

Environmental Scoping Report of EPL9292 in the vicinity of Fransfontein, Kunene Region



Environmental Scoping Report

Exploration and Prospecting Licence: EPL 9292 (16,651 ha)

Kunene Region, Namibia

Disclaimer (Environmental Scoping Study)

This Environmental Scoping Study (ESR) and the associated supporting annexures have been prepared by **Dr Ismael Kanguuehi** of **Augite Environmental Consultants cc** on behalf of the project proponent for the purpose of supporting an application for an Environmental Clearance Certificate (ECC) in terms of Namibia's Environmental Management Act, 2007 (Act No. 7 of 2007) and the Environmental Impact Assessment Regulations (GN 30 of 2012), as amended. The report has been compiled using a combination of desk-top information sources, publicly available baseline datasets, project information supplied by the proponent (including the project description and proposed exploration activity envelope), and professional judgement based on relevant experience in environmental assessment and the Namibian regulatory context.

While reasonable care has been taken to ensure the accuracy and completeness of information presented, the assessment is based on the information available at the time of writing and on the assumptions described in the report. Environmental conditions may vary spatially and temporally, and additional information may become available during stakeholder engagement, field verification, or subsequent phases of project planning. The findings, conclusions and recommendations presented are therefore provided on the understanding that they may require refinement should the project scope change materially or if new evidence indicates different sensitivities, risks, or regulatory triggers.

This report is intended solely for the use of the proponent and the competent authorities involved in the ECC decision-making process, and it should not be relied upon for purposes other than those stated without the prior written consent of the author. No liability is accepted for any loss or damage arising from the use of this report by third parties, from reliance on information not verified by the author, or from unauthorised alterations to the report after submission. All mitigation measures and management commitments described herein are recommendations to support compliance; the proponent and its contractors remain responsible for implementation, adherence to ECC conditions and licence requirements, and compliance with all applicable legal and administrative obligations.

Author Qualifications and Experience (Dr Ismael Kanguuehi)

Dr Ismael Kangueehi (PhD) is an environmental geochemist, exploration geologist and environmental assessment practitioner with extensive experience in Namibia's mining, energy and infrastructure sectors. He holds a **Doctorate in Earth Sciences (Environmental Geochemistry)** from **Stellenbosch University**, supported by **Honours and Master's degrees** in the same discipline, and a **BSc in Geology and Environmental Biology** from the **University of Namibia**. His academic and applied work is grounded in environmental geochemistry, biogeochemistry, environmental baselines, risk screening, and the interpretation of geological and hydrogeological systems relevant to impact assessment and environmental management planning.

Dr Kangueehi is the founder of **Augite Environmental Consultants cc** and has delivered professional environmental assessment outputs including **Environmental Scoping Reports (ESRs)**, **Environmental Impact Assessments (EIAs)**, **Environmental Management Plans (EMPs)**, **stakeholder engagement documentation**, and **legal compliance frameworks** aligned to Namibia's Environmental Management Act and associated EIA Regulations, as well as international good practice where required (including IFC-aligned approaches when relevant). He also works as a **Senior Researcher and Exploration Geologist** (industry-facing), which strengthens his practical understanding of exploration methods, field logistics, and the realistic impact pathways associated with mineral exploration and early-stage project development. His experience spans baseline description and interpretation (geology, soils, vegetation, hydrogeology, hydrology and socio-economic context), impact screening and significance evaluation, mitigation design, and compliance-ready EMP structuring suitable for regulatory submission and on-ground implementation.

Table of Contents

1. Executive summary.....	6
2. Introduction.....	9
2.1 Purpose of this scoping report.....	9
2.2 Background and context	10
3. Project description	11
3.1 Location and access	11
3.2 Project proponent.....	12
3.3 Exploration activity envelope	12
4. Policy, legal and administrative framework (Namibia-focused)	16
Authorisations typically required (and how they tie back to this ESR/EMP)	18
5. Scoping methodology	24
5.1 Approach.....	24
5.2 Impact significance rating (scoping level).....	25
6. Description of the receiving environment (desk-top baseline).....	27
6.1 Regional setting and land use	27
6.2 Climate.....	28
6.3 Topography and drainage.....	29
6.4 Geology and mineral potential context.....	31
6.5 Soils and land capability	34
6.6 Surface water and groundwater	36
6.7 Biodiversity (flora, fauna, habitats)	38
6.8 Heritage, archaeology and paleontology.....	40
7. Public participation process	44
7.1 Stakeholder identification (initial list)	45

8. Identification of key issues and potential impacts (scoping)	47
8.1 Impact screening table (preliminary)	50
9. Alternatives	52
1) No-go alternative (no exploration)	52
2) Access alternatives (existing tracks only vs limited new track formation)	52
3) Camp alternatives (no camp/day operations vs temporary camp at pre-disturbed site).....	53
4) Drilling method alternatives (RC vs diamond; water-based vs air drilling where feasible) 53	
5) Site layout and micro-siting alternatives (avoid sensitive receptors; reduce footprint)	54
6) Scheduling alternatives (timing of works to reduce erosion, access damage, and nuisance)55	
10. Mitigation and management measures (scoping-level)	56
Overall conclusion	70
Recommendations (ECC-aligned)	70

1. Executive summary

This Environmental Scoping Study has been prepared to support an Environmental Clearance Certificate (ECC) application for exploration activities on **EPL 9292**, an Exclusive Prospecting Licence covering approximately **16,651 ha** in the **Kunene Region** of north-western Namibia, located west of **Fransfontein** within the broader Fransfontein–Kamanjab corridor and the regional context west/north of **Khorixas**. The project proponent is **Profile Energy (Pty) Ltd**, a subsidiary of **Profile Investment Holdings (Pty) Ltd**, with corporate establishment stated as 2009 and headquarters in Windhoek West. The proponent intends to undertake phased mineral exploration for a broad commodity suite, with a primary focus on base and precious metals including **copper, gold, nickel, zinc, lead and silver**. The scoping study defines a reasonable exploration activity envelope comprising low-impact reconnaissance mapping, ground-truthing and geochemical sampling, geophysical surveys, and—only if warranted by results and appropriately authorised—limited trenching/pitting and exploration drilling using RC and/or diamond methods. Activities such as mining, bulk sampling at mining scale, permanent infrastructure, ore processing plants, and permanent waste facilities are explicitly excluded from this scope unless separately assessed and authorised.

The scoping process has been undertaken in accordance with Namibia’s **Environmental Management Act, 2007 (Act 7 of 2007)** and the **EIA Regulations (GN 30 of 2012)**, and aligned to the administrative expectations of the Environmental Commissioner for ECC submissions. A systematic methodology was applied to identify and screen potential impacts using an activity–aspect–receptor logic, considering direct and indirect effects, cumulative impacts, short- and long-term and reversible/irreversible outcomes, and practical alternatives that can reduce impact (e.g., using existing tracks, micro-siting away from sensitive receptors, and minimising vegetation clearance). Impact significance was evaluated at scoping level using a semi-quantitative matrix that considers extent, duration, intensity, probability, reversibility/irreplaceability, and significance before and after mitigation. The outcome is a prioritised set of issues and a colour-coded impact screening table that indicates which impacts are most relevant to ECC decision-making and which can be managed through standard exploration EMP controls.

The receiving environment is typical of the Kunene interior semi-arid rangelands: climate is characterised by **high inter-annual rainfall variability**, episodic intense summer storm events

that generate short-lived runoff, and extended dry and windy periods with high evaporation and dust potential. Topographically, the licence is generally gently undulating with low ridges and inter-ridge flats, and the drainage sensitivity is dominated by a **single mapped river/stream corridor** crossing the EPL that is expected to be ephemeral but capable of conveying high-energy flows during storm events. Baseline thematic mapping indicates largely uniform **tree-and-shrub savanna** vegetation, while soils are dominated by **shallow, stony, calcareous soil units** (leptosols/regosols/calcsols) that are sensitive to compaction and erosion when disturbed. Hydrogeological mapping indicates that groundwater occurrence is largely controlled by fractures in basement rocks over much of the area, with locally higher groundwater potential associated with carbonate (limestone/dolomite) terrains in the broader region; this has implications for water-supply planning and for groundwater vulnerability to contamination in higher potential zones. The geological setting is structurally complex, with banded metamorphic and sedimentary packages and intrusive bodies (including the Fransfontein Granite Suite and mapped rhyolitic units), consistent with Damara-aged deformation and associated intrusive events.

The scoping assessment identifies the key issues and potential impacts associated with exploration as: (i) vegetation loss and habitat disturbance from new tracks, survey lines and work sites; (ii) soil compaction and erosion initiation, particularly along linear disturbances and where stormwater concentrates during heavy rainfall events; (iii) dust generation and associated nuisance and road-safety risks from increased vehicle movements on gravel roads; (iv) surface water and drainage impacts through sediment mobilisation and altered runoff if activities occur too close to channels; (v) groundwater pollution risks associated with fuel handling, sanitation and—if drilling occurs—drilling fluids/cuttings management, with heightened consequence in more vulnerable carbonate/karst-related settings; (vi) waste management and housekeeping risks, including wildlife attraction and littering; (vii) heritage, archaeology and palaeontology risks from ground disturbance, especially the potential to disturb graves or cultural artefacts; and (viii) socio-economic risks and opportunities linked to land access, grazing and waterpoint protection, livestock disturbance, traffic safety, and local employment and procurement. Cumulative impacts are mainly associated with repeated campaigns leading to incremental proliferation of informal access tracks and disturbed pads if not controlled and rehabilitated.

An outline Environmental Management Plan (EMP) has been developed and expanded to provide enforceable management measures appropriate to exploration, including strict access controls (use existing tracks and prohibit off-road driving), demarcation of work areas, speed limits and driver induction, avoidance buffers around drainage lines and waterpoints, erosion prevention and stormwater controls, bunded fuel storage and spill response readiness, disciplined waste and sanitation management, and progressive rehabilitation of all disturbed areas (re-contouring, ripping/scarifying compacted surfaces and stabilisation where required). A mandatory **chance-find procedure** is included to manage unexpected discovery of heritage resources, with stop-work requirements and notification pathways, and the Plan of Study for EIA (where triggered by the final activity footprint) provides for targeted specialist screening, particularly for heritage and for any site-specific sensitivities identified through stakeholder engagement.

Overall, the scoping study concludes that exploration activities on EPL 9292 are **environmentally acceptable at scoping level** and can be managed to **low residual significance** for most impacts if the EMP commitments are implemented, monitored and enforced through contractor obligations and ECO oversight. Higher-consequence risks—particularly groundwater contamination pathways and heritage/grave disturbance—are considered manageable through strict avoidance and control measures, pre-disturbance screening where warranted, and robust incident response procedures. The study therefore recommends proceeding with the ECC submission for the defined exploration envelope, maintaining active stakeholder engagement (including written access permissions and a functioning grievance mechanism), and implementing an auditable monitoring and reporting system to demonstrate compliance throughout the exploration lifecycle.

2. Introduction

2.1 Purpose of this scoping report

This Environmental Scoping Report (ESR) has been prepared to support the Environmental Clearance Certificate (ECC) application process by defining the scope of the proposed exploration activities on the licence area and establishing the environmental and social context within which these activities will occur. It provides a clear description of the project, including the proponent's objectives, the location and extent of the licence area, and a realistic “reasonable worst-case” exploration activity envelope (e.g., access, sampling, geophysical surveys, limited clearance, and—if triggered—trenching and drilling). The ESR also presents a desk-top baseline description of the receiving environment, summarising the key biophysical and socio-economic features of the area—such as land use, geology and soils, hydrology and groundwater potential, vegetation and habitat character, and any known sensitivities that may influence how exploration is planned and executed.

Building on this baseline, the ESR identifies the principal issues raised through initial screening and stakeholder considerations, and it assesses the potential impacts associated with exploration across the relevant phases (mobilisation, operational exploration activities, and rehabilitation/closure). This includes an impact screening that evaluates the likely significance of impacts before and after mitigation, and it proposes practical, implementable mitigation measures to avoid, minimise, rehabilitate or offset impacts where necessary. In addition, the ESR outlines the stakeholder and public participation process to be followed, including stakeholder identification, engagement methods, and mechanisms for recording and responding to comments, ensuring transparency and traceability in how issues are addressed.

Finally, the ESR sets out a Plan of Study for EIA (PoSEIA), specifying the additional assessment steps required to finalise the EIA/EMP submission where further detail is warranted, and providing specialist terms of reference (ToR) for targeted studies (e.g., biodiversity screening, heritage screening, and hydrogeological sensitivity inputs) where triggered by the activity footprint or site sensitivities. The report also presents an outline Environmental Management Plan (EMP) framework tailored to exploration, defining roles and responsibilities, management measures, monitoring and reporting requirements, and rehabilitation objectives, thereby providing a practical

compliance tool to guide implementation and demonstrate how the proponent will meet ECC conditions and regulatory expectations.

2.2 Background and context

EPL 9292 is located in north-western Namibia within the Kunene Region, in the broader Fransfontein–Kamanjab area, where access is primarily provided by the regional gravel road network linking these settlements and surrounding farm/communal landscapes. The licence covers an area of approximately **16,651 ha** and has been secured for mineral exploration focused on **base and precious metals**, with the principal target commodities including **copper (Cu), gold (Au), nickel (Ni), zinc (Zn), lead (Pb) and silver (Ag)**. The exploration programme is intended to identify and delineate prospective mineralised zones through a phased approach that may include reconnaissance mapping, geochemical sampling and geophysical surveys, with limited follow-up trenching and drilling only where justified by results. The attached Background Information Document (BID) confirms the project intent and provides the core project descriptors required for the ECC application, including the EPL extent, the general location and access context, and the proposed commodity suite to be investigated within the licence area.

3. Project description

3.1 Location and access

The proposed exploration project relates to **EPL 9292**, an allocated prospecting area situated **west of Fransfontein** in the ****Kunene Region**, north-western Namibia, within the wider Fransfontein–Kamanjab corridor and in the broader regional setting west and north of Khorixas. The licence footprint covers approximately **16,651 hectares**, representing a substantial exploration block that spans a semi-arid savanna landscape characterised by farm and communal land uses and a dispersed settlement pattern typical of this part of Kunene. The area is readily accessible via the **C35 gravel road**, which provides the principal regional access route between Fransfontein and Kamanjab, and the proponent will, as far as practicable, rely on this existing road infrastructure and associated established tracks to reach target areas within the EPL.

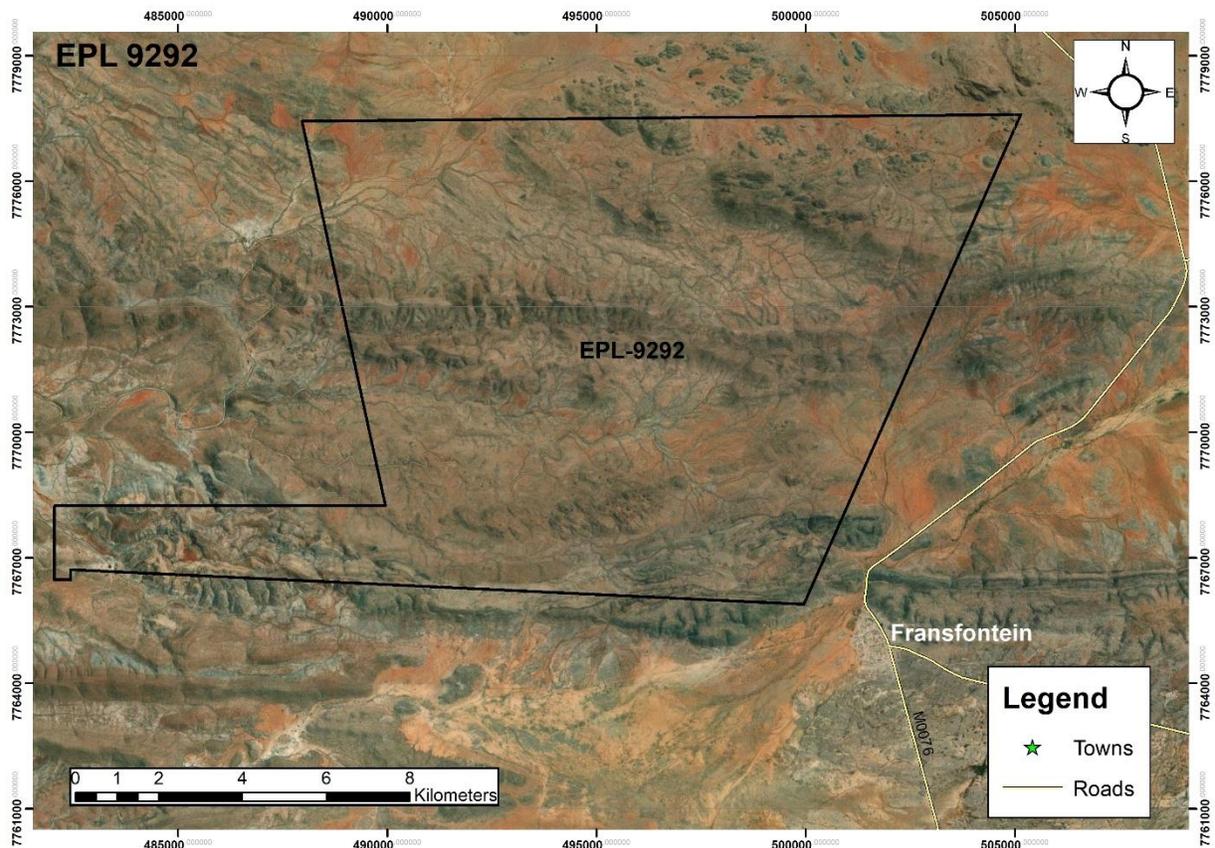


Figure 1. Location Map for EPL9292 in north west Namibia, close to Fransfontein.

Secondary access may make use of existing farm or communal tracks, but only where landowner or lawful occupier permission has been obtained and where route selection avoids environmentally sensitive areas such as drainage lines, steep/erosive slopes, or areas of dense woody vegetation. The proponent intends to undertake a phased programme of **exploration and prospecting** across the EPL for a broad suite of commodities, including **base and rare metals, precious metals and semi-precious stones**, as well as **dimension stone, industrial minerals and non-nuclear fuel minerals**, with the initial focus typically involving low-footprint reconnaissance activities such as geological mapping, ground truthing, geochemical sampling and geophysical surveys, followed—only if results justify it—by more intrusive but still temporary activities such as limited trenching/pitting and exploration drilling at discrete, prioritised targets.

3.2 Project proponent

Profile Energy (Pty) Ltd is the project proponent for EPL 9292 and is described in the project Background Information Document (BID) as a subsidiary of Profile Investment Holdings (Pty) Ltd. The group's public corporate profile indicates that it is a wholly Namibian-owned holding company with business interests spanning multiple sectors (including ICT, security/surveillance, debt collection, and civil works/building construction), which is useful context for demonstrating organisational capacity and governance structures in an ECC submission. For project administration purposes, the Ministry of Mines and Energy's published EPL contact schedule lists Profile Energy (Pty) Ltd as an EPL applicant/holder in Namibia and provides its postal and physical address details (including an address in Windhoek West), which you can cite in the proponent section to align with ECC expectations for traceable proponent particulars.

3.3 Exploration activity envelope

The exploration programme for EPL 9292 is anticipated to be implemented in a phased manner, starting with low-footprint activities and only progressing to more intrusive work where justified by results. The initial phase typically comprises **reconnaissance and mapping**, which includes

desktop-based target generation using available geological, geochemical and remote sensing datasets, followed by field mapping and ground-truthing to verify lithologies, structures, alteration zones and access conditions. This work is usually undertaken by small field teams moving on foot and by vehicle along existing roads and tracks, using handheld GPS units and field tablets/maps, and it is designed to minimise disturbance by avoiding unnecessary vegetation clearance and limiting movement to established routes wherever practicable. Building on reconnaissance outcomes, a second phase involves **geochemical sampling** to characterise the distribution of target elements and identify anomalous zones; this may include rock-chip sampling from outcrops, soil or lag sampling along traverses and grids, and stream sediment sampling where drainage features are present and sampling is methodologically appropriate. Sampling is typically spatially controlled (pre-planned lines, sample spacing, and QA/QC procedures) and, although it is generally low impact, it can increase vehicle and foot traffic in the field and therefore requires clear route control and good housekeeping to prevent littering and habitat disturbance. Where additional subsurface targeting is needed, a third phase may include **geophysical surveys**, such as ground magnetic and gravity traverses and, where warranted, electrical or electromagnetic methods (e.g., EM/IP) to detect conductive or chargeable sulphide-bearing zones and to map structures that may control mineralisation. Geophysical work generally follows planned survey lines and can require limited line clearing to maintain sightlines or equipment movement; however, best practice is to preferentially use existing paths, keep any line clearing to the minimum practical width, and avoid sensitive habitats such as drainage lines, riparian thickets, rocky refugia, and areas with mature woody vegetation.

If early-phase results identify priority targets requiring direct exposure of bedrock, the programme may progress to **limited trenching or pitting**, subject to the necessary authorisations and strict environmental controls. Trenching and pitting are used to expose fresh rock for geological logging and channel sampling, and are typically shallow and localised, but they represent a higher disturbance activity due to excavation, spoil placement, increased erosion risk and potential safety hazards. For this reason, any trenching/pitting must be carefully micro-sited away from drainage pathways and steep/erosive slopes, managed with safe working practices, and followed by **immediate rehabilitation** that includes backfilling, re-contouring to the natural landform, replacing topsoil where present, and stabilising disturbed surfaces to prevent rilling and gullyng. Where trenching and surface methods are insufficient to test targets at depth, the programme may

then include **exploration drilling**—most commonly reverse circulation (RC) and/or diamond drilling—at selected, discrete sites. Drilling requires temporary drill pads and associated support areas, and may include sumps or contained areas for managing drill cuttings and water; it also involves higher water demand, fuel use and noise, which necessitates robust EMP controls such as banded fuel storage, spill prevention, controlled refuelling, disciplined drill-water and cuttings management, and progressive rehabilitation of pads and access spurs once drilling at a site is complete. Across all phases, **support logistics** are required to enable safe and compliant operations, which may include either day-trip operations from nearby service centres or the establishment of a temporary field camp in an appropriate pre-disturbed location, as well as temporary laydown areas for equipment, banded fuel storage, water carting or managed water supply arrangements, secure waste storage, and routine removal of waste to authorised disposal facilities. These logistical components are often the key determinants of environmental performance because they concentrate risks associated with waste, sanitation, hydrocarbons and housekeeping; consequently, they must be managed through clear procedures, inspections, and recordkeeping.

Importantly, the scope of this ECC-driven assessment is limited to exploration and prospecting activities as described above, and **activities are explicitly excluded unless separately assessed and authorised**, including **mining, bulk sampling at mining scale**, the development of **permanent infrastructure, ore processing plants**, and any **permanent waste disposal facilities**. The impact assessment in this report is structured to evaluate potential effects across the full exploration lifecycle, covering the **planning phase** (including site selection, stakeholder engagement, access agreements and mobilisation planning), **site preparation** where applicable (such as demarcation, limited clearing, establishment of temporary pads or camps), **operations** (mapping, sampling, geophysics and any authorised trenching/drilling), and finally **rehabilitation and decommissioning**, which addresses progressive restoration of disturbed areas, removal of temporary facilities, and closure verification in a manner consistent with the EIA approach set out in the BID.

4. Policy, legal and administrative framework (Namibia-focused)

The scoping and EIA process for EPL 9292 must be framed around Namibia’s **Environmental Management Act, 2007 (Act No. 7 of 2007)** and the **Environmental Impact Assessment Regulations (Government Notice GN 30 of 2012)**, which together establish the national requirement that **no listed activity may proceed without an Environmental Clearance Certificate (ECC)** and set out the procedural steps, minimum content requirements, consultation expectations, and decision-making responsibilities of the **Environmental Commissioner (Namibia)**. The GN 30 regulations provide the administrative backbone for ECC applications, including determining whether an activity is listed, submitting an ECC application, the process followed after submission, and the required elements of scoping (including Terms of Reference, stakeholder consultation requirements, and the competent authority’s duties). In practice, this means the ESR and EMP must clearly define a **reasonable “worst-case” exploration envelope** (e.g., access, sampling, geophysics, and—if triggered—trenching and drilling), demonstrate that alternatives have been considered, show that stakeholders were identified and consulted, and provide enforceable management measures and monitoring commitments capable of being translated into ECC conditions.

Because the project is an Exclusive Prospecting Licence (EPL), the environmental framework must also align with the minerals regulatory regime administered by the **Ministry of Mines and Energy**, principally the **Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992)** (as amended), as well as any licence-specific conditions attached to EPL 9292. While the ECC is issued under the EMA/EIA Regulations, the minerals legislation governs the granting and exercising of prospecting rights and typically requires that exploration be conducted in a manner consistent with environmental protection obligations and the proponent’s approved environmental authorisation(s). In an ECC submission, it is therefore important to show **regulatory coherence**: the proposed exploration methods, footprint, and rehabilitation approach in the EMP should be clearly compatible with (and enforceable alongside) the EPL conditions and operational controls expected under the minerals framework.

Water governance is a particularly important compliance line item for exploration because even “low footprint” programmes can create risks through **water abstraction, drilling fluids/cuttings management, sanitation, and hydrocarbon handling**. Where water abstraction is required (e.g., for drilling or temporary camp supply), the project must comply with Namibia’s water licensing and pollution-control regime. The **Water Resources Management Act, 2013 (Act 11 of 2013)** provides the modern framework for water resource management and includes provisions relating to water pollution control and authorisations; notably, its commencement has been formalised through Government Notice instruments, and water quality-related regulations have also been gazetted. For ECC purposes, this translates into clear EMP commitments on (i) lawful water sourcing, (ii) protection of boreholes/waterpoints and drainage features, (iii) zero-discharge principles where relevant, and (iv) spill prevention and incident reporting, especially in higher groundwater potential / karst-susceptible zones.

If any part of the licence area is proximate to protected areas, conservancies, or sensitive biodiversity features, the applicable nature conservation regime must be recognised, including the **Nature Conservation Ordinance 4 of 1975** (and related notices and instruments) administered under the state’s conservation mandate. Even where the EPL is not within a proclaimed protected area, ECC reviewers typically expect that the ESR/EMP demonstrates how exploration will avoid unnecessary habitat fragmentation, limit vegetation clearing, prevent wildlife interactions (e.g., collision risk, waste attraction), and prevent the introduction/spread of invasive plants along access corridors—controls that are especially relevant in semi-arid savanna settings where natural recovery can be slow.

Heritage protection is a “must-address” compliance theme because exploration can disturb archaeological, palaeontological, and cultural resources through trenching, pitting, drill pads, and new access tracks. The **National Heritage Act, 2004 (Act 27 of 2004)** establishes protections for heritage resources and provides for permitting requirements, and the **National Heritage Council of Namibia** is the statutory body commonly involved in heritage consents and conditions. For exploration ECC submissions, the practical expectation is that the EMP includes a robust **Chance Find Procedure** (stop-work, secure site, notify authority, obtain clearance before continuing) and—where sensitivity is indicated—provides for a targeted heritage screening or walkover prior to intrusive work.

Labour, health and safety requirements also form part of the administrative and compliance framework, particularly where temporary camps, drilling contractors, earthworks, fuel storage, and remote operations are involved. The **Labour Act, 2007 (Act 11 of 2007)** and associated regulations and workplace duties inform the minimum requirements for worker welfare, safe working conditions, and employer responsibilities—issues that interlock with environmental performance through incident prevention (spills, fires, waste handling), emergency preparedness, and contractor management. In ECC documentation, these requirements are best reflected through clear roles and responsibilities (Project Manager, Site Supervisor, ECO/HSE), mandatory inductions/toolbox talks, emergency response procedures, and auditable registers (incidents, spills, corrective actions, training).

Finally, the land administration context is critical in Kunene because exploration access often intersects commercial farms and/or communal land governance systems. Where communal land is involved, the **Communal Land Reform Act, 2002 (Act 5 of 2002)** underpins the institutional roles of Traditional Authorities and Communal Land Boards and is central to demonstrating lawful access arrangements and stakeholder legitimacy. For ECC readiness, the project must demonstrate that access will only occur with appropriate permissions, that grazing/waterpoint impacts are managed, and that a functioning grievance mechanism is in place.

Authorisations typically required (and how they tie back to this ESR/EMP)

In practical submission terms, the above framework typically translates into the following approvals/consents and “proof items” in the ECC pack:

- **Environmental Clearance Certificate (ECC)** for the listed activities associated with exploration/prospecting, issued through the ECC system administered under the **Ministry of Environment, Forestry and Tourism** and the Environmental Commissioner’s processes.
- **Land access agreements/permissions**, including written permissions from commercial landowners and/or communal authorities (Traditional Authority / Communal Land Board context where applicable).

- **Water abstraction permissions** where required for boreholes or any material abstraction for drilling/camp supply, plus strict pollution-prevention controls aligned to the current water governance framework.
- **Heritage permits/consents** where a screening indicates sensitivity or where disturbance of heritage resources is unavoidable, supported by a mandatory chance-find procedure in the EMP.

Law / Policy	Trigger (what activates compliance)	Project relevance (EPL exploration)	9292 Required permit / consent	Evidence to attach (ECC pack)	Responsible party
Environmental Management Act, 2007 (Act 7 of 2007) (Namibia Legal Information Institute)	Any activity with potential environmental effects; requirement for listed activities	Establishes the overarching duty to manage environmental impacts and the legal basis for ECC decisions		Environmental Clearance Certificate (ECC) decision under Ministry of Environment, Forestry and Tourism / Environmental declarations/CVs Commissioner process ECC application form + ESR + EMP + PPP evidence + maps +	Proponent (overall); EAP (application package)
EIA Regulations (GN 30 of 2012) under EMA (LAC)	Determines listed activities; sets out scoping/EIA content, consultation and submission requirements	Governs how the ESR/EMP is structured, ToR, PPP is conducted, how significance and mitigation are documented		ESR sections: listed activities, alternatives, impact assessment method, PPP plan + Issues/Responses table; proof of notices/consultation	EAP (process compliance); Proponent (implementation)
ECC online submission system administrative process (eia.meft.gov.na)	When submitting/renewing ECC; uploading required documents and attachments	Practical administrative channel for ECC application tracking portal and completeness		Portal submission confirmation; upload checklist; "How to apply" guidance appended if needed	EAP (submission); Proponent (sign-off)

Law / Policy	Trigger (what activates compliance)	Project relevance (EPL exploration)	9292 Required permit / consent	Evidence to attach (ECC pack)	Responsible party
Minerals (Prospecting and Mining) Act, 1992 (Act 33 of 1992) (LAC)	Prospecting/exploration activities under an EPL; compliance with licence conditions	Governs lawful prospecting operations and obligations of licence holder; ties into environmental controls and rehabilitation expectations	Valid EPL; compliance with licence conditions (including environmental provisions where applicable) under Ministry of Mines and Energy	EPL particulars (licence info), proponent details, exploration programme summary, contractor controls aligned to EMP	Proponent; Exploration/Project Manager
Water Resources Management Act, 2013 (Act 11 of 2013) (LAC)	Water abstraction (boreholes/surface), drilling water use, risk of pollution (fuel, sanitation, drilling fluids/cuttings)	Relevant where water abstraction occur and for pollution prevention to protect groundwater and ephemeral drainage	Water abstraction authorisation/permission where required; compliance with pollution control provisions	Water sourcing plan; permissions/agreements for borehole use; water-use log template; spill prevention + sanitation method statements	Proponent; Site Supervisor; ECO/HSE
Nature Conservation Ordinance, 1975 (Ordinance 4 of 1975) (LAC)	If activities may affect protected species, or sensitive habitats; proximity to protected areas/conservancies	Controls needed for wildlife, habitat disturbance, wildlife interactions, protected waste attraction, and potential protected-area adjacency	Approvals/conditions may apply if activities intersect protected areas or regulated wildlife matters	Biodiversity sensitivity screening (if triggered); no-go buffers; waste/wildlife controls; incident reporting protocol	Proponent; Contractors; ECO;

Law / Policy	Trigger (what activates compliance)	Project relevance (EPL exploration)	292 Required permit / consent	Evidence to attach (ECC pack)	Responsible party
National Heritage Act, 2004 (Act 27 of 2004) (LAC)	Any ground disturbance (trenches, drill pads, new tracks) with potential to impact heritage/archaeology/palaeontology or graves	Exploration can disturb artefacts, palaeontological material; requirement to protect heritage	Heritage permit/clearance if graves, required; mandatory chance-find management in all cases coordinated with National Heritage Council of Namibia	Chance Find Procedure (EMP); heritage screening memo/report (if triggered); training/toolbox talk record	Proponent; ECO; Site Supervisor
Communal Land Reform Act, 2002 (Act 5 of 2002) (LAC)	When accessing/operating communal land; requires permissions and governance alignment	High relevance if any on portion of permissions/agreements as lawful access/targets fall on communal land; Authority / Communal Board prevents conflict and unlawful access where relevant)	Written (Traditional / Communal processes where relevant)	Land access file: letters, meeting records, permissions; stakeholder register entries; grievance mechanism	Proponent; EAP (PPP evidence); Community Liaison (if appointed)
Labour Act, 2007 (Act 11 of 2007) (LAC)	Employment, working conditions, worker welfare; intersects with HSE management for camps/drilling/remote work	Ensures lawful labour practices; supports safe operations and reduces incident risk (spills, fires, injuries)	Compliance with labour obligations; contractor controls; site rules/Code of Conduct	HSE plan (if separate) or EMP H&S section; induction register; PPE and training records; emergency response plan	Proponent; Contractors; HSE Officer/Site Supervisor
Guidance material supporting EMA implementation	Used to align documentation structure and plain-language expectations	Strengthens defensibility of ESR/EMP and shows	Not a permit, but a compliance aid	Cross-reference note in ESR methodology/PPP; EAP completeness checklist	

Law / Policy	Trigger (what activates compliance)	Project relevance (EPL exploration)	9292 Required permit / consent	Evidence to attach (ECC pack)	Responsible party
(MEFT guidance) (cia.mef.gov.na)		alignment with regulator guidance			

5. Scoping methodology

5.1 Approach

A structured and systematic scoping methodology is applied to ensure that the Environmental Scoping Report (ESR) identifies the full range of environmental and social issues that could reasonably arise from exploration activities on EPL 9292, and that these issues are screened in a transparent, defensible manner consistent with Namibia’s ECC submission expectations. The approach begins with a clear definition of the **project activity envelope** (i.e., the plausible “reasonable worst-case” set of exploration activities, including access, mapping, sampling, geophysics, and—if triggered—trenching and drilling), because impact identification must be based on what could realistically occur on the ground rather than generic statements. A desk-top baseline description of the receiving environment is then compiled using available spatial and published information (e.g., geology, soils, vegetation, hydrogeology, land use, settlements and access routes), and where available, information from the Background Information Document (BID) is used to ensure alignment with the proponent’s stated intentions and scope. Potential receptors and sensitivities are identified (e.g., drainage lines, erosion-prone soils, groundwater potential zones, areas of denser woody vegetation, heritage sensitivity triggers, grazing and waterpoint dependencies) and are used to focus issue identification and determine where targeted specialist screening may be required.

Impact identification is undertaken through an **impact pathway** logic (activity → aspect/source → receptor → impact outcome), which improves traceability and helps distinguish between **direct impacts** (e.g., vegetation clearance for a drill pad), **indirect impacts** (e.g., secondary erosion and sediment mobilisation from disturbed surfaces), and **induced impacts** (e.g., increased access leading to unauthorised off-road driving or wildlife disturbance). The assessment explicitly considers impacts across relevant project phases—planning and mobilisation, site preparation (where applicable), operations (field surveys, sampling, geophysics, and any trenching/drilling), and rehabilitation/closure—because significance and management needs differ substantially across phases. **Cumulative impacts** are screened by considering the combined effect of repeated exploration campaigns over time, the incremental footprint of multiple access tracks and pads, and any existing land uses or other licences/projects within the broader Fransfontein–Kamanjab area

that may interact with the project's footprint (e.g., shared road corridors, shared water sources, and repeated disturbance of the same habitat units). The scoping approach further differentiates between **short-term and long-term effects**, and between **reversible and potentially irreversible outcomes**, recognising that in semi-arid savanna systems, even small disturbances can persist for extended periods if rehabilitation is delayed or poorly implemented.

Finally, alternatives are integrated into the scoping method rather than treated as a standalone discussion, by explicitly testing whether impacts can be materially reduced through practical alternatives such as using existing tracks versus forming new tracks, micro-siting pads away from drainage lines and steep slopes, selecting lower-impact survey designs, choosing drilling methods and water management options that minimise contamination risk, and scheduling activities to avoid periods of heightened erosion risk (e.g., immediately before or during peak rainfall events). The outcome of the methodology is a prioritised issue register and an impact screening that identifies which impacts are likely to be significant, which can be managed through standard EMP controls, and which require specialist input or further assessment in the subsequent EIA phase.

5.2 Impact significance rating (scoping level)

At scoping level, impact significance is evaluated using a **semi-quantitative significance matrix** that combines the characteristics of the impact with the likelihood of occurrence, and then distinguishes between significance **before mitigation** (inherent risk) and **after mitigation** (residual risk). Each impact is rated against a consistent set of criteria to ensure comparability across different receptors (biophysical, social, heritage) and across different phases of the project. **Extent** describes the spatial scale over which the impact may be experienced, typically categorised as *site* (confined to the immediate footprint such as a drill pad), *local* (affecting the broader EPL area or adjacent land users), or *regional* (extending beyond the EPL into the wider Fransfontein–Kamanjab/Kunene context). **Duration** describes how long the impact persists—*temporary* (days to weeks), *short-term* (months), *medium-term* (several years), *long-term* (decades), or *permanent*—and must be interpreted conservatively in semi-arid environments where natural recovery can be slow. **Intensity** reflects the severity of change relative to baseline conditions (low/moderate/high), for example, minor surface scuffing versus deep excavation and persistent erosion. **Probability** reflects the likelihood that the impact will occur under the defined activity envelope and site conditions (*unlikely/possible/likely*), acknowledging that probability increases

where controls are absent or where operations occur in sensitive contexts (e.g., drainage lines, karst-capable aquifers, or heavily used grazing areas).

Two additional attributes are used as significance modifiers: **reversibility** and **irreplaceability**. Reversibility considers whether baseline conditions can be restored through rehabilitation or natural recovery (e.g., compacted tracks may be partly reversible with ripping and brush packing; contamination of a karst aquifer may be difficult to reverse). Irreplaceability considers whether the affected resource is rare or of high conservation/cultural value (e.g., heritage sites, graves, protected plant species, unique habitats), and therefore whether loss or disturbance would represent a disproportionate impact even at small scale. The overall significance is then assigned as **low, moderate, or high**, first for the unmitigated case and then for the mitigated (residual) case after applying proposed management measures. The intention of the scoping-level rating is not to provide a final, quantitative prediction, but rather to provide a defensible screening tool that (i) highlights the “high-priority” risks requiring the strongest controls and/or specialist input, (ii) identifies standard impacts that can be managed through a robust exploration EMP, and (iii) transparently justifies why certain issues do or do not require escalation into detailed assessment during the EIA phase.

6. Description of the receiving environment (desktop baseline)

6.1 Regional setting and land use

The wider regional receiving environment for EPL9292 is anchored by Khorixas (the main service centre in southern Kunene Region) and the smaller settlement of Fransfontein along the C35/C39 corridor linking Fransfontein–Kamanjab–Khorixas; land use is dominated by extensive livestock production (communal and freehold/commercial rangelands) with dispersed homesteads/farmsteads, seasonal grazing patterns, and heavy reliance on a small number of waterpoints (boreholes, springs, tanks) that effectively “structure” mobility and access across the landscape. In demographic terms, Khorixas town is a modest but growing urban node (6,796 in 2011 to 9,371 in 2023) providing administrative, retail and logistics functions to surrounding rural areas, while Khorixas Constituency (which includes Khorixas town and outlying rural settlements) had 15,506 people in 2023; the same constituency-level census indicators show livelihoods are mixed—dominated by wage/salary income (41.1% of households reporting this as main income source) and state transfers such as old-age pension (21.4%), with “farming” recorded as a smaller share of main income (3.6%) even though stock keeping remains a key land use and asset base in rural households.

Fransfontein is a much smaller settlement (reported 533 inhabitants in 2011) and was proclaimed as a settlement in 2007; it is also associated with a dependable spring/water source historically central to local settlement patterns—an important contextual cue for scoping because water security and waterpoint governance are consistently high-sensitivity issues in this part of Kunene. Recent reporting from the area reinforces that many communities in the Fransfontein environs still “survive mainly on animal farming”, and that water supply interventions (e.g., borehole treatment/softening projects implemented by institutions such as the Environmental Investment Fund) are locally material to livelihoods and resilience. Economically, in addition to rangeland livestock and small local trading/services centred on Khorixas, the area is influenced by conservation/tourism value chains: Khorixas is widely used as a staging point into Damaraland attractions, and the nearby Twyfelfontein or /Ui//aes is internationally recognised on the

UNESCO World Heritage List—meaning certain routes and landscapes carry both cultural-heritage sensitivity and tourism dependency that can be disrupted by unmanaged access, noise/dust, or visual intrusion. For scoping, the practical implication is that exploration activities must be screened and designed around (i) grazing continuity and stock movement (including herding routes and seasonal grazing), (ii) strict access control and gate management on farms/communal land, (iii) protection of waterpoints and associated infrastructure (spill prevention, no contamination, no unapproved abstraction), and (iv) avoidance/management of heritage- and tourism-sensitive receptors—so stakeholder engagement should prioritise farmers/communal leadership structures, waterpoint committees where applicable, conservancy/tourism operators, and constituency/local authority interfaces early in the ECC process.

6.2 Climate

The climate of the Fransfontein–Khorixas interior setting in the **Kunene Region** is best described as **semi-arid steppe to arid**, with a strongly seasonal rainfall regime and a long dry season that dominates most of the year. Available long-term climate summaries for **Khorixas** indicate a **hot semi-arid (BSH) steppe climate**, with a mean annual temperature around **~23 °C** and annual rainfall on the order of **~370 mm**, concentrated in the summer months. For **Fransfontein**, climate summaries similarly show that rainfall is **summer-dominant**, with most precipitation occurring between roughly **December and March**, and peak monthly rainfall typically occurring in **February**; one commonly cited set of monthly normals reports **~272 mm/year** with February as the wettest month. These totals should be interpreted in the context of Namibia’s well-recognised **high rainfall variability** (large swings between dry and wet seasons/years), meaning the same locality can experience prolonged dry spells punctuated by short periods of heavy rainfall, a pattern widely described for Namibia’s climate overall. The rainfall that does occur often falls as **episodic, high-intensity convective storms**, which can generate rapid but short-lived surface runoff in ephemeral channels and low-lying flow paths, while the remainder of the year is characterised by **low humidity, clear skies, and high potential evaporation**, which accelerates drying of soils and increases the likelihood of dust generation under windy conditions.

From a scoping and EMP perspective, these climatic characteristics directly shape the key impact pathways and controls for exploration on EPL 9292. The combination of **dry, windy periods** and

frequent vehicle movement on gravel roads makes **fugitive dust** a predictable nuisance and safety risk (visibility), particularly near any receptors such as homesteads, waterpoints, and frequently used tracks; therefore, enforceable measures such as **speed limits, route discipline, and avoidance of unnecessary traffic** become primary controls. The episodic nature of summer storms means that seemingly minor disturbances (pads, trenches, track edges, spoil piles) can become erosion initiation points during the first high-intensity rainfall events, so exploration layouts must prioritise **erosion prevention and stormwater management**—micro-siting away from natural flow paths, keeping disturbed footprints compact, protecting stockpiles from runoff, and implementing rapid rehabilitation (re-contouring, ripping/scarifying, brush packing/stone lines where needed). Finally, seasonal wet conditions can temporarily make gravel roads and low-lying tracks **soft, slippery, or flood-prone**, so the programme should include **weather-aware scheduling and access planning** (e.g., avoiding heavy vehicle mobilisation immediately after storms, using existing raised/engineered routes where possible, and maintaining an “if in doubt, stop and reassess” rule for crossings), which reduces both environmental damage (rutting → erosion) and safety risk.

6.3 Topography and drainage

The topography of EPL 9292 is best described as a **gently undulating interior Kunene plateau** that is dissected by a series of **low, rocky ridges and isolated inselberg-like high points**, rather than steep mountain terrain. The elevation shading on the map indicates that most of the licence lies within a **moderate mid-altitude band (roughly ~1,050–1,250 m amsl)**, with **local relief increasing along ridge crests** where elevations step up into the next higher bands (locally approaching ~1,300–1,450 m amsl on the more prominent ridge features). The ridges form elongated, laterally continuous features across the central part of the EPL and create a “broken” terrain of **bedrock highs and shallow footslopes**, separated by broader inter-ridge flats; this kind of landform typically reflects structurally controlled bedrock (competent lithologies forming ridges) and produces strong contrasts in soil depth and erosion susceptibility—thin, stony soils on the highs and slightly deeper colluvial soils on lower slopes and valley floors. From an operational perspective, this means that exploration access and pad siting will be most straightforward on the **inter-ridge flats** and gentle footslopes, whereas the ridge belts are more likely to require careful

route selection to avoid unnecessary cutting, excessive ground disturbance, and the initiation of rilling on disturbed track edges.

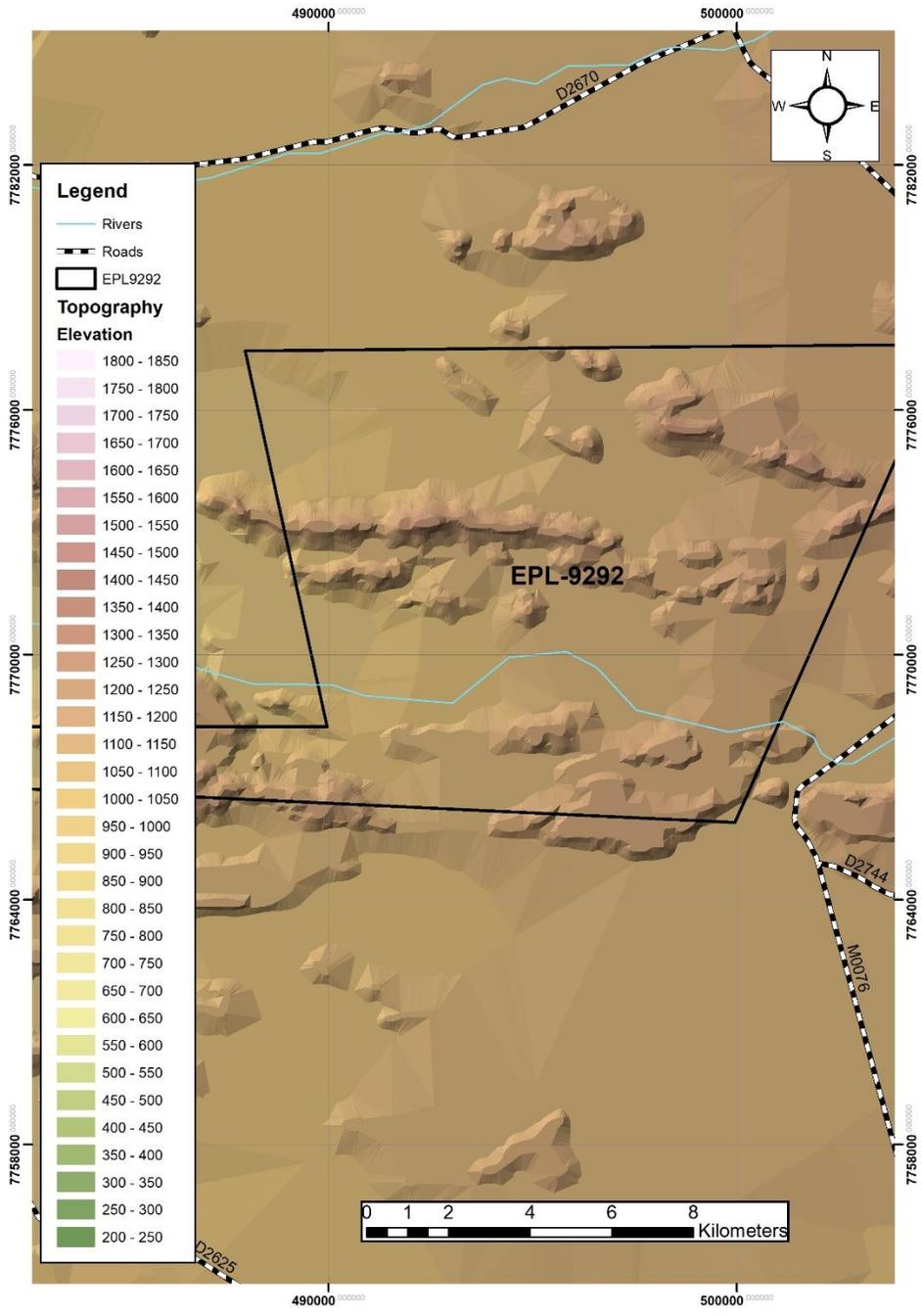


Figure 2. The topographical map for EPL9292.

In terms of drainage, the map shows that **only one mapped river/stream line passes through the EPL boundary**, crossing the **southern half of the licence** as a single, continuous blue drainage

feature. Its planform suggests an **ephemeral (seasonal) channel** that follows the lower-lying corridor between ridge belts, with a generally **west–east to east-southeast** trajectory across the licence before exiting near the south-eastern side (in the vicinity of the existing road corridor). This is important because in semi-arid settings like Fransfontein–Khorixas, such channels are typically **dry for most of the year** but can convey **short-lived, high-energy runoff** during intense summer storm events, producing brief flows, localised bank erosion, and shallow overbank wetting on adjacent flats. The practical scoping implications are that this single drainage line becomes the primary hydrological sensitivity within the licence: it should be treated as a **no-disturbance corridor** for siting of camps, fuel storage, waste areas, drill pads, and sumps; any necessary crossings should use **existing crossing points** where possible, avoid channel reshaping, and include simple stormwater controls (e.g., cambered approaches, water bars, and stabilised surfaces) to prevent concentrated runoff and sediment delivery into the channel. Because the terrain is ridge-and-valley in character, disturbance on slopes and track edges can rapidly translate into **sediment mobilisation** during the first major storm, so the EMP should explicitly link topography and drainage to controls such as **minimised clearing widths, erosion protection on disturbed surfaces, progressive rehabilitation (re-contouring and ripping where appropriate), and strict “no driving on wet roads/soft ground” rules** to prevent rutting that later becomes a permanent erosion gully feeding the main stream.

6.4 Geology and mineral potential context

EPL 9292 ($\pm 16,651$ ha), located in the Kunene Region close to Fransfontein, overlies a geologically diverse and structurally complex terrane in which Neoproterozoic Damara-age sedimentary formations are juxtaposed with, and locally underlain by, a heterogeneous metamorphic package and large Pan-African intrusive bodies, producing the strongly banded map pattern evident across the licence. The geological map shows that the area is dominated by laterally persistent, sub-parallel lithological belts that trend broadly E–W to ENE–WSW, reflecting a pronounced regional structural grain generated by folding and/or thrust repetition during Damara orogenesis, with competency contrasts between units enhancing the development of continuous ridges and narrow, linear outcrops. Within the EPL, the northern to north-central portion is characterised by extensive exposures of relatively competent units and mixed packages where

volcanic/igneous rocks (including Westend rhyolite) and adjacent stratified successions occur as broad swathes and lenses, interspersed with narrow elongate bodies that likely represent resistant lithologies (such as quartzitic horizons or mafic bands) or intrusive sheets aligned with the regional fabric; these relationships, together with the continuity of the belts, indicate that stratigraphy and foliation are tightly controlled by deformation rather than random lithological distribution.

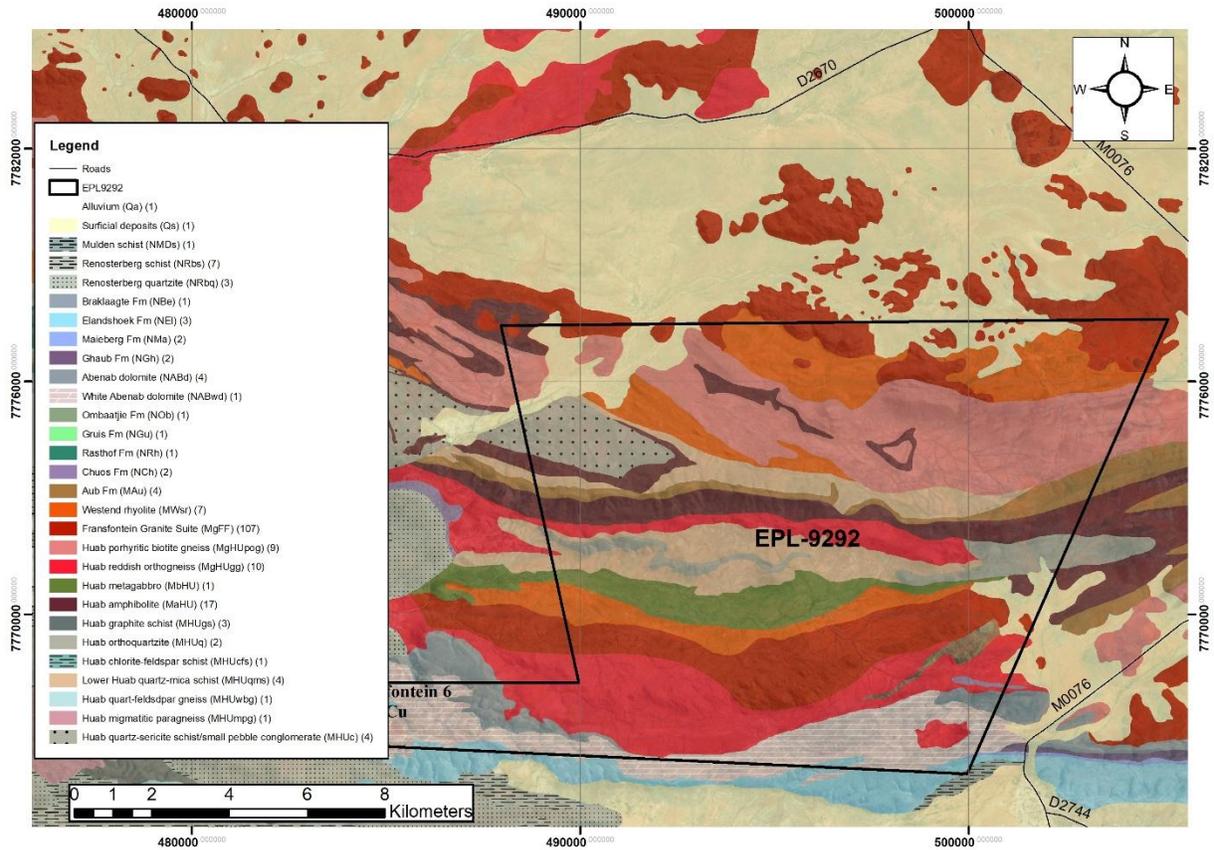


Figure 3. The geological map for EPL9292 in the north western part of Namibia.

The central part of the licence is typified by an extensive “Huab” metamorphic assemblage comprising orthogneiss and paragneiss with intercalated schists and quartzites, and including amphibolite and metagabbro bodies as discrete bands or lenses, as well as more ductile, high-strain metasedimentary units such as quartz–mica schist, quartz–sericite schist (locally with small pebble conglomerate) and chlorite–feldspar schist; the presence of orthogneiss, migmatitic paragneiss, amphibolite and mafic metavolcanic/metaintrusive rocks implies moderate to locally higher metamorphic conditions in parts of the licence, while the persistence of alternating gneiss–schist–quartzite belts suggests repeated layering and/or tectonic stacking. In the southern and marginal

domains, the geology is strongly influenced by the Fransfontein Granite Suite, which occurs as large coherent intrusive bodies and contact-related zones where granites abut or are interleaved with metasedimentary and carbonate units; this contact architecture is important because it typically coincides with enhanced structural complexity (shearing along competence contrasts, localised fracturing and reactivation along contacts) and potential contact metamorphic overprinting, which in turn can modify rock strength, permeability and weathering style. Superimposed on this basement–intrusive framework is a well-developed Damara stratigraphic package represented on the map by multiple formations that, in combination, reflect a carbonate–siliciclastic platform succession with regionally recognised marker horizons: carbonates such as Abenab dolomite and the “White Abenab” dolomite occur alongside formations including Chuos, Rasthof, Ombatjie, Gruis, Ghaub, Maieberg, Elandshoek and Braklaagte, and are locally accompanied by metamorphosed equivalents such as Renosterberg schist/quartzite and Mulden schist; these units collectively produce a layered geological architecture that, once deformed, naturally expresses itself as long, continuous colour bands similar to those shown across the EPL polygon. The map also indicates minor Quaternary cover in the form of alluvium (Qa) and surficial deposits (Qs), occurring as thin, patchy veneers in low-lying areas and along drainage-aligned zones, which is consistent with an arid to semi-arid landscape where episodic runoff and wind-driven processes redistribute unconsolidated material into shallow accumulations. In terms of geological evolution, the mapped relationships are consistent with an initial phase of deposition of Damara-age platform sediments and associated marker units, followed by burial and tectonism that produced folding, possible imbrication, and metamorphism—particularly within the Huab gneiss–schist–amphibolite assemblage—after which granitoid magmatism (Fransfontein Granite Suite) and associated volcanic/igneous activity (including rhyolitic units) intruded and/or overprinted the deformed succession, before subsequent uplift, erosion and limited surficial deposition generated the modern pattern of exposed bedrock interspersed with thin alluvial and surficial cover. Overall, the geological character of EPL 9292 can therefore be described as a banded, structurally controlled terrain in which metamorphic basement and Damara stratigraphy are intricately interleaved and locally intruded by granitoids, yielding prominent lithological contacts, repeated stratigraphic sections and linear structural corridors that are likely to govern outcrop distribution, weathering patterns, and any structurally focused hydrothermal alteration

within

the

licence

area.

6.5 Soils and land capability

The soils within **EPL 9292** are mapped as a **calcareous, strongly skeletal soilscape** typical of semi-arid, rocky savanna terrain, with the licence area being **overwhelmingly dominated by a single mapping unit** shown in orange: **Eutric Skeletic Lithic Leptosol + Eutric Skeletic Leptic Regosol + Skeletic Leptic Calcisol**. In practical terms, this combination indicates that most of the EPL is characterised by **very shallow to shallow soils over hard rock (lithic contact)** and/or **stony regolithic materials**, with a high proportion of coarse fragments and limited fine earth. These soils generally have **low water-holding capacity, rapid infiltration where fractured bedrock is exposed**, and a tendency to generate **runoff on compacted surfaces** (e.g., tracks and pads) because there is little soil depth to buffer rainfall events; they are also **highly sensitive to physical disturbance**, where vehicle traffic and stripping can quickly lead to **compaction, surface sealing, rilling and localised gulying**, particularly on slopes and along natural flow paths. Along the **southern to south-eastern margin** of the licence, the map shows **smaller, more heterogeneous soil belts** (purple and pink/red), reflecting transitions into more **calcareous and dolomitic soil environments** and footslope/colluvial settings: the purple unit (**Skeletic Lithic Leptosol + Dolomitic Chromic Cambisol + Petric Calcisol + Dolomitic Colluvic Skeletic Regosol**) suggests locally **better-developed, dolomite-influenced profiles** on slopes and colluvial aprons, but still stony and shallow overall, while the pink/red unit (**Skeletic Leptic Regosol + Petric Calcisol + Haplic Calcisol**) indicates areas with **strong carbonate accumulation** and, importantly, the likely occurrence of **petric calcisols (calcrete hardpan)** at shallow depth.

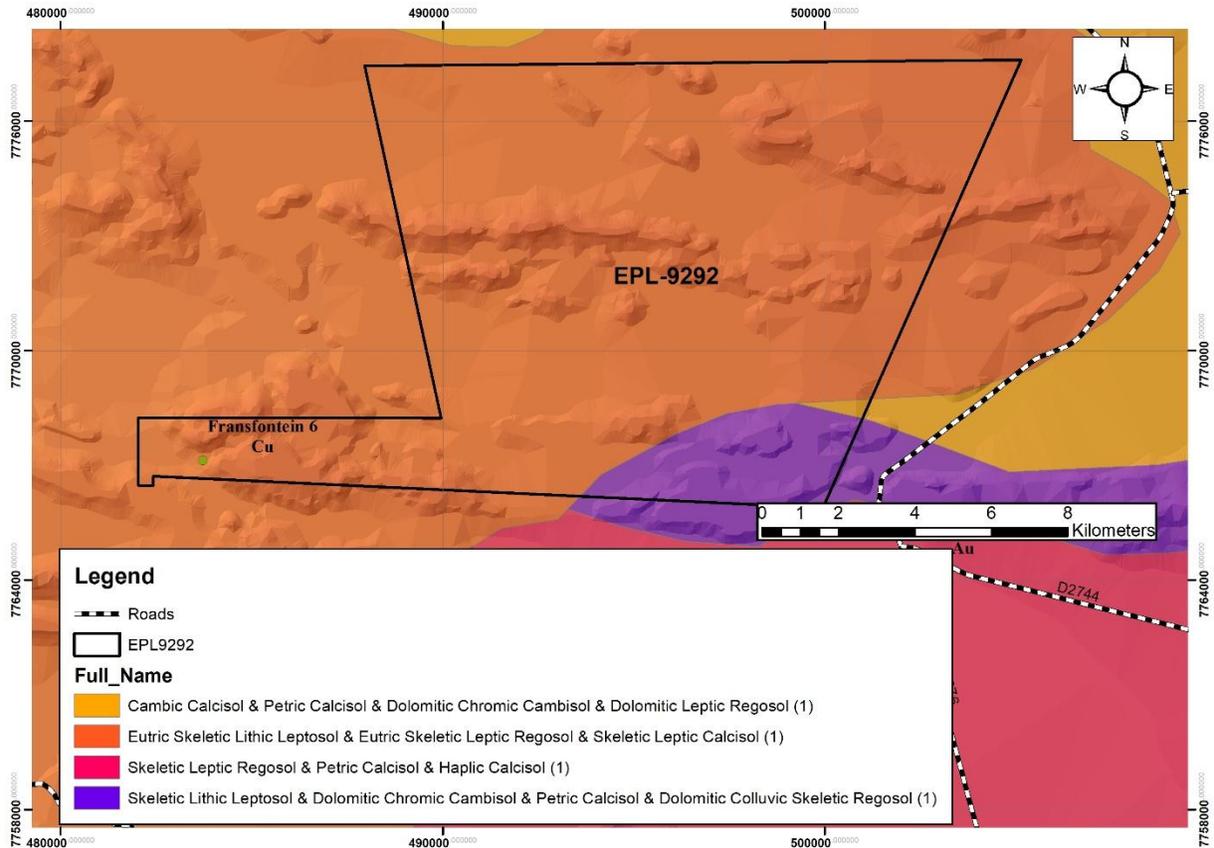


Figure 4. The various types of soils that are found within EPL9292.

Where calcrete horizons are present, the ground may appear competent and trafficable when dry, but these horizons can also **restrict rooting and vertical drainage**, promote **lateral runoff** during storm events, and complicate rehabilitation because ripped surfaces can break into hard fragments and create uneven micro-topography if not managed carefully. A fourth unit (yellow) on the map—**Cambic Calcisol + Petric Calcisol + Dolomitic Chromic Cambisol + Dolomitic Leptic Regosol**—is shown mainly **outside or at the periphery** of the mapped EPL footprint, but it reinforces the same regional message: soils in this landscape are predominantly **calcareous and dolomite-influenced**, with variable development from shallow regosols/leptosols to more structured cambisols, and frequent carbonate cementation. Overall, the soil map implies that exploration activities on EPL 9292 should be planned on the assumption that most surfaces have **limited resilience to disturbance** and **slow natural recovery**, meaning the EMP should emphasise **strict route control (no off-road driving)**, **minimal clearing**, **progressive**

rehabilitation, topsoil/soil skin conservation where present, ripping/scarifying of compacted pads and tracks, and erosion controls—especially near the southern/south-eastern carbonate–calcrete transition zones where runoff behaviour and rehabilitation outcomes can be more sensitive and more variable.

6.6 Surface water and groundwater

The hydrogeological map for EPL 9292 indicates that the licence area is dominated by a broad expanse of **basement lithologies—granite, gneiss and older volcanic rocks** (mapped with the “+” symbol), which typically host groundwater in **secondary porosity** (i.e., within weathered zones, joints, faults and fracture networks) rather than in primary pore spaces; as a result, the **expected groundwater potential across most of the northern and central parts of the EPL is generally low to moderate**, with yields likely to be variable and strongly dependent on whether boreholes intersect productive fracture corridors or thicker weathered regolith zones. In contrast, the southern fringe of the EPL (and several tongues extending into the southern part of the licence) coincides with a belt mapped as **limestone/dolomite/marble** (brick pattern), which is associated in the legend with **moderate to high groundwater potential in fractured, fissured and karstified aquifers**; this is a critical hydrogeological control because carbonate terrains commonly develop **solution-enhanced permeability** (karst conduits, dissolution cavities and enlarged fractures) that can produce **substantially higher borehole yields** than adjacent basement rocks, especially where structural lineaments focus groundwater flow and recharge. To the west and along parts of the southern margin outside/adjacent to the EPL, the map shows areas of **non-porous sandstone, conglomerate and quartzite** (dotted pattern) that are generally characterised by **very low groundwater potential**, reflecting limited storage and transmissivity unless localised fracturing is present; in practical terms, these zones are less favourable for siting high-yield production boreholes and may require wider borehole spacing, deeper drilling, or reliance on alternative water supply strategies (e.g., carting) during exploration campaigns.

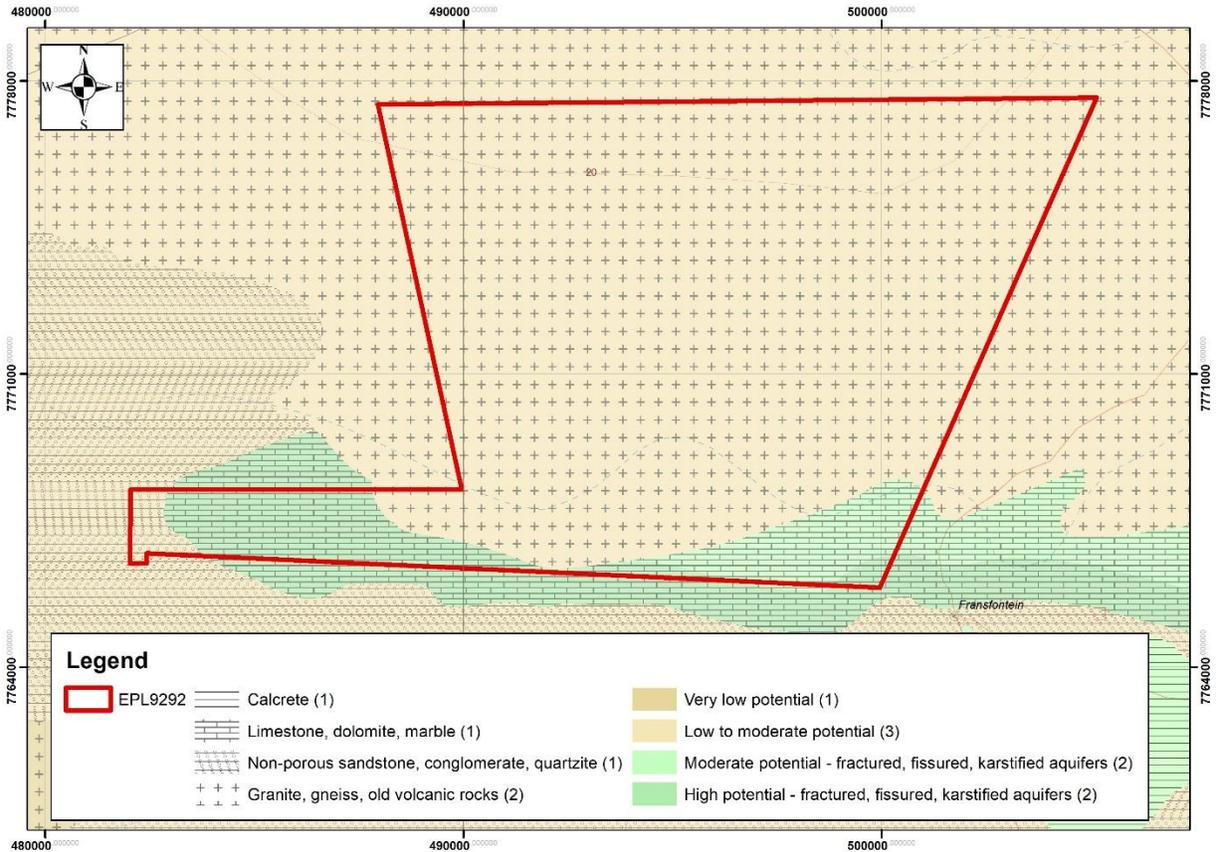


Figure 5. The hydrogeological map of EPL9292.

The presence of **calcrete** (where developed) can locally support shallow perched water and short-term storage, but it is typically **spatially discontinuous and yield-variable**, and therefore should be treated as supplementary rather than primary supply unless proven by site-specific borehole performance. Overall, the map implies a hydrogeological setting where water availability for exploration (particularly if drilling is planned) will be most reliable where operations can be supported from the **southern carbonate/karst belt**, while the large interior basement domain is expected to be **hydrogeologically constrained** and sensitive to the placement of boreholes relative to fracture zones. From an environmental management perspective, the same pattern has an important risk implication: **karstified carbonate aquifers are generally more vulnerable to rapid contaminant transport** (because flow can occur quickly through enlarged fractures and conduits), meaning that any fuel handling, drilling-fluid management, sanitation and waste controls must be especially stringent in the moderate–high potential zones, with bunded storage, spill prevention, and strict exclusion of pollutant sources from drainage pathways to protect

groundwater quality; conversely, while basement aquifers often have lower transmissivity, they can still be impacted by poor practices, but contamination may present as more localised plumes tied to fractures and weathered horizons. In summary, EPL 9292 is interpreted as a predominantly **fracture-controlled basement aquifer environment with low–moderate potential**, bordered and locally intruded by a **more productive karst-capable carbonate aquifer belt** along the south, which together should guide both **water-supply planning for exploration** (where to target boreholes) and **EMP safeguards** (where aquifer vulnerability and pollution prevention need the strongest emphasis).

6.7 Biodiversity (flora, fauna, habitats)

The vegetation (biome) map for **EPL 9292** near Fransfontein indicates a **highly uniform vegetation setting**, with the entire licence footprint (as shown within the black polygon) falling within the “**Tree and shrub savanna**” biome class (mapped in blue/purple), while the alternative class shown in the legend (“**Acacia savanna**”) does **not** appear to occur within the EPL boundary on this map. In practical ecological terms, a tree-and-shrub savanna in the Kunene Region setting typically represents **semi-arid savanna rangeland** where vegetation structure is dominated by **patchy woody shrubs and scattered small trees** over a grass/herbaceous layer that responds strongly to seasonal rainfall; the “patchiness” is usually driven by a combination of **soil depth and texture, local drainage, and bedrock/topographic controls**, which is consistent with the subtle shaded-relief backdrop on the map showing low ridges and rocky features that would naturally create microhabitats (e.g., slightly denser woody cover in protected swales and along drainage depressions, and more open/shallow-soil vegetation on ridges and rocky ground) even though the biome category remains the same. For scoping/EIA purposes, the key implication of this mapped uniformity is that the vegetation baseline can be described as a **single dominant biome unit**, but environmental sensitivity still needs to be managed at the **site scale** because the most vulnerable receptors in tree-and-shrub savanna are not the “biome” as a whole, but rather **localised features** such as drainage lines and ephemeral channels, rocky outcrops, areas with mature/old-growth individual trees, and zones of shallow, erosion-prone soils where the woody layer stabilises the surface.

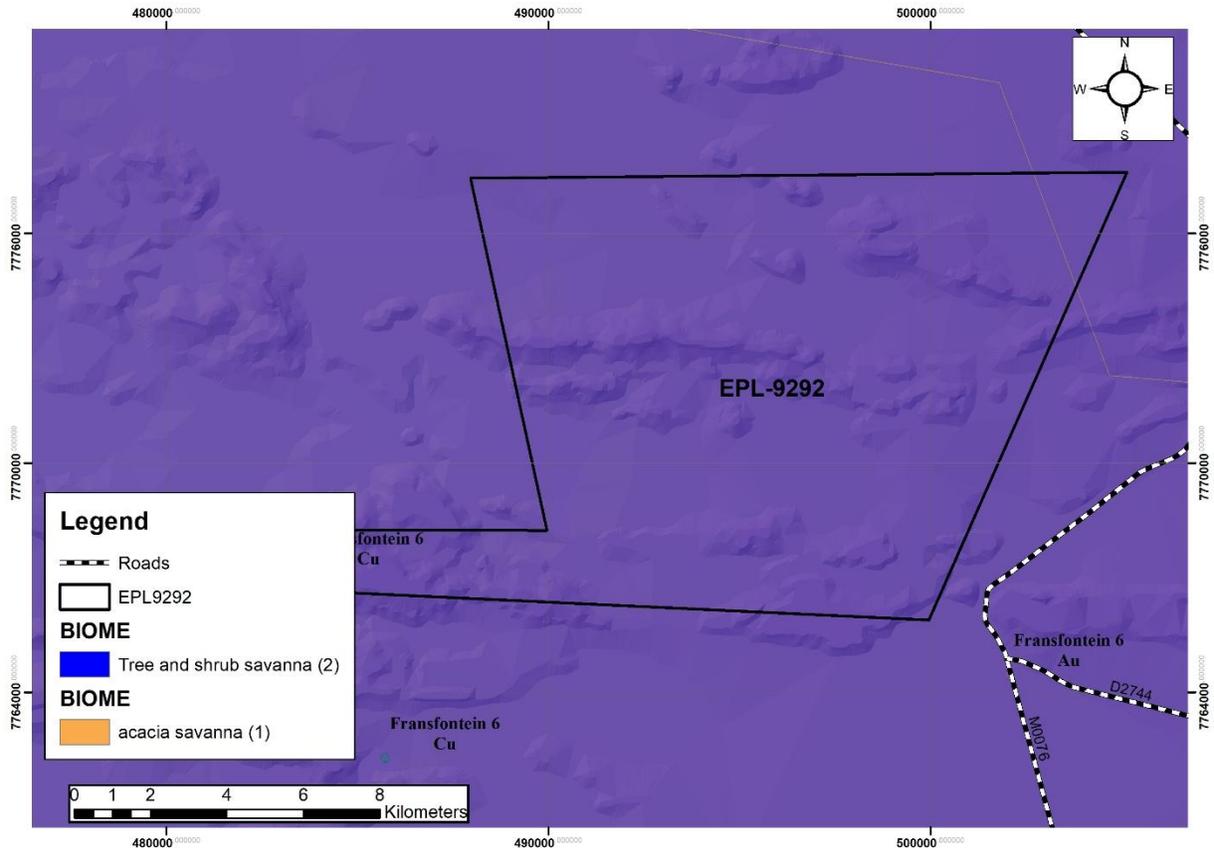


Figure 6. The various types of biomes and vegetation found within EPL9292.

In an exploration context, the main pathways for impact on this vegetation type are typically **linear disturbance and fragmentation** from new tracks and geophysical lines, **localised clearing** for drill pads/trenching, and secondary effects such as **dust deposition** on foliage near access routes, **introduction of alien/invasive plants** along disturbed corridors, and **increased fire risk** from camps, vehicles, or unmanaged waste; accordingly, even though the map suggests a broadly consistent vegetation cover across EPL 9292, the EMP should treat the tree-and-shrub savanna as a **moderate sensitivity rangeland** that requires strict footprint discipline—preferential use of existing roads, a “no off-road driving” rule, minimal clearing widths, avoidance of drainage-associated thickets, active protection of large trees (no cutting for firewood), progressive rehabilitation (ripping/scarifying compacted surfaces and brush packing where appropriate), and invasive-species prevention via vehicle hygiene and early detection on disturbed sites. In summary, the vegetation map supports a baseline description of EPL 9292 as being almost entirely situated in a **tree- and shrub-savanna biome**, implying relatively predictable broad-scale vegetation

conditions for the licence, but it also highlights that environmental performance will depend on how well exploration activities avoid and manage **fine-scale habitat variability** and disturbance-sensitive features embedded within that otherwise uniform savanna landscape.

6.8 Heritage, archaeology and paleontology

Exploration activities on EPL 9292 have the potential to affect **heritage, archaeological and palaeontological resources** primarily because the methods used to access and test targets—particularly the establishment of new or improved access tracks, the preparation of drill pads and sumps, and any trenching or pitting—introduce **direct ground disturbance** that can expose, damage or destroy cultural material and fossils that may be present at or near the surface. In the Fransfontein–Khorixas landscape, heritage sensitivity is typically expressed in **localised, discrete features** rather than broad continuous zones, and these can include stone artefact scatters, grindstones, hearth remnants, rock shelters, cairns, historic travel routes, and (critically) **graves**, which may occur in both marked and unmarked forms and can be associated with family sites and traditional land use. Archaeological material is often most visible on stable, deflated surfaces and along ridge flanks and drainage margins where soil cover is thin, while palaeontological sensitivity is usually linked to the **presence of fossil-bearing sedimentary units** and any calcrete/erosional exposures that reveal older strata; even where fossil potential is uncertain at scoping stage, intrusive work can still intersect fossiliferous horizons unexpectedly. Because the consequences of damaging graves or significant heritage sites are high—legal non-compliance, community conflict, and irreversible loss of cultural resources—the scoping approach must treat heritage risk as a **high-consequence, avoidable impact** managed through strict pre-disturbance controls and stop-work protocols.

Accordingly, a **Chance Find Procedure** is mandatory at scoping level and must be built into the EMP as a non-negotiable operational rule for all field teams and contractors. The procedure should require that if any heritage object, archaeological material, fossil, or suspected grave is encountered, work must **stop immediately** in the affected area, the location must be **secured and demarcated** (with a clear buffer and no further disturbance), the find must be **reported to the Environmental Control Officer (ECO) and Project Manager**, and the relevant heritage authority and/or a qualified heritage specialist must be contacted to determine the appropriate

management response before work can resume. The procedure must also specify that no artefacts may be collected, moved, or “souvenired,” and that any photography and recording must be done in a respectful and controlled manner, particularly where graves are concerned. In addition to this mandatory protocol, the EIA phase should confirm whether a **heritage screening survey** is required based on the final activity envelope and micro-siting plans: as a general rule, a targeted heritage walkover becomes advisable where the programme includes trenching/pitting, multiple drill pads, new access spurs, camp establishment, or work in areas where desk-top screening indicates elevated sensitivity (e.g., rocky ridges/outcrops, drainage corridors, or mapped fossil-bearing stratigraphy). Where screening identifies sensitivity, the EIA should then define **avoidance buffers**, specify any permit requirements, and integrate any site-specific conditions into the EMP so that exploration proceeds in a manner that is compliant, culturally respectful, and demonstrably aligned with Namibia’s heritage protection expectations.

6.9 Socio-economic environment

The socio-economic receiving environment for EPL 9292 is shaped by a semi-arid rangeland economy in which land use and livelihoods are closely tied to **livestock grazing, waterpoint access, and mobility across large areas**, alongside smaller settlement-based service economies centred on nearby nodes such as **Khorixas** and **Fransfontein**. The principal socio-economic receptors are therefore likely to include **commercial farm owners/managers and workers** and **communal land users**, particularly households and herders who depend on grazing resources, seasonal pasture availability, and functioning boreholes, tanks, and other water infrastructure; in these settings, even low-footprint exploration can be sensitive if it interferes with access routes, damages fences/gates, contaminates or restricts waterpoints, or disrupts stock movement and herding patterns. Nearby settlements and service centres—especially Khorixas (as the main administrative and supply hub) and Fransfontein (as a smaller local settlement along the regional road corridor)—also form key receptors, because they provide accommodation, fuel, labour pools, basic services, and transport links, and are the places where project-related traffic, dust nuisance, and community expectations about employment opportunities are most likely to be expressed. In addition, depending on land tenure and local governance arrangements within the specific portions

of the EPL, **Traditional Authorities** and potentially **conservancy structures** (where they exist and have jurisdiction) may be central institutional receptors and partners, as they often influence land access approvals, community engagement pathways, and the legitimacy of site-level agreements, and they may raise concerns related to grazing, cultural heritage, or wildlife interactions.

In terms of positive socio-economic effects, exploration activities can generate tangible but generally **short-to-medium-term local economic opportunities**, particularly through **local employment** of field assistants, drivers, camp support staff (if a camp is established), general labour for line cutting (where unavoidable and environmentally acceptable), and security or logistics services. There is also potential for **local procurement** and spending that supports nearby towns and small businesses, including fuel purchases, vehicle servicing, accommodation, catering, groceries and supplies, communications, and casual transport arrangements—often with Khorixas serving as the primary service node and Fransfontein providing more localised support where available. Where the proponent and contractors implement structured induction and on-the-job training, exploration can also provide **skills transfer**, for example in basic sampling techniques, GPS use, environmental awareness, safe driving practices, and housekeeping and spill prevention procedures, which can leave longer-lasting benefits beyond the exploration campaign itself. These benefits, however, are typically modest at exploration stage and are highly dependent on clear, transparent recruitment and procurement practices that manage expectations and avoid perceptions of favouritism.

Potential adverse socio-economic effects at exploration stage are most commonly linked to **access and land-use interactions** rather than large-scale displacement. Key risks include **access conflicts** if crews enter properties without proper permission, if gates are left open, if vehicles damage tracks or fences, or if exploration activities are perceived to interfere with customary grazing patterns, herding routes, or seasonal use of specific areas. Disturbance to livestock can occur through increased traffic, noise (particularly if drilling occurs), dust generation along frequently used gravel roads, and the presence of crews near waterpoints or kraals; these effects can be heightened during sensitive periods such as calving/lambing or during drought conditions when grazing pressure is already high. Road safety is another recurrent concern in rural Kunene, because increased vehicle movements on gravel roads can raise collision risk (including collisions with

livestock and wildlife), reduce visibility due to dust plumes, and create hazards where heavy vehicles meet local traffic on narrow or corrugated surfaces; therefore, speed limits, driver induction, and route discipline are not just environmental controls but also socio-economic safeguards. Finally, perceptions matter: even where the physical footprint is small, communities and land users may interpret exploration as a precursor to mining, which can create anxiety about **land degradation, restricted access, water competition, or loss of control over local resources**; if not proactively managed through early engagement and a functioning grievance mechanism, these perceptions can escalate into reputational risk, objections during ECC review, or operational disruptions. For these reasons, scoping should prioritise stakeholder mapping that includes landowners/occupiers, herder groups and waterpoint users, local authorities, and relevant Traditional Authority structures, and it should commit to practical mitigation measures such as formal access agreements, gate and fence management rules, clear communication of activity schedules, dust and traffic controls, and documented processes for recruitment, procurement, and grievance resolution.

7. Public participation process

The public participation process (PPP) for EPL 9292 should be implemented in a manner that is fully consistent with the approach set out in the Background Information Document (BID) and aligned to Namibia's ECC submission expectations, with the overarching purpose of ensuring that Interested and Affected Parties (I&APs) are **timeously informed**, have a **realistic and accessible opportunity to provide input**, and that all issues raised are **recorded, considered, and responded to in a transparent and traceable manner**. Practically, this means the PPP must not be treated as a "notice exercise" only, but as a structured engagement programme that (i) discloses the project intent and activity envelope in plain language; (ii) explains where and how exploration will occur, what is excluded at this stage (e.g., mining and permanent infrastructure), and how environmental risks will be controlled; (iii) provides a clear route for registration and comment submission (email, phone/WhatsApp, written forms, and meetings where necessary); and (iv) maintains auditable evidence that the process was undertaken properly (copies of notices, proof of placement, stakeholder correspondence, attendance registers, and a formal Issues and Responses Report). The PPP objectives are therefore to: **(a)** identify and notify stakeholders; **(b)** gather site-specific information from land users that can materially improve impact identification (e.g., waterpoint locations, grazing routes, sensitive areas, cultural sites); **(c)** capture concerns, expectations and proposed mitigation from stakeholders; **(d)** integrate this input into the ESR/EMP; and **(e)** demonstrate procedural fairness and transparency to support the Environmental Commissioner's decision-making.

In terms of tools and process design, the PPP should deploy multiple engagement channels appropriate to the Kunene rural context, where internet access and formal email usage may be uneven across stakeholders. Tools typically include: **direct written notices** to landowners/occupiers and relevant authorities; **site notices/posters** in accessible public locations (e.g., constituency offices, local service points, communal administration points); **public notices** (newspaper and/or radio where appropriate); and **simple registration and comment instruments** (I&AP registration form, comment sheet, and a dedicated project contact). The process should set clear timeframes for comment (consistent with ECC practice), keep a stakeholder register with dates and methods of contact, and include follow-up where key stakeholders have not responded (especially landowners/occupiers and Traditional Authority structures). A core deliverable for ECC

readiness is an **Issues and Responses Report** that links each issue raised to (i) the stakeholder source, (ii) the proponent/EAP response, and (iii) how the issue has been addressed in the ESR/EMP or why it is not applicable; this traceability is what reviewers look for when evaluating whether participation was meaningful. Where material concerns arise—such as waterpoint protection, access constraints, grazing impacts, heritage sensitivity, or road safety—targeted engagements (site meetings or focused consultations) should be undertaken to refine mitigation and, where necessary, confirm micro-siting constraints before intrusive activities commence.

7.1 Stakeholder identification (initial list)

Stakeholder identification for EPL 9292 should be based on the principle of capturing all parties who may be **directly affected** by on-the-ground activities (e.g., access and disturbance), those who may be **indirectly affected** (e.g., dust and traffic on regional roads), and those with **decision-making, regulatory, or governance roles** in land, water, biodiversity, and heritage matters. The initial stakeholder list therefore includes **adjacent landowners and lawful occupiers** (primarily commercial farms surrounding or intersecting access routes), who are key receptors because they manage grazing, fences/gates, waterpoints, and livestock movement, and who will often have practical knowledge of sensitive areas (erosion-prone zones, drainage crossings, heritage sites) that should inform final site planning. Where the EPL intersects or is accessed through communal areas, **communal land users and resident communities** (including herders, waterpoint users, and community representatives) are essential stakeholders, because their livelihoods and daily activities may interact directly with exploration access and because their consent pathways and expectations may differ from commercial farm contexts. In these communal settings, the **Traditional Authorities** and, where relevant, **Communal Land Boards** form critical governance stakeholders because they provide legitimacy to access arrangements, facilitate community engagement, and can identify cultural heritage sensitivities and customary land-use patterns that are not readily visible through desk-top screening.

Local and regional government stakeholders should include the **Kunene Regional Council** and the relevant **constituency offices**, both because they are formal public institutions that should be notified for transparency and because they often act as conduits for community concerns and local development priorities. In addition, the PPP should identify and notify key line ministries and statutory bodies with regulatory roles relevant to exploration, including the environmental

authority (Environmental Commissioner process), the mining authority (licensing and operational compliance), water governance institutions where abstraction or pollution risks may arise, and heritage authorities where ground disturbance could affect archaeological or cultural resources. Where conservation and tourism value chains are present or where conservancy structures exist, **conservancies, NGOs, and local conservation stakeholders** should be included to ensure that wildlife interaction risks, habitat fragmentation concerns, and any conservancy-level land-use rules are recognised early and properly managed. Because exploration increases vehicle movements and may involve heavy vehicles during mobilisation or drilling campaigns, the stakeholder list should also include **roads and traffic safety stakeholders** associated with the main access corridors (e.g., the C35 and connecting roads), to address dust, speed control, road safety, and any requirements linked to abnormal loads or road condition sensitivity after rainfall. Finally, **tourism operators and lodges** should be screened in or out based on proximity to routes and receptors; if relevant, they should be included because tourism is sensitive to dust, noise, visual intrusion, and unmanaged access, and because operators may have valuable local knowledge about sensitive sites and seasonal constraints.

8. Identification of key issues and potential impacts (scoping)

This section identifies the key environmental and social issues that are reasonably foreseeable for the proposed exploration programme on EPL 9292 and screens the potential impacts that may arise from the defined exploration activity envelope. The purpose at scoping level is to ensure that the assessment captures the full spectrum of relevant impact pathways—across planning, mobilisation, operations and rehabilitation—while focusing attention on those issues most likely to influence ECC decision-making, stakeholder acceptability, and on-ground environmental performance. Impacts are screened using an activity–aspect–receptor logic (e.g., new access or repeated traffic → soil disturbance and dust → grazing land users, vegetation and road safety; drilling → hydrocarbon handling and cuttings management → groundwater quality; trenching → excavation and erosion → drainage line sedimentation). Particular emphasis is placed on identifying (i) impacts that may be significant even at small footprint due to sensitivity (e.g., groundwater vulnerability in carbonate/karst settings, heritage/grave disturbance), (ii) impacts that can become cumulative through repeated exploration campaigns (e.g., proliferation of informal tracks and pads), and (iii) issues commonly raised by rural land users in Kunene (e.g., access permissions, gates/fences, stock disturbance, and waterpoint protection).

At a high level, the most relevant biophysical issues for EPL 9292 include **vegetation clearance and habitat fragmentation, soil disturbance, compaction and erosion, dust generation, and water resource protection**, with risk levels driven by where activities occur relative to ridges, drainage corridors and higher groundwater potential zones. Although the vegetation baseline is mapped as largely uniform savanna, the ecological sensitivity is often concentrated in localised features such as drainage lines and rocky refugia, meaning that poorly sited tracks, pads or trenches can disproportionately affect habitat quality and recovery potential. Similarly, the soilscape is dominated by shallow, stony calcareous soils (leptosols/regosols/calcsols) that are inherently erosion-prone when disturbed; the key risk is not mass clearing but the creation of linear disturbed surfaces that channel runoff during intense storm events, resulting in rilling and gully initiation. As a result, the scoping assessment prioritises footprint discipline (use existing tracks, minimise

clearing widths), avoidance of drainage features, and rapid rehabilitation as the principal mitigation themes. Air quality impacts are expected to be primarily related to fugitive dust from vehicles on gravel roads and tracks, which can affect local residents and road users through nuisance and reduced visibility, and can also affect vegetation and livestock around frequently travelled routes; dust control therefore becomes a compliance-critical operational measure (speed control, route selection, and limiting unnecessary traffic).

Hydrology and hydrogeology considerations are screened as a key issue because the licence area includes a mapped drainage line crossing the southern part of the EPL and because parts of the broader area are associated with fractured and locally karstified carbonate aquifers that can be more productive but also more vulnerable to contamination. Even where exploration does not abstract water directly, the presence of fuel, oils, drilling fluids (if drilling occurs), and sanitation facilities (if a camp is established) create credible pollution pathways, especially if activities are located close to drainage lines or in higher groundwater potential zones. The scoping therefore treats groundwater protection as a high-priority issue, requiring banded fuel storage, controlled refuelling, spill kits and response procedures, disciplined waste and wastewater management, and exclusion buffers around drainage features and waterpoints. Closely related are issues of waste management and housekeeping, as poor waste practices can attract wildlife, create health nuisances, and undermine stakeholder trust; the scoping position is that a “zero litter” standard and verified waste removal to authorised facilities should be an explicit EMP requirement.

The socio-economic issues screened as most relevant are those typical of rural exploration settings in Kunene: **land access and permissions, grazing continuity and livestock disturbance, waterpoint protection and potential competition for water, and traffic safety and dust** along shared access routes. Stakeholders are likely to be particularly sensitive to gate management, fence damage, off-road driving, and any perceived restriction of movement or loss of grazing access. These issues are frequently not “high impact” in biophysical terms, but they can become high significance from a social risk perspective if they lead to disputes, grievances, or operational stoppages. Conversely, exploration can generate local benefits through short-term employment, local procurement, and skills transfer, but these benefits can also create expectations and potential conflict if recruitment is perceived as unfair or if opportunities are not clearly communicated. Accordingly, scoping identifies the need for a transparent local employment/procurement

approach, early engagement with land users and local authorities, and a functioning grievance mechanism with traceable close-out actions.

Heritage, archaeology and palaeontology are treated as high-consequence issues because intrusive activities can unintentionally disturb artefacts, graves, or fossil material, and the reputational and legal consequences of mishandling heritage finds are substantial. At scoping level, the EMP must therefore include a mandatory chance-find procedure and stop-work protocol, and the Plan of Study for EIA should confirm whether targeted heritage screening is required for areas where trenching, drilling, or new access formation is planned. In addition, cumulative impacts are screened explicitly, recognising that the most common cumulative effect of exploration is not a single large footprint but the incremental proliferation of tracks, pads, and cleared lines over multiple campaigns; this is addressed through controls on route approval, GPS-based recording of disturbances, progressive rehabilitation, and periodic audits to ensure the footprint remains within the approved envelope.

Overall, the scoping outcome is a prioritised set of issues that will be carried forward into the impact screening tables and the EMP commitments: (i) strict footprint and access control; (ii) erosion and stormwater management; (iii) spill prevention and groundwater protection; (iv) waste and sanitation management; (v) traffic safety and dust control; (vi) heritage chance-find management; and (vii) stakeholder engagement, grievance handling, and benefit-sharing measures (local labour and procurement).

8.1 Impact screening table (preliminary)

Aspect	Key Activities	Main Risk Pathway	Likely Significance (pre-mitigation)	Scoping Priority
Soils/erosion	new tracks, trenching, drill pads	compaction → erosion → sediment transport	Moderate	High
Biodiversity	vegetation clearing, off-road habitat driving	loss/disturbance, fragmentation	Moderate–High (location dependent)	High
Water quality	fuel handling, drilling sanitation	fluids, spills/leaks → infiltration/runoff pollution	Moderate	High
Air quality	traffic, grading, drilling	dust nuisance, health risk near receptors	Low–Moderate	Medium
Noise/vibration	drilling, vehicles	nuisance, wildlife disturbance	Low–Moderate	Medium
Visual	drill pads, cleared lines	localised visual intrusion	Low	Low–Medium
Heritage	trenching/drilling	disturbance of artefacts/graves	Moderate (if sensitive sites)	High (procedural)
Traffic safety	increased vehicle movements	collisions, dust reducing visibility	Low–Moderate	Medium

Aspect	Key Activities	Main Risk Pathway	Likely Significance (pre- Scoping mitigation)	Scoping Priority
Waste	camp, sampling	litter, wildlife attraction, pollution	Moderate	High
Social	access, grazing interference	conflict, livelihood impacts	Moderate	High
Cumulative	multiple licences/activities	combined disturbance footprint	Moderate	Medium–High

9. Alternatives

In line with the Environmental Management Act, 2007 and the EIA Regulations (GN 30 of 2012), the scoping phase for EPL9292 must demonstrate that the proponent has considered *reasonable and practicable alternatives* that could reduce environmental and social risk while still meeting the project's exploration objectives. At this stage, alternatives are assessed at a screening level (feasibility, environmental sensitivity, operational practicality, and cost/benefit), with the preferred option carried forward into the detailed assessment and EMP.

The key alternatives to be assessed for EPL9292 include the following:

1) No-go alternative (no exploration)

The no-go alternative assumes that no exploration activities proceed on EPL9292 and no ancillary infrastructure is developed. This alternative provides the environmental baseline against which potential impacts of exploration can be compared. While the no-go option avoids direct disturbances (vegetation clearance, erosion, dust, noise, and risk of spills), it also means the potential socio-economic benefits associated with exploration (local procurement, short-term employment, improved access management, and potential downstream investment) would not materialise. The no-go alternative is retained as a benchmark and will be revisited if impacts are found to be unacceptable or cannot be effectively mitigated.

2) Access alternatives (existing tracks only vs limited new track formation)

Exploration access is often the largest driver of disturbance in arid and semi-arid environments. Two primary access options should be assessed:

- **Option A: Use existing tracks only (preferred where feasible).**
This option minimises new surface disturbance, reduces erosion initiation points, and lowers the footprint across grazing areas and sensitive habitats.

- **Option B: Limited new track formation (only where unavoidable).** Where existing access is not feasible for safety or technical reasons, limited new tracks may be required. Under this option, route selection must prioritise pre-disturbed corridors and stable ground, avoid drainage lines and erodible soils, and apply strict controls (track width limitations, no “track braiding”, speed limits, and rehabilitation requirements). The assessment should also consider whether new access could increase unauthorised use or livestock/wildlife disturbance, and how this will be managed (signage, controlled access, and closure of redundant tracks).

3) Camp alternatives (no camp/day operations vs temporary camp at pre-disturbed site)

The need for a field camp depends on distance to service centres, daily travel time, security, and the intensity of exploration. The alternatives include:

- **Option A: No camp (day operations only).** Personnel operate from existing towns/service centres and return daily. This reduces the risk of waste management failures, wastewater issues, and fuel storage hazards, but may increase daily vehicle movements (dust, noise, road safety risks) and reduce operational efficiency.
- **Option B: Temporary camp at a pre-disturbed or hardened site (only if required).** If a camp is necessary, it should be located on an already disturbed footprint (e.g., existing farm infrastructure area, previously impacted site, or hardened ground) with clear provisions for potable water supply, sanitation (chemical toilets or contained systems), solid waste segregation and removal, and spill containment for fuel/chemicals. The alternative assessment should also consider a “mobile/low-impact camp” approach that avoids permanent foundations and enables full removal and rehabilitation after use.

4) Drilling method alternatives (RC vs diamond; water-based vs air drilling where feasible)

If drilling is proposed (either during scoping or later phases), method selection significantly influences water demand, waste generation, and disturbance intensity:

- **RC drilling vs Diamond drilling.**
RC drilling is typically faster and may reduce time on site but can generate more dust and may have different waste profiles. Diamond drilling can be more targeted and provides core for detailed geological data, but may require more water and longer drilling durations depending on depth and conditions.
- **Water-based drilling vs air drilling (where feasible).**
In water-scarce settings, air drilling can reduce freshwater demand; however, it may elevate dust generation and requires careful dust suppression controls. Water-based drilling can reduce dust but increases water abstraction/supply needs and requires management of drill fluids and sumps. The assessment should consider the availability of water (source, transport, permits), containment of drill cuttings, sump design, and rehabilitation measures to avoid pollution, livestock exposure, and visual scarring.

The preferred option should explicitly minimise water demand, prevent contamination, and ensure drill sites are rehabilitated to near-natural condition.

5) Site layout and micro-siting alternatives (avoid sensitive receptors; reduce footprint)

A core mitigation principle at scoping is avoidance through site selection. The EIA should evaluate layout options that:

- Avoid drainage lines, ephemeral watercourses, pans, and erosion-prone areas.
- Avoid sensitive habitats (e.g., riparian vegetation, wetlands, rocky outcrops with specialist flora, nesting sites, and migration routes where relevant).
- Maintain buffers from waterpoints used by livestock and communities, and from any identified heritage features.

- Use *micro-siting* to shift drill pads, trenches, sampling grids, and temporary laydown areas by tens to hundreds of metres to reduce impacts while achieving exploration targets.
- Co-locate activities (e.g., staging, fuel storage, and equipment laydown) within one controlled area rather than multiple dispersed footprints.

This alternative is particularly relevant for EPL9292 where receptors may include commercial farms, communal users (where applicable), and proximity to local settlements/service centres.

6) Scheduling alternatives (timing of works to reduce erosion, access damage, and nuisance)

Scheduling is a practical way to reduce impact significance without compromising exploration objectives. Alternatives include:

- **Dry-season operations (preferred for ground disturbance activities).**
Conducting earthworks, track preparation, and drilling during drier periods can reduce rutting, sediment mobilisation, and the likelihood of vehicles creating multiple parallel tracks to avoid muddy sections.
- **Wet-season restrictions or activity caps.**
If work during wetter months is unavoidable, the EIA should assess restrictions such as limiting vehicle access after heavy rains, using only existing hardened routes, reducing heavy vehicle movements, and requiring additional erosion controls and rehabilitation. Scheduling should also consider sensitive biodiversity periods where relevant (e.g., breeding/nesting seasons) and align with landowner/community activities (e.g., livestock movements).

Preferred alternative approach (to carry forward)

At scoping stage, the *preliminary preferred approach* for EPL9292 is typically the **lowest-impact combination**: use existing tracks wherever possible, apply micro-siting to avoid sensitive features, implement day-operations unless a temporary camp is demonstrably necessary, and select drilling

methods that minimise water demand and waste while maintaining technical suitability. The final preferred option will be confirmed after sensitivity screening, stakeholder inputs, and feasibility checks, and will be formalised in the Scoping Report and EMP.

10. Mitigation and management measures (scoping-level)

(a) Footprint control and access management

- **Demarcate approved footprint:** All approved routes, drill pads, laydown areas, sampling grids, and camp areas must be **mapped and physically demarcated** (e.g., pegs, flagging tape, signage).
- **No off-road driving:** Off-road driving is prohibited except for **verifiable emergencies**. Any emergency deviation must be recorded (GPS track, reason, date) and reported to the Site Supervisor.
- **Track discipline and no “braiding”:** Vehicles must remain on the designated track at all times. If a section becomes difficult to traverse, the route must be assessed and managed (e.g., temporary hardening) rather than creating parallel bypass tracks.
- **Speed limits and dust:** Enforce speed limits on gravel tracks and near homesteads/waterpoints to reduce dust, livestock collisions, and wildlife disturbance.
- **Gate and fence protocol:** All gates must be left as found (open/closed), with signage where needed; fences may not be cut or damaged without landowner approval.

(b) Vegetation clearing and biodiversity protection

- **Minimise clearing:** Vegetation clearance must be kept to the smallest practicable area (targeted pad sizes; narrow tracks; minimal laydown footprints).

- **No clearing in drainage features:** No clearing, excavation, or vehicle movement is allowed within **riparian zones, ephemeral drainage lines, pans, or wetlands** unless specifically authorised and mitigated.
- **Avoid sensitive habitats:** Where habitat patches are identified as sensitive (e.g., riparian vegetation, rocky outcrops with specialist flora), apply buffers and micro-siting.
- **Plant rescue/avoidance:** Where notable or protected plant species are encountered, apply avoidance first; where unavoidable and legally permitted, undertake **plant rescue/relocation** by competent personnel and in accordance with permit conditions.
- **Invasive species control:** Ensure vehicles and equipment arrive **clean** (no seeds/soil), and monitor for invasive plant establishment around disturbed areas and camps.

(c) Erosion prevention, stormwater, and sediment control

- **Avoid steep slopes and erodible soils:** Site selection must prioritise stable ground; avoid steep gradients and areas prone to gullyng.
- **Run-on/runoff controls:** Drill pads and disturbed areas must incorporate basic stormwater controls (e.g., diversion berms, cut-off drains, sandbags) to prevent concentrated flows and sediment export.
- **Timing controls:** Where possible, avoid ground-disturbance works during wet periods; implement storm readiness measures where wet-season work is unavoidable.
- **Immediate stabilisation and rehabilitation:** Disturbed surfaces must be stabilised as soon as practical after works (ripping, reshaping, and re-contouring), especially before forecast rainfall.

(d) Waste management (“pack-in/pack-out”)

- **Pack-in/pack-out principle:** All waste generated must be removed from site and disposed of at an **authorised/licensed facility**. No burying or burning of waste is permitted.
- **Waste segregation:** Provide labelled containers for general waste, recyclables, and hazardous waste (e.g., oily rags, filters).

- **Wildlife-proof storage:** Waste must be stored in secure, closed containers to prevent scavenging by wildlife and domestic animals.
- **Litter control:** Daily clean-ups must be implemented at drill sites, sampling areas, and any temporary camp.

(e) Hazardous substances and spill prevention

- **Bunded fuel and chemical storage:** Fuel and hazardous substances must be stored in **bunded/contained** areas capable of holding at least **110%** of the largest container volume (or as per Namibian/industry best practice).
- **Refuelling protocols:** Refuelling may only occur in designated areas with secondary containment; no refuelling within or adjacent to drainage features.
- **Spill kits and training:** Spill response kits must be available at all active work areas and vehicles; staff must be trained in spill prevention and response.
- **Incident response:** All spills, near-misses, and leaks must be reported immediately, cleaned up promptly, and recorded in an incident register (including cause analysis and corrective action).

(f) Water resource protection and drilling fluids/cuttings management

- **No discharge to watercourses:** No wastewater, drilling fluids, or sediment-laden runoff may be discharged into drainage lines or water bodies.
- **Sumps and cuttings control:** Where drilling is undertaken, drill cuttings and fluids must be contained (e.g., lined sumps or contained systems where required), with rehabilitation after use.
- **Water supply compliance:** Any abstraction, purchase, or transport of water must comply with applicable permissions, and water use must be minimised (including preference for low-water methods where feasible).
- **Protection of waterpoints:** Maintain separation buffers and avoid disturbance to livestock and community waterpoints; prevent contamination risk from fuels and waste.

(g) Sanitation and greywater management

- **No open defecation:** Strictly prohibited.
- **Portable toilets / managed ablutions:** Provide portable chemical toilets or managed ablutions at camps and major work sites; ensure regular servicing and authorised disposal.
- **Greywater control:** Greywater must be contained and disposed of responsibly (no discharge into drainage lines); use biodegradable soaps where feasible.
- **Hygiene controls:** Handwashing facilities and hygiene protocols must be provided to limit health risks to workers and local communities.

(h) Fire prevention and emergency preparedness

- **Fire controls at camps and work areas:** No uncontrolled burning is permitted. Designated cooking areas must be controlled, and fuel sources managed.
- **Firefighting equipment:** Provide appropriate firefighting equipment (extinguishers, beaters, water/knapsack sprayers) and ensure staff are trained.
- **High-risk periods:** During windy/hot conditions, restrict activities that pose ignition risk; maintain clear zones around camp and fuel storage.
- **Emergency procedures:** Establish and communicate emergency response procedures (fire, medical, vehicle incidents), including contact numbers and evacuation routes.

(i) Heritage and archaeological chance finds procedure

- **Stop-work requirement:** If any archaeological/heritage material is encountered (e.g., artefacts, middens, graves, stone tools), all work must stop in the immediate area.
- **Secure the site and notify:** The area must be cordoned off and the relevant heritage authority and project environmental representative notified.
- **No disturbance:** No collection, movement, or damage to suspected heritage items is allowed unless authorised. Work may only resume after clearance.

(j) Rehabilitation and closure of temporary disturbances

- **Progressive rehabilitation:** Rehabilitate disturbances as activities move (drill pad-by-drill pad; trench-by-trench), not only at end of programme.

- **Tracks and pads:** Rip and re-contour compacted areas not required for ongoing access; reinstate natural drainage patterns.
- **Topsoil management:** Where topsoil is stripped, it must be stockpiled separately and replaced during rehabilitation to support vegetation recovery.
- **Re-vegetation support:** Where appropriate, use brush packing, seed (locally appropriate), or erosion control mats to accelerate recovery and prevent sediment loss.
- **Rehabilitation success criteria:** Define simple success criteria at scoping stage (stable surface, no active erosion, waste removed, drainage reinstated, no safety hazards).

(k) Stakeholder protocol and land access agreements

- **Access agreements:** Secure written access agreements with landowners/occupiers and any relevant authorities before field activities commence.
- **Communication plan:** Maintain a clear communication channel for landowners, farm workers, and local authorities (contact person, response time, complaint process).
- **Livestock and biosecurity:** Implement livestock safety measures (speed limits, closed gates, no harassment of animals) and basic biosecurity (clean vehicles, avoid disease transmission).
- **Conflict avoidance:** Respect existing land uses (grazing, waterpoint access) and plan work to avoid peak farm activities where possible.

10.2 Monitoring (minimum)

To verify implementation and identify issues early, the following monitoring is required as a minimum for EPL9292:

- **Weekly housekeeping inspections** (or more frequent during active drilling/camp use), covering:
 - waste segregation and removal,
 - fuel storage integrity and bund condition,

- spill kit availability and readiness,
- sanitation condition and servicing,
- evidence of off-road driving or track braiding.
- **Track condition and erosion checks after storm events**, focusing on:
 - rutting, gullyng, and sediment mobilisation,
 - blocked/altered drainage paths,
 - effectiveness of berms, cut-off drains, or diversion measures,
 - need for immediate repairs or temporary closures.
- **Incident and complaints register**, recording and tracking:
 - spills (quantity, cause, clean-up actions, waste manifests),
 - near-misses and safety incidents,
 - grievances/complaints (stakeholders, date, issue, response, close-out),
 - corrective and preventive actions and sign-off.
- **Rehabilitation sign-off checklist per site**, to be completed for each drill pad/trench/laydown area prior to demobilisation, confirming:
 - waste removed and site cleaned,
 - surface re-contoured and drainage reinstated,
 - erosion controls installed where needed,
 - topsoil replaced (if applicable),
 - rehabilitation photographs and GPS coordinates filed.

Deliverables/records (minimum): inspection checklists, incident logs, waste disposal receipts/manifests, GPS track logs, before-and-after photos, and stakeholder engagement/complaints records. These records will form part of the compliance evidence for ECC conditions and EMP implementation.

Key roles used (edit as needed):

ECO = Environmental Control Officer / Environmental Representative (can be site supervisor if small programme)

SS = Site Supervisor / Exploration Manager

HSE = Health & Safety Officer (or designated HSE focal person)

Contractor = Drilling contractor / civil contractor

All staff = All field personnel/crew

Activity	Aspect	Potential impact	Mitigation management measures	/ Monitoring indicator	Responsibility	Frequency	Evidence
Planning & mobilisation	Footprint definition	Uncontrolled expansion of disturbance footprint	Map and approve all routes, drill pads, laydown and camp of areas prior to mobilisation; demarcate on ground; brief all staff	Approved footprint map; demarcation in place; toolbox talk completed	SS + ECO	Once before works; verify weekly	Approved map (GIS/PDF); photos of demarcation; toolbox talk register
Vehicle movement (all phases)	Off-road driving	Vegetation damage, soil compaction, track braiding	Strict "stay on track" rule; no off-road driving except emergencies; emergency deviations logged (GPS + reason);	No evidence of new informal tracks; GPS tracks match	SS + ECO; All staff	Daily observation; weekly audit	GPS track logs; inspection checklist; photos

Activity	Aspect	Potential impact	Mitigation management measures	/ Monitoring indicator	Responsibility	Frequency	Evidence
			signage at decision points	approved routes			
Vehicle movement (all phases)	Dust generation	Nuisance to landowners, livestock/wildlife disturbance; reduced visibility & safety	Speed limits; avoid convoys near homesteads/waterpoints; dampening where feasible; maintain vehicles	Visible dust plumes reduced; adherence to speed limits	SS + HSE	Daily; weekly review	Toolbox talk notes; speed limit signage; complaint register
Access/track establishment	Soil disturbance	Erosion, sediment mobilisation, altered drainage	Use existing tracks where possible; limit track width; avoid steep slopes/drainage lines; install basic diversion berms where needed	Track width compliance; no erosion rills/gullies; drainage intact	SS + ECO; Contractor	During establishment; after storms	Inspection records; photos (before/after); GPS route map
Access/track use	Storm damage	Rutting, gullyng, sediment export after rainfall	Suspend access after heavy rain where necessary; repair ruts; stabilise runoff points; close/rehabilitate redundant bypasses	Post-storm inspection completed; repairs implemented	SS + ECO	After each significant storm event	Post-storm checklist; photos; maintenance log

Activity	Aspect	Potential impact	Mitigation management measures	/ Monitoring indicator	Responsibility	Frequency	Evidence
Drill pad preparation	Vegetation clearing	Habitat loss; protected/important species impact	Minimise clearing; avoid sensitive habitats; Pad sizes no clearing in within limits; drainage/riparian areas; buffers to micro-site pads; drainage lines; rescue/avoid notable no sensitive plants where plants cleared applicable/allowed		SS + ECO	Per pad before clearing; weekly	Pad approval checklist; photos; GPS points
Drill pad operations	Noise/vibration	Nuisance; disturbance	Maintain equipment; restrict high-noise activity near sensitive receptors where feasible; communicate schedule to landowner	Complaints minimal; equipment service logs	SS + HSE	Daily; monthly servicing	Complaint register; maintenance records
Drilling (RC/diamond)	Water use	Pressure on local water resources; stakeholder conflict	Use lowest feasible water-demand method; use lawful source; minimise consumption; transport & store safely	Water source documented; water use tracked	SS	Daily during drilling	Water delivery notes; water-use log; permits/agreements

Activity	Aspect	Potential impact	Mitigation management measures	/ Monitoring indicator	Responsibility	Frequency	Evidence
Drilling (RC/air)	Dust	Dust fallout; visibility hazard	Use dust suppression measures where feasible; cyclone/collection systems; enforce PPE	Dust controlled; PPE compliance	Contractor + HSE	Daily	Daily drill checklist; PPE register; photos
Drilling	Drill cuttings & fluids	Soil/water contamination; livestock exposure	Contain cuttings; lined sumps where needed; no discharge to drainage; secure sumps; backfill/rehabilitate after use	Sumps/cuttings contained; no spills; rehabilitation completed	Contractor + ECO	Daily; sign-off at closure	Sump inspection log; photos; rehab checklist
Fuel storage & handling	Hydrocarbon spills	Soil/water contamination; fire risk	Bunded storage (≥110% largest container); spill kits at storage and vehicles; designated refuelling area; trained staff	Bund integrity; spill kits stocked; no refuelling near drainage	SS + ECO + HSE	Daily checks; weekly audit	Spill kit checklist; bund inspection; training records
Refuelling	Spills/leaks	Localised contamination	Use drip trays; shut-off nozzles; immediate clean-up; contaminated soil within	No stained soils; spill response	Contractor + SS	Every refuelling	Refuelling log; incident register; disposal manifests

Activity	Aspect	Potential impact	Mitigation management measures	/ Monitoring indicator	Responsibility	Frequency	Evidence
			removed to licensed facility	required timeframe		event; weekly audit	
Chemical handling (if any)	Hazardous substances	Exposure risk; improper disposal	Maintain SDS; label containers; secure storage; storage; personnel; dispose at licensed facilities	SDS available; trained compliant; at disposal documented	SS + HSE	Weekly	SDS file; storage photos; waste manifests
Waste management (all phases)	Solid waste	Litter; scavenging; wildlife landowner complaints	Pack-in/pack-out; segregate wildlife-proof bins; burying/burning; licensed disposal	Clean site; waste removed on schedule; no scavenging	SS + ECO; All staff	Daily housekeeping; weekly removal	Housekeeping checklist; disposal receipts; photos
Sanitation (day ops/camp)	Human waste	Pollution; disease risk; social nuisance	Portable toilets or managed ablutions; no open defecation; service toilets; greywater managed away from drainage	Toilets available, clean, serviced; evidence of open defecation	no SS + ECO of	Daily; service schedule	Toilet service slips; inspection checklist; photos

Activity	Aspect	Potential impact	Mitigation management measures	/ Monitoring indicator	Responsibility	Frequency	Evidence
Temporary camp (if used)	Greywater & wastewater	Localised pollution; odour; attraction	Contain and dispose responsibly; biodegradable soaps; designated wash areas; no discharge to drainage	Greywater disposal method; place; no pooling/odour	in SS + ECO	Daily	Camp inspection log; photos
Fire risk (camp/field)	Ignition sources	Wildfire; damage	No uncontrolled burning; controlled cooking areas; extinguishers/beaters; fire awareness; hot works in high-risk conditions	Fire present; no fire incidents; restrict compliance with restrictions	SS + HSE	Daily; high-risk days	Fire equipment checklist; toolbox talk register
Heritage (all phases)	Chance finds	Damage to heritage/archaeological resources	Stop-work procedure; cordon off; authority; resume after clearance	Chance-find procedure; notify communicated; any finds recorded & managed	SS + ECO	Induction; as needed	Induction records; chance find forms; correspondence

Activity	Aspect	Potential impact	Mitigation management measures	/ Monitoring indicator	Responsibility	Frequency	Evidence
Biodiversity	Fauna disturbance	Injury/mortality; disturbance	Speed limits; no harassment; driving report/record incidents	no night fauna incidents; speed compliance	SS + HSE; All staff	Daily	Incident register; toolbox talk notes
Stakeholder engagement	Land access	Conflict with landowners/users; livestock risks	Written agreements; protocol; landowners programme; mechanism	access gate notify of work complaints closed out	SS + ECO	Before works; weekly	Access letters; meeting notes; complaint register
Security & access control	Unauthorised access	Safety risks; reputational risk	Signage; access to hazardous areas; sign-in	controlled camp and visitor areas controlled	SS	Daily	Visitor register; signage photos
Rehabilitation (progressive)	Compacted soils & disturbed surfaces	Long-term erosion; establishment	scarring; weed rip/reshape; reinstate replace	Progressive rehab: No active erosion; surfaces where stable;	SS + ECO; Contractor	After site completion;	each Rehab sign-off checklist; before/after

Activity	Aspect	Potential impact	Mitigation management measures	/ Monitoring indicator	Responsibility	Frequency	Evidence
			stripped; brush/seed needed	if drainage restored		monthly review	photos; GPS points
Decommissioning/demobilisation	Residual waste & hazards	Legacy contamination; safety hazards	Final sweep; remove all waste; bunds/liners; sumps; rehabilitate pads/tracks not required	Zero waste left; close closed; all sign-off completed	SS + ECO	End of programme	Close-out report; disposal receipts; final photo set
Compliance management	Documentation	Inability to demonstrate compliance	Maintain records, incident logs, waste manifests, stakeholder communications, GPS tracks, photo logs	inspection logs, complete and current; corrective actions closed	SS + ECO	Weekly review	Compliance file; audit checklist; corrective action log

Overall conclusion

Based on the defined exploration activity envelope for **EPL 9292 (16,651 ha)** near Fransfontein, and the desk-top baseline review of the receiving environment, the project is considered **environmentally feasible at scoping level**, provided that exploration is implemented as a **low-footprint, tightly managed programme** aligned to ECC conditions and the commitments contained in the EMP. The licence area is characterised by semi-arid savanna rangelands underpinned by generally shallow, stony calcareous soils with local carbonate/karst-related groundwater potential in parts of the broader area, and a drainage corridor that represents the primary surface-water sensitivity within the EPL. These conditions mean that the most credible and material risks are not associated with large-scale footprint development, but with **incremental disturbance and poor operational control**, particularly: (i) proliferation of informal access tracks and off-road driving, (ii) soil compaction and erosion initiation during episodic high-intensity rainfall events, (iii) hydrocarbon or waste-related contamination risks (notably where groundwater is more vulnerable), (iv) dust and road-safety impacts on shared gravel roads, and (v) potential disturbance of heritage resources through intrusive activities. With appropriate avoidance, access discipline, spill prevention, housekeeping, and progressive rehabilitation, the majority of impacts are expected to reduce to **low residual significance**, while the higher-consequence risks—especially groundwater pollution pathways and heritage/grave disturbance—can be managed to acceptable levels through strict controls, pre-disturbance screening where required, and mandatory stop-work/chance-find procedures. Socio-economically, exploration is expected to create modest but positive benefits through local employment and procurement in nearby service centres, while stakeholder concerns are likely to focus on access permissions, grazing and waterpoint protection, livestock disturbance, and dust/traffic safety; these issues are manageable through early engagement, written access agreements, transparent recruitment/procurement practices, and an active grievance mechanism.

Recommendations (ECC-aligned)

It is recommended that the proponent, Profile Energy (Pty) Ltd, proceed with the ECC application and implement exploration on EPL 9292 subject to the following key conditions and commitments, which should be clearly stated in the ESR/EMP and treated as non-negotiable operational rules:

1. **Maintain a clearly defined exploration envelope** (reasonable worst-case) and ensure that any escalation beyond this envelope—particularly expanded earthworks, multiple drill sites, or longer-term camp establishment—is subject to review and, where necessary, additional assessment and authorisation.
2. **Strict access and footprint control:** prioritise existing roads and tracks, prohibit off-road driving, enforce speed limits, and demarcate approved routes and work areas; new access spurs should be avoided unless justified, authorised, and rehabilitated after use.
3. **Drainage-line protection and stormwater management:** treat the mapped drainage corridor and its immediate surroundings as a **no-go zone** for siting of drill pads, sumps, fuel storage, waste areas and camps; manage runoff from disturbed areas with basic erosion controls, and avoid operations that create rutting or concentrated flow paths.
4. **Erosion prevention and progressive rehabilitation:** because the dominant soils are shallow and erosion-prone, require progressive rehabilitation of pads, trenches and temporary tracks, including re-contouring, ripping/scarifying compacted surfaces, and stabilisation measures (e.g., brush packing/stone lines) where needed, with post-rainfall inspections and corrective actions.
5. **Groundwater protection as a priority:** implement bunded fuel storage (110%), controlled refuelling, spill kits and training, a spill/incident register, and disciplined drill-fluid/cuttings and sanitation management; apply additional caution in carbonate/karst-related groundwater potential zones due to higher vulnerability.
6. **Waste and sanitation controls:** enforce a zero-litter policy, secure waste storage, segregation of hazardous wastes, and removal to authorised disposal facilities; camps (if used) must have managed sanitation (portable toilets/approved systems) with no uncontrolled discharge to the environment.
7. **Heritage compliance:** implement a mandatory chance-find procedure with stop-work requirements and reporting protocols; confirm during the EIA/implementation planning whether a **targeted heritage screening** is needed for areas proposed for trenching, drilling, or new access formation.

8. **Traffic safety and dust mitigation:** implement driver induction, vehicle roadworthiness checks, speed control, avoidance of night driving where practicable, and dust minimisation measures on the C35 and internal tracks, particularly near receptors and livestock.
9. **Stakeholder engagement and grievance management:** secure written land access permissions (commercial and/or communal), maintain a stakeholder register and issues-response table, and operate a functional grievance mechanism with documented close-out; communicate activity schedules to land users in advance.
10. **Monitoring, auditing and reporting:** appoint an ECO (at least part-time during active phases) to conduct inspections, maintain registers, verify rehabilitation, and compile compliance reporting as required by ECC conditions.

Subject to the above, the overall recommendation is that **exploration activities on EPL 9292 may proceed**, as the likely impacts are **manageable and predominantly reversible** if controls are properly implemented, and the project can deliver modest socio-economic benefits without unacceptable environmental degradation. The ECC decision-making process should therefore focus on ensuring that the EMP commitments are enforceable, that the public participation outcomes are transparently documented, and that high-consequence risks (groundwater vulnerability, heritage) are explicitly addressed through avoidance, screening where necessary, and robust operational controls.

Annexures to attach (recommended)

- A1: Location map(s) and access description (include the BID location map)
- A2: Stakeholder database (template)
- A3: Proof of notifications and adverts
- A4: I&AP registration and comment forms (as per BID template)

environmental-impact-study-back...

- A5: Scoping issues and responses register
- A6: Specialist ToR and CVs
- A7: Draft EMP method statements and checklists