



Dnepro Bugsky

Framework ESMMP

2 January 2019

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1 Introduction

1.1 Scope and purpose of this document

This framework environmental and social management and monitoring plan (ESMMP) sets out the approach to environmental and social management for construction of the 110 megawatt (MW) Dnepro Bugsy wind farm Ukraine (the project). The project consists of 25 wind turbine generators (WTGs), an overhead transmission line (OHL), substation and access roads. The project will be constructed, owned and operated by Dnepro-Bugsy Wind Power Project LLC (DBWPP).

The primary objective of an ESMMP is to safeguard the environment, site staff and the local population from site activity which may cause harm or nuisance. This framework ESMMP is intended to provide an outline for transparent and effective prevention, minimisation, mitigation, compensation and off-setting measures for the environmental and social impacts associated with the project. The ESMMP will therefore form the basis of the environmental and social protection measures implemented by DBWPP and its contractors. The implementation of the ESMMP aligns the environmental, health and safety (EHS) and social performance with the IFC Performance Standards (PSs), relevant EHS guidelines and best practice.

An Environmental and Social Management System (ESMS) will need to be developed by DBWPP to effectively implement this ESMMP. The ESMS should include the following aspects: policy; identification of risks and impacts; management programs; organisational capacity and competency; emergency preparedness and response; stakeholder engagement; and monitoring and review.

2 Roles and responsibilities

2.1 Organisation and management

DBWPP has overall responsibility for project compliance with the ESMMP and will ensure its contractors comply with the requirements herein. Contractors are contractually obliged to meet the specific requirements outlined within this ESMMP as well as general compliance with national legislation and appropriate international requirements.

DBWPP will monitor the contractors' performance on a regular basis and will undertake the following monitoring throughout the duration of the construction period:

- Review contractor documents against the requirements of this ESMMP
- Undertake regular audits
- Continuously check records
- Set up a contractor reporting structure
- Conduct regular meetings where environment, health, safety and social are agenda items.

During the construction phase DBWPP will closely monitor all reports received from the contractors to monitor compliance. Mitigation measures described for the operational phase will be implemented by DBWPP using the proposed framework described in this document.

2.1.1 The contractors' roles

All contractors (Balance of Plants (BOP) contractor and WTG supplier) must implement the construction phase mitigation measures outlined within this document. It will also be the contractors' responsibility to ensure compliance of any sub-contractors in meeting the ESMMP requirements. The contractors will be required to:

- Undertake regular monitoring and inspections of the sub-contractors and the project sites
- Keep up to date records as prescribed in this ESMMP
- Report regularly to DBWPP.

2.1.2 Third party auditing

If required by lenders, an independent, accredited third party will periodically undertake audits during the construction and operational phase to ensure compliance of the project with this ESMMP. DBWPP and the contractors will be required to make available all records of monitoring and meetings during any construction monitoring visits that the auditor may undertake.

2.2 DBWPP roles

2.2.1 Site manager

The site manager is responsible for:

- Implementation of the project's environmental policy, ESMMP and environmental compliance on-site
- Ensuring adequate resources are available for the implementation of the ESMMP, such as personnel, equipment and training, including EHS managers and staff employed by all contractors and subcontractors on-site
- Providing senior management leadership in the promotion of a positive culture of responsibility and accountability in construction environmental and social management

- Ensuring that corrective actions are implemented, and any identified non-compliance is rectified
- Overall responsibility for contractors' and subcontractors' adherence to the project's grievance mechanism
- Supporting the community liaison officer (CLO) in any grievance investigations, including ensuring that the investigation team has suitable expert personnel, documentation, stoppage of work in areas until investigation has been completed, the cooperation of contractors (if required)

2.2.2 EHS manager

The EHS manager is responsible for:

- Maintenance of the ESMMP and for ensuring that all relevant environmental permits/consents' conditions are satisfactorily discharged
- Ensuring that all EHS plans developed for the site are in compliance with the ESMMP and applicable national and international laws, regulations and standards
- Reporting on environmental compliance to DBWPP senior management on a regular basis and preparation of the internal and external reporting commitments of the ESMMP
- Distribution of the CLO's monitoring reports to senior managers and contractors as appropriate
- Identifying and managing resources required to ensure effective implementation of the ESMMP
- On-going monitoring of the implementation of all commitments under the ESMMP and the conditions of the national EIA approval including conducting audits and inspections and determining appropriate corrective or management actions
- Providing management leadership in promotion of a positive culture of responsibility and accountability in environmental management during construction
- Reporting to the Site Manager on any environmental matter, including environmental incidents and non-conformances, and acting as the day-to-day point of contact on-site for environmental matters
- Ensuring all staff/workers and environmental staff are appropriately trained for their roles in delivering commitments under the ESMMP
- Ensuring all personnel abide by instructions given in relation to implementation of the controls, monitoring and reporting requirements of the ESMMP
- Ensuring that an appropriate line of communication with contractors and construction workers is set up, using language/terminology that they will understand, making them aware of the overall aims and actions within the ESMMP
- Liaising with the subcontractors' EHS representatives and ensure the implementation of the environmental requirements, ESMMP and national EIA's conditions by all subcontractors including staff briefing on the requirements of the ESMMP applicable to their role
- Signing-off or recording actions in the ESMMP once they have been completed and reporting back to the regulator as necessary
- Leading spill or incident response required during construction
- Ensuring the ESMMP is reviewed at least on an annual basis and initiate appropriate document updates

2.2.3 Community Liaison Officer (CLO)

The CLO is responsible for:

- Communication and implementation of the project's stakeholder engagement plan (SEP)
- Act as primary point of contact for local communities should they have any complaints relating to the construction phase of the project

- Undertaking visits to project-affected communities to talk to community representatives about grievances logged (though co-ordination/designation of this element will require liaising with DBWPP as project Owner)
- Undertaking investigations to address community grievances raised (through coordination with the site manager)
- Maintain records of all stakeholder engagement activities, grievances logged and how issues are addressed
- Reporting on stakeholder engagement and information disclosure activities, as well as non-conformances with SEP and grievances, to the environmental manager
- Periodic review and update of the SEP

2.3 Contractor roles

2.3.1 EHS managers

Responsibilities include:

- Ensuring that the ESMMP is effectively implemented on site on a day to day basis
- Ensuring that EHS plans developed for the contractor and subcontractor's packages of work are in line and compliant with the ESMMP
- Ensuring that regular environmentally oriented training and awareness programmes are being delivered to the workforce, including briefings, tool-box talks based on current work packages, spill emergency training, ESMMP training
- Maintaining records/logs of environmental training and awareness programmes
- Undertaking daily environmental inspections of work areas
- Undertaking environmental audits regularly as per the requirements specified within the ESMMP (on a weekly basis) and produce weekly brief audit reports
- Investigating and reporting environmental incidents to the site environmental manager
- Reporting non-conformances to the DBWPP EHS manager
- Keeping records of how environmental incidents and non-conformances are addressed and closed
- Liaising with the DBWPP EHS manager on ESMMP requirements and environmental management matters
- Maintaining workers' grievance log and escalate/report issues to the site environmental manager

A health and safety manager will be employed by the main contractor and its subcontractors to ensure that occupational health and safety (OHS) standards and requirements are appropriately managed and implemented on site. The roles and responsibilities for health and safety personnel will be identified within the health and safety plans that will be developed by the contractors.

2.4 Subcontractors

It is the overall responsibility of the Contractor Site Manager to ensure that the all subcontractor(s) implement requirements of the ESMMP and sub-plans.

3 Mitigation and monitoring requirements

3.1 Overview

The following sections comprise of tables that describe the mitigation, management and monitoring to be carried out during all phases of the project including key performance indicators (KPIs) for measuring success and identifying staff and organisations with responsibilities.

3.2 Ecology and nature conservation

Table 1: Ecology and nature conservation management and mitigation

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Construction and decommissioning				
Habitat loss and fragmentation	<ul style="list-style-type: none"> Minimise project footprint and construction working areas by ensuring clearings associated with construction occur in as small a footprint as possible and avoid priority habitats (estuaries, Ponto-Sarmatic steppes and protected areas) Controlled/designated traffic routes Habitat removal and reinstatement plan (HRRP) for restoration on the sites temporarily affected by construction (7.12 ha, of which 0.1 ha is broadleaved forest and 0.51 ha is perennial calcareous grassland and basic steppes) Compensation of habitats to be lost under project footprint to achieve NNL (35.9 ha of which 6.1 ha is broadleaved forest and 5.6 ha is perennial calcareous grassland and basic steppes) Strict prohibition of storage of soil wastes in the virgin steppe lands, gullies, and on the slopes of the estuary 	Contractors' environmental staff DBWPP (with regards to long term tree compensation)	<ul style="list-style-type: none"> Monthly monitoring by EHS manager during construction Pre-construction habitats and flora surveys of project footprint to establish specific mitigation measures Habitat monitoring of restoration areas to ensure they are correctly established – once per year (during summer) for the first two years after construction 	<ul style="list-style-type: none"> No increase in project footprint beyond existing design during construction No overall loss of threatened or protected habitats or plant species No overall decrease in the extent of functional woodland within 50 years Successful completion of rehabilitation/ restoration of areas affected temporarily by construction Successful establishment of areas created for compensation
Increased access to protected areas	<ul style="list-style-type: none"> Workers' site induction to include importance of the protected areas and disciplinary actions Signage put in place, where practical, to inform people of the appropriate access routes to the protected areas, the legislation protecting the area and its species and the legal penalties for contravening the law. Alternatively, a map could be made visible onsite, indicating the access routes. 	Contractors' environmental staff DBWPP	<ul style="list-style-type: none"> Daily reporting of incidents from project staff and contractors to EHS manager 	<ul style="list-style-type: none"> No construction staff/contractors to enter protected area from project site
Introduction of alien invasive species (AIS)	<ul style="list-style-type: none"> Implement guidelines on the prevention and management of AIS (see Section 4.4) 	Contractors' environmental staff	<ul style="list-style-type: none"> Monitor the non-native and invasive plant species identified and report on new invasive species establishing in the Project areas 	<ul style="list-style-type: none"> No records of new AIS or increase in the spatial extent of existing AIS within 50m of the project footprint

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Disturbance and displacement of species (particularly birds and bats) because of artificial lighting, noise and presence of people	<ul style="list-style-type: none"> • Minimise noise disturbance and light pollution, as applicable: <ul style="list-style-type: none"> – Equipment with low noise emissions will be used and activities with high-intensity noise impacts limited to daylight hours. – Exterior lighting will be reduced – Keep the workforce within defined boundaries and agreed access routes • A mandatory environmental induction for all staff members to raise awareness on disturbance avoidance 	Contractors' environmental staff	<ul style="list-style-type: none"> • Every three months during construction with brief technical report to be produced after each survey, listing location and abundance of invasive species recorded. • Monthly breeding bird transect surveys will be conducted between April and June for each of the first three years of operation. • Quarterly noise monitoring as per Table 4 	<ul style="list-style-type: none"> • No statistically significant change in baseline conditions (presence and /or abundance) post construction • No statistically significant change in the baseline noise and light levels during construction
Injury or death of wildlife from collision with road traffic, entrapment in excavations and habitat clearance	<ul style="list-style-type: none"> • Raise awareness through staff inductions with a requirement for all staff operating motor vehicles undergoing an environmental induction training course that includes instruction on the need to comply with speed limits to respect all forms of wildlife (especially reptiles and amphibians). Drivers not complying with speed limits may be subject to penalties. • Limit open excavated trenches • Undertake vegetation clearance outside of the main bird breeding period where possible (likely March to August; to be confirmed with local ecologists). • Survey for bat roosts before clearance of habitat and identify appropriate mitigation if roosts are identified. 	Contractors' environmental staff	<ul style="list-style-type: none"> • Daily reporting of mortality incidents during construction by staff and contractors to the EHS manager. • The EHS manager will record each incident and the log will be reviewed quarterly by external monitors. 	<ul style="list-style-type: none"> • No records of incidental mortality
Hunting and collection of wildlife by construction/ operation workers	<ul style="list-style-type: none"> • Implement ban on hunting and collection of wildlife on site <ul style="list-style-type: none"> – Raise awareness through staff inductions – Include any breaches in the hunting ban in the regular reporting. 	Contractors' environmental staff	<ul style="list-style-type: none"> • Implement anonymous reporting system for any known hunting / collection of wildlife and monitor data, with review of reported incidents as part of monthly reporting. 	<ul style="list-style-type: none"> • No reported hunting or collection of wildlife by Project staff.
Operations				
Increased access to protected area	<ul style="list-style-type: none"> • A protocol will be developed between DBWPP, local municipality and national park authority to minimise hunting, land 	Operational staff	<ul style="list-style-type: none"> • Reporting of incidents to the relevant local authorities 	<ul style="list-style-type: none"> • No unlawful activities in protected area

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Collision with operational WTGs	<p>conversion and recreational disturbance within the project area due to the creation of new roads. This will include, where practical, restricting access (for example barriers and signage) and cooperative collaboration to monitor, report and prevent unlawful activities.</p> <ul style="list-style-type: none"> Habitats within the Project site will be maintained during operation to reduce the risk of attracting collision-prone birds. If operational monitoring determines there is a notable impact on bird and bat mortality, then additional mitigation measures appropriate to the impact (potentially species dependent) will be developed and implemented. Undertake cumulative impact assessment at the end of monitoring period to inform mitigation strategy 	Specialist ecological consultancy and/or trained and skilled operational staff	<ul style="list-style-type: none"> Bat activity monitoring should take place for the first three years of operation from the beginning of spring to the end of autumn. Searches for bird carcasses will be conducted at all WTGs every 15 days for the first 12 months (one year) of operation, and then every month for the two following years, except if otherwise recommended by the ecologist 	<ul style="list-style-type: none"> No bat mortality No previously unrecorded species on site that is vulnerable to collision and recorded as a collision victim No significant cumulative impacts No statistically significant change in predicted mortality rates No previously unrecorded species on site that are vulnerable to collision and recorded as a collision victim
Collision with OHLs	<ul style="list-style-type: none"> If operational monitoring determines there is a notable impact on bird and bat mortality, then additional mitigation measures appropriate to the impact (potentially species dependent) will be developed and implemented. 	EPC contractor Specialist ecological consultancy and/or trained and skilled operational staff	<ul style="list-style-type: none"> Searches for bird carcasses will be conducted monthly 50m either side of the new OHL at key points (e.g. north of Solonets Lake). For the first two years of operation. This may need to be extended depending on results from the first year. 	<ul style="list-style-type: none"> No mortality of priority bird species No previously unrecorded species on site that is vulnerable to collision and recorded as a collision victim
Displacement	<ul style="list-style-type: none"> If operational monitoring determines there is a notable impact on bird and bat mortality then additional mitigation measures appropriate to the impact (potentially species dependent) will be developed and implemented. 	Specialist ecological consultancy	<ul style="list-style-type: none"> Monthly breeding bird transect surveys will be conducted between April and June for each of the first three years of operation. Surveys for key species will be conducted for each of the first three years of operation. 	<ul style="list-style-type: none"> No statistically significant change in baseline conditions (abundance) No negative change in baseline conditions (loss of territories/ breeding pairs) No significant cumulative impacts

Refer to Biodiversity Management Plan (Section 4.4) for more detail, including adaptive management approach

3.3 Landscape and visual

Table 2: Landscape and visual management and mitigation

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Construction and decommissioning				
WTG changes to landscape character through: presence of construction traffic, plant, equipment and lighting in a rural setting; clearance of land to accommodate construction activities and access roads.	<p>Design lighting to minimise the potential impact of light pollution at night particularly in relation to potential light spill into residential properties</p> <p>Retain existing vegetation to reduce visual intrusion</p> <p>Use spoil from all excavations to form earth banks where possible, profiles to provide screening for building elements where required or re-profiled to smooth flowing contours into the surrounding landform as appropriate and without compromising other sensitive features.</p> <p>Reinstate construction compounds and temporary access roads to their former condition following completion of the construction works. Replace removed vegetation using suitable indigenous species</p>	Contractors	<p>Visual inspection throughout the project</p> <p>Replacement planting to be monitored on an annual basis for at least five years after the completion of the project.</p>	<p>Artificial light sources to be directional and task focussed.</p> <p>Existing vegetation to be retained for screening and aesthetic reasons to be excluded from the working area during the construction period</p> <p>Spoil successfully integrated into the landscape</p> <p>Planting successfully established as part of reinstatement of construction compounds and temporary access roads in the first season following completion of the construction works</p>
Operations				
Changes to landscape character through: presence of WTGs, OHL, cleared land to accommodate facilities and access roads; and operational lighting	Design lighting to minimise the potential impact of light pollution at night particularly in relation to potential light spill into residential properties.	DBWPP	Visual inspection throughout the project	Artificial light sources to be directional and task focussed
Presence of new infrastructure in a rural landscape changing the landscape character	<p>Replace removed vegetation with suitable indigenous species.</p> <p>Reinstate disturbed areas adjacent to the widened and new access roads to minimise the visual intrusion in the landscape.</p> <p>Maintain planting areas for one full growing season following planting to ensure establishment</p>	DBWPP	<p>Visual inspection throughout the project on an annual basis once the vegetation is established.</p> <p>Replacement planting to be maintained for at least five years after the completion of the project.</p>	Vegetation established

3.4 Traffic and transport

Table 3: Traffic and transport management and mitigation

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Construction and Decommissioning				
Impact on road network from normal construction traffic	<ul style="list-style-type: none"> Pre-construction road condition survey Regular inspection and maintenance of roads used by the project Reinstate roads from damage caused by project related activities, before the end of the construction phase 	WTG Supplier/DBWPP	<ul style="list-style-type: none"> Periodic monitoring of road conditions Quarterly monitoring against implementation of the Traffic Management Plan (TMP) 	<ul style="list-style-type: none"> Regular inspection and maintenance of roads used by the project Roads in satisfactory condition No complaints from local people about roads
Impact on road network from oversized vehicles traffic	<ul style="list-style-type: none"> Driver training for oversized vehicles and a refresher course every six months for project drivers Observe local traffic regulations of no circulation of oversized vehicles between 12:00am and 5:00am from Friday to Monday Details of abnormal load escort proposals to be included in TMP 	WTG Supplier/DBWPP	<ul style="list-style-type: none"> Periodic monitoring that drivers are adequately trained Monitor all abnormal loads are escorted Quarterly monitoring against implementation of the TMP 	<ul style="list-style-type: none"> Driver training for oversized vehicles drivers and a refresher course undertaken every six months No circulation of oversized vehicles between 12:00am and 5:00am from Friday to Monday All abnormal load escorted
Impacts of increased traffic on road safety	<ul style="list-style-type: none"> Speed restrictions for project traffic travelling through communities (to be agreed with the local transport authority) Observe local traffic regulations of no circulation of oversized vehicles between 12:00am and 5:00am from Friday to Monday Undertake pedestrian awareness programme along the main site access routes through local communications Schedule deliveries and road movements to avoid peak periods (unless in exceptional circumstances) Utilise low emissions vehicles for the transportation of materials (wherever practicable) Workers should be informed and reminded of road safety via toolbox talks and staff notice boards 	WTG Supplier/DBWPP	<ul style="list-style-type: none"> Regular monitoring of speed restriction and observance Ensure pedestrian awareness programme is effective Quarterly monitoring against implementation of the TMP Reporting of traffic related incidents 	<ul style="list-style-type: none"> Speed restrictions for project traffic set and observed No circulation of oversized vehicles between 12:00am and 5:00am from Friday to Monday Pedestrian awareness programme undertaken Schedule deliveries and road movements during off peak periods (unless in exceptional circumstances) Low emissions vehicles used Workers informed and reminded of road safety via toolbox talks and staff notice board

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Impacts on ports capacity	<ul style="list-style-type: none"> • Schedule port deliveries and movements in collaboration with port operators • Schedule procurement and deliveries into construction programme to ensure undisturbed and constant movement of deliveries from the port to site as agreed as with contractors as part of the construction program 	WTG Supplier/DBWPP	<ul style="list-style-type: none"> • Adequate monitoring during the period of WTG delivery at the port against implementation of the TMP to ensure limiting storing parts at the ports and undisturbed transport of materials and parts to the site 	<ul style="list-style-type: none"> • All arrivals and movements at the ports done in close collaboration with port operators • Minimal storage time of WTG components in the ports

3.5 Noise

Table 4: Noise management and mitigation

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Construction				
Low potential risks assuming the noisiest construction phase works include WTG foundation construction and vehicle deliveries can be undertaken during the daytime	<ul style="list-style-type: none"> • Consult with communities to inform the scheduling/timing of activities (i.e. when/where to avoid/minimise) and advise them of any periods of high noise activities would seem more appropriate. • Avoiding or minimising project transportation through community areas • Unnecessary revving of engines and use of horns will be avoided • Equipment will be switched off when not in use as much as possible • Internal haul routes will be kept well maintained • Plant and vehicles will be sequentially started up rather than all together as much as possible • Use of effective exhaust silence systems or acoustic engine covers as appropriate • Plant will always be used in accordance with manufacturers' instructions • Site equipment will be located away from noise-sensitive areas if possible. Loading and unloading will also be carried out away from such areas if possible 	DBWPP and construction contractors	<ul style="list-style-type: none"> • DBWPP to carry out quarterly monitoring of noise levels using sound level meter at the nearest residential properties to construction activities for comparison against standards. • Record and investigate any complaints via the community grievance mechanism. • Monitoring frequency: quarterly or upon complaints of excessive noise. 	<ul style="list-style-type: none"> • No noise complaints received

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
	<ul style="list-style-type: none"> Maintenance to keep plant and equipment working to manufacturers' specifications No movements during the night period and restrict movements to avoid sensitive times of the day (early morning or late at night) as much as possible in accordance with local regulations Proper maintenance of vehicles, ensure silencers are fitted and that vehicles comply with emission standards Avoid queuing vehicles on the access road or at the site access points Adherence to speed limits Minimise changes in the profile of the road to avoid body slap and rattle noise 			
Operations				
WTG noise	<ul style="list-style-type: none"> Ensure noise specification of WTG supply contracts will enable the Project to comply with IFC Noise Level Guidelines. Operational monitoring to be undertaken to demonstrate compliance and in response to any reasonable complaint 	DBWPP	<ul style="list-style-type: none"> Periodic noise monitoring at the measurement positions LT1, LT2 and LT3 or subsequently affected receptors, and in response to reasonable complaint 	<ul style="list-style-type: none"> Monitored noise levels do not indicate a significant impact No noise complaints received
Decommissioning				
No potential risks assuming noisiest phase works can be undertaken during the daytime	<ul style="list-style-type: none"> Basic methods of noise control as described above in construction section. 	DBWPP and construction contractors	<ul style="list-style-type: none"> DBWPP to carry out quarterly monitoring of noise levels using sound level meter at the nearest residential properties to construction activities for comparison against standards. Record and investigate any complaints via the project performance grievance mechanism. Monitoring frequency: quarterly or upon complaints of excessive noise. 	<ul style="list-style-type: none"> No noise complaints received

3.6 Socio-economic

Table 5: Socio-economic impact management and mitigation

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Construction				
Loss of land available for agriculture and other use	<ul style="list-style-type: none"> • Implement grievance management system • Minimise the amount of land occupied during construction • Fully reinstate the land not permanently occupied upon completion of construction • Provide compensation for owners of land where crops are lost. <ul style="list-style-type: none"> – payment for the establishment of a servitude; – payment for restrictions on the use of land plots; – reclamation of land at own expense of DB WPP; – compensation for losses in case of loss or damage to agricultural crops. <p><i>Refer to Livelihood Restoration Plan (LRP) for further details</i></p>	DBWPP (site manager and CLO) and construction contractors	<ul style="list-style-type: none"> • Record and investigate any complaints via the project grievance mechanism • Site review after completion of construction activities to determine if unused land is fully reinstated 	<ul style="list-style-type: none"> • No complaints in relation to compensation, occupancy of land during construction; or on inadequate reinstatement of land
Difficult access to land during road upgrades and construction	<ul style="list-style-type: none"> • Implement grievance management system • Develop and implement a traffic management plan (TMP) • Provide timely information to users of land of when access to their land might be more difficult (e.g. scheduled access road upgrades) 	DBWPP (site manager and CLO) and construction contractors	<ul style="list-style-type: none"> • Record and investigate any complaints via the project grievance mechanism 	<ul style="list-style-type: none"> • TMP has been shared with affected communities and is being implemented • No complaints on recurring prevented access to land from landowners and users
Enhancing direct and indirect employment	<ul style="list-style-type: none"> • Implement grievance management system • Providing timely and transparent information regarding employment opportunities related to the project to be requested to Contractors • Ensure that all employee and non-employee workers are engaged in line with both national legislation and applicable international (ILO) standards and recommendations • Require contractors to provide a grievance mechanism for workers 	DBWPP and construction contractors	<ul style="list-style-type: none"> • Record and investigate any complaints via the project grievance mechanism • Require contractors to record job announcements and maintain employment files (contracts, employee data, training records, etc.) • Record and investigate any complaints via the worker grievance mechanism • Record supplier information, including their place of registration and operation 	<ul style="list-style-type: none"> • No complaints on recruitment or labour issues through community grievance mechanism and workers' grievance mechanism

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
	<ul style="list-style-type: none"> Procure goods and services locally whenever possible 		<ul style="list-style-type: none"> DBWPP will monitor whether contractors and suppliers are abiding by national labour legislation and international best practice 	
Damages to road surfaces leading to damages of vehicles and potential for accidents	<ul style="list-style-type: none"> Implement grievance management system Preparation of roads for heavy transport before construction Restoration of roads to at least pre-construction state 	DBWPP (site manager and CLO) and construction contractors	<ul style="list-style-type: none"> Record and investigate any complaints via the project grievance mechanism Periodic monitoring of road conditions 	<ul style="list-style-type: none"> No complaints on damages of roads or accidents caused by damaged roads
Operations				
Permanent loss of land for agricultural or other use	<ul style="list-style-type: none"> Implement grievance management system Measures to minimise occupation of land, same as for construction phase 	DBWPP	<ul style="list-style-type: none"> Record and investigate any complaints via the project grievance mechanism 	<ul style="list-style-type: none"> No complaints in relation to occupancy of land during construction; on inadequate reinstatement of land
Creation of direct and indirect employment opportunities	<ul style="list-style-type: none"> Implement grievance management system Follow principles of international best practice in recruitment and employment, as for construction Procure goods and services locally whenever possible 	DBWPP	<ul style="list-style-type: none"> Record and investigate any complaints via the project grievance mechanism Record job announcements and maintain employment files (contracts, employee data, training records, etc.) Record and investigate any complaints via the worker grievance mechanism Record supplier information, including their place of registration and operation DBWPP will monitor whether contractors and suppliers are abiding by national labour legislation and international best practice 	<ul style="list-style-type: none"> No complaints on recruitment or labour issues through community grievance mechanism and workers' grievance mechanism
Loss of livelihoods resulting from lost crops or damages during repairs and maintenance	<ul style="list-style-type: none"> Communicate planned maintenance activities to affected land users Implement grievance management system Minimise the amount of land occupied / disrupted during repairs and maintenance Compensate all users of land (owners and non-owner users) for lost crops and any other damages at full replacement cost, in accordance with national legislation and IFC PS5, following the LRP. Fully reinstate the land after disruption 	DBWPP	<ul style="list-style-type: none"> Record and investigate any complaints via the project grievance mechanism Engage with local residents to determine if there are complaints that have not been officially submitted to DBWPP (for example through an annual meeting) and investigate the complaints 	<ul style="list-style-type: none"> No complaints on inadequate compensation from landowners and users Grievance log showing all complaints successfully closed out
Revenue generation for local communities	<ul style="list-style-type: none"> Pay taxes and leases in a timely and transparent manner 	DBWPP	<ul style="list-style-type: none"> Record all payments made to the municipalities and the basis for payment 	<ul style="list-style-type: none"> All financial obligations towards municipalities are settled

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
	<ul style="list-style-type: none"> Support and advocate for new investments in the project area and region 		<ul style="list-style-type: none"> Record, if possible, all new investments in the project area and region and how/if they are connected to the project 	<ul style="list-style-type: none"> New investments in the project area and region which can be attributed to the project
Improved access to land from maintained roads	<ul style="list-style-type: none"> Implement grievance management system Carry out regular maintenance of access and service roads needed for the operation of the wind farm 	DBWPP	<ul style="list-style-type: none"> Record and investigate any complaints via the project grievance mechanism Period monitoring of road conditions 	<ul style="list-style-type: none"> No complaints on damages of roads or accidents caused by damaged roads
Decommissioning				
Disturbance to land and crops Difficulties to access land due to traffic Creation of direct and indirect employment Loss of livelihoods due to loss of crops or traffic Damages to road surfaces	<ul style="list-style-type: none"> Same measures as for construction Implement grievance management system Minimise land occupied for decommissioning works Fully reinstate all disturbed land Develop and implement TMP Inform local communities on planned activities, including when traffic may increase or when roads will be repaired Carry out employment in accordance with international good practice, procure goods and services locally Compensate all crops, damages, livelihood losses; inform people about the process of compensation Restore all roads, repair damages 	DBWPP and construction contractors	<ul style="list-style-type: none"> Record and investigate any complaints via the project grievance mechanism Same as for construction 	<ul style="list-style-type: none"> Same as for construction

3.7 Health, safety and security

Table 6: Health, safety and public nuisance management and mitigation

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Construction				
Risks to health and safety of workers	<ul style="list-style-type: none"> Implement OHS policies and procedures including OHS Plan and method statements, worker code of conduct and emergency preparedness and response plan (EPRP) 	DBWPP EHS manager Contractors' OHS Managers	<ul style="list-style-type: none"> Training records will be maintained, especially for: OHS training and hazardous work training Emergency drills Toolbox talks 	<ul style="list-style-type: none"> Targets to be set for near miss reports submitted per month Zero fatalities across project lifecycle Zero lost-time accidents across project lifecycle

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
	<ul style="list-style-type: none"> ● EPRP to include measures associated with equipment failure in the event of natural hazards ● Assignment of appropriate personnel for EHS roles ● Appropriate PPE provided to staff ● Provision of first aid equipment and trained staff ● Emergency response team ● Site safety and job specific safety training ● Monitoring and reporting of incidents, accidents and occupational health ● Worker grievance mechanism ● Toolbox talks on safety, housekeeping and hygiene ● Good housekeeping on site ● Drinking water provided to staff 		<ul style="list-style-type: none"> ● Accidents, incidents and diseases logs will be maintained to monitor the health and safety of project workers ● Confidential health records for project workers will be maintained, including occupational injury or disease ● Accidents, incident and occupational disease records will be made anonymous for review by external parties ● Regular site monitoring of OHS issues and PPE compliance will be carried out and recorded 	<ul style="list-style-type: none"> ● Zero occupational diseases across project lifecycle ● Workers using all recommended PPE at all times ● Emergency drill frequency in accordance with OHS plan ● Training kept up to date ● Worker interviews to verify safety culture
Risks to local community members	<ul style="list-style-type: none"> ● Fencing of all excavation areas ● Control of access roads to the WTGs and associated equipment ● Fencing off maintenance and equipment storage areas ● 24-hour security personnel ● Display of contact details for emergency response services and police in the security station, for use in the event of unauthorised entry ● Hire local workforce wherever possible, i.e. give preference to suitably qualified and experienced applicants from the local communities ● Enforce workers code of conduct, including on safe driving ● Cooperate and coordinate with local health, safety and security service providers ● Provide timely information to people/households located along the selected transport route on possible risks and prevention measures ● Develop and implement TMP 	DBWPP (site manager and CLO) and construction contractors	<ul style="list-style-type: none"> ● Record accidents, incidents and injuries involving community members ● Regular site monitoring to ensure community health, safety and security measures are in place ● Record and investigate any complaints via the project grievance mechanism 	<ul style="list-style-type: none"> ● No accidents and injuries involving community members ● No complaints regarding community health, safety and security

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Operations				
Risks to health and safety of workers	<ul style="list-style-type: none"> ● OHS policies and procedures including OHS Plan, worker code of conduct and EPRP to be reviewed and updated for operational phase ● EPRP update to include: <ul style="list-style-type: none"> – Training and evacuation procedures to manage WTG collapse and blade shear or breakage – Fire prevention – Lightning strike – Measures as per construction phase 	DBWPP EHS manager	<ul style="list-style-type: none"> ● Training records will be maintained, especially for: <ul style="list-style-type: none"> ● OHS training and hazardous work training ● Emergency drills ● Toolbox talks ● Accidents, incidents and diseases logs will be maintained to monitor the health and safety of project workers ● Confidential health records for project workers will be maintained, including occupational injury or disease ● Accidents, incident and occupational disease records will be made anonymous for review by external parties ● Regular site monitoring of OHS issues and PPE compliance will be carried out and recorded 	<ul style="list-style-type: none"> ● Targets to be set for near miss reports submitted per month ● Zero fatalities across project lifecycle ● Zero lost-time accidents across project lifecycle ● Zero occupational diseases across project lifecycle ● Workers using all recommended PPE at all times ● Emergency drill frequency to match OHS plan ● Training kept up to date ● Worker interviews to verify safety culture
Risks to local community members	<ul style="list-style-type: none"> ● Inform local population of the risks associated with the operation of the wind farm, through community meetings and/or appropriate warning signs ● Appropriate design and maintenance to prevent blade shear or breakage and WTG collapse and in the event that it occurs, clearing of all debris and payment of compensation for any damages ● To prevent lightning strike and fire, the use of appropriate lightning protection and fire-resistant components, automatic fire detection systems and firefighting, as well as regular maintenance ● Provide security to the site at various levels, including (but not limited to): <ul style="list-style-type: none"> – Locking of each individual WTG tower access door – Gates and warning signs on access roads – Control of access roads to the WTGs and associated equipment 	DBWPP	<ul style="list-style-type: none"> ● Record accidents, incidents and injuries involving community members ● Regular site monitoring to ensure community health, safety and security measures are in place ● Record and investigate any complaints via the project grievance mechanism 	<ul style="list-style-type: none"> ● No accidents and injuries involving community members ● No complaints regarding community health, safety and security

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
	<ul style="list-style-type: none"> – Fencing off maintenance and equipment storage area 			
Decommissioning				
Risks to health and safety of workers	<ul style="list-style-type: none"> • OHS policies and procedures including OHS Plan, worker code of conduct and EPRP to be reviewed and updated for decommissioning phase • Measures as per construction phase • Use trained personnel to identify and remove waste/hazardous material • Training and safety monitoring systems for working with demolished structures 	DBWPP EHS manager Contractors' OHS managers	<ul style="list-style-type: none"> • Training records will be maintained, especially for: • OHS training and hazardous work training • Emergency drills • Toolbox talks • Accidents, incidents and diseases logs will be maintained to monitor the health and safety of project workers • Confidential health records for project workers will be maintained, including occupational injury or disease • Accidents, incident and occupational disease records will be made anonymous for review by external parties • Regular site monitoring of OHS issues and PPE compliance will be carried out and recorded 	
Risks to local community members	<ul style="list-style-type: none"> • Same as for construction. 	DBWPP	<ul style="list-style-type: none"> • Record accidents, incidents and injuries involving community members • Regular site monitoring to ensure community health, safety and security measures are in place • Record and investigate any complaints via the project grievance mechanism 	<ul style="list-style-type: none"> • No accidents and injuries involving community members • No complaints regarding community health, safety and security

3.8 Archaeology and cultural heritage

Table 7: Archaeology and cultural heritage management and mitigation

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Pre-construction				
A number of potential archaeological sites identified within the study area.	<ul style="list-style-type: none"> Carry out archaeological survey comprising: <ul style="list-style-type: none"> Walkover survey along the route of the OHL to identify the archaeological sites If additional finds are made, they will be added to the archaeological exclusion zones through construction 	DBWPP, EHS manager	<ul style="list-style-type: none"> Inform the relevant government body of: <ul style="list-style-type: none"> Commencement of works Discovery of any archaeological remains Record all chance finds in log book 	<ul style="list-style-type: none"> All chance finds dealt with according to chance finds procedure No loss of or damage to cultural resources
Construction				
Excavation and preparation of the 25 WTG foundations and OHL tower foundations	<ul style="list-style-type: none"> Permanent archaeological oversight during all earthworks to foundations through site supervision Construction activity not permitted to take place within or in proximity to archaeological sites Where insufficient professional archaeological services and conditions are able to be met DBWPP is bound to alter the design of the project to an alternative layout which will mitigate impact on the archaeological site Promptly inform the relevant government body about the commencement of earthworks Chance finds procedure in place 	DBWPP, EHS manager	<ul style="list-style-type: none"> Establish permanent archaeological oversight during the excavations for the 25 WTG foundations and the transmission line route through site supervision Inform the relevant government body of: <ul style="list-style-type: none"> Commencement of works Discovery of any archaeological remains Record all chance finds in log book Report at end of earthworks submitted to DBWPP 	<ul style="list-style-type: none"> Correspondence with the appropriate government agency at appropriate times All chance finds dealt with according to chance finds procedure No loss of or damage to cultural resources
Construction of access roads and service roads. Upgrading works to existing roads. Construction of substation.	<ul style="list-style-type: none"> Promptly inform relevant government body about the commencement of earthworks Chance finds procedure 	DBWPP, EHS manager	<ul style="list-style-type: none"> Inform the relevant government body of: <ul style="list-style-type: none"> Commencement of works Discovery of any archaeological remains Record all chance finds in log book 	<ul style="list-style-type: none"> All chance finds dealt with according to chance finds procedure No loss of or damage to cultural resources

3.9 Air emissions

Table 8: Air emissions management and mitigation

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Construction dust emission and re-suspension	<ul style="list-style-type: none"> • Good site management, planning and layout to minimise material transport, storage and handling • Covering stockpiles and re-vegetation of exposed areas • Use of water suppression • No waste burning • Impose speed limit for construction traffic 	Contractors	<ul style="list-style-type: none"> • Weekly inspections of construction activities • Maintain record of high dust incidents and record any violations where observed. Impose disciplinary action on construction contractor if appropriate. 	<ul style="list-style-type: none"> • Construction dust emissions minimised such that no complaints are received from local communities.
Emissions from on-site plant and construction vehicles	<ul style="list-style-type: none"> • Vehicles to comply with national programs, be regularly maintained, have enforced speed limits, no-idling policy, use of cleaner fuels where possible and drivers to be trained on driving practices to reduce fuel consumption and increase safety • Generators to have appropriate location and height of exhaust pipes to ensure proper dispersion of pollutants • Generators to be of a modern design and well-maintained to minimise air pollutant emissions 	Contractors	<ul style="list-style-type: none"> • Visual checks of construction vehicles every two weeks (violations to be reported). • Annual maintenance program for vehicles and plant. • Servicing records to be kept for all machinery. 	<ul style="list-style-type: none"> • Plant and vehicles compliant with national programs.

3.10 Water resources

Table 9: Water resources

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Construction				
Storage and handling of fuels and chemicals	<ul style="list-style-type: none"> • Secondary containment structures for all fuels and chemical • Implementation of hazardous materials handling and storage plan (HMHP) • Implementation of spill response plan • Training for all personnel who handle hazardous materials • Refuelling activities are not permitted to take place within 50m of surface water bodies or watercourses 	DBWPP's EHS manager	<ul style="list-style-type: none"> • Routine inspections and intermittent audits of excavations, drainage systems and storage, containment and use of all oils and hazardous substances • Reporting mechanisms to allow all stakeholders to report leakages or spills • Corrective action process to record and address any recommendations arising from reported leaks, spills or contamination reported 	<ul style="list-style-type: none"> • Site reports indicate low number of spillages

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Sewage spill from site toilets	<ul style="list-style-type: none"> Implementation of waste management plan (WMP) Implementation of spill response plan Training for all personnel who transport sewage 	DBWPP's EHS manager	<ul style="list-style-type: none"> Review of environmental performance and suggestions for improvements by external monitors 	
Vehicle washing or plant operation	<ul style="list-style-type: none"> All washing on hard standing, draining to a closed settlement tank that allows for water reuse as well as containment of any oily residues. Oily residues removed from site periodically and disposed of appropriately. Training for all personnel 	DBWPP's EHS manager		
Erosion and sedimentation from excavations	<ul style="list-style-type: none"> Minimise exposed soil Create temporary drainage features if appropriate Create sedimentation ponds if required 	DBWPP's EHS manager		<ul style="list-style-type: none"> Site reports indicate no erosion or sediment issues
Operations				
Storage and handling of fuels and chemicals	<ul style="list-style-type: none"> As for construction 	DBWPP's EHS manager	<ul style="list-style-type: none"> Reporting mechanisms to allow all stakeholders to report leakages or spills Corrective action process to address and record any leakages or spills reported Audits of storage, containment and use of all oils and hazardous substances Review of environmental performance and suggestions for improvements by external monitors 	<ul style="list-style-type: none"> Site reports indicate low number of spillages
Decommissioning				
Identification of any contaminated land	<ul style="list-style-type: none"> Site inspected to check for any ground contamination which may have occurred in the operational phase. 	DBWPP's EHS manager	<ul style="list-style-type: none"> Review of environmental performance and suggestions for improvements by external monitors 	<ul style="list-style-type: none"> Any contaminated soils removed

3.11 Electric and magnetic fields

Table 10: Electric and magnetic fields management and mitigation

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Pre-construction				
Potential exposure of public to EMF	<ul style="list-style-type: none"> Reduce the EMF produced by OHLs, substations, or transformers during detailed design as much as possible 	DBWPP External engineering consultancy	<ul style="list-style-type: none"> Approval of final design by external engineers/BOP contractors if different before financial close 	<ul style="list-style-type: none"> Approval of final design by external engineers/BOP Contractor if different before financial close
Potential creation of radio noise	<ul style="list-style-type: none"> Design OHL right of way (RoW) and conductor bundles to ensure radio reception at the outside limits remains normal as much as possible 	DBWPP External engineering consultancy	<ul style="list-style-type: none"> Approval of final design by external engineers/BOP contractor before financial close 	<ul style="list-style-type: none"> Approval of final design by external engineers/BOP Contractor before financial close
Interference to telecommunication systems	<ul style="list-style-type: none"> Avoid direct physical interference of point-to-point communication systems 	•		
Television interference	<ul style="list-style-type: none"> Site WTGs away from the line-of-sight of any broadcaster transmitter Use non-metallic WTG blades 			
Intentional Electromagnetic Interference (IEMI)	<ul style="list-style-type: none"> Consideration of fencing and other methods of protection to avoid public access to at-risk facilities. 			
Operations				
Potential exposure of workers to EMF	<ul style="list-style-type: none"> Surveys to identify potential exposure levels in the workplace and the use of personal monitors during working activities if necessary Training of workers in the identification of occupational EMF levels and hazards Establishment of safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for public exposure and limiting access to properly trained workers Implementation of action plans to address potential or confirmed exposure levels that exceed reference occupational exposure levels 	DBWPP	<ul style="list-style-type: none"> Reporting of surveys of exposure levels to the operations manager and in operational monitoring reports to external monitors Training records showing training received on EMFs Site walkovers to verify establishment of safety zones and restricted zones Review of action plan implementation by external monitors 	<ul style="list-style-type: none"> No exceedances of safe limits

3.12 Waste management

Table 11: Waste management and mitigation

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Construction				
Leakage or spillage of wastes	<ul style="list-style-type: none"> • Develop project's construction waste management plan (CWMP) to include as a minimum: <ul style="list-style-type: none"> – Types and quantities of wastes to be generated during construction – Methods and locations for management of each waste type, including provisions for hazardous waste management and disposal – Good practice procedures as a priority for waste avoidance, reduction, reuse, recycling and recovery wherever possible – Training needs so that all staff understand the requirements of the plan 	Contractors to develop and implement the CWMP DBWPP to maintain oversight of implementation	<ul style="list-style-type: none"> • Regular site inspections and auditing during construction phase of the project's waste management and CWMP implementation 	<ul style="list-style-type: none"> • CWMP developed and independently reviewed • Waste registers maintained on site to include all waste transfer documentation and the appropriate certificates and licences of the waste contractors and disposal sites used
Fugitive emissions				
Negative visual amenity impact				
Offsite disposal increases vehicle movements and associated impacts such as road and community safety				
Operations				
Leakage or spillage of wastes	<ul style="list-style-type: none"> • Develop project's operational waste management plan (OWMP) to include as a minimum: <ul style="list-style-type: none"> – Types and quantities of wastes to be generated during operation – Methods and locations for management of each waste type, including provisions for hazardous waste management and disposal – Good practice procedures as a priority for waste avoidance, reduction, reuse, recycling and recovery wherever possible – Training needs so that all staff understand the requirements of the plan 	O&M Contractor	<ul style="list-style-type: none"> • Regular site inspections and auditing during operational phase of the project's waste management and OWMP implementation • Operational monitoring reports 	<ul style="list-style-type: none"> • OWMP developed and independently reviewed • Waste register(s) maintained on site to include all waste transfer documentation and the appropriate certificates and licences of the waste contractors and disposal sites used
Minimise waste generation, including hazardous wastes, use of landfill and transport of waste on public roads (to reduce risk of accidents)				
Decommissioning				

Impact to be addressed	Management/mitigation/enhancement	Responsibility	Monitoring	KPI
Generation and disposal of large waste quantities, including hazardous materials	<ul style="list-style-type: none"> The mitigation measures are to be identified prior to decommissioning and are to include good practice procedures for waste avoidance, reduction, reuse, recycling and recovery wherever possible 	Contractors	<ul style="list-style-type: none"> Site inspections by EHS managers Decommissioning reports 	<ul style="list-style-type: none"> Decommissioning plan developed and independently reviewed

3.13 Reporting

IFC PS1 requires borrowers to establish procedures to monitor and measure the effectiveness of the impact mitigation and management programme, as well as compliance with any related legal and/or contractual obligations and regulatory requirements. For Category A projects with potentially significant impacts such as this, external monitoring is also required.

DBWPP will produce quarterly reports describing the findings of the monthly reports of contractors which will be provided to lenders if required. Quarterly reports will cover the key areas of environmental and social impact and the efficacy of mitigation and management measures. If required, lenders will review reports and visit the site to verify the findings and propose actions to improve compliance. Frequency of reporting will reduce if appropriate during the operational phase.

4 Plans and procedures

4.1 Summary of plans and procedures

Table 12 below summarises the key plans and policies that are required in order to implement the mitigation activities set out in Section 3. These framework plans will need to be further elaborated by the contractors and implemented by the contractors and any sub-contractors employed. The following outline plans have been defined:

- Construction environmental and social management plan (CESMMP)
- Emergency preparation and response plan (including spill response plan)
- Community investment plan
- Invasive species management plan
- Habitat removal and reinstatement plan
- Waste management plan
- Hazardous material handling and storage plan
- Traffic management plan
- Chance finds procedure

Within 6 weeks from Notice To Proceed (NTP), DBWPP will review the contractors' CESMMP or contractors' specific subplans to confirm it fulfils the scope of the framework plans, policies and procedures defined within this framework ESMMP.

DBWPP will also implement the SEP and update it when there are significant changes to the project, such as change in phase or identification of new stakeholders. The project performance grievance mechanism will also be implemented throughout the lifecycle of the project.

Note: Livelihoods Restoration Plan (LRP) has already been drafted by DBWPP so is not included in this framework plan.

Table 12: Plans, policies and procedures

Aspect	Plan/policy	Objective/content	Timescale	Responsibility
Construction environmental and social management	Construction environmental and social management plan (CESMMP) (refer to section 4.2)	<ul style="list-style-type: none"> To implement mitigation activities relevant to the construction phase of the project and to avoid, mitigate and minimise environmental and social impacts during the construction phase The contractors will be required to develop a CESMMP which will strictly follow and comply with the IFC General EHS Guidelines and other international requirements outlined within the ESIA and this document during construction activities; as well as incorporate specific mitigation as identified through the ESIA process. 	Within 6 weeks from NTP CESMMP to be prepared by contractors and approved by DBWPP	Contractors responsible for meeting the requirements of the CESMMP Contractors' Project Managers responsible for implementation of the CESMMP by any construction sub-contractors DBWPP responsible for monitoring contractors' compliance with the CESMMP
Environmental Health and Safety Management System	DBWPP to develop an ESMS for the project	<ul style="list-style-type: none"> To promote safe and healthy working conditions through appropriate procedures and culture. Further policies/procedures to be developed if need identified through site audits To include OHS plan and community health and safety plan Refer to national law, IFC PS2 IFC EHS General Guidelines on Occupational Health and Safety (OHS) IFC EHS Guidelines on Wind Energy IFC EHS Guidelines on Electric Power Transmission and Distribution 	Developed prior to construction and updated as needed	DBWPP EHS department responsible for development or adaptation of its own system and monitoring contractors' compliance in accordance with ESMMMP and existing DBWPP plans Contractors responsible for monitoring of sub-contractors DBWPP has overall responsibility for implementation of EHS system during operation
Emergency situations	Emergency preparation and response plan (including spill response plan) (refer to section 4.3)	<ul style="list-style-type: none"> To enable DBWPP, in collaboration with appropriate and relevant third parties, to be prepared to respond to unplanned, accidental and emergency situations associated with the project in a manner appropriate to prevent and mitigate any harm to people and/or the environment Content should include identification of areas where accidents and emergency situations may occur, communities and individuals that may be impacted, response procedures, provision of equipment and resources, designation of responsibilities, communication, including that with potentially affected communities and periodic training to ensure effective response. The EPRP should be discussed with representatives of local emergency services and disclosed to affected communities. 	Developed prior to construction and updated as needed.	DBWPP EHS department responsible for monitoring contractors' EPRP to confirm compliance with ESMMMP Contractors responsible for monitoring of construction sub-contractors DBWPP has overall responsibility for implementation of EPRP during operation
On-going community engagement	SEP (this has already been drafted by Mott MacDonald)	<ul style="list-style-type: none"> To keep communities and stakeholders informed while listening and responding to concerns about the project to allow it to run smoothly 	Updated when project changes significantly, e.g. change of phase/new stakeholders identified	DBWPP CLO responsible for implementation

Aspect	Plan/policy	Objective/content	Timescale	Responsibility
Managing risks related to invasive species	Invasive species management plan (refer to section 4.4)	<ul style="list-style-type: none"> To control and manage invasive species 	<p>Within 6 weeks from NTP by contractors</p> <p>To be updated prior to commissioning for operations related procedures</p>	<p>DBWPP EHS department responsible for monitoring contractors during construction phase</p> <p>Contractors responsible for monitoring of construction sub-contractors</p> <p>DBWPP has overall responsibility for implementation of ISMP during operation</p>
Habitat removal and reinstatement	Habitat removal and reinstatement plan (refer to section 4.6)	<ul style="list-style-type: none"> To set out the minimum requirements for habitat removal and detail how reinstatement activities should be carried out 	<p>Within 6 weeks from NTP by contractors</p> <p>To be updated prior to commissioning for operations related procedures</p>	<p>DBWPP EHS department responsible for monitoring contractors during construction phase</p> <p>Contractors responsible for monitoring of construction sub-contractors</p> <p>DBWPP has overall responsibility for implementation of HRRP during operation</p>
Waste	Waste management plan (refer to section 4.7)	<ul style="list-style-type: none"> Identify measures for minimisation of waste, appropriate handling and management of waste and safe disposal of construction wastes During construction phases, intended to compliment and work alongside CESMMP 	<p>Within 6 weeks from NTP by contractors</p> <p>To be updated prior to commissioning for operations related procedures</p>	<p>DBWPP EHS department responsible for monitoring contractors during construction phase</p> <p>Contractors responsible for monitoring of construction sub-contractors</p> <p>DBWPP has overall responsibility for implementation of WMP during operation</p>
Chemicals and fuels. Spent oils and lubricants. Containment failure of storage tanks or pipelines	<p>EPRP (including spill response plan)</p> <p>Hazardous material handling and storage plan (refer to section 4.8)</p>	<ul style="list-style-type: none"> Appropriate storage, transfer and use of chemicals and fuel on site Identify responsibilities, procedures and equipment required to deal with a spill Identification of key risk points for containment failure within the EPRP During construction phases, intended to compliment and work alongside CESMMP 	<p>Within 6 weeks from NTP by contractors.</p> <p>Plans to be updated prior to commissioning for operations related procedures</p>	<p>DBWPP EHS department responsible for monitoring contractors during construction phase.</p> <p>Contractors responsible for monitoring of construction sub- contractors</p> <p>DBWPP has overall responsibility for overseeing implementation of these plans during operation.</p>
Transport	Traffic management plan (refer to section 4.9)	<ul style="list-style-type: none"> Identify measures to manage abnormal load deliveries during construction in order that road safety requirements are managed, impacts to external road users and road infrastructure are minimised, and compliance with local legislation and international guidelines is achieved throughout the construction phase During construction phases, intended to compliment and work alongside CESMMP 	<p>Within 6 weeks from NTP by contractors</p>	<p>DBWPP EHS department responsible for monitoring contractors during construction phase</p> <p>Contractors responsible for monitoring of construction sub-contractors</p>
Archaeology	Chance finds procedure (refer to section 0)	<ul style="list-style-type: none"> Refer to the World Bank's Physical Cultural Resources Policy Guidebook and section 0 	<p>Within 6 weeks from NTP by the contractors</p>	<p>DBWPP EHS department responsible for monitoring contractors</p>

Aspect

Plan/policy

Objective/content

Timescale

Responsibility

- During construction phases, intended to compliment and work alongside CESMMP

Procedures to be communicated to construction sub-contractor by the contractors

Contractors responsible for monitoring of construction sub- contractors

4.2 Construction environmental and social management plan framework

4.2.1 Approach

The contractors or DBWPP will be required to prepare a dedicated CESMMP or appropriate specific E&S subplans compliant with this framework and requirements of the Government of Ukraine which will be structured as follows:

1. An overarching CESMMP providing organisational and operational procedures for the implementation of both project specific mitigation as identified through the ESIA process and general best practices of the industry
2. Parallel framework plans (listed in this section) elaborating complimentary environmental and social management measures by themes and indicating the responsibility for implementation, technical details and how implementation will be monitored.
3. The CESMMP will include performance and monitoring indicators consistent with those presented in section 3 of this Framework ESMMP.

4.2.2 Monitoring

4.2.2.1 Contractor

The contractors will be responsible for the implementation of the CESMMP plans and for monitoring construction sub-contractors and assessing how environmental and social management is undertaken.

The contractors will employ their own specialist EHS staff to undertake this monitoring. The contractors will prepare and maintain reports of their inspections and ensure that corrective actions are taken when necessary and to track environmental performance.

4.2.2.2 DBWPP

DBWPP will employ specialist site based EHS staff to undertake the monitoring of the site and assess contractor compliance with the CESMMP. A system of non-conformance will be put in place to prioritise action according to importance and severity.

The non-compliance procedure will allow for the following safeguards:

1. Work can be stopped in the event of a serious non-compliance situation
2. Follow-up visits will be required to verify that the situation has been appropriately rectified by the contractors
3. Investigations will determine the causes of incidents and evaluate if changes need to be made to the documentation to prevent similar incidents from occurring in the future

Periodic auditing during construction will also take place, two months after construction has commenced and at least six-monthly after that, to verify conformance and that the proper procedures are in place.

4.2.3 Activities

4.2.3.1 Environment

As per the EHS Guidelines, the contractors are obliged to implement all reasonable measures with regards to noise and vibration, soil erosion, air quality, waste, hazardous materials, wastewater discharges, and contaminated land. Furthermore, the contractors are required to

adopt and implement those specific mitigation activities identified which are relevant to their construction activities.

4.2.3.2 OHS

As per EBRD PR2 and PR4 and the EHS Guidelines, the contractors are obliged to implement all reasonable precautions to protect the health and safety of workers. Various aspects which should as a minimum be taken into consideration include: the integrity of workplace structures, severe weather and facility shutdown, fire precautions, lavatories and showers, potable water supply, clean eating area, lighting, safe access, first aid, disease prevention, communication and training, over exertion, slips and falls, working at heights, being struck by objects, moving machinery, lifting operations, hazardous materials, working with live power, EMFs, road safety, noise, dust, confined spaces and excavations, protective equipment, etc. The OHS measures identified in the contractors' subplans will be reviewed to ensure they are consistent with those measures included in DBWPP's overarching OHS management plan.

4.2.3.3 Community health and safety

As per EBRD PR4 and the EHS Guidelines, the contractors are obliged to implement risk management strategies to protect the community from (1) physical, chemical, or other hazards associated with sites under construction, (2) hazards associated with the increased traffic, (3) communicable and vector-borne diseases associated with the population of workers.

4.3 Emergency preparedness and response plan

4.3.1 Objective

The EPRP will provide an organisational structure and procedures for staff to prepare and respond effectively to both external and internal accidents, malfunctions, unplanned events and natural disasters that can potentially negatively affect the project or interact with the project so that communities are affected. A single EPRP will be prepared by DBWPP which covers the construction phase and will be updated for the operational phase of the project.

In the preparation of the EPRP, the following process will need to be followed:

- Perform hazard and operability (HAZOP) analysis for the project covering the relevant phase. Completion of the HAZOP should be undertaken in a workshop or series of workshops and include inputs from all relevant stakeholders (such as DBWPP, the contractors, sub- contractors, local community representatives).
- Document the perceived level of risk (in a risk register) and the appropriate mitigation measures which are required to reduce risks to acceptable levels. All mitigation measures should have responsibilities and timeframes attached to them.
- Inform potentially affected communities of significant hazards giving explanations to aid understanding.
- Set up lines of communication in the event of an emergency (to be reviewed and updated quarterly)
- Prepare the EPRP (refer to below for the proposed structure).
- Summarise and disclose the EPRP in a culturally appropriate manner.

4.3.2 Key hazards

Key hazards of and to the project, which present potential emergency situations, are believed to be as follows and will be considered, inter alia, in the development of the EPRP:

- Fuel and chemical storage, handling and use
- Fire and explosion hazard
- Road traffic accidents
- Construction hazards such as working at height or working in confined spaces
- Power cuts/outages
- Weather, climatic events and natural disasters such as earthquakes
- Terrorism or civil unrest
- Structural failure

4.3.3 Structure of the EPRP

The EPRP will include detailed policy, plans and procedures to cover each of the principal hazards which could potentially be caused by or impact on the project as identified through the HAZOP process. A proposed structure for the EPRP is as follows:

1. Purpose and Scope
2. Definition
3. Project Description
4. Responsibilities
 - Akuo Energy (AKE) responsibilities
 - Contractor's responsibilities
5. Procedures
 - Foreseeable Emergency Events
 - Emergency Response Plan Fact Sheets
6. Emergency Resources and Equipment
 - Internal Resources
 - External Resources
7. Evacuation
 - Evacuation roll call
8. Training
 - First Aids
 - Fire Fighting
 - Emergency Drills
 - EHS orientation training
9. Attachments (Emergency Response Plan Fact Sheets)
 - #1 - Accident / Medical Emergency
 - #2 - Explosion / Fire
 - #3 - Accidental pollution
 - #4 - Road traffic accident
 - #5 - High Wind
 - #6 - Storm

Drills of the EPRP will need to be exercised at least every six months during construction. DBWPP will inform communities and local authorities regularly as plans change and when testing is due to occur. Emergency contact details for community representatives to be contacted in an emergency will be reviewed and updated at least quarterly.

4.4 Biodiversity Management Plan

This Biodiversity Management Plan (BMP) includes: expected timelines, responsible parties, and measures for success. Measures are split into: targeted mitigation measures for impacts and effects of moderate significance or with the potential to affect multiple priority biodiversity features; and general mitigation measures which reflect general good practice to reduce impacts during construction and operation.

Monitoring actions are also included. This is intended to be a dynamic plan, with adaptive management applied in response to results from project monitoring and evaluation of mitigation measures. The objective is to achieve no net loss for biodiversity from Project activities where feasible.

4.4.1 Further studies required

Table 13: Further studies potentially required

Impact to be addressed	Study	Location / Activity	Responsibility	KPI
Temporary and permanent loss under Project footprint	Ground-truthing of habitat classification map	The habitat classification map produced for this report should be reviewed by local ecologists to ensure that calculations are accurate	Developer	Confirmation of habitats mapped through remote sensing

4.4.2 Mitigation requirements

Mitigation measures outlined in Table 14 of this BMP will be incorporated and developed within a construction environmental management and monitoring plans (CEMMP) by the ECP contractor. In addition to these mitigation measures, the CEMMP will include the following:

- Details of the environmental staff to be hired by the contractor and their responsibilities with regard to the implementation of mitigation measures and the biodiversity monitoring during construction
- Details of the local organisation and the specialists that will undertake some of the activities that require specialist and local knowledge
- Description of the biodiversity monitoring methods and sites to be used during construction
- Measures to prevent the introduction and spread of non-native invasive species during construction
- On-site habitat restoration
- Details of how the other biodiversity mitigation measures presented will be implemented
- All workers engaged in the Project will be made aware of the environmental and ecological sensitivities (priority biodiversity features and threatened and protected species) of the Project site and their own actions. Staff will be provided with relevant information through staff induction, toolbox talks, leaflets and office posters
- Control measures for soil and water pollution

Table 14: Mitigation measures

Impact to be addressed	Management/ mitigation/ enhancement action	Timing	Location	Target / threshold
Targeted measures				
Injury or death from collision with overhead lines	Transmission lines should be designed to minimise the potential for bird collision and death (as long as this doesn't contravene the building permit); this is particularly relevant to raptor species known to occur in the study area, particularly the IUCN EN Saker Falcon. Recommendations to minimise collision risk include:	Incorporated in design and construction	OHL route	No reported collision of priority bird species with transmission lines

Impact to be addressed	Management/ mitigation/ enhancement action	Timing	Location	Target / threshold
	<ul style="list-style-type: none"> Install bird deflectors in potential high impact areas (e.g. section of OHL directly north of Solonets Lake) Design lines in a horizontal plane to reduce collision risk Provide safe perching areas <p>Minimising collision risk should be project-specific, with guidelines available in the Migratory Soaring Bird (MSB) Project's Power Line Guidelines (2018).</p>			
Temporary habitat loss under Project footprint	<ul style="list-style-type: none"> Habitat rehabilitation and restoration on the sites affected temporarily by construction <ul style="list-style-type: none"> 7.12 ha, of which 0.1 ha is broadleaved forest and 0.51 ha is perennial calcareous grassland and basic steppes The nature and areas of habitats to be restored on these sites will be determined following consultation with local ecologists and other relevant stakeholders. 	End of construction	Temporary construction areas	Successful completion of rehabilitation/ restoration of areas affected temporarily by construction
Permanent habitat loss under Project footprint	<ul style="list-style-type: none"> Compensation of habitats to be lost under the project footprint, to achieve no net loss <ul style="list-style-type: none"> 35.9 ha of which 6.1 ha is broadleaved forest and 5.6 ha is perennial calcareous grassland and basic steppes and should be compensated (other habitats are modified and do not provide supporting habitat for priority biodiversity features) 	End of construction	Within study area (exact locations to be identified in consultation with local ecologists)	Successful establishment of areas created for compensation
General measures				
Temporary and permanent habitat loss and degradation	<ul style="list-style-type: none"> Work within defined construction working areas, prohibiting off-road driving, reduce dust levels (e.g. by using water sprays/misting) Minimise construction working areas by ensuring clearings associated with construction occur in as small a footprint as possible and avoid priority habitats (estuaries, Ponto-Sarmatic steppes and protected areas) 	Implemented throughout construction	Project study area	No significant increase (>10%) in the project footprint compared to habitat loss assessed in the ESIA.
Disturbance and displacement of species because of artificial lighting, noise and presence of people	<ul style="list-style-type: none"> Minimise noise disturbance and light pollution <ul style="list-style-type: none"> Equipment with low noise emissions will be used and activities with high-intensity noise impacts limited to daylight hours. Exterior lighting will be reduced to minimum levels necessary for safe operation, and operational strategies implemented to reduce spill light. Use non-UV lights where possible, as light emitted at one wavelength has a low level of attraction to insects. This will reduce the likelihood of attracting insects and their predators Keep the workforce within defined boundaries and agreed access routes where possible to minimise disturbance on wildlife. A mandatory environmental induction for all staff members to raise awareness on disturbance avoidance 	Implemented throughout construction	All working areas	No significant change in the baseline noise and light levels during construction

Impact to be addressed	Management/ mitigation/ enhancement action	Timing	Location	Target / threshold
Introduction or spread of non-native invasive species of plants	<ul style="list-style-type: none"> ● Prevent the introduction of non-native and invasive species by using phytosanitary measures on arrival and departure of vehicles and personnel onto site. The following best practice measures with regard to alien invasive species (AIS) may be followed (IFC, 2012): <ul style="list-style-type: none"> – Must not intentionally introduce alien species unless this is in accordance with existing regulatory framework – Must not deliberately introduce AIS irrespective of regulatory framework – Introduction of alien species (e.g. in planting) must be subject to a risk assessment – Implement measures to avoid accidental introduction or spreading of alien species ● Raise awareness through staff inductions 	Implemented throughout construction	Project study area	<p>No introduction new non-native and invasive species to the project areas</p> <p>No spread or increase in abundance of known non-native and invasive species to new areas</p> <p>Eradication of non-native and invasive species within the Project sites where possible</p>
Injury or death of wildlife from collision with road traffic, entrapment in excavations and habitat clearance	<ul style="list-style-type: none"> ● Raise awareness through staff inductions with a requirement for all staff operating motor vehicles undergoing an environmental induction training course that includes instruction on the need to comply with speed limits to respect all forms of wildlife (especially reptiles and amphibians). ● Limit open excavated trenches <ul style="list-style-type: none"> – Excavated trenches will be left open for as short a time as possible. ● Undertake vegetation clearance outside of the main bird breeding period <ul style="list-style-type: none"> – Vegetation clearance will be undertaken outside of the main bird breeding period if possible (likely March to August; to be confirmed with local ecologists). – Where this is not possible, areas to be cleared will be checked for breeding birds prior to clearance and if nesting birds are found, appropriate mitigation measures will be implemented. This may involve avoiding construction within 50 m of the active nest until the chicks have fledged. ● Survey for bat roosts before clearance of habitat <ul style="list-style-type: none"> – Any trees providing potential roosting habitat are will be subject to a roost survey before clearance, following best practice guidelines (e.g. Hundt, 2012). – If a roost is identified, appropriate mitigation will be implemented to prevent injury or death to bats. 	Implemented throughout construction	Project study area	Zero killing/ injuring of wildlife because of collision with construction vehicles, entrapment in deep excavations, or habitat clearance
Hunting and collection of wildlife by construction/ operation workers	<ul style="list-style-type: none"> ● Implement ban on hunting and collection of wildlife on site <ul style="list-style-type: none"> – Raise awareness through staff inductions – Include any breaches in the hunting ban in the regular reporting. 	Throughout construction and operation	Project study area	No reported hunting or poaching of wildlife by Project staff.

Impact to be addressed	Management/ mitigation/ enhancement action	Timing	Location	Target / threshold
Injury or death from collision with wind turbines Injury or death from collision with overhead lines	<ul style="list-style-type: none"> Habitats within the Project site will be maintained during operation to reduce the risk of attracting collision-prone birds: <ul style="list-style-type: none"> Avoid establishing ponds or waste sites within the development Follow good wind farm maintenance practices, such as filling of holes in nacelles so that nesting and perching is not possible 	Throughout operation	Project study area	No reported collision of priority bird species with transmission lines.

4.4.3 Monitoring requirements

Table 15 outlines biodiversity monitoring required during the construction phase and ongoing monitoring to be undertaken as part of an adaptive management approach during operation of the Project. Data collected will be reviewed to assess project impacts on biodiversity and the effectiveness of the mitigation measures undertaken, with thresholds set for each of the parameters monitored. Should it be found that any of the thresholds defined in Table 14 are exceeded, an adaptive management response will be triggered, as follows:

- Investigate cause of adverse impact;
- If project activity cannot be excluded as cause, convene meeting of relevant ecological consultants and stakeholders to discuss event and determine what mitigation measures or further inquiry is needed;
- Undertake a site visit by biodiversity and impact assessment specialists if deemed necessary;
- Update EMP and any other relevant site management plans to include additional mitigation and monitoring required.

Table 15: Monitoring requirements for biodiversity

Monitoring activity	Parameters	Location	Responsibility	Timing / Frequency and Deliverables	Potential response in event of exceedance
Monitor the spread of invasive plant species known on site (recorded during baseline surveys; ESIA Section 4.4.1.1.2) and any new invasive species recorded on-site.	During construction, the contractor will monitor the non-native and invasive plant species identified and will report on new invasive species establishing in the Project areas. Other species known to be invasive in Ukraine and globally (refer to Lowe et al., 2000) will be also monitored if recorded on the construction sites. A local botanist will be contracted to undertake the monitoring or will be contacted to confirm the identification of invasive species.	Within the construction areas and known locations of invasive species	E&S lead contracted by DBWPP.	Every three months during construction. Brief technical report to be produced after each survey, listing location and abundance of invasive species recorded. Data to be assessed annually to identify trends.	Implement control and eradication measures for the invasive species. Implement better site hygiene preventative measures. Potential increase in the frequency of monitoring invasive species.
Visual assessment of road kill and trenches to monitor wildlife	Report all killings/ injuries and highlight priority biodiversity features	All roads and trenches/ excavations	All staff to keep log-book up to date.	Weekly checks by the environmental and social officer (EPC contractor	Enforce lower speed limits on construction sites.

Monitoring activity	Parameters	Location	Responsibility	Timing / Frequency and Deliverables	Potential response in event of exceedance
mortalities in project site.		on Project site.	Suitably qualified environmental and social officer to undertake weekly checks.	or SPV) during construction. On-going logbook system of road mortalities with review as part of monthly reporting	If any trapped or injured wildlife is found on the construction sites, advice should be sought from an ecologist or the animals should be taken to a rescue centre if appropriate and possible.
Implement anonymous reporting system for any known hunting / collection of wildlife and monitor data.	Any incidents of reported poaching / hunting undertaken by project staff should be reported, with any incidents involving species of conservation importance highlighted	Project site.	All staff to report incidents.	On-going during construction, with review of reported incidents as part of monthly reporting.	Ensure knowledge of ban on hunting / poaching with all staff. Enforcement of penalties if required.
Habitat monitoring of restoration areas to ensure they are correctly established	Vegetation structure and composition and condition to compare with baseline data	Restored habitats on construction site	Suitably qualified contractor(s) with field surveying experience and knowledge of local plant species and habitats to be appointed by developer.	Once per year (during summer) for the first two years after construction	Identify causes of failure (e.g. pests, unsuitable substrate, lack of water, diseases) and implement appropriate control/ remediation measure
Carcass search under wind turbines and OHL during operation to ensure mitigation for collision is sufficient.	Report any bird and bat casualties and highlight those of conservation concern (particularly saker falcon). Methodology detailed in ESIA Annexes N and O.	50m either side of the new transmission line at key points (e.g. north of Solonets Lake).	Suitably qualified contractor(s) with knowledge of local bird and bat species to be appointed	Once per month during first two years of operation. For the wind turbines, frequency will be increased to every 14 days during key periods (spring and autumn migration; summer breeding). This may need to be extended depending on results from the first year.	If there are significant casualties, monitoring should be extended for another year. Revise and adapt mitigation by design measures such as insulation and diverters.
Monitoring bird populations to identify if the Project is impacting populations through displacement	Presence and abundance of bird species, following methods outlined in ESIA Annex N to provide results comparable to baseline surveys.	Points within Project site to be defined by ecologist surveying.	Suitably qualified contractor(s) with knowledge of local bird species and monitoring methods	Monthly monitoring during operation (ESIA Annex N).	If populations are significantly affected adaptation and mitigation measures will be reviewed in consultation with relevant stakeholders, such as species experts.

4.5 Invasive species management plan

An ISMP will be developed and implemented to control and manage invasive species. The plan will be developed by the contractors to identify and report potentially invasive species establishing on the project site. The EHS manager will check this information or contact a suitably qualified and experienced expert to confirm/inform the presence of invasive species.

Implementing measures to prevent the accidental introduction of invasive species is required under IFC PS6 and includes the following requirements with regard to alien invasive species (AIS):

- Must not deliberately introduce AIS irrespective of regulatory framework
- Implement measures to avoid accidental introduction or spreading of alien species (see below)
- Consider the implementation of measures to eradicate AIS from natural habitats over which DBWPP has management control

Preventative, control and monitoring measures will include the following; however, further details will be confirmed on preparation of the ISMP):

- Packaging and movement of materials
 - Minimise traffic and the distance it has travelled
 - Source goods/materials locally where possible
 - Contain any AIS and report their presence
- Vehicles and plant
 - Clean all vehicles and plant regularly
 - To kill or isolate invasive species in the project site
 - ‘As-new’ wash-down is essential before entering non-infested areas and after working in infested areas
 - Train workers and raise awareness regarding AIS
 - Pressure wash vehicle tyres in a contained area
 - Contain and destroy AIS residue such as roots and root fragmentation
 - Record and report the presence of any AIS
- Soil and vegetation
 - Minimise disturbance to, or movement of, soil and vegetation
 - Prevent soil damage and erosion
 - Ensure imported soil/other materials are safe and free of AIS
 - Prevent AIS establishment on exposed stored soil (do not store bare soil near known sources of AIS, consider using matting to cover exposed soil)
 - Ensure infested material is disposed of appropriately
 - Retain as much natural vegetation as possible
- Habitat reclamation
 - Use native plants for reinstatement and landscaping
 - Do not use any non-native species in landscaping
 - Consider that some AIS may be soil-based

- Avoid altering soil and water body properties

4.6 Habitat removal and reinstatement plan

A HRRP will be produced by the contractors before the start of construction. The HRRP will set out the minimum requirements for such activities and will detail how reinstatement activities should be carried out. The reinstatement plan will include an appropriate level of operations monitoring along with remediation actions if unsuccessful. The following aspects and measures will be included as a minimum in the HRRP:

- Vegetation clearance and soil stripping
 - Vegetation is to be cut down and cut material will be removed before soil stripping
 - Use hand cutting where possible, avoiding the use of heavy equipment such as bulldozers, especially on steep slopes
- Soil handling and storage
 - Store top soil separately from subsoil or other materials. Top soil and subsoil will be stored in demarcated areas and will be clearly labelled to prevent mixing of different materials and to allow reinstatement in the correct order (temporary sites only) or to re-use these materials on other sites.
 - The seed/root-bearing topsoil will be formed into a shallow mound not higher than 1.5m in height. The subsoil will be stored separately in the same way.
 - Any weeds on the soil mounds will be controlled by strimming.
 - To maintain the germination capacity of the seed bank, the top soil storage will not exceed 15 weeks if this material is used for reinstatement. If the 15-week period is exceeded, the reinstatement will be monitored, and additional planting implemented if required.
- Soil reinstatement and habitat restoration
 - Soils will be reinstated after construction in the temporary sites (e.g. storage yards, points along the OHLs and access roads). Soil reinstatement will be carried out to ensure the top soil is returned to the surface in line with international standards and best practice.
 - Compensatory tree planting

Post-project restoration of any damaged priority habitats will be implemented to ensure no net loss in the long-term. Based on habitat mapping through remote sensing, a total of 7.12 ha will be temporarily lost during the construction phase, of which 0.1 ha is broadleaved forest and 0.51 ha is perennial calcareous grassland and basic steppes, The nature and areas of habitats to be restored on these sites will be determined following consultation with local ecologists and other relevant stakeholders.

On small unplanted areas, it is expected that the vegetation will gradually establish on its own on the reinstated top soils (after a number of years) as most plants will regenerate from the seed bank in the top soil. Only native species will be used in any planting taking place on or off site.

4.7 Waste management plan

4.7.1 Background

This section presents a summary and framework for a WMP which the contractors will use and develop further in order to create fully bespoke WMPs for the project. It should be developed

initially for the construction phase and updated by DBWPP for the operational stage prior to the commissioning of the project.

4.7.2 Objective

The overall objective of a WMP is to ensure that waste generated is segregated and managed appropriately in order to ensure maximisation of re-use and recycling and overall waste minimisation. Furthermore, the WMP ensures that residual waste requiring off-site management is managed according to best practices of the industry.

4.7.3 Approach and activities

The following key steps will need to be considered for the WMP:

- Identify who is responsible for overall waste management for the project and inform individuals of their responsibilities. They will be required to hold sufficient authority to ensure compliance with the WMP by other site operatives
- Identify the types and quantities of waste - all waste streams that will be produced require to be identified
- Duty of care - outline waste management procedures and records required to demonstrate appropriate handling and final disposal of all wastes
- Identify suitable waste management sites/landfill sites - the location of waste management sites will need to be identified, ideally the most local sites should be used to minimise transportation costs
- Use waste disposal sub-contractors that comply with the environmental legislative requirements of the local and national area
- Waste must not be burnt
- Training - all staff must be trained to ensure they understand the requirements of the WMP
- Plan - using the steps above, establish indicative percentages of the waste quantities to be produced over the life span of the project
- Measure - the quantities of wastes produced should be recorded on a monthly basis, and where possible measures taken to re-use, reduce or recycle waste as appropriate
- Monitor - throughout the project life cycle, waste management on site should be monitored, to ensure compliance with the WMP
- Hazardous classes – hazardous wastes should be classified according to national requirements
- Identify waste management options - a waste hierarchy of reduce, reuse, and recycle and needs to be considered and prepared. Where hazardous wastes are being generated, particular attention to the arrangements for identifying and managing such waste will need to be addressed and procedures put in place

Within the WMP it may be necessary to provide bespoke disposal management plans for various waste streams, particularly those considered hazardous or which are potentially problematic in terms of storage and/or disposal. Some of the expected waste disposal management plans for the project are, but not necessarily limited to the following:

- Collection and disposal management plan for waste oils
- Wastewater removal and treatment

4.7.4 Implementation

Monitoring requirements of the contractors and DBWPP in relation to the elaboration and implementation of the WMP is consistent with that described previously for the CESMMP. Staff and resources for both the contractors and DBWPP is the same as those previously defined for CESMMP implementation.

4.8 Hazardous materials handling and storage plan

4.8.1 Background

This section presents a structure for the HMHP which the contractors will use and develop further in order to create a fully bespoke HMHP for the project. The HMHP should be complimentary and in parallel to the contractors' CESMMP and WMP. It should be developed initially for the construction phase and updated by DBWPP for the operational stage prior to the commissioning of the project.

4.8.2 Objectives

The overall objective of a HMHP is to ensure that all hazardous materials transported, stored and used during the construction and operational phase of the project are managed appropriately in order to prevent potential impacts associated with spills, leaks, fugitive emissions and health impacts to workers.

4.8.3 Approach and activities

The following key steps will need to be considered for the HMHP:

- Identify who is responsible for overall hazardous materials for the project and inform individuals of their responsibilities. They will be required to hold sufficient authority to ensure compliance with the HMHP by other site operatives.
- Identify the types and quantities of hazardous materials to be stored during the construction and operational phases.
- Identify suitable hazardous waste storage sites.
- Ensure that the storage sites have the appropriate mitigations such as bunds and follow national requirements.
- Training - all staff must be trained to ensure they understand the requirements of the HMHP.

4.8.4 Implementation

Monitoring requirements of the contractors and DBWPP in relation to the elaboration and implementation of the HMHP are consistent with those described previously for the CESMMP.

4.9 Traffic management plan

4.9.1 Introduction

Pre-defined access routes will be used by long, wide and/or heavy load vehicles transporting large plant components, e.g. WTG blades and other components. These routes will be agreed with the relevant authorities in advance and the police will be notified.

4.9.2 Delivery plan

Project components shall be delivered to site in accordance with the following:

- Plant to be delivered in sufficient time to meet the agreed construction programme.
- Plant to be delivered in accordance with the requirements of the local municipality, police and road authority.
- Loads to be delivered to site by road and stored on site. It will be the contractors' responsibility to identify a suitable storage location and obtain any necessary authorisations.
- A pilot escort vehicle should be used to provide an escort for all abnormal load vehicles travelling to the site by road. The general preference in these situations is to employ a convoy system, with a vehicle at the front and rear to warn oncoming vehicles of the approaching load. The escort would also help to minimise disruption of flow for other road users by pulling the convoy over at pre-identified locations to allow build-up of following traffic to pass. Drivers responsible for operating the convoy should be fully briefed on the route, where and when to make the pre-defined stops, and be aware of all contingency measures in place in the event of an incident occurring. All vehicles and lead traffic management staff shall be in contact with the use of two-way radios
- Employ additional traffic management staff (to be agreed with police if required prior to transportation) for any locations where pedestrians are most likely to be present.
- Ensure road conditions are sufficient to transport the planned loads.
- Ensure clear roadways to allow transporters passage through geometrically constrained sections of the route. At strategic locations parking may need to be restricted at times of delivery.
- Develop contingency plan, in consultation with the police, to cover an event where an abnormal load becomes immovable on the public road, for any reason (for example, breakdown, un-anticipated route restriction, accident).

A driver's induction for abnormal load vehicles will include:

- Safety briefing including detail of all contingency measures
- The need for appropriate care and speed control
- Identification of specific sensitive areas
- Clarification of identified route, the requirement not to deviate from this route, the requirement to adhere to convoy system and pull over at pre-defined points to allow build-up of traffic to pass

4.9.3 Site traffic

The following points will apply to general site traffic:

- General site traffic and general construction traffic will not require the presence of an escort when travelling to and from site
- Drivers shall be aware of route and contingency measures as pre-defined at induction stage
- Drivers of HGVs are to be briefed in good road practice and will be instructed to pull over on narrow sections of road to allow build-up of traffic to pass
- All general site traffic and construction vehicles, including concrete related deliveries, will run to coincide with site working hours
- Normal load construction vehicles will use a defined route and obey on and off-site speed limits, which for on site will need to be agreed
- Signage will be kept to a minimum, however temporary direction signs indicating local routes to site and site entrances will be required at strategic locations on local roads
- The detailed signing arrangement will be agreed between the appointed contractors in close liaison with the local municipality and the police service

- Wherever possible, arrangements will be made for site workers to be transported to site via shared transport to minimise unnecessary traffic movements locally
- The contractors will be required to implement induction procedures and regular up-dates for all drivers to establish and promote an overall culture of safety and awareness of other road users
- Vehicles must stick to designated access tracks throughout the site

4.9.4 Implementation

Monitoring requirements of the contractors and DBWPP in relation to the elaboration and implementation of TMP Framework are consistent with those described previously for the CESMMP. Staff and resources for both the contractors and DBWPP are the same as those previously defined for the CESMMP implementation.

4.10 Chance finds procedure

Chance finds are defined for the purposes of this procedure as physical cultural resources encountered unexpectedly during project implementation.

The ownership of any chance finds discovered on the project will be determined by The Ministry of Culture of the Government of Ukraine.

Prior to commencement of works the contractors (in collaboration with DBWPP) will consult with the authorities mentioned above in order to arrange training for their employees.

4.10.1 Procedure upon discovery

A procedure to follow upon discover will be defined. It will describe:

- Conditions and requirements for work stoppage
- Requirements of the chance find report
- Actions required
- Contacts to which chance find report should be submitted
- Suspension of work
- Resumption of work

4.10.2 Review

DBWPP's EHS manager will review the process and amend it as necessary to ensure efficiency and effectiveness of the chance finds procedure in the future.

4.10.3 Implementation

Monitoring requirements of the contractors and DBWPP in relation to the implementation of chance finds procedure are consistent with those described previously for the CESMMP. Staff and resources for both the contractors and DBWPP are the same as those previously defined for CESMMP implementation.

5 Conclusion

The ESMS and sub plans outlined in this document must be developed within 6 weeks from Notice to Proceed. Both will be subject to periodic review on (at a minimum) an annual basis. Plans will also be reviewed and revised to reflect changes in legislation or knowledge of an issue.

