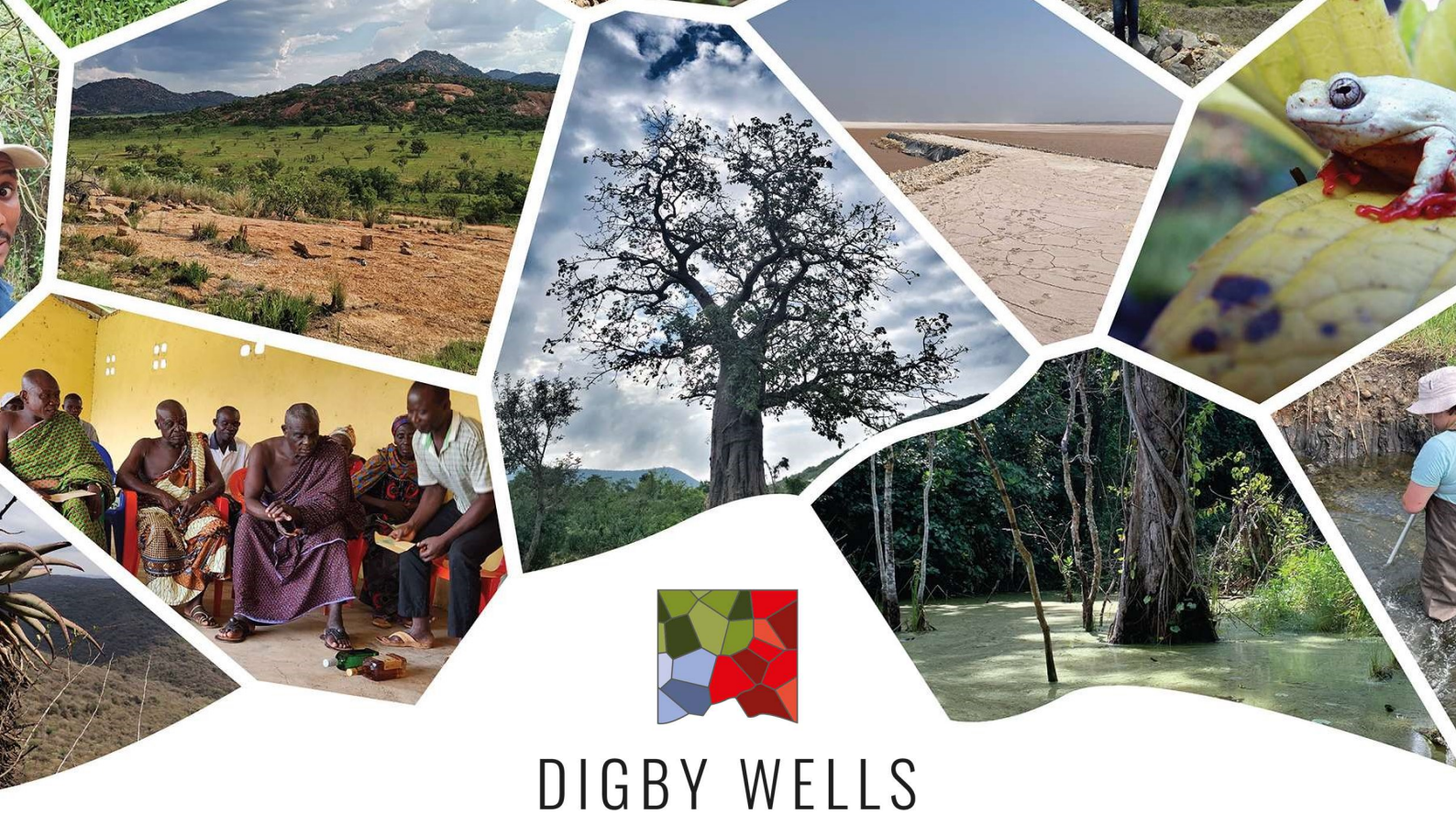
Hagler Bailly Pakistan

DIGBY WELLS ENVIRONMENTAL

Appendix J: Critical Habitat Assessment



DIGBY WELLS
ENVIRONMENTAL

Environmental and Social Impact Assessment for Reko Diq Mining Project - Updated Critical Habitat Assessment

Prepared for:

Reko Diq Mining Company

Project Number:

BAR7212

January 2025

Hagler Bailly Pakistan

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This document has been prepared by Digby Wells Environmental.

Report Type:	Updated Critical Habitat Assessment
Project Name:	Environmental and Social Impact Assessment for Reko Diq Mining Project - Updated Critical Habitat Assessment
Project Code:	BAR7212

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EXECUTIVE SUMMARY

Barrick Gold Corporation (Barrick), through its subsidiary Reko Diq Mining Company (RDMC), in a Joint Venture partnership with the Government of Pakistan and the Government of Balochistan, is completing a feasibility study for the Reko Diq Mining Project (the Project) in the western part of Balochistan Province of Pakistan.

As part of the feasibility study, an Environmental and Social Impact Assessment (ESIA) has been conducted, including specialist studies. The ESIA will be part of the environmental permitting process and will provide a basis for the integration of environmental and social considerations into the Project design. RDMC appointed Digby Wells Environmental (Digby Wells) to carry out the environmental and social studies and permitting process for the Project, while in-country partner, Hagler Bailly Pakistan, was largely responsible for coordinating and executing the seasonal ecological surveys, including floral and faunal diversity, as well as the critical habitat assessment.

This report constitutes an **updated Critical Habitat Assessment Report**, which should be read in conjunction with the other specialist reports, including the Faunal Biodiversity Report (Hagler Bailly Pakistan 2024a) and Floral Biodiversity Report (Hagler Bailly Pakistan 2024b). It is acknowledged that this iteration is an update to the Critical Habitat Assessment (Hagler Bailly Pakistan 2024c), which was submitted with the ESIA in October 2024.

Mine Site

Of these candidate species, four species were identified as triggering critical habitat. Two of these species were identified as triggering critical habitat under Criterion 1, namely *Felis margarita* (Sand Cat) and *Gazella subgutturosa* (Goitered Gazelle). One species, *Phrynocephalus euptilopus (*Alcock's Toad-headed-Agama), was identified as triggering critical habitat under Criterion 2. One was identified as triggering critical habitat according to Criterion 3, namely *Passer moabiticus* (Dead Sea Sparrow). Similarly, three species of Squamata (incl. Geckos/Racerunners), namely the Cyrtopodion sp., Eremias sp. and Eremias cf. scripta, are tentatively considered as potential critical habitat triggers pending further morphological and genetic analysis. For the sake of assigned a habitat proxy, these species will be managed as part of any management and mitigation objectives set out for the confirmed trigger, the Alcock's Toad-headed Agama.

Considering the largely intact *natural habitat* within the Mine Site area, the mitigation hierarchy should be diligent and proactively applied to ensure that the residual impact upon these habitat and supporting PBVs are supporting during the construction and operational phase of the Project. Many of the PBVs are large birds/raptor (incl. Steppe Eagle, Egyptian Vulture, Asian Houbara, Eastern Imperial Eagle, Saker Falcon, and Greater Spotted Eagle and as such, an avifaunal monitoring programme will be important to manage at the outset of the project. Although the powerline is relatively small capacity, and at a low altitude and trajectory, mitigation measures to increase visibility of this infrastructure will be important to mitigate any potential impacts relating to collisions and electrocution. In addition, there are a few smaller birds that need to be considered in terms of potential risks of disturbance, but not enough

information is known about these species within the study area at the moment, so further investigation should be undertaken for the Dead-Sea Sparrow, the Yellow-eyed Pigeon and the Sociable Lapwing, but they are on the threshold of qualifying at critical habitat and PBVs due to their wintering habits in the study area.

Road and Rail Transport Route/s

Of a total of 237 expected species, selected species reliant on both freshwater and marine ecosystems were excluded from the list for the purposes of this assessment, as the proposed AoI does not affect or include any material changes to the freshwater and/or marine habitat/s. Following this filtering process, one species was considered to trigger Critical habitat under Criterion 2, namely *Bufotes zugmayeri* (Baloch Green Toad, listed as NT). Some management required around the distribution and presence of the endemic Baloch Green Toad, in close proximity to the Quetta along the road and railway route. Additionally, the Hazarganji Chiltan National Park, a Category II protected area and KBA, and the Kinjhar (Kalri) Wildlife Sanctuary, which is a protected area, Ramsar site and KBA, is considered as likely critical habitat under Criterion 4.

In terms of the outputs from the CH-triggers and the PBVs, which are largely associated with the potential presence of endemic and threatened plant species within the Baluchistan region, it will be important to undertake supplementary survey or walk-downs of areas that are earmarked for upgrades along the transport route/s, so that a rescue and relocations process can be established While other CH-triggers and PBVs are fairly well adapted to the harsh desert conditions, it will be important to continue to monitor for the presence of these species within the study area and specifically within the operational area, so that mitigation can be implemented to avoid/minimise impacts upon these Species of Conservation Concern.

Port Qasim

Regarding the presence of critical habitat in respect to the Port Qasim facilities, no triggers were found. Although many migratory species were detected, the small, terrestrial EAAA of the area and its modified nature resulted in none of the critical habitat criteria thresholds being reached.

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ACRONYMS, ABBREVIATIONS AND DEFINITION

°C	Degrees Celsius
AoI	Area of Influence
AOO	Area of Occupancy
BAP	Biodiversity Action Plan
BEPA	Balochistan Environmental Protection Act
CH	Critical Habitat
CHA	Critical Habitat Assessment
CITES	Conservation on International Trade of Endangered Species
CR	IUCN Red List Category: Critically Endangered
DD	IUCN Red List Category: Data Deficient
Digby Wells	Digby Wells Environmental
DMU	Discrete Management Unit
EAAA	Ecologically Appropriate Area of Analysis
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EN	IUCN Red List Category: Endangered
EOO	Extent of Occurrence
EP	Equator Principles
ESIA	Environmental and Social Impact Assessment
ESRI	Environmental Systems Research Institute
ESS	Environmental and Social Standards
FR	Forest Reserve
GBIF	Global Biodiversity Information Facility
GN	International Finance Corporation's Guidance Note
GPS	Global Positioning System
HBP	Hagler Bailly Pakistan
IAS	Invasive Alien Species
IBA	Important Bird and Biodiversity Areas (IBAs)
IBAT	Integrated Biodiversity Assessment Tool
IFC	International Finance Corporation

IFC PS	International Finance Corporation's Performance Standards
IUCN	International Union for Conservation of Nature
KBA	Key Biodiversity Area
km	kilometres
LC	IUCN Red List Category: Least Concern
m	Metre
m.a.m.s.l.	Metres above mean sea level
MLA	Mining Licence Area
NE	IUCN Red List Category: Not Evaluated
NT	IUCN Red List Category: Near Threatened
PES	Present Ecological State
PIBT	Pakistan International Bulk Terminal
PQA	Port Qasim Authority
PR	Pakistan Railways
PS	IFC Performance Standard
RDMC	Reko Diq Mining Company
SCC	Species of Conservation Concern
SEPA	Sindh Environmental Protection Act
SSC	Species Survival Commission
UNEP-WCMC	United Nations Environmental Programme World Conservation Monitoring Centre
VU	IUCN Red List Category: Vulnerable
WDPA	Word Database on Protected Areas

1. Introduction

Barrick Gold Corporation (Barrick), through its subsidiary Reko Diq Mining Company (RDMC), in a Joint Venture partnership with the Government of Pakistan and the Government of Balochistan, is completing a feasibility study for the Reko Diq Mining Project (the Project) in the western part of Balochistan Province of Pakistan.

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1.1. Project Overview

The Project is in the Chagai District of Balochistan Province of Pakistan, between the Iran (approximately 40 km away) and Afghanistan (approximately 35 km away) borders (Figure 1-1). The nearest town is Nok Kundi, approximately 70 km southeast from the mine site. The nearest community to the site is Humai, which is approximately 20 km away. Other nearby settlements include Mashki Chah, Nok Chah, and Darband Chah.

The Project is located on the Balochistan Plateau, at an average altitude of 600 metres above mean sea level (m amsl) consisting of an arid landscape of mountains, gravel and sandy plains and dry stream beds. The Siahan and Makran mountain ranges transect the Plateau from northwest to southwest forming a divide and ecological transition zone between the west Balochistan desert, (where the Project is located), and the Makran coast to the south.

The Project is a proposed open-pit copper-gold mining operation with an onsite processing plant, which will produce a high-quality concentrate that will be railed to Port Qasim (near Karachi) for export by ship for final processing. The proposed Project is expected to have an initial life of 38 years, in terms of defined resources (i.e. resources that have been identified already), as a truck-and-shovel open pit operation and will be developed in two phases:

- **Phase 1** capacity is expected to be 45 Million tonnes per annum (Mtpa), which is anticipated to commence in 2028; and
- **Phase 2** is expected to increase the capacity to a total of 90 Mtpa, which is anticipated to commence in 2030.

In addition to the development of an open pit and the ancillary processing facilities, other major components include waste rock dumps, Tailings Storage Facility (TSF), an access road between the mine site and the nearest regional N-40 route, and a mine water supply within the northern groundwater system through a bore field.

The Project will also utilise existing associated export facilities, such as transport routes for supplies to and product from the mine, either by road or railway, and an existing and well-established export port facility[1].

1.1.1. Project Background and Context

Copper-gold mineralisation was first detected in the Chagai area by the Geological Survey of Pakistan in 1968. The potential of Reko Diq was realised by BHP Mineral Exploration (BHP) in the 1990s. In 1993, BHP formed a joint venture with the Government of Balochistan (GoB). The Government of Pakistan (GoP) subsequently granted export processing zone status to the project. BHP would hold a 75% interest in the Joint Venture (JV) and the GoB would hold 25% through the Balochistan Development Authority (BDA).

The Western Porphyries and Tanjeel deposits, two of at least 13 principal mineralised deposits within the Reko Diq project area, were drilled for the first time in 1996. By the end of 1998, after drilling over 16,000 metres (m) in the Reko Diq camp, BHP estimated that the project had a total resource of 5.3 Million tonnes (Mt) of copper and 9.3 Million ounces (Moz) of gold.

In April 2000, BHP exited the JV and granted Mincor Resources NL (Mincor), a publicly listed Australian company, an option to enter into an alliance (the “Alliance Agreement”) to conduct further exploration of Reko Diq. The GoB formally consented to the transfer between BHP and Mincor and Mincor subsequently exercised its option in October 2000. The formal Alliance Agreement was executed between BHP and Tethyan Copper Company Pty Limited (TCCA), a special purpose company incorporated and wholly owned by Mincor, in October 2002. Subsequently, TCCA incorporated the Project Company as a wholly owned subsidiary (which, at the time, was named Tethyan Copper Company Pakistan (Private) Limited) (together with TCCA, “TCC”). The Alliance Agreement provided for TCC to earn a share of BHP’s 75% interest in the Project by developing the JV mining area.

In April 2006, after TCC had fulfilled all of its obligations under the Alliance Agreement, the GoB, BHP, and TCC signed a novation agreement allowing TCCA to take over BHP’s share of the Chagai Hills Exploration Joint Venture Agreement (CHEJVA) and for BHP to exit the Project. In May 2006, TCCA was subsequently acquired from Mincor by Atacama Copper Pty Ltd, a holding company owned by Antofagasta, a leading copper mining company listed in the United Kingdom (UK) and headquartered in Chile, leading to Antofagasta’s entry into the Project. In September 2006, Antofagasta sold 50% of Atacama Copper to Barrick, a leading Canadian gold mining company, resulting in effective ownership in the Project of 37.5% for each of Antofagasta and Barrick, and 25% for the GoB.

[1] The railway terminates at an existing railway loop, located north-east of the existing coal storage area within the Pakistan International Bulk Terminal (PIBT). The concentrate will be hauled from this rail yard to the proposed storage shed at the PIBT in containers by truck,

TCC completed a scoping study in 2006, an Initial Mine Development Pre-Feasibility Study in 2009, an Initial Mine Development Feasibility Study (IMD FS) in February 2010 and an Expansion Study (EXP) in July 2010. Several environmental baseline studies were also carried out from 2008 onward, leading to the completion of an Environmental and Social Impact Assessment in 2010 (the "2010 ESIA").

In August 2010, TCC submitted its application for a mining lease. In November 2010, however, several Pakistani parties filed petitions before the Supreme Court of Pakistan challenging TCC's eligibility to hold a mining lease. In February 2011, TCC's application for a mining lease was denied, and in January 2013, the Supreme Court of Pakistan ruled the CHEJVA void on the grounds that GoB participation in CHEJVA fell outside its provincial powers and that some of the CHEJVA terms were contrary to public policy; since other contracts such as the 2006 novation agreement were premised on the CHEJVA, these were also voided.

In November 2011, TCC filed for arbitration against the GoP at the International Centre for the Settlement of Investment Disputes (ICSID) and against the GoB at the International Chamber of Commerce (ICC). The ICC proceedings focused mainly on contractual claims under the CHEJVA, while the ICSID proceedings deliberated TCC's claims under the Australia-Pakistan Bilateral Investment Treaty (BIT). By July 2019, an ICSID tribunal ruled that TCC's claims were admissible and rendered a multi-billion dollar damages award against the GoP, while an ICC tribunal rendered a partial award (collectively, the "Award").

Barrick, Antofagasta, the GoB, and the GoP subsequently engaged in discussions regarding alternatives for the resolution of the Award that maximally satisfied the objectives of each party and all related stakeholders. Ultimately, these negotiations resulted in the reconstitution of the Reko Diq Project and the prevailing ownership structure.

1.2. Terms of Reference

The objectives of this assessment were to utilise available desktop data, including both historical reports and any spatial data about critical habitat-qualifying species, supported and obtained from the Integrated Biodiversity Assessment Tool (IBAT). The notable on-the-ground surveys and biodiversity monitoring data following historical and recently undertaken biodiversity surveys by HBP was pertinent to:

- Identify ecologically appropriate Ecologically Appropriate Areas of Analysis (EAAA[2]), any corresponding areas of significant biodiversity value (i.e. critical habitats);
- Identify potential biodiversity values within the study area, which could be regarded as natural and/or critical habitat, including niche habitats, where applicable; and
- Provide recommendations to manage affected ecosystem types (or habitat proxies), which includes managing *natural habitats* for no net loss toward biodiversity and supporting net gain outcomes to significant biodiversity values within *critical habitats*.

[2] For the purposes of this assessment, a precautionary approach was taken to defining the EAAA, as the bioregional context and the surrounding landscape features are predominantly absent and as such, appropriate and pragmatic boundaries were difficult to define in terms of relevance to the sensitivity and/or importance of the species and/or ecosystems within the surrounding areas.

This report assesses the occurrence of natural habitats within the Area of Influence (AoI) and critical habitats within the Project EAAA[3], in accordance with the guidance and criteria provided by the International Finance Corporation's Performance Standards (IFC PS) 6 and updated Guidance Notes (GN) (IFC 2012, 2019).

1.2.1. Project Components and Focus Areas

The scale and extent of this Project is vast, especially in consideration of the aforementioned existing Transport Corridor/s, extending approximately 1,200-1,300 km toward Nok Kundi and then to Karachi, and the existing export port terminal (refer to Section 2, Figure 1-1). Commensurate with the available time and the logistical restraints, as well as the materiality of the changes proposed along the associated export facilities, the survey efforts varied accordingly between the three main components of the project, including the following:

- The **Reko Diq Mine Site** and ancillary infrastructure (including the water supply in the northern groundwater system and the access road infrastructure). It should be noted that this component of the Project was **a primary focus of the studies**, as the proposed activities within this area were novel and represented significant changes to the current landscape and/or natural habitat/s associated with the host communities.
- The **Road and Rail Transport Corridors (Transport Corridors/Routes)**, which are limited to existing road and rail infrastructure along an west-to-east corridor toward Quetta, and a north-south line from Pringbad toward Karachi. Due to the large extent of this area and the largely immaterial upgrades[4] proposed for the existing infrastructure, the survey effort along this transport corridor was limited to a literature review and screening assessment (including and IBAT report) to assess potential presence of significant biodiversity values that may be compromised over time; and

  The **Port Qasim infrastructure** (referred to as the Port Qasim), which is limited to construction of concentrate storage shed in an established coal export terminal at the Pakistan International Bulk Terminal (PIBT) and the proposed rail yard nearby. As above, the proposed storage shed at the existing terminal was expected to be constructed under a Lease Agreement with PIBT, which is anticipated to yield all liability in terms of material handling and export to the Port Qasim Authority (PQA) - the managing agency at Port Qasim. Subsequently, the survey effort was variable and focused on terrestrial realm and some supplementary efforts to asses potential marine/estuarine impacts[5] associated with the industrial area of the Port Qasim.

[3] As per GN59, "*critical habitats* boundaries should be equivalent in scale to the areas mapped for practical site-based conservation management activities" and as such, it is expected that although the whole EAAA may be highlighted as critical habitat, this is not the case in reality and as such, the conservation management activities need to be broadened within the context of the project.
[4] It is understood that the proposed activities along the transport corridor (including road and rail) is limited solely to an access road and a link for the mine site and ongoing maintenance activities to ensure the security and reliability of the existing road- and railway. Consequently, it is acknowledged that cumulative impacts upon existing sensitivities along the existing routes were likely to be negligible and limited to marginal increases in traffic and/or cadence of the logistical schedule.
[5] It is understood that the concentrate will be conveyed by road- and/or railway within a closed circuit and offloaded at the terminal prior to loading the transport ships through an enclosed loading chute and as such, the likelihood of potential disasters and/or spills is considered to be negligible.

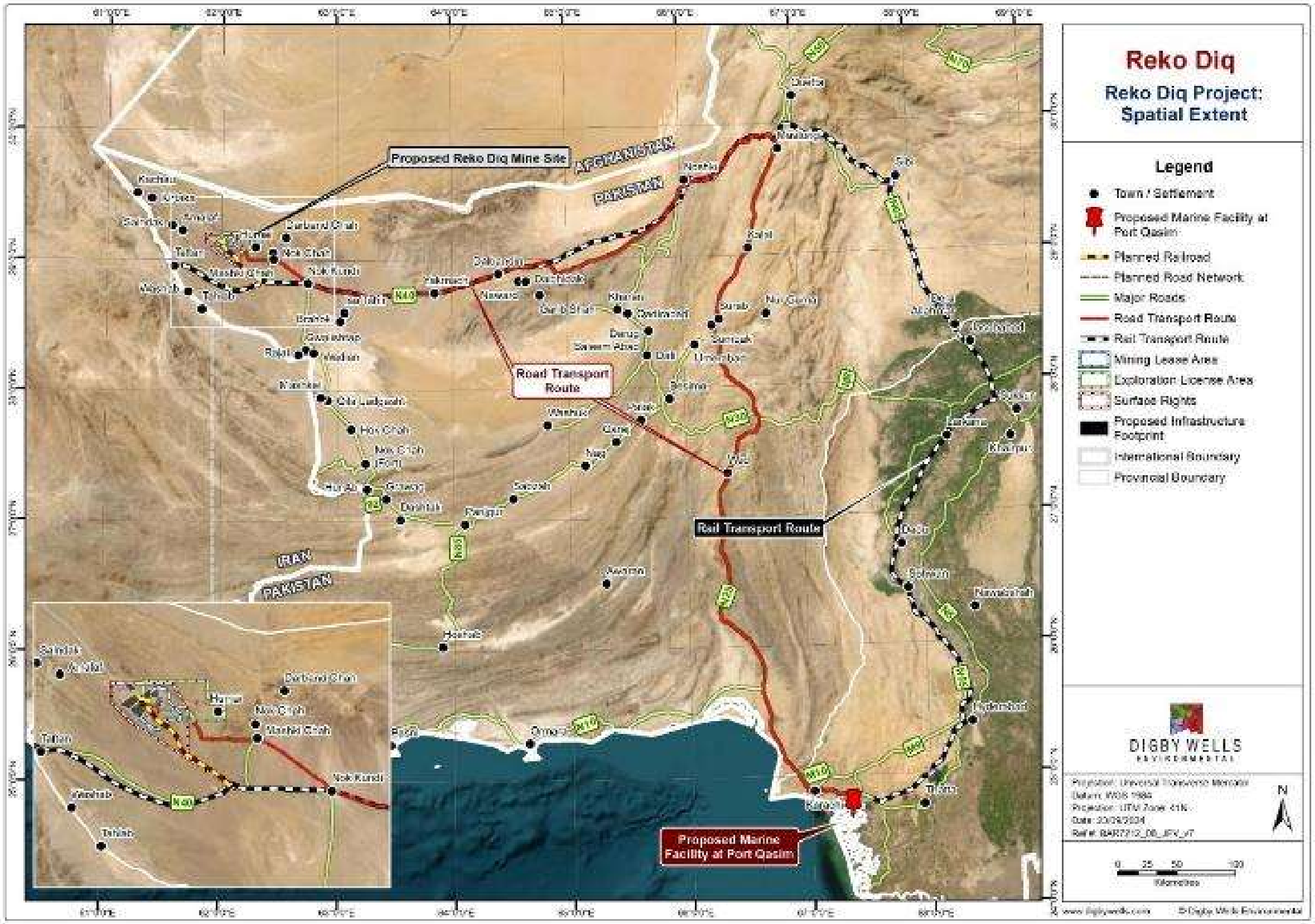


Figure 1-1: Reko Diq Spatial Extent and Transport Routes (Rail Transport Route and Road Transport Route)

1.3. Assumptions, Limitations and Exclusions

The compilation of this report is based on the assumptions and limitations in Table 1-1 below.

Table 1-1: Limitations and Assumptions with Consequences

Assumptions and Limitations	Consequences
Conditions observed at the time of each of the recently undertaken biodiversity-related surveys were deemed to be typically representative of the assessed ecosystems during the considered late-wet season.	It is assumed that a representative sample of the site's biodiversity was collected.
The threat statuses of the species listed herein are those at the time of the writing of this report.	The threat status of a species may change in time, which could result in the need for an update to the current report.
The presence, extent, status of any protected areas and areas of international biodiversity importance (e.g. World Heritage Sites, Key Biodiversity Areas, Ramsar sites, etc.) within the study area were listed and valid at the time of assessment.	IBAT PS6 report (dated November 2024) is largely regarded as the most up-to-date dataset for identifying these conservation areas and were used to inform the presence of potential International Recognised Areas.
In the case of certain species, there was insufficient population and/or extent information to assess whether the critical habitat criteria were triggered.	Although these species may not be considered critical habitat triggers, future monitoring should pay close attention to them. Should more information be released, a revised assessment may be needed to re-evaluate their status as critical habitat triggers.
This report is intended to align with the IFC guidelines, it may not fully align with the standards in the ADB Safeguard Policy Statement (SPS-01).	The report may not fully adhere to the requirements set out in the ADB, as the critical habitat definition differs slightly from the IFC definition and the management objectives are marginally different in terms of no-net-loss outcomes. Any gaps will need to be addressed in separate reports and/or amendments, if required by Lenders.

2. Detailed Project Description

As alluded to above, there is the proposed Mine Site (including water supply and access road), which need to be constructed, and there are associated export facilities, in the form of existing transport corridors (where available) and an export terminal within Port Qasim. The following sections will provide further details in terms of the proposed activities within each of these components.

2.1. Proposed Reko Diq Mine Site

The proposed RDMS will cover an area of 33,408 ha. Figure 2-1 provides an overview of the RDMS and the major proposed infrastructure.

The core infrastructure that will be established at the RDMS includes:

- Two main pits, Western Porphyry and Tanjeel (Figure 2-1). The Western Porphyry Pit (the Pit) will mine a complex of four adjacent porphyry centres (H13, H14, H15 and H79) with the highest grades in the H14 and H15 complexes. The mining method of these pits will be a 24-hour open-pit shovel and truck operation;
- Two Low-grade stockpiles for the ore body or Run of Mine (ROM) that will be extracted, one for the Western Porphyries pit and one for the Tajeel Pit;
- Two designated Waste Rock Dumps (WRD) for the waste rock from the Western Porphyries pit. The Tajeel Pit will have a separate WRD in its proximity.
- Sediment ponds to collect run off from the WRD and ore stockpiles, sediment will be allowed to settle and the surface water will be collected and recycled back into the process;
- One tailings storage facility (TSF) with four enclosed cells located to the southwest of the RDMS. The TSF embankments will be constructed with predominantly waste rock and have tailings drainage systems to control the flow of water and tailings. The enclosed cells consist of:
    - Three cells have been designed for the cleaner tailings which will be lined with 1.5 millimetres (mm) high-density polyethylene (HDPE) liner. A low permeability upstream zone will be constructed of 3 metres (m) of clay and 3 m of filter sand behind it;
    - A rougher tailings storage cell designed to contain 2,728 Mt (88%) of the total tailings produced. It will be controlled to accumulate supernatant water at a decant point, the water will be reused in the mining process.
- A processing plant with a concentrator to produce the copper-gold concentrate.

The process of producing the concentrate at the processing plant involves flotation and does not require cyanide. The daily processing rate will be 123,000 tonnes per day (t/d) in Phase 1, increasing to 246,000 t/d in Phase 2. A total of 34 million tonnes (Mt) of Concentrate will be processed with an approximate average copper grade of 26-31% and gold content of 7-15 grams per tonnes (g/t).

2.1.1. Water Supply and Management

Water for the Construction Phase, Phase 1 and Phase 2 of the Project will be sourced from a sedimentary groundwater system located approximately 70 km to the northwest of the mining area referred to as the Northern Groundwater System (Figure 2-2). The system represents a

small and isolated part of a much larger basin and there are no communities or community water sources located within the proposed bore field and its AoI.

Water in the system is saline and challenging to access, and as such is not suitable for human consumption or most agricultural or industrial uses without significant treatment and abstraction infrastructure. There are currently no planned developments or users of the target groundwater system, and the scope of the Project would not preclude future use of the broader basin by others. Independent international best practice environmental and social impact assessment and hydrogeological studies, using physical surveying and remote sensing techniques, have demonstrated that there are no surface expressions of the groundwater system and no known dependent biodiversity.

This groundwater system is considered capable of enabling development and sustaining operation of the Project, which is expected to add significantly to the socio-economic advancement within the region and country through employment, infrastructure, and services.

The early works activities include the construction of a 78 km long buried water supply pipeline with a diameter of 250 mm from the Northern Groundwater Borefield to the mine site to provide water for construction. A 900 mm buried, cement lined steel pipe will be constructed between the site and the Northern Groundwater Borefield for piping of operational water requirements.

This pipeline will be laid in parallel with the early works water supply pipeline at a distance of approximately 30 m apart. The total servitude for all future pipelines, service road and power supply line[6] will be a total width of 60 m.

2.1.2. Water Management

The various aspects of water management for the Project include:

- A continuous supply of water of varying volumes (i.e. 1.6 GL/a for construction phase, 24 GL/a for Phase 1, 48 GL/a Phase 2 and 1.6 GL/a for the decommissioning phase.
- A Water Treatment Plant (WTP) will be installed at the mine site to provide potable water to the accommodation facility and work areas. It will be a containerised solution with two trains with a combined capacity of 145 m^3/hr;
- Sewage Treatment Plant (STP) will be installed at the accommodation facility and at the processing plant. The sewage treatment process will include Rotational Biological Contactor (RBC) technology. The STP will be designed to handle four times the

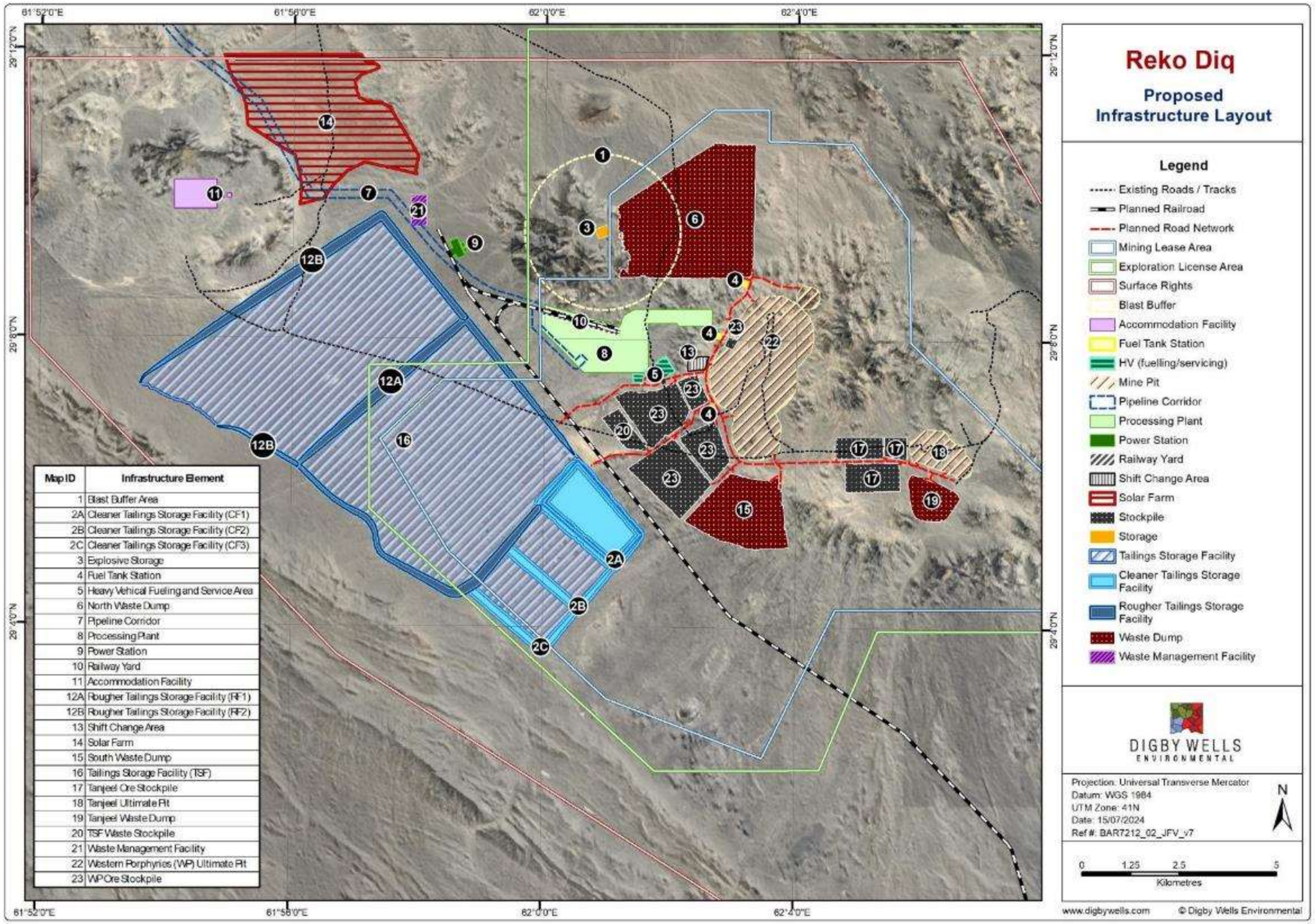
[6] An overhead transmission line will supply power (33 kV) to the Northern Borefield via a single circuit. Detailed design is yet to be finalised, but likely key characteristics of the transmission line include:

- Emplacement of poles of either wood, concrete or steel construction. Poles will be spaced between 100 and 150 m apart with heights of between 9 and 15 m to provide adequate clearance from obstacles, traffic and non-flying fauna.
- AAAC (All Aluminium Alloy Conductor) or ACSR (Aluminium Conductor Steel Reinforced) will be used.
- Use composite insulators to withstand high temperatures, dust, and potential salinity in the region.
- Capacitor banks or voltage regulators installed at strategic points to maintain voltage levels.

The well pumps will be powered by diesel generators during the construction phase, and which will act as a backup should the transmission lines fail.

average daily intake and accommodate shift changes. During the construction phase, 2.9 m^3 of sludge will be produced daily reducing to approximately 1.5 m^3 during the operational phase.

- Various water storage facilities including a Raw Water Pond, Process Water Pond, Cooling Water Tank, Plant Fresh Water Tank, Village Raw Water Tank, Village Potable Water Tank and Mine Site Fresh Water Tank; and
- Various Stormwater Management around the plant area, pit area, TSF and WRDs.



Map ID	Infrastructure Element
1	Blast Buffer Area
2A	Cleaner Tailings Storage Facility (CF1)
2B	Cleaner Tailings Storage Facility (CF2)
2C	Cleaner Tailings Storage Facility (CF3)
3	Explosive Storage
4	Fuel Tank Station
5	Heavy Vehical Fueling and Service Area
6	North Waste Dump
7	Pipeline Corridor
8	Processing Plant
9	Power Station
10	Railway Yard
11	Accommodation Facility
12A	Rougher Tailings Storage Facility (RF1)
12B	Rougher Tailings Storage Facility (RF2)
13	Shift Change Area
14	Solar Farm
15	South Waste Dump
16	Tailings Storage Facility (TSF)
17	Tanjeel Ore Stockpile
18	Tanjeel Ultimate Pit
19	Tanjeel Waste Dump
20	TSF Waste Stockpile
21	Waste Management Facility
22	Western Porphyries (WP) Ultimate Pit
23	WP Ore Stockpile

Figure 2-1: Proposed Reko Diq Mine site Layout, excluding the remainder of the water supply pipe corridor to the north-west and the end of the access road to the south-east

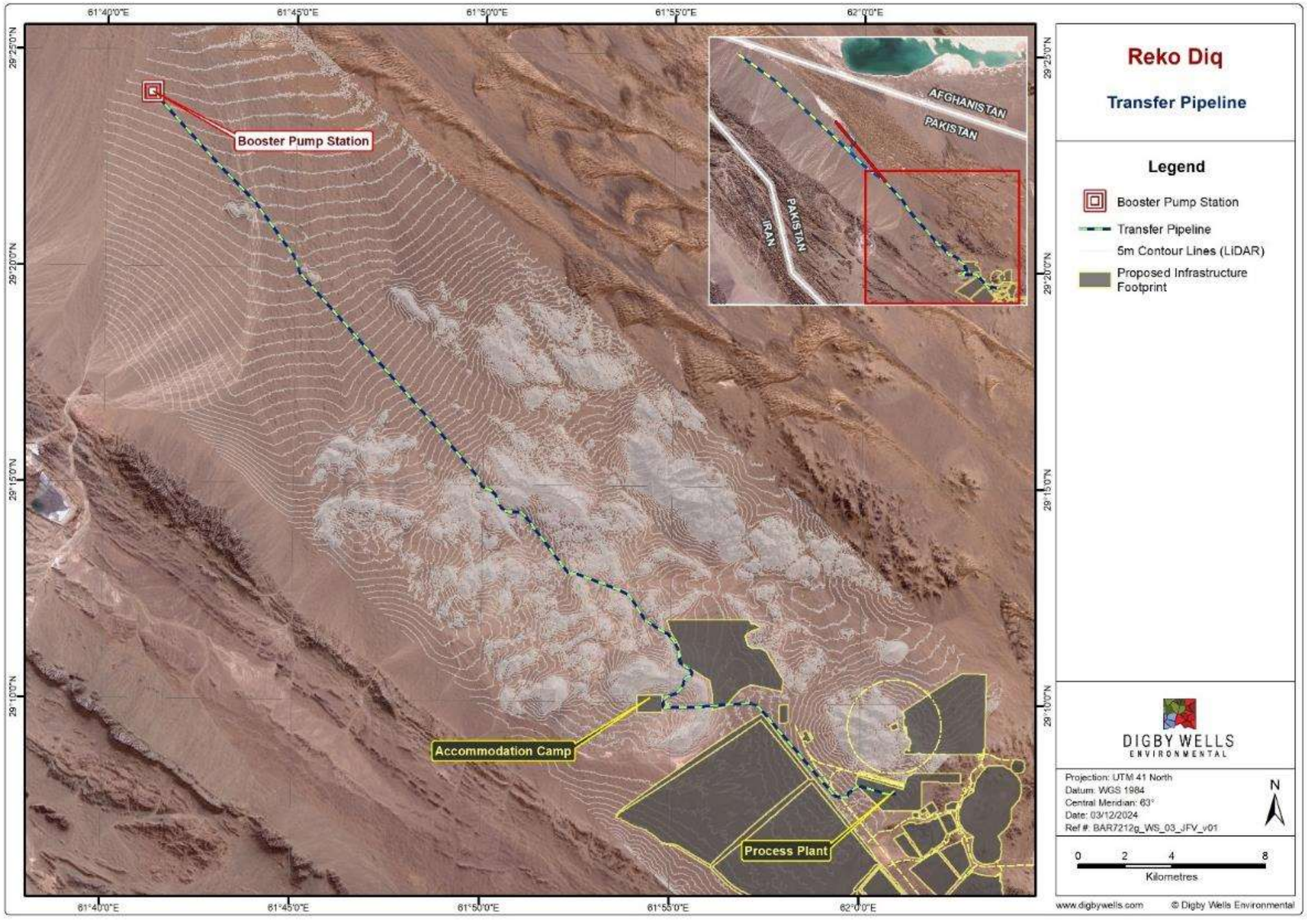


Figure 2-2: Proposed route for pipeline from Booster Pump Station to Accommodation Camp and Process Plant

2.2. Associated Export Facilities and Transport Corridor/s

The Project will use the existing road and rail networks to transport materials during construction and operational phases and utilise the air transportation option for personnel, where available. The main Project transport routes (Road Transport Route and Rail Transport Route) are shown in Figure 1-1.

2.2.1. Road Network

Existing roads will be used to transport supplies and equipment to the mine site for the construction and operational phases. The access roads to the mine site will also be upgraded and improved as part of the Project early works.

The main routes the Project will utilise are the N-40 National Highway between Taftan (the Iranian border) and Quetta (the provincial capital), Port Qasim via the Northern Bypass (M10) and Regional Corporation for Development (RCD) Highway (also known as N-25 Highway) to Noshki and Dalbandin to Nok Kundi and finally Reko Diq Mine Site. The route from the mine site to Karachi is approximately 1,300 km, and to Nok Kundi is approximately 45 km.

As alluded to above, a new 8 m wide, two-lane surface road will be constructed as part of the early works activities, connecting the mine site to the N-40. Within the mine site, a new gravel road will be constructed, which connects the main gate to the processing plant site, airstrip and the accommodation facility. This road will be used by Project-authorised vehicles only. The mine haul roads will be constructed to facilitate the transport of the ore and waste rock from the open pit to the crushers, ore stockpile processing plant and WRDs.

The fuel required during construction phase will be transported via road and during operations, will be transported in bulk via rail. In both cases the fuel will be transported from various import terminals at Port Qasim or Karachi Port.

2.2.2. Air Transportation

Charter flights will be used to transport personnel (not local to the region) routinely between Karachi and the mine site as well as for any emergency medical evacuations. A private airstrip was constructed within Surface Rights Area (SRA) to the south of the accommodation facility in 2010 and was recommissioned in May/June 2023. The airstrip is approximately 1.8 km in length and is located ~10 km from the RDMS.

RDMC have implemented the Barrick Gold Aviation Standards, which detail requirements for both charter companies (including personnel qualifications, maintenance, aircraft and other equipment standards etc.) and air strips. The Standard requires regular audits by someone who has a pilot, maintenance, ATC or aircrew licence issued by a recognized national aviation regulatory body such as Transport Canada, FAA, CASA, CAA, or military equivalent, or who is approved by the Barrick Chief Pilot and is listed in the Experience Based Auditor Approval List. Airstrips must comply with Pakistan Aviation Standards and the Barrick Standards.

2.2.3. Rail Transport

Transport of concentrate to and fuel from Port Qasim will be via an existing railway line, passing through the Balochistan and Sindh provinces. The existing rail route is approximately 1,350 km in length. The existence of the railway does not depend exclusively on the Project, however there are certain repairs and upgrades that will be required to be completed by Pakistan Railways (PR) for the Project. This is particularly relevant for the sections between Spezand (south of Quetta) and the Project site as this portion of the rail has minimal traffic, and as such more closely meets the definition of an *associated facility* than the more heavily used section between Karachi and Spezand.

The existing railway route runs through Sindh and Balochistan provinces and includes Main Line Sections ML-1, ML-2 and ML-3. A comprehensive assessment of the railway has been completed, as part of the Project feasibility.

- **ML-1**: This line runs from Karachi to Peshawar and is the most developed section, carrying 75% of Pakistan's cargo and passenger traffic. It is currently undergoing upgrades as part of the China Pakistan Economic Corridor (CPEC) initiative, aiming to increase the line speed to 140 km/h. This is already under active renewal, no additional upgrades are specified beyond the ongoing CPEC improvements.

- **ML-2 and ML-3**: From Rohri Junction, the route continues onto ML-2 and then ML-3, passing through Jacobabad, Sibi, and Spezand. These sections are in poorer condition, with single tracks, numerous speed restrictions, and frequent interruptions due to natural hazards like floods and sandstorms. Repair works are needed, particularly from Rohri to Taftan to improve safety, reliability, and capacity. These upgrades are crucial for ensuring the efficient operation of the railway, especially for heavy haulage activities. Key areas requiring attention include:

    - **Track Renewal**: Track renewals on sections at Spezand-Alam Reg and Rohri-Sibi.
    - **Sleeper Replacement**: Replacing obsolete or broken sleepers is essential to maintain track stability and safety.
    - **Bridge Repairs**: Repairing bridges damaged by floods is critical to ensure uninterrupted railway operations.
    - **Natural Hazard Protection**: Raising tracks and constructing embankments to protect against floods and sand accumulation.

The upgrades are categorised into three priority levels based on urgency and the condition of the infrastructure. The following sections detail the works required to bring the proposed rail haulage route to the capacity, safety and reliability standards required for the purposes of the Reko Diq Project:

- **Priority 1 (Immediate)**: These works must be executed before the start of heavy haulage operations, focusing on the most critical defects. This includes:

- **Track Renewals**: On sections at Spezand-Alam Reg (513.27 km), Sibi-Abi Gum (13.02 km), and Rohri-Sibi (42.68 km).
- **Sleeper Replacements**: On sections at Kolpur-Spezand (13.28 km) and Sibi-Abi Gum (53.86 km).
- **Bridge Repairs**: On sections at Spezand-Alam Reg (48.70 meters) and Rohri-Sibi-Spezand (229.23 meters).
- **Natural Hazard Protections**: Raising tracks and constructing embankments in flood-prone areas like Spezand-Alam Reg and Rohri-Sibi-Spezand.

- **Priority 2 (5-10 Years)**: These upgrades address defects that are acceptable for continued use but require intervention within the next decade. This includes:
  - **Additional Track Renewals**: On sections at Abi Gum-Kolpur (Down Line, 18.46 km) and Rohri-Sibi (34.24 km).
  - **Further Sleeper Replacements**: On sections at Rohri-Sibi (12.36 km).
  - **Ongoing Bridge Repairs**: On sections at Rohri-Sibi-Spezand.
  - **Enhanced Natural Hazard Protections**: Additional measures to safeguard against future events.
- **Priority 3 (10-15 Years)**: Long-term upgrades for defects that can be monitored and addressed over a longer period. This includes:
  - **Final Track Renewals**: Completing any remaining sections at Abi Gum-Kolpur (Up Line, 19.35 km).
  - **Comprehensive Sleeper Replacements**: Ensuring all sleepers meet safety standards.
  - **Long-term Bridge Maintenance**: Regular inspections and repairs.
  - **Sustained Natural Hazard Protections**: Continuous improvements to protective measures.

Pakistan Rail will be responsible for carrying out these upgrades. They will utilise internal resources, including production facilities for track materials and rolling stock for transportation. Pakistan Rail may also subcontract parts of the work, if internal capacity is insufficient. The upgrades aim to ensure the safety, reliability, and capacity of the railway infrastructure to meet future demands, particularly for the Reko Diq Project.

A new project dedicated railway section will be constructed from the mine site to the existing railway line at Nok Kundi. This section of rail is a Project facility as it will be owned and operated by RDMC. The line will stretch over a distance of approximately 56 km to serve as rail link between the mine site and the existing network of Pakistan Railways on Main Line 3. Its alignment has been optimized within contextual constraints for efficient network integration and reliable support of mining and freight operations.

To match the existing network, the line will be a broad-gauge (1 676 mm) ballasted track, laid on prestressed concrete sleepers with elastic fastenings and sleeper density of 1,640 sleepers per km as per Pakistan Railways standards.

Track design speed (Vmax) 80 km/h for freight trains. The permissible axle load following current Pakistan Railways prescriptions will be 22.5 t/axle.

The prescribed ruling gradient will be 10‰ on the main track and 0 – 0.25‰ in stations and yards.

Available line assessment projects 42 engineering works of various types, including reinforced concrete box culverts, 12 meter simple or multiple span girder bridges and Hume pipes, appropriately distributed and combined for efficient drainage and road crossings.

The fuel required during operations will be transported in bulk via rail from various import terminals at Port Qasim or Karachi Port. Concentrate will be railed from the mine to Port Qasim using special tipping containers, with a size equivalent to a standard 20 foot container, measuring approximately 6 m in length by 2.3 m in width, carrying an average capacity of 27.5 tons of concentrate each.

The rail transport will terminate at an existing railway loop located 13 km northeast of the Pakistan International Bulk Terminal (PIBT). The layout of existing railway loop and proposed facilities is shown in Figure 2-3.

Offloading and rail maintenance facilities will be constructed at this railway loop and concentrate will be trucked from the railway loop to PIBT for further handling. At the marshalling yard, the containers will be unloaded from the train using reach stackers, which will then place the containers on the ground before transporting them to the temporary storage area, or alternatively they may be unloaded directly onto trucks, which will transport the containers to the port area. The rail loop, rail maintenance facilities, and rail offloading facilities are to be constructed, owned and operated by others and at this stage will depend exclusively on the Project and as such are classed as associated facilities.

The route from the rail loop to the PIBT will use existing roads within the Port industrial area and it is anticipated that there will be 46 round trips for trucks transporting the concentrate containers to the terminal during Phase 1 and then an additional 46 round trips in Phase 2. The road route to be utilised is existing and is not exclusively dependent on the Project.

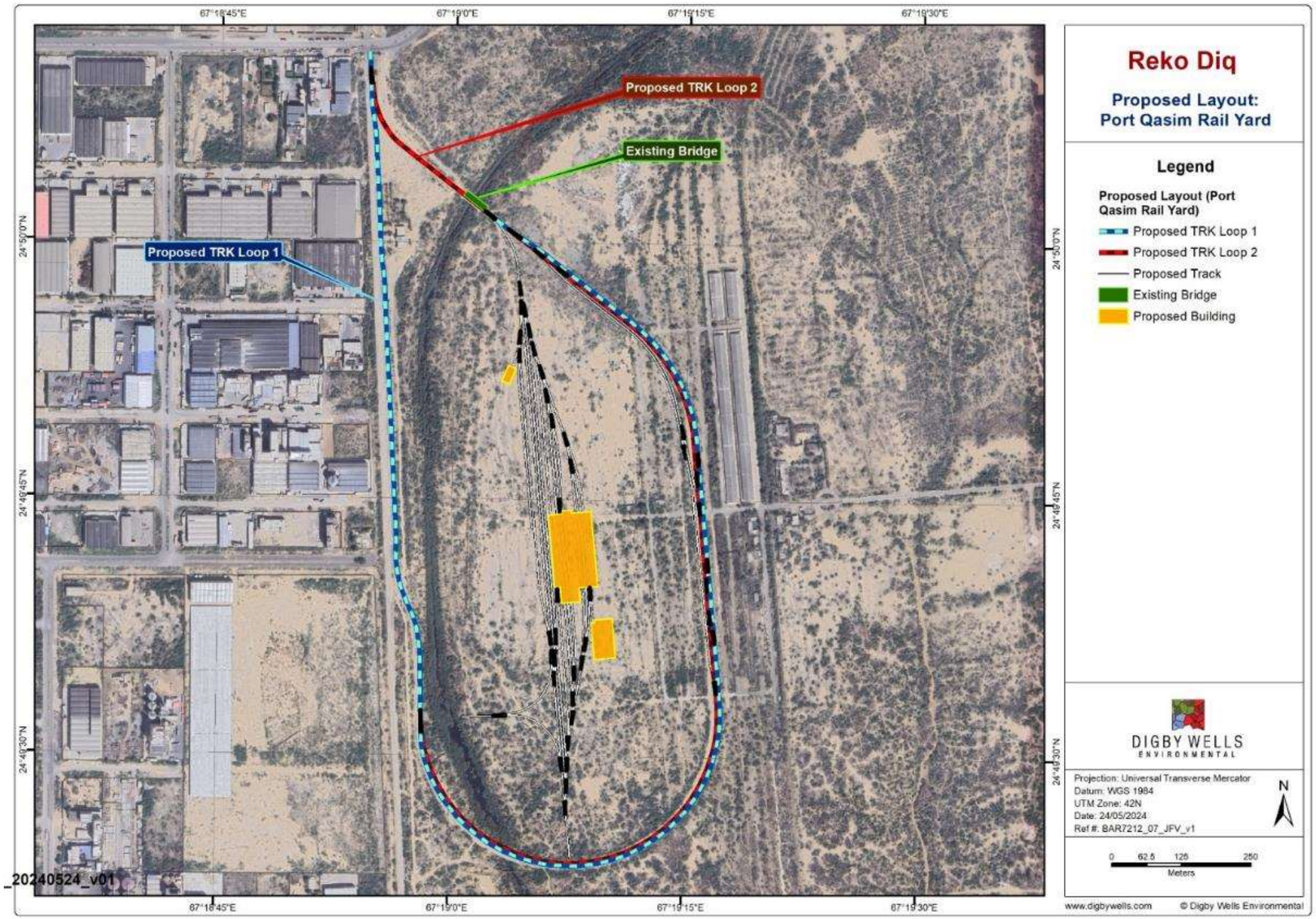


Figure 2-3: Proposed Rail Yard Layout at Port Qasim

2.3. Port Qasim

Port Qasim is under the administrative control of the Secretary to the Government of Pakistan for Maritime Affairs and operated by Port Qasim Authority (PQA) and handles more than 40% of all Pakistan's cargo in and out of the country.

The Project will make use of the existing PIBT, where all facilities are owned and operated by PIBT. An area will be leased to RDMC for the construction of a storage shed, for which RDMC will be responsible and all other activities will be ancillary and operated by PIBT.

Accordingly, the PIBT approved ESIA by EMC (2011) and associated plans will continue to guide the PIBT operations while used for the handling and exporting of the concentrate. The construction and operation of the concentrate storage shed will be the responsibility of RDMC.

A study was carried out by PRDW Consulting Engineers (2024) to evaluate the existing infrastructure and new requirements for the export of the concentrate using the PIBT terminal. PIBT includes access via a 45 km long navigation channel providing safe and convenient passage for vessels. The Terminal has a built capacity for handling up to 12 Mt of coal and 4 Mt of cement and clinker per annum, which together can be further enhanced to ramp up to 20 Mt of bulk product export per year. For this reason, there will be no need for additional port infrastructure to facilitate the requirements of the Project.

The terminal has three onshore product storage areas called Alpha, Bravo and Charlie yards (from west to east) and provides a mechanised material conveying system with a marine jetty including two dedicated berths.

The following is a general description of the existing PIBT facilities that will be used for concentrate loading:

- Existing berth consisting of a concrete platform supported on metal piles spanning approximately 460 m x 35 m, allowing two berthing sites for vessels that can operate simultaneously. The terminal is capable of accommodating Handymax vessels of approximately 60,000 Dead Weight Tonnage (DWT).
- Mechanical equipment consisting of a travelling shiploader for loading, and two gantry cranes for unloading. At the rear, two conveyor belts, one above the other, which can currently transport product to the shiploader and from the cranes.
- No major modifications to the existing berth are required, as the equipment and infrastructure is designed to receive the same vessels expected to load the concentrate.

Some new facilities will be constructed at PIBT for the handling and storage of the concentrate and will be projected northeast of the terminal in the Charlie yard: an administration building, a concentrate storage shed, truck unloading building, roads, maintenance workshop, entrance and exit gates, truck scales and product handling conveyors and the connection to existing conveyors for transfer of the product to vessels. These new facilities will be owned and operated by RDMC and as such, are classed as *Project facilities*, all other infrastructure at PIBT is not exclusively dependent on the Project and not classed as an associated facility.

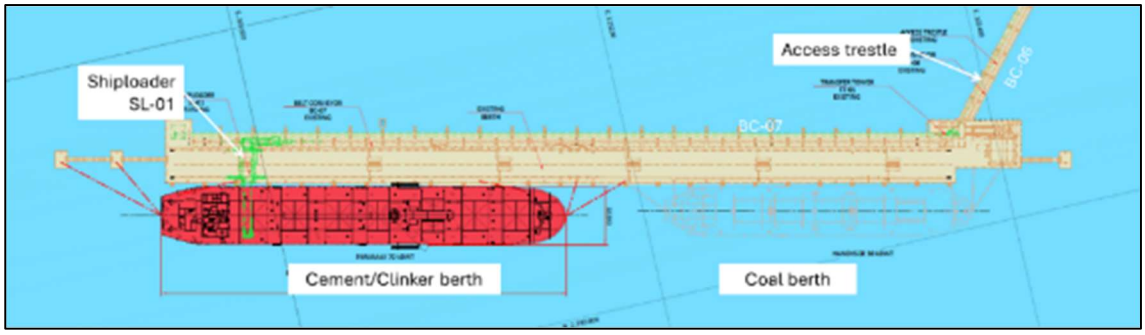


Figure 2-4: Layout of existing PIBT berths

An extract of the onshore and offshore layout is shown in Figure 2-4 and Figure 2-5.

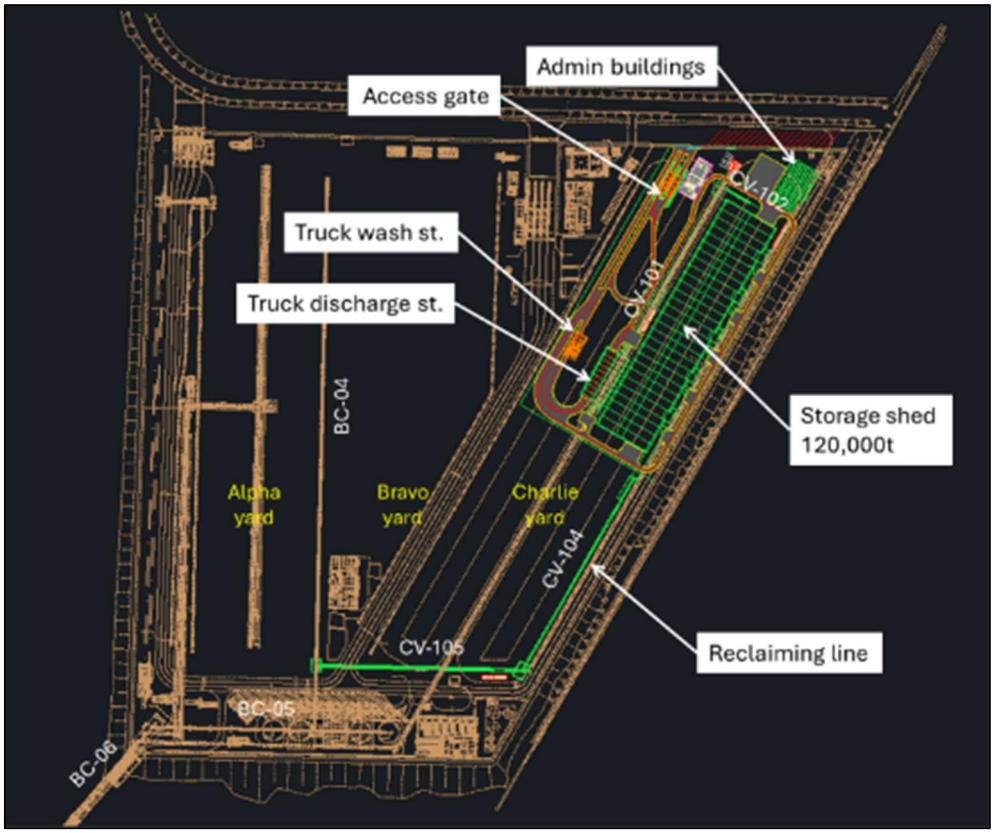


Figure 2-5: Layout of Concentrate Facilities at PIBT at Port Qasim

2.3.1. Port Qasim Processes

There will be several steps in the processing of the concentrate when arriving at the Port, with a separation of responsibilities between RDMC and the management of the PIBT.

- Truck discharge station:

Trucks will enter the terminal through a dedicated and independent access gate separate from the current terminal entrances, where trucks will be controlled upon entry, weighed using a weighing bridge, and then directed to the truck unloading station.

The containers will be lifted by two overhead cranes that will unload the concentrate into the receiving hoppers. There will be capacity to discharge two trucks simultaneously, thereafter the empty containers will be returned to the trucks, which will proceed to the exit gate, where again their weight will be checked before authorisation to return to the marshalling yard.

- Concentrate storage:

The concentrate will be conveyed from the hoppers to the concentrate storage building, a steel structure with a footprint of 225 x 50 m and is designed to protect the concentrate against weather conditions such as wind and rain.

The concentrate storage building is a portal frame structure with pitched rafters that form a triangular shaped roof that provides an unobstructed clear span without the need for internal bracing or columns. The frame span has a length of 48.60 m and the height of the building is 31.60 m. The frames are positioned at an interval of 8.0 m from each other and the structure is covered with lightweight steel sheets that are fastened to purlins supported on rafters. The rafters rest on top of concrete columns, which are connected by a retaining wall; this vertical wall acts as a barrier to hold copper concentrate in place. Additionally, the concentrate rests on top of the reinforced concrete slab in tandem with the retaining wall, providing a confinement for the concentrate.

The concentrate storage building features a tripper conveyor belt system that distributes copper across the storage floor. The front end loaders pick up the concentrate and transfer it to the hoppers for transportation through a tunnel. The tunnel is a structure that is constructed from rectangular concrete segments. These segments are arranged in a way that forms a tunnel with a width of 5.0 m and a height of 4.5 m. The tunnel's walls, floor, and ceiling are made of reinforced concrete. where the hoppers are located, the height of the tunnel increases to 7.5 m. This increase in height allows for the installation of hoppers or other equipment for the export of copper. Figure 2-6 illustrates the storage shed design.

Figure 2-6: Storage Shed Design

It is anticipated that the storage shed will likely be constructed in two phases. Phase 1 will provide the storage space for 60,000 tons and the building will then be expanded for Phase 2 for a final storage capacity of 120,000 tonnes. The Figure 2-7 below illustrates the phased approach and what areas constitute Phase 1 and Phase 2 of the storage shed. All layer works will be completed during Phase 1 so the expansion of the storage shed is the only activity for Phase 2 development.

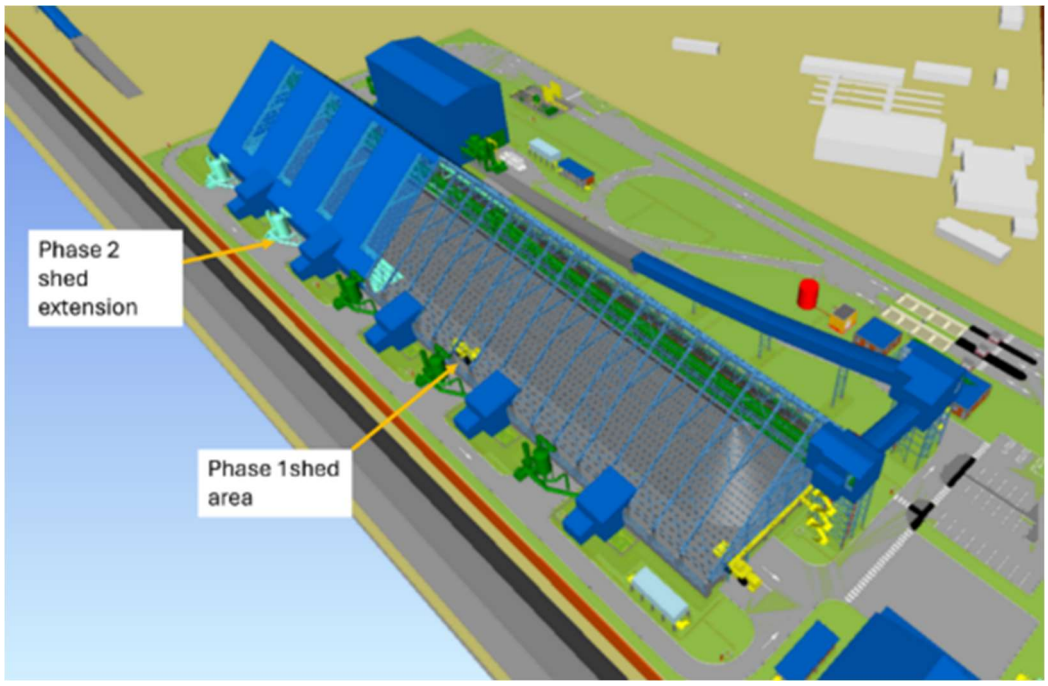


Figure 2-7: Model extract showing development phasing of the concentrate shed

- Transfer by conveyor to loading facility:

The concentrate will be stored until ready for loading, where Font-end loaders will operate with five hoppers and belt feeders to receive the material during loading. Once a ship is moored and ready for the loading operation, the export system will be activated, consisting of the concentrate reclaiming line inside the storage shed, which will deliver the material to the conveyor belts, and two transfer towers, connecting to the existing terminal loading line, a series of conveyor belts, which will feed into the existing ship loader.

- Ship loading:

The existing ship loader is of the travelling type, i.e. it moves longitudinally across the offshore platform and presents a nominal loading capacity of 1,200 t/h. It also has dust control systems, a telescopic chute for loading the product into the ship's hold. It is anticipated that the telescopic chute will be replaced by a new multi-purpose loading chute suitable for export of concentrate.

Minor adjustments are foreseen to be made along the loading conveyor. Nevertheless, the bulk export system is considered to be fully suitable for concentrate shipments.

2.3.1.1. *Concentrate handover point at PIBT export conveyor*

The battery limit for the RDMC concentrate export conveyor system terminates at a handover point located at the existing belt conveyor BC-04 (Figure 2-8). Material from belt conveyor CV-105 will be dropped via a new chute located at transfer tower TR-104 as depicted in the image below. The connection requires intervention of a segment of BC-04 conveyor to make space for the new transfer tower.

It is assumed that PIBT will maintain BC-04 operational as there is no intent to demolish or decommission this system at this stage. This solution also provides flexibility to material stockpiled at Bravo yard to be transferred to the jetty via this conveyor in future.

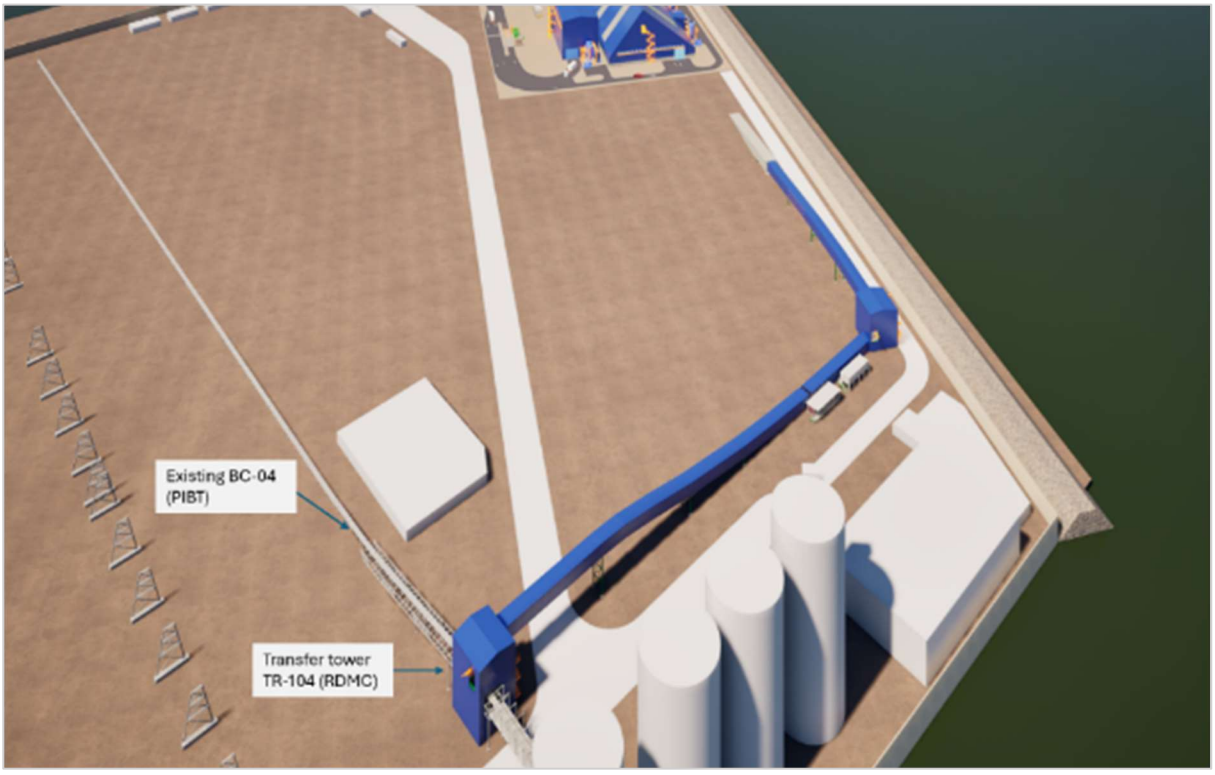


Figure 2-8: Location of transfer of concentrate from RDMC facility to PIBT export conveyor system

3. Methodology

To assess the significance of the associated potential biodiversity-related sensitivities, it is important to define the ecologically appropriate boundaries of the study area to contextualise the scale and magnitude of the overall Project and its activities.

The following sections briefly present the rationale for defining the Project AoI and EAAAs, which provide a foundation for characterising the habitat condition and determining the presence of critical habitat.

3.1. Project Area of Influence

As defined in Paragraph 8 of IFC PS1, the Project's AoI encompasses the following, as appropriate:

- "*The area likely to be affected by: (i) the project and the client's activities and facilities that are directly owned, operated or managed (including by contractors) and that are a component of the project; (ii) impacts from unplanned but predictable developments caused by the project that may occur later or at a different location; or (iii) indirect project impacts on biodiversity or on ecosystem services upon which Affected Communities' livelihoods are dependent.*
- *Associated facilities, which are facilities that are funded as part of the project and that would not have been constructed or expanded if the project did not exist and without which the project would not be viable.*
- *Cumulative impacts that result from the incremental impact, on areas or resources used or directly impacted by the project, from other existing, planned or reasonably defined developments at the time of the risks and impacts identification process is conducted."*

Guidance by the United Nations Environmental Programme World Conservation Monitoring Centre (UNEP-WCMC) technical briefing indicates that a buffer of 10 km around mine infrastructure within a terrestrial setting is likely to cover the majority of the direct impacts emanating from the project (UNEP-WCMC 2021). This is suggested as a minimum starting point before screening and undertaking further assessments. The average direct impact influence extends differently according to the nature and/or pressures upon the environment (e.g.; the average seawater pollution impacts extend ~6.2 km, while linear infrastructure impacts can extend ~1.3 km), but this is largely dependent on the proposed activities and the current state of the landscape.

The average estimate of extent of direct impacts can stretch further, including up to 70 km through deforestation. However, the average distance that direct impacts extend changes according to the biomes. In deserts and xeric shrublands, the average distance is estimated at 2 km, while the average direct impacts within a tropical forest can extend up to 70 km through deforestation. However, indirect impacts, which are harder to define, extend further

than direct impacts through increasing access to habitats, creating population influx and increasing viability of other economic activity (UNEP-WCMC 2022).

3.1.1. Reko Diq Mine Site

The Mine Site's infrastructure, including a water supply pipeline from the northern groundwater system to the north-west and an access road linking up to the N-40 regional route, will be newly constructed as part of the early works (refer to Section 2.1).

A **Project AoI of 10 km** was proposed for the Mine Site, considering its location in a desert and xeric shrubland biome and any indirect impacts that may arise from the Project.

3.1.2. Associated Export Facilities (incl. Transport Corridor/s and Port Qasim)

Considering the aforementioned project component, the associated facilities that will be required to ensure the realisation of the project is the upgrade and maintenance of the Road Transport Route and the Railway Transport Route to Port Qasim, which will be vital for the export of concentrate as the raw commodity produced and integral for bringing in equipment, materials, and supplies.

It is important to acknowledge that both the road (excluding the access road linking up to the N-40 regional route) and the railway toward Quetta and then south to Port Qasim are already established and in-place, which allude to the fact that existing impacts are already present within the landscape. Consequently, the potential cumulative effects associated with the necessary upgrades and maintenance along the Transport Corridor/s and/or at the rail yard near Port Qasim[7] are expected to be negligible, as no material changes to the design of the existing infrastructure is proposed.

3.1.2.1. Road and Railway Transport Corridor/s

The transport route consists of a road and railway that connects the Reko Diq Mine Site to Port Qasim via Nok Kundi. Considering the low potential cumulative effect associated with the proposed activities along this part of the Project, **an AoI of 1 km has been allocated** due to the limited potential biodiversity-related risks associated with the Project Design. This is further aligned with the aforementioned recommended buffer distances associated with the recommended direct impact influence/s.

For the purposes of the assessment, the Road and Rail Transport Route will be considered as a single set/s of linear infrastructure, as it is anticipated that both these alternatives will be considered (or required) to ensure supply and export of equipment and/or products, respectively. In addition, the larger area/s used in the calculations demonstrates a pre-cautionary approach to ensuring the potential impact upon significant biodiversity values,

[7] It is noted the proposed lease for the construction of a Storage Shed at the Pakistan International Bulk Terminal (PIBT) at Port Qasim will fall under the administrative jurisdiction of the Secretary to the Government of Pakistan for Maritime Affairs and operated by the Port Qasim Authority (PQA). As per the PIBT approved ESIA by EMC (2011), the existing operational management plans will continue to guide the PIBT operations, and used for the handling and exporting of the concentrate. Therefore, the liability for any potential impact upon the marine environment is already assessed under the IFC's approval for the PIBT Coal Terminal and as such, the marine ecosystem was not considered for the critical habitat assessment.

especially as part of a screening assessment process to assess for potential candidate critical habitat triggers.

Should significant upgrades be required along the route/s, which may trigger a more in-depth study, this will need to be re-assessed in terms of habitat characterisation and identification of other biodiversity-related sensitivities (including an overlap with Protected Areas and other Internationally Recognised Areas of biodiversity importance).

3.1.2.2. Port Qasim

The RDMC will be responsible for the construction and operation of the concentrate storage shed at Port Qasim, which will be located in the existing PIBT facility (Section 2.3). The RDMC will be responsible for the construction and operation of the storage shed, but all other activities will be ancillary and operated by the PIBT (including material handling and export). A **separate study was undertaken for this facility** (PIBT 2011) and was aligned with IFC standards. For more information on the facility, refer to the ESIA (PIBT 2011).

Although there is a negligible possibility of the concentrate spilling during transport from the rail yard to the storage shed, as the concentrate will be transported in sealed containers, it is recognised that the management measures and liabilities associated with the IFC-level permitting process for the PIBT facility will remain applicable.

Given that the average extent of infrastructure impacts is 1.3 km and that the infrastructure is located in an urban environment with extensive built-up areas, **an AoI of 1 km was assigned for the rail yard and the area surrounding the PIBT facility**.

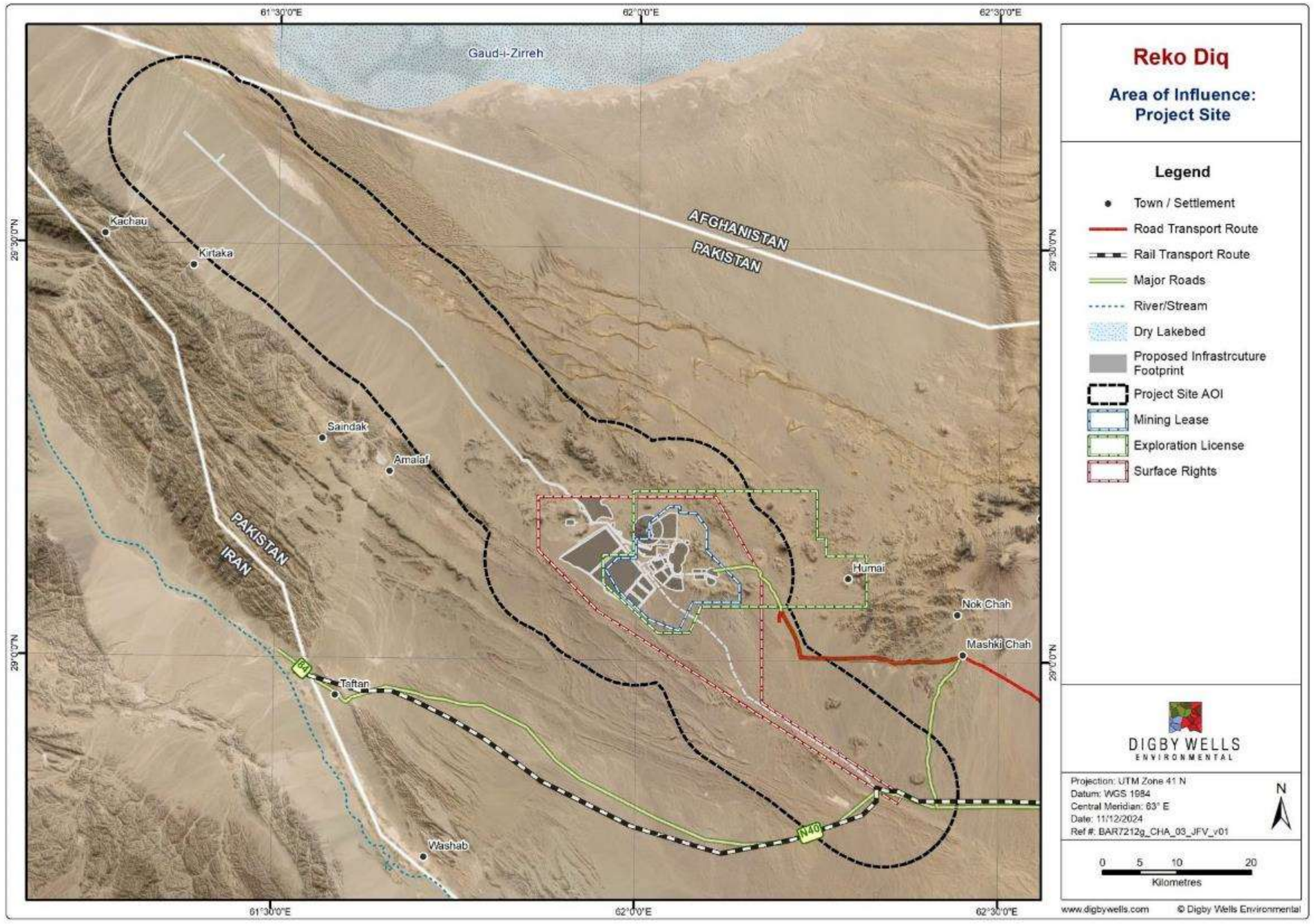


Figure 3-1: Reko Diq Mine Project AoI

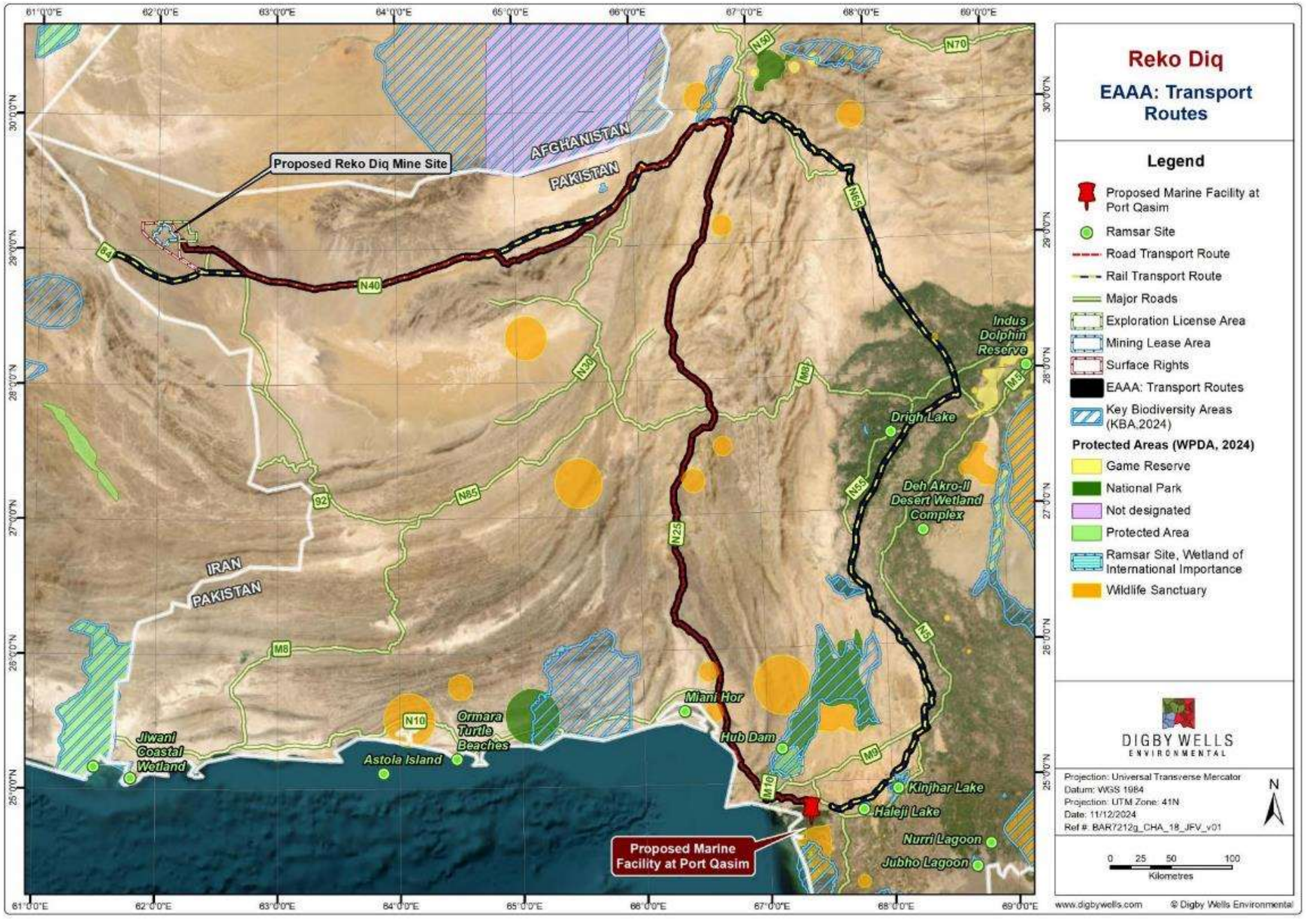


Figure 3-2: Road and Rail Transport Corridors AoI, showing nearby protected areas and other internationally recognised area of biodiversity importance

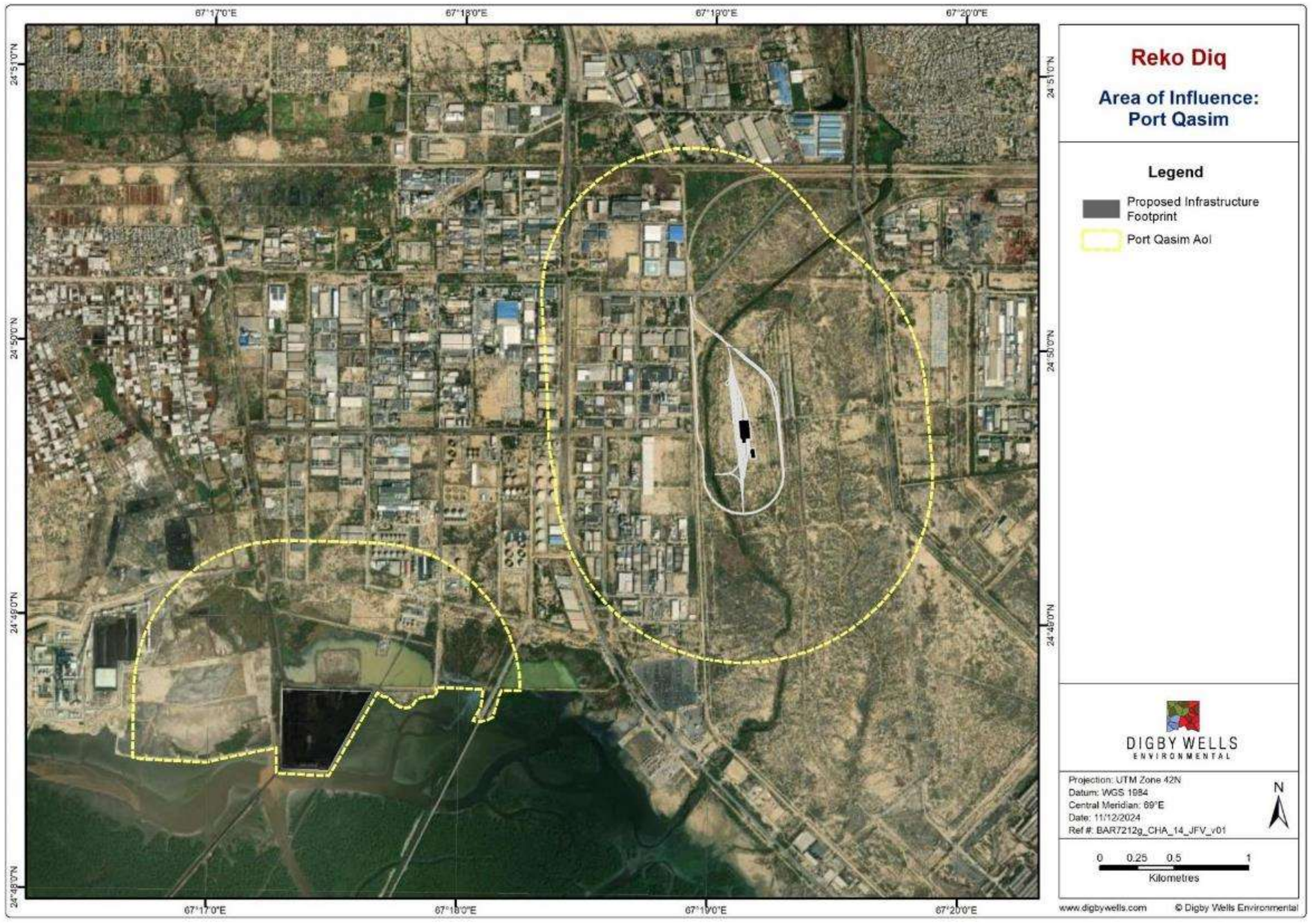


Figure 3-3: Project AoI within the Port Qasim, including the rail yard and the PIBT terminal

3.1.3. Ecologically Appropriate Area of Analysis

As per Clause GN59 of the IFC Guidance Note 6, "*an ecologically appropriate area of analysis should be identified to determine the presence of critical habitat*." In defining the boundaries of this area, in reference to catchment, large rivers, or geological features, it is important to account for "*the distribution of species or ecosystems and ecological patterns (within and sometimes extending beyond the project's area of influence), processes, features, and functions that are necessary for maintaining them"*.

Establishing an EAAA, or several EAAAs, requires at least a conceptual understanding of the biodiversity present in the Project AoIs, including the bioregional context, affected ecosystems and/or resident species. In carrying out other aspects of the assessment, including the desktop-based screening component (Section 3.2) and initial steps of the assessment of natural, modified and critical habitat (Section 3.3), and gaining a better understanding of the biodiversity present, the EAAAs were then delineated for each respective species (or group of species) and/or ecosystems.

The general approach of the EAAA methodology is described in Appendix A, while species-specific methodology for the Goitered Gazelle EAAA and Alcock's Toad-headed Agama EAAA are shown in respective appendices of this memorandum. The EAAAs for the Project area are shown in the Table 3-1 and presented in Figure 3-4, Figure 3-5, Figure 3-6, Figure 3-7, Figure 3-8 and Figure 3-10.

Table 3-1: Ecological Areas of Analysis for the Reko Diq Mine Project, including the Mine site, Transport Route areas and the Port Qasim site.

EAAA	Brief Description	Taxons Included	Surface Area (km²)
Mine Site			
Project Area of Influence	**Proposed Project Layout with a 10 km buffer**	**-**	**3 289.84**
EAAA 20	An EAAA (20 km buffer) that makes provision for smaller mammals, non-migratory birds and reptiles that don't move large distances.	Non-migratory birds, mammals and reptiles, including sand cat, Afghan urial and marbled polecat.	6 930.65
EAAA 50	A larger EAAA (50 km buffer distance) that makes provision for larger species with more extensive habitat requirements and migratory needs.	Migratory Birds, incl. Asian houbara, eastern imperial eagle, steppe eagle, Egyptian vulture,	21 493.01
Goitered Gazelle EAAA	Informed by estimated distribution of the Goitered Gazelle within the region, as well as potential movements to the south (incl. 50 km buffer from AoI).	*Gazella subgutturosa* (Goitered Gazelle)	61 441.71
Alcock's Toad-headed Agama EAAA	An EAAA equal to the species estimated distribution, including observation records and survey data.	*Phrynocephalus euptilopus (*Alcock's Toad-headed Agama)	37 232.86
Transport Corridor/s (incl. Road and Rail Transport Routes)			
Project Area of Influence	**Proposed Project Layout with a 1 km buffer**	**-**	**4 669.43**
EAAA Transport Route	A 1 km EAAA that applies to terrestrial species (incl. birds). This EAAA is equal to the AoI.	Terrestrial organisms[8]	4 669.43
Baloch Green Toad EAAA	Informed by the known species distribution and GBIF record of the species. This EAAA considers a possible distribution of the species.	*Bufotes zugmayeri* (Baloch Green Toad EAAA)	40 840.10
Port Qasim			
Project Area of Influence	**Proposed Project Layout with a 1 km buffer**	**-**	**10.15**
EAAA Port Qasim	A 5 km EAAA that applies to terrestrial species.	Terrestrial organisms[9]	90.69
Marine EAAA	No EAAA deemed necessary for the marine ecosystem due to the existing management plans in place under the PIBT authorisation and permitting.	Marine / Epipelagic organisms	-

[8] Considering the extent of the Transport Corridor/s, as well as the already established nature of the linear infrastructure, this AoI/EAAA was considered more for the purposes of screening for significance biodiversity values that may require additional attention and/or support in terms of biodiversity risk management. Should the proposed activities (including proposed upgrades and expansion activities) become more substantial in terms of altering a route or materially expanding the footprint, there may be need to re-evaluate the significance of potential biodiversity values.
[9] Considering the extensive transformation of the Port Qasim area through industrial development, urbanisations, and other anthropogenic activities, the purpose of the AoI was to assess for any significant biodiversity value that may warrant additional focus during the proposed management plans, which are already addressed under the liabilities of the PIBT management plans.

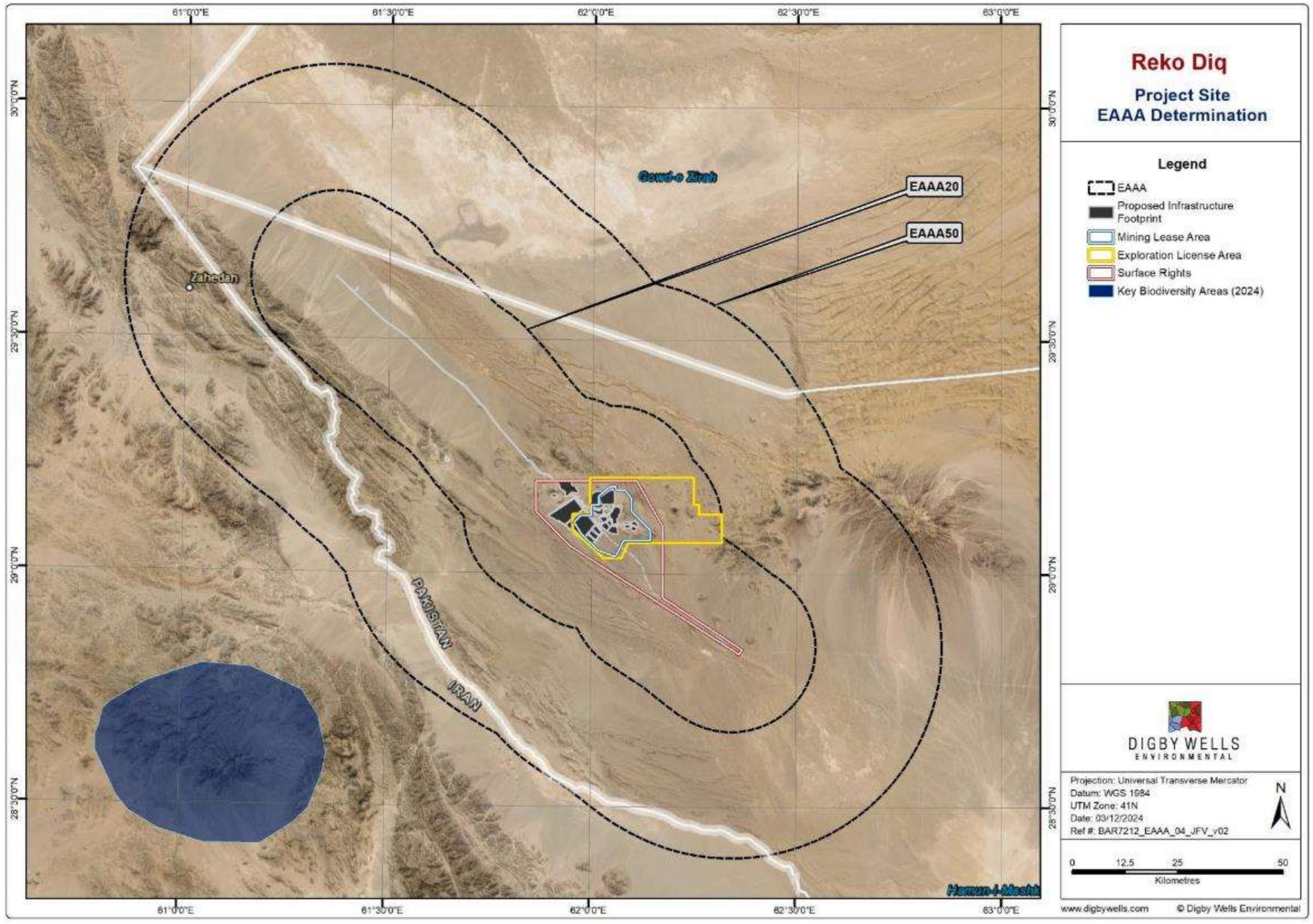


Figure 3-4: Buffered Ecologically Appropriate Areas of Analysis for the Mine Site

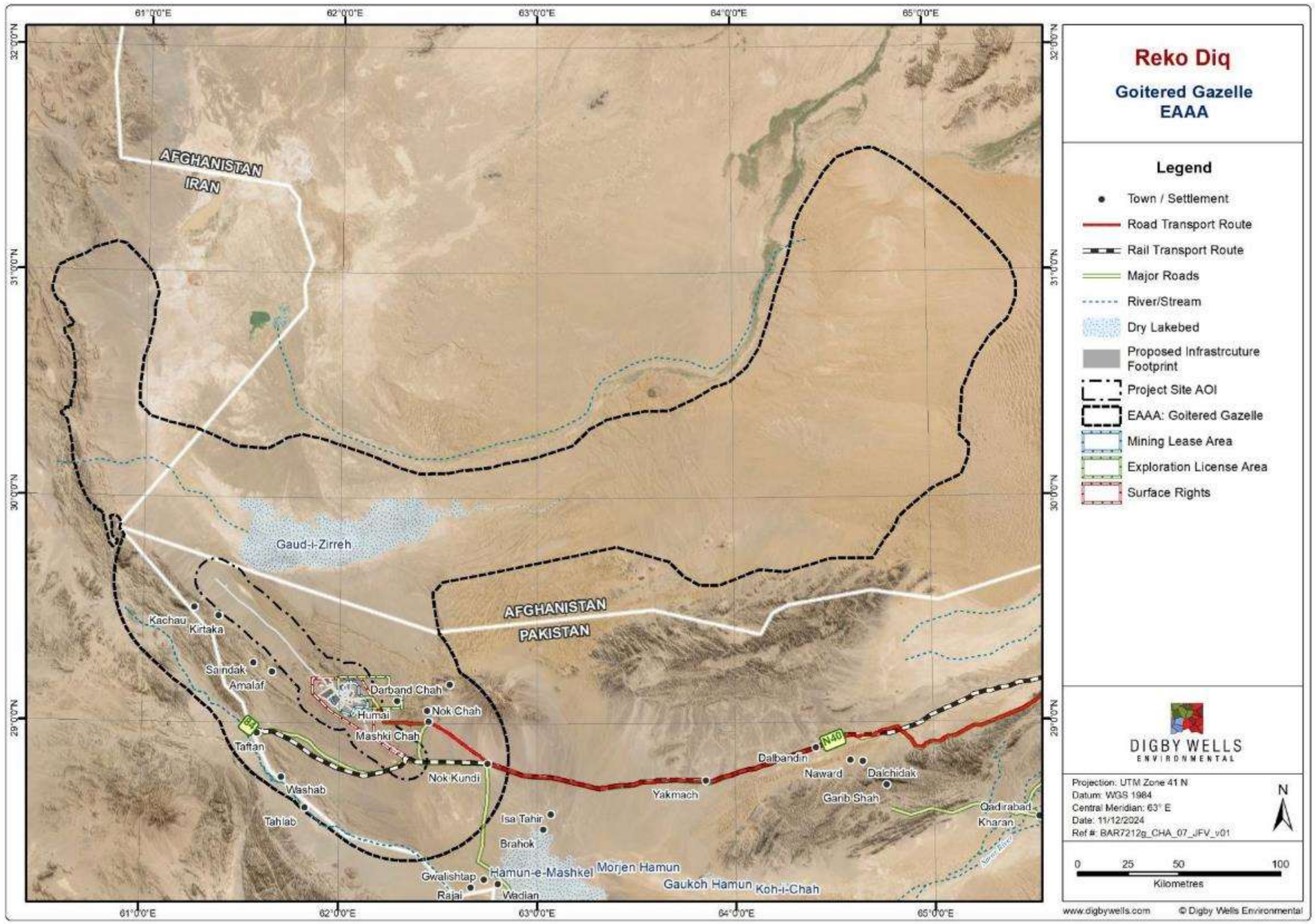


Figure 3-5: Ecologically Appropriate Area of Analysis for the Goitered Gazelle

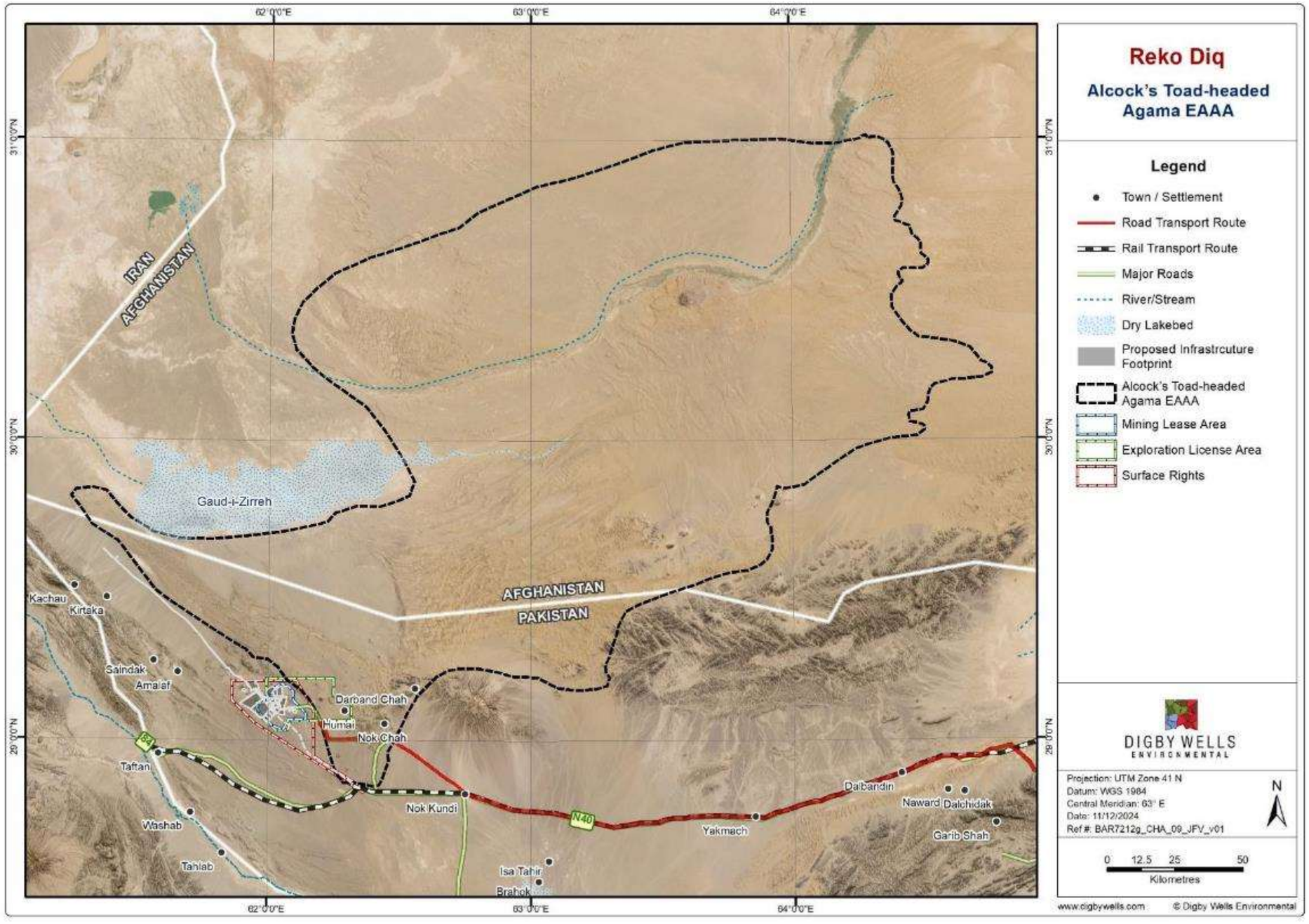


Figure 3-6: Ecologically Appropriate Area of Analysis for the Alcock's Toad-headed Agama

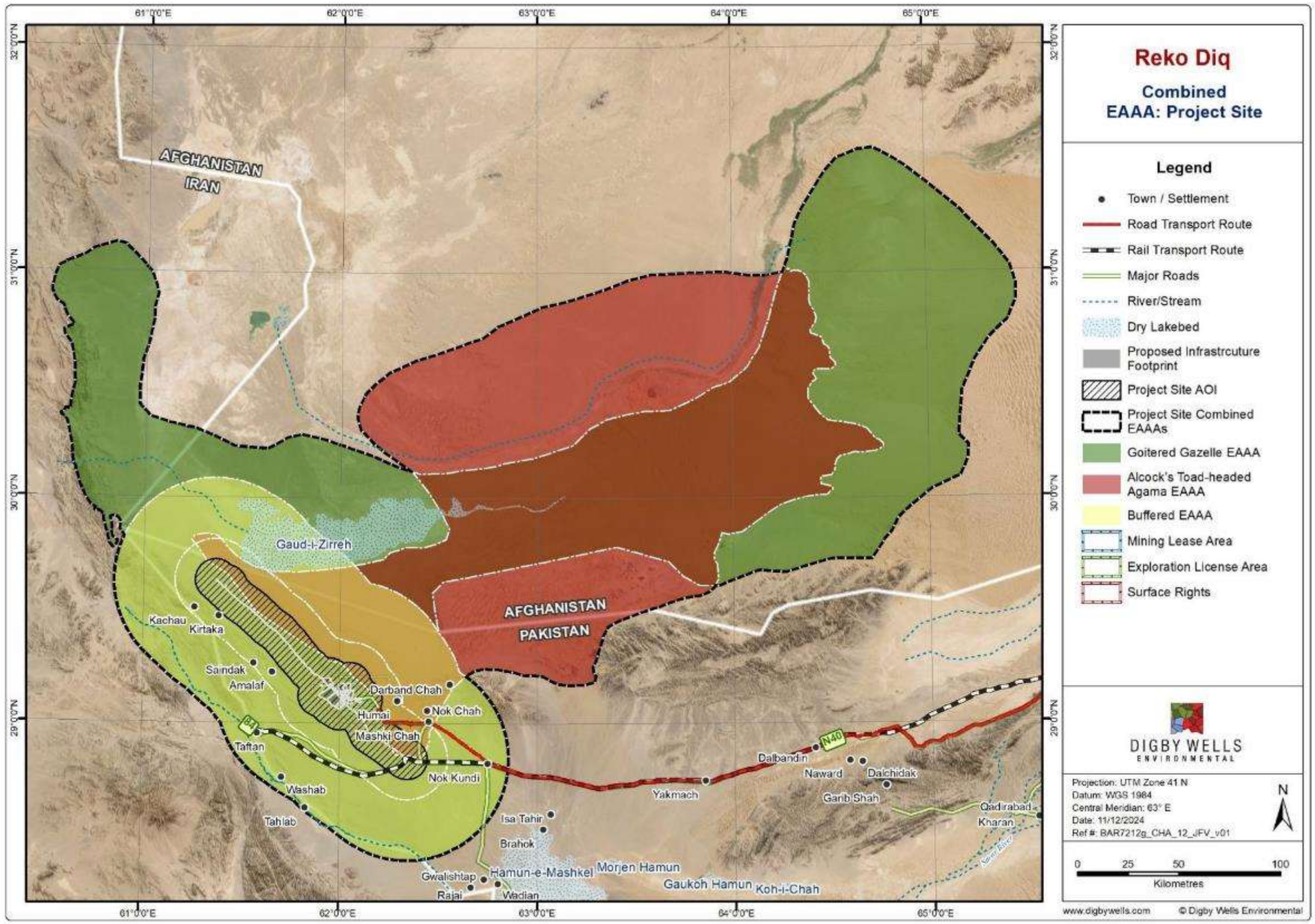


Figure 3-7: All Ecologically Appropriate Areas of Analysis for the mine site

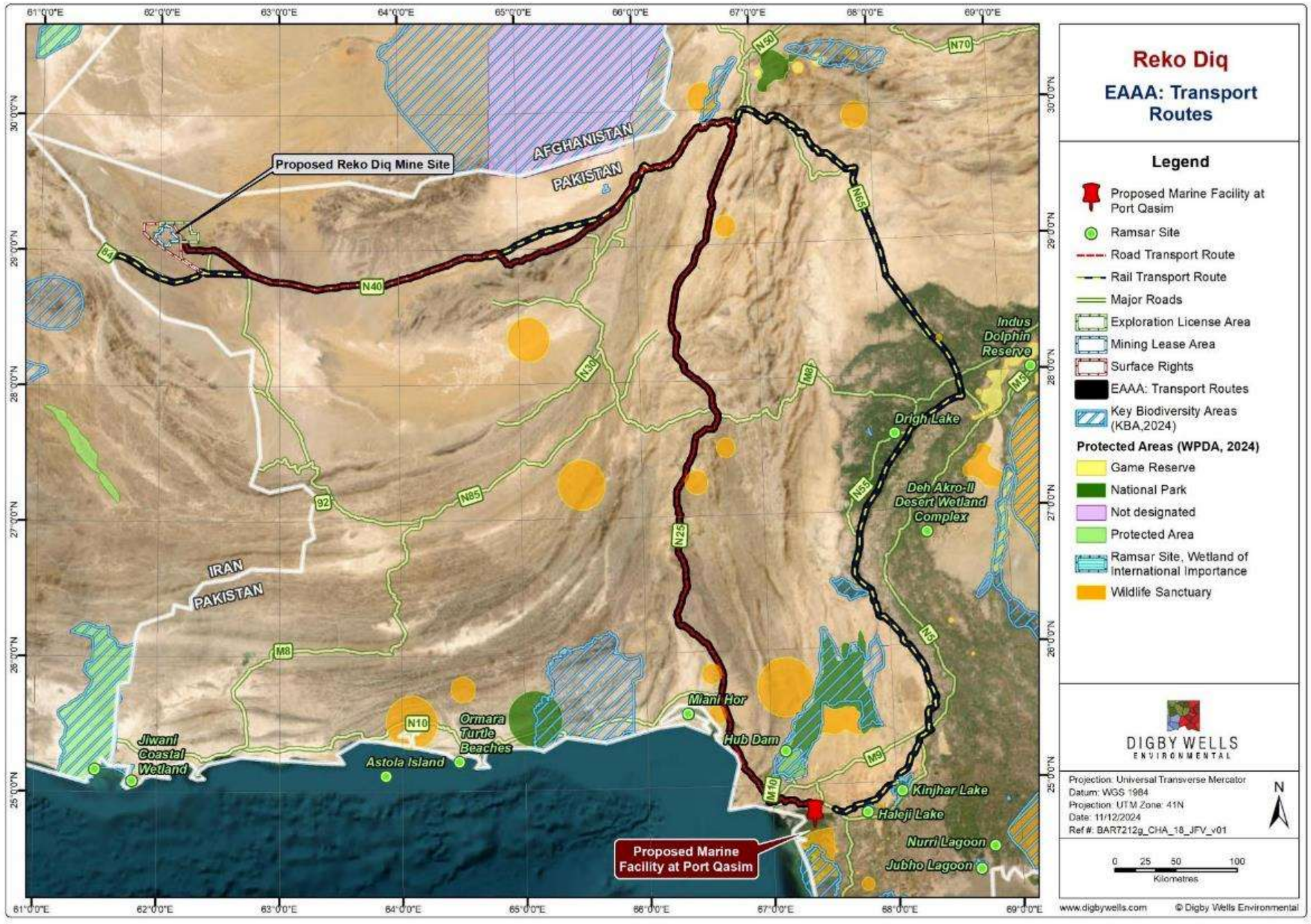


Figure 3-8: Ecologically Appropriate Areas of Analysis for the road and rail in the transport route. A buffer of 1 km was used around the infrastructure.

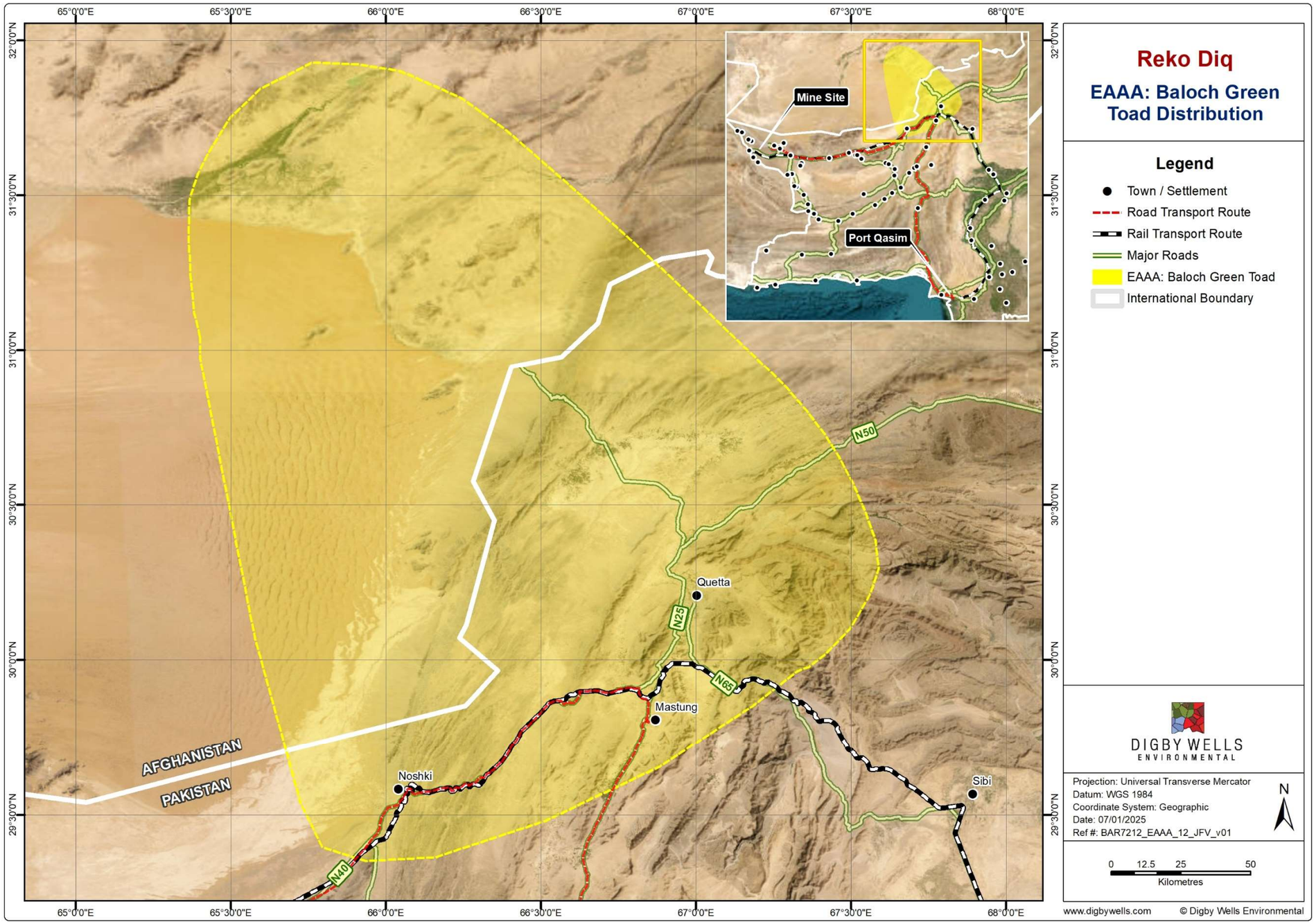


Figure 3-9: Ecologically Appropriate Areas of Analysis for the Baloch Green Toad for the road and rail in the transport route.

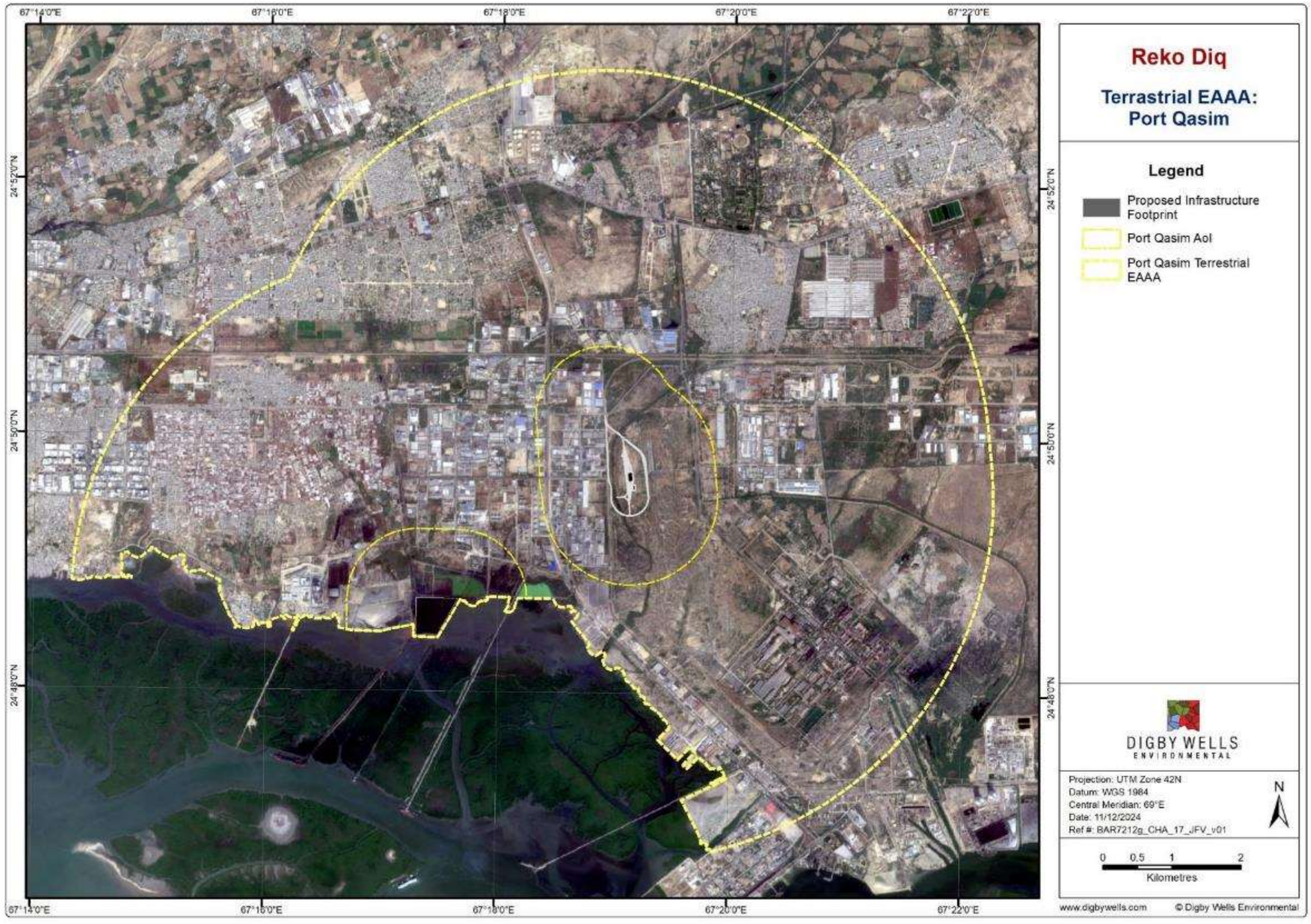


Figure 3-10: Ecologically Appropriate Area of Analysis for the Port Qasim site

3.2. Desktop-based Screening Assessment

Given the subjective nature of the interpretation process, two desktop-defined screening layers supported by the United Nations Environmental Programme: World Conservation Monitoring Centre (UNEP-WCMC) were reviewed to provide direction in terms of current perceived ecological conditions and functionality within the study area. These layers are used **to gain context** on biodiversity sensitivities, but their data, such as considerations around the presence of "*likely critical habitat*", are not considered final conclusions in the assessment process.

Both of these raster layers are broad-scale evaluations of land-cover data at a global level (i.e. low resolution), showing the potential presence of *natural* and *modified habitats*, as well as the potential presence of *critical habitat*.

3.2.1. Natural and Modified Habitat Screening Layer

This layer is derived from several underlying spatial layers that facilitate the classification of terrestrial habitat by considering intactness, land cover, and anthropogenic impacts in the form of infrastructure and community inhabitation (Gosling et al. 2020).

Each of these layers was merged into four binary layers:

- Likely natural,
- Potentially natural,
- Potentially modified, and
- Likely modified.

3.2.2. Critical Habitat Screening Layer

This layer is derived from up to twenty (20) global-scale spatial datasets, ranging from distribution data for the International Union for Conservation of Nature (IUCN) Red List of Threatened Species, World Database for Protected Areas (WDPA), World Database of Key Biodiversity Areas (KBAs), Alliance for Zero Extinction (AZE) sites, and various vulnerable species of conservation concern[10].

The screening layer classifies 1 x 1 km^2 raster pixels into '**likely' and 'potential' Critical Habitat** within both the terrestrial (and marine) realms depending on the resolution and reliability of the datasets, as well as their alignment to the IFC PS6 criteria.

3.2.3. Legally Protected and Internationally Recognised Areas

Protected and internationally recognised areas have various levels of legal protection and conservation status attached with several management implications. Intact habitat is expected

[10] It should be noted that the data for this layer originates from 2017, which predates notable amendments made to GN6 in 2019, and the classification of Tier 1 and Tier 2 criteria is no longer applicable. This provides greater reason for relying on the more recent findings within the specialist studies and supporting literature reviews.

to support higher biodiversity richness and ecological importance of processes. A review was undertaken to assess the presence of legally protected habitats considered a priority for conservation, as well as internationally recognised areas (e.g. World Heritage Sites, Ramsar Sites, Man & Biosphere Reserves, or Key Biodiversity Areas) within the Project area. The IBAT tool was used to acquire data on any protected areas and/or internationally recognised areas of biodiversity importance (IBAT Alliance 2024).

3.2.3.1. Legally Protected Areas

Legally protected areas are established under local legislation and include a range of protection levels, such as national parks, game reserves, forest reserves, wildlife sanctuaries, community wildlife management areas and others (See Box 1 below). Protected areas were identified using IBAT (IBAT Alliance 2024).

Box 1: IUCN Protected Area Management Categories

The levels of protection offered to these areas differ widely, and as such, the IUCN has developed the following management categories, which define the types of land uses suitable within the area per management category:

- Category Ia: Strict Nature Reserve;
- Category Ib: Wilderness Area;
- Category II: National Park;
- Category III: Natural Monument or Feature;
- Category IV: Habitat/Species Management Area;
- Category V: Protected Landscape/ Seascape; and
- Category VI: Protected area with sustainable natural resource use.

3.2.3.2. Key Biodiversity Areas and Other Internationally Recognised Areas

KBAs are specific sites that have been identified as crucial for the conservation of biodiversity[11] (KBA, 2022). These areas are recognised for their significance in supporting and protecting rare, threatened, or endemic species, as well as critical habitats.

In addition to KBAs, other internationally recognised areas, including UNESCO World Heritage Sites, UNESCO Man and Biosphere Reserves, and Ramsar Sites, were investigated.

3.3. Assessment of Natural, Modified and Critical Habitat

Various information sources were used to inform the habitat characterisation assessment, especially in relation to the extensive criteria described for critical habitat, as per Guidance

[11] These sites are identified by the Key Biodiversity Areas Partnership, which includes BirdLife International, IUCN, American Bird Conservancy, Amphibian Survival Alliance, Conservation International, Critical Ecosystem Partnership Fund, Global Environment Facility, Re:wild, NatureServe, Rainforest Trust, Royal Society for the Protection of Birds, World Wildlife Fund and Wildlife Conservation Society.

Note 6 (2019). While presence/absence is a good initial indicator for the risk identification process, but it is more important to understand the reliance of selected species upon the habitat within the earmarked land portions for development.

Species occurrence information was acquired from the Reptile Database (Uetz et al. 2024), Avibase (Avibase 2024), Animal Diversity Web (Myers et al. 2024), and GBIF (GBIF 2024). The national threat statuses for mammal species was also acquired from the Red List of Pakistan's Mammals (Sheikh & Molur 2004) and indirectly through the IUCN through IBAT (IBAT Alliance 2024).

3.3.1. Identifying and Delineating Natural/Modified Habitats

In terms of IFC PS6, paragraph 9: *"Habitat is defined as a terrestrial, freshwater, or marine geographical unit or airway that supports assemblages of living organisms and their interactions with the non-living environment. For the purposes of implementation of this Performance Standard, habitats are divided into modified, natural, and critical. Critical habitats are a subset of modified or natural habitats."*

3.3.1.1. Definitions for Natural/Modified Habitats

Through the literature review and the baseline assessment process, the available habitat condition has been described and defined in terms of both quality, quantity, and perceived ecological condition, which is expected to act as a proxy for species diversity and ecological function within each of the assessed systems. As defined in PS6, the following definitions aim to provide local context and improve insights into the classification process:

> "11. **Modified habitats** are areas that may contain a large proportion of plant and/or animal species of non-native origin, and/or where human activity has substantially modified an area's primary ecological functions and species composition. Modified habitats may include areas managed for agriculture, forest plantations, reclaimed coastal zones, and reclaimed wetlands."

This is further supported by Clause GN35 of Guidance Note 6, which states: "*Human activity may modify the structure and composition of natural habitats to the degree that non-native species become dominant and/or the natural ecological functions of the habitat fundamentally change… There is a wide spectrum of modified habitats that includes agricultural areas, plantation forestry, and lands partially degraded by a range of other human interventions."* Other examples include (i) intensive use of provisioning ecosystem services, (ii) habitat fragmentation, (iii) deforestations, (iv) pollution, and (v) invasive alien species.

> "13. **Natural habitats** are areas composed of viable assemblages of plant and/or animal species of largely native origin, and/or where human activity has not essentially modified an area's primary ecological functions and species composition."

This is further supported by Clause GN39 of Guidance Note 6, which states: "*If the habitat still largely contains the principal characteristics and key elements of its native ecosystem(s), such as complexity, structure, and diversity, then it must be considered a natural habitat regardless*

of the presence of some invasive species, secondary forest, human habitation or other human-induced alteration." Therefore, natural habitats support a representative diversity of indigenous floral and faunal species, and/or primary ecological functions within the study area.

3.3.2. Defining Critical Habitat Conditions (or Significant Biodiversity Values)

In terms of biodiversity values, the determination of **Critical Habitat** follows the direction of IFC PS6 and the accompanying GN 6, as well as inferences from the Training Support Manual for World Bank Staff on PS6/ESS6 (Cauldwell 2021). The available information is used to identify interactions between the proposed development and possible/probable critical biodiversity areas. As per paragraph 16 of IFC PS6:

> "16. **Critical habitats** are areas with high biodiversity value, including (i) habitat of significant importance to Critically Endangered and/or Endangered species; (ii) habitat of significant importance to endemic and/or restricted-range species; (iii) habitat supporting globally significant concentrations of migratory species and/or congregatory species; (iv) highly threatened and/or unique ecosystems; and/or (v) areas associated with key evolutionary processes."

In considering the criteria listed in the above paragraph, significant biodiversity values will be assessed in relation to their stipulated threshold values to determine the potential presence of critical habitat. The thresholds of Criteria 1 to 3 are linked to the population numbers and reproductive units of the species. However, this information is seldom available online, and specialist surveys do not necessarily assess the abundance of species present within the study area. Therefore, the Extent of Occurrence (EOO) and Area of Occupancy (AOO) may be used in place of population numbers in determining whether thresholds are exceeded and critical habitat is triggered (see Box 2 below). It is important to acknowledge that other recognised high biodiversity values can also be considered, as per Clause GN53 of the Guidance Note 6, but justification will need to be provided.

> "GN53. The critical habitat definition presented in paragraph 16 of Performance Standard 6 is in line with criteria captured from a range of definitions of priority habitat for biodiversity conservation in use by the conservation community and incorporated in related governmental legislation and regulations. Critical habitats are areas of **high biodiversity value** that include at least one or more of the five values specified in paragraph 16 of Performance Standard 6 **and/or other recognized high biodiversity** values. There is no one criterion that is more important than any other for making critical habitat designations or for determining compliance with Performance Standard 6.

Additionally, part of GN56 stipulates that "the thresholds are indicative and serve as a guideline for decision-making only. There is no universally accepted or automatic formula for making determinations on critical habitat. The involvement of external experts and project-specific assessments is of utmost importance, especially when data are limited (as will often be the case)". Therefore, there may be scenarios where biodiversity is motivated as triggering critical habitat, where thresholds are unmet.

Box 2: EOO, AOO and their use as proxies

As per the IUCN Red List Categories and Criteria Guidelines (IUCN Standards and Petitions Committee 2022), the EOO is a measure of the spread of areas occupied by the taxon. It is defined as "the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred or projected sites of present occurrence of a taxon, excluding cases of vagrancy."

In contrast, the AOO is a measure of the area of suitable habitat currently occupied by the taxon, which is generally smaller than the EOO due to the variable habitat cover across the landscape.

In the absence of population estimates in the EAAA, the EOO or AOO, if known, is used as a proxy of the **population**. Should the EOO and AOO overlap the EAAA of a species, then it is assumed that the EAAA can be taken as the percentage of a species' EOO or AOO supported by the EAAA.

The ecological context of each assessment is considered before it is decided whether the EOO or the AOO is used. In cases where the habitat is more similar, AOO is preferred, given that the EAAA supports the same habitat and AOO is a measure of the area that a species likely occupies. Where there are multiple habitat types, EOO is used instead. Additionally, EOO is used over AOO with regard to animal species that are habitat generalists, given that they can use (or occupy) a wider range of habitats. In contrast, AOO would have to be used over EOO with regard to certain plant species, given that they may have more specific habitat requirements.

3.3.2.1. Expert Consultations

Numerous external experts from various local organisations and species specialist groups have been consulted throughout the compilation process for the updated CHA (Table 3-2). These consultations have been undertaken where there is little information for candidate critical habitat trigger species and to understand what sensitive biodiversity may occur in the Project areas.

In addition to using EOO and AOO as proxies, expert consultations were undertaken to assess whether criteria thresholds were met. Experts were interviewed about the species distribution, habitat preferences, population trends and status, and the species' global and regional threat status.

Table 3-2: Specialist Groups, their representatives and the meeting dates set for consultations regarding potential critical habitat trigger species

Organisation/ Specialist Group	Representative/ Specialist Name	Meeting Date	Biodiversity Feature	Form of Communication	Brief Summary
Baluchistan Forest and Wildlife Department	Mr Abdul Wali (Secretary Forest and Wildlife); Mr Imran Khan (Government Employee)	*05-Oct-22*	Flora and Fauna	In person meeting in office of Secretary Forest and Wildlife	**Concerns:** The secretary Forest and Wildlife department informed that the Chagai District has limited biodiversity due to fewer rains and insisted for the support from RDMC to support the conservation under their Corporate Social Responsibility (CSR). **Recommendations**: • Emphasized the value of intact habitats and the need for their conservation. • Advocate for CSR support to strengthen conservation facilities and share survey findings for better ecosystem management.
Baluchistan Forest Department	Abdul Jabbar (Chief Conservator Baluchistan Forest Department)	*04-Sep-23*	Flora	In person meeting in the Serena Hotel, Quetta	**Concerns:** • Concerns about land use changes impacting the ecosystem and the area's current state. • Potential disruption of the Houbara Bustard's migration routes and challenges to its genetic adaptation. • Adverse effects on reptiles and rodent populations from project activities. • Need for careful management of local community expectations by involving them in project processes. • Addressing negative perceptions of developmental companies through social mobilization, capacity building, and community-beneficial actions. **Recommendations:** • Engagement of local community in project planning. • Preparation of Biodiversity Action Plan for wildlife protection and ecosystem balance • Monitoring program for Houbara Bustard to assess threats to this species[12]. • Collaboration with NGOs, local communities for Houbara conservation plan. • Implementation of an environmental education strategy to promote conservation awareness. • Utilize CSR funds effectively through organized local institutions or community organizations. • Provide education, health, and skills training while ensuring access to drinking water for local communities. • Develop a watershed management plan, including check dam construction and plantation activities, to enhance water resources and ecological balance.
Forest & Wildlife (F&WL) Department	Mr Ali Imran (Chief Conservator Forest Department); Mr Fawad (Conservator Forest Department)	*26-Jun-24*	Flora	In person meeting in Serena Hotel, Quetta	Following discussion on Biodiversity Management and Collaborative Efforts were held: • Presented the department's role and scope in forestry, wildlife, and community development. • Discussed initiatives like plantations and revegetation of barren areas using indigenous plants. • Highlighted efforts and projects aimed at ecosystem and biodiversity upliftment in the Chagai district. • HBP provided an overview of the methodology for developing the Biodiversity Management Plan (BMP). • Emphasized the importance of surveys to gather additional data for designing biodiversity offsets in areas similar to the proposed mine site. • RDMC and the F&WL Department agreed to collaborate on biodiversity management and mitigating the project's environmental impacts.
IUCN Otter Specialist Group	Muhammad Moazzam Khan	*02-Dec-24*	*Otter*	*Email; Video Call*	**Key Findings:** • Smooth-coated Otter is the only species in the lower Indus, limited to freshwater habitats. • No Otter presence in Port Qasim or marine environments. • Minimal Otter interaction is expected due to the Project's reliance on existing rail routes and environmental disturbances in the Sukkur area. **Conclusion:** • No significant Otter presence or impact is associated with the Project.
IUCN Pangolin Specialist Group	Dr Tariq Mahmood; Dr Faraz Akrim; Dr Muhammad Waseem	*02-Dec-24*	Pangolin	*Email; Video Call*	**Conclusion**: Following were the main conclusions of the consultation with the Pangolin working group. • Pangolins are reported in some areas along the transport route, such as Lasbella, Sibi, and Jacobabad, but no evidence or records indicate their presence near the Reko Diq Mine Site based on existing literature and IUCN distribution data. • Multiple surveys conducted over the past 15 years confirm the absence of pangolins in the Project Area. • Local communities in the vicinity also did not report the presence of the species. • The working group requested further information on survey details, including methodologies, study area, and recorded species, to provide more comprehensive input. • A summary of mammal surveys was shared with the group to provide context about habitat conditions and ecology. • The working group was supposed to review the provided summary and offer additional recommendations for incorporation into the baseline study. • They have been asked to identify potential impacts along the transport corridor due to increased traffic. • The working group has not provided any additional input based on the information provided.
IUCN SSC Antelope Specialist Group	Dr. David Mallon	*03-Dec-24*	Goitered Gazelle	Video Call	**Conclusion:** The consultation with Dr. Mallon regarding the Goitered Gazelle yielded the following main conclusions: • There is limited updated information on the status of the goitered gazelle in the Chagai District, but the population is believed to be small and not significant in terms of the global population; • The population in Pakistan forms part of a larger population in Iran and Afghanistan; • Fencelines along the Afghanistan and Iranian border could negatively impact the population of Goitered gazelle in Pakistan; • Additional fencelines along the rail corridor should be avoided as this could pose a barrier to goitered gazelle movements; and • Although goitered gazelle are likely to utilize a variety of habitat throughout the Chagai District, the rugged mountainous habitat along the Iran – Pakistan border provides the best refuge for goitered gazelle as they are more difficult to observe and pursue in this region.

[12] Refer to engagement with Birdlife International, as the Co-Chairpersons for the IUCN Species Survival Commission (SCC) Bustard Specialist Group in January 2025.

Organisation/ Specialist Group	Representative/ Specialist Name	Meeting Date	Biodiversity Feature	Form of Communication	Brief Summary
IUCN SSC Cat Specialist Group	Dr. Breitenmoser; Dr. Breitenmoser-Würsten	*10-Dec-24*	*Felis margarita* (Sand Cat)	Video Call	**Concerns** • There is scarce availability on data associated with the Sand Cat, its distribution, movements and ecological requirements and as such, there is a need to further investigate and confirm the resident presence of this species within the AoI. • Distinction between species such as *Felis sylvestris (*Asiatic Wild Cat*)* or the domesticated species is difficult and as such, future monitoring of populations is highly recommended and supported by targeting survey points and/or a thorough camera trap expedition. • The cryptic nature of the species and the fact that it has a highly fragmented distribution range suggests that it is unique within the Felid genus with wide-ranging habitat preferences and an adaptability to harsh and unfavourable environments. • Definitive evidence of camera trapping data is highly recommended and required in addition to genetic sampling to confirm the presence of this species within the AoI and the surrounding EAAA, but this will be undertaken outside of the current scope of works and as part of the future management plans.
Pakistan Museum of Natural History (PMNH)	Mr Muhammad Asif Khan; Dr Syed Aneel Gillani; Dr Mishkatullah; and Dr Rafaqat Masroor	*11-Dec-24*	Flora and Fauna	*Email; Video Call*	**Concerns:** • The Project area has very fragile ecosystem with species adapted to the extreme conditions. • Mangroves at Port Qasim are at high risk of to the Project activities • Baluchistan is important for mammals especially the rodents species, several fox species and sand cat. Asiatic Cheetah was only reported in the vicinity of the Project several years ago and current status is unknown • Several ungulates and the Asiatic Cheetah are the flagship species • The Project area is unexplored and no comprehensive studies conducted except those conducted for the Project • Road kill is expected to increase at Mine Site and along the Transport Route • Habitat modification and fragmentation are major threats for species survival while hunting is not as dangerous for the species survival • Nomadic community also rely on the scant resources in specific area who will be affected • In extreme dry conditions only few species of invertebrates survive like the beetles • There are only few rains which create an entire ecosystem, attracting the migratory birds in the dry lake beds. • Fencing along the Iran-Afghanistan borders has restricted the wildlife, however there are possibilities of the gene flow in few areas like nullahs • The amphibians have very uncertain presence at Reko Diq Mine Site given dry and hot conditions as they need water • Reptiles are diverse and abundant, well adapted and few are restricted range and endemic to the area • Reptiles are also most vulnerable group due to Project activities • Exotic rodent and non-native plant species can establish at the Project site due to increased traffic • The area has several medicinal plants as well Recommendations: Following recommendations were suggested; • Plantation in the potential sites with proper plan using the native species including the tree and shrubs since the shrubs are good binder to control the soil degradation. • Conservation measures are required for the species vulnerable to mining activities • BAP is compulsory to mitigate the negative impacts and conservation of unique biodiversity • Vehicle movement to be restricted to the designated routes • Both in-situ and ex-situ conservation measures are recommended for biodiversity conservation • New National Parks, Trans-Boundaries Reserves and Sanctuaries can be declared in the potential sites in consultation with Wildlife and Forest departments
Baluchistan Forest and Wildlife Department	Mr Sharifuddin Baloch (Chief Conservator Wildlife Baluchistan) Mr Ali Imran (Conservator Forest Baluchistan)	*11-Dec-24*	Flora and Fauna	*In person meeting in Serena Hotel, Quetta*	• The BFWD confirmed the notification of Saindak Community Game Reserve covering Tehsil Taftan. •The BFWD will share the details of Reserve Forests and Protected Forests in the area. • The BFWD mentioned the Kambran Wildlife Sanctuary and the Gut Wildlife Sanctuary, for which they will also provide the details including notifications. • HBP and RDMC provided a briefing on the key findings of ecological surveys, species of conservation concern identified, and rationale and approach for development of Biodiversity Action Pan (BAP) for the Project. • The BFWD recognized the importance of focusing the biodiversity conservation activities to distribution ranges of species of concern and their habitats. •The protected areas previously notified can be adjusted to reflect the habitat and species distribution assessment conducted by the Project as a part of the ESIA baselines. •Zoning of the protected area into core zone, conservation zone and buffer zones would be an appropriate strategy for conservation management. • The BFWD is open to discussions on formulation of protection strategies based on the data collected by the Project and will cooperate with the Project for the development of the BAP. The area of management for the BAP can also be defined accordingly. • Institutional arrangements for conservation will include representation from the Project and the local communities who will work with the BFWD for implementation of the BAP.

Organisation/ Specialist Group	Representative/ Specialist Name	Meeting Date	Biodiversity Feature	Form of Communication	Brief Summary
WWF Pakistan - Avifauna Specialist	Jamshed Iqbal Chaudhry	*12-Dec-24*	Avifauna	*Email; Video Call*	Discussion with the WWF Pakistan expert focused on the avifauna specifically the Asian Houbara Bustard and Egyptian Vulture which are the conservation concern species. Key concerns and recommendations are given below. **Concerns:** • Chagai host the wintering population of Asian Houbara Bustard however, there are very old literature records for its resident population in the Nag Valley which is far away from the Project site. • Nag Valley is still a favorable site for the breeding of this species given there is not higher hunting and trapping pressure. Hunting and trapping can results in the disappearance of the species and change in its feeding and breeding sites. • Wildlife Department has no census data for the Asian Houbara Bustard in Baluchistan. • Asian Houbara Bustard migrates in varying number of group sizes, it can be few specimens to hundreds • Birds have large home range so they can relocate and move to larger areas • Climate change is not an issue so far for the breeding and change in resident sites for this species as there is only slight change in temperature and this species has been observed in the Cholistan Desert in extreme hot conditions. • Major threat to Asian Houbara Bustard and other bird species in the area include the vehicle pollution, collision risk, reduction in food availability, hunting and trapping. • Both Asian Houbara Bustard and Egyptian Vulture are equally vulnerable to the transmission line. Especially the Egyptian Vulture construct nest at high poles and becomes a victim of electrocution. • Additional threats to the Egyptian Vultures and other raptors include the poisoning and use of Diclofenac, NSAIDs, pesticides. • Egyptian Vulture has no nesting and only the carcass population is observed in the area. **Recommendations**: Following recommendations were suggested; • Short term and long-term mitigation measures are suggested for the conservation of the Asian Houbara Bustard, Egyptian Vulture and other avifauna species. • Detailed assessment in the Nag Valley, if possible, to confirm the presence of the resident population of Asian Houbara Bustard in this area • Captive breeding of Asian Houbara Bustard is attempted, however, it is not encouraged for the conservation of this species • In-site conservation efforts including the awareness session, noise reduction, watch and ward programs, control of illegal hunting, waste management, proper monitoring, community campaigns, community leaders' engagement and plantation in the potential sites can be adopted for the long-term survival of this species. • Wintering population can be focused and spray of different seeds of the native species can be done in the potential sites. Special recommendations and mitigation measures including the change in the design of the poles and other set-up is required to mitigate the transmission line effects.
BirdLife International	Prof. Nigel Collar; Dr. Mimi Kessler	*07-Jan-25-*	Asian houbara bustard	Video Call	**Conclusions:** • A general opinion is that though there is uncertainty to the presence of a breeding population in the Project Area, it would be significant to the species if there was. At the time of the engagements, the only evidence of a breeding resident population within Baluchistan was known to be located outside of the Project Area of Influence further south of the Hamun-e-Mashkel area (Combreau et al. 2015). • Bustards are sensitive to powerlines. The **only effective mitigation measure** is for the powerline to be buried, as bird diverters placed on the powerlines are not proven to be an effective mitigation measure in area in terms of a collision risk. Other options can be considered, but require further investigation into their effectiveness (Silva et al. 2023). • There is little opportunity in terms of offsets for the species. • Evidence shows that the species is likely migrating across the pipeline and powerline area between Kazahkstan and Pakistan/Iran, but this relates to captive bred populations released in Kazahkstan and tracked in terms of movements as part of research being undertaken by International Fund for Houbara Conservation. • The species migrates at under 100m which is the issue. • Although a subpopulation of the species, if present in significant numbers, it will be at risk due to the project. However, it is unlikely that the Project will cause the species to increase in its global threat status and become EN or CR.

4. Findings for Reko Diq Mine Site and Ancillary Infrastructure

Both desktop-based screening tools and reviews of ecological survey information were considered in the assessment of sensitivities toward potential priority biodiversity values. As part of the process, the habitat within the

The assessment of critical habitat, specifically in terms of significant biodiversity values, as per the criteria defined in Guidance Note 6 for species and/or ecosystems, is discussed in Section 4.2.2.

4.1. Desktop-based Screening Assessment

Based on the natural and modified habitat screening data and the proposed location of the Project, the Mine Site area largely consists of *likely natural* habitat with some pockets of *potentially modified* habitat that is likely associated with road infrastructure in the greater region (Figure 4-1).

The spatial screening layer for determining the potential presence of critical habitat only indicates the presence of *potential critical habitat* and *likely critical habitat* in the surrounding region more than ~100 km away from the site (Figure 4-2). This data is noted to be at a low resolution and low confidence interval, so further information from site visits and desktop information is essential.

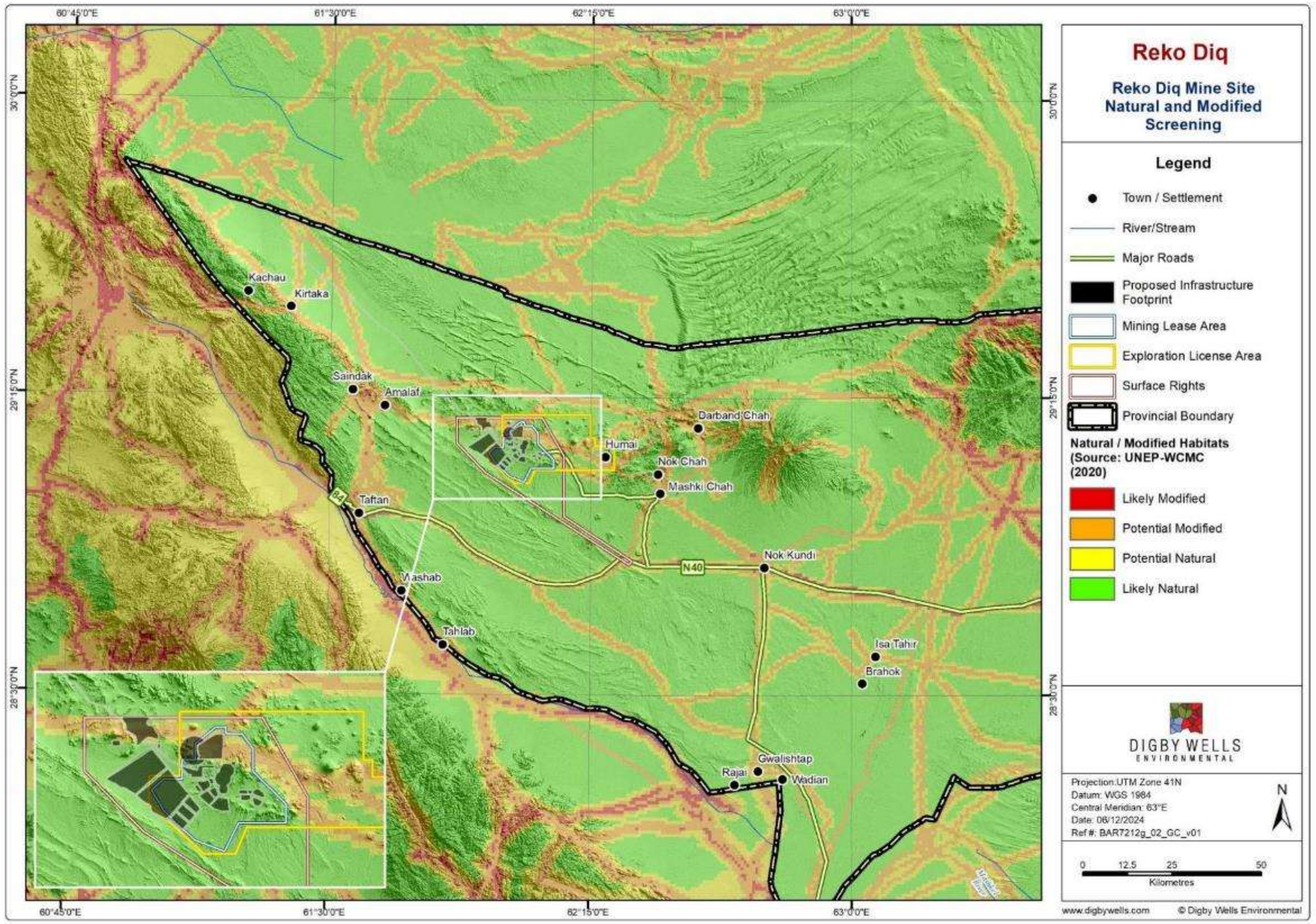


Figure 4-1: Screening layer for preliminary assessment of natural and modified conditions in the greater region (UNEP-WCMC, 2020)

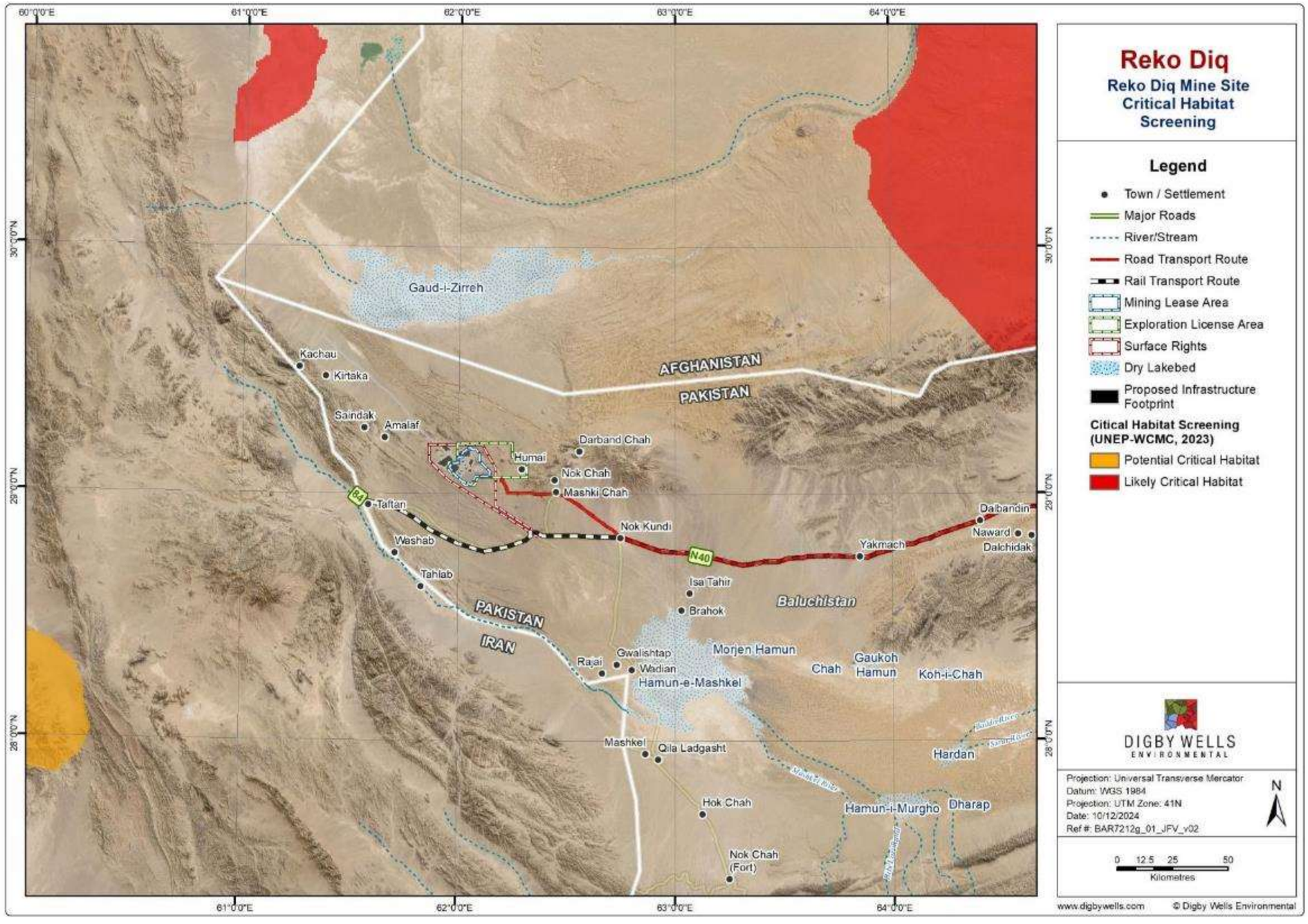


Figure 4-2: Screening layer for preliminary assessment of critical habitat conditions (UNEP-WCMC, 2017)

4.1.1. Legally Protected and Internationally Recognised Areas

This section briefly highlights any legally protected habitat considered as a priority to conservation, as well as internationally recognised areas (e.g. World Heritage Sites, Ramsar Sites, Man & Biosphere Reserves, or Key Biodiversity Areas), located in the region surrounding the Mine Site area.

4.1.1.1. Legally Protected Areas

Based on the IBAT report (received from HBP, dated June 2024), there are no protected areas and KBAs within the Project Area[13].

4.1.1.2. Key Biodiversity Areas

No KBAs were identified within 50 km of the Mine Site, though there are others in the greater region.

4.1.1.3. Ramsar Wetlands of International Importance

No Ramsar wetlands were identified within 50 km of the Mine Site, though there are others in the greater region.

4.1.1.4. UNESCO World Heritage Sites and/or Man and Biosphere Reserves

No UNESCO-defined areas of international biodiversity importance were present within the 50 km of the Mine Site.

[13] Based on a more recent IBAT report (dated November 2024), the Saindak Community Game Reserve is listed within a 50 km radius directly west, but the polygon is not provided and the extent/area cannot be confirmed within the supporting documentation provided by the Balochistan Forests and Wildlife Department (BFWD). In the absence of sufficient information and pending further legal investigation regarding the legitimacy of the claimed area, as well as the permissible land uses within the reserve, especially since it is not a IUCN Management Category of concern, the reserve is only considered tentatively. Following the feedback from the legality investigation, any biodiversity-related sensitivities or receptors may need to be reassessed, where applicable.

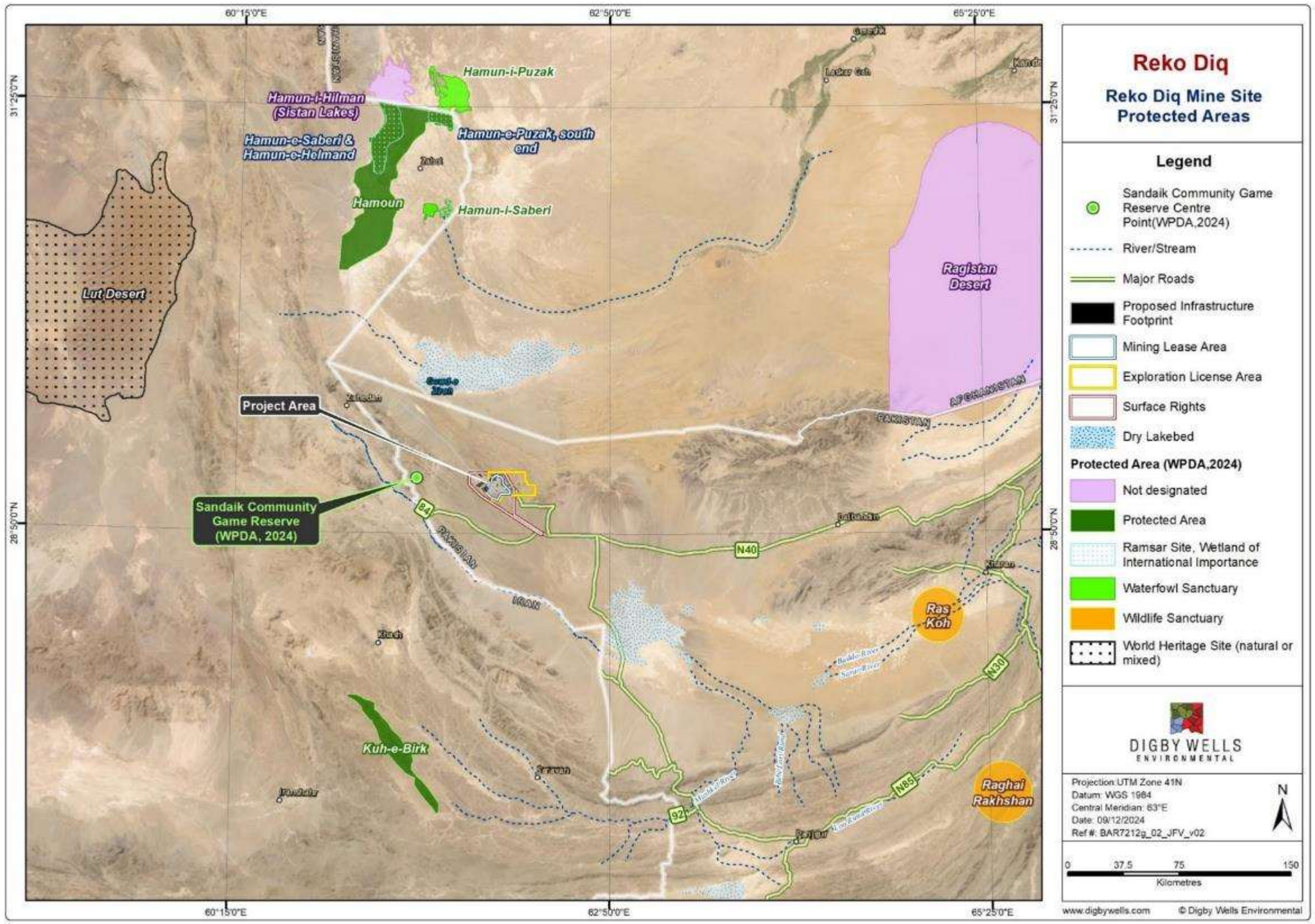


Figure 4-3: Protected areas in the greater region

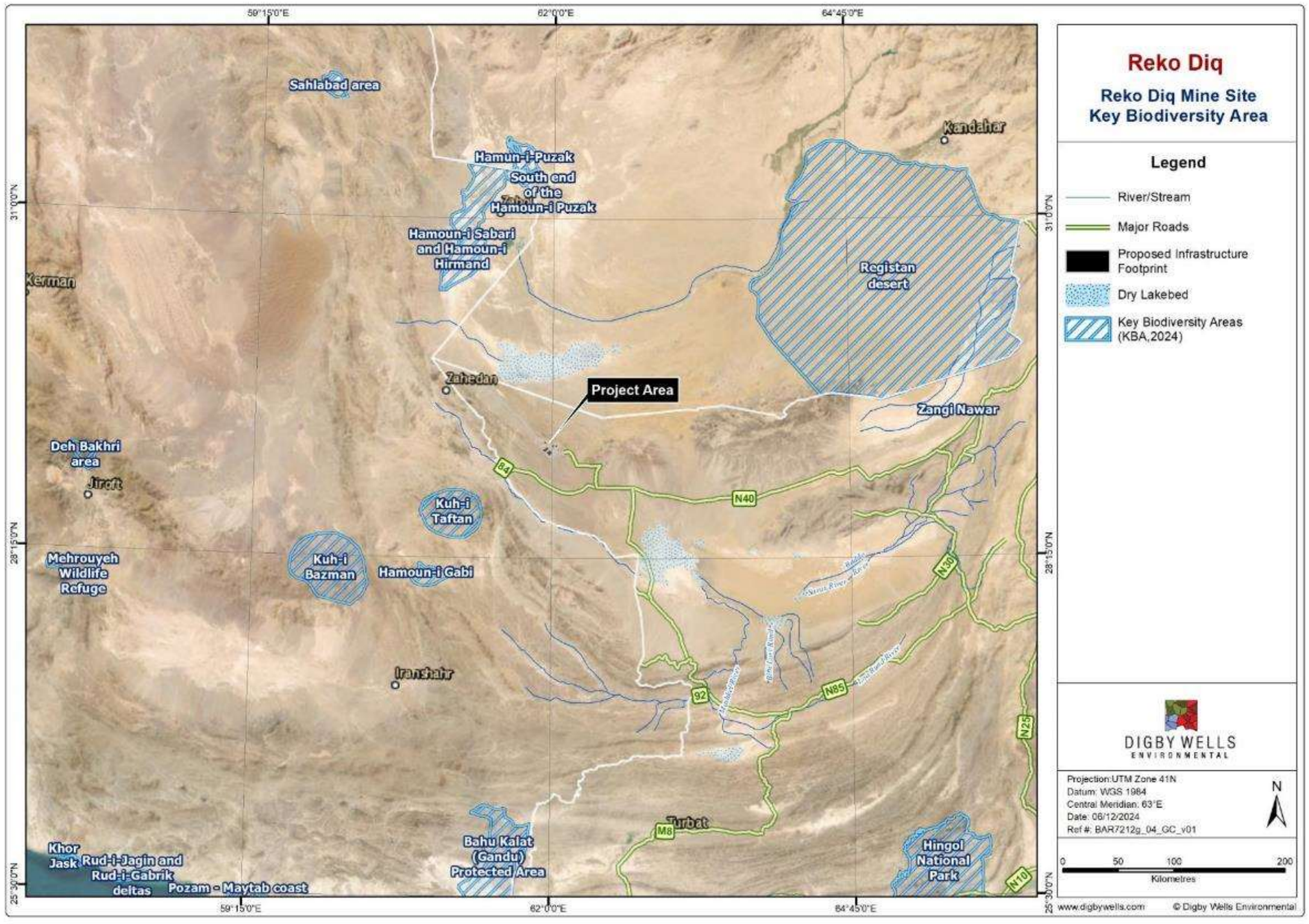


Figure 4-4: KBAs in the greater region surrounding the Reko Diq sites

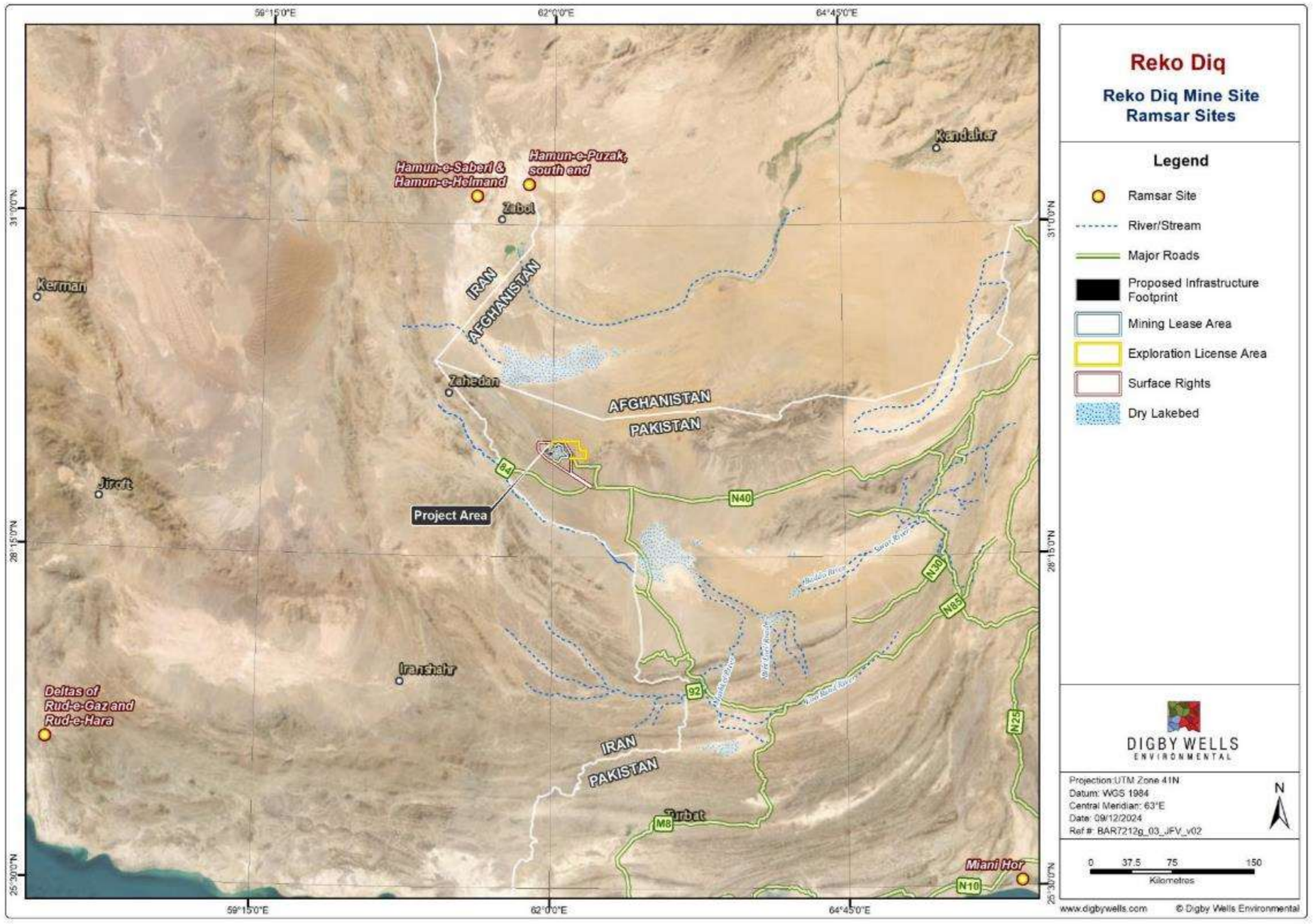


Figure 4-5: Ramsar Wetlands in and surrounding the Reko Diq Area of Influence (AoI)

4.2. Assessment of Natural, Modified and Critical Habitat

The following sub-sections elaborate on the interpretation of the definitions provided in the PS6 and GN6, to facilitate the description of each of the respective habitat conditions and prioritise areas for respective management and monitoring goals.

4.2.1. Assessment of Natural/Modified Habitat

The Mine Site's AoI comprises several terrestrial habitat types (including potential airsheds for migratory birds), including Agricultural Area/Date Palm habitat, Clayey Plains, Dry Streambeds, Gravel Plains, Mountains/Hills, and Sandy Plains/Sand Dunes. These habitats were identified through site surveys, as discussed in the Faunal and Floral Biodiversity Reports (Hagler Bailly Pakistan 2024a, 2024b).

With the use of land cover data, a consolidated extent of habitat cover across the landscape and the Project AoI. It is acknowledged that the airshed (within the air) and the species below water within the aquatic ecosystems (below water) are not necessarily accounted for within these habitat units, but these should be discussed as a separate partition of the mosaic of habitat units within the AoI[14].

[14] It should be noted that these airsheds have not been excluded from the assessment, as birds have been considered in the respective specialist studies, they just couldn't be presented on the map. These will be inadvertently discussed below in relation to significant biodiversity values of these species within the Project AoI.

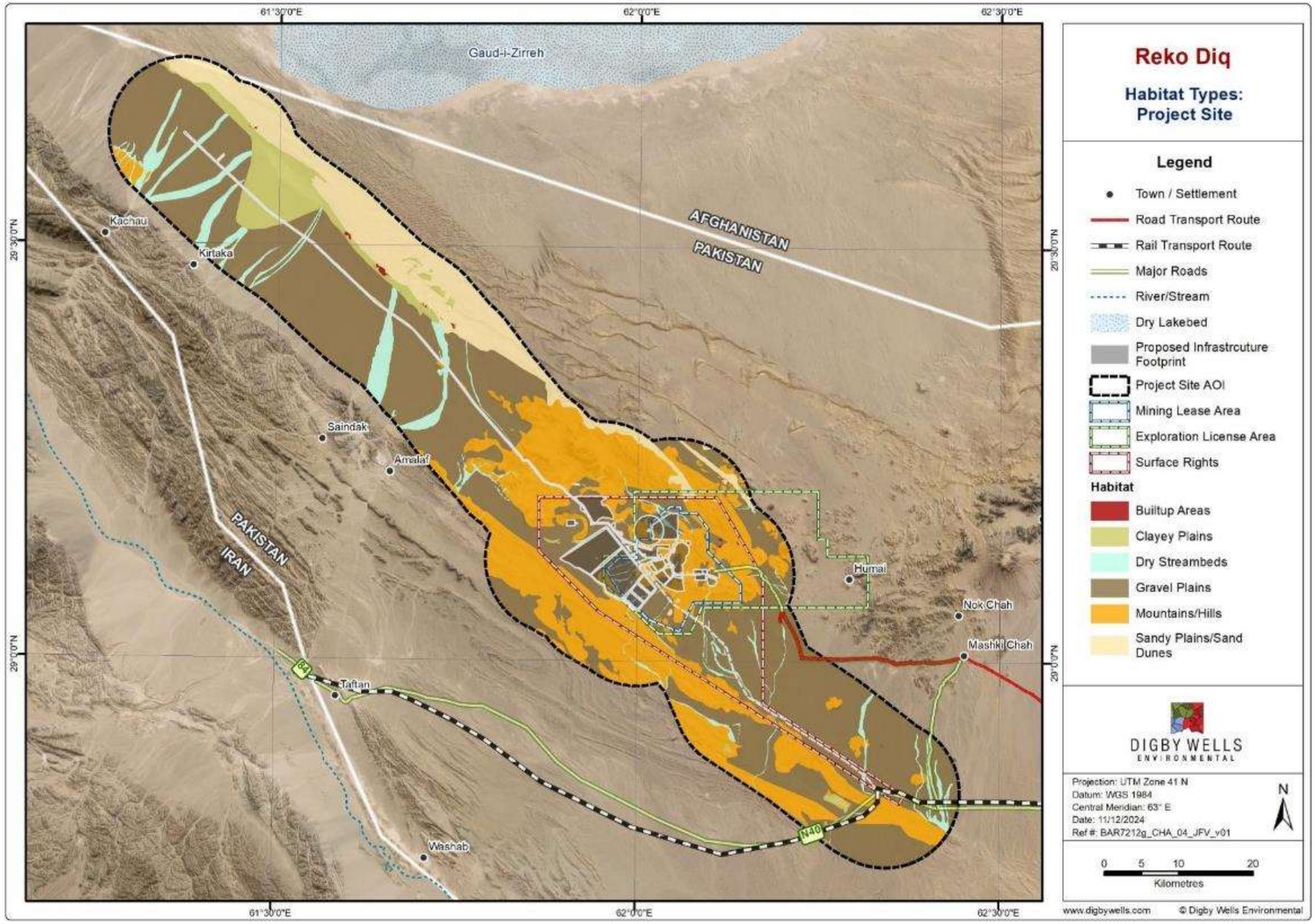


Figure 4-6: Habitat types and landcover classes present in the Mine AoI

4.2.1.1. Classification of Natural/Modified Habitats

Based on the definitions, it is acknowledged that habitats in the Project AoI have been disturbed and modified by anthropogenic activity most of the habitats are intact. The Clayey Plains, Dry Streambeds, Gravel Plains, Mountains/Hills, and Sandy Plains/Sand Dunes, are classified as *natural habitats*. Disturbances in the broader area are minimal and primarily associated with cross-border trade routes, security camps, and project-related activities.

The Agricultural Area/Date Palm habitat and Built-up Areas are considered *modified habitats*. Although extensive fieldwork was done, it is acknowledged that field verification may not have reached the entirety of the footprint or areas beyond the footprint. While specialists are confident in their habitat delineations, should further expansion projects and additional activities be considered, it is recommended that additional studies be done and that they include further site verification.

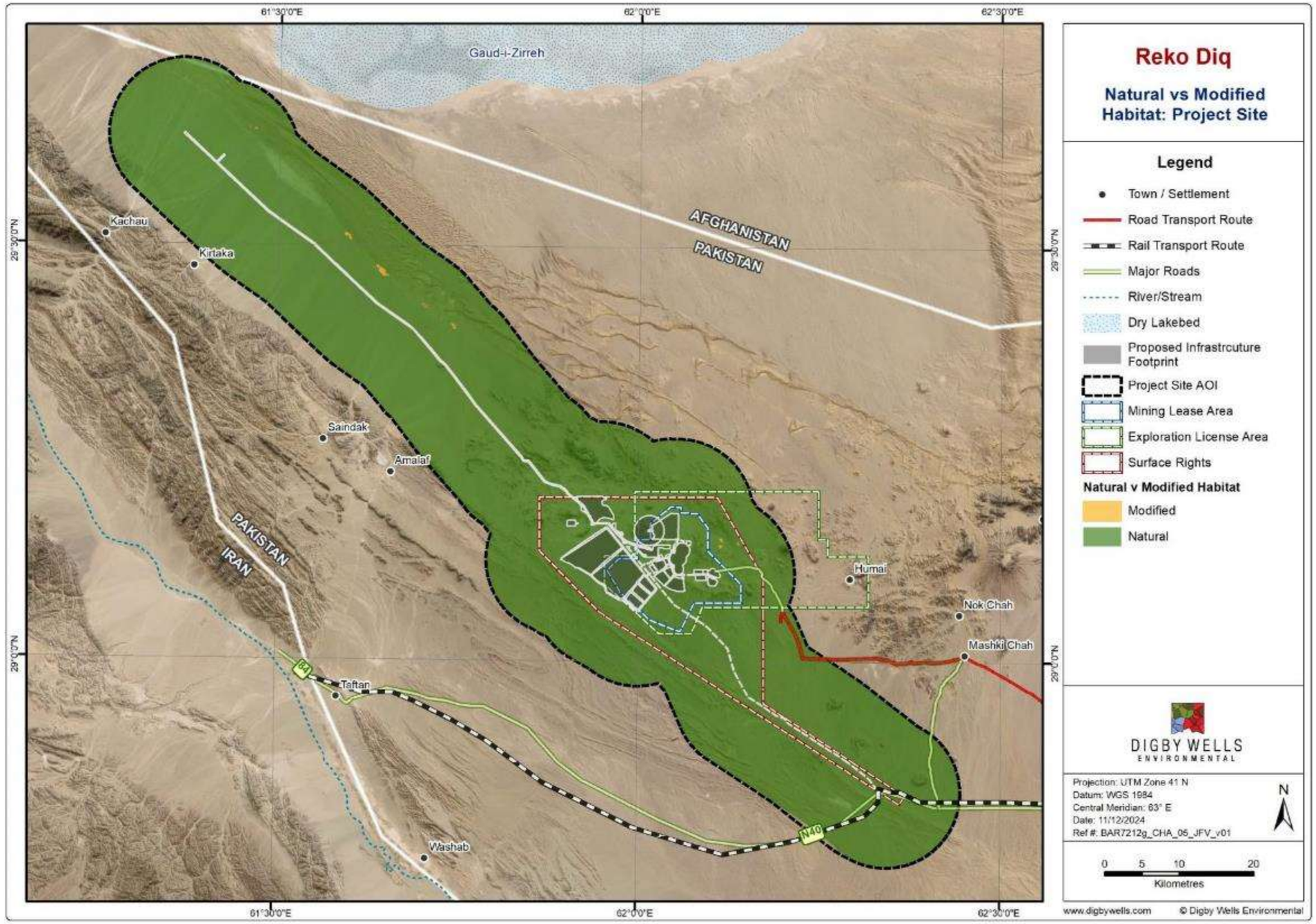


Figure 4-7: Natural and Modified Habitat identified in the Project AoI

4.2.1.2. Management Obligations for Natural and Modified Habitat

Based on identified habitats within the study area, the following sections briefly describe the management objectives to conserve and maintain the biodiversity values within both modified and natural habitats. As is to be expected, these recommendations aim to encourage the application of the mitigation hierarchy, particularly avoidance and mitigation actions.

4.2.1.2.1. Modified Habitat

Overall, only 2.54 km^2 of modified habitat was identified to occur in the Project AoI.

Within each of the identified *modified habitat units*, it is important that the remnant available habitat and any supporting biodiversity and/or ecosystem services be maintained, where possible and degradation avoided. Although this is not an explicit requirement for these units, Clause GN37 of Guidance Note 6 suggests that proposed "*projects with significant biodiversity values in modified habitats minimize their impacts and implement mitigation and management measures as needed to conserve those values,"* such as *"species of conservation concern and remnant ecological features that persist, especially those that perform important ecological functions."*

4.2.1.2.2. Natural Habitat

Project AoI was observed to consist almost entirely of *natural habitats* with an area of 3,277.12 km^2.

The objective for management of *natural habitats* is to ensure **no net loss of biodiversity values**. This can only be achieved by demonstrating that no other viable alternatives can be considered, informed by a stakeholder consultation process, and by applying the mitigation hierarchy. It is recommended that these aspects are emphasised within the risk identification and management process.

This is supported by the explicit requirements in the following paragraphs of IFC PS 6:

> "14. The client will not significantly convert or degrade **natural habitats**, unless all of the following are demonstrated:
>
> - No other viable alternatives within the region exist for development of the project on modified habitat;
> - Consultation has established the views of stakeholders, including Affected Communities, with respect to the extent of conversion and degradation; and
> - Any conversion or degradation is mitigated according to the mitigation hierarchy."
>
> "15. In areas of natural habitat, mitigation measures will be designed to **achieve no net loss of biodiversity**, where feasible. Appropriate actions include:
>
> - Avoiding impacts on biodiversity through the identification and protection of set-asides;

- Implementing measures to minimize habitat fragmentation, such as biological corridors;
- Restoring habitats during operations and/or after operations; and
- Implementing biodiversity offsets."

4.2.2. Critical Habitat Assessment

The CHA was undertaken for the Mine Site based on a consolidated list of expected species, as derived from the IBAT report in November 2024 (IBAT Alliance 2024), the supplementary literature review and field surveys undertaken by Hagler Bailly Pakistan (Hagler Bailly Pakistan 2024a, 2024b, 2024c), as well as the GBIF data[15]. IBAT expected a total of 443 species to be present within 50 km of the Mine Site, either temporarily or permanently, within the AoI of the Mine Site, including 171 bird species, 45 mammal species (including large and small specimens), 56 reptile species, 6 amphibians, 78 vegetation species (incl. tree and/or plants), 24 freshwater fishes, 62 invertebrates (incl. Gastropoda, Bivalvia, Insecta, and Malacostraca), and a single fungi specie.

Of these species, a total of 147 species (including 67 species that were detected through the literature review and/or observed during the field survey/s) were identified as potential candidate critical habitat-trigger species, as per the definitions provided for Criterion 1, Criterion 2 and Criterion 3 in Guidance Note 6 (GN70-GN78). In reference to the significance of the global population[16] of each respective candidate trigger species being present within the AoI, each species was screened against a tailored EAAA (refer to Section 3.1.3) to determine a percentage of the landscape that may support this respective species (or sub-species) and the thresholds prescribed under each of the criteria (and/or sub-criteria) within the IFC PS6.

The following sections review biodiversity assessed against the five critical habitat criteria.

4.2.2.1. Criterion 1: Habitat of Significant Importance to Critically Endangered and/or Endangered Species

Although various threatened species with globally and nationally threatened species were identified to occur in the Mine Site area, two of these species were identified as triggering critical habitat under Criterion 1, namely *Felis margarita* (Sand Cat) and *Gazella subgutturosa* (Goitered Gazelle). These species are discussed in Section 4.2.2.1.1 below.

Clause GN72 of Guidance Note 6 presents the following three thresholds for recognizing critical habitat under Criterion 1:

[15] GBIF data was included, where available. However, for the sake of relevance and validity of the observations included, any records documented prior to 1980 were excluded from the screening assessment due to the extensive timespan between that date and present day, as it is anticipated that significant encroachment and/or habitat degradation may be a consideration of prolonged presence within these under-studied areas.
[16] As per GN65, expert opinion and/or surrogates for population size (e.g. extent of occurrence (EOO), estimates of total area of known sites, etc.), in combination of a spatially appropriate area of analysis (referred to EAAA) will be essential to determine the presence of potential critical habitat.

IFC Performance Standard 6 Guidance Note GN72:

(a) Areas that support globally important concentrations of an IUCN Red-listed CR or EN species (≥ 0.5% of the global population AND ≥ 5 reproductive units [GN16] of a CR or EN species).

(b) Areas that support globally important concentrations of an IUCN Red-listed Vulnerable (VU) species, the loss of which would result in the change of the IUCN Red List status to CR or EN and meet the thresholds in (i).

(c) As appropriate, areas containing important concentrations of a nationally or regionally listed CR or EN species.

Footnote:

[GN16] The IUCN Biodiversity Areas standard uses the following definition for a reproductive unit: "the minimum number and combination of mature individuals necessary to trigger a successful reproductive event at a site. Examples of five reproductive units include five pairs, five reproducing females in one harem, and five reproductive individuals of a plant species." *Eisenberg, 1977. The Evolution of the Reproductive Unit in the Class Mammalia*.

[GN73] Special consideration should be given to great apes (gorillas, orangutans, chimpanzees and bonobos) due to their anthropological significance. Where great apes may potentially occur, GN17 the IUCN/Species Survival Commission (SSC) Primate Specialist Group (PSG) Section on Great Apes (SGA) must be consulted as early as possible to assist in the determination of the occurrence of great apes in the project's AoI. Any area where there are great apes is likely to be treated as critical habitat. Projects in such areas will be acceptable only in exceptional circumstances, and individuals from the IUCN/SSC PSG SGA must be involved in the development of any mitigation strategy.

In accordance with the definitions provided in Guidance Note 6 (refer to GN70-71), a total of eight species were faced with a high risk of extinction, either at a global scale or on a national scale, as per the Status and Red List of Pakistan's Mammals (Sheikh & Molur 2004)[17], including:

- Four avifaunal species, including *Vanellus gregarious* (Sociable Lapwing, listed as Critically Endangered (CR)), *Aquila nipalensis* (Steppe Eagle, listed as Endangered (EN)), *Neophron percnopterus* (Egyptian Vulture, listed as EN), and *Falco cherrug* (Saker Falcon, listed as EN).
- Four mammalian species, including *Felis margarita* (Sand Cat, listed as Least Concern (LC) on a global scale and CR on a national scale), *Hyaena hyaena* (Striped Hyaena, listed as Near Threatened (NT) on a global scale and CR on the national scale), *Gazella subgutturosa* (Goitered Gazelle[18], listed as VU on a global scale and CR on a national scale), and *Canis lupus pallipes* (Indian Wolf, listed as LC as a species on a global scale and EN for the subspecies on a national scale).

[17] No other national red list was noted to be available within Pakistan at the time of the assessment, but it is acknowledged that some regional assessments have been undertaken for non-volant small mammals, primates, and volant mammals between 2002 to 2005 (refer to https://www.nationalredlist.org/publications, accessed in December 2024). However, for the purposes of this assessment, the national listing for mammals was regarded to supersede these other regional assessments.
[18] This species is assessed according to both sub-criterion 1(b) and 1(c), as both the global and national state are considered within the thresholds for determining critical habitat within the region. As such, it is not listed again under sub-criterion 1(b), together with the other expected VU species.

As per Sub-Criterion 1(b), there is an additional consideration for species that are listed as Vulnerable on a global scale, who may be a risk of decreasing to an Endangered or Critically Endangered threat status as a result of the loss to the associated populations. In reference to the aforementioned expected species list, the following additional candidate critical habitat trigger species were considered:

- Four avifaunal species, including *Columba eversmanni* (Yellow-eyed Pigeon, listed as VU), *Clanga clanga* (Greater Spotted Eagle, listed as VU), *Aquila heliacal* (Eastern Imperial Eagle, listed as VU), and *Chlamydotis macqueenii* (Asian Houbara, listed as VU).
- Three mammalian species, including the aforementioned *Gazella subgutturosa* (Goitered Gazelle), *Ursus thibetanus* (Asiatic Black Bear, listed as VU on global and national scale, but as CR as a sub-species), *Vormela peregusna* (Marbled Polecat, listed at VU on global scale and LC on national scale), *Gerbillus cheesmani* (Cheesman Gerbil, listed as LC on global scale and VU nationally within Pakistan), *Lepus capensis* (Cape Hare, listed as LC on global scale and VU nationally within Pakistan), and *Vulpes rueppelli* (listed as LC globally and VU nationally within Pakistan)[19]
    - Based on the literature review and the baseline surveys undertaken by HBP (Hagler Bailly Pakistan 2024a, 2024b, 2024c), there were two additional mammalian species that we detected within the Mine Site area, namely the *Acinonyx jubatus* (Asiatic Cheetah, listed VU on the global scale and extinct within Pakistan) and the *Ovis vignei cycloceros* (Afghan Urial, listed as VU on global scale and national scale).
- Two fish species, including *Schizocypris brucei* (Afghan Trout, listed as VU) and *Schizothorax plagiostomus* (Snow Trout, listed as VU).

However, following a review of the species-level data, including the distribution of the spread across their range and their associated population estimates, it was largely concluded that none of these species would risk having their threat status upscaled, even if the whole AoI were to be lost as part of this Project. While this essentially disqualifies these candidate critical habitat triggers, under Criterion 1(b), many of them were still screened[20] to assess their potential for having a significant population within the study area (refer to the Table 4-1 for further affirmation that none of these species were to qualify as a critical habitat trigger at the time of this assessment).

[19] Considering the abundance and distribution ranges of *Lepus capensis* and *Vulpes rueppelli*, the national status of the Vulnerable excludes these species form consideration under the sub-criterion 1(c) and as such, there were not taken further in the risk assessment process.
[20] Cryptic species with limited available data were screened against the proposed PAoI to assess for the threshold of a significant population being present, but other more common species were excluded from this calculation (incl. *Gerbillus cheesmani*, *Lepus capensis, and Vulpes rueppeli*

Table 4-1: Threatened species that are candidate Criterion 1 triggers. Their IUCN category, geographical and population Information is included in the table below. EOO refers to the Extent of Occurrence. AOO refers to the Area of Occupancy.

Family	Scientific Name	Common Name	IUCN Category	National Status#	Population Estimate / EOO$ (km²)	EAAA$ (km²)	% Supported	Comment	Criterion 1 Trigger	Criterion Considerations
Avifaunal species										
Accipitridae	*Aquila nipalensis*	Steppe Eagle	EN	N/A	12 600 000	21 493.01	0.17%		No	Not a significant population under sub-criterion 1(a)
Accipitridae	*Neophron percnopterus*	Egyptian Vulture	EN	N/A	50 100 000	21 493.01	0.04%		No	Not a significant population under sub-criterion 1(a)
Otididae	*Chlamydotis macqueenii*	Asian Houbara	VU	N/A	13 200 000	21 493.01	0.16%	Only anecdotal evidence of this species on the ground at the moment.	No	Unlikely to be at risk of upscaling. insignificant population to trigger sub-criterion 1(b)
Accipitridae	*Aquila heliaca*	Eastern Imperial Eagle	VU	N/A	14 900 000	21 493.01	0.14%	Not detected within the AoI yet, and not likely to upscale the threat status.	No	Unlikely to be at risk of upscaling. insignificant population to trigger sub-criterion 1(b)
Charadriidae	***Vanellus gregarius***	**Sociable Lapwing**	**CR**	**N/A**	**1 620 000**	**21 493.01**	**1.33%**	**Passive distribution, but the populations within the airsheds to be unaffected.**	**No**	**Significant population under sub-criterion 1(a)**
Falconidae	*Falco cherrug*	Saker Falcon	EN	N/A	19 100 000	21 493.01	0.11%		No	Not a significant population under sub-criterion 1(a)
Accipitridae	*Clanga clanga*	Greater Spotted Eagle	VU	N/A	15 300 000	21 493.01	0.14%	Not detected within the AoI yet, and not likely to upscale the threat status.	No	Insignificant population - unlikely to trigger sub-criterion 1(b)
Columbidae	***Columba eversmanni***	**Yellow-eyed Pigeon**	**VU**	**N/A**	**3 080 000**	**21 493.01**	**0.70%**	**Mostly passive distribution overlapped and Project not considered to change threat status.**	**No**	**Significant population under sub-criterion 1(a)**
Mammalian species										
Felidae	***Felis margarita***	**Sand Cat**	**LC**	**CR**	**15 414 561**	**6 930.648**	**0.04%**	**Confirmed through anecdotal evidence..**	**Yes**	**Nationally important to Pakistan under sub-criterion 1(c)**
Bovidae	***Gazella subgutturosa***	**Goitered Gazelle**	**VU**	**CR**	**~ 6 000 000¥**	**48 743.54**	**0.81%**	**Globally significant and nationally important.**	**Yes**	**Significant population under sub-criterion 1(b), but unlikely to trigger threat status change to EN. Nationally important to Pakistan under sub-criterion 1(c)**
Mustelidae	***Vormela peregusna***	**Marbled Polecat**	**VU**	**LC**	**~ 300 000¥**	**6 930.648**	**2.31%**	Wide distribution.	No	**Significant population under sub-criterion 1(b)**
Canidae	*Canis lupus*	Grey Wolf	LC	Not listed	>20,000		-	Not assessed -	No	Not expected in the AoI or region (refer sub-species)
Canidae	***Canis lupus* ssp. *pallipes***	**Indian Wolf**	**LC**	**EN**	**~ 17 500 000¥**	**21 493.01**	**0.12%**	**Not detected and threshold not met.**	**No**	**Nationally important to Pakistan under sub-criterion 1(c)**
Hyaenidae	***Hyaena hyaena***	**Striped Hyaena**	**NT**	**CR**	**~ 27 000 000¥**	**21 493.01**	**0.08%**	**Not detected and threshold not met.**	**No**	**Insignificant population - unlikely to trigger sub-criterion 1(c)**
Ursidae	*Ursus thibetanus*	Asiatic Black Bear	VU	Not listed	Unknown		-	Not assessed -	No	Not expected in the AoI or region (refer sub-species)
Ursidae	***Ursus thibetanus* ssp. *gedrosianus***	**Asiatic Black Bear**	**VU**	**CR**	**~ 18 000¥**	**6 930.648**	**38.50%**	**Not detected.**	**No**	**Significant population under sub-criterion 1(b) Nationally important to Pakistan under sub-criterion 1(c)**

Family	Scientific Name	Common Name	IUCN Category	National Status#	Population Estimate / EOO$ (km²)	EAAA$ (km²)	% Supported	Comment	Criterion 1 Trigger	Criterion Considerations
Felidae	*Acinonyx jubatus*	Asiatic Cheetah	VU	Regionally Extinct	-	-	-	-	No	Extinct within Pakistan.
Bovidae	*Ovis vignei ssp. cycloceros*	Afghan Urial	VU	VU	~2 500 individuals	~150 individuals	0.06%	Not expected to be present in high numbers, as they prefer altitude to escape predators.	No	Unlikely to be at risk of upscaling. insignificant population to trigger sub-criterion 1(b)
Fish species										
Cyprinidae	*Schizocypris brucei*	Afghan Trout	VU	N/A	Unknown	Not assessed	-	No freshwater systems onsite viable for assessment.	No	Not considered a trigger under sub-criterion 1(b).
Cyprinidae	*Schizothorax plagiostomus*	Snow Trout	VU	N/A	Unknown	Not assessed	-	No freshwater systems onsite viable for assessment.	No	Not considered a trigger under sub-criterion 1(b).

* Rows highlighted in **Green** indicate species that were not detected through the literature review and/or field survey/s, but have the potential to be present within the area. ** Rows highlighted in **Blue** indicate species that were detected through the literature review and/or field survey/s undertaken, but not listed on the IBAT expected species list. #The national status is informed by the Status and Red List of Mammals in Pakistan: CR – Critically Endangered, EN – Endangered, VU – Vulnerable, LC – Least Concern, N/A – Not Assessed. $ EOO[21] – Extent of Occurrence as a surrogate indicator for global population estimates.in relation to the Ecologically appropriate area of analysis (EAAA) ¥Due to the unavailable EOO (or an under-estimated range within a highly fragments or widely distributed range), an estimated area of known distribution was used as a proxy for global population estimates, which assumes suitable habitat present within the homogenous conditions throughout the range.

[21] Extent of Occurrence (EOO) refers to the area contained within the shortest continuous imaginary boundary that can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a species. It represents the total area where a species could potentially occur, regardless of whether it actually occupies the entire area. It provides a broad understanding of the geographical range of a species and is often used in assessing the overall distribution and conservation status.

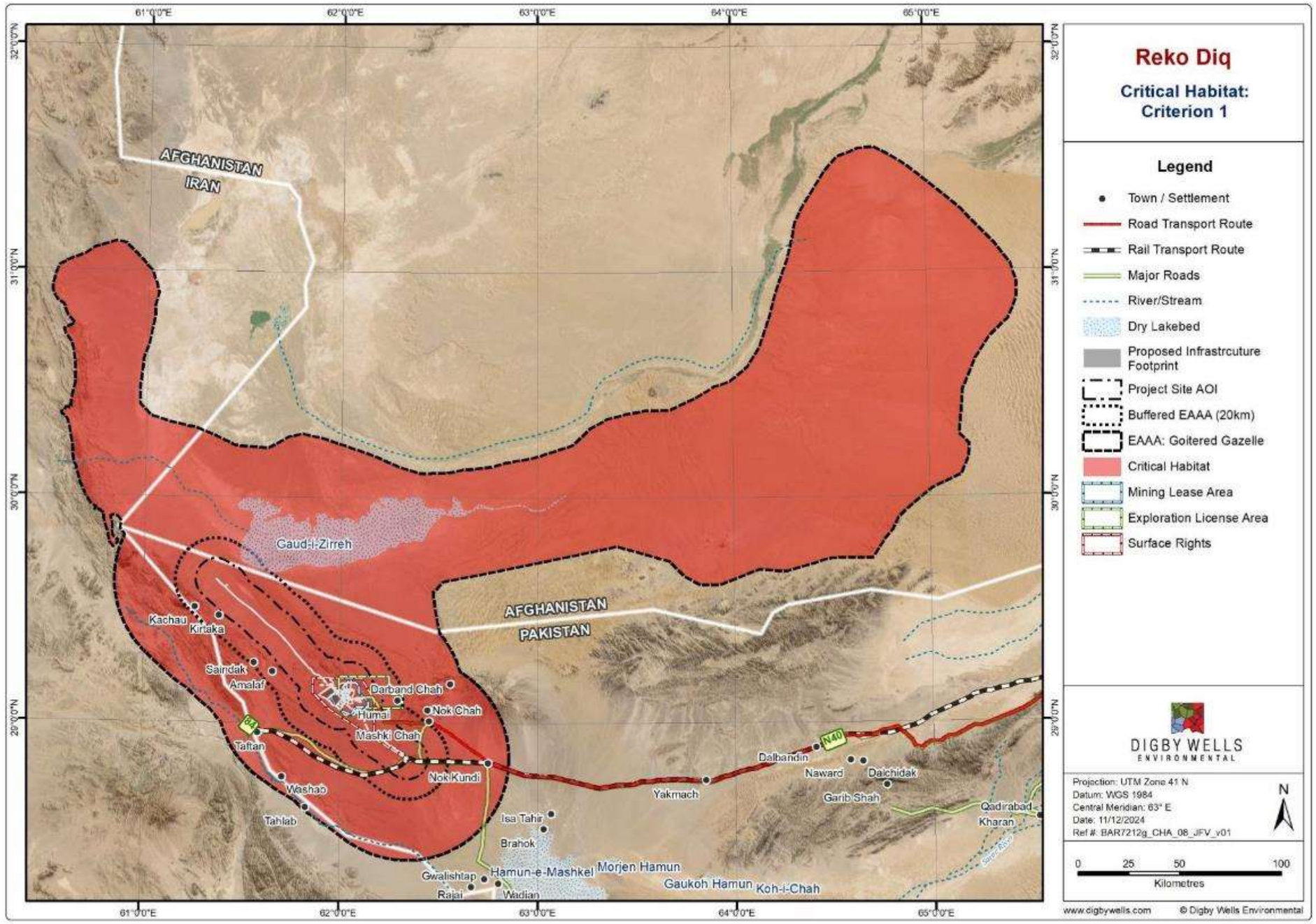


Figure 4-8: Critical habitat for Criterion 1

4.2.2.1.1. Trigger Species

The following species met one or more of the required thresholds, under Criterion 1, to qualify as critical habitat within the respective EAAAs and as such, these species and their associated habitat proxies should be effectively managed toward net gain, where possible:

- *Felis margarita* (Sand Cat) has an EOO of 15,414,561 km² and is a true desert species with distribution in the deserts of northern Africa and southwest and central Asia. This species was detected during the field survey/s within the Mine Site, in the Northern Groundwater System, and Access Route. This species is found in the deserts of Noshki and Chagai districts of Baluchistan, but the significance of the population is believed to be under-estimated due to the wide-ranging distribution and the cryptic nature of the ecological preferences of the species.

  The Sand Cat population in Balochistan is small and localized, facing potential threats from habitat degradation, human encroachment, and possibly hunting. However, due to a lack of focused studies, the exact status of the Sand Cat population in Balochistan remains unclear (refer to Table 3-2). The limited research and lack of recent updates in Pakistan's species list suggest that this species remains at national risk of endangerment. Although selected terrestrial experts[22] indicate that the Project area does not has a high population of this species due to lack of potential feeding and breeding grounds, the confirmed presence of the species and the fact that is nationally important in terms of conservation threat status ensures that *the species is a trigger for critical habitat, as per sub-criterion 1(c)*.

- *Gazella subgutturosa* (Goitered Gazelle) is widely distributed in central Asian countries, possibly parts of Iraq, Pakistan, Afghanistan, India, northwest China and Mongolia.(IUCN SSC Antelope Specialist Group 2017). It inhabits a variety of landscapes including deserts, semi-deserts, grasslands, and mountain valleys. They form small family groups during summer, but in winter, they gather in larger herds, migrating to less harsh valleys. Their winter migrations can span 10-30 km per day (Animalia 2024). These gazelles are active during the day but can become nocturnal in areas with hunting pressure.

  In the Spring 2023 Survey, signs of this species were observed in the Northern Groundwater System and pipeline route. While this species visits from nearby regions in Iran from time to time, they are often hunted before they can establish a population in the area. Reports indicate that the Balochistan population relies on wood for fuel and traditional uses, which has led to habitat shrinkage for this species and as such, this species tends to avoid living in this area due to the lack of suitable habitat and food resources (Virk 1991).

  Considering the absence of a known EOO, an estimated distribution range was calculated across central Asia, and the species-specific thresholds for supporting *a globally significant population were triggered under sub-criterion 1(b)*. In addition to the

[22] Dr Muhammad Rafique, Small Mammals and Fish Expert and Dr Rafaqat Masroor, Terrestrial Expert

national importance of the species within Pakistan, which was further confirmed through expert consultation processes (refer to Table 3-2), *the species is also aligned with the sub-criterion 1(c)*, especially after confirming presence in the Northern Groundwater System and pipeline route during the field survey/s

4.2.2.1.2. Non-Trigger Species

Many of the expected species were considered trigger species for critical habitat, as per the definition of candidate trigger species and/or meeting the stipulated thresholds. However, considering additional factors (e.g. habitat suitability, movement patterns, ecological requirements, etc.) and further interpretation of the available data, these species are not considered triggers for critical habitat for this proposed activities at the Mine Site. These species include:

Avifauna

- *Vanellus gregarius* (Sociable Lapwing, listed at CR) breeds in northern and central Kazakhstan and south-central Russia (and, at least formerly, Xinjiang province, western China), dispersing through Kyrgyzstan, Tajikistan, Uzbekistan, Turkmenistan, Afghanistan, Armenia, Georgia, Azerbaijan, Iran, Iraq, Saudi Arabia, Syria, Turkey and Egypt, to key wintering sites in Sudan, Pakistan (a flock of 28 birds was recorded near Ahmedabad village in Jaffarabad district in 2015) and north-west India (Birdlife International, 2024). Considering the fact that a large proportion of the EAAA (or its entirety) for this species occurs in the passage distribution range, these population/s are not expected to be explicitly reliant on any specific habitat/s within the Mine Site AoI, nor a specific landscape feature that may be relevant to the species survival. Consequently, although it meets the thresholds for its tailored EAAA, the airshed within the vicinity of the Project AoI is expected to remain largely unaffected and as such, the species is *not considered to trigger critical habitat*.

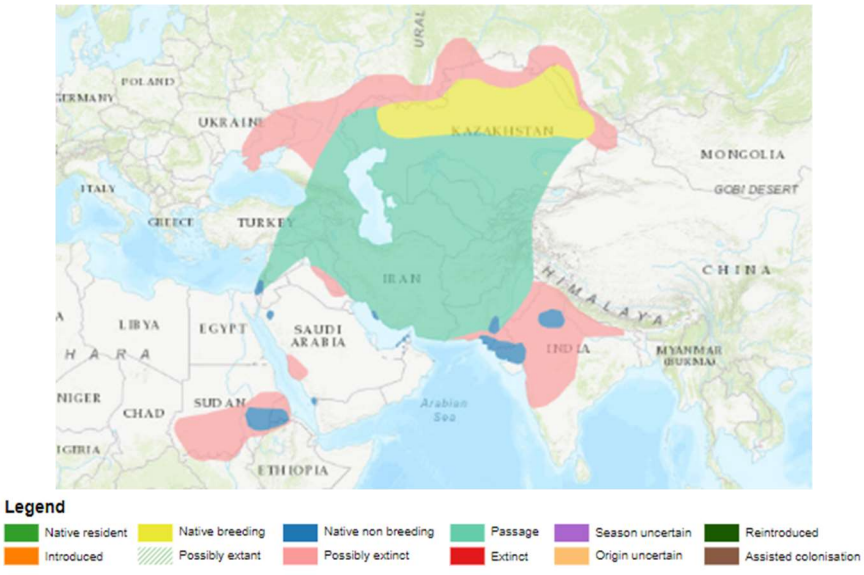


Figure 4-9: Distribution map for Sociable *Lapwing Vanellus gregarious* *(BirdLife International 2024a)*

- *Columba eversmanni (*Yellow-eyed Pigeon, listed as VU) breeds in southern Kazakhstan, Uzbekistan, Turkmenistan, Tajikistan, Kyrgyzstan, Afghanistan, north-east Iran and extreme north-west China (BirdLife International 2001). Its status and distribution within this range are poorly known. It winters in Pakistan and north-west India, historically as far east as Bihar, and southern Xinjiang and western Gansu, China (BirdLife International 2024b)). Considering the location of the Mine Site, which is on the boundary of the passage and non-breeding distribution, and the fact that the airshed around this Mine Site is likely to remain largely intact, excluding the presence of a single circuit 33 kVa powerline proposed within the northern borefield – this species is not directly prone to electrocution and collision risks.

  Considering the overlap of the northern portion of the EAAA extending into Afghanistan and the passage distribution range, as well as the marginal exceedance of the 0.5% threshold, this species is not expected to elicit a loss that may alter its current threat status (i.e. downgrade from VU to EN) and as such, it is *not considered to trigger critical habitat*. Furthermore, it was not yet detected to be present within the field survey/s undertaken, but only through the literature review. In contrast, it is known to breed successfully in tree holes, buildings, cliffs, earth banks, and potentially on power lines in steppe, semi-arid and desert areas, including around human settlement (BirdLife International 2024a) Even in winter, it occurs in open areas with scattered trees, often with agricultural crops, and in areas with suitable fruiting trees, where it roosts and feeds gregariously, which is understood to be largely unavailable within the AoI in any respect.

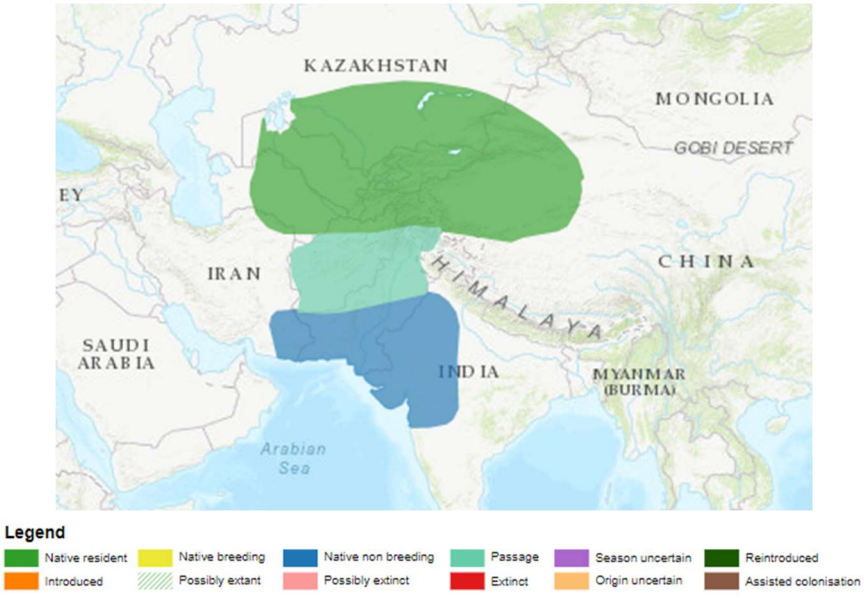


Figure 4-10: Distribution map for Yellow-eyed Pigeon *Columba eversmanni* (BirdLife International 2024b)

- As per Table 4-1, *Aquila nipalensis (*Steppe Eagle, listed as EN) and *Neophron percnopterus* (Egyptian Vulture, listed as EN), and *Falco cherrug (*Saker Falcon, listed as EN) were not considered a significant population (a minimum of 0.5% of globally

important concentrations) under sub-criterion 1(a) and as such, *none of these avifaunal species were considered triggers for critical habitat*.

Nonetheless, in consideration of the vulnerabilities of some of these species to collision and electrocution with powerline/s, these species (especially the Egyptian Vulture, detected within the Northern Groundwater Supply area) should be closely monitored during future monitoring regimes to assess any potential cumulative impacts upon these species.

- Similarly, as per Table 4-1, the *Chlamydotis macqueenii* (Asian Houbara Bustard, listed as VU and confirmed to be present in the North Groundwater Supply area), *Aquila heliaca* (Imperial Eagle, listed as VU) and *Clanga clanga* (Greater Spotted Eagle, listed as VU) have distinct migratory patterns that bring them to parts of South Asia, including Pakistan, primarily as winter visitors. The available literature supports that these species use the Study Area as a migratory pass during the migration period and they do not nest in the area that the Project will directly impact. All of these species are also widespread globally, and the loss of these species from the area would not result in the change of their IUCN Red List status to EN or CR, which confirms that *these species are not considered a trigger for critical habitat*.

Mammals:

- The *Vormela peregusna* (Marbled Polecat) has a native range that spans several countries in Europe, Asia, and a part of Africa – only a fragmented portion of its distribution ranges crosses Pakistan (equating to approximately 300 000 km^2). This species inhabits desert, semi-desert and steppe habitats and is reported to occur in the Nushki, Dalbandin and Kharan areas of Balochistan, which are 378 km, 217 km and 323 km far away from the Mine Site, respectively.

  As per Table 4-1, the significance of the Pakistan population may be considered a significant population, but it is unlikely to be at risk of supporting a change in the threat status from VU to EN or CR, considering the much wider distribution range of the species. In addition, the fact that the national status is regarded as LC suggests that this species *is not considered a trigger for critical habitat*.

- With respect to the three undetected yet potentially present species of mammal at the Mine Site (incl. *Canis lupus ssp. pallipes*, *Hyaena hyaena*, and *Ursus thibetanus ssp. gedrosianus),* only the *Ursus thibetanus ssp. gedrosianus* was considered under sub-criterion 1(b), as the sub-species is considered VU on a global scale. By assuming that the Baluchistan sub-species only occurs in the north-western corner of the country together with the south-western population associated with the drier parts of the province suggests an unverified but small EOO, and as such, a significant population may be present within the country. However, this species was not detected at the time of the field survey/s, and it is known to inhabit rugged, arid mountains with sparse shrub vegetation, which are not deemed to be available within the Mine Site AoI. Hence, this *species is not considered to be a trigger for critical habitat*.

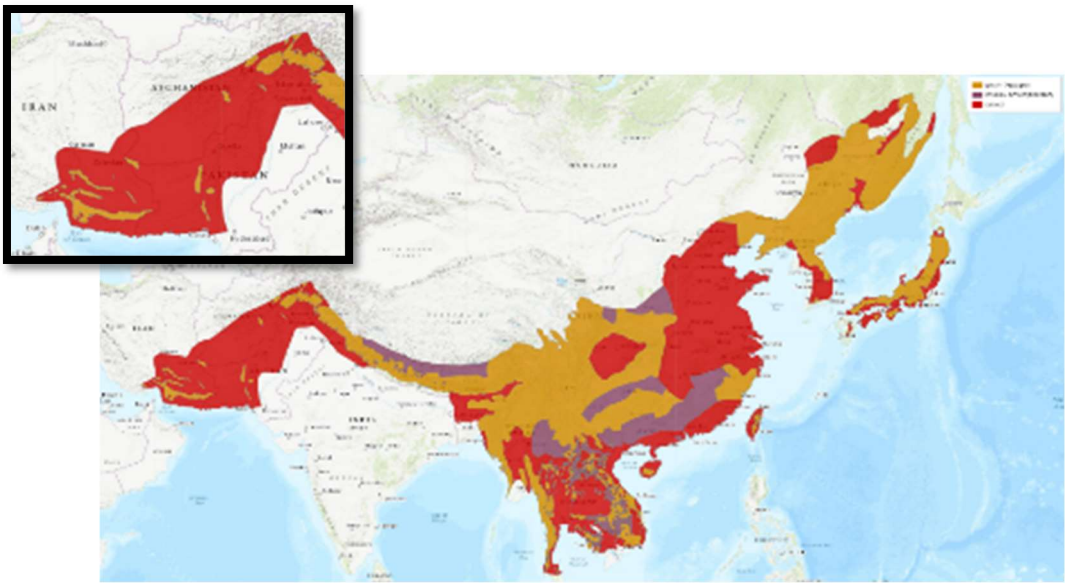


Figure 4-11: Distribution range for *Ursus thibetanus* (Asiatic Black Bear). Inset: Zoomed up area of Afghanistan and Pakistan

Each of the other species listed (including the *Ursus thibetanus ssp. gedrosianus)* were considered under Criterion 1(c), especially in the context of sub-species within the national context of Pakistan. In the absence of an appropriately defined EOO, for both Asia-based Indian Wolf and Africa-/Asia-based Striped Hyaena, an estimated distribution range for the species/subspecies has been presented, but does not comply with the definition of a significant population being affected by the AoI.

- *Acinonyx jubatus (*Asiatic Cheetah) is confirmed by numerous resources to be regionally extent within Pakistan, while its nearest living population occurs some distance away in northern Iran with a few individuals still present within the area. Subsequently, *this species is not considered a trigger for critical habitat*.
- *Ovis vignei ssp. cycloceros* (Afghan Urial) is a widespread species and occurs in Afghanistan, northwestern India (Ladakh), central and eastern Iran, southwestern Kazakhstan, Pakistan, Tajikistan, Turkmenistan and Uzbekistan. In Balochistan, the occurrence of Afghan Urial is confirmed in Hingol National Park, and the community game reserves Torghar, Dureiji, Shah Noorani, Baran Lakh and Talo Band (Michel & Ghoddousi 2020). While this species was not observed during the field survey/s within the Mine Site area, the locals reported occasional sightings of Afghan Urial several years back and illegal hunting of this species is reported from the Kirtika area near to the Northern Groundwater System area. After the fencing of the border (along Iran and Afghanistan), now this species is mostly restricted only to the other side of the borders (Iran and Afghanistan) and locals did not report any recent sightings of these species in the area. However, it was confirmed to be present in closer proximity to Quetta as part of the most recent survey effort, which was to be expected within its favourable mountainous habitat.

  In relation to the estimated population numbers of 2,500 to 3,000 individual living in Baluchistan, with 1,000 (0.2/km²) inhabiting the Torghar hills of Toba Kakar range

(District Zhob), as per Mitchell (1988), about 50 in the Takatu hills near Quetta (A. Ahmad, unpubl. Data), and more in the Dureji hills, District Zho were expected, which is outside of the Mine Site AoI, but provides context in terms of the fragmented distribution of the species within the region and the fact that the population associated with the Chagai corridor between Mine Site and Zanga Nawar National Park is not considered a significantly important concentration of individuals within the Baluchistan Province. Therefore, *the species was not considered to be a trigger for critical habitat* and instead, the sub-species is largely understood to be established prominently within the northern portion of Pakistan, a fair distance from the Project.

- The fact that none of the habitats within the AoI supports a regularly inundated freshwater system despite the overlap with the alluvial systems draining toward the Gowd-i-Zerrah on the Afghanistan border, no suitable habitat (in the form of a watershed) is believed to be present within the study area. Consequently, the likelihood of confirmed *the likelihood of the presence of listed freshwater fish species was considered negligible and not anticipated to trigger critical habitat for the Mine Site*.

4.2.2.1.3. Other Considerations for Critical Habitat Triggers

Three herpetofauna species observed in the RDMS surveys are considered to be potentially new species and as such, blood and tissue samples have been collected and will need to be analysed to confirm taxonomy (Table 4-2).

Table 4-2: Undescribed Species Observed in the RDMS Surveys

Species	Location	Survey	No. Individuals and Habitat	Within Proposed Infrastructure Footprint
Eremias cf scripta	Mine Site	Summer 2024	1 gravel plains	Yes
	Access Route to Reko Diq Mine Site	Spring 2023	4 in dry streambeds	No
		Summer 2024	4 in gravel plains	No
Eremias sp.	Mine Site	Spring 2023	1 in dry streambeds 1 in clayey plains	Yes
Cyrtopodion sp.	Northern Groundwater System	Summer 2024	2 in mountains/ hills 1 in sand dunes	No

However, the specialist consultant's opinion at the time of the assessment, is that these species will be later confirmed as a new species based on distinct morphological differences from other known species, such as:

- *Cyrtopodion* sp. - The specimens collected exhibit morphological and meristic characters distinct from their closely related congeners, such as *Cyrtopodion scabrum* and *Cyrtopodion watsoni.* Key differences include:

- Arrangement of tuberculated dorsal scales.
- Number of scales across the mid-belly.
- Number of intraorbital scales.
- Arrangement of subcaudal scales.

- *Eremias* sp. - Specimens of *Eremias* sp. members of the family Lacertidae, could not be assigned to any known *Eremias* taxa. The only resemblance they show were with *Eremias lineolata* in dorsal coloration, but notable differences with known *Eremias* taxa include:
  - Smaller snout-vent length and head-to-length ratio.
  - Fewer dorsal scales across the midbody.
  - Presence of dorsolateral stripes.
  - More ventral scales across the belly, along with distinct supra- and infralabials.
- *Eremias* cf. *scripta* - These specimens closely resemble *Eremias scripta* in dorsal coloration, but differ in size and specific morphological and scalation details, such as:
  - Longer snout-vent length than *Eremias scripta*
  - More precloacal pores than *Eremias scripta*.
  - Fewer dorsal scales across the midbody and ventral scales compared to those reported for *Eremias scripta*.

For the purposes of this assessment, these three species and potential specimens are to be treated as critical habitat triggers due to the lack of information available for these taxa at the time of the assessment. In the interim, the focus will be to definitively confirm whether these species are new to science or whether there is intra-specific morphological variation, but this is unlikely considering the key differences noted above.

4.2.2.2. Criterion 2: Endemic and Restricted-range Species

In relation to the expected species list/s, the following species were recognised as endemic or range-restricted species, as defined by their respective ecological realm of existence:

- One mammalian species, namely U*rsus thibetanus* spp. gedrosianus (Baluchistan Black Bear, listed as VU on global and as CR as a sub-species on national scale).
- One reptilian species, namely the *Phrynocephalus euptilopus* Alcock's Toad-headed-Agama, listed a LC); and
- One invertebrate species, including the *Trochorbis anastasie* (Freshwater Snail, listed as DD).

Of these, one species, *Phrynocephalus euptilopus (*Alcock's Toad-headed-Agama), was identified as triggering critical habitat under Criterion 2. This is discussed in Section 4.2.2.2.1.

Clause GN74 of Guidance Note 6 presents the following thresholds for the assessment of Criterion 2:

IFC Performance Standard 6 Guidance Note GN74 and GN75:

For purposes of this Guidance Note, the term endemic is defined as restricted range. Restricted range refers to a limited EOO.

- For **terrestrial vertebrates and plants**, restricted-range species are defined as those species that have an EOO less than 50,000 square kilometers (km²).
- For **marine systems**, restricted-range species are provisionally being considered for those with an EOO of less than 100,000 km².
- For **coastal, riverine, and other aquatic species** in habitats that do not exceed 200 km width at any point (for example, rivers). Restricted range is defined as having a global range of less than or equal to 500 km linear geographic span (i.e., the distance between occupied locations furthest apart).

The threshold for Criterion 2 is the following:

- Areas that regularly hold ≥10% of the global population size AND ≥10 reproductive units of a species.

Table 4-3: Endemic and/or restricted range species that are candidate Criterion 2 triggers. Their IUCN category, geographical and population Information is included in the table below.

Family	Scientific Name	Common Name	IUCN Category	National Status#	Population Estimate / EOO$ (km²)	EAAA$ (km²)	% Supported	Criterion 2 Considerations	Criterion 2 Trigger	Comments
Mammalian species										
Ursidae	***Ursus thibetanus* ssp. *gedrosianus***	**Asiatic Black Bear**	**VU**	**CR**	**~ 18 000¥**	**6 930.648**	**38.50%**	**Supports a significant concentration of individuals, but range restricted to Chagai Hills.**	**No**	**Not detected / expected within the study area.**
Herpetofaunal species										
Agamidae	***Phrynocephalus euptilopus***	**Alcock's Toad-headed Agama**	**LC**	**-**	**37 258.06**	**37 258.06**	**100%**	**Significant concentration of individuals.**	**Yes**	**Supports a significant concentration of individuals within the EAAA**
Invertebrate species										
Planorbidae	*Trochorbis anastasiae*	Freshwater Snail	DD	-	Unknown	-		No freshwater present within the AoI.	No	Unknown distribution data.

* Rows highlighted in **Green** indicate species that were not detected through the literature review and/or field survey/s, but have the potential to be present within the area. ** Rows highlighted in **Blue** indicate species that were detected through the literature review and/or field survey/s undertaken, but not listed on the IBAT expected species list. #The national status is informed by the Status and Red List of Mammals in Pakistan: CR – Critically Endangered, EN – Endangered, VU – Vulnerable, LC – Least Concern, N/A – Not Assessed. $ EOO[23] – Extent of Occurrence as a surrogate indicator for global population estimates.in relation to the Ecologically appropriate area of analysis (EAAA) ¥Due to the unavailable EOO (or an under-estimated range within a highly fragments or widely distributed range), an estimated area of known distribution was used as a proxy for global population estimates, which assumes suitable habitat present within the homogenous conditions throughout the range.

[23] Extent of Occurrence (EOO) refers to the area contained within the shortest continuous imaginary boundary that can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a species. It represents the total area where a species could potentially occur, regardless of whether it actually occupies the entire area. It provides a broad understanding of the geographical range of a species and is often used in assessing the overall distribution and conservation status.

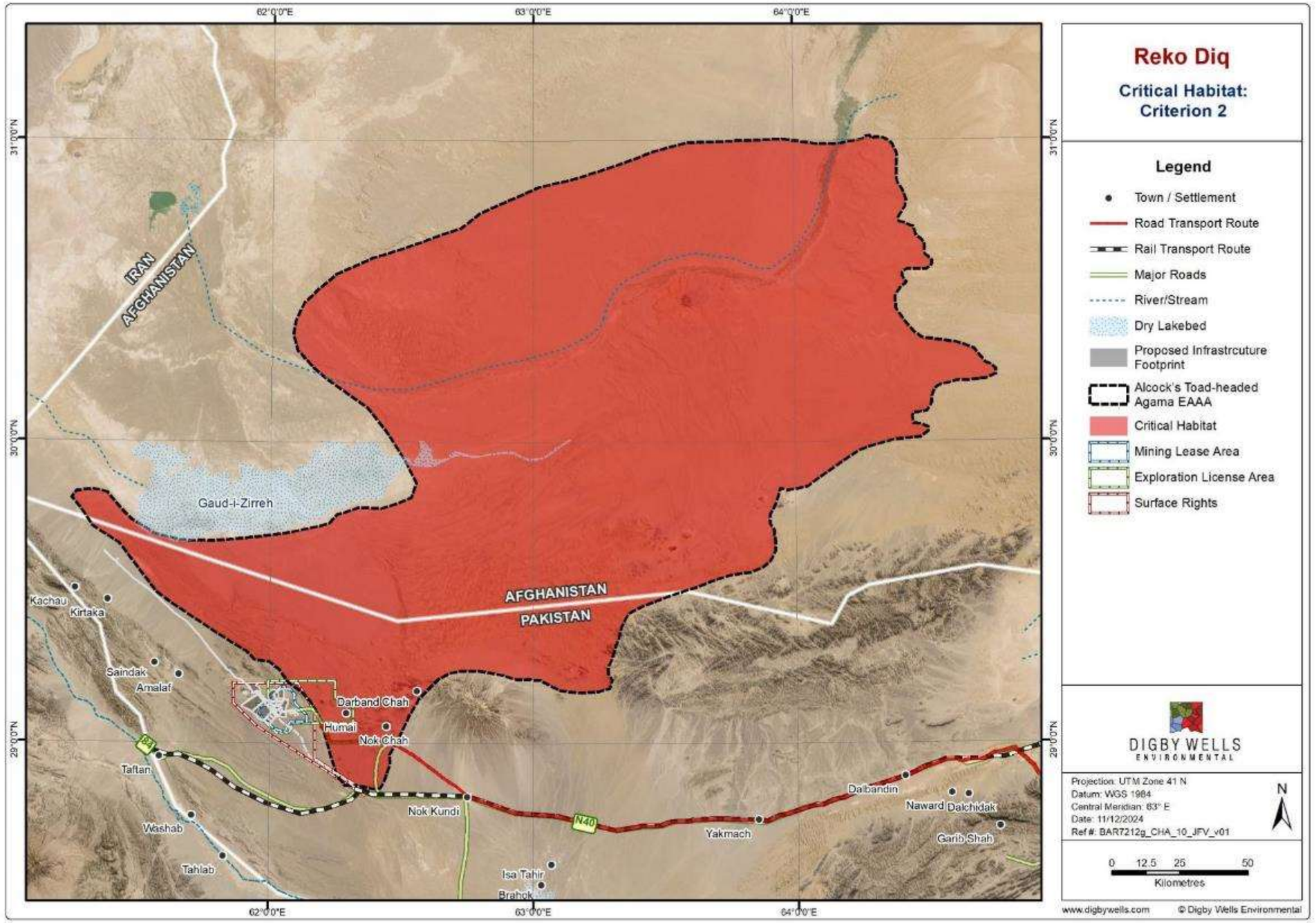


Figure 4-12: Critical Habitat for Criterion 2, specifically for *Phrynocephalus euptilopus* (Alcock's Toad-headed Agama)

4.2.2.2.1. Trigger Species

The following species met the required thresholds, under Criterion 2, to qualify as critical habitat within the respective EAAAs and as such, these species and their associated habitat proxies should be effectively managed toward net gain, where possible:

- Only one restricted range reptile species *Phrynocephalus euptilopus* (Alcock's Toad-headed Agama) is reported within the Mine Site. The IUCN has reported presence in Darband Cha in Balochistan, found along the Afghan border, and from southwest Afghanistan. The species was also observed in both the 2022, and 2024 surveys outside the areas previously reported through the IUCN. There is very little data for this species, much of it outdated, with only a few species observed in the Sand Dunes/ Sandy Plains habitat. As such, without comprehensive surveys across the border in Afghanistan and potentially Iran (which at this stage are not possible) only very course estimates of range can be made and a determination of the percentage of population that may exist within the Project disturbance area cannot be made.

  Considering the confirmed presence of this species on-site and the fact that the whole suspected EOO for the species, as supplemented by site visit data and historical ESIA-level studies) is also the defined EAAA due to the lack of landscape-derived boundaries from the study area. Hence, this species is considered to be a trigger under Criterion 2(a) and as such a precautionary approach will be taken to define management plans as appropriate.

4.2.2.2.2. Non-Trigger Species

Many of the expected species were considered trigger species for critical habitat, under Criterion 2. However, considering additional factors (e.g. EOO thresholds in relation to endemicity, available distribution data, likelihood of occurrence within the AoI, etc.) and further interpretation of the available data, these species are not considered triggers for critical habitat for this proposed activities at the Mine Site, such as:

- *Ursus thibetanus ssp. gedrosianus* (Baluchistan Black Bear) was considered under sub-criterion 2(a), as the perceived EOO of this subspecies is believed to be restricted to the Chagai mountains range, as well as an isolated population further south-west within the country.

  In consideration of its absence during the literature review and/or the field survey/s, as well as the location of the remnant population further to the south-west, *the species is not considered a trigger for critical habitat*, as population within Pakistan is larger listed as extinct within the country and/or parts of the region.

- *Trochorbis anastasiae,* a freshwater snail is listed as Data Deficient and expected according to the IBAT dataset, but there is limited information available to interpret the relevance of the potential populations to the AoI. However, considered the largely absence of freshwater ecosystems, for which the species is reliant on to survive, breed, and forage, it can be assumed that there is no supporting habitat available to support

the species within the Mine Site AoI. Therefore, *the species was not considered to trigger critical habitat*.

4.2.2.3. Criterion 3: Migratory and Congregatory Species

In reference to the expected species list, a total of 167 species of migratory species were likely to be present within the Mine Site AoI, including:

- 145 avifaunal species,
- 8 potential freshwater fishes,
- 13 invertebrate (including the Odonata, Lepidoptera, and Unionidae), and
- 2 mammalian species, including the *Ovis vignei spp. cycloceros* (Afghan Urial) and *Capra aegagrus* (Wild Goat, listed at Near Threatened on global and national scale, depending on subspecies).

Of these species, one was identified as triggering critical habitat according to Criterion 3, namely *Passer moabiticus* (Dead Sea Sparrow). This assessment is discussed more in Section 4.2.2.3.1.

Clause GN78 of Guidance Note 6 presents the following two thresholds for Criterion 3:

> **IFC Performance Standard 6 Guidance Note GN78:**
>
> (a) Areas known to sustain, on a cyclical or otherwise regular basis, ≥ 1 percent of the global population of a migratory or congregatory species at any point of the species' lifecycle.
>
> (b) Areas that predictably support ≥10 percent of the global population of a species during periods of environmental stress.

For the purpose of the current assessment, the species associated with **freshwater ecosystems (including freshwater fishes, Odonata, and Unionidae)** were disregarded as there are no freshwater habitat within the AoI of the Mine Site that may support survival of these species.

Similarly, the altitudinal migration expected for the **two mammalian species** are disregarded from this screening assessment, as the concentration of these populations at either the valley- or mountain-top is not believed to be sufficient to support a significantly population/concentration of species within the Mine Site AoI. This is further supported by the aforementioned distribution ranges associated with the Afghan Urial likely to be present outside of the Mine Site AoI, and the absence of these species being expected within the AoI or detected through the literature review and/or field survey/s.

In terms of the ***Vanessa cardui*** **(Painted Lady, listed as LC)**, which is acknowledged to be one of the most widespread butterflies in the world, occurring on all continents except Australia, most of South America and Antarctica. It is known to migrate in both the western and eastern hemispheres with between America and Canda, as well as seasonal migrant to Europe. Considering its EOO of 174 million km^2, the Mine Site AoI is not anticipated to support

a significant concentration of the population and *is not considered to be a trigger for critical habitat under Criterion 3*.

With regards to the migratory birds, it is acknowledged and understood that the Mine Site AoI and surrounding areas are directly associated with the Central Asian Flyway, which serves as a critical migratory route for birds travelling between their breeding grounds in northern Asia and their wintering (non-breeding) habitats in South Asia. Along these routes, there is a significant diversity of birds travelling across arid landscapes and mountainous area, which rely on key stop overs for resting and re-fuelling points, such as the Zangi Nawar Lake, Hamun-e-Mashkel, Hingol National Park, Dalbandin Wetlands, Hamun-e-Helmand Basin, and the Chagai Desert. Each of these stopovers and rest-sites are expected to support different species of birds, either waterfowls, or ground-dwelling birds, or steppe raptors. However, since the habitat suitability for each of these expected species may support different proportions of the local/regional populations, each of these species were screened against a wide-ranging EAAA to determine if the significant concentrations are supported (refer to Table 4-4)

In the case of migratory bird species, the EOO should be based on the minimum of the breeding or nonbreeding (wintering) areas, but not both, because such species are dependent on both areas, and the bulk of the population is found in only one of these areas at any time.

Table 4-4: Detected avifaunal migratory species that are candidate Criterion 3 trigger species. Their IUCN category and geographical and population information are included in the table below.

Family	Scientific Name	Common Name	IUCN Category	Population Estimate / EOO$ (km²)	EAAA$ (km²)	% Supported	Criterion Considerations	Criterion 3 Trigger	Comments
ACCIPITRIDAE	*Aquila nipalensis*	Steppe Eagle	EN	12 600 000	21 493.01	0.17%		No	
ACCIPITRIDAE	*Neophron percnopterus*	Egyptian Vulture	EN	50 100 000	21 493.01	0.04%		No	
OTIDIDAE	*Chlamydotis macqueenii*	Asian Houbara	VU	13 200 000	21 493.01	0.16%		No	
ACCIPITRIDAE	*Aquila heliaca*	Eastern Imperial Eagle	VU	14 900 000	21 493.01	0.14%		No	
CHARADRIIDAE	***Vanellus gregarius***	**Sociable Lapwing**	**CR**	**1 620 000**	**21 493.01**	**1.33%**		**No**	
FALCONIDAE	*Falco cherrug*	Saker Falcon	EN	19 100 000	21 493.01	0.11%		No	
ACCIPITRIDAE	*Clanga clanga*	Greater Spotted Eagle	VU	15 300 000	21 493.01	0.14%		No	
COLUMBIDAE	*Columba eversmanni*	Yellow-eyed Pigeon	VU	3 080 000	21 493.01	0.70%		No	
ACCIPITRIDAE	*Accipiter nisus*	Eurasian Sparrowhawk	LC	54 400 000	21 493.01	0.04%		No	
ACROCEPHALIDAE	*Acrocephalus stentoreus*	Clamorous Reed-warbler	LC	33 310 000	21 493.01	0.06%		No	
ALAUDIDAE	*Alauda arvensis*	Eurasian Skylark	LC	42 900 000	21 493.01	0.05%		No	
ALAUDIDAE	*Alauda gulgula*	Oriental Skylark	LC	23 600 000	21 493.01	0.09%		No	
ANATIDAE	*Anas crecca*	Common Teal	LC	60 200 000	21 493.01	0.04%		No	
MOTACILLIDAE	*Anthus trivialis*	Tree Pipit	LC	35 100 000	21 493.01	0.06%		No	
ARDEIDAE	*Ardea cinerea*	Grey Heron	LC	136 000 000	21 493.01	0.02%		No	
ARDEIDAE	*Ardea purpurea*	Purple Heron	LC	109 000 000	21 493.01	0.02%		No	
ACCIPITRIDAE	*Buteo rufinus*	Long-legged Buzzard	LC	32 300 000	21 493.01	0.07%		No	
ALAUDIDAE	*Calandrella brachydactyla*	Greater Short-toed Lark	LC	24 800 000	21 493.01	0.09%		No	
CAPRIMULGIDAE	*Caprimulgus europaeus*	European Nightjar	LC	19 500 000	21 493.01	0.11%		No	
CHARADRIIDAE	*Charadrius alexandrinus*	Kentish Plover	LC	70 700 000	21 493.01	0.03%		No	
CHARADRIIDAE	*Charadrius dubius*	Little Ringed Plover	LC	55 900 000	21 493.01	0.04%		No	
ACCIPITRIDAE	*Circaetus gallicus*	Short-toed Snake-eagle	LC	48 800 000	21 493.01	0.04%		No	
CORACIIDAE	*Coracias garrulus*	European Roller	LC	19 900 000	21 493.01	0.11%		No	
SYLVIIDAE	*Curruca curruca*	Lesser Whitethroat	LC	23 800 000	21 493.01	0.09%		No	
SYLVIIDAE	*Curruca mystacea*	Menetries's Warbler	LC	4 480 000	21 493.01	0.48%		No	
SYLVIIDAE	*Curruca nana*	Asian Desert Warbler	LC	7 010 000	21 493.01	0.31%		No	
ARDEIDAE	*Egretta garzetta*	Little Egret	LC	15 100 0000	21 493.01	0.01%		No	
FALCONIDAE	*Falco tinnunculus*	Common Kestrel	LC	106 000 000	21 493.01	0.02%		No	
MUSCICAPIDAE	*Ficedula parva*	Red-breasted Flycatcher	LC	2 630 000	21 493.01	0.82%		No	
ALAUDIDAE	*Galerida cristata*	Crested Lark	LC	52 700 000	21 493.01	0.04%		No	
RECURVIROSTRIDAE	*Himantopus himantopus*	Black-winged Stilt	LC	335 000 000	21 493.01	0.01%		No	
HIRUNDINIDAE	*Hirundo rustica*	Barn Swallow	LC	251 000 000	21 493.01	0.01%		No	
LARIDAE	*Hydroprogne caspia*	Caspian Tern	LC	258 000 000	21 493.01	0.01%		No	
ARDEIDAE	*Ixobrychus minutus*	Common Little Bittern	LC	34 800 000	21 493.01	0.06%		No	
LANIIDAE	*Lanius isabellinus*	Isabelline Shrike	LC	4 880 000	21 493.01	0.44%		No	
LANIIDAE	*Lanius vittatus*	Bay-backed Shrike	LC	5 690 000	21 493.01	0.38%		No	
LARIDAE	*Larus genei*	Slender-billed Gull	LC	22 600 000	21 493.01	0.10%		No	
MOTACILLIDAE	*Motacilla alba*	White Wagtail	LC	37 800 000	21 493.01	0.06%		No	
MOTACILLIDAE	*Motacilla citreola*	Citrine Wagtail	LC	13 600 000	21 493.01	0.16%		No	
MOTACILLIDAE	*Motacilla flava*	Western Yellow Wagtail	LC	40 900 000	21 493.01	0.05%		No	

Family	Scientific Name	Common Name	IUCN Category	Population Estimate / EOO$ (km²)	EAAA$ (km²)	% Supported	Criterion Considerations	Criterion 3 Trigger	Comments
MUSCICAPIDAE	*Muscicapa striata*	Spotted Flycatcher	LC	20 600 000	21 493.01	0.10%		No	
MUSCICAPIDAE	*Oenanthe deserti*	Desert Wheatear	LC	21 400 000	21 493.01	0.10%		No	
MUSCICAPIDAE	*Oenanthe finschii*	Finsch's Wheatear	LC	4 320 000	21 493.01	0.50%		No	
MUSCICAPIDAE	*Oenanthe isabellina*	Isabelline Wheatear	LC	16 000 000	21 493.01	0.13%		No	
MUSCICAPIDAE	***Oenanthe picata***	**Variable Wheatear**	**LC**	**2 110 000**	**21 493.01**	**1.02%**		**No**	
MUSCICAPIDAE	*Phoenicurus ochruros*	Black Redstart	LC	22 700 000	21 493.01	0.09%		No	
MUSCICAPIDAE	*Phoenicurus phoenicurus*	Common Redstart	LC	20 300 000	21 493.01	0.11%		No	
PHYLLOSCOPIDAE	*Phylloscopus neglectus*	Plain Leaf-warbler	LC	2 450 000	21 493.01	0.88%		No	
PHYLLOSCOPIDAE	***Phylloscopus nitidus***	**Green Warbler**	**LC**	**1 440 000**	**21 493.01**	**1.49%**		**No**	
PHYLLOSCOPIDAE	*Phylloscopus trochiloides*	Greenish Warbler	LC	7 170 000	21 493.01	0.30%		No	
PTEROCLIDAE	*Pterocles orientalis*	Black-bellied Sandgrouse	LC	14 700 000	21 493.01	0.15%		No	
PTEROCLIDAE	*Pterocles senegallus*	Spotted Sandgrouse	LC	20 100 000	21 493.01	0.11%		No	
HIRUNDINIDAE	*Ptyonoprogne rupestris*	Eurasian Crag Martin	LC	29 300 000	21 493.01	0.07%		No	-
RECURVIROSTRIDAE	*Recurvirostra avosetta*	Pied Avocet	LC	77 200 000	21 493.01	0.03%		No	-
MUSCICAPIDAE	*Saxicola caprata*	Pied Bushchat	LC	25 400 000	21 493.01	0.08%		No	-
COLUMBIDAE	*Spilopelia senegalensis*	Laughing Dove	LC	64 400 000	21 493.01	0.03%		No	-
STURNIDAE	*Sturnus vulgaris*	Common Starling	LC	33 200 000	21 493.01	0.06%		No	-
SCOLOPACIDAE	*Tringa totanus*	Common Redshank	LC	40 700 000	21 493.01	0.05%		No	-
CHARADRIIDAE	*Vanellus leucurus*	White-tailed Lapwing	LC	6 960 000	21 493.01	0.31%		No	-
ACCIPITRIDAE	*Accipiter nisus*	Eurasian Sparrowhawk	LC	54 400 000	21 493.01	0.04%		No	-
ACROCEPHALIDAE	*Acrocephalus stentoreus*	Clamorous Reed-warbler	LC	33 310 000	21 493.01	0.06%		No	-
ALAUDIDAE	*Alauda arvensis*	Eurasian Skylark	LC	42 900 000	21 493.01	0.05%		No	-
ALAUDIDAE	*Alauda gulgula*	Oriental Skylark	LC	23 600 000	21 493.01	0.09%		No	-
ANATIDAE	*Anas crecca*	Common Teal	LC	60 200 000	21 493.01	0.04%		No	-
MOTACILLIDAE	*Anthus trivialis*	Tree Pipit	LC	35 100 000	21 493.01	0.06%		No	-
ARDEIDAE	*Ardea cinerea*	Grey Heron	LC	136 000 000	21 493.01	0.02%		No	-
ARDEIDAE	*Ardea purpurea*	Purple Heron	LC	109 000 000	21 493.01	0.02%		No	-
ANATIDAE	*Anser anser*	Greylag Goose	LC	31200000	21 497.01	0.07%		No	-
ANATIDAE	*Tadorna ferruginea*	Ruddy Shelduck	LC	37900000	21 498.01	0.06%		No	-
ANATIDAE	*Mareca strepera*	Gadwall	LC	73100000	21 499.01	0.03%		No	-
ANATIDAE	*Spatula clypeata*	Northern Shoveler	LC	39900000	21 500.01	0.05%		No	-
ANATIDAE	*Netta rufina*	Red-crested Pochard	LC	19600000	21 502.01	0.11%		No	-
ANATIDAE	*Aythya fuligula*	Tufted Duck	LC	34900000	21 503.01	0.06%		No	-
UPUPIDAE	*Upupa epops*	Common Hoopoe	LC	1.04E+08	21 504.01	0.02%		No	-
MEROPIDAE	*Merops persicus*	Blue-cheeked Bee-eater	LC	31100000	21 506.01	0.07%		No	-
CUCULIDAE	*Cuculus canorus*	Common Cuckoo	LC	51500000	21 507.01	0.04%		No	-
APODIDAE	*Tachymarptis melba*	Alpine Swift	LC	61100000	21 508.01	0.04%		No	-
APODIDAE	*Apus apus*	Common Swift	LC	39800000	21 509.01	0.05%		No	-
CAPRIMULGIDAE	*Caprimulgus aegyptius*	Egyptian Nightjar	LC	12100000	21 511.01	0.18%		No	-
CAPRIMULGIDAE	***Caprimulgus mahrattensis***	**Sykes's Nightjar**	**LC**	**1550000**	**21 512.01**	**1.39%**		**No**	**Not detected and EAAA is located on the edge of its distribution.**
GRUIDAE	*Anthropoides virgo*	Demoiselle Crane	LC	12400000	21 514.01	0.17%		No	-

Family	Scientific Name	Common Name	IUCN Category	Population Estimate / EOO$ (km²)	EAAA$ (km²)	% Supported	Criterion Considerations	Criterion 3 Trigger	Comments
RALLIDAE	*Fulica atra*	Common Coot	LC	1.52E+08	21 515.01	0.01%		No	-
CHARADRIIDAE	*Charadrius asiaticus*	Caspian Plover	LC	3120000	21 521.01	0.69%		No	-
GLAREOLIDAE	*Glareola pratincola*	Collared Pratincole	LC	52700000	21 523.01	0.04%		No	-
LARIDAE	*Larus fuscus*	Lesser Black-backed Gull	LC	19400000	21 524.01	0.11%		No	-
LARIDAE	*Sternula albifrons*	Little Tern	LC	2.04E+08	21 527.01	0.01%		No	-
ACCIPITRIDAE	*Haliaeetus albicilla*	White-tailed Sea-eagle	LC	42700000	21 528.01	0.05%		No	-
ACCIPITRIDAE	*Circus aeruginosus*	Western Marsh-harrier	LC	24800000	21 529.01	0.09%		No	-
ACCIPITRIDAE	*Circus pygargus*	Montagu's Harrier	LC	18000000	21 530.01	0.12%		No	-
ACCIPITRIDAE	*Aquila chrysaetos*	Golden Eagle	LC	1.4E+08	21 532.01	0.02%		No	-
ACCIPITRIDAE	*Hieraaetus pennatus*	Booted Eagle	LC	72300000	21 533.01	0.03%		No	-
FALCONIDAE	*Falco subbuteo*	Eurasian Hobby	LC	52600000	21 535.01	0.04%		No	-
PODICIPEDIDAE	*Tachybaptus ruficollis*	Little Grebe	LC	1.34E+08	21 536.01	0.02%		No	-
PODICIPEDIDAE	*Podiceps cristatus*	Great Crested Grebe	LC	1.83E+08	21 537.01	0.01%		No	-
PODICIPEDIDAE	*Podiceps nigricollis*	Black-necked Grebe	LC	1.46E+08	21 538.01	0.01%		No	-
ARDEIDAE	*Ardea alba*	Great White Egret	LC	3.46E+08	21 541.01	0.01%		No	-
CICONIIDAE	*Ciconia ciconia*	White Stork	LC	52700000	21 542.01	0.04%		No	-
MUSCICAPIDAE	*Phoenicurus erythronotus*	Eversmann's Redstart	LC	2310000	21 549.01	0.93%		No	-
MUSCICAPIDAE	*Saxicola torquatus*	Common Stonechat	LC	1.13E+08	21 552.01	0.02%		No	-
SITTIDAE	*Sitta tephronota*	Eastern Rock Nuthatch	LC	4840000	21 559.01	0.45%		No	-
REMIZIDAE	*Remiz coronatus*	White-crowned Penduline-tit	LC	7100000	21 560.01	0.30%		No	-
HIRUNDINIDAE	*Ptyonoprogne obsoleta*	Pale Rock Martin	LC	22100000	21 562.01	0.10%		No	-
HYPOCOLIIDAE	***Hypocolius ampelinus***	**Hypocolius**	**LC**	**1850000**	**21 564.01**	**1.17%**	Not detected and only part of EOO is overlapped.	No	**Not likely a significant concentration of individuals**
LOCUSTELLIDAE	*Locustella fluviatilis*	River Warbler	LC	7580000	21 565.01	0.28%		No	-
ACROCEPHALIDAE	*Acrocephalus scirpaceus*	Common Reed-warbler	LC	64300000	21 566.01	0.03%		No	-
ACROCEPHALIDAE	*Iduna rama*	Sykes's Warbler	LC	7250000	21 567.01	0.30%		No	-
ACROCEPHALIDAE	*Hippolais languida*	Upcher's Warbler	LC	5370000	21 568.01	0.40%		No	-
PHYLLOSCOPIDAE	*Phylloscopus trochilus*	Willow Warbler	LC	23100000	21 569.01	0.09%		No	-
SYLVIIDAE	*Sylvia borin*	Garden Warbler	LC	17900000	21 571.01	0.12%		No	-
SYLVIIDAE	*Curruca communis*	Common Whitethroat	LC	24600000	21 572.01	0.09%		No	-
ALAUDIDAE	*Melanocorypha bimaculata*	Bimaculated Lark	LC	5520000	21 574.01	0.39%		No	-
PASSERIDAE	*Passer hispaniolensis*	Spanish Sparrow	LC	16600000	21 577.01	0.13%		No	-
PASSERIDAE	***Passer moabiticus***	**Dead Sea Sparrow**	**LC**	**1770000**	**21 578.01**	**1.22%**		**Yes**	**Meets threshold**
PASSERIDAE	*Carpospiza brachydactyla*	Pale Sparrow	LC	4380000	21 579.01	0.49%		No	-
MOTACILLIDAE	*Anthus campestris*	Tawny Pipit	LC	22100000	21 582.01	0.10%		No	-
MOTACILLIDAE	*Anthus spinoletta*	Water Pipit	LC	17500000	21 584.01	0.12%		No	-
FRINGILLIDAE	*Linaria cannabina*	Common Linnet	LC	27300000	21 585.01	0.08%		No	-
EMBERIZIDAE	***Emberiza stewarti***	**White-capped Bunting**	**LC**	**1860000**	**21 586.01**	**1.16%**		**No**	**Not likely a significant concentration of individuals.**
EMBERIZIDAE	*Emberiza melanocephala*	Black-headed Bunting	LC	6120000	21 587.01	0.35%		No	-
EMBERIZIDAE	*Emberiza schoeniclus*	Reed Bunting	LC	42100000	21 588.01	0.05%		No	-

Family	Scientific Name	Common Name	IUCN Category	Population Estimate / EOO$ (km²)	EAAA$ (km²)	% Supported	Criterion Considerations	Criterion 3 Trigger	Comments
RALLIDAE	*Rallus aquaticus*	Western Water Rail	LC	34100000	21 589.01	0.06%		No	-
ACCIPITRIDAE	*Circus cyaneus*	Hen Harrier	LC	34800000	21 591.01	0.06%		No	-
PHYLLOSCOPIDAE	*Phylloscopus sindianus*	Mountain Chiffchaff	LC	3640000	21 593.01	0.59%		No	-
ACROCEPHALIDAE	*Iduna pallida*	Olivaceous Warbler	LC	25400000	21 596.01	0.09%		No	-
MUSCICAPIDAE	*Oenanthe chrysopygia*	Red-tailed Wheatear	LC	2520000	21 597.01	0.86%		No	-
GLAREOLIDAE	*Cursorius cursor*	Cream-coloured Courser	LC	22100000	21 600.01	0.10%		No	-
BURHINIDAE	*Burhinus oedicnemus*	Eurasian Thick-knee	LC	27000000	21 603.01	0.08%		No	-
FALCONIDAE	*Falco peregrinus*	Peregrine Falcon	LC	4.13E+08	21 604.01	0.01%		No	-
LARIDAE	*Gelochelidon nilotica*	Common Gull-billed Tern	LC	1.63E+08	21 605.01	0.01%		No	-
RALLIDAE	*Gallinula chloropus*	Common Moorhen	LC	1.33E+08	21 606.01	0.02%		No	-
LANIIDAE	*Lanius phoenicuroides*	Red-tailed Shrike	LC	5670000	21 610.01	0.38%		No	-
LANIIDAE	*Lanius excubitor*	Great Grey Shrike	LC	55500000	21 611.01	0.04%		No	-
FRINGILLIDAE	*Carduelis caniceps*	Eastern Goldfinch	LC	7250000	21 612.01	0.30%		No	-
MUSCICAPIDAE	*Oenanthe oenanthe*	Northern Wheatear	LC	79500000	21 614.01	0.03%		No	-
PHYLLOSCOPIDAE	*Phylloscopus tristis*	Siberian Chiffchaff	LC	11300000	21 616.01	0.19%		No	-
TURDIDAE	*Turdus merula*	Eurasian Blackbird	LC	32400000	21 619.01	0.07%		No	-
REMIZIDAE	*Remiz pendulinus*	Eurasian Penduline-tit	LC	16600000	21 620.01	0.13%		No	-
ACCIPITRIDAE	*Milvus migrans*	Black Kite	LC	1.16E+08	21 621.01	0.02%		No	-
ALAUDIDAE	*Alaudala heinei*	Turkestan Short-toed Lark	LC	13640000	21 622.01	0.16%		No	-
CHARADRIIDAE	*Charadrius atrifrons*	Tibetan Sandplover	LC	4500000	21 624.01	0.48%		No	-
ANATIDAE	*Marmaronetta angustirostris*	Marbled Teal	NT	13500000	21 625.01	0.16%		No	-
ANATIDAE	*Aythya nyroca*	Ferruginous Duck	NT	25200000	21 626.01	0.09%		No	-
OTIDIDAE	*Tetrax tetrax*	Little Bustard	NT	14700000	21 627.01	0.15%		No	-
SCOLOPACIDAE	*Limosa limosa*	Black-tailed Godwit	NT	30300000	21 628.01	0.07%		No	-
SCOLOPACIDAE	*Numenius arquata*	Eurasian Curlew	NT	20700000	21 629.01	0.10%		No	-
HAEMATOPODIDAE	*Haematopus ostralegus*	Eurasian Oystercatcher	NT	36600000	21 630.01	0.06%		No	-
ACCIPITRIDAE	*Aegypius monachus*	Cinereous Vulture	NT	22400000	21 631.01	0.10%		No	-
ACCIPITRIDAE	*Circus macrourus*	Pallid Harrier	NT	10900000	21 632.01	0.20%		No	-
PELECANIDAE	*Pelecanus crispus*	Dalmatian Pelican	NT	12600000	21 633.01	0.17%		No	-

* Rows highlighted in **Orange** indicate that species that have already been assessed as part of the Criterion 1 thresholds due to threatened state. ** Rows highlighted in **Green** indicate species that were not detected through the literature review and/or field survey/s, but have the potential to be present within the area. *** Rows highlighted in **Blue** indicate species that were detected through the literature review and/or field survey/s undertaken, but not listed on the IBAT expected species list. $EOO[24] – Extent of Occurrence as a surrogate indicator for global population estimates.in relation to the Ecologically appropriate area of analysis (EAAA) ¥Due to the unavailable EOO (or an under-estimated range within a highly fragments or widely distributed range), an estimated area of known distribution was used as a proxy for global population estimates, which assumes suitable habitat present within the homogenous conditions throughout the range.

[24] Extent of Occurrence (EOO) refers to the area contained within the shortest continuous imaginary boundary that can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a species. It represents the total area where a species could potentially occur, regardless of whether it actually occupies the entire area. It provides a broad understanding of the geographical range of a species and is often used in assessing the overall distribution and conservation status.

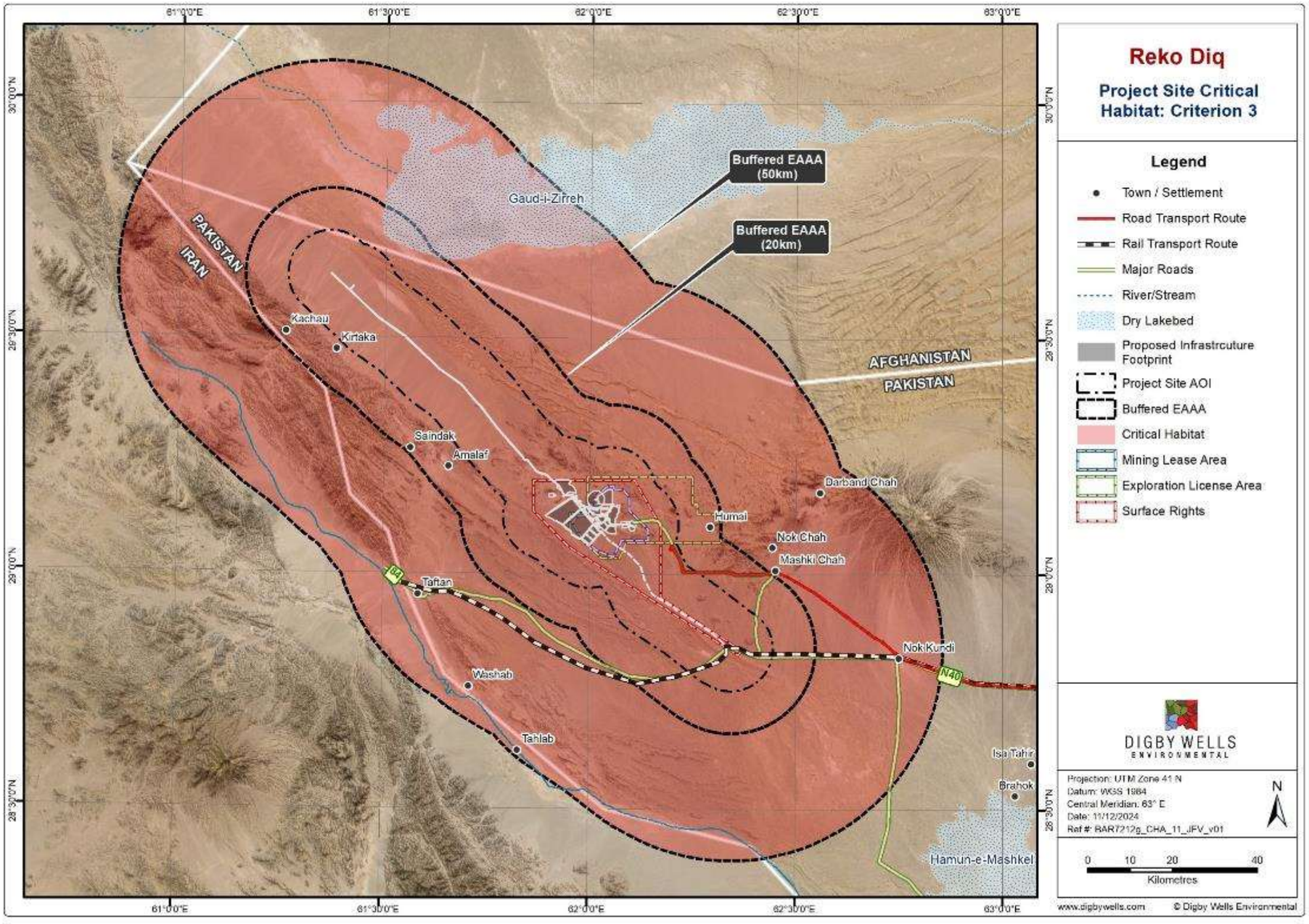


Figure 4-13: Critical Habitat for Criterion 3, as derived for the wide-ranging migratory bird/butterfly species

4.2.2.3.1. Trigger Species

The following species met one or more of the required thresholds under Criterion 3 to qualify as critical habitat within the respective EAAAs, and as such, these species and their associated habitat proxies should be effectively managed toward net gain, where possible:

- *Passer moabiticus* (Dead Sea Sparrow, listed as LC) has a partially fragmented distribution range with a western population largely thriving in native breeding areas in southern Turkey and portions of Cyprus, and resident areas extending from Israel/Jordan to Iraq and western Iran (Figure 4-14). Also, an eastern population seems to be supported by resident areas in southern Afghanistan and breeding areas in north-western Pakistan (near the Mine Site AoI). In both sub-populations, there is a wide range of passage habitats supporting connectivity between remnant habitats.

  Considering the isolated population toward the east, which is directly associated with the Mine Site AoI, *this species may trigger potential critical habitat*, as the sub-population may support another clade of species, thereby reducing the EOO of the species complex. However, considering the sensitivity to habitat degradation from factors such as irrigation, overgrazing and erosion, the species may not thrive in this native non-breeding zone, especially in consideration of the preference for riverine (or lacustrine) area with trees or scrub, and irrigated semi-desert, which are unlikely to be available within the AoI.

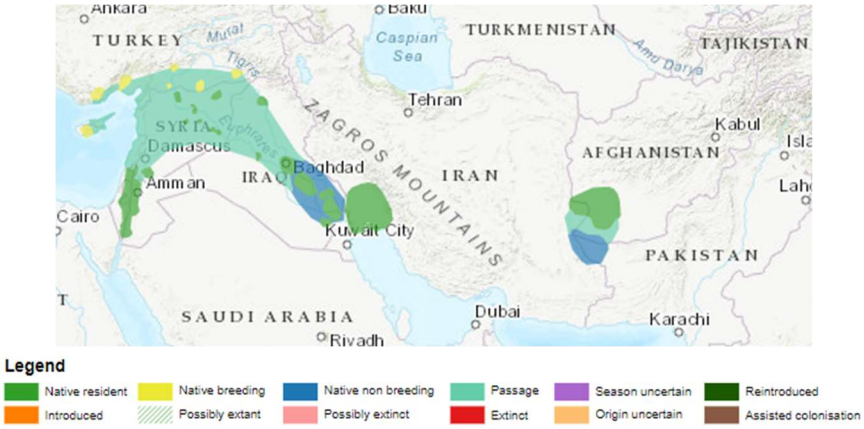


Figure 4-14: Distribution map for Dead Sea Sparrow *Passer moabiticus* (BirdLife International 2024c)

4.2.2.3.2. Non-Trigger Species

Many of the expected species were considered trigger species for critical habitat, as per the definition of candidate trigger species and/or meeting the stipulated thresholds. However, considering additional factors (e.g. habitat suitability, movement patterns, ecological requirements, etc.) and further interpretation of the available data, these species are not considered triggers for critical habitat for this proposed activities at the Mine Site, such as:

- As above (refer to Section 4.2.2.1), the EAAA presented for *Vanellus gregarius* (Sociable Lapwing, listed at CR) occurs in the passage distribution range, the these population/s are not expected to be explicitly reliant on any specific habitat/s within the Mine Site AoI, nor a specific landscape feature that may be relevant to the species survival. Consequently, although it meets the thresholds for Criterion 3 as well, the airshed within the vicinity of the Project AoI is expected to remain largely unaffected and as such, the species is *not considered to trigger critical habitat*.
- *Oenanthe picata* (Variable Wheatear, listed as LC) is a common species with an extremely large distribution range across central Asia, and accounting for both a resident, breeding and non-breeding ranges within Pakistan (Figure 4-15). The EAAA is mostly covered by its passage distribution and partly covered by the native breeding distribution. This indicates that the EAAA likely supports less than 1% of its EOO. Additionally, the size of the specimen indicates the likelihood of a collision with powerline is low. As such, it is anticipated that the airshed will remain largely intact within the Mine Site AoI. Subsequently, for the purposes of this assessment, and in consideration of the marginal exceedance of the threshold value, *this species is not considered a trigger for critical habitat.*

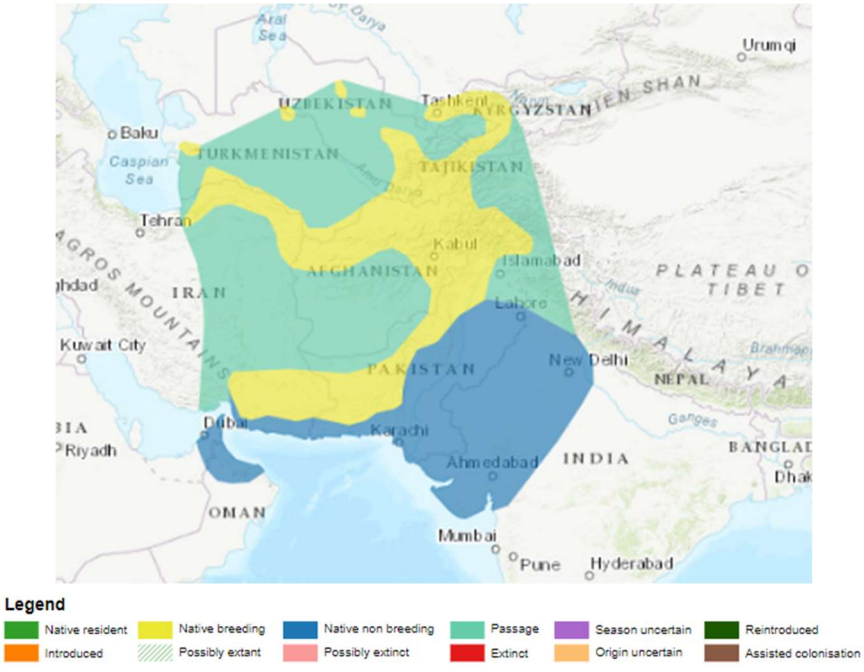


Figure 4-15: Distribution map for Variable Wheatear *Oenanthe* picata (BirdLife International 2024d)

In addition, although this species was confirmed to be present during the literature review and /or field survey/s, it is believed to be a coincidental sighting within its predominantly passage distribution range. Should any habits be noted within the population that may support the species survival i.e. breeding, important stop-over, etc., these justifications may need to be reviewed.

- *Phylloscopus nitidus* (Green Warbler, listed as LC) has an extremely large range and the population size is extremely large, hence does not approach threatened thresholds for the range or population size criteria. As above, the Mine Site AoI is placed firmly within the passage distribution range and as such, it is not anticipated to elicit material changes to the movement corridor within the airshed and *not likely to trigger critical habitat* (Figure 4-16). The species is well-established and frequents the movement corridor between southern India and Turkey for the breeding season.

  As above, although this species was confirmed to be present during the literature review and /or field survey/s, it was likely to be incidental sighting between migratory routes in breeding and non-breeding zones.

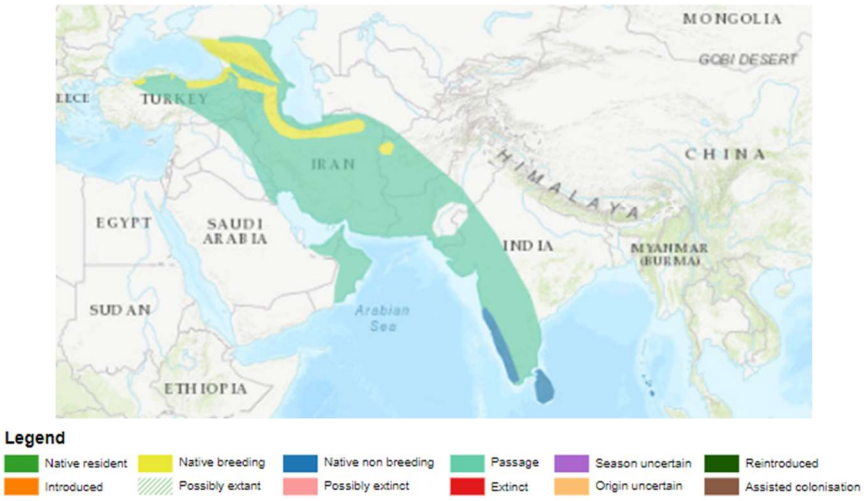


Figure 4-16: Distribution map for Green Warbler *Phylloscopus nitidus* (BirdLife International 2024e)

- *Caprimulgus mahrattensis* (Syke's Nightjar, listed as LC) has a large range and is reportedly locally common in many regions across both its native resident and non-breeding range in Afghanistan, Pakistan and India (Figure 4-17). It is also a small bird, with tendencies to nest on the ground and largely nocturnal, which may be affect a portion of its available nesting and foraging habitat within the Mine Site AoI.

  Since the species has not been confirmed on-site yet, and in consideration that the proposed activities are on the edge of the its distribution range, its likelihood of being present of site is considered to be low. Therefore, since much of the EAAA will not directly support this species, *it is not likely to be considered a trigger for critical habitat*, as the thresholds are only marginally exceeded.

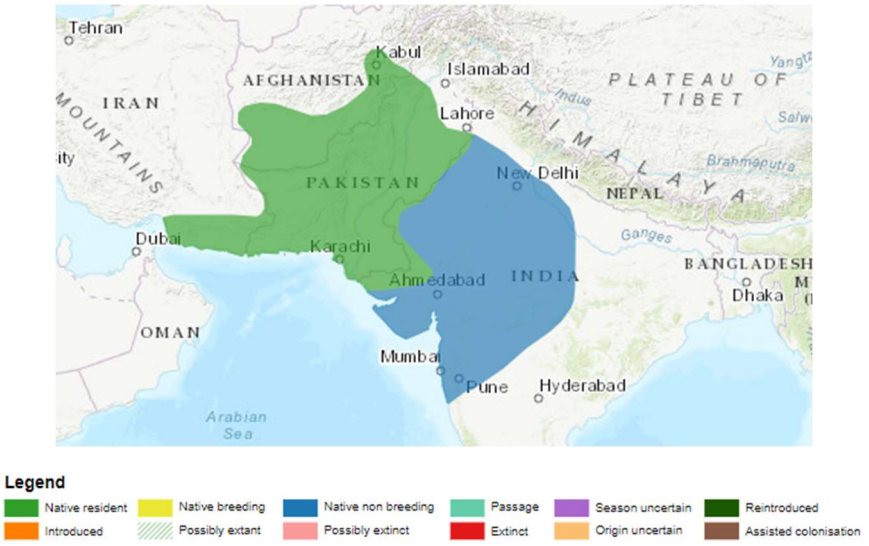


Figure 4-17: Distribution map for Sykes Nightjar *Caprimulgus mahrattensis* (BirdLife International 2024f)

- *Hypocolius ampelinus* (Hypocolius, listed LC) has a large range, but it is largely limited to resident range within Iran and breeding areas in Afghanistan and Iraq – essentially its range is largely outside of the Pakistan (Figure 4-18). It is acknowledged that a small portion of the EAAA is supporting this distribution range, but this is relatively small proportion and as such, it is expected that threshold value will likely be missed following the amendment to the EAAA.

  Since this species has also not been confirmed on-site, there is a chance that it will not be present within the Mine Site AoI and as such, it will not be considered a trigger for critical habitat, especially considering the limited impacted from the project activities upon the airshed that will be supporting this species.

- *Emberiza stewartia* (White-capped Bunting, listed as LC) has a north-south distribution range for breeding areas in Tajikistan, Kyrgyzstan and parts of Afghanistan, while resident areas are largely present within India and north-eastern Pakistan (Figure 4-19). Consideirng the distribution range along the Afghanistan-Pakistan border along the Chagai Hills area, the proposed EAAA is anticipated to be an over-estimation for the threshold value and as such, this was not considered a significant congregatory bird that *warrants it as a trigger for critical habitat*.

  This is further supported by the lack of evidence of this species being observed within the literature review and/or during the field survey/s undertaken. Should notably observations be recorded within the Mine Site AoI, the significance can be reevaluated at the appropriate time.

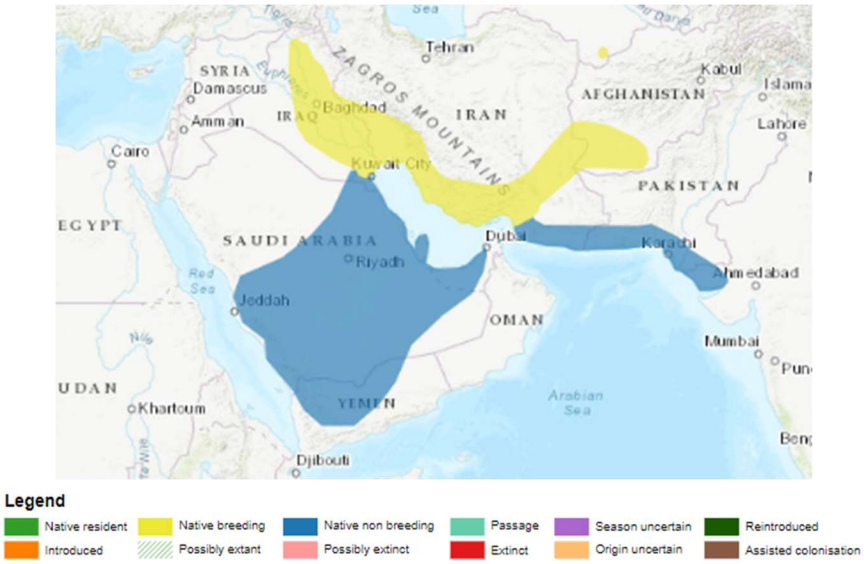


Figure 4-18: Distribution map for Hypocolius *hupocolius ampelinus* (BirdLife International 2024g)

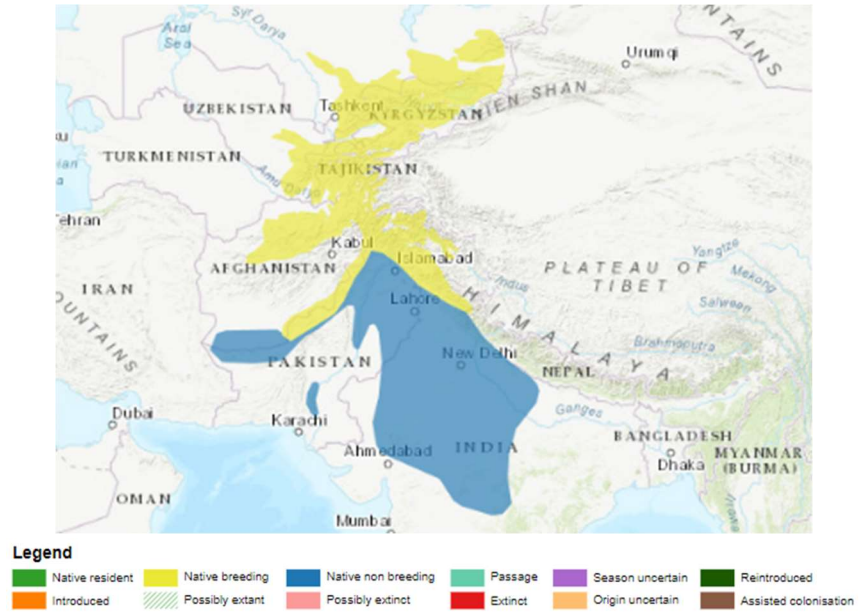


Figure 4-19: Distribution map for White-capped Bunting *Emberiza stewarti* (BirdLife International 2024h)

4.2.2.4. Criterion 4: Highly Threatened and/or Unique Ecosystems

As referred to in Clause GN79-GN80 of Guidance Note 6, the following requirements are presented for recognizing critical habitat under Criterion 4:

IFC Performance Standard 6 Guidance Note GN80:

(a) Areas representing ≥ 5% of the global extent of an ecosystem type meeting the criteria for IUCN status of CR or EN.

(b) Other areas not yet assessed by IUCN but determined to be of high priority for conservation by regional or national systematic conservation planning.

According to the IUCN Red List of Ecosystems (IUCN Global Ecosystem Management Programme 2022), there are no threatened ecosystems in the Mine Site area or the surrounding region. According to the database, the programme is still in the process of undertaking assessments worldwide, and none seem to be in the process of being undertaken in Pakistan.

Following a review of the National Biodiversity Strategy and Action Plan (NBSAP), which was updated in 2015 to provide an update on the progress against the 2010-2020 Strategic Plan, and the revision on new goals for the next 15 years. There are no highly threatened or unique ecosystems present near the Mine Site AoI, but Pakistan has identified a few Global 200 ecoregions within the national boundary as priorities for future conservation efforts, including the Western Himalayan Temperate Forests, which is also home to the Ziarat Juniper Forest – a declared Man and Biosphere Reserve, and Tibetan Plateau Steppes. However, these ecosystems are located outside the Mine Site area and as such, there are no triggers of Critical Habitat, under Criterion 4 in the absence of highly threatened or unique ecosystems in the Mine Site AoI,

Other ecosystems of high national conservation priority, including the Balochistan Juniper (referred to above) and Pistachio Scrub Forest, Chagai Desert, Gut Forest Wildlife Sanctuary, Zawakhan and Kambran Wildlife Sanctuaries/Game Reserves.

4.2.2.5. Criterion 5: Key Evolutionary Processes

As per Clause GN81 of Guidance Note 6, "*the structural attributes of a region, and combinations of these variables, can influence the evolutionary processes that give rise to regional configurations of species and ecological properties.*"

Unfortunately, Guidance Note 6 does not present any numerical thresholds for Criterion 5, but some illustrative examples are provided for critical habitat under Guidance Note 82, as presented below.

IFC Performance Standard 6 Guidance Note 82:

For illustrative purposes, some potential examples of spatial features associated with the evolutionary processes are as follows:

- Landscapes with high spatial *heterogeneity* are a driving force in speciation.
- *Environmental gradients*, also known as ecotones, produce transitional habitat.
- *Edaphic interfaces* are specific juxtapositions of soil types.
- *Connectivity* between habitats ensures species migration and gene flow, which is especially important in fragmented habitats and the conservation of metapopulations.
- Site demonstrated importance to *climate change adaptations* for either species or ecosystems are also included within this criterion.

Desktop and site assessments of the Mine Site AoI and its biodiversity do not indicate the presence of biodiversity or geographic features associated with key evolutionary processes. The mine site is entirely located in the Registan-North Pakistan Sandy Desert ecoregion (UNEP-WCMC 2020) in the Persian Deserts & Mountain Woodlands bioregion, which stretches across Iran, Afghanistan and Pakistan. This large semi-desert area is part of a greater seemingly uniform landscape where there are no isolated or unique habitats. Land cover data indicates the presence of rocky areas and flat dry areas, but no spatial features that may drive spatial heterogeneity. Although there may be endemic species, there does not appear to be any other indication of unique ecological features.

Therefore, the absence of unique features associated with key evolutionary processes is considered a reason for Critical Habitat not to be triggered according to Criterion 5.

4.2.2.6. Critical Habitat Summary

Critical habitat was triggered according to Criteria 1, 2 and 3 through the presence of the Sand Cat, Goitered Gazelle, Alcock's Toad-headed-Agama and Dead Sea Sparrow. The critical habitat at the Mine Site is shown in Figure 4-20.

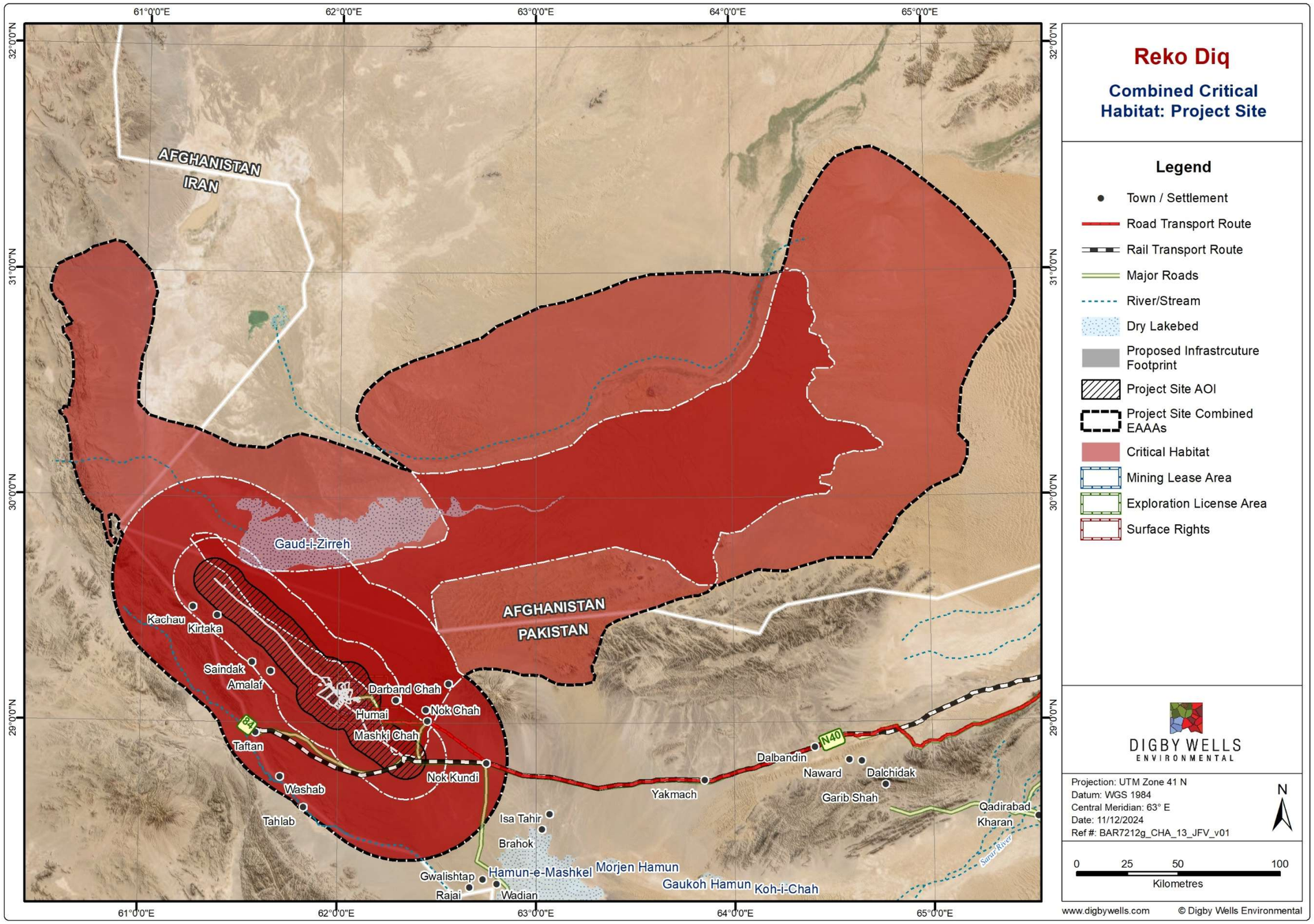


Figure 4-20: Combined Critical Habitat at the Reko Diq Mine Site

5. Screening-level Findings for Associated Export Facilities

The findings for the assessment of natural/modified and critical habitats for the Transport Corridor/s and Port Qasim Site (including the Rail Yard and the haulage activities from the warehouse to the storage shed at PIBT) are to be discussed below. Both desktop-based screening tools and reviews of ecological survey information were considered in the assessment of sensitivities toward potential priority biodiversity values.

The assessment of critical habitat, specifically in terms of significant biodiversity values, as per the criteria defined in Guidance Note 6 in terms of species and/or ecosystems, is discussed in Section 5.3.2.

5.1. Desktop-based Screening Assessment

5.1.1. Transport Corridor/s (including Road and Railway Routes)

Based on the natural and modified habitat screening data, the road and rail transport routes appear to be located in a mixture of various habitat classifications (Figure 5-1). The route from the mine site to Noshki appears to be mainly associated with *likely natural* habitat, while the routes from Mastung south to Port Qasim appear to be a mixture of *potentially modified* and *likely modified* habitat. The rail route goes through mostly *likely modified* habitat.

The critical habitat screening data indicates that the transport route/s pass by three areas of *likely* and *potential critical habitat* (Figure 5-2)*:*

- Between Noshki and Mastung, the AoI overlaps with *potential critical habitat*, which is attributed to the Hazarganji Chiltan National Park – a recognised Key Biodiversity Area (KBA).
- On the railway transport route going south, there is a KBA located just over 2.5 km away from the rail transport route, referred to as the Manchar Lake - delineated as *likely critical habitat*.
- Further along this railway transport route, closer toward Port Qasim, is the Kinjhar (Kalri) Wildlife Sanctuary, which is classified as *likely critical habitat* considering its classification as a Ramsar Site of International Wetland importance, its KBA status, and the fact that it is nationally designated wildlife sanctuary (IUCN Management Category IV).

5.1.2. Port Qasim

Screening layers indicate that the terrestrial habitat surrounding the Port Qasim site consists of *likely modified* and *potentially modified* habitat with some *potential natural* habitat further south to where the mangrove ecosystems are located (Figure 5-3). The critical habitat screening data suggests that the mangrove ecosystems to the south of the AoI and EAAA are *likely critical habitat* (Figure 5-4). However, none of the habitat in the EAAA is indicated as being *potential critical habitat* or *likely critical habitat* categories.

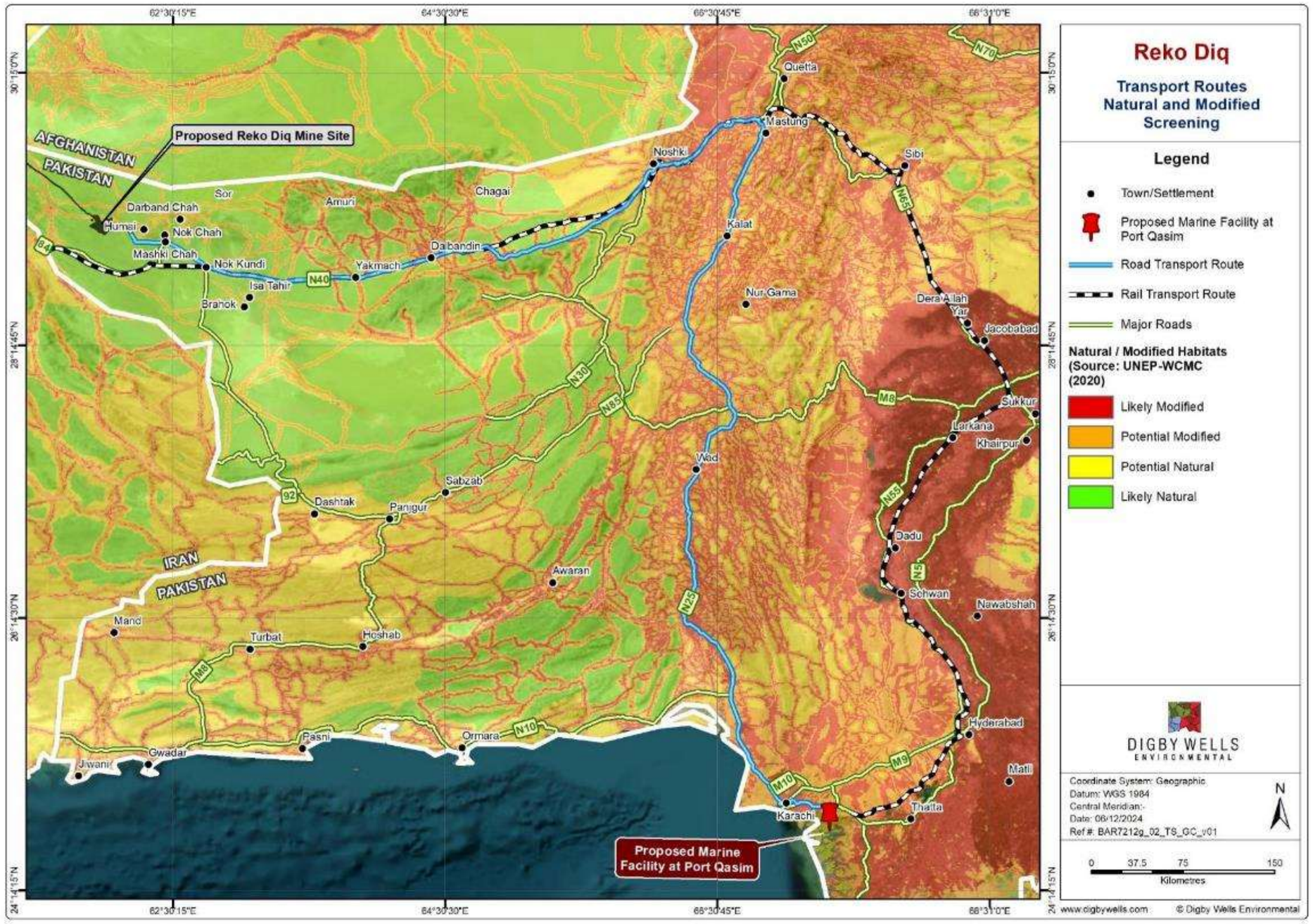


Figure 5-1: Screening layer for preliminary assessment of natural and modified conditions in the greater region (UNEP-WCMC, 2020)

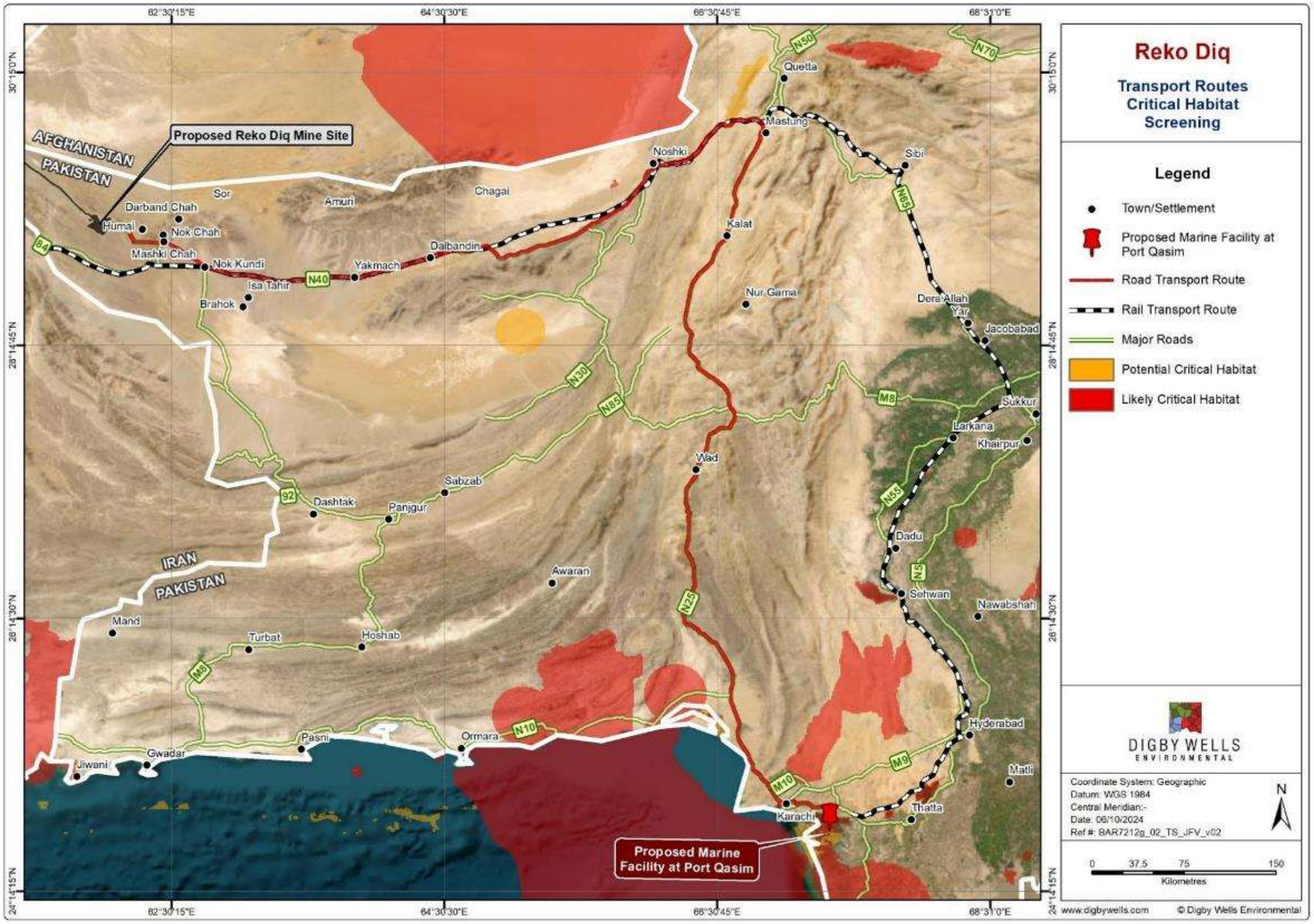


Figure 5-2: Screening layer for preliminary assessment of critical habitat conditions (UNEP-WCMC, 2017)

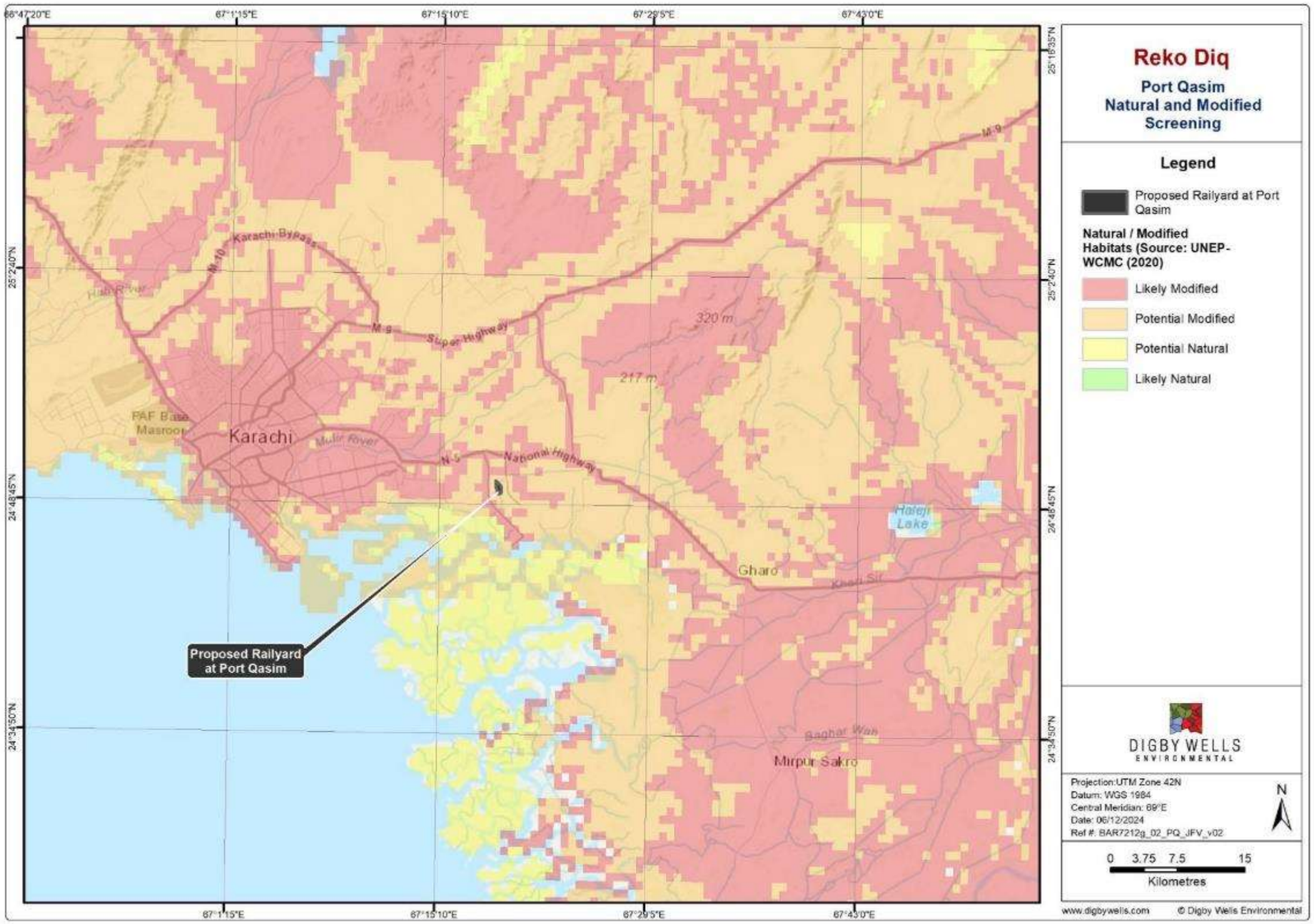


Figure 5-3: Screening layer for preliminary assessment of natural and modified conditions at Port Qasim (UNEP-WCMC, 2020)

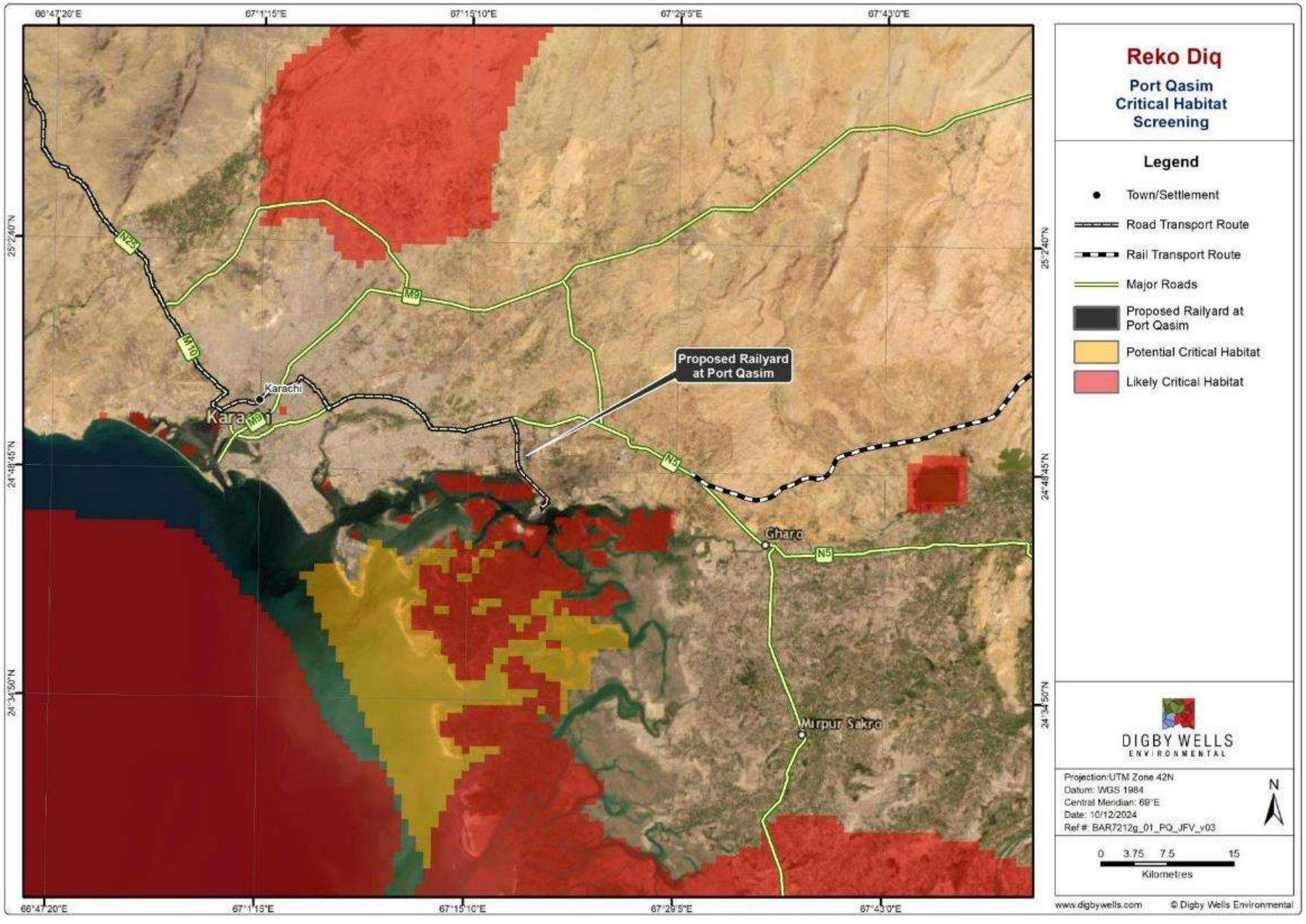


Figure 5-4: Screening layer for preliminary assessment of critical habitat conditions at Port Qasim (UNEP-WCMC, 2017)

5.2. Legally Protected and Internationally Recognised Areas

5.2.1. Transport Corridors

Protected areas within 1 km of the transport route are shown in Table 5-1 in line with the transport corridor's AoI and EAAA. Of these protected areas, four are an IUCN Category IV, namely Keenjhar Lake (Kalri, Malik Lake), Dhoung Block, Kachau and Shashan Wildlife Sanctuaries. Category IV areas are designated Habitat/Species Management Areas. There are more protected areas further away from the transport corridor, as shown in Figure 5-5[25].

Table 5-1: Protected areas located within the AoI of Transport Corridor/s

Name	Designation	Designation	IUCN Category
1 km			
Keenjhar Lake (Kalri, Malik Lake)	Wildlife Sanctuary	National	IV
Dhoung Block	Wildlife Sanctuary	National	IV
Kachau	Wildlife Sanctuary	National	IV
Shashan	Wildlife Sanctuary	National	IV
Khurkhera	Wildlife Sanctuary	National	Not Reported
Sumbak, Surjan, Eri, Naree and Hothiano (Kohistan Track)	Game Reserve	National	Not Reported
Duzdara and Koh-e-Surkho	Game Reserve	National	Not Reported
Saindak	Community Game Reserve	National	Not Reported
Baran Lakh	Community Game Reserve	National	Not Reported
Gut	Wildlife Sanctuary	National	Not Reported

One KBA is situated within 1 km of the proposed road route (Hazarganji Chiltan National Park), and two KBAs are within 1 km of the proposed rail route (Hazarganji Chiltan National Park and Kinjhar Wildlife Sanctuary). The Kinjhar Wildlife Sanctuary is also noted to be a Ramsar Wetland of Importance. There are more KBAs, as well as other Ramsar sites, further away from the transport corridor, as shown in Figure 5-6 and Figure 5-7.

The Hazarganji-Chiltan National Park is also a protected area, but has a different delineation to the KBA counterpart. Somewhat confusingly, the park is noted as being a Category V protected area though it is a "national park," which usually aligns with a Category II protected area. This assessment takes a precautionary approach and considers the Hazarganji Chiltan National Park to be a Category II protected area that aligns with the KBA's placement in proximity to the transport route despite the misalignment of the boundaries..

The triggers for the KBA status of **Hazarganji Chiltan National Park**, include the Egyptian vulture and Saker falcon. Given that the proposed road route will use existing roads, it is not anticipated that the risk and potential impacts from the proposed activities will extend into these KBAs. However, on the other hand, considering the overlap of the Ramsar site with the **Kinjhar (Kalri) Wildlife Sanctuary** and the consideration of this status under the ADB SDS

[25] As discussed in the AoI Section, the extents of the impacts are not expected to extend far given that the Project will make use of existing infrastructure and that the impact will be cumulative.

(2009), as well as the presence of highly threatened species, the area is regarded as likely critical habitat.

Table 5-2: Internationally recognised areas located within AoI of the Transport Corridor/s. All areas listed are KBAs.

Name	IBA Status	Triggers	Ramsar Site
Hazarganji Chiltan National Park	confirmed	endemic	No
Kinjhar (Kalri) Wildlife Sanctuary	confirmed	CR/EN, VU, migratory birds/congregations	Yes

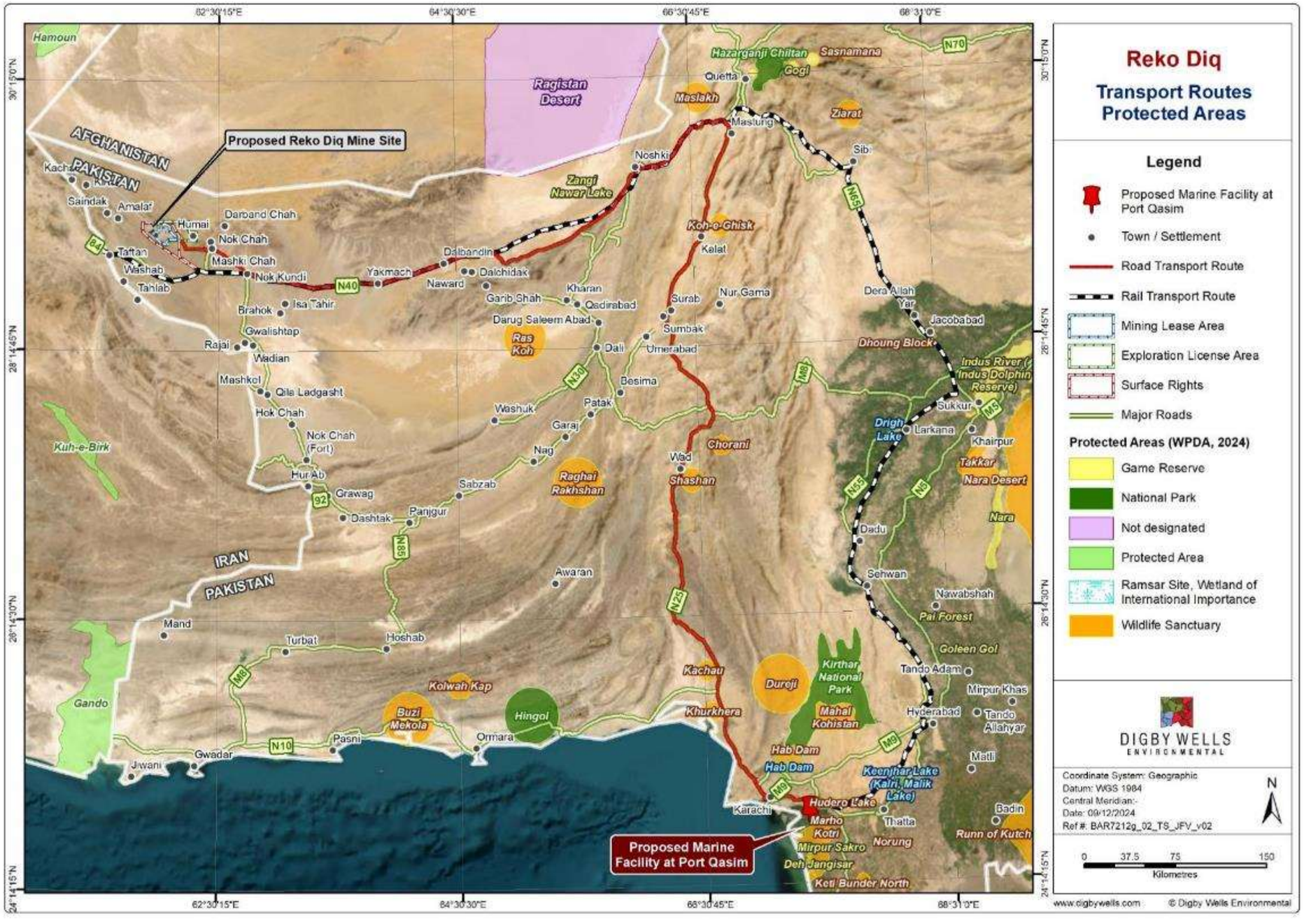


Figure 5-5: Protected areas in the greater region

Figure 5-6: KBAs in the greater region surrounding the Transport Routes

Figure 5-7: Ramsar Wetlands in the region surrounding the Transport Routes

5.2.2. Port Qasim

Although a 50 km buffer around the Port facilities overlaps with several protected areas, a 5 km buffer (in line with the EAAA) does not overlap with any protected areas. Marho Kotri is **a wildlife sanctuary** 17-18 km south of the Port. Several other protected areas are in the greater region, as shown in Figure 5-8.

There are no internationally recognised areas that overlaps a 5 km buffer with the Port Qasim facilities. Other internationally recognised areas in the greater region are shown in Figure 5-9 and Figure 5-10.

It is acknowledged that the marine biome (including the mangroves forests) was not going to be the focus of the study, as the railway yard and the transport were transferring concentrate in sealed units from the storage warehouse to the storage shed at the PIBT, which effectively implied that any liabilities associated with the export of the concentrate will be managed under the management plans already in-place at the PIBT, which thereby excludes any potential impacts upon the marine ecosystem, at least those attributed to the Reko Diq Project.

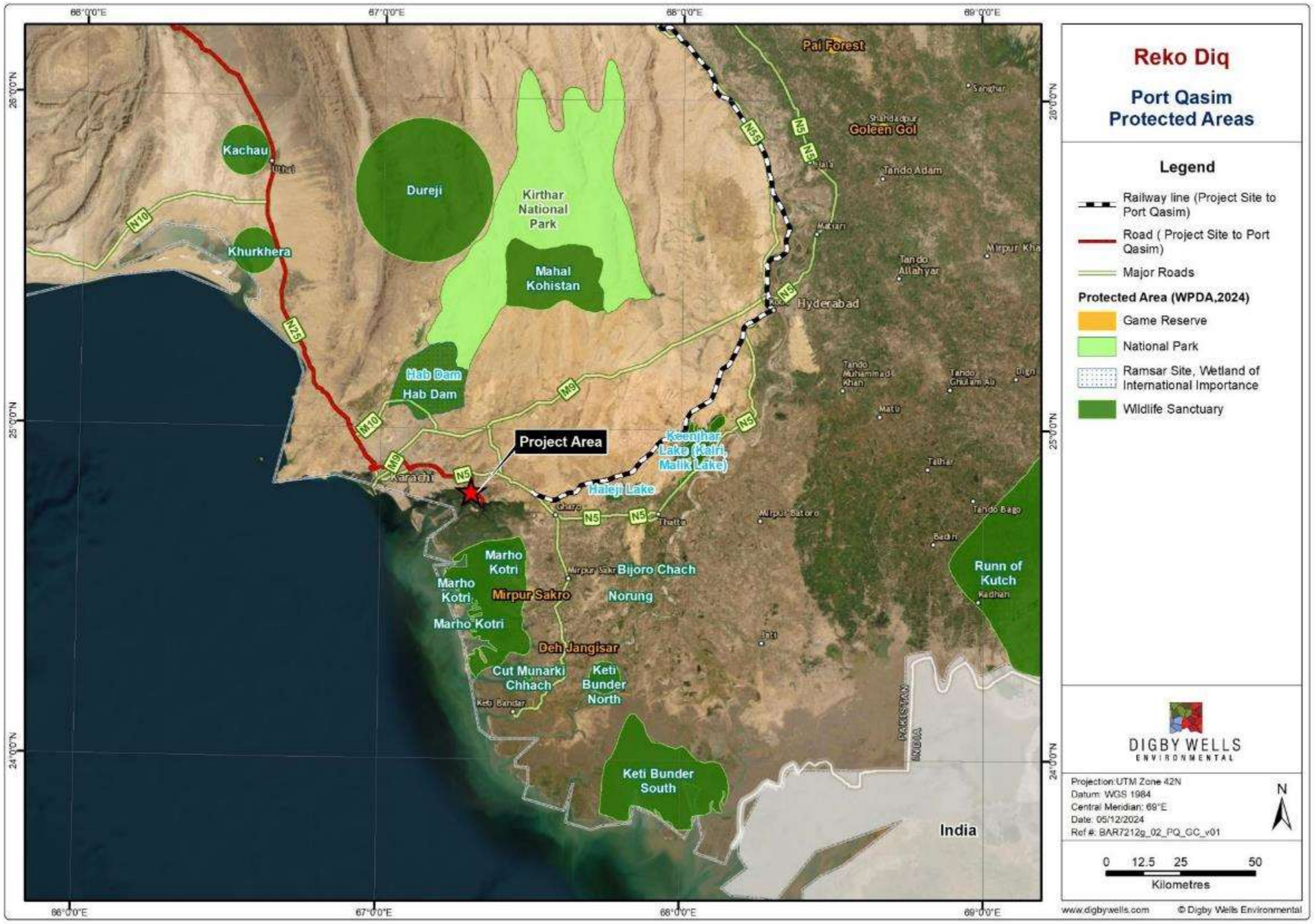


Figure 5-8: Protected areas in the greater region

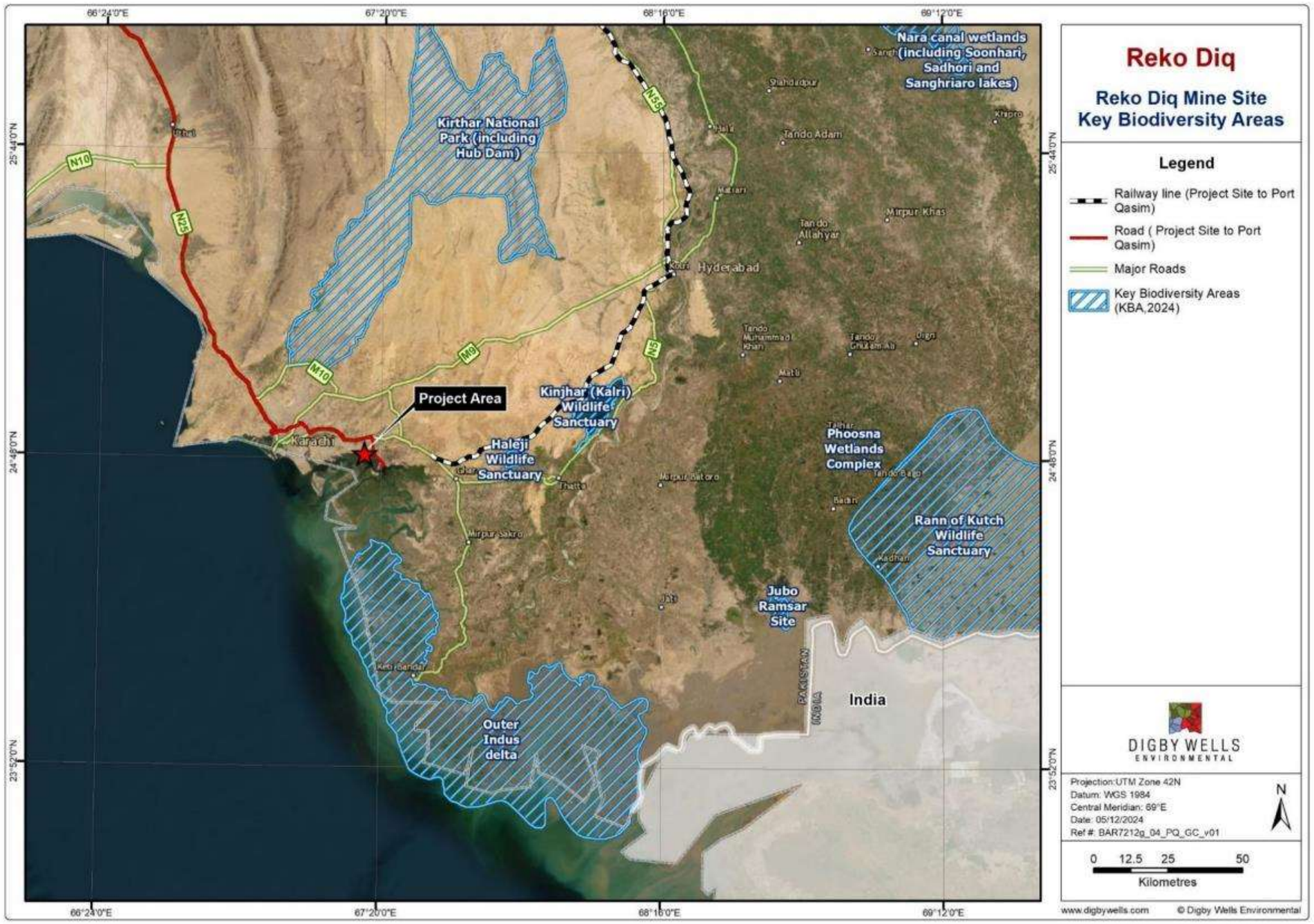


Figure 5-9: KBAs in the greater region surrounding Port Qasim

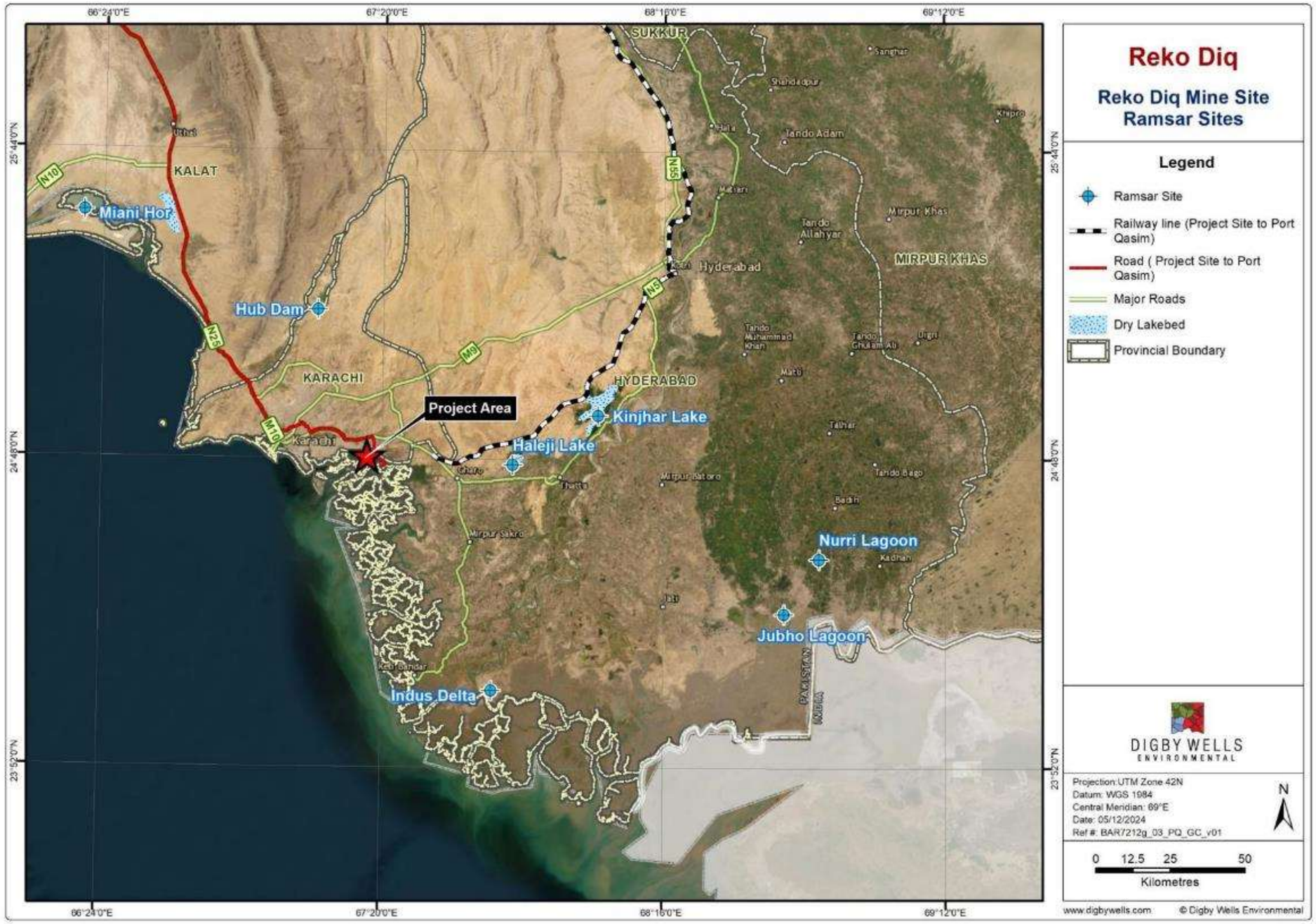


Figure 5-10: Ramsar Wetlands in the region surrounding Port Qasim

5.3. Assessment of Natural, Modified and Critical Habitat

The following sub-sections elaborate on the interpretation of the definitions provided in the PS6 and GN6, to facilitate the description of each of the respective habitat conditions and prioritise areas for respective management and monitoring goals.

5.3.1. Assessment of Natural/Modified Habitat

Although the transport route/s were not assessed in the field, both literature reviews and desktop-based screening was undertaken along the route to assess vegetation type (or habitats).

A desktop-derived land cover map along the servitude and the AoI of the transport route/s are provided in Appendix A of the Fauna Report (Figure 5-11, Appendix I). Similarly, the land cover classes identified along the transport route/s largely correlate to the aforementioned vegetation types described at the Mine Site, but there is an increased presence of agricultural activities along closer to Quetta on the west-east line and along the north-south line along the railway route (i.e. within the aforementioned scrub forests) and more wetland/waterbodies become apparent along the Indus River corridor.

This section speaks to the habitat for the transport corridor/s at a desktop level[26] and Port Qasim (referred to as the railway yard and the storage shed at the PIBT).

The habitats or land classes represented in the Port Qasim AoI include bare ground /artificial surfaces, historic wetlands and low-density vegetation cover (Figure 5-12). Studies indicate that these habitat types are modified habitats (Figure 5-13).

[26] Please refer to the Appendix A of the Terrestrial Flora report, as a series of maps for each of the segments of the route are briefly presented for the sake of providing some context to the reader in terms of natural or modified habitat. However, it is acknowledged that we can review and contextualise the vegetation cover along the whole route, especially if more substantial changes are to be made to the infrastructure along the transport route/s.

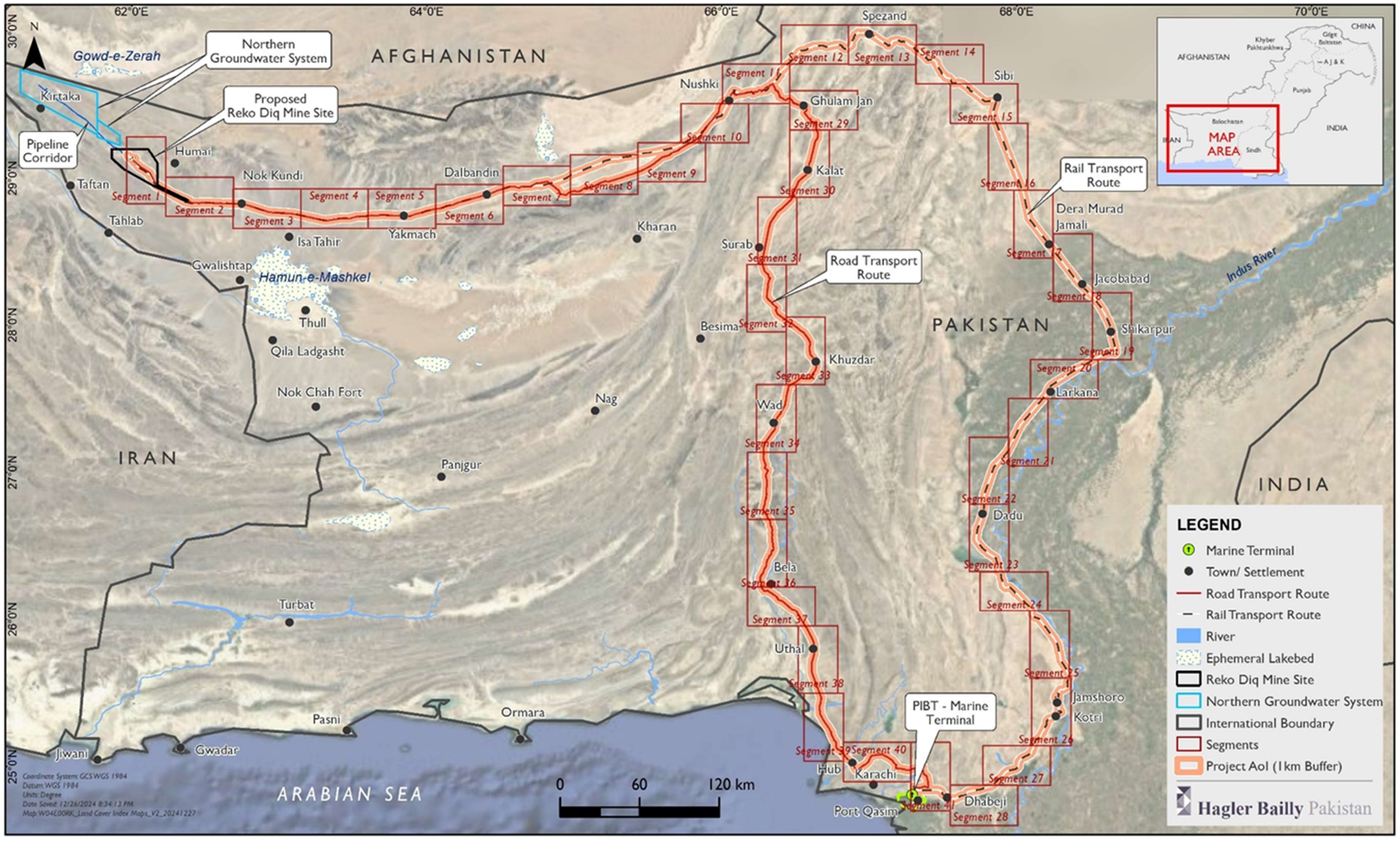


Figure 5-11: Habitat Classification along the Transport Route (refer to Appendix A of the Biodiversity Faunal report)

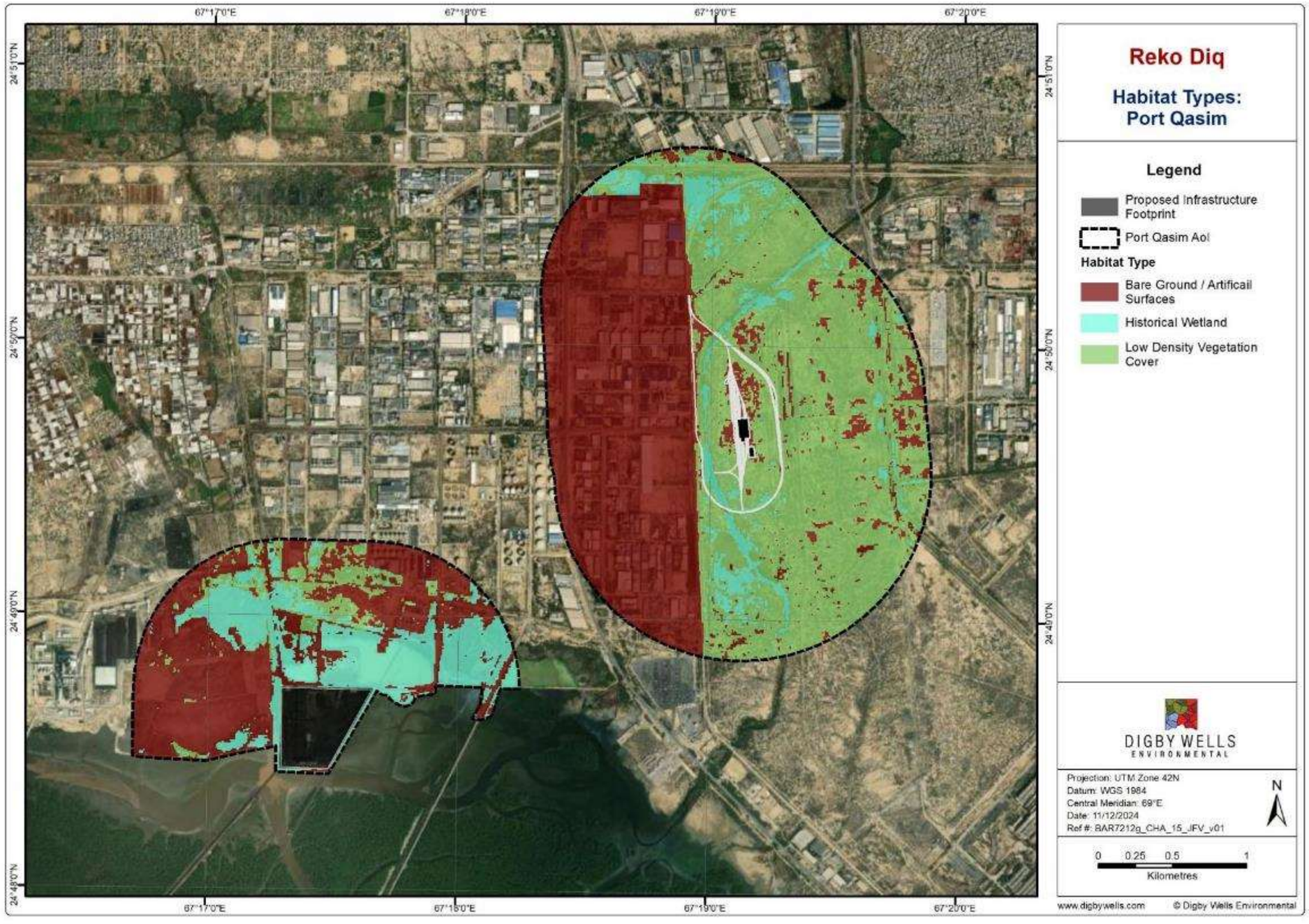


Figure 5-12: Landcover classes present in the Port Qasim AoI

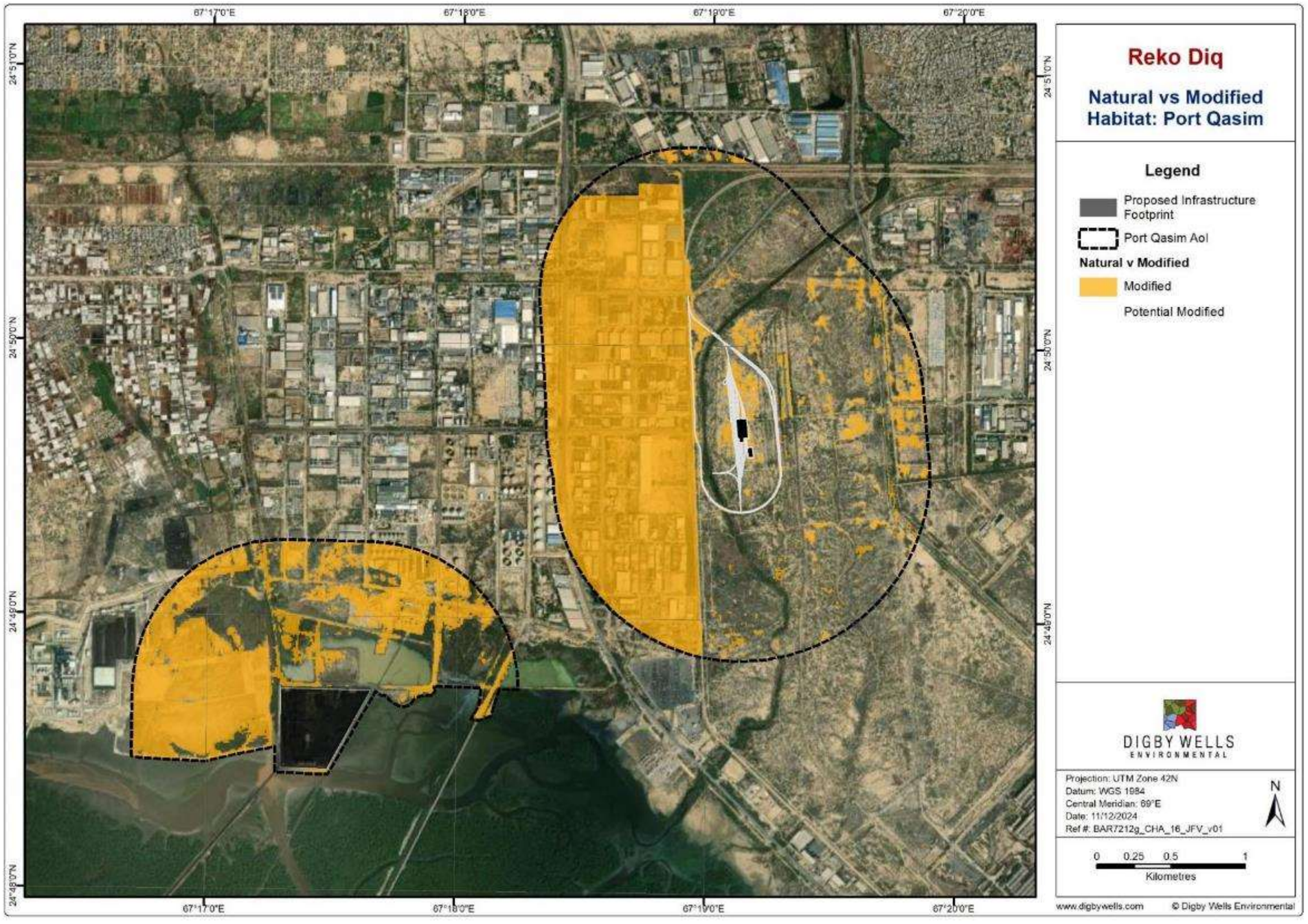


Figure 5-13: Modified habitat delineated in the Port Qasim AoI

5.3.1.1. Management Obligations for Natural and Modified Habitat

Based on identified habitats within the study area, the following sections briefly describe the management objectives to conserve and maintain the biodiversity values within both modified and natural habitats. As is to be expected, these recommendations aim to encourage the application of the mitigation hierarchy, particularly avoidance and mitigation actions.

5.3.1.1.1. Modified Habitat

Within each of the identified *modified habitat units*, it is important that the remnant available habitat and any supporting biodiversity and/or ecosystem services be maintained, where possible and degradation avoided. Although this is not an explicit requirement for these units, Clause GN37 of Guidance Note 6 suggests that proposed "*projects with significant biodiversity values in modified habitats minimize their impacts and implement mitigation and management measures as needed to conserve those values,"* such as *"species of conservation concern and remnant ecological features that persist, especially those that perform important ecological functions."*

5.3.1.1.2. Potentially Modified Habitat

For the sake of the desktop-based assessment, the area not highlighted within the aforementioned maps correlate to heavily fragmented historical wetland ecosystems (or watercourses), especially draining the area to the north of the PIBT and the railway yard from north-east to south-east. In addition, the remnant vegetation cover between the industrial areas and the railway were also considered as potentially modified area, as the encroachment and historical disturbance has significantly affected the coverage in these areas and the intactness of the remnant plant communities.

5.3.2. Critical Habitat Assessment

For the purposes of this section of the report, a screening level assessment has been undertaken by assessing the expected/detected species along the transport route/s and at the Port Qasim AoI. Since the aforementioned screening-level datasets for natural, modified and critical habitat indicate that the transport route/s are within largely natural system along the west-east corridor, but then encroach on a more degraded landscape (i.e. potentially modified) and terminates at the railway yard in potentially modified landscape and probable modified habitat within the industrial zone of the Port Qasim itself, which is all attributed to the fact that it is largely established already and used on a day-to-day basis.

In terms of presence of critical habitat, the majority of the route and the port do not overlap with critical habitat indicators, but it is acknowledged that a few protected areas, KBAs, Ramsar sites, and KBAs near the ports are recognised as likely critical habitat due to national importance for biodiversity sanctuaries.

5.3.2.1. Transport Corridors

The CHA was undertaken for the Transport Corridors based on a consolidated list of expected species, as derived from the IBAT report in November 2024 (IBAT Alliance 2024), and GBIF data[27]. Given that the proposed activities will be undertaken along the transport corridor/s are primarily related to increased traffic, it is anticipated that risks would be restricted to the terrestrial realm and any impacts on the aquatic realm would be negligible (or non-existent).

Of a total of 237 expected species, selected species reliant on both freshwater and marine ecosystems were excluded from the list for the purposes of this assessment, as the proposed AoI does not affect the or include any material changes to the freshwater and/or marine habitat/s. Following this filtering process, the following candidate Critical Habitat triggers are presented in Table 5-4 below, including:

- 25 Criterion 1 candidate trigger species, including avifauna, mammals, and reptiles.
- 4 Criterion 2 candidate trigger species, and
- 137 Criterion 3 candidate species, including numerous migratory birds, a volant mammal, and an insect.

Of all these candidate species, one species is considered to trigger critical habitat though three other species come close to triggering critical habitat.

- *Bufotes zugmayeri* (Baloch Green Toad, listed as NT) triggers critical habitat under Criterion 2(a) due to the EAAA likely encapsulating the restricted-range species (Figure 5-14).
- The three other species are considered to trigger Critical Habitat with significant proportion of the respective populations meeting the thresholds values in the case of the *Aythya farina* (Common Pochard, listed as VU) under Criterion 1(a) and Criterion 1(b), as well as under Criterion 3(a) in the case of *Emberiza buchanani* (Grey-necked Bunting, listed as LC) and *Charadrius hiaticula* (Common Ringed Plover, listed as LC). However, in each of these cases, it is unlikely that the airshed (or supporting landscape on the ground) will be significantly modified and as such, many of the avifauna species (except the ground-dwelling plover) are likely to be unaffected by the proposed upgrades to the Transport Corridor/s.

Therefore, there will only be some management required around the distribution and **presence of the endemic Baloch Green Toad**, in close proximity to the Quetta along the road and railway route.

It should also be noted the *Salpingotulus michaelis* (Baluchistan Pygmy Jerboa) was detected in Zangi Nawar Game Reserve during the Summer 2024 survey, but this is outside of the AoI and the EAAA for the transport route/s and as such, although the thresholds are met, the AoI does not overlap with the area of analysis at this stage, so it is recommended that this species

[27] GBIF data was included, where available. However, for the sake of relevance and validity of the observations included, any records documented prior to 1980 were excluded from the screening assessment due to the extensive timespan between that date and present day, as it is anticipated that significant encroachment and/or habitat degradation may be a consideration of prolonged presence within these under-studied areas.

also be treated as a PBV, so that mitigation measures can be considered in relation to the increased traffic along the pre-existing transport route/s.

With respect to Criterion 4 (Highly Threatened and/or Unique Ecosystems), there are a number of protected and internationally recognised areas that are potentially threatened by the Transport Corridor/s. In particular, **the Hazarganji Chiltan National Park**, a Category II protected area and KBA, is located within 1 km of the transport corridor and therefore within the AoI and EAAA. Given the importance of Category II protected areas for national conservation targets, this Park is considered as likely critical habitat under Criterion 4 (Figure 5-15). Another area of note is the **Kinjhar (Kalri) Wildlife Sanctuary**, which is a protected area, Ramsar site and KBA. The sanctuary is a KBA due to multiple VU species, but there is little risk of the VU species present there becoming EN or CR due to the Project. However, its status as a Ramsar site is what warrants its status as likely critical habitat under Criterion 4 (Figure 5-15). The Manchar Lake KBA was designated as *likely critical habitat* in the screening assessment, but it falls outside the AoI and is not considered as critical habitat for the purposes of this assessment.

Regarding Criterion 5 (Key Evolutionary Processes), studies have not indicated the presence of features that may influence key evolutionary processes.

Table 5-3: Detected candidate Critical Habitat trigger species detected within 20 km of the Transport Corridors. Their IUCN category, geographical and population Information is included in the table below.

Scientific Name	Common Name	IUCN Category	National Status	Restricted Range	Movement Pattern	IBAT	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 2	Criterion 2 Triggered	Criterion 3	Criterion 3 Triggered
Avifaunal species															
Milvus migrans	Black Kite	LC		FALSE	Full Migrant	Yes	115653659	4657.53	0.00%					Yes	No
Hieraaetus pennatus	Booted Eagle	LC		FALSE	Full Migrant	Yes	62000000	4657.53	0.01%					Yes	No
Aegypius monachus	Cinereous Vulture	NT		FALSE	Full Migrant	Yes	22400000	4657.53	0.02%					Yes	No
Aquila heliaca	Eastern Imperial Eagle	VU		FALSE	Full Migrant	Yes	14900000	4657.53	0.03%	Yes	No			Yes	No
Neophron percnopterus	Egyptian Vulture	EN		FALSE	Full Migrant	Yes	50100000	4657.53	0.01%	Yes	No			Yes	No
Accipiter nisus	Eurasian Sparrowhawk	LC		FALSE	Full Migrant	Yes	54400000	4657.53	0.01%					Yes	No
Aquila chrysaetos	Golden Eagle	LC		FALSE	Full Migrant	Yes	139000000	4657.53	0.00%					Yes	No
Clanga clanga	Greater Spotted Eagle	VU		FALSE	Full Migrant	Yes	15300000	4657.53	0.03%	Yes	No			Yes	No
Gyps fulvus	Griffon Vulture	LC		FALSE	Full Migrant	Yes	20400000	4657.53	0.02%					Yes	No
Circus cyaneus	Hen Harrier	LC		FALSE	Full Migrant	Yes	34800000	4657.53	0.01%					Yes	No
Buteo rufinus	Long-legged Buzzard	LC		FALSE	Full Migrant	Yes	32300000	4657.53	0.01%					Yes	No
Circus pygargus	Montagu's Harrier	LC		FALSE	Full Migrant	Yes	18000000	4657.53	0.03%					Yes	No
Pernis ptilorhynchus	Oriental Honey-buzzard	LC		FALSE	Full Migrant	Yes	22700000	4657.53	0.02%					Yes	No
Haliaeetus leucoryphus	Pallas's Fish-eagle	EN		FALSE	Full Migrant	Yes	1740000	4657.53	0.27%	Yes	No			Yes	No
Circus macrourus	Pallid Harrier	NT		FALSE	Full Migrant	Yes	10900000	4657.53	0.04%					Yes	No
Sarcogyps calvus	Red-headed Vulture	CR		FALSE	Not a Migrant	Yes	5230000	4657.53	0.09%	Yes	No				
Accipiter badius	Shikra	LC		FALSE	Full Migrant	Yes	63300000	4657.53	0.01%					Yes	No
Circaetus gallicus	Short-toed Snake-eagle	LC		FALSE	Full Migrant	Yes	48800000	4657.53	0.01%					Yes	No
Aquila nipalensis	Steppe Eagle	EN		FALSE	Full Migrant	Yes	12600000	4657.53	0.04%	Yes	No			Yes	No
Aquila rapax	Tawny Eagle	VU		FALSE	Nomadic	Yes	52700000	4657.53	0.01%	Yes	No			Yes	No
Circus aeruginosus	Western Marsh-harrier	LC		FALSE	Full Migrant	Yes	24800000	4657.53	0.02%					Yes	No
Gyps bengalensis	White-rumped Vulture	CR		FALSE	Nomadic	Yes	7370000	4657.53	0.06%	Yes	No			Yes	No
Acrocephalus stentoreus	Clamorous Reed-warbler	LC		FALSE	Full Migrant	Yes	33310000	4657.53	0.01%					Yes	No
Acrocephalus melanopogon	Moustached Warbler	LC		FALSE	Full Migrant	Yes	11700000	4657.53	0.04%					Yes	No
Acrocephalus agricola	Paddyfield Warbler	LC		FALSE	Full Migrant	Yes	6530000	4657.53	0.07%					Yes	No
Iduna rama	Sykes's Warbler	LC		FALSE	Full Migrant	Yes	4620000	4657.53	0.10%					Yes	No
Hippolais languida	Upcher's Warbler	LC		FALSE	Full Migrant	Yes	3890000	4657.53	0.12%					Yes	No
Melanocorypha bimaculata	Bimaculated Lark	LC		FALSE	Full Migrant	Yes	5520000	4657.53	0.08%					Yes	No
Galerida cristata	Crested Lark	LC		FALSE	Full Migrant	Yes	52700000	4657.53	0.01%					Yes	No
Alauda arvensis	Eurasian Skylark	LC		FALSE	Full Migrant	Yes	42900000	4657.53	0.01%					Yes	No
Calandrella brachydactyla	Greater Short-toed Lark	LC		FALSE	Full Migrant	Yes	24800000	4657.53	0.02%					Yes	No
Calandrella acutirostris	Hume's Lark	LC		FALSE	Full Migrant	Yes	1770000	4657.53	0.26%					Yes	No
Alauda gulgula	Oriental Skylark	LC		FALSE	Full Migrant	Yes	23600000	4657.53	0.02%					Yes	No
Alaudala heinei	Turkestan Short-toed Lark	LC		FALSE	Full Migrant	Yes	7528000	4657.53	0.06%					Yes	No
Halcyon pileata	Black-capped Kingfisher	VU		FALSE	Full Migrant	Yes	5160000	4657.53	0.09%	Yes	No			Yes	No
Alcedo atthis	Common Kingfisher	LC		FALSE	Full Migrant	Yes	79900000	4657.53	0.01%					Yes	No
Aythya ferina	**Common Pochard**	**VU**		**FALSE**	**Full Migrant**	**Yes**	**548000**	**4657.53**	**0.85%**	**Yes**	**Yes**			**Yes**	**No**

Scientific Name	Common Name	IUCN Category	National Status	Restricted Range	Movement Pattern	IBAT	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 2	Criterion 2 Triggered	Criterion 3	Criterion 3 Triggered
Tadorna tadorna	Common Shelduck	LC		FALSE	Full Migrant	Yes	31600000	4657.53	0.01%					Yes	No
Anas crecca	Common Teal	LC		FALSE	Full Migrant	Yes	60200000	4657.53	0.01%					Yes	No
Nettapus coromandelianus	Cotton Pygmy-goose	LC		FALSE	Full Migrant	Yes	29900000	4657.53	0.02%					Yes	No
Mareca penelope	Eurasian Wigeon	LC		FALSE	Full Migrant	Yes	34900000	4657.53	0.01%					Yes	No
Aythya nyroca	Ferruginous Duck	NT		FALSE	Full Migrant	Yes	25200000	4657.53	0.02%					Yes	No
Mareca strepera	Gadwall	LC		FALSE	Full Migrant	Yes	73100000	4657.53	0.01%					Yes	No
Spatula querquedula	Garganey	LC		FALSE	Full Migrant	Yes	32500000	4657.53	0.01%					Yes	No
Anser anser	Greylag Goose	LC		FALSE	Full Migrant	Yes	31200000	4657.53	0.01%					Yes	No
Anas poecilorhyncha	Indian Spot-billed Duck	LC		FALSE	Full Migrant	Yes	9980000	4657.53	0.05%					Yes	No
Anas platyrhynchos	Mallard	LC		FALSE	Full Migrant	Yes	65800000	4657.53	0.01%					Yes	No
Marmaronetta angustirostris	Marbled Duck	NT		FALSE	Full Migrant	Yes	13500000	4657.53	0.03%					Yes	No
Anas acuta	Northern Pintail	LC		FALSE	Full Migrant	Yes	41900000	4657.53	0.01%					Yes	No
Spatula clypeata	Northern Shoveler	LC		FALSE	Full Migrant	Yes	39900000	4657.53	0.01%					Yes	No
Netta rufina	Red-crested Pochard	LC		FALSE	Full Migrant	Yes	19600000	4657.53	0.02%					Yes	No
Tadorna ferruginea	Ruddy Shelduck	LC		FALSE	Full Migrant	Yes	37900000	4657.53	0.01%					Yes	No
Aythya fuligula	Tufted Duck	LC		FALSE	Full Migrant	Yes	34900000	4657.53	0.01%					Yes	No
Apus apus	Common Swift	LC		FALSE	Full Migrant	Yes	13300000	4657.53	0.04%					Yes	No
Apus affinis	Little Swift	LC		FALSE	Full Migrant	Yes	55800000	4657.53	0.01%					Yes	No
Ixobrychus flavicollis	Black Bittern	LC		FALSE	Full Migrant	Yes	41100000	4657.53	0.01%					Yes	No
Nycticorax nycticorax	Black-crowned Night Heron	LC		FALSE	Full Migrant	Yes	290000000	4657.53	0.00%					Yes	No
Ixobrychus cinnamomeus	Cinnamon Bittern	LC		FALSE	Full Migrant	Yes	25400000	4657.53	0.02%					Yes	No
Ixobrychus minutus	Common Little Bittern	LC		FALSE	Full Migrant	Yes	34800000	4657.53	0.01%					Yes	No
Botaurus stellaris	Eurasian Bittern	LC		FALSE	Full Migrant	Yes	86200000	4657.53	0.01%					Yes	No
Ardea alba	Great White Egret	LC		FALSE	Full Migrant	Yes	366000000	4657.53	0.00%					Yes	No
Butorides striata	Green-backed Heron	LC		FALSE	Full Migrant	Yes	287000000	4657.53	0.00%					Yes	No
Ardea cinerea	Grey Heron	LC		FALSE	Full Migrant	Yes	136000000	4657.53	0.00%					Yes	No
Ardea intermedia	Intermediate Egret	LC		FALSE	Full Migrant	Yes	30300000	4657.53	0.02%					Yes	No
Egretta garzetta	Little Egret	LC		FALSE	Full Migrant	Yes	151000000	4657.53	0.00%					Yes	No
Ardea purpurea	Purple Heron	LC		FALSE	Full Migrant	Yes	109000000	4657.53	0.00%					Yes	No
Ixobrychus sinensis	Yellow Bittern	LC		FALSE	Full Migrant	Yes	36000000	4657.53	0.01%					Yes	No
Burhinus oedicnemus	Eurasian Thick-knee	LC		FALSE	Full Migrant	Yes	27000000	4657.53	0.02%					Yes	No
Caprimulgus europaeus	European Nightjar	LC		FALSE	Full Migrant	Yes	19500000	4657.53	0.02%					Yes	No
Caprimulgus mahrattensis	Sykes's Nightjar	LC		FALSE	Full Migrant	Yes	1550000	4657.53	0.30%					Yes	No
Charadrius hiaticula	**Common Ringed Plover**	**LC**		**FALSE**	**Full Migrant**	**Yes**	**414000**	**4657.53**	**1.13%**					**Yes**	**Yes**
Charadrius leschenaultii	Greater Sandplover	LC		FALSE	Full Migrant	Yes	9590000	4657.53	0.05%					Yes	No
Pluvialis squatarola	Grey Plover	VU		FALSE	Full Migrant	Yes	19000000	4657.53	0.02%	Yes	No			Yes	No
Charadrius dubius	Little Ringed Plover	LC		FALSE	Full Migrant	Yes	55900000	4657.53	0.01%					Yes	No
Vanellus vanellus	Northern Lapwing	NT		FALSE	Full Migrant	Yes	31900000	4657.53	0.01%					Yes	No
Pluvialis fulva	**Pacific Golden Plover**	**LC**		**FALSE**	**Full Migrant**	**Yes**	**705000**	**4657.53**	**0.66%**					**Yes**	**No**
Vanellus gregarius	Sociable Lapwing	CR		FALSE	Full Migrant	Yes	1620000	4657.53	0.29%	Yes	No			Yes	No

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Vanellus leucurus	White-tailed Lapwing	LC		FALSE	Full Migrant	Yes	6960000	4657.53	0.07%					Yes	No
Ciconia nigra	Black Stork	LC		FALSE	Full Migrant	Yes	25100000	4657.53	0.02%					Yes	No
Ciconia ciconia	White Stork	LC		FALSE	Full Migrant	Yes	52700000	4657.53	0.01%					Yes	No
Prinia inornata	Plain Prinia	LC		FALSE	Altitudinal Migrant	Yes	19200000	4657.53	0.02%					Yes	No
Prinia crinigera	Striated Prinia	LC		FALSE	Altitudinal Migrant	Yes	**7760000**	4657.53	0.06%					Yes	No
Spilopelia senegalensis	Laughing Dove	LC		FALSE	Full Migrant	Yes	64400000	4657.53	0.01%					Yes	No
Streptopelia tranquebarica	Red Collared-dove	LC		FALSE	Full Migrant	Yes	18300000	4657.53	0.03%					Yes	No
Coracias garrulus	European Roller	LC		FALSE	Full Migrant	Yes	19900000	4657.53	0.02%					Yes	No
Cuculus canorus	Common Cuckoo	LC		FALSE	Full Migrant	Yes	51500000	4657.53	0.01%					Yes	No
Clamator jacobinus	Jacobin Cuckoo	LC		FALSE	Full Migrant	Yes	21800000	4657.53	0.02%					Yes	No
Eudynamys scolopaceus	Western Koel	LC		FALSE	Full Migrant	Yes	29800000	4657.53	0.02%					Yes	No
Dicrurus macrocercus	Black Drongo	LC		FALSE	Full Migrant	Yes	17900000	4657.53	0.03%					Yes	No
Dromas ardeola	Crab-plover	LC		FALSE	Full Migrant	Yes	3390000	4657.53	0.14%					Yes	No
Emberiza melanocephala	Black-headed Bunting	LC		FALSE	Full Migrant	Yes	723000	4657.53	0.64%					Yes	No
Emberiza buchanani	**Grey-necked Bunting**	**LC**		**FALSE**	**Full Migrant**	**Yes**	**65200**	**4657.53**	**7.14%**					**Yes**	**Yes**
Falco tinnunculus	Common Kestrel	LC		FALSE	Full Migrant	Yes	106000000	4657.53	0.00%					Yes	No
Falco subbuteo	Eurasian Hobby	LC		FALSE	Full Migrant	Yes	49300000	4657.53	0.01%					Yes	No
Falco columbarius	Merlin	LC		FALSE	Full Migrant	Yes	103000000	4657.53	0.00%					Yes	No
Falco peregrinus	Peregrine Falcon	LC		FALSE	Full Migrant	Yes	413000000	4657.53	0.00%					Yes	No
Carpodacus erythrinus	Common Rosefinch	LC		FALSE	Full Migrant	Yes	10200000	4657.53	0.05%					Yes	No
Glareola pratincola	Collared Pratincole	LC		FALSE	Full Migrant	Yes	21300000	4657.53	0.02%					Yes	No
Cursorius cursor	Cream-coloured Courser	LC		FALSE	Full Migrant	Yes	22200000	4657.53	0.02%					Yes	No
Glareola lactea	Little Pratincole	LC		FALSE	Full Migrant	Yes	8710000	4657.53	0.05%					Yes	No
Glareola maldivarum	Oriental Pratincole	LC		FALSE	Full Migrant	Yes	25400000	4657.53	0.02%					Yes	No
Grus grus	Common Crane	LC		FALSE	Full Migrant	Yes	25600000	4657.53	0.02%					Yes	No
Anthropoides virgo	Demoiselle Crane	LC		FALSE	Full Migrant	Yes	9410000	4657.53	0.05%					Yes	No
Haematopus ostralegus	Eurasian Oystercatcher	NT		FALSE	Full Migrant	Yes	36600000	4657.53	0.01%					Yes	No
Riparia chinensis	Asian Plain Martin	LC		FALSE	Full Migrant	Yes	10200000	4657.53	0.05%					Yes	No
Hirundo rustica	Barn Swallow	LC		FALSE	Full Migrant	Yes	251000000	4657.53	0.00%					Yes	No
Ptyonoprogne rupestris	Eurasian Crag Martin	LC		FALSE	Full Migrant	Yes	29300000	4657.53	0.02%					Yes	No
Riparia diluta	Pale Sand Martin	LC		FALSE	Full Migrant	Yes	4690000	4657.53	0.10%					Yes	No
Cecropis daurica	Red-rumped Swallow	LC		FALSE	Full Migrant	Yes	75400000	4657.53	0.01%					Yes	No
Petrochelidon fluvicola	Streak-throated Swallow	LC		FALSE	Full Migrant	Yes	3180000	4657.53	0.15%					Yes	No
Hirundo smithii	Wire-tailed Swallow	LC		FALSE	Full Migrant	Yes	49700000	4657.53	0.01%					Yes	No
Hypocolius ampelinus	Hypocolius	LC		FALSE	Full Migrant	Yes	1900000	4657.53	0.25%					Yes	No
Hydrophasianus chirurgus	Pheasant-tailed Jacana	LC		FALSE	Full Migrant	Yes	19700000	4657.53	0.02%					Yes	No
Lanius vittatus	Bay-backed Shrike	LC		FALSE	Full Migrant	Yes	5690000	4657.53	0.08%					Yes	No
Lanius excubitor	Great Grey Shrike	LC		FALSE	Full Migrant	Yes	52700000	4657.53	0.01%					Yes	No
Lanius isabellinus	Isabelline Shrike	LC		FALSE	Full Migrant	Yes	4880000	4657.53	0.10%					Yes	No
Lanius schach	Long-tailed Shrike	LC		FALSE	Full Migrant	Yes	28800000	4657.53	0.02%					Yes	No

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Lanius phoenicuroides	Red-tailed Shrike	LC		FALSE	Full Migrant	Yes	5670000	4657.53	0.08%					Yes	No
Sterna acuticauda	Black-bellied Tern	EN		FALSE	Not a Migrant	Yes	4810000	4657.53	0.10%	Yes	No				
Larus cachinnans	Caspian Gull	LC		FALSE	Full Migrant	Yes	5820000	4657.53	0.08%					Yes	No
Hydroprogne caspia	Caspian Tern	LC		FALSE	Full Migrant	Yes	258000000	4657.53	0.00%					Yes	No
Gelochelidon nilotica	Common Gull-billed Tern	LC		FALSE	Full Migrant	Yes	163000000	4657.53	0.00%					Yes	No
Sterna hirundo	Common Tern	LC		FALSE	Full Migrant	Yes	84300000	4657.53	0.01%					Yes	No
Thalasseus bergii	Greater Crested Tern	LC		FALSE	Full Migrant	Yes	142000000	4657.53	0.00%					Yes	No
Larus fuscus	Lesser Black-backed Gull	LC		FALSE	Full Migrant	Yes	19400000	4657.53	0.02%					Yes	No
Thalasseus bengalensis	Lesser Crested Tern	LC		FALSE	Full Migrant	Yes	41500000	4657.53	0.01%					Yes	No
Sternula albifrons	Little Tern	LC		FALSE	Full Migrant	Yes	152000000	4657.53	0.00%					Yes	No
Sterna aurantia	River Tern	VU		FALSE	Not a Migrant	Yes	9330000	4657.53	0.05%	Yes	No				
Thalasseus sandvicensis	Sandwich Tern	LC		FALSE	Full Migrant	Yes	98800000	4657.53	0.00%					Yes	No
Sternula saundersi	Saunders's Tern	LC		FALSE	Full Migrant	Yes	11700000	4657.53	0.04%					Yes	No
Larus genei	Slender-billed Gull	LC		FALSE	Full Migrant	Yes	22600000	4657.53	0.02%					Yes	No
Larus hemprichii	Sooty Gull	LC		FALSE	Full Migrant	Yes	7050000	4657.53	0.07%					Yes	No
Chlidonias hybrida	Whiskered Tern	LC		FALSE	Full Migrant	Yes	130000000	4657.53	0.00%					Yes	No
Sterna repressa	White-cheeked Tern	LC		FALSE	Full Migrant	Yes	8740000	4657.53	0.05%					Yes	No
Chlidonias leucopterus	White-winged Tern	LC		FALSE	Full Migrant	Yes	27200000	4657.53	0.02%					Yes	No
Merops orientalis	Asian Green Bee-eater	LC		FALSE	Full Migrant	Yes	11600000	4657.53	0.04%					Yes	No
Merops persicus	Blue-cheeked Bee-eater	LC		FALSE	Full Migrant	Yes	24700000	4657.53	0.02%					Yes	No
Merops apiaster	European Bee-eater	LC		FALSE	Full Migrant	Yes	13600000	4657.53	0.03%					Yes	No
Terpsiphone paradisi	Indian Paradise-flycatcher	LC		FALSE	Full Migrant	Yes	4200000	4657.53	0.11%					Yes	No
Motacilla citreola	Citrine Wagtail	LC		FALSE	Full Migrant	Yes	13600000	4657.53	0.03%					Yes	No
Motacilla cinerea	Grey Wagtail	LC		FALSE	Full Migrant	Yes	60700000	4657.53	0.01%					Yes	No
Anthus campestris	Tawny Pipit	LC		FALSE	Full Migrant	Yes	22100000	4657.53	0.02%					Yes	No
Anthus trivialis	Tree Pipit	LC		FALSE	Full Migrant	Yes	35100000	4657.53	0.01%					Yes	No
Anthus spinoletta	Water Pipit	LC		FALSE	Full Migrant	Yes	17500000	4657.53	0.03%					Yes	No
Motacilla flava	Western Yellow Wagtail	LC		FALSE	Full Migrant	Yes	40900000	4657.53	0.01%					Yes	No
Motacilla alba	White Wagtail	LC		FALSE	Full Migrant	Yes	37800000	4657.53	0.01%					Yes	No
Phoenicurus ochruros	Black Redstart	LC		FALSE	Full Migrant	Yes	22700000	4657.53	0.02%					Yes	No
Monticola solitarius	Blue Rock-thrush	LC		FALSE	Full Migrant	Yes	66600000	4657.53	0.01%					Yes	No
Luscinia svecica	Bluethroat	LC		FALSE	Full Migrant	Yes	35500000	4657.53	0.01%					Yes	No
Oenanthe deserti	Desert Wheatear	LC		FALSE	Full Migrant	Yes	21400000	4657.53	0.02%					Yes	No
Phoenicurus erythronotus	Eversmann's Redstart	LC		FALSE	Full Migrant	Yes	2310000	4657.53	0.20%					Yes	No
Oenanthe finschii	Finsch's Wheatear	LC		FALSE	Full Migrant	Yes	4320000	4657.53	0.11%					Yes	No
Oenanthe isabellina	Isabelline Wheatear	LC		FALSE	Full Migrant	Yes	16000000	4657.53	0.03%					Yes	No
Saxicola caprata	Pied Bushchat	LC		FALSE	Full Migrant	Yes	25400000	4657.53	0.02%					Yes	No
Ficedula parva	Red-breasted Flycatcher	LC		FALSE	Full Migrant	Yes	2630000	4657.53	0.18%					Yes	No
Oenanthe chrysopygia	Red-tailed Wheatear	LC		FALSE	Full Migrant	Yes	2520000	4657.53	0.18%					Yes	No
Monticola saxatilis	Rufous-tailed Rock-thrush	LC		FALSE	Full Migrant	Yes	14000000	4657.53	0.03%					Yes	No

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Cercotrichas galactotes	Rufous-tailed Scrub-robin	LC		FALSE	Full Migrant	Yes	13100000	4657.53	0.04%					Yes	No
Muscicapa striata	Spotted Flycatcher	LC		FALSE	Full Migrant	Yes	20600000	4657.53	0.02%					Yes	No
Oenanthe picata	Variable Wheatear	LC		FALSE	Full Migrant	Yes	2110000	4657.53	0.22%					Yes	No
Oceanites oceanicus	Wilson's Storm-petrel	LC		TRUE	Full Migrant	Yes	22000000	4657.53	0.02%			Yes	No	Yes	No
Oriolus kundoo	Indian Golden Oriole	LC		FALSE	Full Migrant	Yes	3120000	4657.53	0.15%					Yes	No
Chlamydotis macqueenii	Asian Houbara	VU		FALSE	Full Migrant	Yes	13200000	4657.53	0.04%	Yes	No			Yes	No
Pandion haliaetus	Osprey	LC		FALSE	Full Migrant	Yes	298000000	4657.53	0.00%					Yes	No
Passer hispaniolensis	Spanish Sparrow	LC		FALSE	Full Migrant	Yes	16600000	4657.53	0.03%					Yes	No
Pelecanus crispus	Dalmatian Pelican	NT		FALSE	Full Migrant	Yes	12600000	4657.53	0.04%					Yes	No
Pelecanus onocrotalus	Great White Pelican	LC		FALSE	Full Migrant	Yes	51200000	4657.53	0.01%					Yes	No
Phalacrocorax carbo	Great Cormorant	LC		FALSE	Full Migrant	Yes	312000000	4657.53	0.00%					Yes	No
Coturnix coturnix	Common Quail	LC		FALSE	Full Migrant	Yes	64600000	4657.53	0.01%					Yes	No
Phoenicopterus roseus	Greater Flamingo	LC		FALSE	Full Migrant	Yes	61400000	4657.53	0.01%					Yes	No
Phylloscopus nitidus	Green Warbler	LC		FALSE	Full Migrant	Yes	1440000	4657.53	0.32%					Yes	No
Phylloscopus trochiloides	Greenish Warbler	LC		FALSE	Full Migrant	Yes	7170000	4657.53	0.06%					Yes	No
Phylloscopus sindianus	Mountain Chiffchaff	LC		FALSE	Full Migrant	Yes	1680000	4657.53	0.28%					Yes	No
Phylloscopus neglectus	Plain Leaf-warbler	LC		FALSE	Full Migrant	Yes	2450000	4657.53	0.19%					Yes	No
Podiceps nigricollis	Black-necked Grebe	LC		FALSE	Full Migrant	Yes	146000000	4657.53	0.00%					Yes	No
Podiceps cristatus	Great Crested Grebe	LC		FALSE	Full Migrant	Yes	183000000	4657.53	0.00%					Yes	No
Tachybaptus ruficollis	Little Grebe	LC		FALSE	Full Migrant	Yes	170000000	4657.53	0.00%					Yes	No
Prunella atrogularis	Black-throated Accentor	LC		FALSE	Full Migrant	Yes	5040000	4657.53	0.09%					Yes	No
Pterocles orientalis	Black-bellied Sandgrouse	LC		FALSE	Full Migrant	Yes	9410000	4657.53	0.05%					Yes	No
Pterocles senegallus	Spotted Sandgrouse	LC		FALSE	Full Migrant	Yes	20100000	4657.53	0.02%					Yes	No
Zapornia pusilla	Baillon's Crake	LC		FALSE	Full Migrant	Yes	74800000	4657.53	0.01%					Yes	No
Gallinula chloropus	Common Moorhen	LC		FALSE	Full Migrant	Yes	143000000	4657.53	0.00%					Yes	No
Fulica atra	Eurasian Coot	LC		FALSE	Full Migrant	Yes	152000000	4657.53	0.00%					Yes	No
Zapornia parva	Little Crake	LC		FALSE	Full Migrant	Yes	14500000	4657.53	0.03%					Yes	No
Porzana porzana	Spotted Crake	LC		FALSE	Full Migrant	Yes	28000000	4657.53	0.02%					Yes	No
Gallicrex cinerea	Watercock	LC		FALSE	Full Migrant	Yes	22600000	4657.53	0.02%					Yes	No
Rallus aquaticus	Western Water Rail	LC		FALSE	Full Migrant	Yes	32800000	4657.53	0.01%					Yes	No
Amaurornis phoenicurus	White-breasted Waterhen	LC		FALSE	Full Migrant	Yes	39300000	4657.53	0.01%					Yes	No
Himantopus himantopus	Black-winged Stilt	LC		FALSE	Full Migrant	Yes	335000000	4657.53	0.00%					Yes	No
Recurvirostra avosetta	Pied Avocet	LC		FALSE	Full Migrant	Yes	77200000	4657.53	0.01%					Yes	No
Remiz coronatus	White-crowned Penduline-tit	LC		FALSE	Full Migrant	Yes	5730000	4657.53	0.08%					Yes	No
Limosa lapponica	Bar-tailed Godwit	NT		FALSE	Full Migrant	Yes	9050000	4657.53	0.05%					Yes	No
Limosa limosa	Black-tailed Godwit	NT		FALSE	Full Migrant	Yes	30300000	4657.53	0.02%					Yes	No
Calidris falcinellus	Broad-billed Sandpiper	VU		FALSE	Full Migrant	Yes	6100000	4657.53	0.08%	Yes	No			Yes	No
Tringa nebularia	Common Greenshank	LC		FALSE	Full Migrant	Yes	18700000	4657.53	0.02%					Yes	No
Tringa totanus	Common Redshank	LC		FALSE	Full Migrant	Yes	40700000	4657.53	0.01%					Yes	No
Actitis hypoleucos	Common Sandpiper	LC		FALSE	Full Migrant	Yes	47200000	4657.53	0.01%					Yes	No

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Gallinago gallinago	Common Snipe	LC		FALSE	Full Migrant	Yes	21500000	4657.53	0.02%					Yes	No
Calidris ferruginea	Curlew Sandpiper	VU		FALSE	Full Migrant	Yes	3000000	4657.53	0.16%	Yes	No			Yes	No
Calidris alpina	Dunlin	NT		FALSE	Full Migrant	Yes	30000000	4657.53	0.02%					Yes	No
Numenius arquata	Eurasian Curlew	NT		FALSE	Full Migrant	Yes	20700000	4657.53	0.02%					Yes	No
Tringa ochropus	Green Sandpiper	LC		FALSE	Full Migrant	Yes	24600000	4657.53	0.02%					Yes	No
Lymnocryptes minimus	Jack Snipe	LC		FALSE	Full Migrant	Yes	10600000	4657.53	0.04%					Yes	No
Calidris minuta	Little Stint	LC		FALSE	Full Migrant	Yes	4750000	4657.53	0.10%					Yes	No
Arenaria interpres	Ruddy Turnstone	NT		FALSE	Full Migrant	Yes	17000000	4657.53	0.03%					Yes	No
Calidris pugnax	Ruff	LC		FALSE	Full Migrant	Yes	38500000	4657.53	0.01%					Yes	No
Calidris alba	Sanderling	LC		FALSE	Full Migrant	Yes	13600000	4657.53	0.03%					Yes	No
Tringa erythropus	Spotted Redshank	LC		FALSE	Full Migrant	Yes	7360000	4657.53	0.06%					Yes	No
Calidris temminckii	Temminck's Stint	LC		FALSE	Full Migrant	Yes	9780000	4657.53	0.05%					Yes	No
Xenus cinereus	Terek Sandpiper	LC		FALSE	Full Migrant	Yes	13300000	4657.53	0.04%					Yes	No
Numenius phaeopus	Whimbrel	LC		FALSE	Full Migrant	Yes	31100000	4657.53	0.01%					Yes	No
Tringa glareola	Wood Sandpiper	LC		FALSE	Full Migrant	Yes	23000000	4657.53	0.02%					Yes	No
Cettia cetti	Cetti's Warbler	LC		FALSE	Full Migrant	Yes	18000000	4657.53	0.03%					Yes	No
Sitta tephronota	Eastern Rock Nuthatch	LC		FALSE	Altitudinal Migrant	Yes	4840000	4657.53	0.10%					Yes	No
Tichodroma muraria	Wallcreeper	LC		FALSE	Full Migrant	Yes	16400000	4657.53	0.03%					Yes	No
Otus scops	Eurasian Scops-owl	LC		FALSE	Full Migrant	Yes	33400000	4657.53	0.01%					Yes	No
Otus bakkamoena	Indian Scops-owl	LC		FALSE	Altitudinal Migrant	Yes	4200000	4657.53	0.11%					Yes	No
Otus brucei	Pallid Scops-owl	LC		FALSE	Full Migrant	Yes	3560000	4657.53	0.13%					Yes	No
Asio flammeus	Short-eared Owl	LC		FALSE	Full Migrant	Yes	246000000	4657.53	0.00%					Yes	No
Sturnia pagodarum	Brahminy Starling	LC		FALSE	Full Migrant	Yes	4150000	4657.53	0.11%					Yes	No
Sturnus vulgaris	Common Starling	LC		FALSE	Full Migrant	Yes	33200000	4657.53	0.01%					Yes	No
Curruca nana	Asian Desert Warbler	LC		FALSE	Full Migrant	Yes	7010000	4657.53	0.07%					Yes	No
Curruca communis	Common Whitethroat	LC		FALSE	Full Migrant	Yes	23000000	4657.53	0.02%					Yes	No
Curruca crassirostris	Eastern Orphean Warbler	LC		FALSE	Full Migrant	Yes	10700000	4657.53	0.04%					Yes	No
Curruca curruca	Lesser Whitethroat	LC		FALSE	Full Migrant	Yes	23800000	4657.53	0.02%					Yes	No
Platalea leucorodia	Eurasian Spoonbill	LC		FALSE	Full Migrant	Yes	60400000	4657.53	0.01%					Yes	No
Plegadis falcinellus	Glossy Ibis	LC		FALSE	Full Migrant	Yes	199000000	4657.53	0.00%					Yes	No
Turdus atrogularis	Black-throated Thrush	LC		FALSE	Full Migrant	Yes	9960000	4657.53	0.05%					Yes	No
Upupa epops	Common Hoopoe	LC		FALSE	Full Migrant	Yes	78300000	4657.53	0.01%					Yes	No
Floral species															
Gagea quettica	**Quetta Star Lily**	**Unlisted**	**-**	**TRUE**	**Not a migrant**	**No**	**Unknown**	4657.53	#N/A			**Yes**	**Yes**		
Tecomella undulata	Desert Teak	EN		FALSE	Not a migrant	Yes	2506818	4657.53	0.19%	Yes	No				
Mammalian species															
Salpingotulus michaelis	**Baluchistan Pygmy Jerboa**	**DD**	**LC**	**TRUE**	**Not a Migrant**	**Yes**	**>20 000.00**	**4657.53**	**23.2%**			**Yes**	**Yes**		
Capra aegagrus	Wild Goat	NT		FALSE	Altitudinal Migrant	Yes	3957793	4657.53	0.12%					Yes	No
Rhinopoma microphyllum	Greater Mouse-tailed Bat	LC		FALSE	Full Migrant	Yes	23644730	4657.53	0.02%					Yes	No

Scientific Name	Common Name	IUCN Category	National Status	Restricted Range	Movement Pattern	IBAT	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 2	Criterion 2 Triggered	Criterion 3	Criterion 3 Triggered
Herpetofaunal Species															
Bufotes zugmayeri	**Baloch Green Toad**	**NT**		**TRUE**	**Not a Migrant**	**Yes**	**40840.10**	**40840.10**	**100%**			**Yes**	**Yes**		
Saara hardwickii	Indian Spiny-tailed Lizard	VU		FALSE		Yes	Unknown	4657.53	#VALUE!	Yes	#VALUE!				
Crocodylus palustris	Mugger	VU		FALSE		Yes	Unknown	4657.53	#VALUE!	Yes	#VALUE!				
Invertebrates Species															
Pantala flavescens	Wandering Glider	LC		FALSE	Full Migrant	Yes	#N/A	4657.53	#N/A					Yes	#N/A
Vanessa cardui	Painted Lady	LC		FALSE	Full Migrant	Yes	173850000	4657.53	0.00%					Yes	No

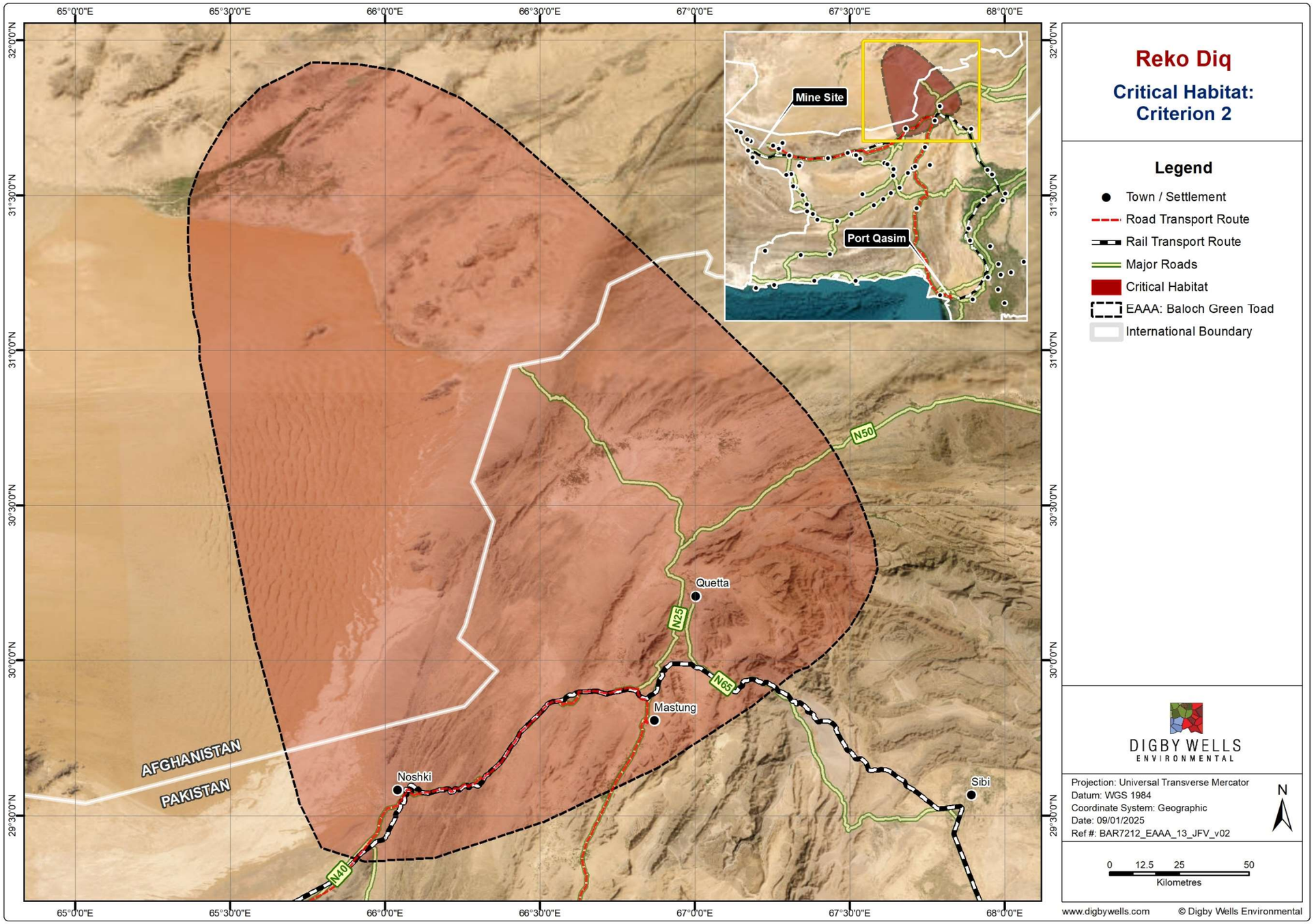

Figure 5-14: Critical habitat designated for Criterion 2

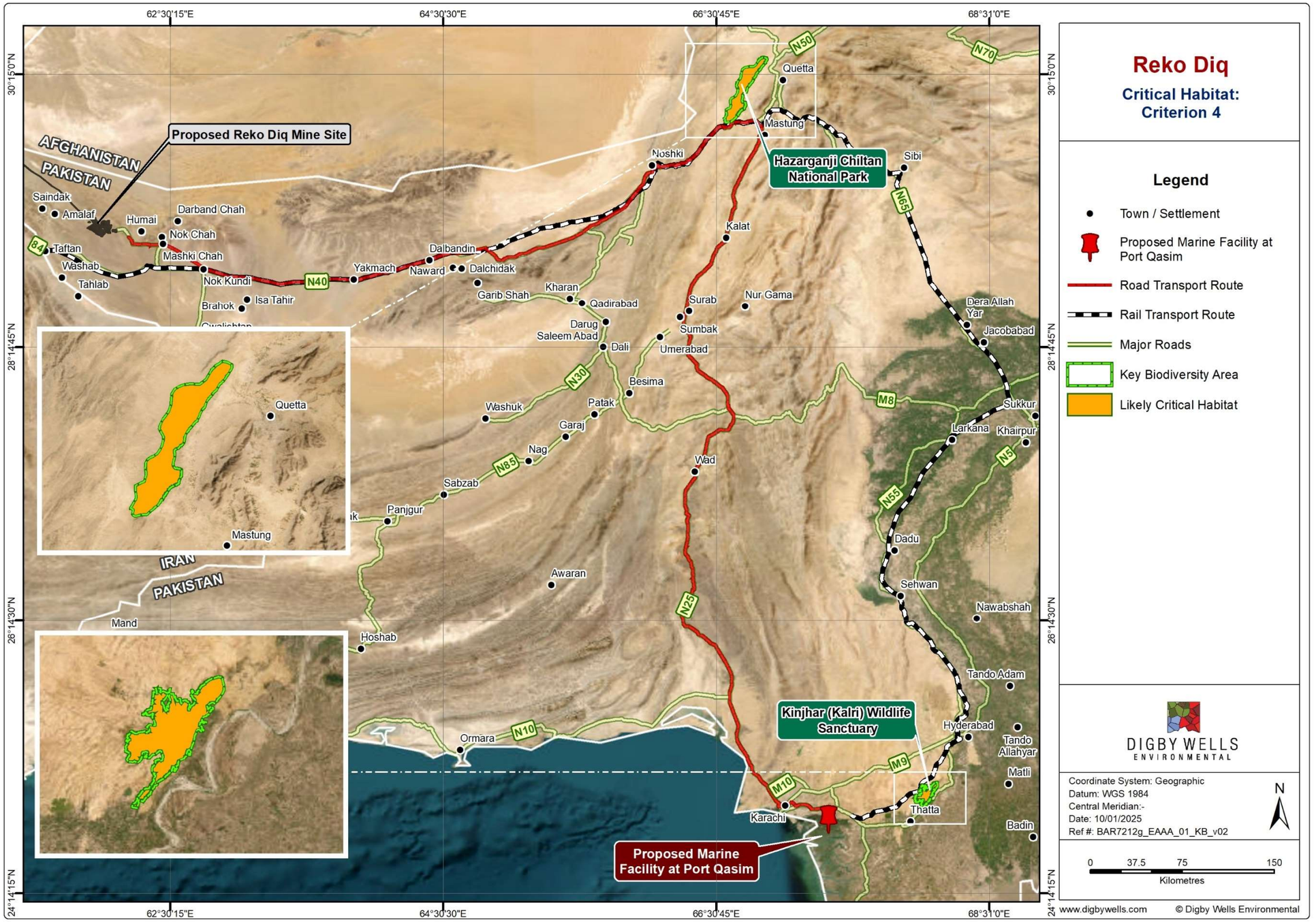

Figure 5-15: Critical habitat designated for Criterion 4

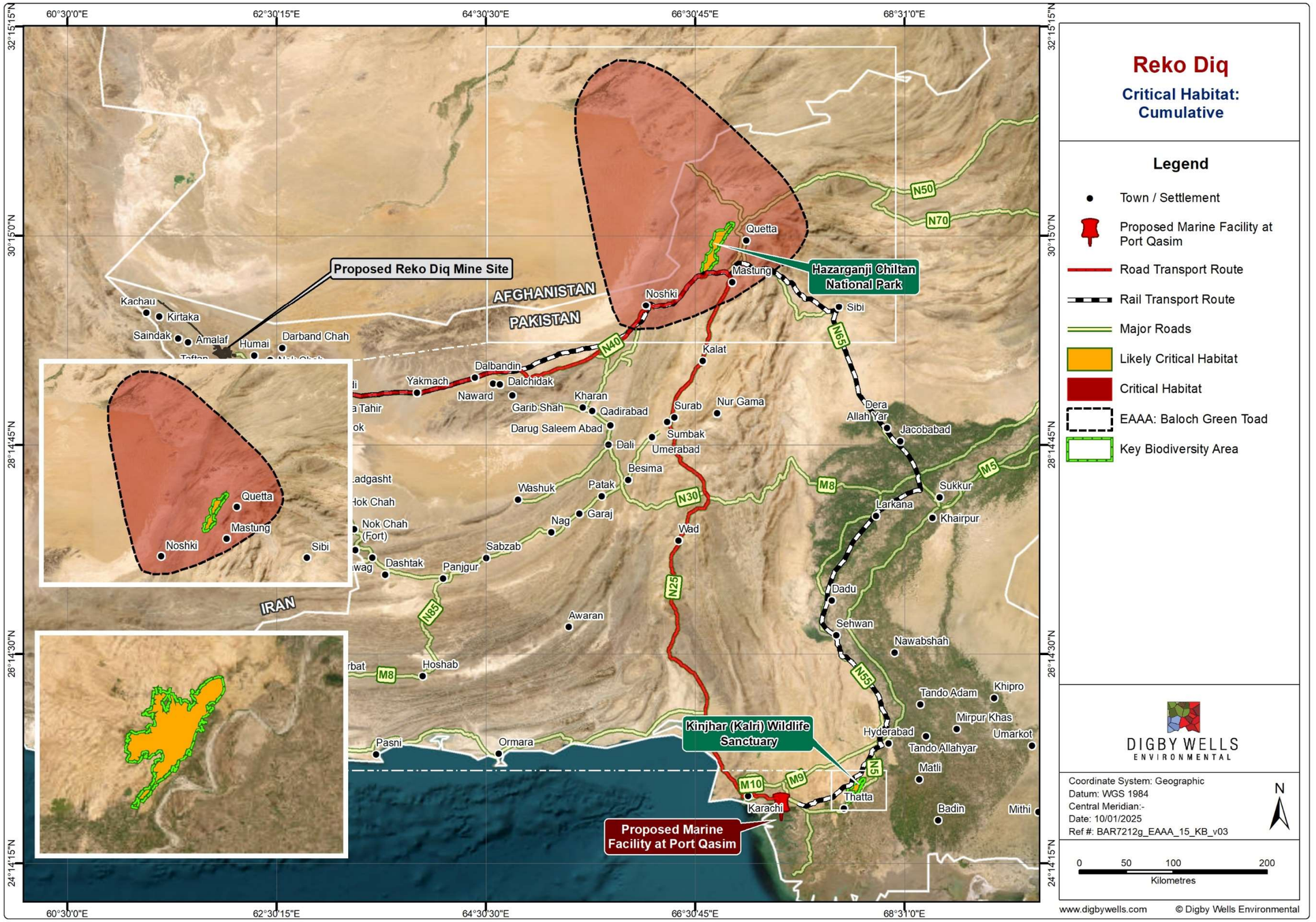

Figure 5-16: Critical habitat delineated along the transport route

In addition, a few journal articles and published literature reference the presence a few threatened and endemic plants that are present within northern Baluchistan, but there is very limited additional information available on the distribution of these species, so it is difficult to assess the risk of being affected by the project.

Among the floral species reported in these assessments, several SCC listed on the IUCN Red List of Threatened Species were noted. These species include:

- *Commiphora wightii* (CR);
- *Commiphora stocksiana* (EN);
- *Tecomella undulata* (EN);
- *Dactylorhiza hatagirea* (EN); and
- *Conocarpus lancifolius* (VU).

There is a likely presence of *Tecomella undulata* and *Commiphora stocksiana* along the Rail and Road Route Corridor as the distribution ranges and specimens collected of these species overlap with the area, but their presence can only be confirmed through field verification. Nonetheless, both these species are not expected meet sub-criterion 1(a), as the wide distribution range of *Tecomella undulata* suggests that it is not a significant population, while the available information for *Commiphora stocksiana* population estimates are inadequate to assess a whether it overlaps with the relatively small AoI, which is not expected to be affected.

In addition, 10 species expected along the Transport Route are considered endemic. These species include *Abutilon pakistanicum, Asparagus gharoensis, Asparagus dumosus, Atriplex stocksii, Berberis balochistanica, Caragana ambigua, Commiphora stocksiana, Heliotropium ophioglossum, Heliotropium ulophyllum, and Seriphidium quettense and Gagea quettica.* However, after consulting online datasets of Global Biodiversity Information Facility (GBIF), International Union for Conservation of Nature (IUCN) Red List of Threatened Species, Flora of Pakistan, and Plant of the World Online, it is concluded that only *Heliotropium ulophyllum*, and *Caragana ambigua* are endemic to Pakistan, but not expected to meet the threshold for sub-criterion 2, while *Asparagus gharoensis* is likely extinct from the area.

Importantly, *Gagea quettica* (Quetta Star Lily, listed as NE), is recognised as a range-restricted species. In the Critical Habitat Assessment (Digby Wells Environmental, 2024). *Gagea quettica* was assessed as to whether it triggers CH Criterion 2. However, as it was not detected by GBIF or through recent surveys, it was not considered to be a CH trigger, but it should be treated as a Priority Biodiversity Value (PBV), as the extent of occurrence is not understood, but it is believed to be present near Noshki / Quetta along the transport route/s.

Similarly, the available literature suggests that it is present in the region of northern Baluchistan, which ranges from the western portion of the Himalayas to the Iranian border and little additional detail is available at the time of the assessment. As a preliminary consideration, a query on a GBIF was included to collect additional data on species that may be in close proximity to the transport route, only *Tecomella undulata* was detected, and this species fell below the thresholds for Criterion 1(a). For each of the other species of threatened and

endemic plants, they are treated as PBVs for the sake of the assessment and should any changes be considered along the transport route, further investigation may be required in the form of a walk-down to search for these species prior to any construction activities.

5.3.2.2. Port Qasim

The CHA was undertaken for the Port Qasim infrastructure based on a consolidated list of expected species, as derived from the IBAT report in November 2024 (IBAT Alliance 2024), the supplementary literature review and field surveys[28] undertaken by Hagler Bailly Pakistan (Hagler Bailly Pakistan 2024a, 2024b, 2024c), as well as the GBIF data[29].

The Candidate Critical Habitat triggers according to Criteria 1 and Criterion 3 are presented in Table 5-4 below. Many migratory species of varying threat statuses (CR to LC) were detected. However, no species were detected that were likely to trigger critical habitat at the Port Qasim, especially with the focus of the EAA on the terrestrial realm only.

With respect to Criterion 4 (Highly Threatened and/or Unique Ecosystems), there are mangrove ecosystems, but these do not fall within the EAAA. Additionally, there are a number of protected and internationally recognised areas in the greater region, but these do not occur in the EAAA. The habitat in the EAAA is modified.

Regarding Criterion 5 (Key Evolutionary Processes), studies have not indicated the presence of features that may influence key evolutionary processes.

[28] Field surveys were not undertaken for the transport corridor. These were only undertaken for the Port Qasim site.
[29] GBIF data was included where available. Additionally, records before 1980 were excluded owing to the extensive timespan between that date and present day.

Table 5-4: Candidate Critical Habitat trigger species detected at the Port Qasim Site. Their IUCN category, geographical and population Information is included in the table below. EOO refers to the Extent of Occurrence. AOO refers to the Area of Occupancy.

Class	Scientific Name	IUCN Category	IUCN Category	National Status	Restricted Range	Movement Pattern	IBAT	GBIF	HBP	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 3	Criterion 3 Triggered
AVES	*Accipiter badius*	Shikra	LC		False/Unknown	Full Migrant	Yes	Yes	No	63300000	239.69	0.00%			Yes	No
AVES	*Acrocephalus agricola*	Paddyfield Warbler	LC		False/Unknown	Full Migrant	Yes	Yes	No	6530000	194.69	0.00%			Yes	No
AVES	*Actitis hypoleucos*	Common Sandpiper	LC		False/Unknown	Full Migrant	Yes	Yes	No	47200000	135.69	0.00%			Yes	No
	Aegypius monachus		NT			Full Migrant	Yes	Yes	Yes	22400000	246.69	0.00%			Yes	No
AVES	*Alaudala heinei*	Turkestan Short-toed Lark	LC		False/Unknown	Full Migrant	Yes	Yes	No	7528000	230.69	0.00%			Yes	No
AVES	*Alcedo atthis*	Common Kingfisher	LC		False/Unknown	Full Migrant	Yes	Yes	No	79900000	124.69	0.00%			Yes	No
AVES	*Amaurornis phoenicurus*	White-breasted Waterhen	LC		False/Unknown	Full Migrant	Yes	Yes	No	39300000	127.69	0.00%			Yes	No
AVES	*Anas acuta*	Northern Pintail	LC		False/Unknown	Full Migrant	Yes	Yes	No	41900000	122.69	0.00%			Yes	No
AVES	*Anas platyrhynchos*	Mallard	LC		False/Unknown	Full Migrant	Yes	Yes	No	65800000	173.69	0.00%			Yes	No
AVES	*Anas poecilorhyncha*	Indian Spot-billed Duck	LC		False/Unknown	Full Migrant	Yes	Yes	No	9980000	203.69	0.00%			Yes	No
AVES	*Anser anser*	Greylag Goose	LC		False/Unknown	Full Migrant	Yes	Yes	No	31200000	170.69	0.00%			Yes	No
AVES	*Anthus campestris*	Tawny Pipit	LC		False/Unknown	Full Migrant	Yes	Yes	No	22100000	162.69	0.00%			Yes	No
AVES	*Anthus spinoletta*	Water Pipit	LC		False/Unknown	Full Migrant	Yes	Yes	No	17500000	163.69	0.00%			Yes	No
AVES	*Apus affinis*	Little Swift	LC		False/Unknown	Full Migrant	Yes	Yes	No	55800000	211.69	0.00%			Yes	No
AVES	*Apus apus*	Common Swift	LC		False/Unknown	Full Migrant	Yes	Yes	No	13300000	177.69	0.00%			Yes	No
	Aquila chrysaetos		LC			Full Migrant	Yes	No	Yes	139000000	109.69	0.00%			Yes	No
AVES	*Aquila clanga*	Greater Spotted Eagle	VU	N/A			No	Yes	Yes	15300000	90.69	0.00%	Yes	No		No
AVES	*Aquila heliaca*	Eastern Imperial Eagle	VU	N/A	FALSE	Full Migrant	Yes	Yes	Yes	14900000	90.69	0.00%	Yes	No	Yes	No
AVES	*Aquila nipalensis*	Steppe Eagle	EN	N/A	FALSE	Full Migrant	Yes	Yes	Yes	12600000	90.69	0.00%	Yes	No	Yes	No
AVES	*Aquila rapax*	Tawny Eagle	VU	N/A			Yes	Yes	Yes	52700000	90.69	0.00%	Yes	No		No
AVES	*Ardea alba*	Great White Egret	LC		False/Unknown	Full Migrant	Yes	Yes	No	366000000	155.69	0.00%			Yes	No
AVES	*Ardea intermedia*	Intermediate Egret	LC		False/Unknown	Full Migrant	Yes	Yes	No	30300000	164.69	0.00%			Yes	No
AVES	*Arenaria interpres*	Ruddy Turnstone	NT		False/Unknown	Full Migrant	Yes	Yes	No	17000000	253.69	0.00%			Yes	No
	Argyrosomus amoyensis	Amoy Croaker	EN	N/A			No	No	Yes	Unknown	90.69	#VALUE!	Yes	-!		-!
	Argyrosomus japonicus	Japanese Meagre	EN	N/A			Yes	No	Yes	-	90.69	#VALUE!	Yes	-!		-!
AVES	*Asio flammeus*	Short-eared Owl	LC		False/Unknown	Full Migrant	Yes	Yes	No	246000000	178.69	0.00%			Yes	No
AVES	*Aythya ferina*	Common Pochard	VU	N/A			Yes	Yes	Yes	548000	90.69	0.02%	Yes	No		No
	Aythya nyroca		NT			Full Migrant	Yes	No	Yes	25200000	251.69	0.00%			Yes	No
AVES	*Butorides striata*	Green-backed Heron	LC		False/Unknown	Full Migrant	Yes	Yes	No	287000000	165.69	0.00%			Yes	No
AVES	*Calidris acuminata*	Sharp-tailed Sandpiper	VU				No	No	Yes	820000	90.69	0.01%	Yes	No		No
AVES	*Calidris alba*	Sanderling	LC		False/Unknown	Full Migrant	Yes	Yes	No	13600000	136.69	0.00%			Yes	No
	Calidris canutus		NT			Full Migrant	Yes	No	Yes	17800000	249.69	0.00%			Yes	No
AVES	*Calidris falcinellus*	Broad-billed Sandpiper	VU		False/Unknown	Full Migrant	Yes	Yes	No	6100000	90.69	0.00%	Yes	No	Yes	No
	Calidris ferruginea		NT			Full Migrant	Yes	Yes	Yes	3000000	247.69	0.01%			Yes	No
AVES	*Calidris minuta*	Little Stint	LC		False/Unknown	Full Migrant	Yes	Yes	No	4750000	137.69	0.00%			Yes	No
AVES	*Calidris pugnax*	Ruff	LC		False/Unknown	Full Migrant	Yes	Yes	No	38500000	139.69	0.00%			Yes	No
AVES	*Calidris temminckii*	Temminck's Stint	LC		False/Unknown	Full Migrant	Yes	Yes	No	9780000	138.69	0.00%			Yes	No
AVES	*Calidris tenuirostris*	Great Knot	EN	N/A			Yes	Yes	Yes	331000	90.69	0.03%	Yes	No		No
AVES	*Caprimulgus mahrattensis*	Sykes's Nightjar	LC		False/Unknown	Full Migrant	Yes	Yes	No	1550000	125.69	0.01%			Yes	No

Class	Scientific Name	IUCN Category	IUCN Category	National Status	Restricted Range	Movement Pattern	IBAT	GBIF	HBP	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 3	Criterion 3 Triggered
AVES	*Carpodacus erythrinus*	Common Rosefinch	LC		False/Unknown	Full Migrant	Yes	Yes	No	10200000	197.69	0.00%			Yes	No
AVES	*Cecropis daurica*	Red-rumped Swallow	LC		False/Unknown	Full Migrant	Yes	Yes	No	75400000	205.69	0.00%			Yes	No
AVES	*Cercotrichas galactotes*	Rufous-tailed Scrub-robin	LC		False/Unknown	Full Migrant	Yes	Yes	No	13100000	190.69	0.00%			Yes	No
AVES	*Cettia cetti*	Cetti's Warbler	LC		False/Unknown	Full Migrant	Yes	Yes	No	18000000	193.69	0.00%			Yes	No
AVES	*Charadrius hiaticula*	Common Ringed Plover	LC		False/Unknown	Full Migrant	Yes	Yes	No	414000	141.69	0.03%			Yes	No
AVES	*Charadrius leschenaultii*	Greater Sandplover	LC		False/Unknown	Full Migrant	Yes	Yes	No	9590000	238.69	0.00%			Yes	No
AVES	*Charadrius mongolus*	Siberian Sand Plover	EN	N/A			No	No	Yes	3200000	90.69	0.00%	Yes	No		No
AVES	*Chlidonias hybrida*	Whiskered Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	130000000	149.69	0.00%			Yes	No
AVES	*Chlidonias leucopterus*	White-winged Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	27200000	150.69	0.00%			Yes	No
AVES	*Ciconia ciconia*	White Stork	LC		False/Unknown	Full Migrant	Yes	Yes	No	52700000	188.69	0.00%			Yes	No
AVES	*Ciconia nigra*	Black Stork	LC		False/Unknown	Full Migrant	Yes	Yes	No	25100000	187.69	0.00%			Yes	No
AVES	*Circus aeruginosus*	Western Marsh-harrier	LC		False/Unknown	Full Migrant	Yes	Yes	No	24800000	183.69	0.00%			Yes	No
AVES	*Circus cyaneus*	Hen Harrier	LC		False/Unknown	Full Migrant	Yes	Yes	No	34800000	199.69	0.00%			Yes	No
	Circus macrourus		NT			Full Migrant	Yes	Yes	Yes	10900000	248.69	0.00%			Yes	No
AVES	*Circus pygargus*	Montagu's Harrier	LC		False/Unknown	Full Migrant	Yes	Yes	No	18000000	184.69	0.00%			Yes	No
AVES	*Clamator jacobinus*	Jacobin Cuckoo	LC		False/Unknown	Full Migrant	Yes	Yes	No	21800000	209.69	0.00%			Yes	No
AVES	*Clanga clanga*	Greater Spotted Eagle	VU	#N/A	FALSE	Full Migrant	Yes	No	Yes	15300000	90.69	0.00%	Yes	No	Yes	No
AVES	*Columba eversmanni*	Yellow-eyed Pigeon	VU	#N/A	FALSE	Full Migrant	Yes	No	Yes	3080000	90.69	0.00%	Yes	No	Yes	No
REPTILIA	*Crocodylus palustris*	Mugger	VU		False/Unknown		Yes	Yes	No	Unknown	90.69	#VALUE!	Yes	-!		-!
AVES	*Cuculus canorus*	Common Cuckoo	LC		False/Unknown	Full Migrant	Yes	Yes	No	51500000	175.69	0.00%			Yes	No
AVES	*Curruca communis*	Common Whitethroat	LC		False/Unknown	Full Migrant	Yes	Yes	No	23000000	219.69	0.00%			Yes	No
AVES	*Curruca crassirostris*	Eastern Orphean Warbler	LC		False/Unknown	Full Migrant	Yes	Yes	No	10700000	225.69	0.00%			Yes	No
AVES	*Cursorius cursor*	Cream-coloured Courser	LC		False/Unknown	Full Migrant	Yes	Yes	No	22200000	226.69	0.00%			Yes	No
AVES	*Dromas ardeola*	Crab-plover	LC		False/Unknown	Full Migrant	Yes	Yes	No	3390000	142.69	0.00%			Yes	No
AVES	*Emberiza buchanani*	Grey-necked Bunting	LC		False/Unknown	Full Migrant	Yes	Yes	No	65200	223.69	0.34%			Yes	No
AVES	*Emberiza melanocephala*	Black-headed Bunting	LC		False/Unknown	Full Migrant	Yes	Yes	No	723000	224.69	0.03%			Yes	No
AVES	*Eudynamys scolopaceus*	Western Koel	LC		False/Unknown	Full Migrant	Yes	Yes	No	29800000	210.69	0.00%			Yes	No
	Falco columbarius		LC			Full Migrant	Yes	No	Yes	103000000	110.69	0.00%			Yes	No
AVES	*Falco peregrinus*	Peregrine Falcon	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	413000000	101.69	0.00%			Yes	No
AVES	*Falco subbuteo*	Eurasian Hobby	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	49300000	102.69	0.00%			Yes	No
AVES	*Fulica atra*	Eurasian Coot	LC		False/Unknown	Full Migrant	Yes	Yes	No	152000000	129.69	0.00%			Yes	No
AVES	*Gallinago gallinago*	Common Snipe	LC		False/Unknown	Full Migrant	Yes	Yes	No	21500000	179.69	0.00%			Yes	No
AVES	*Gallinago nemoricola*	Wood Snipe	VU				No	No	Yes	1270000	90.69	0.01%	Yes	No		No
AVES	*Gallinula chloropus*	Common Moorhen	LC		False/Unknown	Full Migrant	Yes	Yes	No	143000000	169.69	0.00%			Yes	No
AVES	*Gelochelidon nilotica*	Common Gull-billed Tern	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	163000000	99.69	0.00%			Yes	No
AVES	*Grus grus*	Common Crane	LC		False/Unknown	Full Migrant	Yes	Yes	No	25600000	126.69	0.00%			Yes	No
AVES	*Gyps bengalensis*	White-rumped Vulture	CR	N/A			Yes	Yes	Yes	7370000	90.69	0.00%	Yes	No		No
AVES	*Gyps fulvus*	Griffon Vulture	LC		False/Unknown	Full Migrant	Yes	Yes	No	20400000	214.69	0.00%			Yes	No
AVES	*Haematopus ostralegus*	Eurasian Oystercatcher	NT	N/A	FALSE	Full Migrant	Yes	Yes	Yes	36600000	241.69	0.00%			Yes	No
AVES	*Halcyon pileata*	Black-capped Kingfisher	VU		False/Unknown	Full Migrant	Yes	Yes	No	5160000	90.69	0.00%	Yes	No	Yes	No
AVES	*Haliaeetus leucoryphus*	Pallas's Fishing Eagle	EN				Yes	Yes	Yes	1740000	90.69	0.01%	Yes	No		No
	Hieraaetus pennatus		LC			Full Migrant	Yes	Yes	Yes	62000000	104.69	0.00%			Yes	No

Class	Scientific Name	IUCN Category	IUCN Category	National Status	Restricted Range	Movement Pattern	IBAT	GBIF	HBP	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 3	Criterion 3 Triggered
AVES	*Hippolais languida*	Upcher's Warbler	LC		False/Unknown	Full Migrant	Yes	Yes	No	3890000	218.69	0.01%			Yes	No
AVES	*Hirundo smithii*	Wire-tailed Swallow	LC		False/Unknown	Full Migrant	Yes	Yes	No	49700000	191.69	0.00%			Yes	No
AVES	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	LC		False/Unknown	Full Migrant	Yes	Yes	No	19700000	182.69	0.00%			Yes	No
AVES	*Hypocolius ampelinus*	Hypocolius	LC		False/Unknown	Full Migrant	Yes	Yes	No	1900000	217.69	0.01%			Yes	No
AVES	*Iduna rama*	Sykes's Warbler	LC		False/Unknown	Full Migrant	Yes	Yes	No	4620000	195.69	0.00%			Yes	No
AVES	*Ixobrychus cinnamomeus*	Cinnamon Bittern	LC		False/Unknown	Full Migrant	Yes	Yes	No	25400000	186.69	0.00%			Yes	No
AVES	*Ixobrychus flavicollis*	Black Bittern	LC		False/Unknown	Full Migrant	Yes	Yes	No	41100000	157.69	0.00%			Yes	No
AVES	*Ixobrychus sinensis*	Yellow Bittern	LC		False/Unknown	Full Migrant	Yes	Yes	No	36000000	185.69	0.00%			Yes	No
AVES	*Lanius excubitor*	Great Grey Shrike	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	52700000	103.69	0.00%			Yes	No
AVES	*Lanius phoenicuroides*	Red-tailed Shrike	LC		False/Unknown	Full Migrant	Yes	Yes	No	5670000	204.69	0.00%			Yes	No
AVES	*Lanius schach*	Long-tailed Shrike	LC		False/Unknown	Full Migrant	Yes	Yes	No	28800000	189.69	0.00%			Yes	No
AVES	*Larus cachinnans*	Caspian Gull	LC		False/Unknown	Full Migrant	Yes	Yes	No	5820000	166.69	0.00%			Yes	No
AVES	*Larus fuscus*	Lesser Black-backed Gull	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	19400000	100.69	0.00%			Yes	No
	Larus ichthyaetus		LC			Full Migrant	Yes	No	Yes	4450000	111.69	0.00%			Yes	No
	Larus michahellis		LC			Full Migrant	No	No	Yes	12200000	108.69	0.00%			Yes	No
	Limosa lapponica		NT			Full Migrant	Yes	Yes	Yes	9050000	252.69	0.00%			Yes	No
AVES	*Limosa limosa*	Black-tailed Godwit	NT	N/A	FALSE	Full Migrant	Yes	Yes	Yes	30300000	242.69	0.00%			Yes	No
AVES	*Luscinia svecica*	Bluethroat	LC		False/Unknown	Full Migrant	Yes	Yes	No	35500000	161.69	0.00%			Yes	No
AVES	*Lymnocryptes minimus*	Jack Snipe	LC		False/Unknown	Full Migrant	Yes	Yes	No	10600000	130.69	0.00%			Yes	No
MAMMALIA	*Manis crassicaudata*	Indian Pangolin	EN		False/Unknown	Not a Migrant	Yes	Yes	No	0	90.69	#DIV/0!	Yes	#DIV/0!	Yes	#DIV/0!
AVES	*Mareca penelope*	Eurasian Wigeon	LC		False/Unknown	Full Migrant	Yes	Yes	No	34900000	120.69	0.00%			Yes	No
AVES	*Mareca strepera*	Gadwall	LC		False/Unknown	Full Migrant	Yes	Yes	No	73100000	172.69	0.00%			Yes	No
AVES	*Melanocorypha bimaculata*	Bimaculated Lark	LC		False/Unknown	Full Migrant	Yes	Yes	No	5520000	220.69	0.00%			Yes	No
	Mellivora capensis	Honey Badger	LC	Critically Endangered			Yes	No	Yes	Unknown	90.69	#VALUE!		-!		-!
AVES	*Merops apiaster*	European Bee-eater	LC		False/Unknown	Full Migrant	Yes	Yes	No	13600000	174.69	0.00%			Yes	No
	Merops persicus		LC			Full Migrant	Yes	Yes	Yes	24700000	105.69	0.00%			Yes	No
AVES	*Milvus migrans*	Black Kite	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	115653659	97.69	0.00%			Yes	No
AVES	*Monticola saxatilis*	Rufous-tailed Rock-thrush	LC		False/Unknown	Full Migrant	Yes	Yes	No	14000000	240.69	0.00%			Yes	No
AVES	*Monticola solitarius*	Blue Rock-thrush	LC		False/Unknown	Full Migrant	Yes	Yes	No	66600000	215.69	0.00%			Yes	No
AVES	*Motacilla cinerea*	Grey Wagtail	LC		False/Unknown	Full Migrant	Yes	Yes	No	60700000	196.69	0.00%			Yes	No
AVES	*Neophron percnopterus*	Egyptian Vulture	EN	N/A	FALSE	Full Migrant	Yes	Yes	Yes	50100000	90.69	0.00%	Yes	No	Yes	No
AVES	*Numenius arquata*	Eurasian Curlew	NT	N/A	FALSE	Full Migrant	Yes	Yes	Yes	20700000	243.69	0.00%			Yes	No
AVES	*Numenius phaeopus*	Whimbrel	LC		False/Unknown	Full Migrant	Yes	Yes	No	31100000	131.69	0.00%			Yes	No
AVES	*Nycticorax nycticorax*	Black-crowned Night Heron	LC		False/Unknown	Full Migrant	Yes	Yes	No	290000000	156.69	0.00%			Yes	No
AVES	*Oenanthe chrysopygia*	Red-tailed Wheatear	LC		False/Unknown	Full Migrant	Yes	Yes	No	2520000	201.69	0.01%			Yes	No
AVES	*Oriolus kundoo*	Indian Golden Oriole	LC		False/Unknown	Full Migrant	Yes	Yes	No	3120000	227.69	0.01%			Yes	No
AVES	*Otus bakkamoena*	Indian Scops-owl	LC		False/Unknown	Altitudinal Migrant	Yes	Yes	No	4200000	91.69	0.00%			Yes	No
AVES	*Otus scops*	Eurasian Scops-owl	LC		False/Unknown	Full Migrant	Yes	Yes	No	33400000	229.69	0.00%			Yes	No
AVES	*Pandion haliaetus*	Osprey	LC		False/Unknown	Full Migrant	Yes	Yes	No	298000000	151.69	0.00%			Yes	No
AVES	*Passer hispaniolensis*	Spanish Sparrow	LC		False/Unknown	Full Migrant	Yes	Yes	No	16600000	221.69	0.00%			Yes	No
AVES	*Pelecanus crispus*	Dalmatian Pelican	NT	N/A	FALSE	Full Migrant	Yes	Yes	Yes	12600000	244.69	0.00%			Yes	No
AVES	*Pelecanus onocrotalus*	Great White Pelican	LC		False/Unknown	Full Migrant	Yes	Yes	No	51200000	160.69	0.00%			Yes	No

Class	Scientific Name	IUCN Category	IUCN Category	National Status	Restricted Range	Movement Pattern	IBAT	GBIF	HBP	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 3	Criterion 3 Triggered
AVES	*Pernis ptilorhynchus*	Oriental Honey-buzzard	LC		False/Unknown	Full Migrant	Yes	Yes	No	22700000	213.69	0.00%			Yes	No
AVES	*Petrochelidon fluvicola*	Streak-throated Swallow	LC		False/Unknown	Full Migrant	Yes	Yes	No	3180000	192.69	0.01%			Yes	No
AVES	*Phalacrocorax carbo*	Great Cormorant	LC		False/Unknown	Full Migrant	Yes	Yes	No	312000000	154.69	0.00%			Yes	No
	Phoenicopterus roseus		LC			Full Migrant	Yes	Yes	Yes	61400000	106.69	0.00%			Yes	No
AVES	*Phylloscopus sindianus*	Mountain Chiffchaff	LC		False/Unknown	Full Migrant	Yes	Yes	No	1680000	200.69	0.01%			Yes	No
AVES	*Platalea leucorodia*	Eurasian Spoonbill	LC		False/Unknown	Full Migrant	Yes	Yes	No	60400000	159.69	0.00%			Yes	No
AVES	*Plegadis falcinellus*	Glossy Ibis	LC		False/Unknown	Full Migrant	Yes	Yes	No	199000000	158.69	0.00%			Yes	No
AVES	*Pluvialis fulva*	Pacific Golden Plover	LC		False/Unknown	Full Migrant	Yes	Yes	No	705000	140.69	0.02%			Yes	No
AVES	*Pluvialis squatarola*	Grey Plover	VU		False/Unknown	Full Migrant	Yes	Yes	No	19000000	90.69	0.00%	Yes	No	Yes	No
AVES	*Podiceps nigricollis*	Black-necked Grebe	LC		False/Unknown	Full Migrant	Yes	Yes	No	146000000	153.69	0.00%			Yes	No
AVES	*Prinia inornata*	Plain Prinia	LC		False/Unknown	Altitudinal Migrant	Yes	Yes	No	19200000	90.69	0.00%			Yes	No
	Prionailurus viverrinus	Fishing Cat	VU	Near Threatened			Yes	No	Yes	Unknown	90.69	#VALUE!	Yes	-!		-!
AVES	*Prunella atrogularis*	Black-throated Accentor	LC		False/Unknown	Full Migrant	Yes	Yes	No	5040000	222.69	0.00%			Yes	No
AVES	*Rallus aquaticus*	Western Water Rail	LC		False/Unknown	Full Migrant	Yes	Yes	No	32800000	198.69	0.00%			Yes	No
MAMMALIA	*Rhinopoma microphyllum*	Greater Mouse-tailed Bat	LC		False/Unknown	Full Migrant	Yes	Yes	No	23644730	207.69	0.00%			Yes	No
AVES	*Riparia chinensis*	Asian Plain Martin	LC		False/Unknown	Full Migrant	Yes	Yes	No	10200000	206.69	0.00%			Yes	No
AVES	*Riparia diluta*	Pale Sand Martin	LC		False/Unknown	Full Migrant	Yes	Yes	No	4690000	202.69	0.00%			Yes	No
AVES	*Rynchops albicollis*	Indian Skimmer	EN				Yes	No	Yes	1400000	90.69	0.01%	Yes	No		No
	Saara hardwickii	Indian Spiny-tailed Lizard	VU	N/A			Yes	Yes	Yes	Unknown	90.69	#VALUE!	Yes	-!		-!
AVES	*Spatula clypeata*	Northern Shoveler	LC		False/Unknown	Full Migrant	Yes	Yes	No	39900000	121.69	0.00%			Yes	No
AVES	*Spatula querquedula*	Garganey	LC		False/Unknown	Full Migrant	Yes	Yes	No	32500000	123.69	0.00%			Yes	No
AVES	*Sterna acuticauda*	Black-bellied Tern	EN	N/A			Yes	Yes	Yes	4810000	90.69	0.00%	Yes	No		No
	Sterna albifrons		LC			Full Migrant	No	No	Yes	152000000	112.69	0.00%			Yes	No
AVES	*Sterna aurantia*	River Tern	VU	N/A			Yes	Yes	Yes	9330000	90.69	0.00%	Yes	No		No
	Sterna hirundo		LC			Full Migrant	Yes	Yes	Yes	84300000	107.69	0.00%			Yes	No
AVES	*Sterna repressa*	White-cheeked Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	8740000	148.69	0.00%			Yes	No
AVES	*Sternula albifrons*	Little Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	152000000	146.69	0.00%			Yes	No
AVES	*Sternula saundersi*	Saunders's Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	11700000	147.69	0.00%			Yes	No
AVES	*Streptopelia tranquebarica*	Red Collared-dove	LC		False/Unknown	Full Migrant	Yes	Yes	No	18300000	212.69	0.00%			Yes	No
AVES	*Sturnia pagodarum*	Brahminy Starling	LC		False/Unknown	Full Migrant	Yes	Yes	No	4150000	216.69	0.01%			Yes	No
AVES	*Tachybaptus ruficollis*	Little Grebe	LC		False/Unknown	Full Migrant	Yes	Yes	No	170000000	152.69	0.00%			Yes	No
AVES	*Tachymarptis melba*	Alpine Swift	LC		False/Unknown	Full Migrant	Yes	Yes	No	39200000	176.69	0.00%			Yes	No
AVES	*Tadorna ferruginea*	Ruddy Shelduck	LC		False/Unknown	Full Migrant	Yes	Yes	No	37900000	171.69	0.00%			Yes	No
AVES	*Tadorna tadorna*	Common Shelduck	LC		False/Unknown	Full Migrant	Yes	Yes	No	31600000	119.69	0.00%			Yes	No
MAGNOLIOPSIDA	*Tecomella undulata*	Desert Teak	EN		False/Unknown		Yes	Yes	No	2506818	90.69	0.00%	Yes	No		No
AVES	*Terpsiphone paradisi*	Indian Paradise-flycatcher	LC		False/Unknown	Full Migrant	Yes	Yes	No	4200000	228.69	0.01%			Yes	No
AVES	*Thalasseus bengalensis*	Lesser Crested Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	41500000	143.69	0.00%			Yes	No
AVES	*Thalasseus bergii*	Greater Crested Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	142000000	144.69	0.00%			Yes	No
AVES	*Thalasseus sandvicensis*	Sandwich Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	98800000	145.69	0.00%			Yes	No
	Threskiornis melanocephalus		NT			Full Migrant	Yes	No	Yes	11210000	250.69	0.00%			Yes	No
AVES	*Tringa erythropus*	Spotted Redshank	LC		False/Unknown	Full Migrant	Yes	Yes	No	7360000	132.69	0.00%			Yes	No
AVES	*Tringa glareola*	Wood Sandpiper	LC		False/Unknown	Full Migrant	Yes	Yes	No	23000000	181.69	0.00%			Yes	No

Class	Scientific Name	IUCN Category	IUCN Category	National Status	Restricted Range	Movement Pattern	IBAT	GBIF	HBP	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 3	Criterion 3 Triggered
AVES	*Tringa nebularia*	Common Greenshank	LC		False/Unknown	Full Migrant	Yes	Yes	No	18700000	133.69	0.00%			Yes	No
AVES	*Tringa ochropus*	Green Sandpiper	LC		False/Unknown	Full Migrant	Yes	Yes	No	24600000	180.69	0.00%			Yes	No
AVES	*Upupa epops*	Common Hoopoe	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	78300000	98.69	0.00%			Yes	No
AVES	*Vanellus gregarius*	Sociable Lapwing	CR	#N/A	FALSE	Full Migrant	Yes	Yes	Yes	1620000	90.69	0.01%	Yes	No	Yes	No
	Vanellus vanellus		NT			Full Migrant	Yes	Yes	Yes	31900000	245.69	0.00%			Yes	No
INSECTA	*Vanessa cardui*	Painted Lady	LC		False/Unknown	Full Migrant	Yes	Yes	No	173850000	208.69	0.00%			Yes	No
AVES	*Xenus cinereus*	Terek Sandpiper	LC		False/Unknown	Full Migrant	Yes	Yes	No	13300000	134.69	0.00%			Yes	No
AVES	*Zapornia pusilla*	Baillon's Crake	LC		False/Unknown	Full Migrant	Yes	Yes	No	74800000	128.69	0.00%			Yes	No

6. Conclusion

The Project spans a relatively large areas across Pakistan, extending from the northwest portion of the country bordering Afghanistan and Iran to Port Qasim near Karachi and connected by two Transport Route/s. Consequently, a staged approach was undertaken, which focused initially on the Mine Site, as this area had the best available survey data at the time of the assessment, followed by screening-level assessment/s along the Transport Corridor/s and the infrastructure in close proximity of Port Qasim. The lower survey efforts along the Transport Corridor and/or at Port Qasim is due to the fact that vast majority of the infrastructure is already in place and as such, no material changes are anticipated within these project components, excluding some maintenance/upgrades and the construction of a concentrate storage shed on the existing Pakistan International Bulk Terminal (PIBT), which is also already authorised and in operation following the acceptance of the IFC-aligned ESIA.

Mine Site

The Mine Site area is located within a remote portions of semi-arid desert environment, known as the Registan-North Pakistan Sandy Desert ecoregion, where there are no protected areas or internationally recognised areas, excluding the Saindak Community Game Reserve[30]. Of 443 species expected to occur according to IBAT, a total of 147 species (including 67 species that were detected through the literature review and/or observed during the field survey/s) were identified as potential candidate critical habitat-trigger species, as per the definitions provided for Criterion 1, Criterion 2 and Criterion 3 in Guidance Note 6 (GN70-GN78). In reference to the significance of the global population[31] of each respective candidate trigger species being present within the AoI, each species was screened against a tailored EAAA to determine a percentage of the landscape that may support this respective species (or sub-species) and the thresholds prescribed under each of the criteria (and/or sub-criteria) within the IFC PS6.

Of these candidate species, four species were identified as triggering critical habitat. Two of these species were identified as triggering critical habitat under Criterion 1, namely *Felis margarita* (Sand Cat) and *Gazella subgutturosa* (Goitered Gazelle). One species, *Phrynocephalus euptilopus (*Alcock's Toad-headed-Agama), was identified as triggering critical habitat under Criterion 2. One was identified as triggering critical habitat according to Criterion 3, namely *Passer moabiticus* (Dead Sea Sparrow). Similarly, three species of Squamata (incl. Geckos/Racerunners), namely the *Cyrtopodion sp*., *Eremias sp*. and *Eremias* cf. *scripta*, are tentatively considered as potential critical habitat triggers pending further morphological and genetic analysis. For the sake of assigned a habitat proxy, these species

[30] As noted above, a legal review of the legitimacy of the allegedly designated Saindak Community Game Reserve is underway. In the absence of sufficient information and pending further legal investigation regarding the legitimacy of the claimed area, as well as the permissible land uses within the reserve, the reserve is only considered tentatively. Following the feedback from the legality investigation, any biodiversity-related sensitivities or receptors may need to be reassessed, where applicable.
[31] As per GN65, expert opinion and/or surrogates for population size (e.g. extent of occurrence (EOO), estimates of total area of known sites, etc.), in combination of a spatially appropriate area of analysis (referred to EAAA) will be essential to determine the presence of potential critical habitat.

will be managed as part of any management and mitigation objectives set out for the confirmed trigger, the Alcock's Toad-headed Agama.

Considering the largely intact *natural habitat* within the Mine Site area, the mitigation hierarchy should be diligent and proactively applied to ensure that the residual impact upon these habitat and supporting PBVs are supporting during the construction and operational phase of the Project. Many of the PBVs are large birds/raptor (incl. Steppe Eagle, Egyptian Vulture, Asian Houbara, Eastern Imperial Eagle, Saker Falcon, and Greater Spotted Eagle and as such, an avifaunal monitoring programme will be important to manage at the outset of the project. Although the powerline is relatively small capacity, and at a low altitude and trajectory, mitigation measures to increase visibility of this infrastructure will be important to mitigate any potential impacts relating to collisions and electrocution. In addition, there are a few smaller birds that need to be considered in terms of potential risks of disturbance, but not enough information is known about these species within the study area at the moment, so further investigation should be undertaken for the Dead-Sea Sparrow, the Yellow-eyed Pigeon and the Sociable Lapwing, but they are on the threshold of qualifying at critical habitat and PBVs due to their wintering habits in the study area.

While other CH-triggers and PBVs are fairly well adapted to the harsh desert conditions, it will be important to continue to monitor for the presence of these species within the study area and specifically within the operational area, so that mitigation can be implemented to avoid/minimise impacts upon these Species of Conservation Concern.

Associated Export Facilities

Of a total of 237 expected species, selected species reliant on both freshwater and marine ecosystems were excluded from the list for the purposes of this assessment, as the proposed AoI does not affect the or include any material changes to the freshwater and/or marine habitat/s. Following this filtering process, the following candidate Critical Habitat triggers are presented in Table 5-4 below, including:

- 25 Criterion 1 candidate trigger species, including avifauna, mammals, and reptiles.
- 4 Criterion 2 candidate trigger species, and
- 137 Criterion 3 candidate species, including numerous migratory birds, a volant mammal, and an insect.

One species was considered to trigger Critical habitat under Criterion 2, namely *Bufotes zugmayeri* (Baloch Green Toad, listed as NT) and some management required around the distribution and presence of the endemic Baloch Green Toad, in close proximity to the Quetta along the road and railway route. Additionally, the Hazarganji Chiltan National Park, a Category II protected area and KBA, and the Kinjhar (Kalri) Wildlife Sanctuary, which is a protected area, Ramsar site and KBA, is considered as likely critical habitat under Criterion 4.

Selected threatened and endemic species were noted to be potentially present within the AoI, but the lack of information available for these species and the fairly wide distribution of others suggest that these species do not meet thresholds for critical habitat, but should be considered from a precautionary perspective and treated as PBVs.

Regarding the presence of critical habitat in respect to the Port Qasim facilities, no triggers were found. Although many migratory species were detected, the small, terrestrial EAAA of the area and its modified nature resulted in none of the critical habitat criteria thresholds being reached.

In terms of the outputs from the CH-triggers and the PBVs, which are largely associated with the potential presence of endemic and threatened plant species within the Baluchistan region, it will be important to undertake supplementary survey or walk-downs of areas that are earmarked for upgrades along the transport route/s, so that a rescue and relocations process can be established and initiated. This is acknowledged to be highly unlikely considering the current proposed activities, as the roads and railways are already in-place and utilised, so this may only be applicable if the project design changes in terms of export routes.

In addition, while it is flagged that the Baluchistan Pygmy Jerboa is present within the area, but unlikely to affected by the current Project activities, a focus on further data collection to understand this species distribution within the region would be helpful in the event that further construction needs to be undertaken within the vicinity of the transport route/s.

Table 6-1: Critical habitat triggers for the Mine Site

Family	Scientific Name	Common Name	IUCN Category	National Status#	Population Estimate / EOO$ (km²)	EAAA$ (km²)	% Supported	Criteria	Comments
Avifaunal species									
PASSERIDAE	***Passer moabiticus***	**Dead Sea Sparrow**	**LC**		**1770000**	**21 578.01**	**1.22%**	**3**	**Meets threshold for sub-criterion 3(a)**
Herpetofaunal species									
Agamidae	*Phrynocephalus euptilopus*	Alcock's Toad-headed Agama	LC	-	37 258.06	37 258.06	100%	2	Supports a significant concentration of individuals within the EAAA.
Mammalian species									
Felidae	*Felis margarita*	Sand Cat	LC	CR	15 414 561	6 930.648	0.04%	1	Nationally important to Pakistan under sub-criterion 1(c)
Bovidae	*Gazella subgutturosa*	Goitered Gazelle	VU	CR	~ 6 000 000¥	48 743.54	0.81%	1	Significant population under sub-criterion 1(b) Nationally important to Pakistan under sub-criterion 1©

* Rows highlighted in Green indicate species that were not detected through the literature review and/or field survey/s, but have the potential to be present within the area. ** Rows highlighted in Blue indicate species that were detected through the literature review and/or field survey/s undertaken, but not listed on the IBAT expected species list. #The national status is informed by the Status and Red List of Mammals in Pakistan: CR – Critically Endangered, EN – Endangered, VU – Vulnerable, LC – Least Concern, N/A – Not Assessed. $ EOO[32] – Extent of Occurrence as a surrogate indicator for global population estimates.in relation to the Ecologically appropriate area of analysis (EAAA) ¥Due to the unavailable EOO (or an under-estimated range within a highly fragments or widely distributed range), an estimated area of known distribution was used as a proxy for global population estimates, which assumes suitable habitat present within the homogenous conditions throughout the range.

[32] Extent of Occurrence (EOO) refers to the area contained within the shortest continuous imaginary boundary that can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a species. It represents the total area where a species could potentially occur, regardless of whether it actually occupies the entire area. It provides a broad understanding of the geographical range of a species and is often used in assessing the overall distribution and conservation status.

7. References

Animalia. 2024. Goitered Gazelle. Available from https://animalia.bio/goitered-gazelle.

Avibase. 2024. The World Bird Database. Available from http://www.reptile-database.org/.

BirdLife International. 2024a. Species factsheet: Sociable Lapwing Vanellus gregarius. Available from https://datazone.birdlife.org/species/factsheet/sociable-lapwing-vanellus-gregarius (accessed December 18, 2024).

BirdLife International. 2024b. Species factsheet: Yellow-eyed Pigeon Columba eversmanni. Available from https://datazone.birdlife.org/species/factsheet/yellow-eyed-pigeon-columba-eversmanni (accessed December 18, 2024).

BirdLife International. 2024c. Species factsheet: Dead Sea Sparrow Passer moabiticus. Available from https://datazone.birdlife.org/species/factsheet/dead-sea-sparrow-passer-moabiticus (accessed December 18, 2024).

BirdLife International. 2024d. Species factsheet: Variable Wheatear Oenanthe picata. Available from https://datazone.birdlife.org/species/factsheet/variable-wheatear-oenanthe-picata (accessed December 18, 2024).

BirdLife International. 2024e. Species factsheet: Green Warbler Phylloscopus nitidus. Available from https://datazone.birdlife.org/species/factsheet/green-warbler-phylloscopus-nitidus (accessed December 18, 2024).

BirdLife International. 2024f. Species factsheet: Sykes's Nightjar Caprimulgus mahrattensis. Available from https://datazone.birdlife.org/species/factsheet/sykess-nightjar-caprimulgus-mahrattensis (accessed December 18, 2024).

BirdLife International. 2024g. Species factsheet: Hypocolius Hypocolius ampelinus. Available from https://datazone.birdlife.org/species/factsheet/hypocolius-hypocolius-ampelinus (accessed December 18, 2024).

BirdLife International. 2024h. Species factsheet: White-capped Bunting Emberiza stewarti. Available from https://datazone.birdlife.org/species/factsheet/white-capped-bunting-emberiza-stewarti (accessed December 18, 2024).

Cauldwell A. 2021. ESS6 - Biodiversity Conservation and Sustainable Management of Living Natural Resources: Training Support Manual for World Bank Staf.

Combreau O, Saleh M, Baidhani A. 2015. A Natural History of the Asian Houbara Bustard.

GBIF. 2024. GBIF Occurrence Download. Available from https://doi.org/10.15468/dl.h67ak8 (accessed December 10, 2024).

Gosling J, Jones MI, Arnell A, Watson JEM, Venter O, Baquero AC, Burgess ND. 2020. A global mapping template for natural and modified habitat across terrestrial Earth. Biological Conservation **250**.

Hagler Bailly Pakistan. 2024a. Environmental and Social Impact Assessment of Reko Diq Mining Project: Biodiversity - Fauna. Islamabad, Pakistan.

Hagler Bailly Pakistan. 2024b. Environmental and Social Impact Assessment of Reko Diq Mining Project: Biodiversity - Flora. Islamabad, Pakistan.

Hagler Bailly Pakistan. 2024c. Environmental and Social Impact Assessment of Reko Diq Mining Project: Critical Habitat Assessment. Islamabad, Pakistan.

IBAT Alliance. 2024. The IUCN Red List of Threatened Species, Protected Area and Key Biodiversity Area data downloaded from the Integrated Biodiversity Assessment Tool (IBAT). Available from https://www.ibat-alliance.org.

IFC. 2012. Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. Washington, U.S.

IFC. 2019. International Finance Corporation's Guidance Note 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources. Available from http://www.millenniumassessment.org.

IUCN Global Ecosystem Management Programme. 2022. IUCN Red List of Ecosystems. Available from https://assessments.iucnrle.org/ (accessed December 8, 2024).

IUCN SSC Antelope Specialist Group. 2017. The IUCN Red List of Threatened Species. Available from https://dx.doi.org/10.2305/IUCN.UK.2017-2.RLTS.T8976A50187422.en. (accessed August 29, 2023).

IUCN Standards and Petitions Committee. 2022. Guidelines for Using the IUCN Red List Categories and Criteria. Version 15.1. Prepared by the Standards and Petitions Committee. Available from https://www.iucnredlist.org/documents/RedListGuidelines.pdf.

Michel S& GA. 2020. The IUCN Red List of Threatened Species 2020. Available from https://dx.doi.org/10.2305/IUCN.UK.2020 2.RLTS.T54940655A195296049.en. (accessed March 13, 2024).

Myers P, Espinosa R, Parr CS, Jones T, Hammond GS, Dewey TA. 2024. Animal Diversity Web. Available from https://animaldiversity.org.

PIBT. 2011. Environmental and Social Impact Assessment. Proposed Coal, Clinker and Cement Terminal at Port Qasim: Final Report. Karachi.

Sheikh KM, Molur S. 2004. Status and Red List of Pakistan's Mammals. Based on the Pakistan Mammal Conservation Assessment & Management Plan Workshop 18-22 August 2003. Page (Sheikh KM, Molur S, editors). IUCN Pakistan.

Silva JP et al. 2023, September 19. The effects of powerlines on bustards: How best to mitigate, how best to monitor? Cambridge University Press.

Uetz P, Freed P, Aguilar R, Reyes F, Kudera J, Hošek J. 2024. The Reptile Database. Available from http://www.reptile-database.org.

UNEP-WCMC. 2020. Registan-North Pakistan Sandy Desert. Available from https://www.oneearth.org/ecoregions/registan-north-pakistan-sandy-desert/ (accessed December 8, 2024).

UNEP-WCMC. 2021. The Area of Influence of site-based operations – Direct Impacts. Cambridge, UK.

UNEP-WCMC. 2022. The Area of Influence of site-based operations – Indirect Impacts A Framework for Capturing Indirect Impacts in site-level Biodiversity Risk Screening. Cambridge, UL.

Virk AT. 1991. Management plan for wild ungulates in Balochistan Pakistan.

Appendix A: Rationale for the EAAA Memorandum

Appendix B: Original Critical Habitat Assessment Report

To:	Ashley Price	**Date:**	13/12/2024
From:	Byron Bester, Peter Kimberg; Jonathan Plaistowe	**Proj #:**	BAR7212
RE:	Delineation of EAAA associated with Barrick's Reko Diq Project		

1. Ecologically Appropriate Areas of Analysis (EAAA)

As per Clause GN59 of the IFC's 2019 Guidance Note 6, "*an ecologically appropriate area of analysis should be identified to determine the presence of critical habitat*." In defining the boundaries of this area, it is important to account for "*the distribution of species or ecosystems and ecological patterns, processes, features, and functions that are necessary for maintaining them*."

Establishing an EAAA, or several EAAAs, requires at least a conceptual understanding of the biodiversity present in the Project Area of Influence (AoI), including the bioregional context, affected ecosystems and/or resident species.

The methodology below outlines the steps followed to identify and delineate EAAAs.

2. Methodology

The following steps were followed to set the foundation for establishing the proposed EAAAs, per faunal group and/or species-specific considerations:

- Defining of project scope;
- Identification of geographic boundaries, bioregional features, as well as ecosystems and species of conservation concern;
- Consultation with expert species specialists; and
- Defining and delineating spatial boundaries.

2.1. Defining of Project Scope

The scope of this assessment comprised the following components of the Reko Diq Project:

- The **Reko Diq Mine Site** and ancillary infrastructure (including the water supply in the northern groundwater system and the and access road infrastructure). This component of the Project was **a primary focus of the studies**, as the proposed activities within this area were novel and represented potentially significant changes to the current landscape and/or natural habitat/s associated with the host communities.
- The **Road and Rail Transport Corridors (Transport Corridors/Routes)**, which are limited to existing road and rail infrastructure along an west-to-east corridor toward

Quetta, and a north-south line from Pringbad toward Karachi. Due to the large extent of this area and the largely immaterial upgrades[1] and changes proposed for the existing infrastructure, the survey effort along this transport corridor was largely limited to a literature and screening assessment to assess potential presence of significant biodiversity values (or potential critical habitat triggers) that may be compromised over time; and.

- The **Port Qasim infrastructure** (referred to as the Port Qasim), which is limited to construction of storage shed in an established coal export terminal for the concentrate at the Pakistan International Bulk Terminal (PIBT) coal storage facility, as well as a nearby proposed rail yard and loading facility. It is anticipated that the storage shed at the existing terminal was expected to be constructed under a Lease Agreement with PIBT, which is already approved by an existing IFC-level Environmental and Social Impact Assessment (ESIA) and governed by existing Environmental and Social Management System (ESMS). Subsequently, it is anticipated to yield liability in terms of material handling and export to the Port Qasim Authority (PQA) – the managing agency at Port Qasim.

  Subsequently, the survey effort was variable with supplementary efforts to asses potential marine, epipelagic and estuarine (or mangrove) impacts[2] were pre-emptively undertaken, but not deemed to be directly material to the proposed Project at the time of the assessment.

2.1.1. Project Area of Influence

The Project AOI of the different aspects of the Project are discussed in the main body of the CHA report. The AoIs were defined as follows, in accordance with the rational e provided above:

- A **Project AoI of 10 km** was proposed for the Mine Site (incl. ancillary infrastructure), considering its location in a desert and xeric shrubland biome, and any indirect impacts that may arise from the Project;
- For screening purposes**, an AoI of 1 km** was considered along the transport corridor considering the low potential cumulative effect associated with the contribution of traffic to existing infrastructure; and

[1] It is understood that the proposed activities along the transport corridor (including road and rail) are limited solely to an access road and a rail link for the mine site, as well as ongoing maintenance/upgrades by Pakistan Rail to ensure the security and reliability of the existing railway. Consequently, it is acknowledged that cumulative impacts upon existing sensitivities along the existing routes were likely to be negligible and limited to marginal increases in traffic and/or cadence of the logistical schedule.
[2] It is understood that the concentrate will be conveyed by rail within a closed circuit and offloaded at the terminal prior to loading the transport ships through an enclosed loading chute and as such, the likelihood of potential spills is considered to be negligible. Consequently, marine and estuarine (or mangrove) impacts are considered to have been assessed under the previous ESIA and the focus of the new Reko Diq Project components was largely focused on terrestrial impact within areas surrounding the railway yard and delivery haulage corridor.

- An **AoI of 1 km** was assigned for the rail yard and the area surrounding the PIBT facility, given the average extent of infrastructure impacts is 1.3 km and that the infrastructure is located in an urban environment with extensive built-up areas.

2.2. Identification of geographic boundaries, bioregional features, and ecosystems and species of concern

The geographical and bioregional contexts of the Project sites were reviewed for some insight into the ecological and geographical boundaries that may exist across the sites, including any physical features (e.g. catchments, large rivers or geological features) that may influence biodiversity and ecological patterns in the study areas.

2.2.1. Mine Site (including ancillary infrastructure)

The Mine Site occurs in the Balochistan Province of Pakistan. Elevation data for the Mine Site area indicates the presence of rocky areas and hills though these areas are not elevated, such that they would act as a boundary influencing ecological patterns.

The proposed Reko Diq mine occurs in **the Registan-North Pakistan Sandy Desert** located in the Persian Deserts & Mountain Woodlands Bioregion. This ecoregion stretches from eastern Iran into southern Afghanistan and western Pakistan covering all of the mine and part of the road and rail routes. This arid ecoregion consist of desert and support many of the same species, such as the Goitered Gazelle and Cape Hare. The homogeneity in ecological patterns evident in the ecoregions present is supported by the landcover data and habitat mapping. The landcover data shows mainly two categories present at the Reko Diq site, including rocky areas and bare sand areas.

Data suggests that the Mine Site area lacks any significant geographical and ecosystem boundaries that may influence the definition of EAAAs.

2.2.2. Transport Routes and Port Qasim

The transport routes consist of existing road and rail infrastructure between the Mine Site and Port Qasim in Karachi across large portion of Pakistan and as to be expected, the routes cover various land types and/or ecosystems. Given that the Project provides a cumulative contribution to existing infrastructure, it was considered that the transport routes would only interact with the immediate terrestrial ecosystems that they cross through. With a relatively lower environmental risk present along the transport routes, it was decided that the EAAA would be equal to the AoI defined, resulting in an AoI of 1 km.

Regarding Port Qasim, the Project makes use of the existing PIBT, which is located in Karachi. Given that the infrastructure will exert an impact on the terrestrial environment, the EAAA was restricted to land and excluded the marine environment. The infrastructure is surrounded by built-up areas and modified vegetation. As a result, an EAAA of 5 km has been defined for the Port Qasim infrastructure.

2.2.3. Protected Areas and Internationally Recognised Areas of Biological Importance

Defining the EAAA also included reviewing the location of protected areas, Key Biodiversity Areas (KBAs), Ramsar Wetlands and UNESCO World Heritage Sites relative to the Project aspects.

2.2.3.1. Mine area

Based on the IBAT report (received from HBP, dated June 2024), there are no protected areas and KBAs within the Project Area[3].

No KBAs, Ramsar wetlands, UNESCO-defined area of international biodiversity importance and/or other protected areas are overlapped by the mine area or are located within 50 km of the mine area.

2.2.3.2. Transport Corridors

Protected areas within 1 km of the transport route are shown in Table 2-1 in line with the transport corridor's AoI and EAAA. Of these protected areas, four are an IUCN Category IV, which are designated Habitat/Species Management Areas, namely Keenjhar Lake (Kalri, Malik Lake), Dhoung Block, Kachau and Shashan Wildlife Sanctuaries.

There are additional protected areas further afield, as shown in Figure 2-1[4].

Table 2-1: Protected areas located within the AoI of Transport Corridor/s

Name	Designation	Designation	IUCN Category
1 km			
Keenjhar Lake (Kalri, Malik Lake)	Wildlife Sanctuary	National	IV
Dhoung Block	Wildlife Sanctuary	National	IV
Kachau	Wildlife Sanctuary	National	IV
Shashan	Wildlife Sanctuary	National	IV
Khurkhera	Wildlife Sanctuary	National	Not Reported
Sumbak, Surjan, Eri, Naree and Hothiano (Kohistan Track)	Game Reserve	National	Not Reported
Duzdara and Koh-e-Surkho	Game Reserve	National	Not Reported
Baran Lakh	Community Game Reserve	National	Not Reported
Gut	Wildlife Sanctuary	National	Not Reported

One KBA is situated within 1 km of the proposed road route (**Hazarganji Chiltan National Park**), and two KBAs are within 1 km of the proposed rail route (**Hazarganji Chiltan**

[3] Based on a more recent IBAT report (dated November 2024), the Saindak Community Game Reserve is listed within a 50 km radius directly west, but the polygon is not provided and the extent/area cannot be confirmed within the supporting documentation provided by the Balochistan Forests and Wildlife Department (BFWD). In the absence of sufficient information and pending further legal investigation regarding the legitimacy of the claimed area, as well as the permissible land uses within the reserve, especially since it is not a IUCN Management Category of concern, the reserve is only considered tentatively. Following the feedback from the legality investigation, any biodiversity-related sensitivities or receptors may need to be reassessed, where applicable.
[4] As discussed in the AoI Section, the extents of the impacts are not expected to extend far given that the Project will make use of existing infrastructure and that the impact will be cumulative.

National Park and Kinjhar Wildlife Sanctuary) - the Kinjhar Wildlife Sanctuary is also noted to be a Ramsar site. There are more KBAs, as well as other Ramsar sites, further away from the transport corridor, as shown in Figure 2-2 and Figure 2-3.

The triggers for the KBA status of Hazarganji Chiltan National Park, include the Egyptian Vulture and Saker Falcon.

Table 2-2: Internationally recognised areas located within AoI of the Transport Corridor/s. All areas listed are KBAs.

Name	IBA Status	Triggers	Ramsar Site
Hazarganji Chiltan National Park	confirmed	endemic	No
Kinjhar (Kalri) Wildlife Sanctuary	confirmed	Threatened species (VU, EN, and CR) Migratory birds/congregations	Yes

Given that the proposed transport corridors use existing infrastructure, it is **not anticipated that any environmental risk will extend across the protected areas and KBAs**. As such, they are not included in the delineation of the EAAAs.

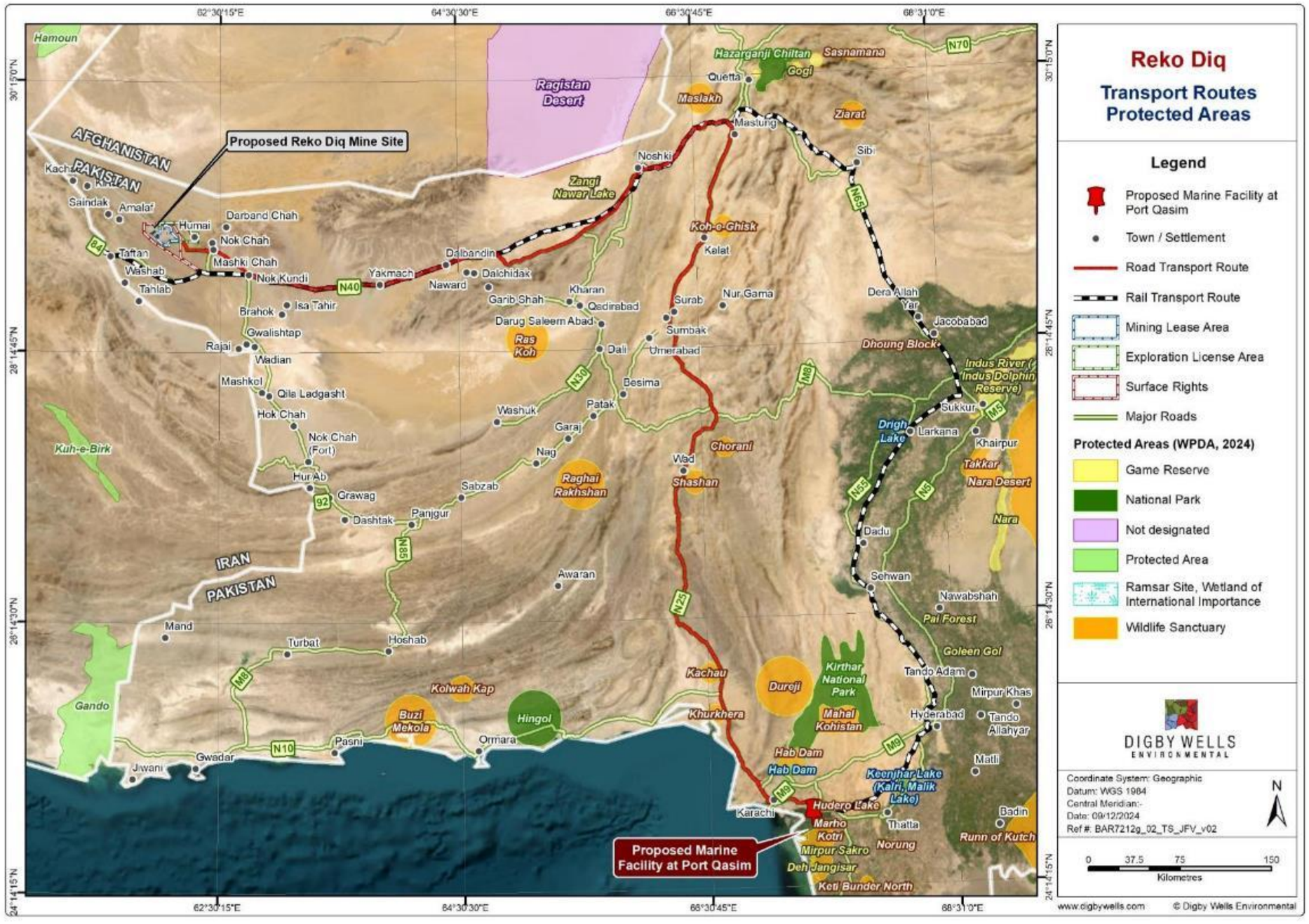

Figure 2-1: Protected areas in the greater region

Figure 2-2: KBAs in the greater region surrounding the Transport Routes

Figure 2-3: Ramsar Wetlands in the region surrounding the Transport Routes

2.2.3.3. Port Qasim

Although a 50 km buffer around the Port facilities overlaps with several protected areas, a 5 km buffer (in line with the EAAA) does not overlap with any protected areas. Marho Kotri is a wildlife sanctuary 17-18 km south of the Port. Several other protected areas are in the greater region, as shown in Figure 2-4.

There are no internationally recognised areas that overlaps a 5 km buffer with the Port Qasim facilities. Other internationally recognised areas in the greater region are shown in Figure 2-5 and Figure 2-6.

It is acknowledged that the marine biome (including the mangroves forests) was not going to be the focus of the study, as the railway yard and the transport were transferring concentrate in sealed units from the offload area the storage shed at the PIBT, which effectively implied that any liabilities associated with the export of the concentrate will be managed under the management plans already in-place at the PIBT, which thereby excludes any potential risks and impacts upon the marine ecosystem, at least those attributed to the Reko Diq Project.

As a result, the protected areas, internationally recognised areas and marine biome were not factored into defining the EAAA of the Port facilities.

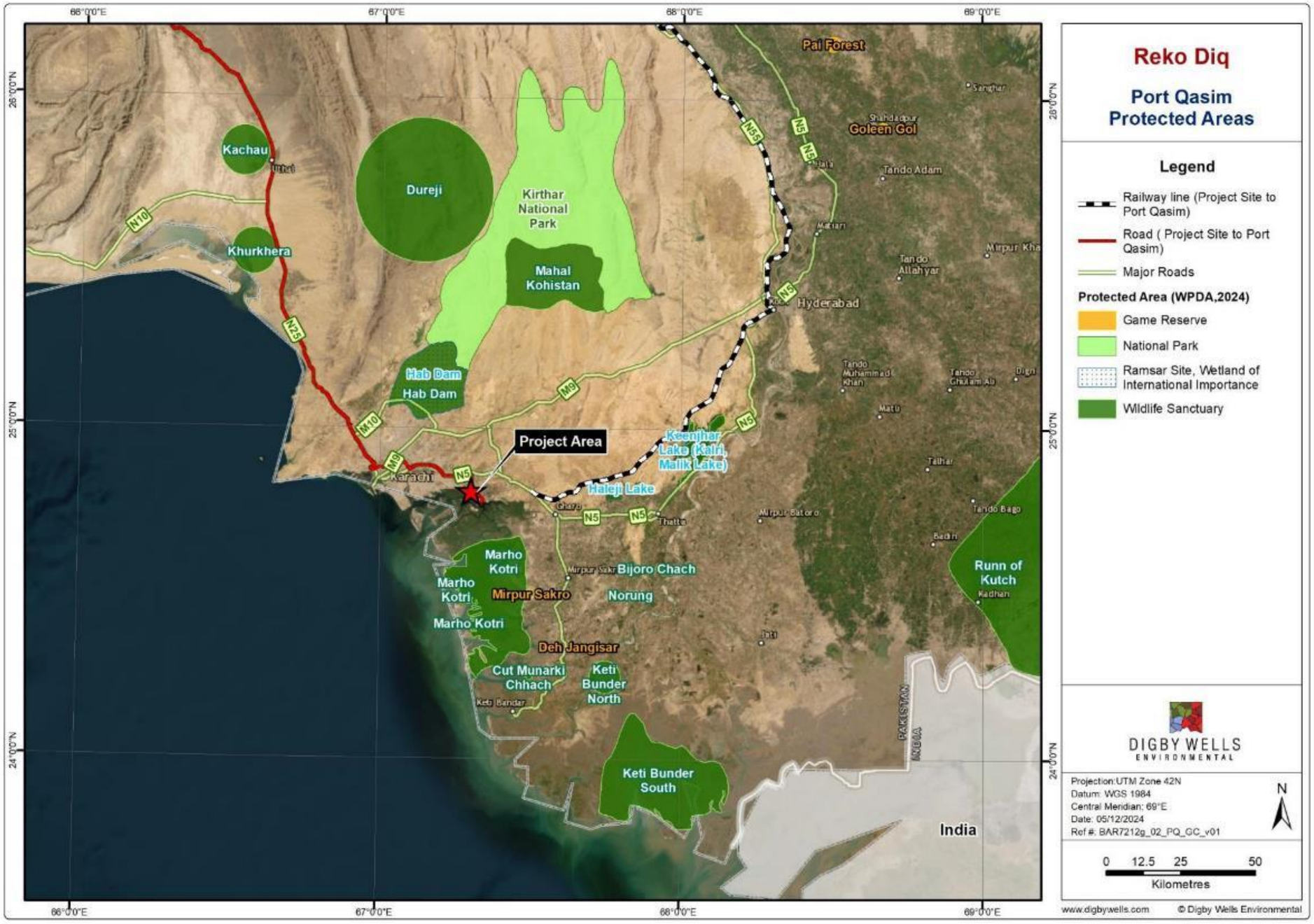

Figure 2-4: Protected areas in the greater region

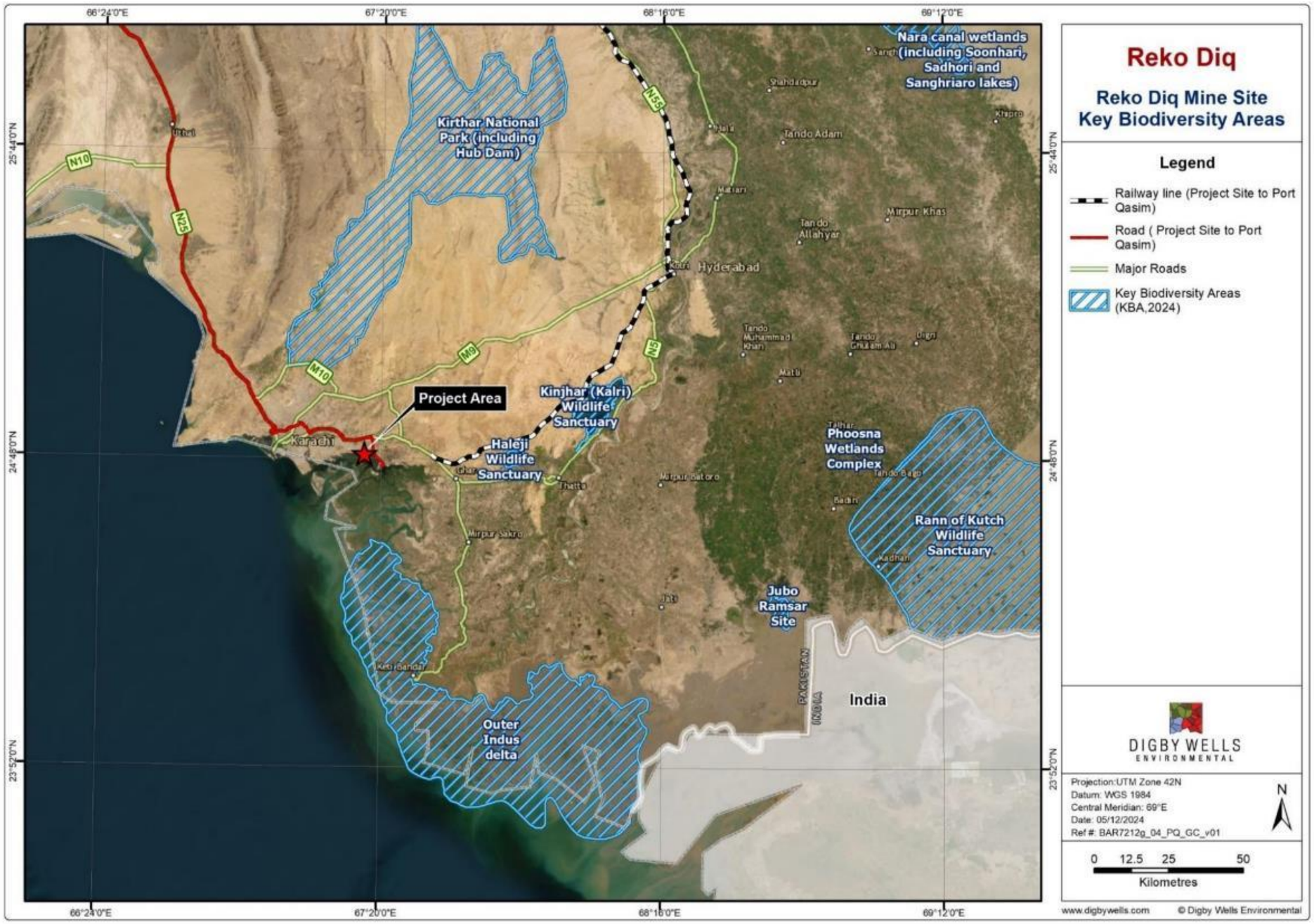

Figure 2-5: KBAs in the greater region surrounding Port Qasim

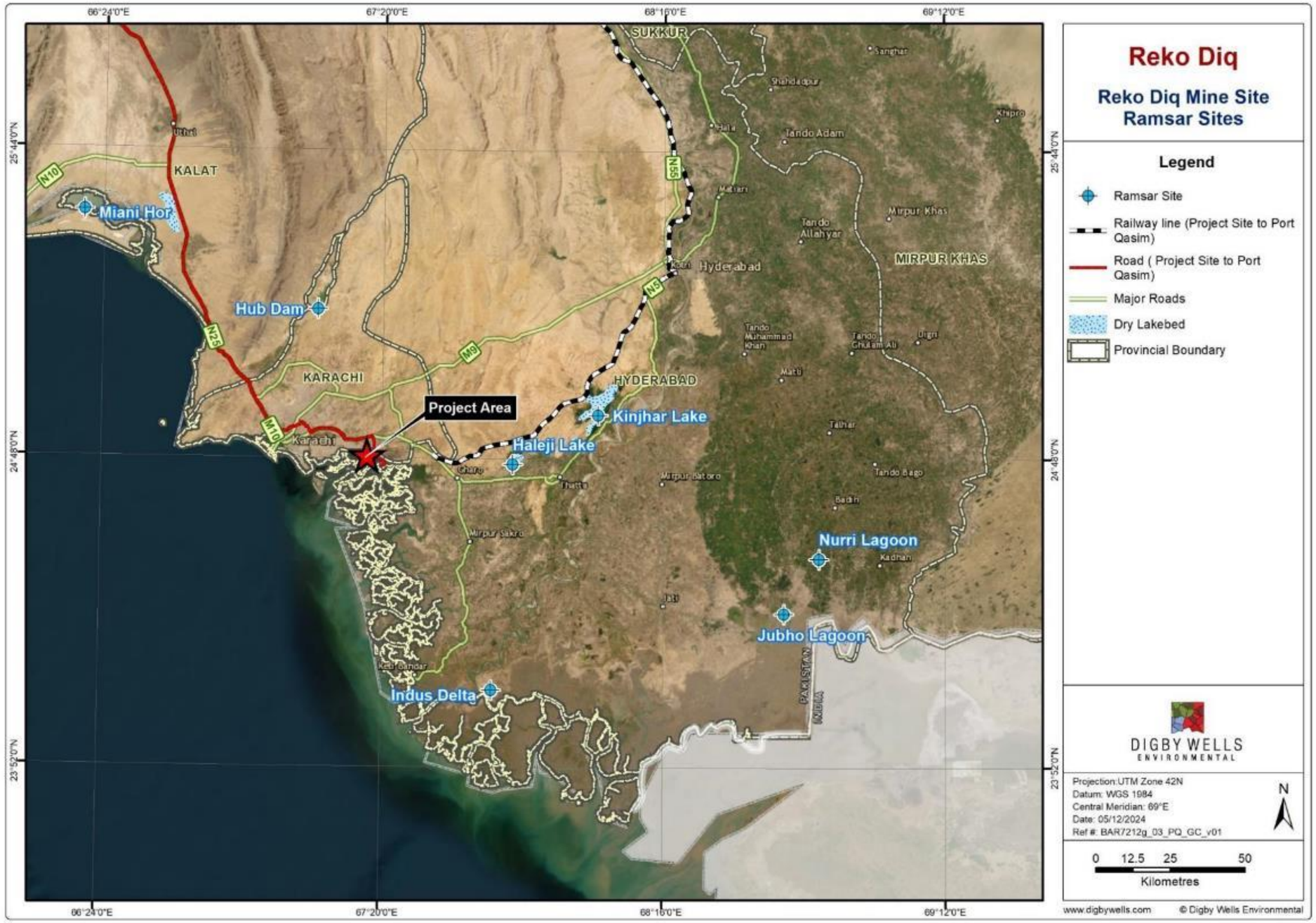

Figure 2-6: Ramsar Wetlands in the region surrounding Port Qasim

2.2.4. Species of Conservation Concern

For the sake of this assessment, species of conservation concern are regarded as species that could potentially meet the threshold for critical habitat status based on the thresholds set out in IFC's 2019 Guidance Notes 72, 75, and 78.

Species of conservation concern were identified based on the following sources:

- Reko Diq Environmental Baseline compiled by Hagler Bailly Pakistan (2024);
- GBIF Database; and
- IBAT.

2.2.4.1. Mine Site

IBAT expected a total of 443 species to be present within 50 km of the Mine Site, either temporarily or permanently, within the AoI of the Mine Site, including 171 bird species, 45 mammal species (including large and small specimens), 56 reptile species, 6 amphibians, 78 vegetation species (incl. tree and/or plants), 24 freshwater fishes, 62 invertebrates (incl. Gastropoda, Bivalvia, Insecta, and Malacostraca), and a single fungi species.

Of these species, a total of 147 species (including 67 species that were detected through the literature review and/or observed during the field survey/s) were identified as potential candidate critical habitat-trigger species. The 67 species detected are presented in Table 2-3.

There are several species of conservation concern, including the following:

- Two species listed as **Critically Endangered (CR)**:
  - Sociable Lapwing (*Vanellus gregarious*)
  - White-rumped vulture (*Gyps bengalensis*)
- Five species listed as **Endangered (EN)**:
  - Egyptian vulture (*Neophron percnopterus*), which was recorded along the northern groundwater system study area during the baseline surveys (HBP, 2024). Based on the Status and Red List of Pakistan's Mammals (IUCN, 2003), the sand cat (*Felis margarita*) and goitered gazelle (*Gazella subgutturosa*) are both nationally listed as CR.
- Species listed as **Vulnerable (VU)**:
  - The goitered gazelle is listed as VU by the IUCN Red List (IUCN, 2024). During the baseline surveys goitered gazelle were recorded in the northern groundwater system area, whereas sand cat (*Felis margarita*) was recorded northern groundwater system area (HBP, 2024).

The Asian houbara (*Chlamydotis macqueenii*), which was also recorded along the northern groundwater system study area, is listed as VU by the IUCN. This species is also one of many migratory species that are present in the Mine Site area.

Alcock's toad-headed agama (*Phrynocephalus euptilopus*) was recorded in the northern groundwater system area during the baseline surveys (HBP, 2024) and may meet the threshold for CH stated based on being severely range restricted (Criterion 2).

Table 2-3: Candidate Critical Habitat species considered when delineating EAAAs

Family	Scientific Name	Common Name	IUCN Category	National Status	Restricted Range	Movement Pattern
ACCIPITRIDAE	*Accipiter nisus*	Eurasian Sparrowhawk	LC	N/A	FALSE	Full Migrant
ACCIPITRIDAE	*Aquila heliaca*	Eastern Imperial Eagle	VU	N/A	FALSE	Full Migrant
ACCIPITRIDAE	*Aquila nipalensis*	Steppe Eagle	EN	N/A	FALSE	Full Migrant
ACCIPITRIDAE	*Buteo rufinus*	Long-legged Buzzard	LC	N/A	FALSE	Full Migrant
ACCIPITRIDAE	*Circaetus gallicus*	Short-toed Snake-eagle	LC	N/A	FALSE	Full Migrant
ACCIPITRIDAE	*Clanga clanga*	Greater Spotted Eagle	VU	#N/A	FALSE	Full Migrant
ACCIPITRIDAE	*Neophron percnopterus*	Egyptian Vulture	EN	N/A	FALSE	Full Migrant
ACROCEPHALIDAE	*Acrocephalus stentoreus*	Clamorous Reed-warbler	LC	N/A	FALSE	Full Migrant
AGAMIDAE	*Phrynocephalus euptilopus*	Alcock's Toad-headed Agama	LC	N/A	TRUE	Unknown
ALAUDIDAE	*Alauda arvensis*	Eurasian Skylark	LC	N/A	FALSE	Full Migrant
ALAUDIDAE	*Alauda gulgula*	Oriental Skylark	LC	N/A	FALSE	Full Migrant
ALAUDIDAE	*Calandrella brachydactyla*	Greater Short-toed Lark	LC	N/A	FALSE	Full Migrant
ALAUDIDAE	*Galerida cristata*	Crested Lark	LC	N/A	FALSE	Full Migrant
ANATIDAE	*Anas crecca*	Common Teal	LC	N/A	FALSE	Full Migrant
ARDEIDAE	*Ardea cinerea*	Grey Heron	LC	N/A	FALSE	Full Migrant
ARDEIDAE	*Ardea purpurea*	Purple Heron	LC	N/A	FALSE	Full Migrant
ARDEIDAE	*Egretta garzetta*	Little Egret	LC	N/A	FALSE	Full Migrant
ARDEIDAE	*Ixobrychus minutus*	Common Little Bittern	LC	N/A	FALSE	Full Migrant
BOVIDAE	*Gazella subgutturosa*	Goitered Gazelle	VU	Critically Endangered	FALSE	Unknown
BOVIDAE	*Ovis vignei cycloceros*	Afghan Urial	VU	Vulnerable		

Family	Scientific Name	Common Name	IUCN Category	National Status	Restricted Range	Movement Pattern
CAPRIMULGIDAE	*Caprimulgus europaeus*	European Nightjar	LC	N/A	FALSE	Full Migrant
CHARADRIIDAE	*Charadrius alexandrinus*	Kentish Plover	LC	N/A	FALSE	Full Migrant
CHARADRIIDAE	*Charadrius dubius*	Little Ringed Plover	LC	N/A	FALSE	Full Migrant
CHARADRIIDAE	*Vanellus gregarius*	Sociable Lapwing	CR	#N/A	FALSE	Full Migrant
CHARADRIIDAE	*Vanellus leucurus*	White-tailed Lapwing	LC	N/A	FALSE	Full Migrant
COLUMBIDAE	*Columba eversmanni*	Yellow-eyed Pigeon	VU	#N/A	FALSE	Full Migrant
COLUMBIDAE	*Spilopelia senegalensis*	Laughing Dove	LC	N/A	FALSE	Full Migrant
CORACIIDAE	*Coracias garrulus*	European Roller	LC	N/A	FALSE	Full Migrant
Dpodidae	*Salpingotulus michaelis*	Baluchistan Pygmy Jerboa	DD		Endemic but not restricted range	Not migrant
FALCONIDAE	*Falco cherrug*	Saker Falcon	EN	#N/A	FALSE	Full Migrant
FALCONIDAE	*Falco tinnunculus*	Common Kestrel	LC	N/A	FALSE	Full Migrant
FELIDAE	*Acinonyx jubatus*	Asiatic Cheetah	VU	Regionally Extinct		Unknown
FELIDAE	*Felis margarita*	Sand Cat	LC	Critically Endangered	FALSE	Not a Migrant
HIRUNDINIDAE	*Hirundo rustica*	Barn Swallow	LC	N/A	FALSE	Full Migrant
HIRUNDINIDAE	*Ptyonoprogne rupestris*	Eurasian Crag Martin	LC	N/A	FALSE	Full Migrant
LANIIDAE	*Lanius isabellinus*	Isabelline Shrike	LC	N/A	FALSE	Full Migrant
LANIIDAE	*Lanius vittatus*	Bay-backed Shrike	LC	N/A	FALSE	Full Migrant
LARIDAE	*Hydroprogne caspia*	Caspian Tern	LC	N/A	FALSE	Full Migrant
LARIDAE	*Larus genei*	Slender-billed Gull	LC	N/A	FALSE	Full Migrant
Liliaceae	*Gagea quettica*	Quetta Star Lily	Unlisted	Unlisted	Endemic but not restricted range	n/a
MOTACILLIDAE	*Anthus trivialis*	Tree Pipit	LC	N/A	FALSE	Full Migrant
MOTACILLIDAE	*Motacilla alba*	White Wagtail	LC	N/A	FALSE	Full Migrant

Family	Scientific Name	Common Name	IUCN Category	National Status	Restricted Range	Movement Pattern
MOTACILLIDAE	*Motacilla citreola*	Citrine Wagtail	LC	N/A	FALSE	Full Migrant
MOTACILLIDAE	*Motacilla flava*	Western Yellow Wagtail	LC	N/A	FALSE	Full Migrant
MUSCICAPIDAE	*Ficedula parva*	Red-breasted Flycatcher	LC	N/A	FALSE	Full Migrant
MUSCICAPIDAE	*Muscicapa striata*	Spotted Flycatcher	LC	N/A	FALSE	Full Migrant
MUSCICAPIDAE	*Oenanthe deserti*	Desert Wheatear	LC	N/A	FALSE	Full Migrant
MUSCICAPIDAE	*Oenanthe finschii*	Finsch's Wheatear	LC	N/A	FALSE	Full Migrant
MUSCICAPIDAE	*Oenanthe isabellina*	Isabelline Wheatear	LC	N/A	FALSE	Full Migrant
MUSCICAPIDAE	*Oenanthe picata*	Variable Wheatear	LC	N/A	FALSE	Full Migrant
MUSCICAPIDAE	*Phoenicurus ochruros*	Black Redstart	LC	N/A	FALSE	Full Migrant
MUSCICAPIDAE	*Phoenicurus phoenicurus*	Common Redstart	LC	N/A	FALSE	Full Migrant
MUSCICAPIDAE	*Saxicola caprata*	Pied Bushchat	LC	N/A	FALSE	Full Migrant
MUSTELIDAE	*Vormela peregusna*	Marbled Polecat	VU	#N/A	FALSE	Not a Migrant
OTIDIDAE	*Chlamydotis macqueenii*	Asian Houbara	VU	N/A	FALSE	Full Migrant
PHYLLOSCOPIDAE	*Phylloscopus neglectus*	Plain Leaf-warbler	LC	N/A	FALSE	Full Migrant
PHYLLOSCOPIDAE	*Phylloscopus nitidus*	Green Warbler	LC	N/A	FALSE	Full Migrant
PHYLLOSCOPIDAE	*Phylloscopus trochiloides*	Greenish Warbler	LC	N/A	FALSE	Full Migrant
PTEROCLIDAE	*Pterocles orientalis*	Black-bellied Sandgrouse	LC	N/A	FALSE	Full Migrant
PTEROCLIDAE	*Pterocles senegallus*	Spotted Sandgrouse	LC	N/A	FALSE	Full Migrant
RECURVIROSTRIDAE	*Himantopus himantopus*	Black-winged Stilt	LC	N/A	FALSE	Full Migrant
RECURVIROSTRIDAE	*Recurvirostra avosetta*	Pied Avocet	LC	N/A	FALSE	Full Migrant
SCOLOPACIDAE	*Tringa totanus*	Common Redshank	LC	N/A	FALSE	Full Migrant
STURNIDAE	*Sturnus vulgaris*	Common Starling	LC	N/A	FALSE	Full Migrant

Family	Scientific Name	Common Name	IUCN Category	National Status	Restricted Range	Movement Pattern
SYLVIIDAE	*Curruca curruca*	Lesser Whitethroat	LC	N/A	FALSE	Full Migrant
SYLVIIDAE	*Curruca mystacea*	Menetries's Warbler	LC	N/A	FALSE	Full Migrant
SYLVIIDAE	*Curruca nana*	Asian Desert Warbler	LC	N/A	FALSE	Full Migrant

2.2.4.2. Transport Corridor

Of a total of 237 expected species, selected species reliant on both freshwater and marine ecosystems were excluded from the list for the purposes of this assessment, as the proposed AoI does not affect the or include any material changes to the freshwater and/or marine habitat/s. Following this filtering process, the following candidate Critical Habitat triggers are presented in Table 2-5 below, including:

- 24 Criterion 1 candidate trigger species, including avifauna, mammals, and reptiles.
- 3 Criterion 2 candidate trigger species, and
- 137 Criterion 3 candidate species, including numerous migratory birds, a volant mammal, and an insect.

Most of the candidate species are bird species and considered to not face risk from the cumulative impact of the transport corridor. One of the candidate triggers species is *Bufotes zugmayeri* (Baloch Green Toad, listed as NT), which is a restricted-range species. The Baloch Green Toad is only found along part of the transport corridor, according to a GBIF record. As such, its existing distribution was combined with an additional polygon (taking into account the GBIF record outside its distribution range) to form another EAAA.

Table 2-4: Detected candidate Critical Habitat trigger species detected within 20 km of the Transport Corridors. Their IUCN category, geographical and population Information is included in the table below.

Class	Family	Scientific Name	Common Name	IUCN Category	Restricted Range	Movement Pattern	IBAT	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 2	Criterion 2 Triggered	Criterion 3	Criterion 3 Triggered
AMPHIBIA	**BUFONIDAE**	**Bufotes zugmayeri**	**Baloch Green Toad**	**NT**	**TRUE**	**Not a Migrant**	**Yes**	**28135.89**	**4657.53**	**16.55%**			**Yes**	**Yes**		
AVES	ACCIPITRIDAE	Milvus migrans	Black Kite	LC	FALSE	Full Migrant	Yes	115653659	4657.53	0.00%					Yes	No
AVES	ACCIPITRIDAE	Hieraaetus pennatus	Booted Eagle	LC	FALSE	Full Migrant	Yes	62000000	4657.53	0.01%					Yes	No
AVES	ACCIPITRIDAE	Aegypius monachus	Cinereous Vulture	NT	FALSE	Full Migrant	Yes	22400000	4657.53	0.02%					Yes	No
AVES	ACCIPITRIDAE	Aquila heliaca	Eastern Imperial Eagle	VU	FALSE	Full Migrant	Yes	14900000	4657.53	0.03%	Yes	No			Yes	No
AVES	ACCIPITRIDAE	Neophron percnopterus	Egyptian Vulture	EN	FALSE	Full Migrant	Yes	50100000	4657.53	0.01%	Yes	No			Yes	No
AVES	ACCIPITRIDAE	Accipiter nisus	Eurasian Sparrowhawk	LC	FALSE	Full Migrant	Yes	54400000	4657.53	0.01%					Yes	No
AVES	ACCIPITRIDAE	Aquila chrysaetos	Golden Eagle	LC	FALSE	Full Migrant	Yes	139000000	4657.53	0.00%					Yes	No
AVES	ACCIPITRIDAE	Clanga clanga	Greater Spotted Eagle	VU	FALSE	Full Migrant	Yes	15300000	4657.53	0.03%	Yes	No			Yes	No
AVES	ACCIPITRIDAE	Gyps fulvus	Griffon Vulture	LC	FALSE	Full Migrant	Yes	20400000	4657.53	0.02%					Yes	No
AVES	ACCIPITRIDAE	Circus cyaneus	Hen Harrier	LC	FALSE	Full Migrant	Yes	34800000	4657.53	0.01%					Yes	No
AVES	ACCIPITRIDAE	Buteo rufinus	Long-legged Buzzard	LC	FALSE	Full Migrant	Yes	32300000	4657.53	0.01%					Yes	No
AVES	ACCIPITRIDAE	Circus pygargus	Montagu's Harrier	LC	FALSE	Full Migrant	Yes	18000000	4657.53	0.03%					Yes	No
AVES	ACCIPITRIDAE	Pernis ptilorhynchus	Oriental Honey-buzzard	LC	FALSE	Full Migrant	Yes	22700000	4657.53	0.02%					Yes	No
AVES	ACCIPITRIDAE	Haliaeetus leucoryphus	Pallas's Fish-eagle	EN	FALSE	Full Migrant	Yes	1740000	4657.53	0.27%	Yes	No			Yes	No
AVES	ACCIPITRIDAE	Circus macrourus	Pallid Harrier	NT	FALSE	Full Migrant	Yes	10900000	4657.53	0.04%					Yes	No
AVES	ACCIPITRIDAE	Sarcogyps calvus	Red-headed Vulture	CR	FALSE	Not a Migrant	Yes	5230000	4657.53	0.09%	Yes	No				
AVES	ACCIPITRIDAE	Accipiter badius	Shikra	LC	FALSE	Full Migrant	Yes	63300000	4657.53	0.01%					Yes	No
AVES	ACCIPITRIDAE	Circaetus gallicus	Short-toed Snake-eagle	LC	FALSE	Full Migrant	Yes	48800000	4657.53	0.01%					Yes	No
AVES	ACCIPITRIDAE	Aquila nipalensis	Steppe Eagle	EN	FALSE	Full Migrant	Yes	12600000	4657.53	0.04%	Yes	No			Yes	No
AVES	ACCIPITRIDAE	Aquila rapax	Tawny Eagle	VU	FALSE	Nomadic	Yes	52700000	4657.53	0.01%	Yes	No			Yes	No
AVES	ACCIPITRIDAE	Circus aeruginosus	Western Marsh-harrier	LC	FALSE	Full Migrant	Yes	24800000	4657.53	0.02%					Yes	No
AVES	ACCIPITRIDAE	Gyps bengalensis	White-rumped Vulture	CR	FALSE	Nomadic	Yes	7370000	4657.53	0.06%	Yes	No			Yes	No
AVES	ACROCEPHALIDAE	Acrocephalus stentoreus	Clamorous Reed-warbler	LC	FALSE	Full Migrant	Yes	33310000	4657.53	0.01%					Yes	No
AVES	ACROCEPHALIDAE	Acrocephalus melanopogon	Moustached Warbler	LC	FALSE	Full Migrant	Yes	11700000	4657.53	0.04%					Yes	No
AVES	ACROCEPHALIDAE	Acrocephalus agricola	Paddyfield Warbler	LC	FALSE	Full Migrant	Yes	6530000	4657.53	0.07%					Yes	No
AVES	ACROCEPHALIDAE	Iduna rama	Sykes's Warbler	LC	FALSE	Full Migrant	Yes	4620000	4657.53	0.10%					Yes	No
AVES	ACROCEPHALIDAE	Hippolais languida	Upcher's Warbler	LC	FALSE	Full Migrant	Yes	3890000	4657.53	0.12%					Yes	No
AVES	ALAUDIDAE	Melanocorypha bimaculata	Bimaculated Lark	LC	FALSE	Full Migrant	Yes	5520000	4657.53	0.08%					Yes	No
AVES	ALAUDIDAE	Galerida cristata	Crested Lark	LC	FALSE	Full Migrant	Yes	52700000	4657.53	0.01%					Yes	No
AVES	ALAUDIDAE	Alauda arvensis	Eurasian Skylark	LC	FALSE	Full Migrant	Yes	42900000	4657.53	0.01%					Yes	No
AVES	ALAUDIDAE	Calandrella brachydactyla	Greater Short-toed Lark	LC	FALSE	Full Migrant	Yes	24800000	4657.53	0.02%					Yes	No
AVES	ALAUDIDAE	Calandrella acutirostris	Hume's Lark	LC	FALSE	Full Migrant	Yes	1770000	4657.53	0.26%					Yes	No
AVES	ALAUDIDAE	Alauda gulgula	Oriental Skylark	LC	FALSE	Full Migrant	Yes	23600000	4657.53	0.02%					Yes	No
AVES	ALAUDIDAE	Alaudala heinei	Turkestan Short-toed Lark	LC	FALSE	Full Migrant	Yes	7528000	4657.53	0.06%					Yes	No
AVES	ALCEDINIDAE	Halcyon pileata	Black-capped Kingfisher	VU	FALSE	Full Migrant	Yes	5160000	4657.53	0.09%	Yes	No			Yes	No
AVES	ALCEDINIDAE	Alcedo atthis	Common Kingfisher	LC	FALSE	Full Migrant	Yes	79900000	4657.53	0.01%					Yes	No

Class	Family	Scientific Name	Common Name	IUCN Category	Restricted Range	Movement Pattern	IBAT	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 2	Criterion 2 Triggered	Criterion 3	Criterion 3 Triggered
AVES	**ANATIDAE**	**Aythya ferina**	**Common Pochard**	**VU**	**FALSE**	**Full Migrant**	**Yes**	**548000**	**4657.53**	**0.85%**	**Yes**	**Yes**			**Yes**	**No**
AVES	ANATIDAE	Tadorna tadorna	Common Shelduck	LC	FALSE	Full Migrant	Yes	31600000	4657.53	0.01%					Yes	No
AVES	ANATIDAE	Anas crecca	Common Teal	LC	FALSE	Full Migrant	Yes	60200000	4657.53	0.01%					Yes	No
AVES	ANATIDAE	Nettapus coromandelianus	Cotton Pygmy-goose	LC	FALSE	Full Migrant	Yes	29900000	4657.53	0.02%					Yes	No
AVES	ANATIDAE	Mareca penelope	Eurasian Wigeon	LC	FALSE	Full Migrant	Yes	34900000	4657.53	0.01%					Yes	No
AVES	ANATIDAE	Aythya nyroca	Ferruginous Duck	NT	FALSE	Full Migrant	Yes	25200000	4657.53	0.02%					Yes	No
AVES	ANATIDAE	Mareca strepera	Gadwall	LC	FALSE	Full Migrant	Yes	73100000	4657.53	0.01%					Yes	No
AVES	ANATIDAE	Spatula querquedula	Garganey	LC	FALSE	Full Migrant	Yes	32500000	4657.53	0.01%					Yes	No
AVES	ANATIDAE	Anser anser	Greylag Goose	LC	FALSE	Full Migrant	Yes	31200000	4657.53	0.01%					Yes	No
AVES	ANATIDAE	Anas poecilorhyncha	Indian Spot-billed Duck	LC	FALSE	Full Migrant	Yes	9980000	4657.53	0.05%					Yes	No
AVES	ANATIDAE	Anas platyrhynchos	Mallard	LC	FALSE	Full Migrant	Yes	65800000	4657.53	0.01%					Yes	No
AVES	ANATIDAE	Marmaronetta angustirostris	Marbled Duck	NT	FALSE	Full Migrant	Yes	13500000	4657.53	0.03%					Yes	No
AVES	ANATIDAE	Anas acuta	Northern Pintail	LC	FALSE	Full Migrant	Yes	41900000	4657.53	0.01%					Yes	No
AVES	ANATIDAE	Spatula clypeata	Northern Shoveler	LC	FALSE	Full Migrant	Yes	39900000	4657.53	0.01%					Yes	No
AVES	ANATIDAE	Netta rufina	Red-crested Pochard	LC	FALSE	Full Migrant	Yes	19600000	4657.53	0.02%					Yes	No
AVES	ANATIDAE	Tadorna ferruginea	Ruddy Shelduck	LC	FALSE	Full Migrant	Yes	37900000	4657.53	0.01%					Yes	No
AVES	ANATIDAE	Aythya fuligula	Tufted Duck	LC	FALSE	Full Migrant	Yes	34900000	4657.53	0.01%					Yes	No
AVES	APODIDAE	Apus apus	Common Swift	LC	FALSE	Full Migrant	Yes	13300000	4657.53	0.04%					Yes	No
AVES	APODIDAE	Apus affinis	Little Swift	LC	FALSE	Full Migrant	Yes	55800000	4657.53	0.01%					Yes	No
AVES	ARDEIDAE	Ixobrychus flavicollis	Black Bittern	LC	FALSE	Full Migrant	Yes	41100000	4657.53	0.01%					Yes	No
AVES	ARDEIDAE	Nycticorax nycticorax	Black-crowned Night Heron	LC	FALSE	Full Migrant	Yes	290000000	4657.53	0.00%					Yes	No
AVES	ARDEIDAE	Ixobrychus cinnamomeus	Cinnamon Bittern	LC	FALSE	Full Migrant	Yes	25400000	4657.53	0.02%					Yes	No
AVES	ARDEIDAE	Ixobrychus minutus	Common Little Bittern	LC	FALSE	Full Migrant	Yes	34800000	4657.53	0.01%					Yes	No
AVES	ARDEIDAE	Botaurus stellaris	Eurasian Bittern	LC	FALSE	Full Migrant	Yes	86200000	4657.53	0.01%					Yes	No
AVES	ARDEIDAE	Ardea alba	Great White Egret	LC	FALSE	Full Migrant	Yes	366000000	4657.53	0.00%					Yes	No
AVES	ARDEIDAE	Butorides striata	Green-backed Heron	LC	FALSE	Full Migrant	Yes	287000000	4657.53	0.00%					Yes	No
AVES	ARDEIDAE	Ardea cinerea	Grey Heron	LC	FALSE	Full Migrant	Yes	136000000	4657.53	0.00%					Yes	No
AVES	ARDEIDAE	Ardea intermedia	Intermediate Egret	LC	FALSE	Full Migrant	Yes	30300000	4657.53	0.02%					Yes	No
AVES	ARDEIDAE	Egretta garzetta	Little Egret	LC	FALSE	Full Migrant	Yes	151000000	4657.53	0.00%					Yes	No
AVES	ARDEIDAE	Ardea purpurea	Purple Heron	LC	FALSE	Full Migrant	Yes	109000000	4657.53	0.00%					Yes	No
AVES	ARDEIDAE	Ixobrychus sinensis	Yellow Bittern	LC	FALSE	Full Migrant	Yes	36000000	4657.53	0.01%					Yes	No
AVES	BURHINIDAE	Burhinus oedicnemus	Eurasian Thick-knee	LC	FALSE	Full Migrant	Yes	27000000	4657.53	0.02%					Yes	No
AVES	CAPRIMULGIDAE	Caprimulgus europaeus	European Nightjar	LC	FALSE	Full Migrant	Yes	19500000	4657.53	0.02%					Yes	No
AVES	CAPRIMULGIDAE	Caprimulgus mahrattensis	Sykes's Nightjar	LC	FALSE	Full Migrant	Yes	1550000	4657.53	0.30%					Yes	No
AVES	**CHARADRIIDAE**	**Charadrius hiaticula**	**Common Ringed Plover**	**LC**	**FALSE**	**Full Migrant**	**Yes**	**414000**	**4657.53**	**1.13%**					**Yes**	**Yes**
AVES	CHARADRIIDAE	Charadrius leschenaultii	Greater Sandplover	LC	FALSE	Full Migrant	Yes	9590000	4657.53	0.05%					Yes	No
AVES	CHARADRIIDAE	Pluvialis squatarola	Grey Plover	VU	FALSE	Full Migrant	Yes	19000000	4657.53	0.02%	Yes	No			Yes	No
AVES	CHARADRIIDAE	Charadrius dubius	Little Ringed Plover	LC	FALSE	Full Migrant	Yes	55900000	4657.53	0.01%					Yes	No
AVES	CHARADRIIDAE	Vanellus vanellus	Northern Lapwing	NT	FALSE	Full Migrant	Yes	31900000	4657.53	0.01%					Yes	No
AVES	**CHARADRIIDAE**	**Pluvialis fulva**	**Pacific Golden Plover**	**LC**	**FALSE**	**Full Migrant**	**Yes**	**705000**	**4657.53**	**0.66%**					**Yes**	**No**

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AVES	CHARADRIIDAE	Vanellus gregarius	Sociable Lapwing	CR	FALSE	Full Migrant	Yes	1620000	4657.53	0.29%	Yes	No			Yes	No
AVES	CHARADRIIDAE	Vanellus leucurus	White-tailed Lapwing	LC	FALSE	Full Migrant	Yes	6960000	4657.53	0.07%					Yes	No
AVES	CICONIIDAE	Ciconia nigra	Black Stork	LC	FALSE	Full Migrant	Yes	25100000	4657.53	0.02%					Yes	No
AVES	CICONIIDAE	Ciconia ciconia	White Stork	LC	FALSE	Full Migrant	Yes	52700000	4657.53	0.01%					Yes	No
AVES	CISTICOLIDAE	Prinia inornata	Plain Prinia	LC	FALSE	Altitudinal Migrant	Yes	19200000	4657.53	0.02%					Yes	No
AVES	CISTICOLIDAE	Prinia crinigera	Striated Prinia	LC	FALSE	Altitudinal Migrant	Yes	**7760000**	4657.53	0.06%					Yes	No
AVES	COLUMBIDAE	Spilopelia senegalensis	Laughing Dove	LC	FALSE	Full Migrant	Yes	64400000	4657.53	0.01%					Yes	No
AVES	COLUMBIDAE	Streptopelia tranquebarica	Red Collared-dove	LC	FALSE	Full Migrant	Yes	18300000	4657.53	0.03%					Yes	No
AVES	CORACIIDAE	Coracias garrulus	European Roller	LC	FALSE	Full Migrant	Yes	19900000	4657.53	0.02%					Yes	No
AVES	CUCULIDAE	Cuculus canorus	Common Cuckoo	LC	FALSE	Full Migrant	Yes	51500000	4657.53	0.01%					Yes	No
AVES	CUCULIDAE	Clamator jacobinus	Jacobin Cuckoo	LC	FALSE	Full Migrant	Yes	21800000	4657.53	0.02%					Yes	No
AVES	CUCULIDAE	Eudynamys scolopaceus	Western Koel	LC	FALSE	Full Migrant	Yes	29800000	4657.53	0.02%					Yes	No
AVES	DICRURIDAE	Dicrurus macrocercus	Black Drongo	LC	FALSE	Full Migrant	Yes	17900000	4657.53	0.03%					Yes	No
AVES	DROMADIDAE	Dromas ardeola	Crab-plover	LC	FALSE	Full Migrant	Yes	3390000	4657.53	0.14%					Yes	No
AVES	EMBERIZIDAE	Emberiza melanocephala	Black-headed Bunting	LC	FALSE	Full Migrant	Yes	723000	4657.53	0.64%					Yes	No
AVES	**EMBERIZIDAE**	**Emberiza buchanani**	**Grey-necked Bunting**	**LC**	**FALSE**	**Full Migrant**	**Yes**	**65200**	**4657.53**	**7.14%**					**Yes**	**Yes**
AVES	FALCONIDAE	Falco tinnunculus	Common Kestrel	LC	FALSE	Full Migrant	Yes	106000000	4657.53	0.00%					Yes	No
AVES	FALCONIDAE	Falco subbuteo	Eurasian Hobby	LC	FALSE	Full Migrant	Yes	49300000	4657.53	0.01%					Yes	No
AVES	FALCONIDAE	Falco columbarius	Merlin	LC	FALSE	Full Migrant	Yes	103000000	4657.53	0.00%					Yes	No
AVES	FALCONIDAE	Falco peregrinus	Peregrine Falcon	LC	FALSE	Full Migrant	Yes	413000000	4657.53	0.00%					Yes	No
AVES	FRINGILLIDAE	Carpodacus erythrinus	Common Rosefinch	LC	FALSE	Full Migrant	Yes	10200000	4657.53	0.05%					Yes	No
AVES	GLAREOLIDAE	Glareola pratincola	Collared Pratincole	LC	FALSE	Full Migrant	Yes	21300000	4657.53	0.02%					Yes	No
AVES	GLAREOLIDAE	Cursorius cursor	Cream-coloured Courser	LC	FALSE	Full Migrant	Yes	22200000	4657.53	0.02%					Yes	No
AVES	GLAREOLIDAE	Glareola lactea	Little Pratincole	LC	FALSE	Full Migrant	Yes	8710000	4657.53	0.05%					Yes	No
AVES	GLAREOLIDAE	Glareola maldivarum	Oriental Pratincole	LC	FALSE	Full Migrant	Yes	25400000	4657.53	0.02%					Yes	No
AVES	GRUIDAE	Grus grus	Common Crane	LC	FALSE	Full Migrant	Yes	25600000	4657.53	0.02%					Yes	No
AVES	GRUIDAE	Anthropoides virgo	Demoiselle Crane	LC	FALSE	Full Migrant	Yes	9410000	4657.53	0.05%					Yes	No
AVES	HAEMATOPODIDAE	Haematopus ostralegus	Eurasian Oystercatcher	NT	FALSE	Full Migrant	Yes	36600000	4657.53	0.01%					Yes	No
AVES	HIRUNDINIDAE	Riparia chinensis	Asian Plain Martin	LC	FALSE	Full Migrant	Yes	10200000	4657.53	0.05%					Yes	No
AVES	HIRUNDINIDAE	Hirundo rustica	Barn Swallow	LC	FALSE	Full Migrant	Yes	251000000	4657.53	0.00%					Yes	No
AVES	HIRUNDINIDAE	Ptyonoprogne rupestris	Eurasian Crag Martin	LC	FALSE	Full Migrant	Yes	29300000	4657.53	0.02%					Yes	No
AVES	HIRUNDINIDAE	Riparia diluta	Pale Sand Martin	LC	FALSE	Full Migrant	Yes	4690000	4657.53	0.10%					Yes	No
AVES	HIRUNDINIDAE	Cecropis daurica	Red-rumped Swallow	LC	FALSE	Full Migrant	Yes	75400000	4657.53	0.01%					Yes	No
AVES	HIRUNDINIDAE	Petrochelidon fluvicola	Streak-throated Swallow	LC	FALSE	Full Migrant	Yes	3180000	4657.53	0.15%					Yes	No
AVES	HIRUNDINIDAE	Hirundo smithii	Wire-tailed Swallow	LC	FALSE	Full Migrant	Yes	49700000	4657.53	0.01%					Yes	No
AVES	HYPOCOLIIDAE	Hypocolius ampelinus	Hypocolius	LC	FALSE	Full Migrant	Yes	1900000	4657.53	0.25%					Yes	No
AVES	JACANIDAE	Hydrophasianus chirurgus	Pheasant-tailed Jacana	LC	FALSE	Full Migrant	Yes	19700000	4657.53	0.02%					Yes	No
AVES	LANIIDAE	Lanius vittatus	Bay-backed Shrike	LC	FALSE	Full Migrant	Yes	5690000	4657.53	0.08%					Yes	No
AVES	LANIIDAE	Lanius excubitor	Great Grey Shrike	LC	FALSE	Full Migrant	Yes	52700000	4657.53	0.01%					Yes	No

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AVES	LANIIDAE	Lanius isabellinus	Isabelline Shrike	LC	FALSE	Full Migrant	Yes	4880000	4657.53	0.10%					Yes	No
AVES	LANIIDAE	Lanius schach	Long-tailed Shrike	LC	FALSE	Full Migrant	Yes	28800000	4657.53	0.02%					Yes	No
AVES	LANIIDAE	Lanius phoenicuroides	Red-tailed Shrike	LC	FALSE	Full Migrant	Yes	5670000	4657.53	0.08%					Yes	No
AVES	LARIDAE	Sterna acuticauda	Black-bellied Tern	EN	FALSE	Not a Migrant	Yes	4810000	4657.53	0.10%	Yes	No				
AVES	LARIDAE	Larus cachinnans	Caspian Gull	LC	FALSE	Full Migrant	Yes	5820000	4657.53	0.08%					Yes	No
AVES	LARIDAE	Hydroprogne caspia	Caspian Tern	LC	FALSE	Full Migrant	Yes	258000000	4657.53	0.00%					Yes	No
AVES	LARIDAE	Gelochelidon nilotica	Common Gull-billed Tern	LC	FALSE	Full Migrant	Yes	163000000	4657.53	0.00%					Yes	No
AVES	LARIDAE	Sterna hirundo	Common Tern	LC	FALSE	Full Migrant	Yes	84300000	4657.53	0.01%					Yes	No
AVES	LARIDAE	Thalasseus bergii	Greater Crested Tern	LC	FALSE	Full Migrant	Yes	142000000	4657.53	0.00%					Yes	No
AVES	LARIDAE	Larus fuscus	Lesser Black-backed Gull	LC	FALSE	Full Migrant	Yes	19400000	4657.53	0.02%					Yes	No
AVES	LARIDAE	Thalasseus bengalensis	Lesser Crested Tern	LC	FALSE	Full Migrant	Yes	41500000	4657.53	0.01%					Yes	No
AVES	LARIDAE	Sternula albifrons	Little Tern	LC	FALSE	Full Migrant	Yes	152000000	4657.53	0.00%					Yes	No
AVES	LARIDAE	Sterna aurantia	River Tern	VU	FALSE	Not a Migrant	Yes	9330000	4657.53	0.05%	Yes	No				
AVES	LARIDAE	Thalasseus sandvicensis	Sandwich Tern	LC	FALSE	Full Migrant	Yes	98800000	4657.53	0.00%					Yes	No
AVES	LARIDAE	Sternula saundersi	Saunders's Tern	LC	FALSE	Full Migrant	Yes	11700000	4657.53	0.04%					Yes	No
AVES	LARIDAE	Larus genei	Slender-billed Gull	LC	FALSE	Full Migrant	Yes	22600000	4657.53	0.02%					Yes	No
AVES	LARIDAE	Larus hemprichii	Sooty Gull	LC	FALSE	Full Migrant	Yes	7050000	4657.53	0.07%					Yes	No
AVES	LARIDAE	Chlidonias hybrida	Whiskered Tern	LC	FALSE	Full Migrant	Yes	130000000	4657.53	0.00%					Yes	No
AVES	LARIDAE	Sterna repressa	White-cheeked Tern	LC	FALSE	Full Migrant	Yes	8740000	4657.53	0.05%					Yes	No
AVES	LARIDAE	Chlidonias leucopterus	White-winged Tern	LC	FALSE	Full Migrant	Yes	27200000	4657.53	0.02%					Yes	No
AVES	MEROPIDAE	Merops orientalis	Asian Green Bee-eater	LC	FALSE	Full Migrant	Yes	11600000	4657.53	0.04%					Yes	No
AVES	MEROPIDAE	Merops persicus	Blue-cheeked Bee-eater	LC	FALSE	Full Migrant	Yes	24700000	4657.53	0.02%					Yes	No
AVES	MEROPIDAE	Merops apiaster	European Bee-eater	LC	FALSE	Full Migrant	Yes	13600000	4657.53	0.03%					Yes	No
AVES	MONARCHIDAE	Terpsiphone paradisi	Indian Paradise-flycatcher	LC	FALSE	Full Migrant	Yes	4200000	4657.53	0.11%					Yes	No
AVES	MOTACILLIDAE	Motacilla citreola	Citrine Wagtail	LC	FALSE	Full Migrant	Yes	13600000	4657.53	0.03%					Yes	No
AVES	MOTACILLIDAE	Motacilla cinerea	Grey Wagtail	LC	FALSE	Full Migrant	Yes	60700000	4657.53	0.01%					Yes	No
AVES	MOTACILLIDAE	Anthus campestris	Tawny Pipit	LC	FALSE	Full Migrant	Yes	22100000	4657.53	0.02%					Yes	No
AVES	MOTACILLIDAE	Anthus trivialis	Tree Pipit	LC	FALSE	Full Migrant	Yes	35100000	4657.53	0.01%					Yes	No
AVES	MOTACILLIDAE	Anthus spinoletta	Water Pipit	LC	FALSE	Full Migrant	Yes	17500000	4657.53	0.03%					Yes	No
AVES	MOTACILLIDAE	Motacilla flava	Western Yellow Wagtail	LC	FALSE	Full Migrant	Yes	40900000	4657.53	0.01%					Yes	No
AVES	MOTACILLIDAE	Motacilla alba	White Wagtail	LC	FALSE	Full Migrant	Yes	37800000	4657.53	0.01%					Yes	No
AVES	MUSCICAPIDAE	Phoenicurus ochruros	Black Redstart	LC	FALSE	Full Migrant	Yes	22700000	4657.53	0.02%					Yes	No
AVES	MUSCICAPIDAE	Monticola solitarius	Blue Rock-thrush	LC	FALSE	Full Migrant	Yes	66600000	4657.53	0.01%					Yes	No
AVES	MUSCICAPIDAE	Luscinia svecica	Bluethroat	LC	FALSE	Full Migrant	Yes	35500000	4657.53	0.01%					Yes	No
AVES	MUSCICAPIDAE	Oenanthe deserti	Desert Wheatear	LC	FALSE	Full Migrant	Yes	21400000	4657.53	0.02%					Yes	No
AVES	MUSCICAPIDAE	Phoenicurus erythronotus	Eversmann's Redstart	LC	FALSE	Full Migrant	Yes	2310000	4657.53	0.20%					Yes	No
AVES	MUSCICAPIDAE	Oenanthe finschii	Finsch's Wheatear	LC	FALSE	Full Migrant	Yes	4320000	4657.53	0.11%					Yes	No
AVES	MUSCICAPIDAE	Oenanthe isabellina	Isabelline Wheatear	LC	FALSE	Full Migrant	Yes	16000000	4657.53	0.03%					Yes	No
AVES	MUSCICAPIDAE	Saxicola caprata	Pied Bushchat	LC	FALSE	Full Migrant	Yes	25400000	4657.53	0.02%					Yes	No
AVES	MUSCICAPIDAE	Ficedula parva	Red-breasted Flycatcher	LC	FALSE	Full Migrant	Yes	2630000	4657.53	0.18%					Yes	No

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AVES	MUSCICAPIDAE	Oenanthe chrysopygia	Red-tailed Wheatear	LC	FALSE	Full Migrant	Yes	2520000	4657.53	0.18%					Yes	No
AVES	MUSCICAPIDAE	Monticola saxatilis	Rufous-tailed Rock-thrush	LC	FALSE	Full Migrant	Yes	14000000	4657.53	0.03%					Yes	No
AVES	MUSCICAPIDAE	Cercotrichas galactotes	Rufous-tailed Scrub-robin	LC	FALSE	Full Migrant	Yes	13100000	4657.53	0.04%					Yes	No
AVES	MUSCICAPIDAE	Muscicapa striata	Spotted Flycatcher	LC	FALSE	Full Migrant	Yes	20600000	4657.53	0.02%					Yes	No
AVES	MUSCICAPIDAE	Oenanthe picata	Variable Wheatear	LC	FALSE	Full Migrant	Yes	2110000	4657.53	0.22%					Yes	No
AVES	OCEANITIDAE	Oceanites oceanicus	Wilson's Storm-petrel	LC	TRUE	Full Migrant	Yes	22000000	4657.53	0.02%			Yes	No	Yes	No
AVES	ORIOLIDAE	Oriolus kundoo	Indian Golden Oriole	LC	FALSE	Full Migrant	Yes	3120000	4657.53	0.15%					Yes	No
AVES	OTIDIDAE	Chlamydotis macqueenii	Asian Houbara	VU	FALSE	Full Migrant	Yes	13200000	4657.53	0.04%	Yes	No			Yes	No
AVES	PANDIONIDAE	Pandion haliaetus	Osprey	LC	FALSE	Full Migrant	Yes	298000000	4657.53	0.00%					Yes	No
AVES	PASSERIDAE	Passer hispaniolensis	Spanish Sparrow	LC	FALSE	Full Migrant	Yes	16600000	4657.53	0.03%					Yes	No
AVES	PELECANIDAE	Pelecanus crispus	Dalmatian Pelican	NT	FALSE	Full Migrant	Yes	12600000	4657.53	0.04%					Yes	No
AVES	PELECANIDAE	Pelecanus onocrotalus	Great White Pelican	LC	FALSE	Full Migrant	Yes	51200000	4657.53	0.01%					Yes	No
AVES	PHALACROCORACIDAE	Phalacrocorax carbo	Great Cormorant	LC	FALSE	Full Migrant	Yes	312000000	4657.53	0.00%					Yes	No
AVES	PHASIANIDAE	Coturnix coturnix	Common Quail	LC	FALSE	Full Migrant	Yes	64600000	4657.53	0.01%					Yes	No
AVES	PHOENICOPTERIDAE	Phoenicopterus roseus	Greater Flamingo	LC	FALSE	Full Migrant	Yes	61400000	4657.53	0.01%					Yes	No
AVES	PHYLLOSCOPIDAE	Phylloscopus nitidus	Green Warbler	LC	FALSE	Full Migrant	Yes	1440000	4657.53	0.32%					Yes	No
AVES	PHYLLOSCOPIDAE	Phylloscopus trochiloides	Greenish Warbler	LC	FALSE	Full Migrant	Yes	7170000	4657.53	0.06%					Yes	No
AVES	PHYLLOSCOPIDAE	Phylloscopus sindianus	Mountain Chiffchaff	LC	FALSE	Full Migrant	Yes	1680000	4657.53	0.28%					Yes	No
AVES	PHYLLOSCOPIDAE	Phylloscopus neglectus	Plain Leaf-warbler	LC	FALSE	Full Migrant	Yes	2450000	4657.53	0.19%					Yes	No
AVES	PODICIPEDIDAE	Podiceps nigricollis	Black-necked Grebe	LC	FALSE	Full Migrant	Yes	146000000	4657.53	0.00%					Yes	No
AVES	PODICIPEDIDAE	Podiceps cristatus	Great Crested Grebe	LC	FALSE	Full Migrant	Yes	183000000	4657.53	0.00%					Yes	No
AVES	PODICIPEDIDAE	Tachybaptus ruficollis	Little Grebe	LC	FALSE	Full Migrant	Yes	170000000	4657.53	0.00%					Yes	No
Aves	Podicipedidae	#N/A		VU	#N/A	#N/A	No	52900000	4657.53	0.01%	Yes	No				
AVES	PRUNELLIDAE	Prunella atrogularis	Black-throated Accentor	LC	FALSE	Full Migrant	Yes	5040000	4657.53	0.09%					Yes	No
AVES	PTEROCLIDAE	Pterocles orientalis	Black-bellied Sandgrouse	LC	FALSE	Full Migrant	Yes	9410000	4657.53	0.05%					Yes	No
AVES	PTEROCLIDAE	Pterocles senegallus	Spotted Sandgrouse	LC	FALSE	Full Migrant	Yes	20100000	4657.53	0.02%					Yes	No
AVES	RALLIDAE	Zapornia pusilla	Baillon's Crake	LC	FALSE	Full Migrant	Yes	74800000	4657.53	0.01%					Yes	No
AVES	RALLIDAE	Gallinula chloropus	Common Moorhen	LC	FALSE	Full Migrant	Yes	143000000	4657.53	0.00%					Yes	No
AVES	RALLIDAE	Fulica atra	Eurasian Coot	LC	FALSE	Full Migrant	Yes	152000000	4657.53	0.00%					Yes	No
AVES	RALLIDAE	Zapornia parva	Little Crake	LC	FALSE	Full Migrant	Yes	14500000	4657.53	0.03%					Yes	No
AVES	RALLIDAE	Porzana porzana	Spotted Crake	LC	FALSE	Full Migrant	Yes	28000000	4657.53	0.02%					Yes	No
AVES	RALLIDAE	Gallicrex cinerea	Watercock	LC	FALSE	Full Migrant	Yes	22600000	4657.53	0.02%					Yes	No
AVES	RALLIDAE	Rallus aquaticus	Western Water Rail	LC	FALSE	Full Migrant	Yes	32800000	4657.53	0.01%					Yes	No
AVES	RALLIDAE	Amaurornis phoenicurus	White-breasted Waterhen	LC	FALSE	Full Migrant	Yes	39300000	4657.53	0.01%					Yes	No
AVES	RECURVIROSTRIDAE	Himantopus himantopus	Black-winged Stilt	LC	FALSE	Full Migrant	Yes	335000000	4657.53	0.00%					Yes	No
AVES	RECURVIROSTRIDAE	Recurvirostra avosetta	Pied Avocet	LC	FALSE	Full Migrant	Yes	77200000	4657.53	0.01%					Yes	No
AVES	REMIZIDAE	Remiz coronatus	White-crowned Penduline-tit	LC	FALSE	Full Migrant	Yes	5730000	4657.53	0.08%					Yes	No
AVES	SCOLOPACIDAE	Limosa lapponica	Bar-tailed Godwit	NT	FALSE	Full Migrant	Yes	9050000	4657.53	0.05%					Yes	No
AVES	SCOLOPACIDAE	Limosa limosa	Black-tailed Godwit	NT	FALSE	Full Migrant	Yes	30300000	4657.53	0.02%					Yes	No
AVES	SCOLOPACIDAE	Calidris falcinellus	Broad-billed Sandpiper	VU	FALSE	Full Migrant	Yes	6100000	4657.53	0.08%	Yes	No			Yes	No

Class	Family	Scientific Name	Common Name	IUCN Category	Restricted Range	Movement Pattern	IBAT	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 2	Criterion 2 Triggered	Criterion 3	Criterion 3 Triggered
AVES	SCOLOPACIDAE	Tringa nebularia	Common Greenshank	LC	FALSE	Full Migrant	Yes	18700000	4657.53	0.02%					Yes	No
AVES	SCOLOPACIDAE	Tringa totanus	Common Redshank	LC	FALSE	Full Migrant	Yes	40700000	4657.53	0.01%					Yes	No
AVES	SCOLOPACIDAE	Actitis hypoleucos	Common Sandpiper	LC	FALSE	Full Migrant	Yes	47200000	4657.53	0.01%					Yes	No
AVES	SCOLOPACIDAE	Gallinago gallinago	Common Snipe	LC	FALSE	Full Migrant	Yes	21500000	4657.53	0.02%					Yes	No
AVES	SCOLOPACIDAE	Calidris ferruginea	Curlew Sandpiper	VU	FALSE	Full Migrant	Yes	3000000	4657.53	0.16%	Yes	No			Yes	No
AVES	SCOLOPACIDAE	Calidris alpina	Dunlin	NT	FALSE	Full Migrant	Yes	30000000	4657.53	0.02%					Yes	No
AVES	SCOLOPACIDAE	Numenius arquata	Eurasian Curlew	NT	FALSE	Full Migrant	Yes	20700000	4657.53	0.02%					Yes	No
AVES	SCOLOPACIDAE	Tringa ochropus	Green Sandpiper	LC	FALSE	Full Migrant	Yes	24600000	4657.53	0.02%					Yes	No
AVES	SCOLOPACIDAE	Lymnocryptes minimus	Jack Snipe	LC	FALSE	Full Migrant	Yes	10600000	4657.53	0.04%					Yes	No
AVES	SCOLOPACIDAE	Calidris minuta	Little Stint	LC	FALSE	Full Migrant	Yes	4750000	4657.53	0.10%					Yes	No
AVES	SCOLOPACIDAE	Arenaria interpres	Ruddy Turnstone	NT	FALSE	Full Migrant	Yes	17000000	4657.53	0.03%					Yes	No
AVES	SCOLOPACIDAE	Calidris pugnax	Ruff	LC	FALSE	Full Migrant	Yes	38500000	4657.53	0.01%					Yes	No
AVES	SCOLOPACIDAE	Calidris alba	Sanderling	LC	FALSE	Full Migrant	Yes	13600000	4657.53	0.03%					Yes	No
AVES	SCOLOPACIDAE	Tringa erythropus	Spotted Redshank	LC	FALSE	Full Migrant	Yes	7360000	4657.53	0.06%					Yes	No
AVES	SCOLOPACIDAE	Calidris temminckii	Temminck's Stint	LC	FALSE	Full Migrant	Yes	9780000	4657.53	0.05%					Yes	No
AVES	SCOLOPACIDAE	Xenus cinereus	Terek Sandpiper	LC	FALSE	Full Migrant	Yes	13300000	4657.53	0.04%					Yes	No
AVES	SCOLOPACIDAE	Numenius phaeopus	Whimbrel	LC	FALSE	Full Migrant	Yes	31100000	4657.53	0.01%					Yes	No
AVES	SCOLOPACIDAE	Tringa glareola	Wood Sandpiper	LC	FALSE	Full Migrant	Yes	23000000	4657.53	0.02%					Yes	No
AVES	SCOTOCERCIDAE	Cettia cetti	Cetti's Warbler	LC	FALSE	Full Migrant	Yes	18000000	4657.53	0.03%					Yes	No
AVES	SITTIDAE	Sitta tephronota	Eastern Rock Nuthatch	LC	FALSE	Altitudinal Migrant	Yes	4840000	4657.53	0.10%					Yes	No
AVES	SITTIDAE	Tichodroma muraria	Wallcreeper	LC	FALSE	Full Migrant	Yes	16400000	4657.53	0.03%					Yes	No
AVES	STRIGIDAE	Otus scops	Eurasian Scops-owl	LC	FALSE	Full Migrant	Yes	33400000	4657.53	0.01%					Yes	No
AVES	STRIGIDAE	Otus bakkamoena	Indian Scops-owl	LC	FALSE	Altitudinal Migrant	Yes	4200000	4657.53	0.11%					Yes	No
AVES	STRIGIDAE	Otus brucei	Pallid Scops-owl	LC	FALSE	Full Migrant	Yes	3560000	4657.53	0.13%					Yes	No
AVES	STRIGIDAE	Asio flammeus	Short-eared Owl	LC	FALSE	Full Migrant	Yes	246000000	4657.53	0.00%					Yes	No
AVES	STURNIDAE	Sturnia pagodarum	Brahminy Starling	LC	FALSE	Full Migrant	Yes	4150000	4657.53	0.11%					Yes	No
AVES	STURNIDAE	Sturnus vulgaris	Common Starling	LC	FALSE	Full Migrant	Yes	33200000	4657.53	0.01%					Yes	No
AVES	SYLVIIDAE	Curruca nana	Asian Desert Warbler	LC	FALSE	Full Migrant	Yes	7010000	4657.53	0.07%					Yes	No
AVES	SYLVIIDAE	Curruca communis	Common Whitethroat	LC	FALSE	Full Migrant	Yes	23000000	4657.53	0.02%					Yes	No
AVES	SYLVIIDAE	Curruca crassirostris	Eastern Orphean Warbler	LC	FALSE	Full Migrant	Yes	10700000	4657.53	0.04%					Yes	No
AVES	SYLVIIDAE	Curruca curruca	Lesser Whitethroat	LC	FALSE	Full Migrant	Yes	23800000	4657.53	0.02%					Yes	No
AVES	THRESKIORNITHIDAE	Platalea leucorodia	Eurasian Spoonbill	LC	FALSE	Full Migrant	Yes	60400000	4657.53	0.01%					Yes	No
AVES	THRESKIORNITHIDAE	Plegadis falcinellus	Glossy Ibis	LC	FALSE	Full Migrant	Yes	199000000	4657.53	0.00%					Yes	No
AVES	TURDIDAE	Turdus atrogularis	Black-throated Thrush	LC	FALSE	Full Migrant	Yes	9960000	4657.53	0.05%					Yes	No
AVES	UPUPIDAE	Upupa epops	Common Hoopoe	LC	FALSE	Full Migrant	Yes	78300000	4657.53	0.01%					Yes	No
INSECTA	LIBELLULIDAE	Pantala flavescens	Wandering Glider	LC	FALSE	Full Migrant	Yes	#N/A	4657.53	#N/A					Yes	#N/A
INSECTA	NYMPHALIDAE	Vanessa cardui	Painted Lady	LC	FALSE	Full Migrant	Yes	173850000	4657.53	0.00%					Yes	No
MAGNOLIOPSIDA	BIGNONIACEAE	Tecomella undulata	Desert Teak	EN	FALSE		Yes	2506818	4657.53	0.19%	Yes	No				
MAMMALIA	BOVIDAE	Capra aegagrus	Wild Goat	NT	FALSE	Altitudinal Migrant	Yes	3957793	4657.53	0.12%					Yes	No
MAMMALIA	RHINOPOMATIDAE	Rhinopoma microphyllum	Greater Mouse-tailed Bat	LC	FALSE	Full Migrant	Yes	23644730	4657.53	0.02%					Yes	No

Class	Family	Scientific Name	Common Name	IUCN Category	Restricted Range	Movement Pattern	IBAT	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 2	Criterion 2 Triggered	Criterion 3	Criterion 3 Triggered
REPTILIA	AGAMIDAE	Saara hardwickii	Indian Spiny-tailed Lizard	VU	FALSE		Yes	Unknown	4657.53	#VALUE!	Yes	#VALUE!				
REPTILIA	CROCODYLIDAE	Crocodylus palustris	Mugger	VU	FALSE		Yes	Unknown	4657.53	#VALUE!	Yes	#VALUE!				

2.2.4.3. Port Qasim

The Candidate Critical Habitat triggers according to Criteria 1 and Criterion 3 are presented in Table 2-5 below. Many migratory species of varying threat statuses (CR to LC) were detected. However, no species were detected that were likely to trigger critical habitat at the Port Qasim, especially with the focus of the EAA on the terrestrial realm only.

Table 2-5: Candidate Critical Habitat trigger species detected at the Port Qasim Site. Their IUCN category, geographical and population Information is included in the table below. EOO refers to the Extent of Occurrence. AOO refers to the Area of Occupancy.

Class	Scientific Name	IUCN Category	IUCN Category	National Status	Restricted Range	Movement Pattern	IBAT	GBIF	HBP	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 3	Criterion 3 Triggered
AVES	*Accipiter badius*	Shikra	LC		False/Unknown	Full Migrant	Yes	Yes	No	63300000	239.69	0.00%			Yes	No
AVES	*Acrocephalus agricola*	Paddyfield Warbler	LC		False/Unknown	Full Migrant	Yes	Yes	No	6530000	194.69	0.00%			Yes	No
AVES	*Actitis hypoleucos*	Common Sandpiper	LC		False/Unknown	Full Migrant	Yes	Yes	No	47200000	135.69	0.00%			Yes	No
	Aegypius monachus		NT			Full Migrant	Yes	Yes	Yes	22400000	246.69	0.00%			Yes	No
AVES	*Alaudala heinei*	Turkestan Short-toed Lark	LC		False/Unknown	Full Migrant	Yes	Yes	No	7528000	230.69	0.00%			Yes	No
AVES	*Alcedo atthis*	Common Kingfisher	LC		False/Unknown	Full Migrant	Yes	Yes	No	79900000	124.69	0.00%			Yes	No
AVES	*Amaurornis phoenicurus*	White-breasted Waterhen	LC		False/Unknown	Full Migrant	Yes	Yes	No	39300000	127.69	0.00%			Yes	No
AVES	*Anas acuta*	Northern Pintail	LC		False/Unknown	Full Migrant	Yes	Yes	No	41900000	122.69	0.00%			Yes	No
AVES	*Anas platyrhynchos*	Mallard	LC		False/Unknown	Full Migrant	Yes	Yes	No	65800000	173.69	0.00%			Yes	No
AVES	*Anas poecilorhyncha*	Indian Spot-billed Duck	LC		False/Unknown	Full Migrant	Yes	Yes	No	9980000	203.69	0.00%			Yes	No
ACTINOPTERYGII	*Anodontostoma chacunda*	Shortnose Gizzard Shad	LC		False/Unknown	Full Migrant	Yes	Yes	No	-	167.69	#VALUE!			Yes	-!
AVES	*Anser anser*	Greylag Goose	LC		False/Unknown	Full Migrant	Yes	Yes	No	31200000	170.69	0.00%			Yes	No
AVES	*Anthus campestris*	Tawny Pipit	LC		False/Unknown	Full Migrant	Yes	Yes	No	22100000	162.69	0.00%			Yes	No
AVES	*Anthus spinoletta*	Water Pipit	LC		False/Unknown	Full Migrant	Yes	Yes	No	17500000	163.69	0.00%			Yes	No
AVES	*Apus affinis*	Little Swift	LC		False/Unknown	Full Migrant	Yes	Yes	No	55800000	211.69	0.00%			Yes	No
AVES	*Apus apus*	Common Swift	LC		False/Unknown	Full Migrant	Yes	Yes	No	13300000	177.69	0.00%			Yes	No
	Aquila chrysaetos		LC			Full Migrant	Yes	No	Yes	139000000	109.69	0.00%			Yes	No
AVES	*Aquila clanga*	Greater Spotted Eagle	VU	N/A			No	Yes	Yes	15300000	90.69	0.00%	Yes	No		No
AVES	*Aquila heliaca*	Eastern Imperial Eagle	VU	N/A	FALSE	Full Migrant	Yes	Yes	Yes	14900000	90.69	0.00%	Yes	No	Yes	No
AVES	*Aquila nipalensis*	Steppe Eagle	EN	N/A	FALSE	Full Migrant	Yes	Yes	Yes	12600000	90.69	0.00%	Yes	No	Yes	No
AVES	*Aquila rapax*	Tawny Eagle	VU	N/A			Yes	Yes	Yes	52700000	90.69	0.00%	Yes	No		No
AVES	*Ardea alba*	Great White Egret	LC		False/Unknown	Full Migrant	Yes	Yes	No	366000000	155.69	0.00%			Yes	No
AVES	*Ardea intermedia*	Intermediate Egret	LC		False/Unknown	Full Migrant	Yes	Yes	No	30300000	164.69	0.00%			Yes	No
AVES	*Arenaria interpres*	Ruddy Turnstone	NT		False/Unknown	Full Migrant	Yes	Yes	No	17000000	253.69	0.00%			Yes	No
	Argyrosomus amoyensis	Amoy Croaker	EN	N/A			No	No	Yes	Unknown	90.69	#VALUE!	Yes	-!		-!
	Argyrosomus japonicus	Japanese Meagre	EN	N/A			Yes	No	Yes	-	90.69	#VALUE!	Yes	-!		-!
AVES	*Asio flammeus*	Short-eared Owl	LC		False/Unknown	Full Migrant	Yes	Yes	No	246000000	178.69	0.00%			Yes	No
AVES	*Aythya ferina*	Common Pochard	VU	N/A			Yes	Yes	Yes	548000	90.69	0.02%	Yes	No		No
	Aythya nyroca		NT			Full Migrant	Yes	No	Yes	25200000	251.69	0.00%			Yes	No
AVES	*Butorides striata*	Green-backed Heron	LC		False/Unknown	Full Migrant	Yes	Yes	No	287000000	165.69	0.00%			Yes	No
AVES	*Calidris acuminata*	Sharp-tailed Sandpiper	VU				No	No	Yes	820000	90.69	0.01%	Yes	No		No
AVES	*Calidris alba*	Sanderling	LC		False/Unknown	Full Migrant	Yes	Yes	No	13600000	136.69	0.00%			Yes	No
	Calidris canutus		NT			Full Migrant	Yes	No	Yes	17800000	249.69	0.00%			Yes	No
AVES	*Calidris falcinellus*	Broad-billed Sandpiper	VU		False/Unknown	Full Migrant	Yes	Yes	No	6100000	90.69	0.00%	Yes	No	Yes	No
	Calidris ferruginea		NT			Full Migrant	Yes	Yes	Yes	3000000	247.69	0.01%			Yes	No
AVES	*Calidris minuta*	Little Stint	LC		False/Unknown	Full Migrant	Yes	Yes	No	4750000	137.69	0.00%			Yes	No
AVES	*Calidris pugnax*	Ruff	LC		False/Unknown	Full Migrant	Yes	Yes	No	38500000	139.69	0.00%			Yes	No
AVES	*Calidris temminckii*	Temminck's Stint	LC		False/Unknown	Full Migrant	Yes	Yes	No	9780000	138.69	0.00%			Yes	No

Class	Scientific Name	IUCN Category	IUCN Category	National Status	Restricted Range	Movement Pattern	IBAT	GBIF	HBP	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 3	Criterion 3 Triggered
AVES	*Calidris tenuirostris*	Great Knot	EN	N/A			Yes	Yes	Yes	331000	90.69	0.03%	Yes	No		No
AVES	*Caprimulgus mahrattensis*	Sykes's Nightjar	LC		False/Unknown	Full Migrant	Yes	Yes	No	1550000	125.69	0.01%			Yes	No
AVES	*Carpodacus erythrinus*	Common Rosefinch	LC		False/Unknown	Full Migrant	Yes	Yes	No	10200000	197.69	0.00%			Yes	No
AVES	*Cecropis daurica*	Red-rumped Swallow	LC		False/Unknown	Full Migrant	Yes	Yes	No	75400000	205.69	0.00%			Yes	No
AVES	*Cercotrichas galactotes*	Rufous-tailed Scrub-robin	LC		False/Unknown	Full Migrant	Yes	Yes	No	13100000	190.69	0.00%			Yes	No
AVES	*Cettia cetti*	Cetti's Warbler	LC		False/Unknown	Full Migrant	Yes	Yes	No	18000000	193.69	0.00%			Yes	No
AVES	*Charadrius hiaticula*	Common Ringed Plover	LC		False/Unknown	Full Migrant	Yes	Yes	No	414000	141.69	0.03%			Yes	No
AVES	*Charadrius leschenaultii*	Greater Sandplover	LC		False/Unknown	Full Migrant	Yes	Yes	No	9590000	238.69	0.00%			Yes	No
AVES	*Charadrius mongolus*	Siberian Sand Plover	EN	N/A			No	No	Yes	3200000	90.69	0.00%	Yes	No		No
AVES	*Chlidonias hybrida*	Whiskered Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	130000000	149.69	0.00%			Yes	No
AVES	*Chlidonias leucopterus*	White-winged Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	27200000	150.69	0.00%			Yes	No
AVES	*Ciconia ciconia*	White Stork	LC		False/Unknown	Full Migrant	Yes	Yes	No	52700000	188.69	0.00%			Yes	No
AVES	*Ciconia nigra*	Black Stork	LC		False/Unknown	Full Migrant	Yes	Yes	No	25100000	187.69	0.00%			Yes	No
AVES	*Circus aeruginosus*	Western Marsh-harrier	LC		False/Unknown	Full Migrant	Yes	Yes	No	24800000	183.69	0.00%			Yes	No
AVES	*Circus cyaneus*	Hen Harrier	LC		False/Unknown	Full Migrant	Yes	Yes	No	34800000	199.69	0.00%			Yes	No
	Circus macrourus		NT			Full Migrant	Yes	Yes	Yes	10900000	248.69	0.00%			Yes	No
AVES	*Circus pygargus*	Montagu's Harrier	LC		False/Unknown	Full Migrant	Yes	Yes	No	18000000	184.69	0.00%			Yes	No
AVES	*Clamator jacobinus*	Jacobin Cuckoo	LC		False/Unknown	Full Migrant	Yes	Yes	No	21800000	209.69	0.00%			Yes	No
AVES	*Clanga clanga*	Greater Spotted Eagle	VU	#N/A	FALSE	Full Migrant	Yes	No	Yes	15300000	90.69	0.00%	Yes	No	Yes	No
AVES	*Columba eversmanni*	Yellow-eyed Pigeon	VU	#N/A	FALSE	Full Migrant	Yes	No	Yes	3080000	90.69	0.00%	Yes	No	Yes	No
REPTILIA	*Crocodylus palustris*	Mugger	VU		False/Unknown		Yes	Yes	No	Unknown	90.69	#VALUE!	Yes	-!		-!
AVES	*Cuculus canorus*	Common Cuckoo	LC		False/Unknown	Full Migrant	Yes	Yes	No	51500000	175.69	0.00%			Yes	No
AVES	*Curruca communis*	Common Whitethroat	LC		False/Unknown	Full Migrant	Yes	Yes	No	23000000	219.69	0.00%			Yes	No
AVES	*Curruca crassirostris*	Eastern Orphean Warbler	LC		False/Unknown	Full Migrant	Yes	Yes	No	10700000	225.69	0.00%			Yes	No
AVES	*Cursorius cursor*	Cream-coloured Courser	LC		False/Unknown	Full Migrant	Yes	Yes	No	22200000	226.69	0.00%			Yes	No
AVES	*Dromas ardeola*	Crab-plover	LC		False/Unknown	Full Migrant	Yes	Yes	No	3390000	142.69	0.00%			Yes	No
AVES	*Emberiza buchanani*	Grey-necked Bunting	LC		False/Unknown	Full Migrant	Yes	Yes	No	65200	223.69	0.34%			Yes	No
AVES	*Emberiza melanocephala*	Black-headed Bunting	LC		False/Unknown	Full Migrant	Yes	Yes	No	723000	224.69	0.03%			Yes	No
AVES	*Eudynamys scolopaceus*	Western Koel	LC		False/Unknown	Full Migrant	Yes	Yes	No	29800000	210.69	0.00%			Yes	No
	Falco columbarius		LC			Full Migrant	Yes	No	Yes	103000000	110.69	0.00%			Yes	No
AVES	*Falco peregrinus*	Peregrine Falcon	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	413000000	101.69	0.00%			Yes	No
AVES	*Falco subbuteo*	Eurasian Hobby	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	49300000	102.69	0.00%			Yes	No
AVES	*Fulica atra*	Eurasian Coot	LC		False/Unknown	Full Migrant	Yes	Yes	No	152000000	129.69	0.00%			Yes	No
AVES	*Gallinago gallinago*	Common Snipe	LC		False/Unknown	Full Migrant	Yes	Yes	No	21500000	179.69	0.00%			Yes	No
AVES	*Gallinago nemoricola*	Wood Snipe	VU				No	No	Yes	1270000	90.69	0.01%	Yes	No		No
AVES	*Gallinula chloropus*	Common Moorhen	LC		False/Unknown	Full Migrant	Yes	Yes	No	143000000	169.69	0.00%			Yes	No
AVES	*Gelochelidon nilotica*	Common Gull-billed Tern	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	163000000	99.69	0.00%			Yes	No
AVES	*Grus grus*	Common Crane	LC		False/Unknown	Full Migrant	Yes	Yes	No	25600000	126.69	0.00%			Yes	No
AVES	*Gyps bengalensis*	White-rumped Vulture	CR	N/A			Yes	Yes	Yes	7370000	90.69	0.00%	Yes	No		No
AVES	*Gyps fulvus*	Griffon Vulture	LC		False/Unknown	Full Migrant	Yes	Yes	No	20400000	214.69	0.00%			Yes	No
AVES	*Haematopus ostralegus*	Eurasian Oystercatcher	NT	N/A	FALSE	Full Migrant	Yes	Yes	Yes	36600000	241.69	0.00%			Yes	No

Class	Scientific Name	IUCN Category	IUCN Category	National Status	Restricted Range	Movement Pattern	IBAT	GBIF	HBP	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 3	Criterion 3 Triggered
AVES	*Halcyon pileata*	Black-capped Kingfisher	VU		False/Unknown	Full Migrant	Yes	Yes	No	5160000	90.69	0.00%	Yes	No	Yes	No
AVES	*Haliaeetus leucoryphus*	Pallas's Fishing Eagle	EN				Yes	Yes	Yes	1740000	90.69	0.01%	Yes	No		No
	Hieraaetus pennatus		LC			Full Migrant	Yes	Yes	Yes	62000000	104.69	0.00%			Yes	No
AVES	*Hippolais languida*	Upcher's Warbler	LC		False/Unknown	Full Migrant	Yes	Yes	No	3890000	218.69	0.01%			Yes	No
AVES	*Hirundo smithii*	Wire-tailed Swallow	LC		False/Unknown	Full Migrant	Yes	Yes	No	49700000	191.69	0.00%			Yes	No
AVES	*Hydrophasianus chirurgus*	Pheasant-tailed Jacana	LC		False/Unknown	Full Migrant	Yes	Yes	No	19700000	182.69	0.00%			Yes	No
AVES	*Hypocolius ampelinus*	Hypocolius	LC		False/Unknown	Full Migrant	Yes	Yes	No	1900000	217.69	0.01%			Yes	No
AVES	*Iduna rama*	Sykes's Warbler	LC		False/Unknown	Full Migrant	Yes	Yes	No	4620000	195.69	0.00%			Yes	No
AVES	*Ixobrychus cinnamomeus*	Cinnamon Bittern	LC		False/Unknown	Full Migrant	Yes	Yes	No	25400000	186.69	0.00%			Yes	No
AVES	*Ixobrychus flavicollis*	Black Bittern	LC		False/Unknown	Full Migrant	Yes	Yes	No	41100000	157.69	0.00%			Yes	No
AVES	*Ixobrychus sinensis*	Yellow Bittern	LC		False/Unknown	Full Migrant	Yes	Yes	No	36000000	185.69	0.00%			Yes	No
AVES	*Lanius excubitor*	Great Grey Shrike	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	52700000	103.69	0.00%			Yes	No
AVES	*Lanius phoenicuroides*	Red-tailed Shrike	LC		False/Unknown	Full Migrant	Yes	Yes	No	5670000	204.69	0.00%			Yes	No
AVES	*Lanius schach*	Long-tailed Shrike	LC		False/Unknown	Full Migrant	Yes	Yes	No	28800000	189.69	0.00%			Yes	No
AVES	*Larus cachinnans*	Caspian Gull	LC		False/Unknown	Full Migrant	Yes	Yes	No	5820000	166.69	0.00%			Yes	No
AVES	*Larus fuscus*	Lesser Black-backed Gull	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	19400000	100.69	0.00%			Yes	No
	Larus ichthyaetus		LC			Full Migrant	Yes	No	Yes	4450000	111.69	0.00%			Yes	No
	Larus michahellis		LC			Full Migrant	No	No	Yes	12200000	108.69	0.00%			Yes	No
	Limosa lapponica		NT			Full Migrant	Yes	Yes	Yes	9050000	252.69	0.00%			Yes	No
AVES	*Limosa limosa*	Black-tailed Godwit	NT	N/A	FALSE	Full Migrant	Yes	Yes	Yes	30300000	242.69	0.00%			Yes	No
AVES	*Luscinia svecica*	Bluethroat	LC		False/Unknown	Full Migrant	Yes	Yes	No	35500000	161.69	0.00%			Yes	No
AVES	*Lymnocryptes minimus*	Jack Snipe	LC		False/Unknown	Full Migrant	Yes	Yes	No	10600000	130.69	0.00%			Yes	No
MAMMALIA	*Manis crassicaudata*	Indian Pangolin	EN		False/Unknown	Not a Migrant	Yes	Yes	No	0	90.69	#DIV/0!	Yes	#DIV/0!	Yes	#DIV/0!
AVES	*Mareca penelope*	Eurasian Wigeon	LC		False/Unknown	Full Migrant	Yes	Yes	No	34900000	120.69	0.00%			Yes	No
AVES	*Mareca strepera*	Gadwall	LC		False/Unknown	Full Migrant	Yes	Yes	No	73100000	172.69	0.00%			Yes	No
AVES	*Melanocorypha bimaculata*	Bimaculated Lark	LC		False/Unknown	Full Migrant	Yes	Yes	No	5520000	220.69	0.00%			Yes	No
	Mellivora capensis	Honey Badger	LC	Critically Endangered			Yes	No	Yes	Unknown	90.69	#VALUE!		-!		-!
AVES	*Merops apiaster*	European Bee-eater	LC		False/Unknown	Full Migrant	Yes	Yes	No	13600000	174.69	0.00%			Yes	No
	Merops persicus		LC			Full Migrant	Yes	Yes	Yes	24700000	105.69	0.00%			Yes	No
AVES	*Milvus migrans*	Black Kite	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	115653659	97.69	0.00%			Yes	No
AVES	*Monticola saxatilis*	Rufous-tailed Rock-thrush	LC		False/Unknown	Full Migrant	Yes	Yes	No	14000000	240.69	0.00%			Yes	No
AVES	*Monticola solitarius*	Blue Rock-thrush	LC		False/Unknown	Full Migrant	Yes	Yes	No	66600000	215.69	0.00%			Yes	No
AVES	*Motacilla cinerea*	Grey Wagtail	LC		False/Unknown	Full Migrant	Yes	Yes	No	60700000	196.69	0.00%			Yes	No
AVES	*Neophron percnopterus*	Egyptian Vulture	EN	N/A	FALSE	Full Migrant	Yes	Yes	Yes	50100000	90.69	0.00%	Yes	No	Yes	No
AVES	*Numenius arquata*	Eurasian Curlew	NT	N/A	FALSE	Full Migrant	Yes	Yes	Yes	20700000	243.69	0.00%			Yes	No
AVES	*Numenius phaeopus*	Whimbrel	LC		False/Unknown	Full Migrant	Yes	Yes	No	31100000	131.69	0.00%			Yes	No
AVES	*Nycticorax nycticorax*	Black-crowned Night Heron	LC		False/Unknown	Full Migrant	Yes	Yes	No	290000000	156.69	0.00%			Yes	No
AVES	*Oenanthe chrysopygia*	Red-tailed Wheatear	LC		False/Unknown	Full Migrant	Yes	Yes	No	2520000	201.69	0.01%			Yes	No
AVES	*Oriolus kundoo*	Indian Golden Oriole	LC		False/Unknown	Full Migrant	Yes	Yes	No	3120000	227.69	0.01%			Yes	No
AVES	*Otus bakkamoena*	Indian Scops-owl	LC		False/Unknown	Altitudinal Migrant	Yes	Yes	No	4200000	91.69	0.00%			Yes	No
AVES	*Otus scops*	Eurasian Scops-owl	LC		False/Unknown	Full Migrant	Yes	Yes	No	33400000	229.69	0.00%			Yes	No

Class	Scientific Name	IUCN Category	IUCN Category	National Status	Restricted Range	Movement Pattern	IBAT	GBIF	HBP	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 3	Criterion 3 Triggered
AVES	*Pandion haliaetus*	Osprey	LC		False/Unknown	Full Migrant	Yes	Yes	No	298000000	151.69	0.00%			Yes	No
AVES	*Passer hispaniolensis*	Spanish Sparrow	LC		False/Unknown	Full Migrant	Yes	Yes	No	16600000	221.69	0.00%			Yes	No
AVES	*Pelecanus crispus*	Dalmatian Pelican	NT	N/A	FALSE	Full Migrant	Yes	Yes	Yes	12600000	244.69	0.00%			Yes	No
AVES	*Pelecanus onocrotalus*	Great White Pelican	LC		False/Unknown	Full Migrant	Yes	Yes	No	51200000	160.69	0.00%			Yes	No
AVES	*Pernis ptilorhynchus*	Oriental Honey-buzzard	LC		False/Unknown	Full Migrant	Yes	Yes	No	22700000	213.69	0.00%			Yes	No
AVES	*Petrochelidon fluvicola*	Streak-throated Swallow	LC		False/Unknown	Full Migrant	Yes	Yes	No	3180000	192.69	0.01%			Yes	No
AVES	*Phalacrocorax carbo*	Great Cormorant	LC		False/Unknown	Full Migrant	Yes	Yes	No	312000000	154.69	0.00%			Yes	No
	Phoenicopterus roseus		LC			Full Migrant	Yes	Yes	Yes	61400000	106.69	0.00%			Yes	No
AVES	*Phylloscopus sindianus*	Mountain Chiffchaff	LC		False/Unknown	Full Migrant	Yes	Yes	No	1680000	200.69	0.01%			Yes	No
AVES	*Platalea leucorodia*	Eurasian Spoonbill	LC		False/Unknown	Full Migrant	Yes	Yes	No	60400000	159.69	0.00%			Yes	No
AVES	*Plegadis falcinellus*	Glossy Ibis	LC		False/Unknown	Full Migrant	Yes	Yes	No	199000000	158.69	0.00%			Yes	No
AVES	*Pluvialis fulva*	Pacific Golden Plover	LC		False/Unknown	Full Migrant	Yes	Yes	No	705000	140.69	0.02%			Yes	No
AVES	*Pluvialis squatarola*	Grey Plover	VU		False/Unknown	Full Migrant	Yes	Yes	No	19000000	90.69	0.00%	Yes	No	Yes	No
AVES	*Podiceps nigricollis*	Black-necked Grebe	LC		False/Unknown	Full Migrant	Yes	Yes	No	146000000	153.69	0.00%			Yes	No
AVES	*Prinia inornata*	Plain Prinia	LC		False/Unknown	Altitudinal Migrant	Yes	Yes	No	19200000	90.69	0.00%			Yes	No
	Prionailurus viverrinus	Fishing Cat	VU	Near Threatened			Yes	No	Yes	Unknown	90.69	#VALUE!	Yes	-!		-!
AVES	*Prunella atrogularis*	Black-throated Accentor	LC		False/Unknown	Full Migrant	Yes	Yes	No	5040000	222.69	0.00%			Yes	No
AVES	*Rallus aquaticus*	Western Water Rail	LC		False/Unknown	Full Migrant	Yes	Yes	No	32800000	198.69	0.00%			Yes	No
MAMMALIA	*Rhinopoma microphyllum*	Greater Mouse-tailed Bat	LC		False/Unknown	Full Migrant	Yes	Yes	No	23644730	207.69	0.00%			Yes	No
AVES	*Riparia chinensis*	Asian Plain Martin	LC		False/Unknown	Full Migrant	Yes	Yes	No	10200000	206.69	0.00%			Yes	No
AVES	*Riparia diluta*	Pale Sand Martin	LC		False/Unknown	Full Migrant	Yes	Yes	No	4690000	202.69	0.00%			Yes	No
AVES	*Rynchops albicollis*	Indian Skimmer	EN				Yes	No	Yes	1400000	90.69	0.01%	Yes	No		No
	Saara hardwickii	Indian Spiny-tailed Lizard	VU	N/A			Yes	Yes	Yes	Unknown	90.69	#VALUE!	Yes	-!		-!
AVES	*Spatula clypeata*	Northern Shoveler	LC		False/Unknown	Full Migrant	Yes	Yes	No	39900000	121.69	0.00%			Yes	No
AVES	*Spatula querquedula*	Garganey	LC		False/Unknown	Full Migrant	Yes	Yes	No	32500000	123.69	0.00%			Yes	No
AVES	*Sterna acuticauda*	Black-bellied Tern	EN	N/A			Yes	Yes	Yes	4810000	90.69	0.00%	Yes	No		No
	Sterna albifrons		LC			Full Migrant	No	No	Yes	152000000	112.69	0.00%			Yes	No
AVES	*Sterna aurantia*	River Tern	VU	N/A			Yes	Yes	Yes	9330000	90.69	0.00%	Yes	No		No
	Sterna hirundo		LC			Full Migrant	Yes	Yes	Yes	84300000	107.69	0.00%			Yes	No
AVES	*Sterna repressa*	White-cheeked Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	8740000	148.69	0.00%			Yes	No
AVES	*Sternula albifrons*	Little Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	152000000	146.69	0.00%			Yes	No
AVES	*Sternula saundersi*	Saunders's Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	11700000	147.69	0.00%			Yes	No
AVES	*Streptopelia tranquebarica*	Red Collared-dove	LC		False/Unknown	Full Migrant	Yes	Yes	No	18300000	212.69	0.00%			Yes	No
AVES	*Sturnia pagodarum*	Brahminy Starling	LC		False/Unknown	Full Migrant	Yes	Yes	No	4150000	216.69	0.01%			Yes	No
AVES	*Tachybaptus ruficollis*	Little Grebe	LC		False/Unknown	Full Migrant	Yes	Yes	No	170000000	152.69	0.00%			Yes	No
AVES	*Tachymarptis melba*	Alpine Swift	LC		False/Unknown	Full Migrant	Yes	Yes	No	39200000	176.69	0.00%			Yes	No
AVES	*Tadorna ferruginea*	Ruddy Shelduck	LC		False/Unknown	Full Migrant	Yes	Yes	No	37900000	171.69	0.00%			Yes	No
AVES	*Tadorna tadorna*	Common Shelduck	LC		False/Unknown	Full Migrant	Yes	Yes	No	31600000	119.69	0.00%			Yes	No
MAGNOLIOPSIDA	*Tecomella undulata*	Desert Teak	EN		False/Unknown		Yes	Yes	No	2506818	90.69	0.00%	Yes	No		No
AVES	*Terpsiphone paradisi*	Indian Paradise-flycatcher	LC		False/Unknown	Full Migrant	Yes	Yes	No	4200000	228.69	0.01%			Yes	No
AVES	*Thalasseus bengalensis*	Lesser Crested Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	41500000	143.69	0.00%			Yes	No

Class	Scientific Name	IUCN Category	IUCN Category	National Status	Restricted Range	Movement Pattern	IBAT	GBIF	HBP	EOO (km2)	EAAA Surface Area (km2)	EOO Supported in EAAA (%)	Criterion 1	Criterion 1 Triggered	Criterion 3	Criterion 3 Triggered
AVES	*Thalasseus bergii*	Greater Crested Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	142000000	144.69	0.00%			Yes	No
AVES	*Thalasseus sandvicensis*	Sandwich Tern	LC		False/Unknown	Full Migrant	Yes	Yes	No	98800000	145.69	0.00%			Yes	No
	Threskiornis melanocephalus		NT			Full Migrant	Yes	No	Yes	11210000	250.69	0.00%			Yes	No
AVES	*Tringa erythropus*	Spotted Redshank	LC		False/Unknown	Full Migrant	Yes	Yes	No	7360000	132.69	0.00%			Yes	No
AVES	*Tringa glareola*	Wood Sandpiper	LC		False/Unknown	Full Migrant	Yes	Yes	No	23000000	181.69	0.00%			Yes	No
AVES	*Tringa nebularia*	Common Greenshank	LC		False/Unknown	Full Migrant	Yes	Yes	No	18700000	133.69	0.00%			Yes	No
AVES	*Tringa ochropus*	Green Sandpiper	LC		False/Unknown	Full Migrant	Yes	Yes	No	24600000	180.69	0.00%			Yes	No
AVES	*Upupa epops*	Common Hoopoe	LC	N/A	FALSE	Full Migrant	Yes	Yes	Yes	78300000	98.69	0.00%			Yes	No
AVES	*Vanellus gregarius*	Sociable Lapwing	CR	#N/A	FALSE	Full Migrant	Yes	Yes	Yes	1620000	90.69	0.01%	Yes	No	Yes	No
	Vanellus vanellus		NT			Full Migrant	Yes	Yes	Yes	31900000	245.69	0.00%			Yes	No
INSECTA	*Vanessa cardui*	Painted Lady	LC		False/Unknown	Full Migrant	Yes	Yes	No	173850000	208.69	0.00%			Yes	No
AVES	*Xenus cinereus*	Terek Sandpiper	LC		False/Unknown	Full Migrant	Yes	Yes	No	13300000	134.69	0.00%			Yes	No
AVES	*Zapornia pusilla*	Baillon's Crake	LC		False/Unknown	Full Migrant	Yes	Yes	No	74800000	128.69	0.00%			Yes	No

2.3. Consultation with Species Specialists

Numerous external experts from various local organisations and species specialist groups have been consulted throughout the compilation process for the updated CHA (

Table 2-6). These consultations have been undertaken where there is little information for candidate critical habitat trigger species and to understand what sensitive biodiversity may occur in the Project areas.

In addition to using EOO and AOO as proxies, expert consultations were undertaken to assess whether criteria thresholds were met. Experts were interviewed about the species distribution, habitat preferences, population trends and status, and the species' global and regional threat status.

Information from experts was used alongside land cover data (in certain circumstances), survey data and specialist expertise to delineate the EAAAs.

Table 2-6: Specialist Groups, their representatives and the meeting dates set for consultations regarding potential critical habitat trigger species

Organisation/ Specialist Group	Representative/Specialist Name	Meeting Date	Biodiversity Feature	Form of Communication	Brief Summary
Baluchistan Forest and Wildlife Department	Mr Abdul Wali (Secretary Forest and Wildlife); Mr Imran Khan (Government Employee)	*05-Oct-22*	Flora and Fauna	In person meeting in office of Secretary Forest and Wildlife	**Concerns:** The secretary Forest and Wildlife department informed that the Chagai District has limited biodiversity due to fewer rains and insisted for the support from RDMC to support the conservation under their Corporate Social Responsibility (CSR). **Recommendations**: Following recommendations were suggested: • Emphasized the value of intact habitats and the need for their conservation. • Advocate for CSR support to strengthen conservation facilities and share survey findings for better ecosystem management.
Baluchistan Forest Department	Abdul Jabbar (Chief Conservator Baluchistan Forest Department)	*04-Sep-23*	Flora	In person meeting in the Serena Hotel, Quetta	**Concerns:** • Concerns about land use changes impacting the ecosystem and the area's current state. • Potential disruption of the Houbara Bustard's migration routes and challenges to its genetic adaptation. • Adverse effects on reptiles and rodent populations from project activities. • Need for careful management of local community expectations by involving them in project processes. • Addressing negative perceptions of developmental companies through social mobilization, capacity building, and community-beneficial actions. **Recommendations:** Following recommendations were suggested: • Engagement of local community in project planning. • Preparation of Biodiversity Action Plan for wildlife protection and ecosystem balance • Monitoring program for Houbara Bustard to assess threats to this species. • Collaboration with NGOs, local communities for Houbara conservation plan. • Implementation of an environmental education strategy to promote conservation awareness. • Utilize CSR funds effectively through organized local institutions or community organizations. • Provide education, health, and skills training while ensuring access to drinking water for local communities. • Develop a watershed management plan, including check dam construction and plantation activities, to enhance water resources and ecological balance.
Forest & Wildlife (F&WL) Department	Mr Ali Imran (Chief Conservator Forest Department); Mr Fawad (Conservator Forest Department)	*26-Jun-24*	Flora	In person meeting in Serena Hotel, Quetta	Following discussion on Biodiversity Management and Collaborative Efforts were held: • Presented the department's role and scope in forestry, wildlife, and community development. • Discussed initiatives like plantations and revegetation of barren areas using indigenous plants. • Highlighted efforts and projects aimed at ecosystem and biodiversity upliftment in the Chagai district. • HBP provided an overview of the methodology for developing the Biodiversity Management Plan (BMP). • Emphasized the importance of surveys to gather additional data for designing biodiversity offsets in areas similar to the proposed mine site. • RDMC and the F&WL Department agreed to collaborate on biodiversity management and mitigating the project's environmental impacts.
IUCN Otter Specialist Group	Muhammad Moazzam Khan	*02-Dec-24*	*Otter*	*Email; Video Call*	**Key Findings:** • Smooth-coated Otter is the only species in the lower Indus, limited to freshwater habitats. • No Otter presence in Port Qasim or marine environments. • Minimal Otter interaction is expected due to the Project's reliance on existing rail routes and environmental disturbances in the Sukkur area. **Conclusion:** • No significant Otter presence or impact is associated with the Project.
IUCN Pangolin Specialist Group	Dr Tariq Mahmood; Dr Faraz Akrim; Dr Muhammad Waseem	*02-Dec-24*	Pangolin	*Email; Video Call*	**Conclusion**: Following were the main conclusions of the consultation with the Pangolin working group. • Pangolins are reported in some areas along the transport route, such as Lasbella, Sibi, and Jacobabad, but no evidence or records indicate their presence near the Reko Diq Mine Site based on existing literature and IUCN distribution data. • Multiple surveys conducted over the past 15 years confirm the absence of pangolins in the Project Area. • Local communities in the vicinity also did not report the presence of the species. • The working group requested further information on survey details, including methodologies, study area, and recorded species, to provide more comprehensive input. • A summary of mammal surveys was shared with the group to provide context about habitat conditions and ecology. • The working group was supposed to review the provided summary and offer additional recommendations for incorporation into the baseline study. • They have been asked to identify potential impacts along the transport corridor due to increased traffic. • The working group has not provided any additional input based on the information provided.
IUCN SSC Antelope Specialist Group	Dr. David Mallon; Dr. Phillipe Chardonnet	*03-Dec-24*	Goitered Gazelle	Video Call	**Conclusion:** The consultation with Dr. Mallon regarding the goitered gazelle yielded the following main conclusions: Multiple surveys conducted over the past 15 years confirm the absence of pangolins in the Project Area. • There is limited updated information on the status of the goitered gazelle in the Chagai District, but the population is believed to be small and not significant in terms of the global population; • The population in Pakistan forms part of a larger population in Iran and Afghanistan;

Organisation/ Specialist Group	Representative/Specialist Name	Meeting Date	Biodiversity Feature	Form of Communication	Brief Summary
					• Fencelines along the Afghanistan and Iranian border could negatively impact the population of Goitered gazelle in Pakistan; • Additional fencelines along the rail corridor should be avoided as this could pose a barrier to goitered gazelle movements; and • Although goitered gazelle are likely to utilize a variety of habitat throughout the Chagai District, the rugged mountainous habitat along the Iran – Pakistan border provides the best refuge for goitered gazelle as they are more difficult to observe and pursue in this region.
IUCN SSC Cat Specialist Group	Dr. Breitenmoser; Dr. Breitenmoser-Würsten	*10-Dec-24*	*Felis margarita* (Sand Cat)	Video Call	**Concerns** • There is scarce availability on data associated with the Sand Cat, its distribution, movements and ecological requirements and as such, there is a need to further investigate and confirm the resident presence of this species within the AoI. • Distinction between species such as *Felis sylvestris (*Asiatic Wild Cat*)* or the domesticated species is difficult and as such, future monitoring of populations is highly recommended and supported by targeting survey points and/or a thorough camera trap expedition. • The cryptic nature of the species and the fact that it has a highly fragmented distribution range suggests that it is unique within the Felid genus with wide-ranging habitat preferences and an adaptability to harsh and unfavourable environments. • Definitive evidence of camera trapping data is highly recommended and required in addition to genetic sampling to confirm the presence of this species within the AoI and the surrounding EAAA, but this will be undertaken outside of the current scope of works and as part of the future management plans.
Pakistan Museum of Natural History (PMNH)	Mr Muhammad Asif Khan; Dr Syed Aneel Gillani; Dr Mishkatullah; and Dr Rafaqat Masroor	*11-Dec-24*	Flora and Fauna	*Email; Video Call*	**Concerns:** • The Project area has very fragile ecosystem with species adapted to the extreme conditions. • Mangroves at Port Qasim are at high risk of to the Project activities • Baluchistan is important for mammals especially the rodents species, several fox species and sand cat. Asiatic Cheetah was only reported in the vicinity of the Project several years ago and current status is unknown • Several ungulates and the Asiatic Cheetah are the flagship species • The Project area is unexplored and no comprehensive studies conducted except those conducted for the Project • Road kill is expected to increase at Mine Site and along the Transport Route • Habitat modification and fragmentation are major threats for species survival while hunting is not as dangerous for the species survival • Nomadic community also rely on the scant resources in specific area who will be affected • In extreme dry conditions only few species of invertebrates survive like the beetles • There are only few rains which create an entire ecosystem, attracting the migratory birds in the dry lake beds. • Fencing along the Iran-Afghanistan borders has restricted the wildlife, however there are possibilities of the gene flow in few areas like nullahs • The amphibians have very uncertain presence at Reko Diq Mine Site given dry and hot conditions as they need water • Reptiles are diverse and abundant, well adapted and few are restricted range and endemic to the area • Reptiles are also most vulnerable group due to Project activities • Exotic rodent and non-native plant species can establish at the Project site due to increased traffic • The area has several medicinal plants as well Recommendations: Following recommendations were suggested; • Plantation in the potential sites with proper plan using the native species including the tree and shrubs since the shrubs are good binder to control the soil degradation. • Conservation measures are required for the species vulnerable to mining activities • BAP is compulsory to mitigate the negative impacts and conservation of unique biodiversity • Vehicle movement to be restricted to the designated routes • Both in-situ and ex-situ conservation measures are recommended for biodiversity conservation • New National Parks, Trans-Boundaries Reserves and Sanctuaries can be declared in the potential sites in consultation with Wildlife and Forest departments
Baluchistan Forest and Wildlife Department	Mr Sharifuddin Baloch (Chief Conservator Wildlife Baluchistan) Mr Ali Imran (Conservator Forest Baluchistan)	*11-Dec-24*	Flora and Fauna	*In person meeting in Serena Hotel, Quetta*	• The BFWD confirmed the notification of Saindak Community Game Reserve covering Tehsil Taftan. •The BFWD will share the details of Reserve Forests and Protected Forests in the area. • The BFWD mentioned the Kambran Wildlife Sanctuary and the Gut Wildlife Sanctuary, for which they will also provide the details including notifications. • HBP and RDMC provided a briefing on the key findings of ecological surveys, species of conservation concern identified, and rationale and approach for development of Biodiversity Action Pan (BAP) for the Project. • The BFWD recognized the importance of focusing the biodiversity conservation activities to distribution ranges of species of concern and their habitats. •The protected areas previously notified can be adjusted to reflect the habitat and species distribution assessment conducted by the Project as a part of the ESIA baselines. •Zoning of the protected area into core zone, conservation zone and buffer zones would be an appropriate strategy for conservation management. • The BFWD is open to discussions on formulation of protection strategies based on the data collected by the Project and will cooperate with the Project for the development of the BAP. The area of management for the BAP can also be defined accordingly. • Institutional arrangements for conservation will include representation from the Project and the local communities who will work with the BFWD for implementation of the BAP.

Organisation/ Specialist Group	Representative/Specialist Name	Meeting Date	Biodiversity Feature	Form of Communication	Brief Summary
WWF Pakistan - Avifauna Specialist	Jamshed Iqbal Chaudhry	*12-Dec-24*	Avifauna	*Email; Video Call*	Discussion with the WWF Pakistan expert focused on the avifauna specifically the Asian Houbara Bustard and Egyptian Vulture which are the conservation concern species. Key concerns and recommendations are given below. **Concerns:** • Chagai host the wintering population of Asian Houbara Bustard however, there are very old literature records for its resident population in the Nag Valley which is far away from the Project site. • Nag Valley is still a favorable site for the breeding of this species given there is not higher hunting and trapping pressure. Hunting and trapping can results in the disappearance of the species and change in its feeding and breeding sites. • Wildlife Department has no census data for the Asian Houbara Bustard in Baluchistan. • Asian Houbara Bustard migrates in varying number of group sizes, it can be few specimens to hundreds • Birds have large home range so they can relocate and move to larger areas • Climate change is not an issue so far for the breeding and change in resident sites for this species as there is only slight change in temperature and this species has been observed in the Cholistan Desert in extreme hot conditions. • Major threat to Asian Houbara Bustard and other bird species in the area include the vehicle pollution, collision risk, reduction in food availability, hunting and trapping. • Both Asian Houbara Bustard and Egyptian Vulture are equally vulnerable to the transmission line. Especially the Egyptian Vulture construct nest at high poles and becomes a victim of electrocution. • Additional threats to the Egyptian Vultures and other raptors include the poisoning and use of Diclofenac, NSAIDs, pesticides. • Egyptian Vulture has no nesting and only the carcass population is observed in the area. **Recommendations**: Following recommendations were suggested; • Short term and long-term mitigation measures are suggested for the conservation of the Asian Houbara Bustard, Egyptian Vulture and other avifauna species. • Detailed assessment in the Nag Valley, if possible, to confirm the presence of the resident population of Asian Houbara Bustard in this area • Captive breeding of Asian Houbara Bustard is attempted, however, it is not encouraged for the conservation of this species • In-site conservation efforts including the awareness session, noise reduction, watch and ward programs, control of illegal hunting, waste management, proper monitoring, community campaigns, community leaders' engagement and plantation in the potential sites can be adopted for the long-term survival of this species. • Wintering population can be focused and spray of different seeds of the native species can be done in the potential sites. Special recommendations and mitigation measures including the change in the design of the poles and other set-up is required to mitigate the transmission line effects.
BirdLife International	Prof. Nigel Collar; Dr. Mimi Kessler	-	Asian houbara bustard	Video Call	

2.4. Defining Spatial Boundaries

Using desktop information regarding the ecosystem context (e.g. landcover information and protected area data) and specialist assessments relating to Species of Conservation Concern, several EAAAs were defined and delineated as shown in Table 2-7.

2.4.1. Mine Site

Four EAAAs were identified for the Mine Site. Two EAAAs were identified using buffers around the Mine Site infrastructure based on the homogeneity of the ecosystems and habitat types in the greater area. An EAAA with a 20 km buffer makes provision for smaller mammals, non-migratory birds and reptiles that don't move large distances. A larger EAAA with a 50 km buffer distance makes provision for larger species with more extensive habitat requirements and migratory needs.

The other two EAAAs were specific to *Gazella subgutturosa* (Goitered Gazelle) and *Phrynocephalus euptilopus* (Alcock's Toad-headed Agama) given that these species are candidate critical habitat triggers. The Goitered Gazelle EAAA was informed by the estimated distribution within the region, as well as potential movements to the south, and includes the 50 km buffer as part of the other EAAA. The Alcock's Toad-headed Agama EAAA is equal to the species estimated distribution, including observation records and survey data. These EAAAs are discussed in separate Appendices.

These EAAAs are shown in: Figure 2-7, Figure 2-8, Figure 2-9 and Figure 2-10.

2.4.2. Transport Corridor

Three EAAAs were defined for the Transport Corridor, including a 1 km buffer equal to the AoI and the overall distribution for the Baloch Green Toad. These are shown in Figure 2-11.

2.4.3. Port Qasim

One EAAA was defined for the Port Qasim facilities, namely a 5 km buffer around the infrastructure that is restricted to land. This is shown in Figure 2-13.

Table 2-7: Ecological Areas of Analysis for the Reko Diq Mine Project, including the Mine site, Transport Route areas and the Port Qasim site.

EAAA	Brief Description	Taxons Included	Surface Area (km²)
Mine Site			
Project Area of Influence	**Proposed Project Layout with a 10 km buffer**	**-**	**3 289.84**
EAAA 20	An EAAA (20 km buffer) that makes provision for smaller mammals, non-migratory birds and reptiles that don't move large distances.	Non-migratory birds, mammals and reptiles, including sand cat, Afghan urial and marbled polecat.	6 930.65
EAAA 50	A larger EAAA (50 km buffer distance) that makes provision for larger species with more extensive habitat requirements and migratory needs.	Migratory Birds, incl. Asian houbara, eastern imperial eagle, steppe eagle, Egyptian vulture,	21 493.01
Goitered Gazelle EAAA	Informed by estimated distribution of the Goitered Gazelle within the region, as well as potential movements to the south (incl. 50 km buffer from AoI).	*Gazella subgutturosa* (Goitered Gazelle)	61 441.71
Alcock's Toad-headed Agama EAAA	An EAAA equal to the species estimated distribution, including observation records and survey data.	*Phrynocephalus euptilopus (*Alcock's Toad-headed Agama)	37 232.86
Transport Corridor/s (incl. Road and Rail Transport Routes)			
Project Area of Influence	**Proposed Project Layout with a 1 km buffer**	**-**	**4 669.43**
EAAA Transport Route	A 1 km EAAA that applies to terrestrial species (incl. birds). This EAAA is equal to the AoI.	Terrestrial organisms[5]	4 669.43
Baloch Green Toad EAAA	Informed by the known species distribution and GBIF record of the species. This EAAA considers a possible distribution of the species.	*Bufotes zugmayeri* (Baloch Green Toad EAAA)	40 840.10
Port Qasim			
Project Area of Influence	**Proposed Project Layout with a 1 km buffer**	**-**	**10.15**
EAAA Port Qasim	A 5 km EAAA that applies to terrestrial species.	Terrestrial organisms[6]	90.69
Marine EAAA	No EAAA deemed necessary for the marine ecosystem due to the existing management plans held in place.	Marine / Epipelagic organisms	-

[5] Considering the extent of the Transport Corridor/s, as well as the already established nature of the linear infrastructure, this AoI/EAAA was considered more for the purposes of screening for significance biodiversity values that may require additional attention and/or support in terms of biodiversity risk management. Should the proposed activities (including proposed upgrades and expansion activities) become more substantial in terms of altering a route or materially expanding the footprint, there may be need to re-evaluate the significance of potential biodiversity values.
[6] Considering the extensive transformation of the Port Qasim area through industrial development, urbanisations, and other anthropogenic activities, the purpose of the AoI was to assess for any significant biodiversity value that may warrant additional focus during the proposed management plans, which are already addressed under the liabilities of the PIBT management plans.

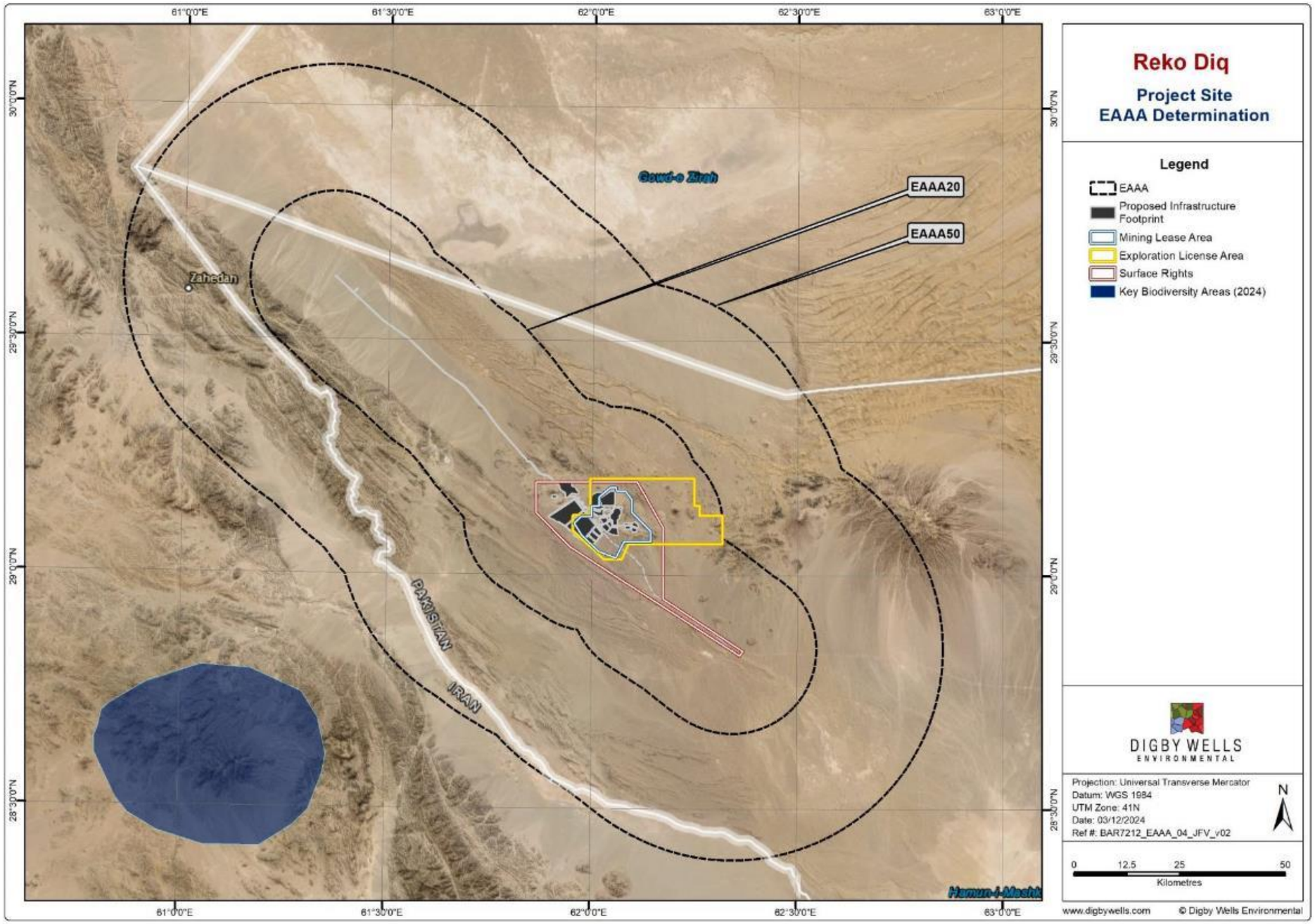

Figure 2-7: Buffered Ecologically Appropriate Areas of Analysis for the Mine Site

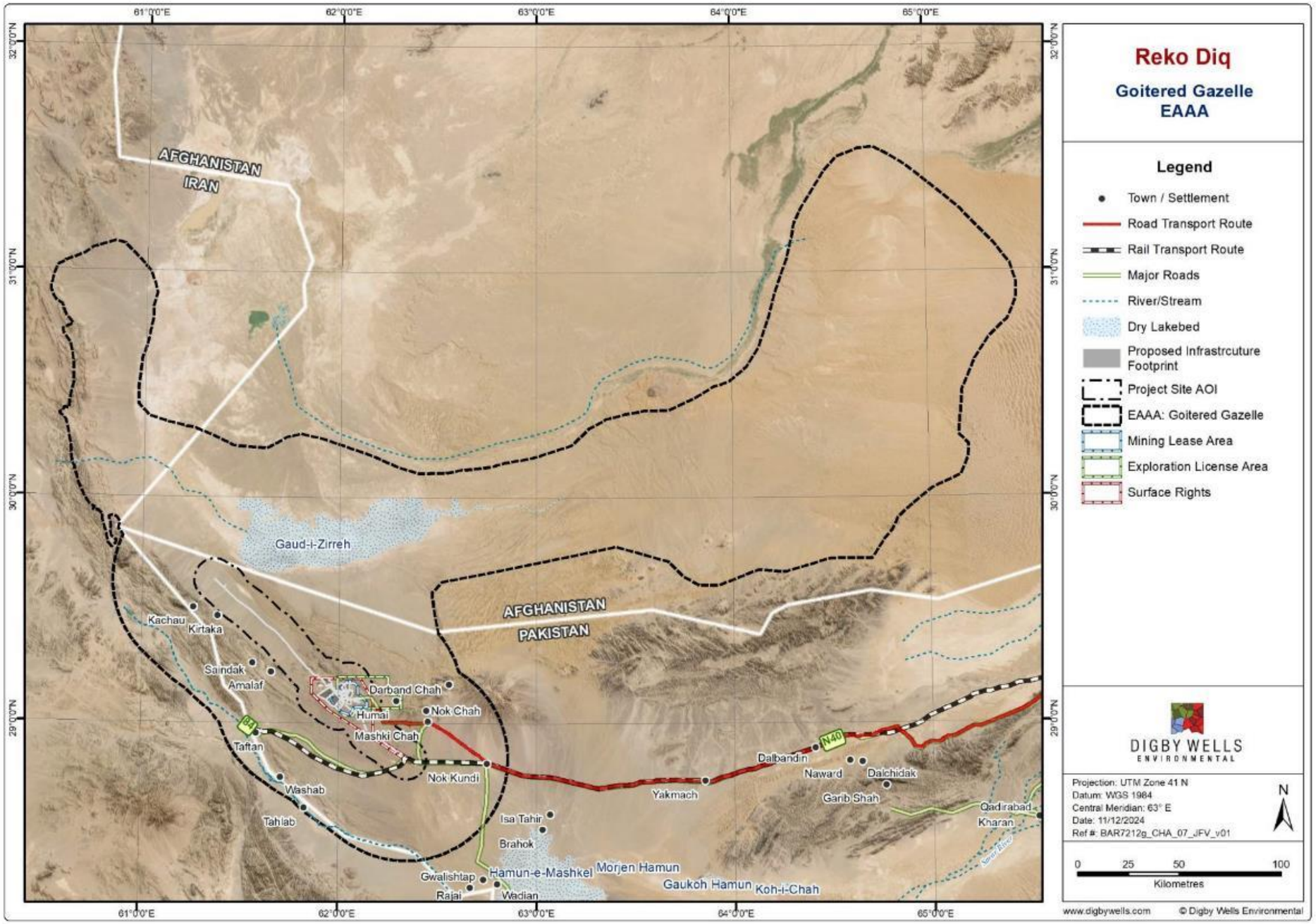

Figure 2-8: Ecologically Appropriate Area of Analysis for the Goitered Gazelle

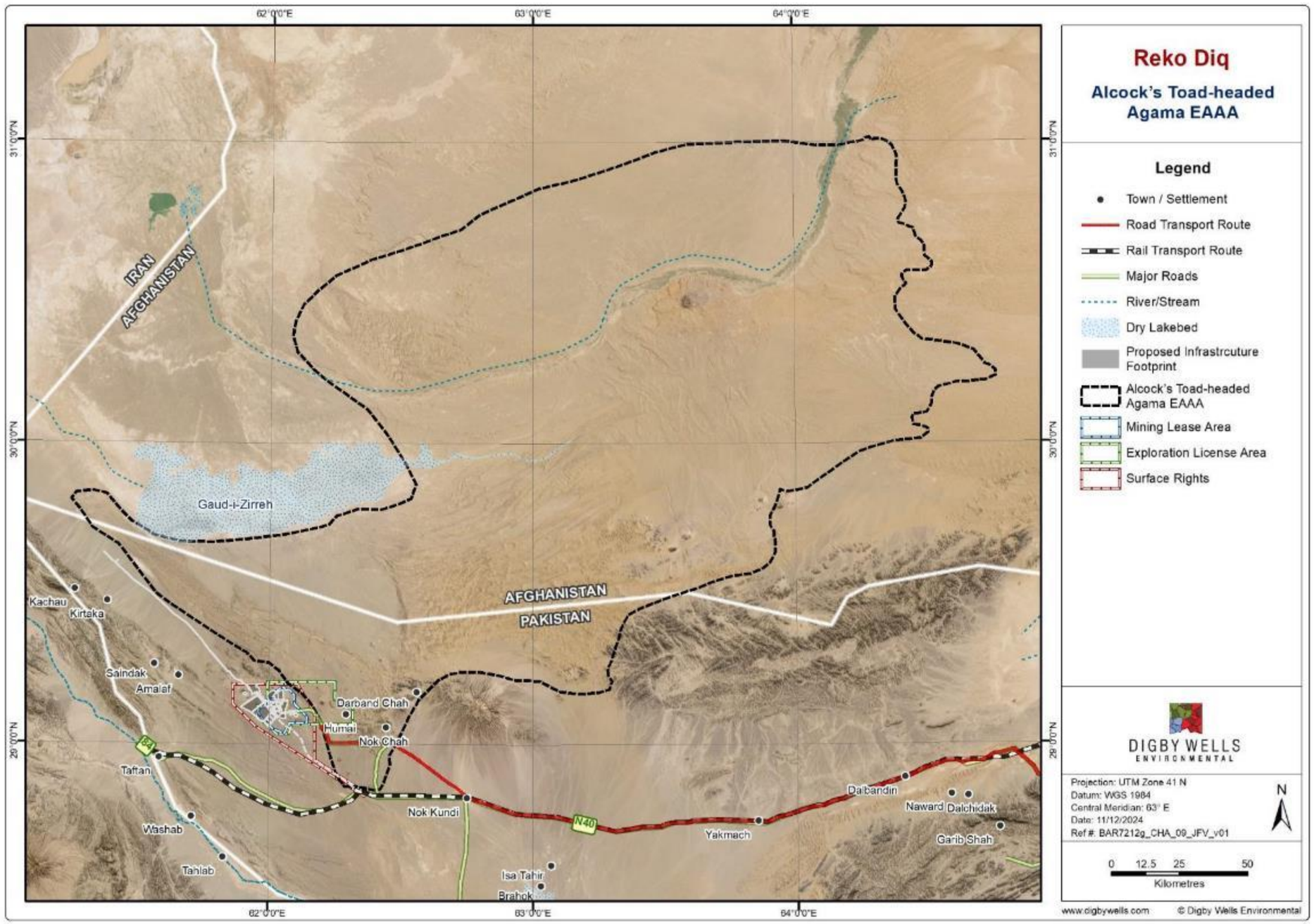

Figure 2-9: Ecologically Appropriate Area of Analysis for the Alcock's Toad-headed Agama

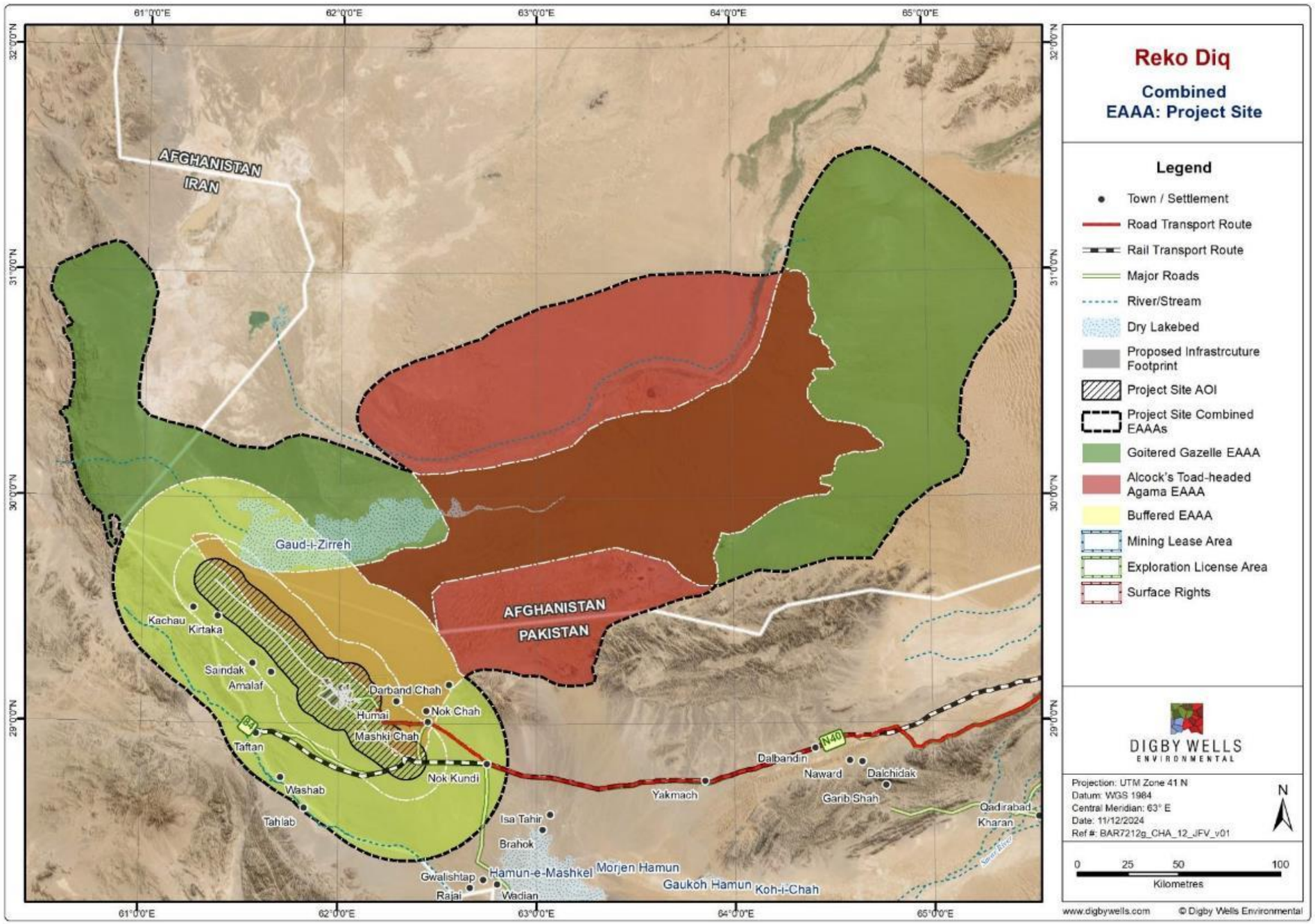

Figure 2-10: All Ecologically Appropriate Areas of Analysis for the mine site

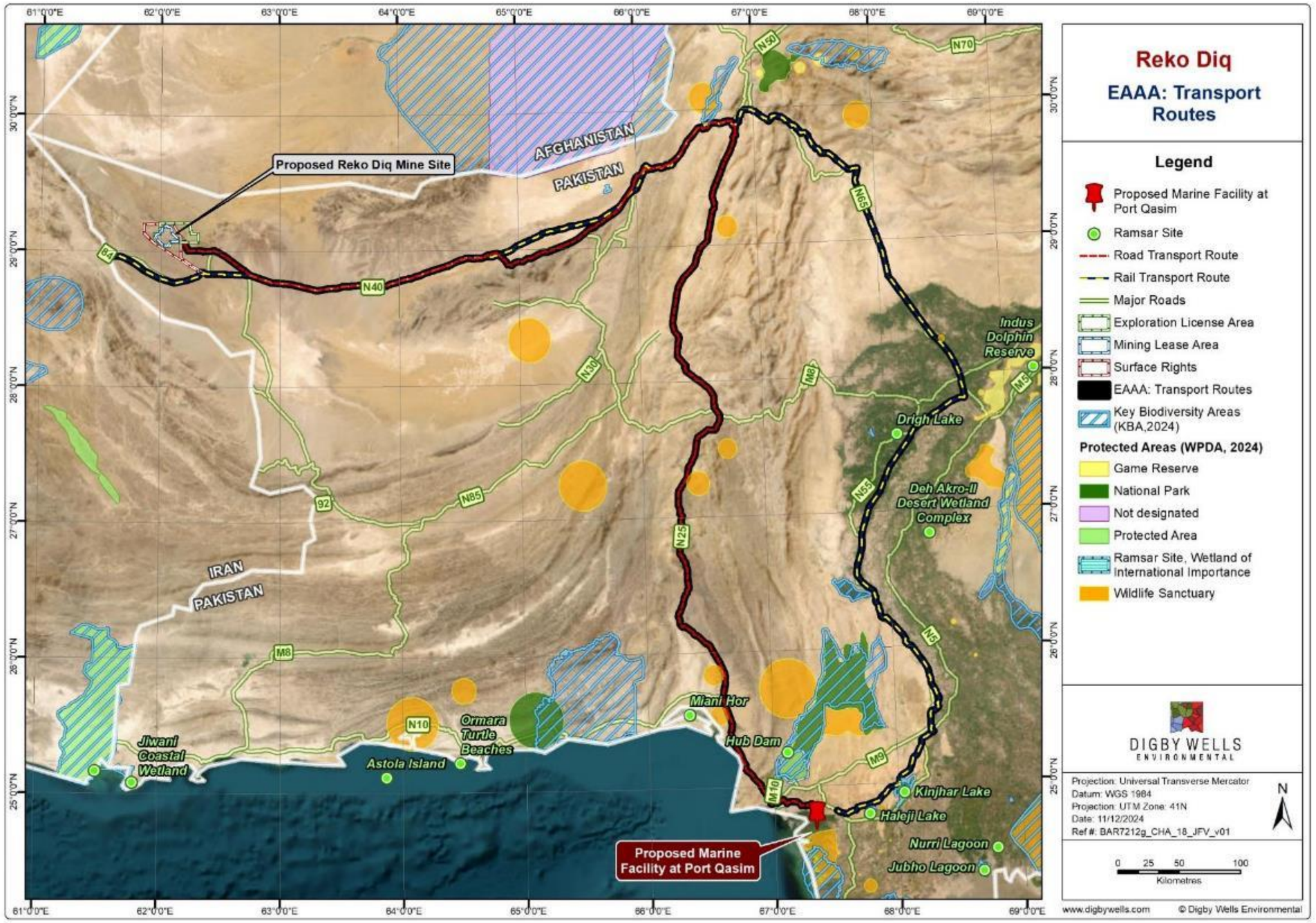

Figure 2-11: Ecologically Appropriate Areas of Analysis for the road and rail in the transport route. A buffer of 1 km was used around the infrastructure.

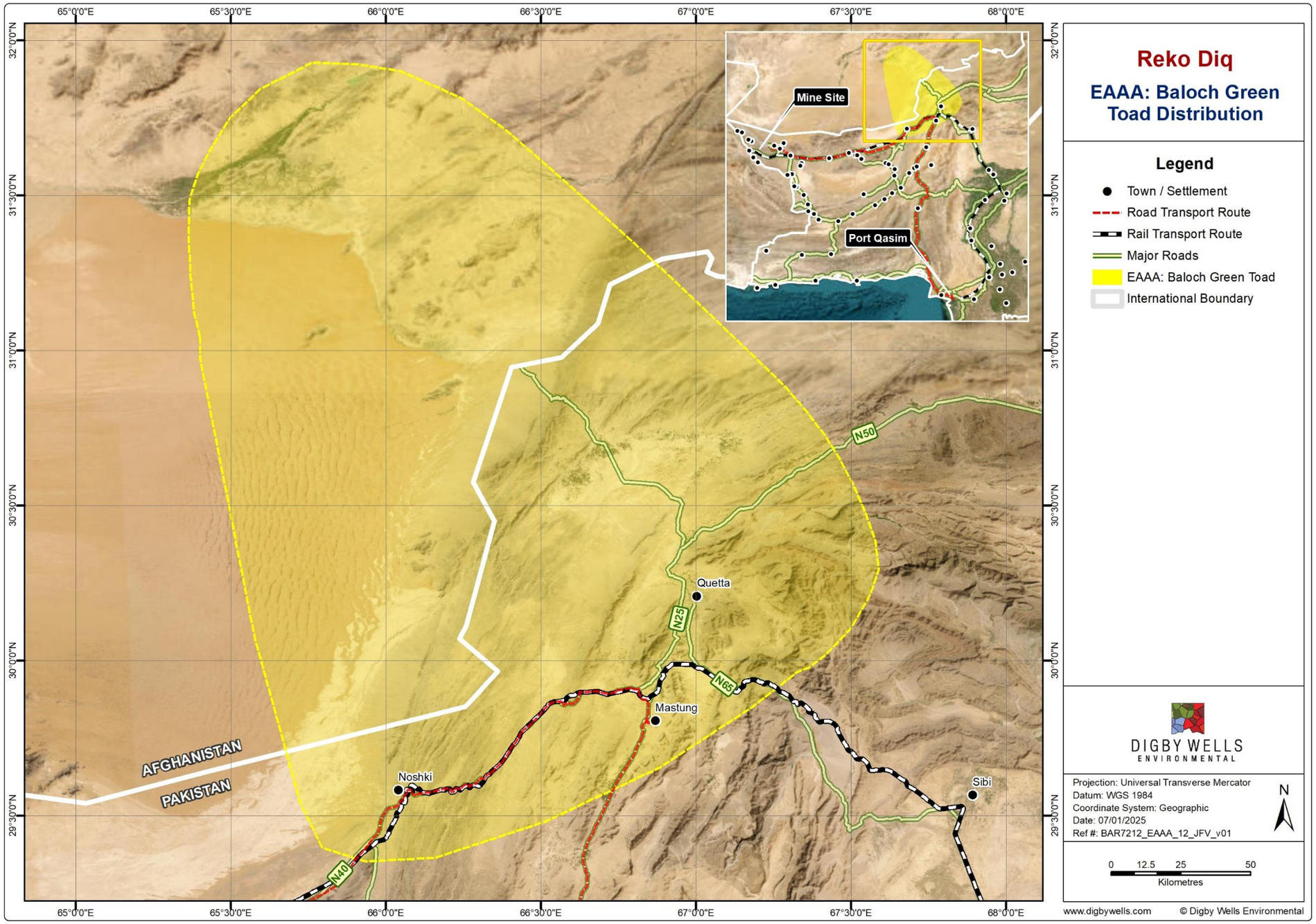

Figure 2-12: Ecologically Appropriate Areas of Analysis for the Baloch Green Toad for the road and rail in the transport route.

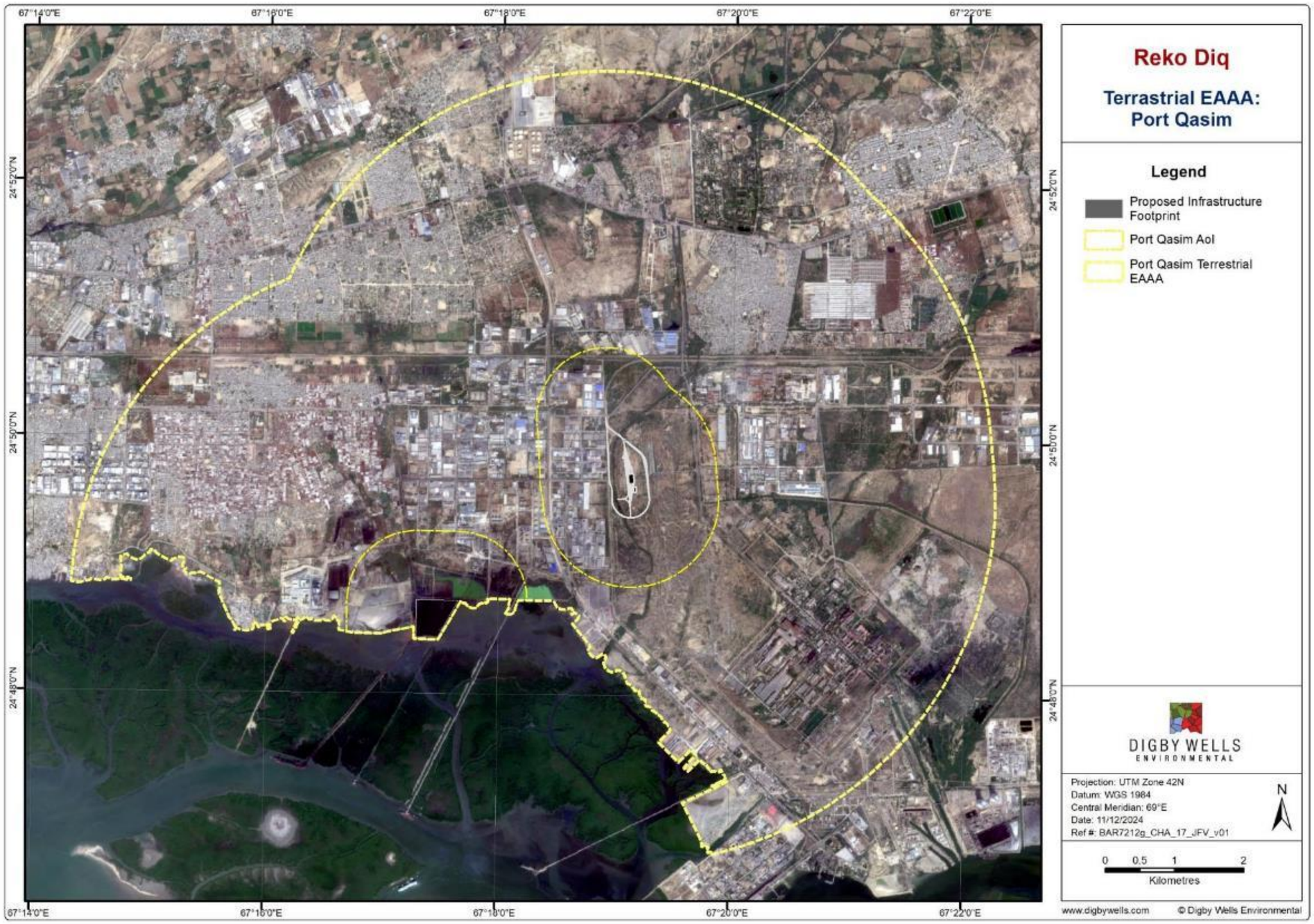

Figure 2-13: Ecologically Appropriate Area of Analysis for the Port Qasim site

3. Conclusion

These EAAAs were used in determining the presence of critical habitat, which is shown in the Critical Habitat Assessment.