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# Oyu Tolgoi ESIA: Supplementary Memorandum

## Oyu Tolgoi Site to Khanbogd Soum Centre Power Line

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# 1 OYU TOLGOI SITE TO KHANBOGD *Soum* CENTRE POWER LINE

## 1.1 INTRODUCTION

The dynamic nature of the Oyu Tolgoi Project is resulting in the need for additional assessments not anticipated by the Environmental and Social Impact Assessment (ESIA). The process for undertaking these is covered by Oyu Tolgoi's Management of Change Procedures. Such an assessment is required for a 35 kilovolt (kV) power line running from the Oyu Tolgoi mine site to Khanbogd *soum* centre, which is an important element of Oyu Tolgoi's commitment to provide public infrastructure to the local community and is documented in both the Investment Agreement and ESIA

As set out in *Section 1.2*, the Project has accelerated the construction of the power line to supply permanent electrical power to Khanbogd *soum* centre before the onset of winter in 2012 at the request of national and regional government authorities and the line will be energised when Oyu Tolgoi has secured power from Inner Mongolia and all Energy Authority requirements have been met for its operation. The intention is to provide power to Khanbogd *soum* centre as soon as possible, and before the onset of winter 2012, but the exact timing is subject to the finalisation of the power purchase agreement with the Inner Mongolian counterparty. Oyu Tolgoi will inform the public and local communities when the agreement has been finalized and power becomes available.

This supplementary memorandum to the Oyu Tolgoi ESIA outlines the circumstances relating to the construction of the power line. As set out in *Section 1.3*, the project has conducted some environmental and social assessments but some remain under way, and are constrained by the fact that they are largely confined to the short summer period. Due to the comprehensive work scope planned all necessary studies could not be completed in the compressed time frame available prior to construction.

In keeping with Oyu Tolgoi's commitment to minimise potential environmental and social impacts, the approach taken was to consolidate the 35kV power line into an existing infrastructure corridor between Oyu Tolgoi and the Gunii Hooloi bore field. In addition, mitigation measures identified for power lines were incorporated into the design specification. The contractor (Bodi International) is working in accordance with Oyu Tolgoi's environmental and social standards and requirements, and is subject to frequent inspections by the supervising Environmental officer.

This document also describes alternatives for the power line alignment and the selection of the preferred option, together with a summary of the current status of the power line construction. A scope of work for environmental and social studies to be undertaken to inform the assessment of the power line is provided together with the method of assessment and the proposed timing.

The assessment of the potential impacts and risks will be reported in a Supplemental Appraisal that will be disclosed in December 2012.

## 1.2 PROJECT RATIONALE

Khanbogd *soum* centre is one of the last Mongolian townships without permanent electrical power and its current power supply is both unreliable and incapable of providing the required capacity during the long, harsh winter months.

The Investment Agreement (IA) signed in October 2009 between the Government of Mongolia, Ivanhoe Mines and Rio Tinto includes a commitment for the project to provide certain public infrastructure to the local community. This commitment is based on a recognised project obligation to support both regional and local governments in implementing a joint and co-ordinated response to influx and associated impacts. In the ESIA (*Chapter D16 – Influx Management Plan*), Oyu Tolgoi further records its commitment to support *soum* and *aimag* authorities with town planning and in the identification and delivery of infrastructure and service improvements, and identifies the power line to Khanbogd *soum* centre as a priority item of infrastructure. *Soum* authorities have also been vocal and persistent in their request for support in providing a permanent electrical power supply to Khanbogd *soum* centre.

The provision of a long-term permanent power source into Khanbogd *soum* centre is a matter of considerable importance to the local community and has been a high profile issue throughout the consultation process. Oyu Tolgoi Chairman and Grand Khural Speaker Demberel made a commitment to commence the planning and design of a 35kV power line from the Oyu Tolgoi mine site into Khanbogd *soum* centre at a town hall meeting in March 2011.

The absence of a permanent electrical power supply in the Khanbogd *soum* centre serves as an additional hardship factor for the local community during the colder seasons. The existing power supply in Khanbogd *soum* centre is provided by two diesel-powered generators that are increasingly unreliable; Oyu Tolgoi has previously been called upon to deliver spare generator sets for emergency supply, particularly in winter when the existing generators break down or are unable to cope with increased demand for electricity. The winters in Mongolia are particularly long and harsh with average temperatures between November and February of around  $-8^{\circ}\text{C}$  with the minimum in the order of  $-40^{\circ}\text{C}$ . One of the two existing generators is currently out of service. There is a high likelihood of further breakdown or insufficient capacity during the coming winter months. In light of these particular circumstances facing the Khanbogd community, Oyu Tolgoi agreed to expedite the construction of the Oyu Tolgoi site to Khanbogd power line to provide a stable electricity supply to Khanbogd *soum* centre for the approaching 2012 winter. The power line therefore immediately addresses the concerns of the Khanbogd community regarding the current unreliable energy supply in the lead up to the impending Mongolian winter. Oyu Tolgoi is continuing negotiations on the power purchase agreement (PPA) which have been delayed. Power is required for pre-commissioning of the mine and, for this reason, Oyu Tolgoi is pursuing the finalisation of the agreement in order to prevent further delay. Once Oyu Tolgoi has secured power from Inner Mongolia and all Energy Authority requirements for the operation of the power line have been met, the line will be energised. It is anticipated that the power line will be energised before winter 2012, but the exact timing is subject to the finalisation of the power purchase agreement.

Allied to this, the power is also central to infrastructure and service improvements required for the development of a sustainable community in Khanbogd, given its likely role as a focal point for influx into the Project Area of Influence and it is also a prerequisite for the development of the worker housing and the supplier industrial zone within Khanbogd *soum*, for which pre-feasibility planning has recently commenced.

The argument for providing a permanent long-term electricity supply to Khanbogd *soum* centre goes beyond the long unmet demand of the community. The intermittent power supply (currently no more than 10 hours a day) is constraining local development. The lack of reliable power is a key issue to local business development and operations and the social costs of intermittent electricity supply is high especially in winter when lighting and heating is required in schools, dormitories and homes and for safe and secure equipment operation. The hospital has recently been upgraded from a *soum* to an inter-*soum* hospital but operation at even the most basic level is problematic due to insufficient refrigeration capacity.

### 1.3 OPTIONS FOR POWER LINE ROUTE

The planning process identified three options for the alignment of the power line, including a “No Project” scenario under which the power line would not be constructed.

**Option 1:** A stand-alone power line within a dedicated, new infrastructure corridor between the Oyu Tolgoi site and Khanbogd *soum* centre. This alignment avoided some exploration drilling areas immediately west of the Khanbogd massif and also met the Government of Mongolia’s preference for a more or less direct line from the Oyu Tolgoi site to Khanbogd *soum* centre. Although this alignment effectively created a new infrastructure corridor, it closely tracked the Oyu Tolgoi to Gunii Hooloi borefield power line route in some sections.

**Option 2** – Oyu Tolgoi’s specialist biodiversity consultants suggested an option of consolidating the existing infrastructure corridor by following the Oyu Tolgoi site to Gunii Hooloi borefield power line and then branching to Khanbogd *soum* centre. Three possible alignments were investigated:

- **Alternative 1** - taking power from the existing Oyu Tolgoi to Gunii Hooloi borefield power line and running a short spur to Khanbogd *soum* centre, following the Oyu Tolgoi to Khanbogd *soum* centre road;
- **Alternative 2** - following the existing Oyu Tolgoi site to Gunii Hooloi borefield power line for as long as possible before breaking off to Khanbogd;
- **Alternative 3** - following the Oyu Tolgoi site to Gunii Hooloi borefield power line until it crosses the Oyu Tolgoi to Khanbogd *soum* centre road and then following the road alignment all the way to Khanbogd *soum* centre.

**Option 3:** The No Project option assumes continuation of the existing operational arrangement of the power load in Khanbogd *soum* centre being provided by two diesel generators belonging to the Energy Authority.

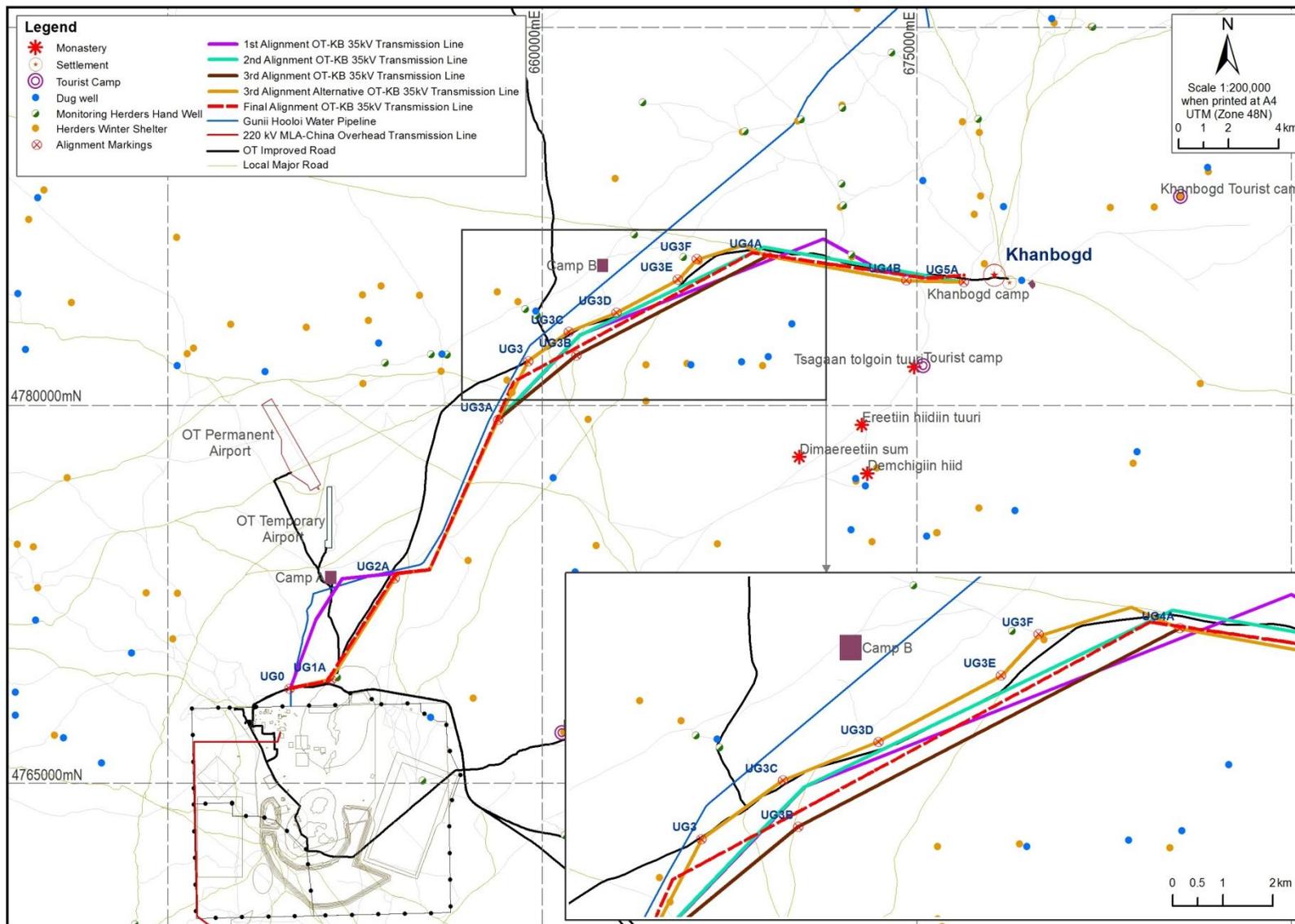
Given the feedback from the biodiversity specialists, Option 1 was dropped as a feasible option. Option 2 (Alternative 1) was not developed further due to the lack of capacity in the borefield power line to run a spur to Khanbogd *soum* centre. Option 2 (Alternative 2) was also not developed further due to the preference to maintain a consolidated infrastructure corridor and reduce the potential for disruption to herding activities, loss of well or access to wells, and the division of pastureland.

Option 2 (Alternative 3) was identified as the preferred option but required consideration of the following:

- Routing parallel to the existing borefield power line minimised any increase in collision risk but potentially had greater direct and indirect loss of habitat beneath and adjacent to the power lines
- Routing along the road would possibly introduce a second collision risk but possibly minimised direct and indirect habitat loss below and adjacent to the power lines.

This option has the advantage of consolidating the new power line with the borefield power line and the Oyu Tolgoi site to Khanbogd *soum* centre road infrastructure corridor. Further discussion with Oyu Tolgoi's environmental specialists resulted in the alignment evolving to closely track the road from Oyu Tolgoi until the intersection with the Gunii Hooloi pipeline, following the pipeline until it intersects the road again and then turning east, away from the pipeline, mostly to follow the road alignment until reaching the termination point about 1.5 km from Khanbogd *soum* centre. Various alignments for Alternative 3 were considered based on discussions between Oyu Tolgoi environmental personnel; none departing substantially from existing infrastructure corridors (pipeline and Oyu Tolgoi to Khanbogd road). See *Figure 1*.

**Figure 1. Preferred Alignment Refinement for the Khanbogd Power Line**



## 1.4 ENVIRONMENTAL AND SOCIAL CONSIDERATIONS

The Oyu Tolgoi site to Khanbogd *soum* centre power line corridor is within the defined Area of Influence for the Oyu Tolgoi Project; namely the area within which both direct and indirect impacts are expected to occur.<sup>1</sup> A critical habitat assessment was conducted as part of the baseline studies for the Mine ESIA in order to determine the extent of, and qualifying criteria for, critical habitat relevant to the Oyu Tolgoi Project.<sup>2</sup> Two units of analysis for the Oyu Tolgoi Project were assessed:

- A larger (51,415km<sup>2</sup>) unit of analysis comprising Khanbogd, Manlai and Bayan-Ovoo *soums*, and Sectors A and B of Small Gobi Strictly Protected Area (identified as ecologically appropriate for wide-ranging/large mammals);
- A smaller (27,375km<sup>2</sup>) unit of analysis comprising Khanbogd and Manlai *soums* (identified as ecologically appropriate for all other species, species assemblages, evolutionary processes and ecosystem services owing to potential impacts from the mine and associated infrastructure, notably potential hydrological impacts across both *soums*).

Based on the criteria set out in International Finance Corporation (IFC) Performance Standard 6 Paragraph 9, the Oyu Tolgoi Project Guidance Note on Critical Habitat and European Bank for Reconstruction and Development (EBRD) PR6 Paragraph 13, the entirety of both units of analysis qualify as critical habitat:

- The majority of the larger unit of analysis is Tier 1 critical habitat for Asiatic Wild Ass;
- The whole of the larger unit of analysis is Tier 2 critical habitat for Argali and Goitered Gazelle. The whole of the smaller unit of analysis is Tier 2 critical habitat for Mongolian Chesney, Short-toed Snake-eagle, granite outcrop floral communities, and four ecosystem services, namely water regulation, livestock (including pasture), biomass fuel and freshwater.

A July 2006 survey along the existing Oyu Tolgoi to Khanbogd *soum* centre road identified two cultural heritage sites:

- A Balbal<sup>3</sup> that is considered an 'important' site by Mongolian International Heritage Team (MIHT) as it is representative of the Turkic state in Mongolia. The site was photographed, documented and further investigated in March 2011,<sup>4</sup>
- A tomb that is considered to be a 'common' feature, i.e. without any outstanding characteristics, however MIHT recognises that burial sites generally have special meaning in any culture as a traditional link to ancestry and encroachment on the site should be avoided.

No other sites of cultural heritage are reported in the Oyu Tolgoi Project ESIA and it is unlikely that any such sites would be adversely affected by the construction of the Oyu Tolgoi site to Khanbogd *soum* centre power line.

In August 2011, Oyu Tolgoi held a meeting with the *soum* government on the preliminary alignment. A site visit was undertaken and the agreement of the *soum* governor and *soum* land inspector to the proposed alignment was obtained. The *soum* governor's directive on the alignment was subsequently provided to Oyu Tolgoi. Oyu Tolgoi undertook specific consultation with two herders whose winter shelters were indirectly affected by the proposed alignment of the power line and both herders agreed to the proximity of the power line to the shelters before the alignment was finalised (at no point does the power line pass closer than 63m to the nearest winter shelter). In October 2011, confirmation was

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<sup>1</sup> Oyu Tolgoi Project ESIA. Section A, Chapter A1 Introduction. 2012.

<sup>2</sup> TBC & FFI (2011) Oyu Tolgoi Project Critical Habitat Assessment: IFC Performance Standard 6/EBRD Performance Requirement 6. Unpublished draft report of The Biodiversity Consultancy and Fauna & Flora International, December 2011.

<sup>3</sup> The term "Balbal" generally includes anthropomorphic stone stelae or images cut from stone that are associated with memorial complexes.

<sup>4</sup> Oyu Tolgoi Project ESIA. Section B Chapter B12 Cultural Heritage. 2012.

received from the Environment Protection Agency (EPA) that a Detailed Environmental Impact Assessment was not required for the power line and preparatory works which began in March 2012.

Once the final route was selected (shown in *Figure 2*) the pre-disturbance inspection was undertaken. The purpose of the inspection was to identify the presence of rare plant species, advise on topsoil preservation, watercourse protection, and avoidance of environmentally sensitive areas disturbance. Oyu Tolgoi issued a Land Disturbance Permit (LDP) on 31 May 2012 for the final selected alignment.

## **1.5 CURRENT STATUS OF POWER LINE CONSTRUCTION**

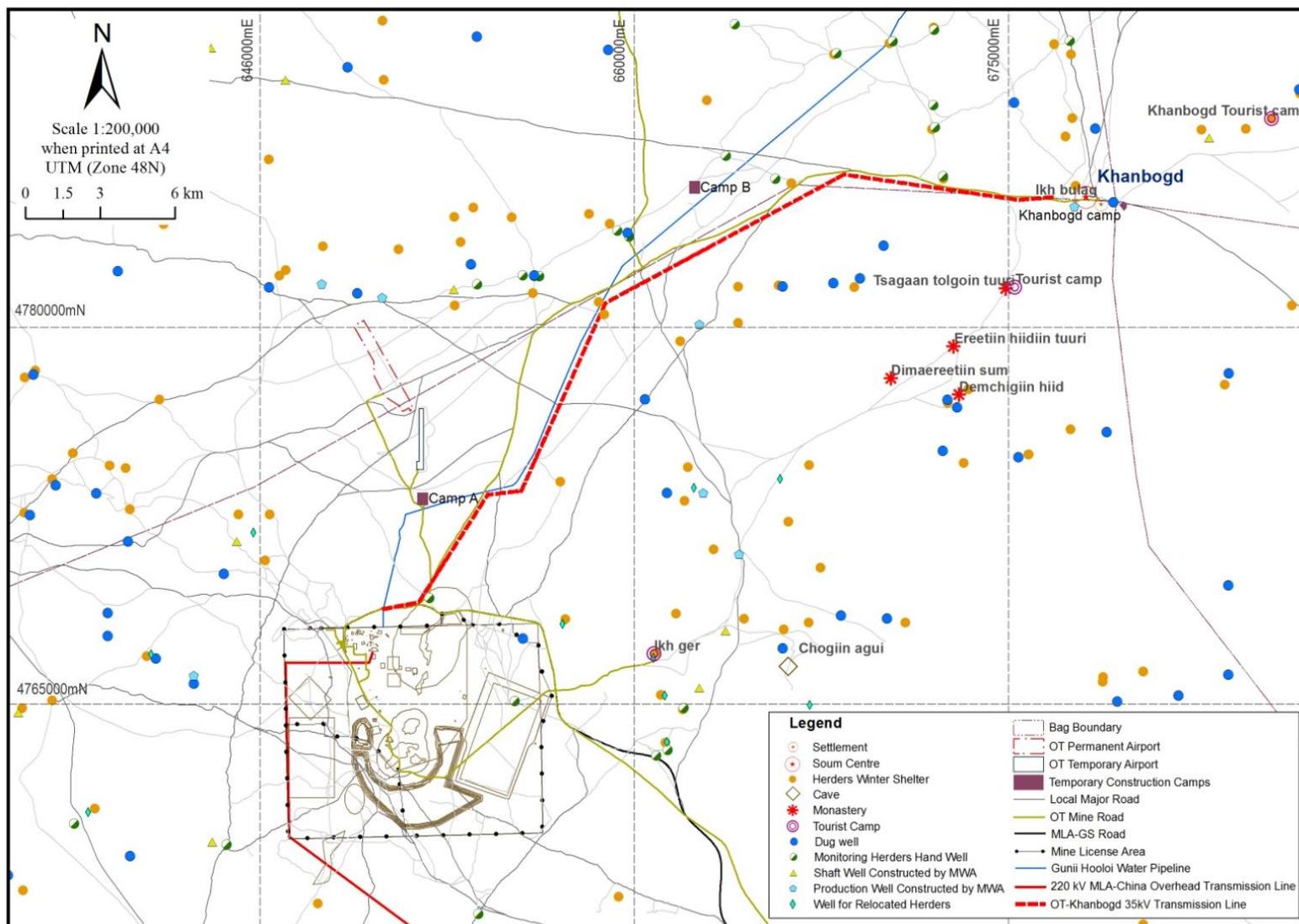
The construction of the Oyu Tolgoi site to Khanbogd *soum* centre power line is scheduled for completion in August 2012. Oyu Tolgoi appointed a contractor to construct the power line with the Oyu Tolgoi Project Contractors' Base Health, Safety and Environment (HSE) Requirements Manual provided as the framework for environmental management during the construction process. One permit non-conformance issue has been identified to date regarding off-road driving and creation of multiple tracks to the power poles; this is being addressed directly with the contractor. The issues raised in the pre-disturbance inspection have been relayed to the contractor through the LDP and will be physically checked during the routine subject matter expert inspections periodically undertaken by Environmental Department personnel. Once the power line is completed, site rehabilitation will commence, currently proposed for the first two weeks of September 2012.

As designed, the power line terminates approximately 1.5km outside Khanbogd *soum* centre. The last section of the power line was to have been constructed by the Energy Authority; however, it will now be constructed by an Oyu Tolgoi appointed contractor as a modification of the contract for the 35kV power line. The final section is a 10kV line from the new 35/10kV sub-station to connect to a transformer station that is interlinked with the other four transformers in Khanbogd *soum* centre; construction of this section will be completed by end September 2012.

The route of the final section has been slightly changed as the original route passed diagonally through building lots and conflicted with proposed development as shown on the official Khanbogd master plan. The new route runs beside roads that are currently being upgraded as part of an Asian Development Bank (ADB) project.

The Energy Authority inspection contract has now been signed and the next step is to confirm the legal ownership and operating arrangements of the power line.

Figure 2. Final Alignment for the Khanbogd Soum Centre Power Line



## 1.6 SCOPE OF ENVIRONMENTAL AND SOCIAL STUDIES

The assessment of the power line will be based on the existing baseline data contained within the Mine ESIA, supplemented where considered necessary due to limited data or previously unanticipated potential impacts. The spatial scope for studies will be related to the potential area of influence for each aspect considered.

The following further environmental and social studies are planned to inform the assessment of the potential risks and impacts associated with the construction of the power line:

- **Biodiversity and Ecosystem Services** – specifically the direct and indirect loss of habitat beneath and adjacent to the power lines; the collision risk to birds; risk of electrocution to birds alighting on the power line; encroachment into undisturbed areas and areas identified as Tier 1 and Tier 2 critical habitat; soils and geology of the area; the loss of access to, or degradation of, services provided by the natural environment, particularly to herders in the area. Recent fieldwork by the Rapid Biodiversity Assessment (RBA) team which advises Oyu Tolgoi on biodiversity matters has concluded that the impacts of the power line on bustard habitat and very rare plants are believed likely to be minimal;<sup>5</sup>
- **Labour and Working Conditions** – compliance with Oyu Tolgoi working conditions and HSE requirements by contractors, worker accommodation standards and adherence to relevant permit conditions;
- **Cultural Heritage** – potential disturbance to cultural heritage sites in proximity to the alignment;
- **Pollution Prevention** – the management of waste and any spillages generated by the contractor during construction; the creation of potential visual impacts, air quality and dust control, and greenhouse gas emissions estimates and reduction measures;
- **Community Health and Safety and Security** – infrastructure and equipment safety; influx management will also be considered;
- **Land Acquisition and Involuntary Resettlement** – potential issues regarding the reservation of land for service roads or maintenance areas; the proximity of infrastructure to herders' shelters and wells; and the potential for displacement due to the alignment of the power line.

In addition, a consultation process will be undertaken with potentially affected stakeholders to understand their views and issues.

## 1.7 ASSESSMENT METHOD

The assessment of the final selected power line alignment will be undertaken in accordance with the relevant IFC Performance Standards on Environmental and Social Sustainability<sup>6</sup> and the relevant Performance Requirements of the EBRD Environmental and Social Policy.<sup>7</sup> In particular, the following IFC Performance Standards will be considered:

- Performance Standard 1 – Assessment and Management of Environmental and Social Risks and Impacts;
- Performance Standard 2- Labour and Working Conditions (including IFC/EBRD Worker Accommodation Guidelines);
- Performance Standard 3 – Resource Efficiency and Pollution Prevention;
- Performance Standard 4 – Community Health and Safety and Security;

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<sup>5</sup> TBC and FFI (2012). Summary Avoidance Recommendations from 2012 Biodiversity Surveys. July 2012.

<sup>6</sup> International Finance Corporation. Performance Standards on Environmental and Social Sustainability. Effective January 1, 2012. International Finance Corporation, World Bank Group.

<sup>7</sup> European Bank for Reconstruction and Development. Environmental and Social Policy. May 2008.

- Performance Standard 5 - Land Acquisition & Involuntary Resettlement;
- Performance Standard 6 – Biodiversity Conservation and Sustainable Management of Living Resources;
- Performance Standard 8 – Cultural Heritage.

The following EBRD are of particular relevance to the assessment:

- Performance Requirement 1 - Environmental and Social Appraisal and Management;
- Performance Requirement 2 - Labour and Working Conditions (including IFC/EBRD Worker Accommodation Guidelines);
- Performance Requirement 3 – Pollution Prevention and Abatement;
- Performance Requirement 4 - Community Health, Safety and Security;
- Performance Requirement 5 - Land Acquisition, Involuntary Resettlement and Economic Displacement;
- Performance Requirement 6 – Biodiversity Conservation and Sustainable Natural Resource Management;
- Performance Requirement 8 – Cultural Heritage;
- Performance Requirement 10 - Information Disclosure and Stakeholder Engagement.

The assessment will also refer to the following IFC Standards:

- IFC General Environment Health and Safety Guidelines (April 2007);
- IFC Environment Health and Safety Guidelines for Electrical Power Transmission and Distribution (April 2007).

## **1.8 ASSESSMENT REPORT**

The assessment report will consolidate existing baseline information and additional biodiversity studies into a single, integrated, Supplemental Appraisal to the Mine ESIA. This will include any additional management or mitigation measures necessary to manage potential impacts in accordance with Mongolian requirements and the environmental and social standards of IFC and EBRD.

The findings of the assessment will be fed into the overall Operations Phase Biodiversity Management Plan for the project and the biodiversity impact assessment will be used to update the Project's net positive impact (NPI) accounting, offsets management strategy and plan if required and will inform the Project's adaptive management approach for biodiversity risks and impacts. Any other mitigation actions arising from the assessment will be incorporated into the appropriate Operations Phase Management Plans.

## **1.9 ASSESSMENT TIMEFRAME**

The biodiversity field study has been undertaken during the summer of 2012 and the results of this work will be incorporated into the final assessment of the power line as soon as the findings of the field studies are reported (currently scheduled for October 2012). The Supplemental Appraisal will be publicly disclosed by Oyu Tolgoi in December 2012.