Woodland and Open Thornveld	**Natural**	**Medium**	**3**
Anthropogenic Crop Fields**,** Community Dwellings**,** Cleared Areas and Borrow Pits	**Modified**	**Very Low**	**2**

Ecosystem Services

Ecosystem services for the different habitats were investigated under Provisioning, Supporting, Regulating and Cultural services. With the interview results and field investigations, the Mixed Woodlands, Miombo and Wetland instream and side streams display the highest rating regarding the ecosystem services they provide. From the interviews conducted, a number of most commonly used species for medicinal purposes were raised by the community and included Chifumuro (*Kalanchoe lanceolata*), Muremberembe (*Cassia abbreviata*), Mukundanyoka (*Zanthoxylum chalybeum*), Mususu (*Terminalia sericea*), Ndorani (*Elephantorrhiza elephantina*) and Muzeze (*Peltophorum africanum*). The majority of the species used medicinally are found within the mixed woodlands and Miombo and are used to treat ailments at home. Only 1.1% interviewed used these services for profit.

The surrounding habitats also provided both opportunities for hunting and collection of food resources. During the conducted interviews, over 30% of households collected berries and fruits for home consumption, while fishing (dominated by handline fishing and casting) within the main system constituted 19% for household consumption. These resources were mainly used by the communities at home with a limited percentage collecting and fishing for profit. Interestingly over 18% of those interviewed indicated a decline in size of fish catch and species from previous years. Within the groups interviewed, hunting was minimal constituting only around 1%. Species hunted included birds (mainly guineafowl), kudu, scrubhares, buck (waterbuck, but generally not specified) and warthog.

The instream community not only provides numerous services but also is habitat for the Threatened *Oreochromis mortimeri* (Kariba Tilapia; currently listed as CR). According to Marshall & Tweddle (2007), this species is the only endemic species in the middle Zambezi system with a rate of decline of at least 80% in the last 10 years.

Visual Environment

The dominant land use in the Project area is cultivated subsistence land and cattle grazing, with villages and smallholdings scattered throughout the area. The main landscape feature in the Project area is the Chirundazi River.

The Project area can be divided into the following landscape types:

- Chirundazi River and flood plains – high scenic quality – high visual sensitivity to change.
- Partially impacted woodland – moderate scenic quality – moderate visual sensitivity to change.
- Subsistence farms and homesteads – moderate scenic quality – moderate to low visual sensitivity to change.
- Cultivated farmland - moderate to low scenic quality – low visual sensitivity to change.

Sensitive receptors to the Project would include:

- Users of Chirundazi River and environs and cultural sacred places, whose intention or interest is on the landscape.
- Occupiers of homesteads and villages east and south of the Dam.
- Users of public roads and tracks throughout the Project area.

The riverine area evokes the strongest sense of place due to its natural and cultural characteristics derived from the river's ecology and the associated activities (fishing and agriculture), which occur in the River and its floodplain. The development of the Dam wall, pump station and the inundation zone are in the Chirundazi River and its floodplain, a highly rated scenic quality landscape character type with anticipated high sensitivities to development. The proposed powerline, water pipeline and access are proposed in landscape types considered moderate to low scenic quality and potentially medium to low sensitivity to development. Therefore, changes to the Project area's natural and cultural landscape

will occur through the loss of key features and perceptual aspects that contribute to the existing character and distinctiveness of the landscape. Specifically, along the Chirundazi River and its floodplain, i.e. the existing character of the landscape will not absorb the physical changes caused by the proposed Project and will cause a major transformation in the general visual character and sense of place of the Project area. The potential for landscape impact along the powerline, water pipeline and access road routes would be less and not considered an issue due to the low-key aspect of these activities. The landscape impact is rated high. Although the change is major, it may not be considered highly negative as the inundated areas will bring a new and potentially valued aesthetic to the area.

Noise Levels

Existing sound/noise levels in the area surrounding the Project were, based on the results of a short-term measurement campaign, found to be in line with what is typically experienced in rural settings. The acoustic climate is influenced by rural community activity such as farming, social gatherings, and domestic animals. It is however mostly affected by natural sounds such as bird song, frog vocalisations, and insect stridulations. Existing day- and night-time noise levels representative of the area in general were calculated as 46.7 decibel A (dBA) and 35.0 dBA respectively. These values were adopted as the desired noise levels of the area. Noise impacts associated with the Project will be more pronounced given the current soundscape which is quiet and typical of rural areas.

Socio-Economic Setting

The proposed Project is situated in Wards 3, 4, and 26 of Chegutu District in Mashonaland West Province. At the ward level, decision-making is made by the Ward Development Committee chaired by the Ward Councillor who in turn is a member of the RDC. The Councillor position is a political position that is voted for. The Councillor reports to the RDC and in this case, it is Chegutu RDC. The Chegutu RDC is an administrative office that is responsible for overseeing all administrative issues in the District including issues of land and resources. The traditional leadership of the proposed Project ZoI comprises Chief Mashayamombe and Chief Ngezi who are appointed by the President under the Traditional Leadership Act (1998) to preside over communities inhabiting communal land and these Chiefs are responsible for general administration, land distribution, maintenance of customary law and social development of Chiefdom. The chief plays a vital role in conflict resolution and community cohesion. Headman Murombedzi and village heads are local leaders who assist the chief in governance at the village level, facilitating communication between the community and formal institutions.

The Chirundazi area encompasses a mix of rural settlements and agricultural lands, characterised by a predominantly agrarian economy. The local communities rely heavily on subsistence farming, growing crops like maize, sugar beans and ground nuts. In addition, the locals largely rely on their gardens along the existing Weir, livestock rearing, and small-scale horticulture as their primary sources of livelihood. Socially, the area is marked by strong cultural traditions. Access to basic services, such as healthcare and education, remains limited, with locals depending on facilities like Munemo and Musinami Clinics.

The Chirundazi River serves as a critical water source for both domestic and agricultural use, underpinning the socio-economic activities of local villages. The proposed Project is expected to provide Karo Platinum with water for mine operation, help the local area to address water scarcity challenges, enhance agricultural productivity, and improve living standards, while necessitating measures to mitigate potential social and economic disruptions. Stakeholders pointed out that the proposed Project could be a source of water for Mubayira Growth Point which is facing water challenges.

Cultural Heritage Setting

The proposed Project area is not only rich in archaeology, but it is associated with various myths and cultural practices based on various beliefs. Baseline findings from the archaeological survey undertaken for the proposed Project are noted as follows:

- Five Archaeological Sites ("AS") were identified within the proposed Project area:
    - AS01 was found to have intact clay pots, broken clay vessels and ceramic fragments that occur widely, often scattered across homesteads and footpaths. Similarly, single undecorated pottery shards with profiles possibly distinct from contemporary pottery known in the region were encountered on the surface along the banks of the Chirundazi River in a southern portion of the Project area. The occurrences were observed near contemporary homesteads. This site was determined to be of low heritage significance.
    - AS02 and AS03 comprised single silcrete and quartz flakes and scrapers (some of which are characteristic Middle Stone Age (MSA) lithics), occurring in low densities. These sites were recorded at two localities on the surface along the banks of the Chirundazi River in a southern portion of the Project area. These sites were determined to be of low heritage significance.
    - AS04 comprised a scatter of pottery in and around an erosion gully along the banks of the Chirundazi River in a southern portion of the Project area. This site was determined to be of medium heritage significance.
    - AS05 comprised a medium density of MSA tools that were noted along an erosion gully along the banks of the Chirundazi River in a southern portion of the Project area. This site was determined to be of high heritage significance.
- A total of 24 Burial Sites ("BS") of high heritage significance were identified within the proposed Project area:
    - A number of informal infant burial sites occur along the banks of the Chirundazi River in the Project area (BS01, BS06, BS08, BS10, BS14). Some of the burials, which occur close to the current water line, are indicated by small stone cairns. Stakeholder engagement revealed that a complex belief system underlies this burial practice where the placement of the burial near water plays an important role in ensuring future fertility for descendants. Here it is believed that water – often a symbol of fertility – ensures that future infant deaths will not befall the descendant families. An implication of this practice is the belief that the burial becomes "part" of the water source, and it is destined to remain there. Any human burial is of high heritage and social significance.
    - A small informal cemetery with several graves arranged around the base of a termitarium, occurs in a north-eastern portion of the Project area, west of the current Dam wall (BS02). Another small informal cemetery occurs in a crop field next to a homestead in a north-eastern portion of the Project area, east of the current Dam wall (BS03).
    - A single grave was noted along the western banks of the Chirundazi River in a western portion of the Project area (BS04). In addition, several graves were noted next to a homestead along the western banks of the Chirundazi River in a western portion of the Project area (BS05). At least five other graves were noted next to crop fields and homesteads in a western portion of the Project area (BS07). A single grave occurs along the water pipeline route next to an access road to the Karo Platinum Mine (BS15) and a large informal cemetery holding a large number of burials assumedly belonging to local community members occur in a densely vegetated area along the water pipeline route (BS16). These burial sites were captured in a previous Heritage Impact Assessment and mitigation measures have been implemented for the sites (site demarcation, signage, conservation buffer).
    - Various burial sites were also identified during the social survey and noted as follows: 1 burial site (BS17) in Muraro Village including 3 other burial sites south of Muraro Village (BS22, BS23, BS24); 2 burial sites in Shanduke Village (BS18, BS19); 1 burial

site in Madenyika Village (BS20) and 1 burial site on the Mashayamombe side of the Project area. BS21.

- Five Cultural Sites of Significance ("CS") were identified within the proposed Project area:
    - A small Christian ritual complex was documented in the north-eastern corner of the Project area, north of the Chirundazi River (CS01). A number of stone enclosures, stone walls, contemporary pots, containers, hearths and ritual spaces demarcated with stone cross features, were noted. This site was determined to be of medium heritage significance.
    - Another small Christian church complex was documented in a south-western portion of the Project area, west of the Chirundazi River (CS02). The site consists of benches constructed out of wooden logs under a makeshift thatch structure. This site was determined to be of medium heritage significance.
    - A ceremonial complex consisting of significant and unique features were documented on a higher rise in a north-western portion of the Project area (CS03). The complex consists of two distinct feature clusters; a small Cave Site and a Shrine Site. A resident Spirit Medium visits the Shrine once a month to meet with locals in order to resolve issues such as rain control, sickness and troublesome and malevolent spirits. In addition, locals indicated that the Cave Site was historically known to be a significant religious centre often visited by Spirit Mediums from afar during past decades. This site was determined to be of high heritage significance.
    - The existence of a scared pool which forms part of the river channels which border the Mashayamombe and Ngezi Chieftainships (CS04) was documented during the social survey. The pool is locally referred to as Dziva rekwaManyanda / Jeffrey's Pool and is associated with mermaid spirits. This site was determined to be of medium heritage significance.
    - In addition, the existence of the Mvurachena Sacred Site (CS05), which translates to "white waters" in Shona was further documented during the social survey. Recently, this site has gained recognition for its sacredness, particularly due to the presence of two large, stationary snakes that have been observed lingering at the location for several days. The stagnant white waters at Mvurachena are also traditionally used for local rituals, further emphasising the spiritual importance of the site to the community. This site was determined to be of medium heritage significance.

STAKEHOLDER ENGAGEMENT OUTCOMES

A comprehensive stakeholder engagement process was undertaken in compliance with Zimbabwean legislation and in alignment with local and international standards such as the World Bank Environmental and Social Framework and the IFC PS. The stakeholder engagement process for the proposed Project was designed to inform stakeholders about the proposed Project and provide them an opportunity to submit their views and comments regarding the Project. Further, the process was intended to draw on the knowledge of local communities to assist with the identification of environmental and social issues and mitigation and enhancement measures.

The stakeholder engagement process identified a range of critical issues that are central to the community's concerns and expectations regarding the Project. Employment opportunities emerged as a high priority, with stakeholders emphasising the need for local recruitment during Dam construction, Community members highlighted their eagerness to benefit directly from the economic opportunities created by the Dam Project, alongside calls for capacity-building initiatives to prepare locals for employment. Overall, stakeholders welcomed the proposed construction of the Chirundazi Dam expressing the view that it will contribute to water provision, considering that the Project area is generally dry. The Dam is envisaged to be a source of both primary and commercial water.

A key concern raised was the potential impact on livelihoods, especially the displacement of community gardens that serve as vital sources of food and income for local households. The relocation of houses within the Dam's footprint was another significant concern, with potentially affected families expressing the need for fair compensation, relocation within the local area, and adherence to cultural traditions regarding the relocation of graves. Safety and accessibility were also recurring issues across all engaged stakeholders. Community members highlighted the need for safe road crossings for schoolchildren accessing the Zibwowa Primary and Secondary Schools, as well as for residents using essential services like healthcare at Musinami Clinic. Stakeholders stressed the importance of constructing bridges to replace dangerous and frequently flooded crossings, noting that rising water levels may make it more difficult to cross under the current circumstances. Concerns were also raised about safety risks associated with blasting during construction, prompting requests for low-impact techniques and community awareness campaigns. Cultural and spiritual sensitivities were another area of concern, with traditional leaders underscoring the need to respect sacred sites and to conduct rituals before any physical disruptions. Other community concerns include increased potential for mosquito breeding in stagnant water due to increased water surface area and prolonged water retention, noise and dust pollution during construction with related requests for enhanced health and sanitation facilities to mitigate potential health risks, especially at construction camps during the construction period.

In response to the concerns raised, Karo Platinum has committed to a series of mitigation measures designed to address immediate and long-term impacts. In this context, a Resettlement Action Plan (RAP) and a Livelihood Restoration Plan (LRP) will be developed to ensure the proper relocation of Project Affected Parties (PAPs) as well as fair compensation for affected gardens, homes, fruit trees and crops. The compensation will be aligned with IFC PS and national legislation to ensure fairness and transparency. Sound relocation measures will be implemented for displaced families, with a focus on maintaining access to existing social and economic opportunities and respecting cultural practices, including those related to grave relocation.

KEY ENVIRONMENTAL AND SOCIO-CULTURAL IMPACT ASSESSMENT

Taking into account both the biophysical and socio-economic aspects of the environment within which the proposed Project will be located, key findings and the potential positive and negative impacts associated with the proposed Project are discussed below, with the significance / risk rating tabulated in **Table A** below:

Climate Change Risk and Vulnerability

The greatest impact of the regional climate on the Project, can be expected during the spring and summer months of the year (September to March), with expected hot weather conditions, dry and wet spells, severe thunderstorms which can result in large amounts of rain in short time periods, large amounts of lightning as well as damaging winds and possibly large hail. However, during the autumn and winter months, the probability of veld fires increases. The risk of climate change impacts on the proposed Project during the 9-month Construction Phase and an assumed 20-year Operational Phase, was shown to be moderate and low respectively should reasonable mitigation measures be applied diligently.

Air Quality

The Construction Phase of the proposed Project will have the most notable impact on the atmospheric environment and sensitive receptors when unmanaged and unmitigated. It was conservatively estimated that the NAQS and WHO AQG for select pollutants may be in violation in close proximity to construction activities but not at sensitive receptors. However, it was illustrated that, with the implementation of identified and recommended emissions reduction and air quality management and monitoring measures, the overall air quality management objective can be achieved at sensitive receptors.

Hydrology

The risk assessment for the Operational Phase of the Project is considered moderate to low, with mostly reversible and manageable impacts. The largest impact is impeding flow to such an extent that the downstream environment is negatively affected and should be managed with the mitigation measures proposed and particularly with maintaining the stipulated EFR. It is recommended that the 5 000 Mℓ Dam option be considered instead of the 11 000 Mℓ Dam option to ensure adequate flow to the downstream environment. This will aid in downstream aquatic health and minimise the risk for downstream surface water users.

Hydrogeology

During the Construction Phase, the quarry site and borrow pits near the Chirundazi watercourse may experience groundwater inflow due to shallow groundwater levels in this area. As the expected depth of the quarries is ± 4.5 metres below ground level, groundwater ingress is a possibility. Minor dewatering may be necessary at quarries experiencing groundwater ingress, which could lead to localised changes in surrounding groundwater levels. While the extent of these impacts is expected to be minimal, the lack of measured, site-specific hydraulic parameters makes it difficult to accurately quantify these effects. Moreover, increased seepage rates locally surrounding the quarry site and borrow pits towards the aquifer are expected during operations (especially for the south-eastern most quarry site where blasting will be required). On the other hand, the proposed Dam would have a positive effect on the local groundwater levels and likely result in the betterment of local groundwater quality because of the induced dilution plume. Due to the positive impact the Dam would have in the Operational Phase, no mitigation methods are recommended.

Soil and Agricultural Potential

The proposed Dam is expected to lead to the loss of some areas used for subsistence agriculture as well as brick moulding facilities. The linear infrastructure required as part of this Project is not expected to lead to the loss of agricultural activities along these routes. The Land Capability Class of the majority of the Project area is Class IV and thus has limitations for large-scale crop cultivation as a result of, either the sandy nature of the soils or the strong blocky structure of the more clayey soils. The likely low nutrient status of the sandy albic soils furthermore limits the use of this area for any large-scale agricultural activities without management interventions including irrigation schemes and fertiliser use. The loss of agricultural land during the Construction Phase is therefore expected to be minimal as a result of the proposed Dam. During the Operational Phase, a loss of agricultural land and associated agricultural activities within this area can be expected once the Dam starts flooding. Approximately 14.94 % of the Dam inundation zone was calculated as being used for subsistence crop cultivation and/or brick moulding operations. The inundation zone is furthermore used for livestock grazing. Opportunities for livelihood restoration should be established through the RAP to address this impact.

Freshwater Ecology

The most significant impact expected on aquatic biota relates to blasting activities. Consideration must be given to the potential impact of detonation of explosives (as proposed for quarrying operations for the south-eastern quarry) within and near water which creates compression waves that produce a rapid rise in the peak pressure and its rapid decay to the ambient pressure, potentially inducing serious impacts on fish. This can damage the swim bladder of fish and their eggs/larvae (Mahtab et al., 2004). Based on information available at the time of writing, it is understood that no blasting will take place within water (i.e., wet blasting), with only dry blasting taking place, suggesting limited impact on the swim bladder of *Oreochromis cf. mortimeri*. As such, dry blasting out of the water column is expected to avoid or drastically minimise water overpressures and therefore minimise or avoid impacts to the larval and adult fish present. However, the mechanical shaking of the substrate, measured as PPV, is believed to be most damaging to incubating eggs (Wright, 1982). Different species of fish may show

differential sensitivities to blasting vibrations, while egg developmental stages within or among species may have different sensitivities (Faulkner et al., 2008). In the case of *Oreochromis mortimeri* however, little is known about the breeding biology except that the species constructs large bowl-shaped nests in arenas and following spawning the eggs are taken up and brooded in the mouth of the female. In addition, (Marshall, 2011) noted that in Lake Kariba, the species probably breeds from about September to April or May, while (Skelton, 2024) states that the species breeds practically all year round.

Based on the design parameters presented on expected charging and blasting design for the south-eastern quarry, expected ground vibration levels (Peak Particle Velocity) at various distances were calculated by Ateg Resources (2025) for the charge mass of 10 kilogram (kg) per blast at assumed bench parameters. Based on the results obtained, and in the absence of species-specific guidelines, it was determined that a minimum setback of approximately 25 m from the edge of the Critical Habitat for *Oreochromis cf. mortimeri* to the nearest charge applied will be required following application of the Canadian Department of Fisheries and Oceans blasting guidelines to limit possible impacts from blasting operations on egg development of the Critically Endangered species.

Additionally, the proposed construction of the 11 000 Mℓ Dam will lead to the loss of 21 wetland systems. The loss of the wetland systems and the inundation of the area will have knock-on effects on the ecological functioning of the larger area. This particularly relates to the loss of faunal and floral species that rely on the wetland systems. The wetland systems provide ecological services to the catchments in which they are located. These ecosystem services will be lost with the flooding of the wetland systems, having consequences for the remaining areas of the catchments, particularly downstream of the Dam. The loss of wetlands cannot be mitigated if the 11 000 Mℓ Dam is authorised. However, as noted in the Terrestrial Ecology Assessment, the loss of Wetland habitat is likely to be temporary and offset by the re-establishment of hydromorphic vegetation along the margins of the new, larger inundation zone. The types of wetlands established are dependent on a number of factors including the topography of the surrounding areas.

A potential for loss of environmental cues for upstream migration and loss of breeding success can be expected during the Operational Phase, however this impact can be mitigated with the implementation of an adaptive management approach to ensure long-term mitigation management through informed decision making. Regular monitoring of the aquatic ecosystem both within and downstream of the Chirundazi River is recommended.

Terrestrial Ecology

During the Construction Phase, various vegetation communities will be destroyed and the disturbance of existing wetland and riparian based habitats near the Dam wall is likely to occur. Noting that there are numerous proposed quarry site and borrow pits situated in both the 5 000 and 11 000 Mℓ Dam inundation zones All quarry material should come from within the inundation zone of the 5 000 Mℓ Dam. For the northern borrow pit on the western bank, a large percentage of Mopane vegetation will be lost. Although a very widespread vegetation community in southern Africa, there is limited Mopane present within the AoI. Hydromorphic grasslands also bisect this proposed borrow pit. The northern borrow pit on the east bank also contains hydromorphic grasslands in the southern section which feed the main system. The most south-eastern quarry site consists largely of rock thicket and Miombo but impacts a portion of Riparian thicket as well. These habitats will be destroyed through blasting. Additionally, altering the Dam's current bed, the construction of the earthwork for the Dam and the quarry site and borrow pits may contribute to the loss of SCCs such as *Anselia africana* (VU) in the Miombo and Mixed Woodland, *Dalbergia melanoxylon* (NT) and *Pterocarpus angolensis* (NT), *Dioscorea cf. sylvatica* (VU), *Scadoxus puniceus*, *G. superba* and a number of Aloe species in the Rocky Outcrops. The VU species are likely to become EN unless changes occur that assist rate of reproduction or improvement in habitat availability. Given the loss and degradation of habitats which may occur, it is recommended that the

footprint of each borrow pit and quarry and excavation of building materials for the Dam wall from the Dam basin should be kept as small and localised as possible.

An inherent consequence of the upgrading of the Dam wall will be the loss of faunal habitat due to increased inundation levels. This involves the loss of both wetland and terrestrial habitats. The loss of Wetland habitat is likely to be temporary and offset by the re-establishment of hydromorphic vegetation along the margins of the new, larger inundation zone. Nevertheless, the temporary loss of these floodplain wetlands is significant given its designation as a CH as per IFC PS6 criteria. Offsetting is recommended should monitoring reveal a nett loss of SCC and CH qualifying species. Although the designation of the Wetland habitat as CH is primarily due to the presence of *Oreochromis cf. mortimeri* (a fish listed as CR according to the IUCN Red List), the wetland also provides suitable habitat for several SCCs including African Clawless Otter (NT), Smithers' Horseshoe Bat (NT), Nile Crocodile, South African Rock Python (SPS), Black Stork (SPS), African Fish Eagle (SPS), Masai Sprite (ADBI Score=3) and Denim Dropwing (ADBI Score=3). However, it is likely that these species will benefit positively. Wetland fauna likely to be adversely affected include the host of ephemeral pond-dwelling amphibians, dependant on the seasonally inundated depressions along the floodplain levees. Of greatest significance in this regard would be the loss of potential breeding habitat for both Giant and African Bullfrog, which likely occur sympatrically in the region. In contrast, the loss of terrestrial habitat will be permanent. Of the various terrestrial habitats, the rocky outcrops are likely to be of greatest significance in this regard due to their close association with the existing bed and banks of the Chirundazi River and the high abundance and diversity of fauna (particularly herpetofauna) associated with them. Loss of woodland habitat will also reduce habitat availability for woodland species such as Brown Hyena (NT) and Spekes Hinged Tortoise (Rare). Construction of the Dam wall itself will also result in the direct loss of habitat although the extent of this impact is comparatively limited. The upgrading of the Dam therefore has idiosyncratic consequences for locally occurring fauna but is for the most part unlikely to have significant negative effects.

Moreover, increased fauna mortalities are anticipated to occur via three main pathways namely earth-moving, inundation and roadkills. Earth-moving activities associated with clearing, excavation, quarrying and construction of the Dam wall are likely to result in the mortality of less mobile mammals and herpetofauna. Masonry material for the Dam wall and its downstream rockfill toe is planned to be sourced from a quarry site established on one of the granitic outcrops within the inundation zone. This has the potential for killing rupiculous species (particularly herpetofauna and small mammals) sheltering within the rocky outcrops. Sand and clays for the core of the earthen wall are planned to be sourced from several borrow pits within the Dam basin. Excavations within the Dam basin will invariably result in the mortality of smaller and less mobile herpetofauna and mammal species. Fossorial species are susceptible to mortality following inundation. However, the majority are likely to move to higher ground as the inundation zone expands.

During the Operational Phase, once the Dam has flooded, the hydromorphic Side Stream and Sedge Communities will be the first to re-establish further up the side streams and along the edges of the inundation zone. However, according to studies the success of establishment is largely linked with factors such as elevation and litter cover, and lesser effects of vegetative cover, shade, and sediment particle size (Friedman et al., 1996). The new inundation edges may have more shade and canopy cover and may provide a completely different microenvironment for vegetation establishment. Habitats that will be lost with potentially no chance of recovery include the Floodplain, dry land Woodland habitats and the Rocky Outcrops. As the establishment of wetland vegetation communities will occur over time along the edges of the Dam and within the side streams, pioneer species will establish and provide some cover to fish species and other aquatic life. The length of successful vegetation recovery time is unknown at this stage, but these areas must be monitored, and adaptive management applied where required.

Potential positive impact on wetland associated fauna can occur. Although some of the existing Wetland habitat will be lost during the construction of the Dam, new Wetland habitat will be gained along the margins of the new, larger inundation zone, once wetland vegetation has re-established. Additionally, flooding is likely to cause some of the larger trees within the inundation zone to die off, which may create roosting, nesting and perching habitat for waterbirds. Heronries may establish on drowned trees while kingfishers, cormorants and darters are likely to make use of these habitat features while basking and hunting. The increased inundation zone increases the surface area of aquatic and Wetland habitat and also increases the perimeter of the shoreline and thus potential wading habitat.

Large-bodied birds of conservation importance frequently collide with powerlines and are prone to electrocution with live components as well as entrapment in fences. Although some of the species such as White-backed Vulture, Martial Eagle, Ayre's Hawk Eagle occur in the region, none nest on site and their presence is likely to be frequent and transitory. Considering the presence of existing powerlines to service farmsteads and the short length and small size of the proposed powerline, the Project is considered unlikely to result in significant collision and electrocution events, provided the prescribed mitigation measures are adhered to.

Visual

It was determined that the landscape impact of the proposed Project would be high, although the result, during the Operational Phase when the Dam has been constructed and the valley inundated, will not necessarily be negative when based on generic scenic quality. Visual impacts would occur in the Construction and Operational Phases as proposed Project activities would be visible to varying degrees and from varying distances by potentially sensitive receptors. During the Construction Phase, the proposed Project's visibility could be influenced by preparatory activities, primarily earthworks and infrastructure establishment (including night-time lighting). During the Operational Phase, the physical presence of proposed Project activities (including security lights at the pump station), primarily at the Dam wall, and the inundation zone would be the focus of views from surrounding areas. Visual impacts are deemed acceptable from a visual perspective, given a predicted medium negative impact significance / risk without mitigation. These impacts can be mitigated to maintain acceptable levels provided the recommended measures are effectively implemented and managed in the long term.

Noise

The Construction Phase of the Project will have the most notable impact on the acoustic environment and noise sensitive receptors when unmanaged and unmitigated. It was conservatively estimated that NLG may not be met at receptors within 500 m of construction related activities and that community response and complaints may be expected. Operational Phase noise sources will be limited to the pump station supplying water to the Mine, and maintenance of the access road, powerline, water pipeline, and Dam wall. None of these operational activities are expected to result in violations of the IFC NLG at sensitive receptors and the impact significance / risk is considered low. Based on the assessment, it was determined that the proposed Project may not meet required NLG during the Construction Phase. To ensure sustained compliance and continuous improvement, the implementation of noise management and mitigations measures recommended in the ESMMP is essential.

Socio-Economic

The proposed Project area encompasses a mix of rural settlements and agricultural lands, characterised by a predominantly agrarian economy. The local communities rely heavily on subsistence farming such as growing crops like maize, sugar beans and ground nuts. In addition, the locals largely rely on their gardens along the existing Weir, livestock rearing, and small-scale horticulture as their primary sources of livelihood. The Chirundazi River serves as a critical water source for both domestic and agricultural use, underpinning the socio-economic activities of local villages. In this context, the proposed Project poses negative social impacts such as the relocation of households, loss of gardens

and grazing lands, possible destruction and / or desecration of graves, and disturbances to culturally significant areas such as sacred sites. Further, the construction of the Dam will impact on accessibility as river crossings will be flooded, affecting school children travelling to Zibwowa Primary and Secondary Schools significantly. These impacts, if unmitigated, could disrupt livelihoods, fragment social cohesion, and erode cultural identity within affected communities.

To address these challenges, a RAP and LRP should be implemented, ensuring fair compensation and active engagement of affected households as well as compensation for disruptions to their livelihood. While negative impacts are noted, the proposed Project also provides positive social impacts as it offers significant potential to benefit local communities by improving access to water supply for agricultural, domestic, and other purposes. Reliable water availability can enhance irrigation opportunities, promote food security, and support the diversification of livelihoods in the region. The proposed Project may also play a role in catalysing infrastructure development in the region, as it will necessitate the development of an access road, a powerline, a water pipeline, a pump station, and other supporting infrastructure, which will not only serve the Mine but also enhance connectivity and accessibility for local communities. These infrastructural advancements are critical in achieving Vision 2030's goal of fostering regional development and integration through improved infrastructure networks. Furthermore, the proposed Project will provide employment opportunities, including skilled, semi-skilled, and unskilled labour during the Construction Phase.

Cultural Heritage

Construction activities pose the greatest threat to tangible heritage resources within the cultural landscape, and it is often during this Phase that cultural and natural relics located in the directly affected areas are lost which may inadvertently cause social and cultural disruption. The following observations were made:

- Impact on Archaeological Sites of Stone Age occurrences (AS02, AS03) and potential Iron Age ceramics (AS01), which are of limited heritage value, during construction is anticipated to be low. A scatter of pottery and medium density of MSA tools (AS04, AS05) were noted in a southern portion of the Project area. These sites are located within the 5 000 Mℓ Dam full supply level (FSL) and impact on the sites emanating from inundation is highly probable. The impacts can however be mitigated with the implementation of the proposed mitigation measures.
- A number of informal infant burial sites occur along the banks of the Chirundazi River in the Project area. BS01 occurs within the 5 000 Mℓ Dam 2 000 year flood level. BS06, BS08 and BS10 to BS14 all occur within the 5 000 Mℓ Dam FSL and BS09 occurs within the 11 000 Mℓ Dam FSL.
- A small informal cemetery with a number of graves occurring in a north-eastern portion of the Project area (BS02) is located within the 11 000 Mℓ Dam FSL and impact on the site emanating from inundation is probable. Another small informal cemetery occurs in a north-eastern portion of the Project area (BS03) is located in the 5 000 Mℓ Dam 100 year flood level and impact on the site emanating from inundation is highly probable. A single grave noted along the western banks of the Chirundazi River in a western portion of the Project area (BS04) is located in the 5000 Mℓ Dam FSL and impact on the site emanating from inundation is highly probable. In addition, a number of graves were noted next to a homestead along the western banks of the Chirundazi River in a western portion of the Project area (BS05). This site is located within the 5 000 Mℓ Dam 100 year flood level and impact on the site emanating from inundation is highly probable. At least five other graves were noted next to crop fields and homesteads in a western portion of the Project area (BS07). This site is located within the 11 000 Mℓ Dam 2 000 year floodline and impact on the site emanating from inundation is improbable. All human burials are of high cultural and social significance and these sites might all be impacted on by the construction of the Dam and subsequent flooding of riverbanks.

- BS17 is a burial site in the Muraro Village extending over the 11 000 Mℓ Dam FSL and also in close proximity of areas proposed for the 5 000 Mℓ and 11 000 Mℓ quarry site and borrow pits and impact on the site emanating from inundation as well as vibration and blasting is probable. BS18 is a burial site in the Shanduke Village extending over the 5 000 Mℓ Dam 2 000 year flood level and impact on the site emanating from inundation is probable. BS19 is another burial site in the Shanduke Village and it extends over the 11 000 Mℓ Dam 100 year flood level and impact on the site emanating from inundation is probable. BS20 is a burial site in Madenyika Village. This site extends over the 5 000 Mℓ Dam 2 000 year flood level and impact on the site emanating from inundation is probable. BS21 is a burial site on the Mashayamombe side of the Project area, extending over the 5 000 Mℓ Dam 2 000 year flood level and impact on the site emanating from inundation is probable. BS22 is a burial site south of the Muraro Village and this site extends over the 5 000 Mℓ Dam FSL and impact on the site emanating from inundation is highly probable. BS23, a burial site south of the Muraro Village, extends over the 5 000 Mℓ Dam 2 000 year flood level and impact on the site emanating from inundation is probable. BS24 is a burial site south of the Muraro Village extending over the 5 000 Mℓ Dam FSL and impact on the site emanating from inundation is highly probable.
- All human burials are of high cultural and social significance and these sites might all be impacted on by the construction of the Dam and subsequent flooding of riverbanks. Applicable rituals and ceremonies must be conducted to mitigate the impact on burials. Careful and continued stakeholder engagement will be required to assess the potential social and heritage impacts from the development and clearly establish requirements for mitigation if necessary. All statutory processes in terms of the Cemeteries Act, (Act No. 3 of 1883, as amended) should be always adhered to.
- A small Christian ritual complex was documented at CS01 is located within the 11 000 Mℓ Dam 100 year and 2000 year floodline level and impact on the site emanating from inundation is improbable. Another small Christian church complex was documented in a south-western portion of the Project area, west of the Chirundazi River (CS02). This site is located within the 11 000 Mℓ FSL and the 5 000 Mℓ 2 000 year floodline level and impact on the site emanating from inundation is probable. The sites are of cultural and social significance, and it is primarily recommended that no-go conservation buffers of 20 m for the sites be considered. However, should this not be feasible the transfer of features at the sites and associated ritual and symbolic meanings to new locations could be discussed with communities who use them. Here, the transfer to safe and suitable locations while maintaining the significance of the sites are important and careful and continued stakeholder engagement will be required to assess the potential social and heritage impacts from the development and clearly establish requirements for mitigation if necessary.
- A ceremonial complex consisting of significant and unique features were documented on a higher rise in a north-western portion of the Project area (CS03). The complex consists of the Mpupamombe Shrine and cave. Zimbabwean legislation requires the protection and preservation of significant sacred and ritual sites where they are very important for local communities who use them. This site extends over the 5 000 Mℓ Dam 2 000 year floodline, the 11 000 Mℓ full FSL, the 11 000 Mℓ 100 year floodline and the 11 000 Mℓ 2 000 year floodline and impact on the site emanating from inundation is probable. The site is of high cultural and social significance and a no-go conservation buffer is recommended. One of the resident Spirit Mediums indicated that it would not be possible to transfer the ritual attributes of the site to another location even if the physical building structures and features were to be moved. This perspective closely relates to the adjacent cave site which cannot be moved, and which has acted as a historical ritual centre for decades. It is anticipated that an expansive list of requirements, compensations and rituals may be required for the mitigation of this site during construction of the Dam. Careful and continued stakeholder engagement will be required to

clearly establish suitable mitigation measures or requirements for relocation (if at all possible), should the Dam's capacity be expanded to 11 000 Mℓ Dam.

- A scared pool which forms part of the river channels which border the Mashayamombe and Ngezi Chieftainships (CS04). The pool is locally referred to as Dziva rekwaManyanda / Jeffrey's Pool and is associated with mermaid spirits. This site extends over the 5 000 Mℓ Dam FSL and impact on the site emanating from inundation is highly probable. In addition, the SIA documented the existence of the Mvurachena Sacred Site (CS05), which translates to "white waters" in Shona. Recently, this site has gained recognition for its sacredness. This site extends over the 5 000 Mℓ Dam FSL and 2000 year flood level and impact on the site emanating from inundation is probable. Both these sites are significant for local communities, and they hold various Intangible Cultural Heritage (ICH) aspects subject to the 2003 United Nations Educational, Scientific and Cultural Organization Convention for the Safeguarding of ICH.
- Priority should be given to avoiding sacred sites or areas of cultural importance. Should the destruction of sacred sites or areas of cultural significance be required every effort should be made to develop a removal or relocation plan that incorporates local believes or practices, preserves the cultural value of the resource and, if possible, allows the cultural value to be transferred to the new or relocated resource. Additionally, the Cultural Heritage Management Plan and h Find Procedure should be implemented during the Construction Phase and site monitoring activities will be required throughout the Construction Phase of the Project in order to avoid the destruction of previously undetected heritage sites.

Table A: Summary of identified potential impacts associated with the proposed Project

Activity	Environmental Impact	Negative or Positive Impact	WM or WOM)[1]	Significance / Risk
Air Quality				
Construction Phase				
Construction of access road, water pipeline and powerline	Deteriorating air quality	Negative	WOM	Low
		Negative	WM	Negligible
Construction of low water crossing		Negative	WOM	Low
		Negative	WM	Negligible
Construction of the Dam infrastructure and quarrying activities		Negative	WOM	Medium
		Negative	WM	Low
Operational Phase				
Inspection and maintenance of access road, water pipeline, powerline, pump station, other permanent infrastructure	Deteriorating air quality	Negative	WOM	Low
		Negative	WM	Low
Hydrology				
Construction Phase				
Net result of earthworks and development including quarrying	Disturbed vadose zone soils during excavations / construction and quarrying activities	Negative	WOM	Medium
		Negative	WM	Low
	Poor quality seepage from construction / machinery	Negative	WOM	Medium
		Negative	WM	Low
	Impact on primary surface water receivers due to erosion and sedimentation as well as contaminant transport in runoff	Negative	WOM	Medium
		Negative	WM	Low

[1] With Mitigation (WM) or Without Mitigation (WOM)

Activity	Environmental Impact	Negative or Positive Impact	WM or WOM)[1]	Significance / Risk
Operation Phase				
Dam operation	Impact on primary surface water receivers due to contaminant transport in runoff affecting water quality	Negative	WOM	Medium
		Negative	WM	Low
	Temporal flow impedance once flooding starts	Negative	WOM	Medium
		Negative	WM	Low
	Spillway discharges leading to the erosion of rivers	Negative	WOM	Medium
		Negative	WM	Low
	Streamflow reduction downstream could impact water usage	Negative	WOM	High
		Negative	WM	Medium
Dam failure	Breach of the Dam wall or spillway	Negative	WOM	Medium
		Negative	WM	Medium
Construction Phase				
Earthworks	Contamination to groundwater systems due to hydrocarbons	Negative	WOM	Negligible
		Negative	WM	Negligible
Storage of chemicals and building materials during Dam construction	Contamination to groundwater systems	Negative	WOM	Negligible
		Negative	WM	Negligible
Quarrying along the left and right bank of the current Chirundazi River	Minor Groundwater inflows towards the quarry areas and decrease in shallow groundwater levels locally due to water abstraction, water containing high silt load downstream	Negative	WOM	Low
		Negative	WM	Negligible
Operational Phase				

Activity	Environmental Impact	Negative or Positive Impact	WM or WOM)[1]	Significance / Risk
Storage of water within the Chirundazi Dam	Increase in proximate groundwater levels	Positive	WOM	High
	Change in proximate groundwater chemistry (Dilution plume)	Positive	WM	No mitigation required. The dilution plume created by the Dam will improve proximate groundwater chemistry
Increased seepage rates locally surrounding the quarry site and borrow pits towards the aquifer are expected (especially for the south-eastern most quarry site where blasting will be required)	Increase in proximate groundwater levels and recharge towards the local aquifer	Positive	WOM	Medium
		Positive	WM	No mitigation required. An increase in proximate groundwater levels as well as recharge of the local aquifer is a positive impact.
Soil and Agriculture Potential				
Construction Phase				
The construction of the Dam wall	The construction of the Dam wall would not impact on any existing agricultural activities as this impact would only occur once the Dam wall and associated infrastructure is completed and the inundation area begins to flood	Negative	WOM	Negligible
		Negative	WM	Negligible
	Clearing of vegetation and the stripping of topsoil for the construction of the Dam wall may result in the alteration of the soil profile, leading to soil erosion and sedimentation	Negative	WOM	Medium
		Negative	WM	Low
	Mismanagement of waste and pollutants may result in soil pollution	Negative	WOM	Medium
		Negative	WM	Low
The construction of the water pipeline	The water pipeline will not result in the loss of any agricultural activities due to its linear structure and associated small footprint. In areas where crop cultivation	Negative	WOM	Negligible
		Negative	WM	Negligible

Activity	Environmental Impact	Negative or Positive Impact	WM or WOM)[1]	Significance / Risk
	currently takes place, the pipeline servitude follows an existing road and does not impact upon any agricultural land			
The construction of the powerline, water pipeline, access road and other associated infrastructure	Clearing of vegetation and the stripping of topsoil may result in the alteration of the soil profile and expose soils to erosion	Negative	WOM	Medium
		Negative	WM	Low
	Mismanagement of waste and pollutants may result in soil pollution	Negative	WOM	Medium
		Negative	WM	Low
Operational Phase				
Flooding of the Dam area	Loss of agricultural land and associated agricultural activities. This includes subsistence crop cultivation, brick moulding, and livestock grazing	Negative	WOM	High
		Negative	WM	High
Flooding of the Dam area	Loss of land for grazing livestock	Negative	WOM	Medium
		Negative	WM	Medium
Existence of the Dam	The inundation zone for the Dam will change the flow dynamics of the Chirundazi River as well as its sediment cycling. This can lead to the formation of erosion gullies both upstream and downstream of the Dam wall	Negative	WOM	Medium
		Negative	WM	Medium
Existence of the water pipeline and associated infrastructure	If the water pipeline is not buried at sufficient depth it will interfere with surface water movement which can lead to erosion gully formation in the disturbed footprint. This is particularly where the water pipeline and access road will cross the wetland system and/or watercourses	Negative	WOM	Medium
		Negative	WM	Low
Existence of Dam, and associated infrastructure	Stormwater runoff from the access road may be polluted with contaminates. and affect soil quality	Negative	WOM	Medium
		Negative	WM	Low
Freshwater Ecology				
Pre-construction				
Dam water offtake design	Direct impact to downstream aquatic ecosystem functioning due to water quality of Environmental Flow Release	Negative	WOM	High
		Positive	WM	Low

Activity	Environmental Impact	Negative or Positive Impact	WM or WOM)[1]	Significance / Risk
Spillway/Dam wall design	Movement of non-native fish fauna into possible Critically Endangered Fish Sanctuary	Negative	WOM	High
		Positive	WM	Negligible
Road crossing design	Loss of upstream migration for potamodromous fish species	Negative	WOM	Medium
		Negative	WM	Negligible
Construction Phase				
Quarrying activities	Fish species mortalities and loss of breeding success for Critically Endangered species (immediate); Contamination of watercourse due to explosive residue (long-term)	Negative	WOM	High
		Negative	WM	Low
Dam wall construction	Sedimentation of spawning and breeding areas	Negative	WOM	Medium
		Negative	WM	Low
	Water quality deterioration	Negative	WOM	High
		Negative	WM	Medium
	Flow modification to downstream reaches	Negative	WOM	Medium
		Negative	WM	Negligible
Operational Phase				
Dam operation	Loss of environmental cues for upstream migration & loss of breeding success	Negative	WOM	High
		Negative	WM	Low
Dam management	Loss of fisheries and Critically Endangered species	Negative	WOM	Negligible
		Negative	WOM	Negligible
Dam filling	Inundation of biotic (flowing) aquatic habitat	Negative	WM	Medium
Wetland Ecology				

Activity	Environmental Impact	Negative or Positive Impact	WM or WOM)[1]	Significance / Risk
Construction Phase				
Construction of the Dam wall	The construction of the Dam wall will have an impact on the main system and surrounding seep systems. The loss of wetland systems will only occur once the Dam wall and associated infrastructure is completed, and the inundation area begins to flood	Negative	WOM	Medium
		Negative	WM	Low
	Soil compaction resulting in the reduction of stormwater infiltration into the soil profile, thereby creating soil erosion and sedimentation	Negative	WOM	Medium
		Negative	WM	Low
	Sediment release from a construction site. Furthermore, mismanagement of any waste and pollutants may result in pollution of the wetland systems	Negative	WOM	Medium
		Negative	WM	Low
Clearance and earthworks associated with water pipeline, powerline and access road	The water pipeline, powerline and access road and associated infrastructure will cross one main seep system (HGM 1), exposing the Luvisol soils associated with this HGM unit, which are susceptible to erosion	Negative	WOM	Medium
		Negative	WM	Low
	Sediment release from a construction site. Furthermore, mismanagement of any waste and pollutants may result in pollution of the wetland systems	Negative	WOM	Low
		Negative	WM	Negligible
	Use of heavy machinery and the storage of equipment will lead to the compaction of soil in this area which will decrease its infiltration rate and lead to the formation of erosion gullies. Furthermore, any leakage of pollution from equipment and/or heavy vehicles will lead to the pollution of soils and subsequent impact on the nearby HGM 1 wetland system	Negative	WOM	Low
		Negative	WM	Negligible
Operational Phase				
Flooding of inundation area	The inundation of the 11 000 Mℓ Dam area will result in the loss of 21 wetland systems including seep and floodplain systems	Negative	WOM	High
		Negative	WM	High
Flooding of the inundation area	Changes to the flow dynamics of the wetland and watercourse systems as well as their sediment cycling, particularly downstream of the Dam but also in upstream water resources	Negative	WOM	High
		Negative	WM	Medium
Flooding of the inundation area, maintenance of the Dam wall and infrastructure	Release of polluting substances into the downstream water resources	Negative	WOM	Medium

Activity	Environmental Impact	Negative or Positive Impact	WM or WOM)[1]	Significance / Risk
		Negative	WM	Low
Changes of the flow dynamics where the powerline, water pipeline and road crossing exist leading to erosion in HGM 1	The existence of the pipeline and road crossing in HGM 1 acts as an impeding structure to the flow dynamics of the wetland system. This changes the geomorphic setting and can lead to erosion	Negative	WOM	Medium
		Negative	WM	Low
Maintenance of the powerline, water pipeline and road	Any maintenance of the pipeline, powerline and road can result in the release of polluting substances into the downstream water resources	Negative	WOM	Medium
		Negative	WM	Low
Changes to the flow dynamics of the wetlands	The haul roads will cross wetland systems, the quarries are located in wetland systems (leading to their loss)	Negative	WOM	Medium
		Negative	WM	Low
Floral Ecology				
Construction Phase				
Clearing of habitat during quarrying and excavation for building material	Destroy and disturb existing wetland and riparian based vegetation communities near the Dam wall. Unique Rocky Outcrops will be destroyed at the Quarry site, Possible alteration of the existing emergent vegetation in the current inundation zone	Negative	WOM	High
		Negative	WM	Medium
Earthworks	Threat to Species of Conservation Concern (SCCs) such as *Anselia africana* (VU) in the Miombo and Mixed Woodland, *Dalbergia melanoxylon* (NT) and *Pterocarpus angolensis* (NT), *Dioscorea* cf. *sylvatica* (VU), *Scadoxus puniceus, G. superba* and a number of Aloe species in the Rocky Outcrops	Negative	WOM	Medium
		Negative	WM	Low
General construction activities	Alien Invasive Species establishment thereby creating competition with native flora	Negative	WOM	Medium
		Negative	WM	Negligible
Operational Phase				
Inundation	Habitats that will be lost with potentially no chance of recovery include the floodplain, dry land Woodland habitats and the Rocky Outcrops	Negative	WOM	Medium
		Negative	WM	Medium
	Re-establishment of edge wetland vegetation communities	Positive	WOM	Medium

Activity	Environmental Impact	Negative or Positive Impact	WM or WOM)[1]	Significance / Risk
		Positive	WM	Medium
Disturbance of soils	Increased Prevalence of Alien and Invasive Species	Negative	WOM	Medium
		Negative	WM	Low
Faunal Ecology				
Construction Phase				
Clearing of habitat during quarrying and excavation for building material	Loss and Degradation of Habitat – Consequences for SCC	Negative	WOM	High
		Negative	WM	Medium
Blasting, excavation and vehicle operation	Increased Mortality Risk	Negative	WOM	High
		Negative	WM	Low
General construction activities	Sensory Disturbance and Indirect Extirpation	Negative	WOM	Medium
		Negative	WM	Negligible
Operational Phase				
Inundation	Loss of original wetland habitat due to inundation – Consequences for SCC	Negative	WOM	High
		Negative	WM	Medium
	Gain of novel wetland habitat due to inundation – Consequences for SCC	Positive	WOM	Negligible
		Positive	WM	Negligible
	Increased Mortality Risk	Negative	WOM	High
		Negative	WM	Medium

Activity	Environmental Impact	Negative or Positive Impact	WM or WOM)[1]	Significance / Risk
Powerline operation	Increased Avifauna Mortality Risk	Negative	WOM	Medium
		Negative	WM	Low
Disturbance of soils	Increased Prevalence of Alien and Invasive Species and therefore a reduction in foraging habitat for faunal species	Negative	WOM	Medium
		Negative	WM	Negligible
Inundation and Long-term operation of the Dam	Cumulative impact on Miombo Dependant Birds and Mammals	Negative	WOM	Medium
		Negative	WM	Low
Visual				
Construction Phase				
Site clearance, establishment of the Dam, access road, water pipeline, powerline quarrying and construction activities	Change in the landscape character and sense of place, and to key views observed by potentially sensitive receptors	Negative	WOM	Medium
		Negative	WM	Medium
Operational Phase				
Presence of the Dam wall, pumpstation, and inundated areas and security lighting at the dame wall and pumpstation	Change to the visual environment observed by receptors. Medium cumulative visual and sense of place impact	Negative	WOM	Medium
		Negative	WM	Low
Noise				
Construction Phase				
Construction of access road, water pipeline and powerline	Annoyance caused by increased levels of noise	Negative	WOM	Low
		Negative	WM	Negligible
Construction of the Dam earth embankment and central overflow spillway, Construction Laydown Area, quarrying		Negative	WOM	Low
		Negative	WM	Low

Activity	Environmental Impact	Negative or Positive Impact	WM or WOM)[1]	Significance / Risk
Construction of low water crossing		Negative	WOM	Low
		Negative	WM	Negligible
Operational Phase				
Inspection and maintenance	Annoyance caused by increased levels of noise	Negative	WOM	Low
		Negative	WM	Negligible
Socio-Economic				
Pre-construction Phase				
Land Acquisition and Site Selection	Project land acquisition, displacement and resettlement	Negative	WOM	High
		Negative	WM	Medium
Land Acquisition	Loss of community gardens and agricultural land	Negative	WOM	High
		Negative	WM	Medium
Project Affected Persons Consultation and Information Disclosure	Psychological and emotional stress and anxiety	Negative	WOM	Medium
		Negative	WM	Low
Consultation	Potential exclusion of vulnerable groups	Negative	WOM	Medium
		Negative	WM	Low
Baseline Data Collection (Surveying and Mapping)	Destruction and/or Desecration of Sacred Sites and Graves	Negative	WOM	High
		Negative	WM	Medium
Construction Phase				
Blasting activities, vehicle movement and machine operation	Reduced air quality due to dust pollution	Refer to Air Quality and Noise Impact Significance / Risk		
	Noise disturbances/annoyance affecting nearby communities			
Use of heavy machinery and equipment and blasting activities	Increased risk of injuries, harm or fatalities	Negative	WOM	Medium
		Negative	WM	Low
Blasting activities and machinery operation		Negative	WOM	Medium

Activity	Environmental Impact	Negative or Positive Impact	WM or WOM)[1]	Significance / Risk
	Damage to community infrastructure from blasting or machinery mishaps	Negative	WM	Low
Establishment of powerline, access road, water pipeline, the Dam, Construction of laydown area and sanitation facilities	Partial employment creation	Positive	WOM	Medium
		Positive	WM	Medium
Construction of proposed Project	Changes in livelihoods	Positive	WOM	Low
		Positive	WM	Medium
Employment	Increased vulnerability to gender-based violence and harassment	Negative	WOM	Low
		Negative	WM	Low
Relocation	Disruption of social cohesion in local communities	Negative	WOM	Medium
		Negative	WM	Medium
Relocation Exhumation and reburial of graves Desecration of sacred areas Employment (Influx of workers from other areas)	Social and cultural disruption	Negative	WOM	High
		Negative	WM	Medium
Movement of construction vehicles Employment (Influx of workers from other areas)	Increase in pressure on local infrastructure	Negative	WOM	Low
		Negative	WM	Negligible
Construction of the proposed project	Disputes over Water Access and Pastures for Livestock	Negative	WOM	Low
		Negative	WM	Low
Construction of the proposed project	Soil compaction, and long-term changes to land use	Refer to Soils and Agricultural Potential Significance / Risk rating		
Operational Phase				
Gardening and Livestock Watering, Fishing, Brick moulding, Drinking water, Swimming, Recreation	Increased risk of waterborne diseases	Negative	WOM	Medium
		Negative	WM	Low
Crossing, Swimming, Fishing, Recreation	Drowning	Negative	WOM	Medium
		Negative	WM	Low
Dam operation	Education disruption	Negative	WOM	High
		Positive	WM	Negligible
Dam operation	Improved water availability and access	Positive	WOM	High
		Positive	WM	High
Dam operation	Increased risk of flooding	Negative	WOM	High

Activity	Environmental Impact	Negative or Positive Impact	WM or WOM)[1]	Significance / Risk
		Negative	WM	Low
Recreation, Fishing, Community Gardens, Brick Moulding	Opportunities for livelihood restoration	Positive	WOM	Medium
		Positive	WM	High
Cultural Heritage				
Pre-construction Phase				
Heritage resources	Potential loss of Archaeological sites, Built Environment, Graves, Sites of Cultural Significance	Negative	WOM	Negligible
		Negative	WM	Negligible
Construction Phase				
Vegetation clearing, topsoil stockpiling and excavation of the river bed. Dewatering of the Chirundazi River, construction of a cofferdam upstream, plinth, Dam wall and concrete spillway. Construction of access road, pump station, water pipeline, powerline and pole-mounted transformer	Potential loss of Archaeological sites, Built Environment, Graves, Sites of Cultural Significance Destruction of cultural/archaeological/ heritage material	Negative	WOM	High
		Negative	WM	Medium
Construction of Powerline, Water Pipeline and Access Road: Site access and road clearance, digging of trenches	Destruction of Archaeological sites, Built Environment, Graves, Sites of Cultural Significance	Negative	WOM	Negligible
		Negative	WM	Negligible
Operational Phase				
Natural filling and establishment of the Dam, extraction and use of water from the Dam for use by the Mine and maintenance activities of the Dam, the powerline and access road	Potential loss of Archaeological sites, Built Environment, Graves, Sites of Cultural Significance	Negative	WOM	Low
		Negative	WM	Negligible
Powerline, water pipeline and access road servitude clearance, Vehicular access for maintenance purposes	Destruction of cultural/archaeological/ heritage material. Servitude clearance as a result of Vehicular access for maintenance purposes	Negative	WOM	Negligible
		Negative	WM	Negligible
Palaeontology				
Construction Phase				
Establishment of the Dam and associated supporting infrastructure (powerline, water pipeline, access road and quarries)	Potential discovery of fossils during construction activities	Negative	WOM	Negligible
		Negative	WM	Negligible
Establishment of the Dam – southern part of the Dam	Potential discovery of fossils during construction activities	Negative	WOM	Low
		Negative	WM	Negligible

RECOMMENDATIONS

A summary of the overall recommendations to be implemented to manage impacts associated with the Construction and Operation Phases of the proposed Project is provided. Refer to the ESMMP in **Section** Error! Reference source not found. for the detailed mitigation and management measures as recommended by specialists.

Climate Change

- In alignment with Equator Principle 9 it is recommended that a weather station be erected near the Chirundazi Dam or Karo Platinum Mine. The meteorological surface observations would be a valuable resource and analysis tool for assessment and verification of the impact of climate change on the proposed Project.
- For national GHG reporting requirements, the GHG inventory for the proposed Project should be refined by determining carbon stocks of the area to more accurately estimate emissions from vegetation loss and flooding.
- Reducing the proposed Project's impact on climate change, that is, measures to mitigate and manage GHG emissions:
- Please note that these recommendations are primarily focused on the mitigation of risks to the proposed Project's infrastructure and employees. The measures will however also mitigate risks to the Mine, communities, and other downstream receptors.

Construction Phase

- For a climate-resilient design, incorporate climate change projections into the Dam design. The spillway should be designed with increased capacity based on updated flood frequency analyses that account for climate change projections.
- Conduct comprehensive geological surveys to ensure the Dam's foundation can withstand various climate-induced stresses.
- Include components that can be easily modified or upgraded as climate conditions change over time i.e. design Dam crest and spillway with the capability for future height increases to accommodate higher flood levels if needed.

Operational Phase

- Install real-time monitoring for water levels, structural integrity, and weather conditions. Such monitoring systems with real-time data analysis must form part of an Emergency Response Plan.
- Implement strategies to manage increased sediment loads due to climate change-induced erosion during flooding e.g., establish zones with native vegetation along tributaries to reduce sediment inflow and enhance water quality, design and install sediment bypass tunnels or sluice gates to allow controlled sediment passage during high flow events.
- Implement efficiency measures in water use at the Mine to reduce demand on the Dam, especially during droughts.
- To ensure operational continuity and reduce pressure on the Dam during periods of water scarcity, the Mine should develop and maintain backup water supply plans, such as groundwater abstraction systems, to be implemented if water supply from the Dam becomes insufficient during severe drought conditions.
- Ensure sufficient water flow downstream to maintain ecosystems, even during drought periods, as calculated by Ecology International (2024). Abstraction and releases from the Dam as well as water levels and water quality must be monitored to ensure EFR compliance.
- Conduct periodic evaluations of climate risks and update adaptation strategies accordingly.

General

- Risks to workers during all phases of the proposed Project should be minimised by including protocols for protection against flooding, drought, veld fire, thunderstorms and other risks identified. Such protocols include the implementation of an Emergency Response Plan, an early warning system, Personal Protective Equipment, sun and rain protection, implementing work rotation rosters during extreme heat days, provision of drinking water, and hydration monitoring, etc.
- Collaborate with stakeholders (e.g. a community forum or online database) to manage the entire watershed for overall resilience. This will entail the development of a shared database for all watershed stakeholders to input data, share information, and collectively make water management decisions.
- Emergency preparedness is key. Develop and regularly update Emergency Response Plans for responding to extreme weather events, fires, and potential dam failures. The Emergency Response Plan should include an early warning system for all stakeholders which include but may not be limited to employees, contractors and immediate/downstream communities.
- Develop a plan for transferring operational knowledge and climate adaptation strategies to the Government of Zimbabwe after the Mine's closure.
- Conduct periodic evaluations of climate risks and update adaptation strategies accordingly. Such evaluations will typically follow the International Panel on Climate Change reporting cycle and be based on the latest climate projections.

Air Quality

- Where construction activities approach within 100 m of receptors, such communities must be approached and informed of the type of activity, duration, as well as any health and safety concerns related to air quality.
- Implementing a combination of planning (e.g., blast design to minimise use of explosives and optimise blast patterns), engineering controls (e.g., controlled blasting techniques, burden and spacing adjustments), monitoring practices, and community engagement (e.g., notification of blast schedules, establishing a communication channel for reporting concerns) will be required. Such measures should be identified by and specified by a blasting and vibration specialist once sufficient information on the activity becomes available.

Hydrological

- The 1-100-year floodline + an additional 30 m can be used as a precautionary buffer for dwellings and farming activities (the 30 m buffer is based on a qualified assumption of potential maximum flood peaks). This is aimed at protecting residents, agricultural land as well as preventing siltation of the watercourses.
- Assess the site constraints and any site-specific concerns, including:
    - The type of construction should consider landform. Avoid slab-on-ground construction on steep sites.
    - Up-slope drainage catchments that must be diverted around the work site.
    - Workspace limitations may require site-specific sediment control measures and / or the extensive use of skips or bins for material storage and waste management.
    - Expected rainfall during the period of disturbance (wet season vs dry season). Construction is recommended to occur during the dry season.
- Stabilise the site entry/exiting points: a stabilised site access must be established and, if possible, limited to one point only. The access allows for construction vehicles to enter the work

area while preventing the unnecessary tracking of sediment onto the nearby environment from multiple locations. A stabilised entry/exit point normally consists of a stabilised rock pad.

Hydrogeological

- Observed gaps within the data available should be closed. Site-specific climate, elevation, and hydraulic parameter data should be collected.
- Geotechnical assessments in the vicinity of the Dam wall should be conducted and include packer-testing and infiltrometer tests to determine hydraulic parameters in proximity to the proposed Dam site.
- Geochemical analyses of the proposed quarry material should be conducted to inform on chemical leaching ability.
- Investigation into utilising nitrate free explosives for the south-eastern most quarry site where blasting will be required.
- The presence / absence of geological structures crosscutting the Dam site should be closed out as this can have a large effect on modelled seepage rates. Based on current geological data only one fault structure crosscuts the Dam site.
- Once the mentioned gaps have been closed out and as new data becomes available during the Construction Phase, updates to the presented hydrogeological assessment and models should be done.
- During the Construction Phase a monitoring network, such as the one presented in **Section** Error! Reference source not found., should be developed along with a monitoring protocol. Data collected by such networks would be valuable and assist in further studies and aid in improving existing groundwater models.

Terrestrial and Freshwater

- Implement recommended EFR.
- The current Chirundazi Dam provides a significant fishery for the communities surrounding the Dam. However, the uncertainty regarding the identification of *Oreochromis cf. mortimeri* (Kariba Tilapia; currently listed as CR and the potential for the Dam to be acting as a refuge for the species (in the absence of non-native fish species) still needs to be addressed. In this respect, the following actions are required to address the gaps identified and to ensure the sustainability of the fishery for local communities:
    - Develop a fisheries policy for Chirundazi Dam to inform sustainable management of the fish stocks present in the Dam, with specific consideration for the CR *Oreochromis cf. mortimeri* (Kariba Tilapia) if confirmed within the catchment.
- The Mine must therefore follow an adaptive management approach to ensure long-term mitigation management through informed decision making. In order to do this, regular monitoring of the aquatic ecosystem both within and downstream of the proposed Dam is to be conducted.

Visual

- During high wind conditions, the Safety, Health and Environment (SHE) Officer must evaluate the situation and make recommendations as to whether dust damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level.
- During construction, temporary fences surrounding the material storage yards and laydown areas should be covered with 'shack' cloth (khaki coloured) or shade cloth.

Noise

- Avoid unnecessary revving of engines and switch off equipment/vehicles/trucks when not required.
- Maintain internal surfaces and avoid steep road gradients.
- Audible reversing warning systems on vehicles should be of a type which, while ensuring that they give proper warning, have a minimum noise impact on nearby sensitive receptors.

Socio-Economic

- Undertake continuous stakeholder engagement to build trust and inclusivity, ensuring that the voices of all affected communities are heard and integrated into decision-making.
- Equitable compensation mechanisms must be implemented transparently, prioritising marginalised groups and valuing not just land but also crops, trees, and other assets.
- The Project Proponent should engage with local traditional leaders to confirm the location and significance of sacred sites identified by stakeholders
- Culturally significant sites and practices should be preserved and incorporated into project implementation to maintain the community's spiritual and cultural identity. Traditional protocols should be followed to help with Project buy-in in the community. However, these must be held in consultation with the local chief who is the chief community enforcer of the Traditional Leaders Act [Chapter 29:17].
- Access to infrastructure and social amenities should be safeguarded and ideally improved, for the communities directly affected by the proposed Project and the community at large.
- Any graves requiring exhumation and reburial must be handled in close consultation with traditional leaders, ensuring culturally sensitive practices are followed. Details of the procedures for dealing with graves that are threatened by development are outlined in the Cultural Heritage Impact Assessment, attached as Error! Reference source not found..**9**.
- During the Dam Construction Phase, key stakeholders, including Zimbabwe National Water Authority, the Upper Middle Mupfure Sub-Catchment Council, and the Rural District Council, should be actively involved in monitoring.
- Regular monitoring and evaluation of mitigation measures are critical to ensuring their effectiveness and adaptability to emerging needs, safeguarding the Project's sustainability and community support over time.

Cultural Heritage

The following is recommended to avoid and / or limit special disruption associated with the damage / loss of heritage resources.

Issue	**Specific Recommendation(s)**	**Priority**
Traditional Ceremonies and Protocols	Hold only the requisite ones and with the blessings of the local chief(s)	**High**
Chirenda Family Graves	Exhume and relocate before or during Project implementation	**High**
Magomo Family Graves	Exhume and relocate for later Project phases	**Medium**
Graves in Shanduke Village	Exhume and relocate before or during Project implementation	**High**
Graves in Shanduke Village	Too close to the river. Exhume and relocate	**High**
Graves in Madenyika Village	Too close to the river. Exhume and relocate	**High**
Mupamombe Cave	Engage the site custodian and develop a Site Management Plan for the cave but negotiate for relocation of *banya* (ritual hut) to a safe distance from flood levels as part of risk management and disaster preparedness	**Medium**

Issue	Specific Recommendation(s)	Priority
Gardens in the Project area	Relocate with the informed participation of the local community	**High**
Relocation of homesteads	Carefully manage the process in a transparent manner that reduces the impact such an inconvenience ordinarily brings to the affected families	**High**
Grave Site 6 in Murauro Village	Fence off and close the burial site immediately. Consider exhumations and relocation in later phases of the Project	**Low**
Intangible Cultural Heritage Elements associated with sacred sites	Rescue by Inventorying	**Medium**

CONCLUSION

In light of the above, an ESMMP has been developed in alignment with section 96 of the EMAct and IFC PS. The purpose of the ESMMP is to provide a framework within which the environmental and social risks identified during the ESIA process are managed over the entire lifecycle of the Project. This includes mitigation measures which are aimed at avoiding or limiting the consequence and probability of impacts.

The specialist assessments found that the identified impacts associated with the Construction and Operation Phase of the Project can be suitably mitigated provided that the mitigation measures included in the ESMMP are effectively implemented and managed in the long-term. The proposed Project is a strategic initiative that addresses the operational needs of the Karo Platinum Mine while advancing national priorities under NDS1 and Vision 2030. The Project not only secures critical water supply for mining operations but also fosters community development, infrastructure growth, and economic empowerment, positioning it as a catalyst for sustainable development in the region. The Project demonstrates Karo Platinum's commitment to responsible water management practices and sustainability by ensuring the optimal use of water resources while minimising environmental impacts.

Furthermore, continued stakeholder engagement and collaboration is key in the success of the proposed Project and by adhering to both national and international standards, the Project has the potential to serve as a benchmark for equitable and sustainable infrastructure development in Zimbabwe. Integrating these considerations into every phase of the Project will ensure that the benefits of the Dam extend beyond immediate objectives, fostering long-term community well-being and environmental resilience.