PROJECT PROFILE

A COMMERCIAL SCALE WIND TURBINE PILOT DEMONSTRATION AT HEI LING CHAU

March 2006

Capco 青山發電有限公司 Castle Peak Power Co. Ltd.

中華電力 CLP Power

CONTENTS

1 INTRODUCTION

Castle Peak Power Company Limited (CAPCO), a joint venture between CLP Power Hong Kong Limited (CLP) and ExxonMobil Energy Limited (EMEL), recognises the Government of the Hong Kong Special Administrative Region (HKSARG)'s efforts in exploring alternative power sources, including renewable energy, and in promoting public awareness of these alternative power sources. To this end, CAPCO has launched a commercial scale wind turbine pilot demonstration (the Project) to investigate the economic, environmental and technical feasibility and practicality of wind energy application in Hong Kong, in support of HKSARG's renewable energy initiative. The Project will take a grid-connected commercial scale wind turbine through the full site selection and regulatory process so that the community can gain more knowledge and experience about wind energy application in Hong Kong.

This Project Profile presents an outline of the Project and key information on the environmental aspects of the Project for the application of an Environmental Impact Assessment (EIA) Study Brief under *Section 5.1(a)* of the *Environmental Impact Assessment Ordinance (Cap. 499)* (*EIAO*).

2 BASIC INFORMATION

2.1 PROJECT TITLE

A Commercial Scale Wind Turbine Pilot Demonstration at Hei Ling Chau

2.2 NAME OF PROJECT PROPONENT

Castle Peak Power Company Limited (CAPCO)

2.3 NAME AND TELEPHONE NUMBER OF CONTACT PERSON

Name, Position and Title	*Telephone Number*
Mr Richard Morse *Head of Environmental Strategy and Development, CLP Power Hong Kong Limited*	2678 8380

2.4 DESIGNATED PROJECT TO BE COVERED BY THE PROJECT PROFILE

The grid-connected commercial scale wind turbine power generation system qualifies as a Designated Project under Category D (Energy Supply), Item D.1 (Public Utility Electricity Power Plant) of Schedule 2, Part I under the *EIAO*.

2.5 PURPOSE AND NATURE OF THE PROJECT

The Project is a pilot study and its main purposes are as follows:

- to evaluate the applicability of a grid-connected wind power generation system in Hong Kong;
- to collect engineering and environmental information (including the necessary statutory permitting requirements) required for the development of wind power generation in Hong Kong;
- to educate and raise the community's awareness of the issues, costs, constraints, benefits, etc of wind energy generation in Hong Kong.

2.6 PROJECT DESCRIPTION

This section presents the key information relating to the selection of the Project Site, the wind turbine proposed to be installed, and the activities associated with the construction and operation of the Project. It should be

noted that the Project is under design and that the details are subject to change.

2.6.1 Site Selection Process

A rigorous site selection process has been conducted to identify suitable areas for the development of the Project. A potential area must have the following essential characteristics to be considered in the selection process:

- the area must be on land;
- the area must have close access to CLP Power's transmission network.

Considerations given in the selection process can be broadly divided into three main categories, namely grid interface; environmental, physical and social constraints; and wind resource.

The main consideration in terms of grid interface in the selection process is the ability to connect the potential area with CLP Power's existing supply grid through a land cable. The environmental, physical and social constraints to the development of the Project include:

- Country Parks and any gazetted extensions;
- Special Areas;
- Ramsar Sites;
- firing ranges;
- Wild Animal Protection Areas;
- Sites of Special Scientific Interest (SSSI);
- sea turtle nesting grounds;
- gazetted bathing beaches;
- seawater intake points;
- areas with residential and commercial premises;
- development height restrictions in the vicinity of the Hong Kong Disneyland Resort;
- building height restrictions associated with the safe operation of the Hong Kong Airport;
- areas with population density greater than 30,000 per km^2;
- constructability.

In parallel with the site screening exercise, preliminary wind resource modelling was conducted to identify areas with a reasonable wind resource for the development of the Project.

A composite constraints map that shows areas with all the abovementioned constraints (*Figure 2.6a*) was overlaid with a relative wind resource map of Hong Kong (*Figure 2.6b*) to establish a long-list of potential areas. Areas with reasonable wind resource potential and unconstrained by the abovementioned factors were listed for further consideration.

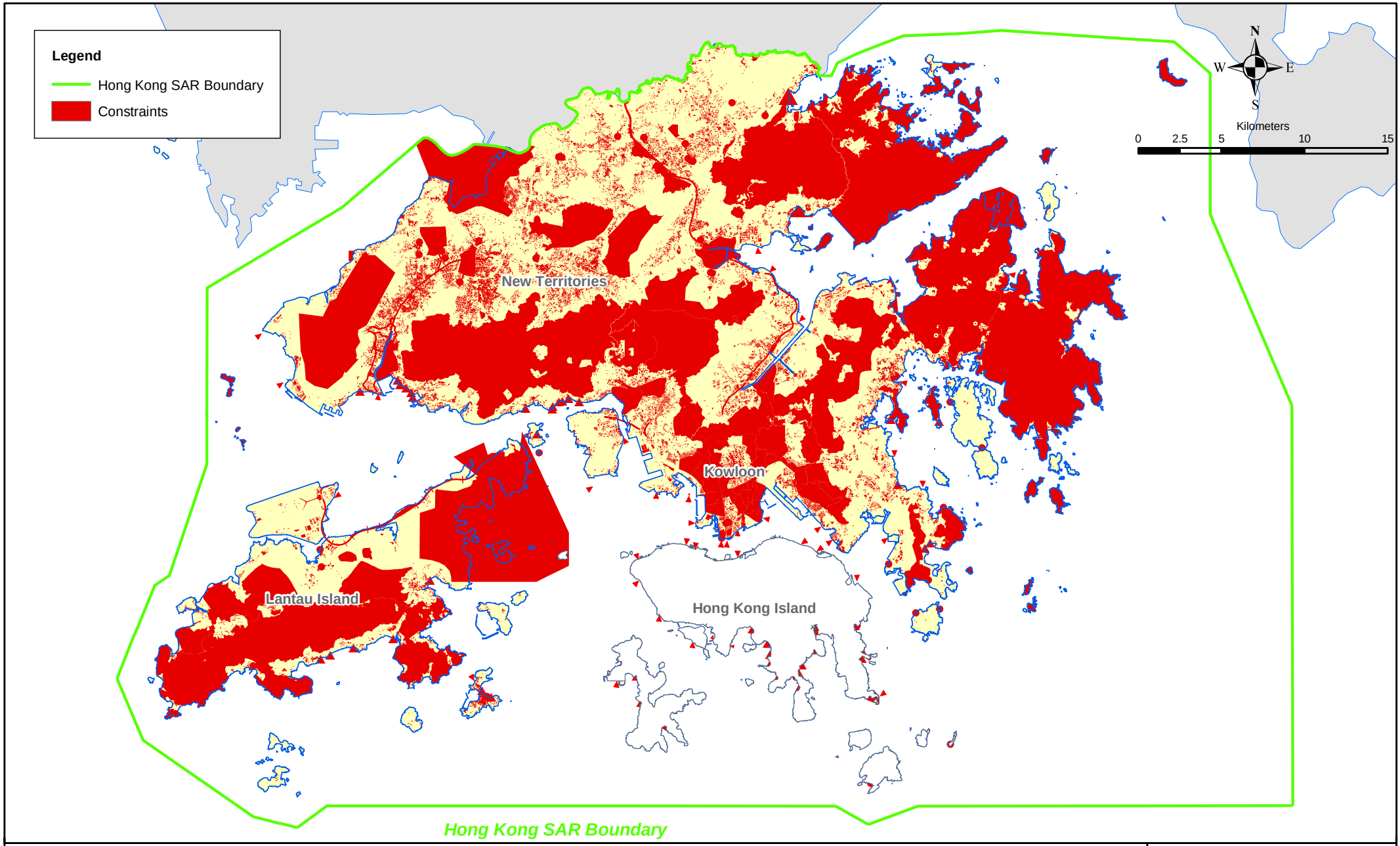


Figure 2.6a

Constraints to the Siting of a Commercial Scale
Wind Turbine within CLP Supply Area

File: 0019313/all_absolutes_v3..mxd
Date: 23/02/2006

Environmental Resources Management

ERM

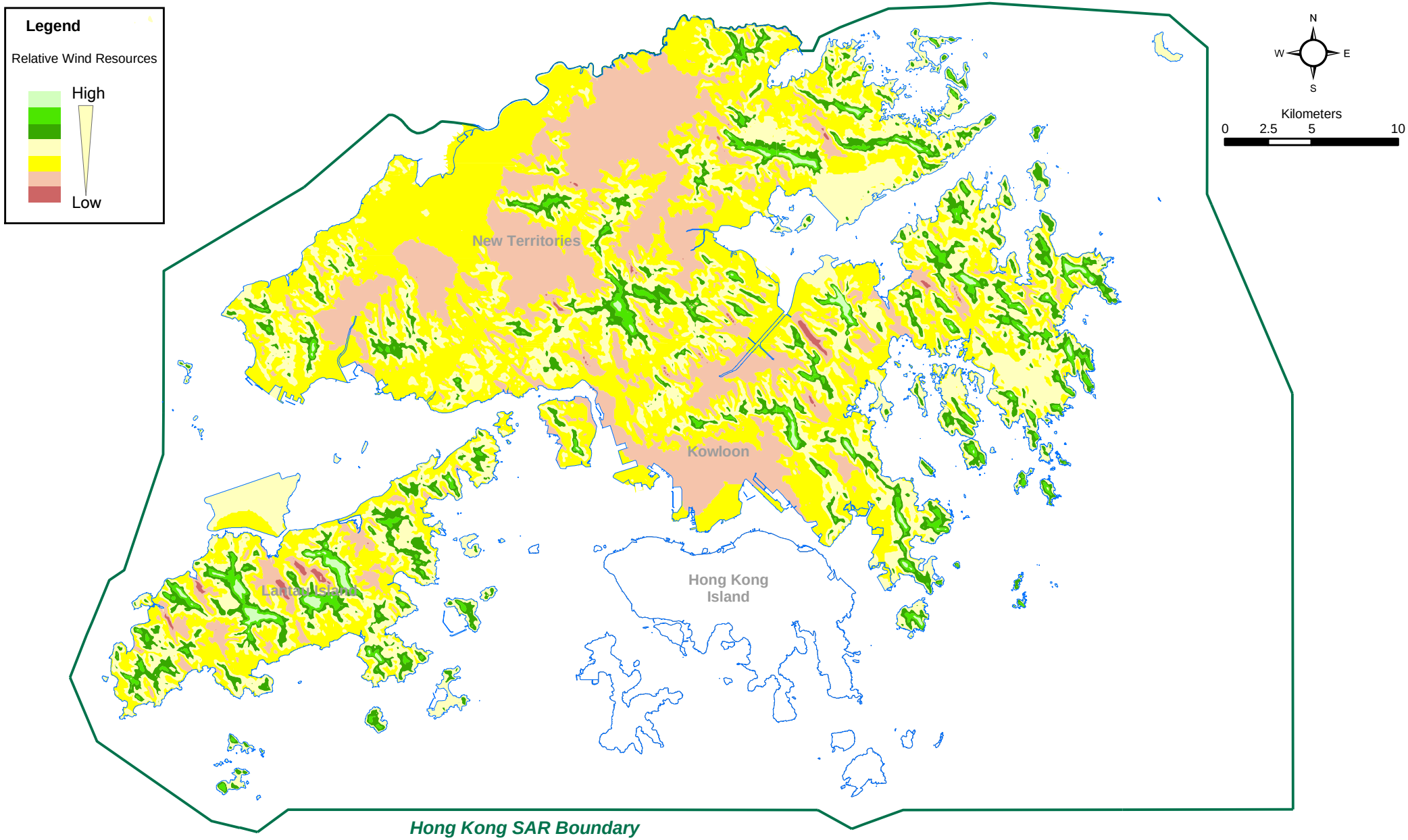


Figure 2.6b

Relative Wind Resources within CLP Supply Area

File: 0019313\lsovents_v3.mxd
Date: 23/02/2006

Environmental Resources Management

ERM

A set of criteria covering planning, environmental and engineering considerations was applied to assess the potential areas. Site visits were conducted and observations from the visits and their implications on the development of the Project were noted. Based on the ranking results and consideration of the site observations, a short-list of potential areas was prepared.

The potential areas were finally subject to a preliminary review to evaluate the feasibility and acceptability of the potential areas for the development of the Project in terms of engineering feasibility and wind energy potential. With the initial confirmation on the engineering feasibility and wind energy potential, an area on the island of Hei Ling Chau was selected as one of the two potential Project Sites. A separate Project Profile is expected to be submitted for the alternative site.

2.6.2 The Project Site

Hei Ling Chau is an outlying island to the east of Lantau Island with an approximate total area of 1.9km^2 (190 ha). The entire island is currently under the management of the Correctional Services Department (CSD). The facilities on the island include the Hei Ling Chau Correctional Institution, Hei Ling Chau Addiction Treatment Centre, Hei Ling Chau Addiction Treatment Centre (Annex) and Lai Sun Correctional Institution (*Figure 2.6c*). There are also other supporting facilities including administration buildings, staff quarters, two helipads and a guard dog kennel. The island is only accessed by marine transport and access is restricted. Visitors normally land at the passenger ferry jetty in the north-western tip of the island. There is also a berthing facility associated with the refuse transfer facility within the north-western corner. A number of breakwaters have been constructed to the southwest of the island to form a typhoon shelter. The island is served by a single-lane paved vehicular road connecting the various CSD facilities.

The proposed Project Site is located on relatively level ground at an approximate elevation of +70mPD in the southern part of Hei Ling Chau. Considering the potential size of the wind turbine (*Table 2.1*), the total elevation of the wind turbine could potentially be up to about +160mPD. The building height limit associated with the safe operation of the Hong Kong Airport at the Project Site is approximately +162 to 173 mPD. The dimensions of the Project Site, including the construction lay down areas for the various components of the wind turbine system, are approximately 50m x 85m (*Figure 2.6d*). According to information provided by CSD and site observations, the Project Site is currently used for the temporary storage of materials and equipment for construction activities on the island.

The two helipads on the island are regularly used by the Government Flying Service (GFS) to support the operation of the penal facilities. The nearest helipad is located over 150m from the planned location for the wind turbine.

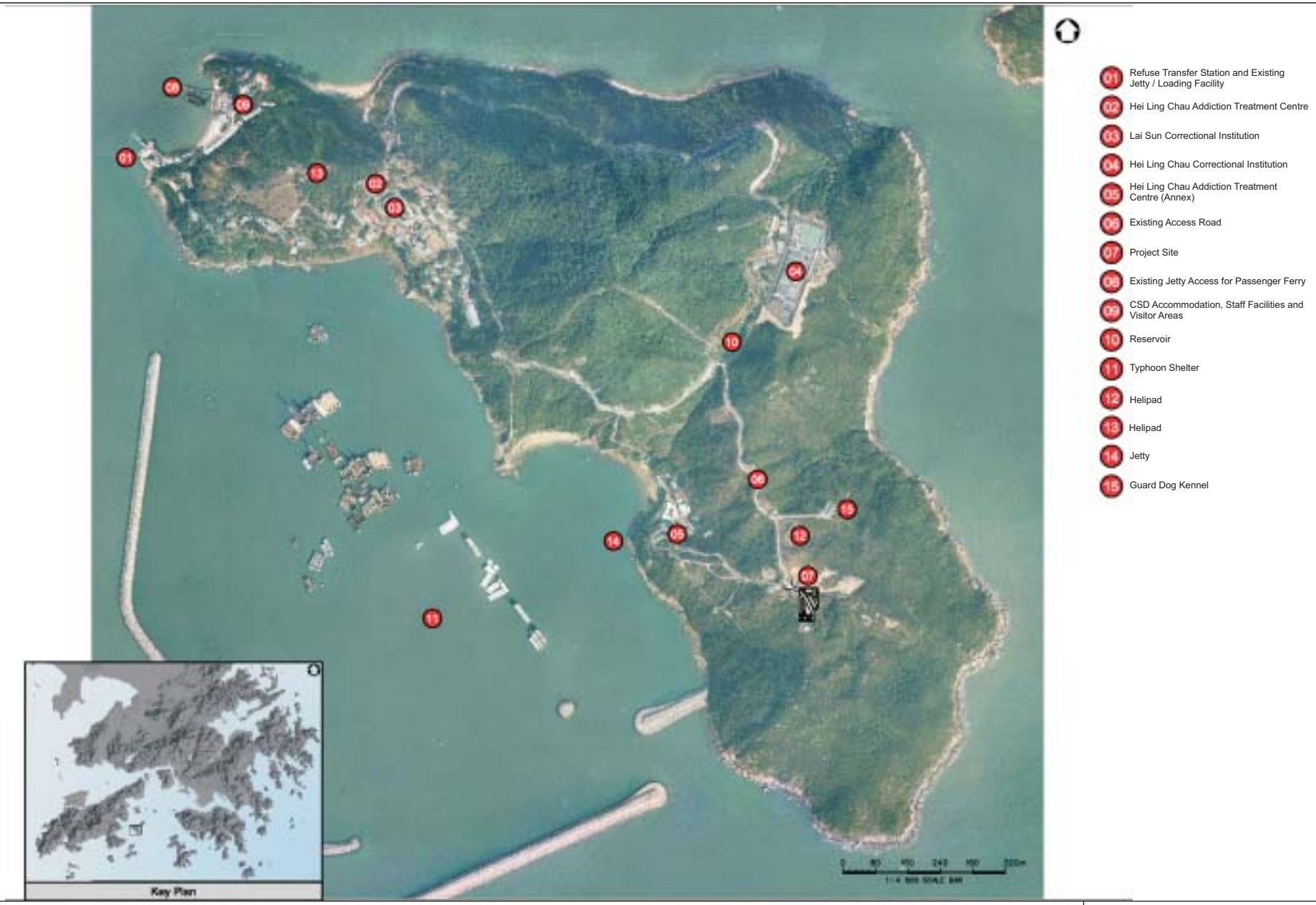


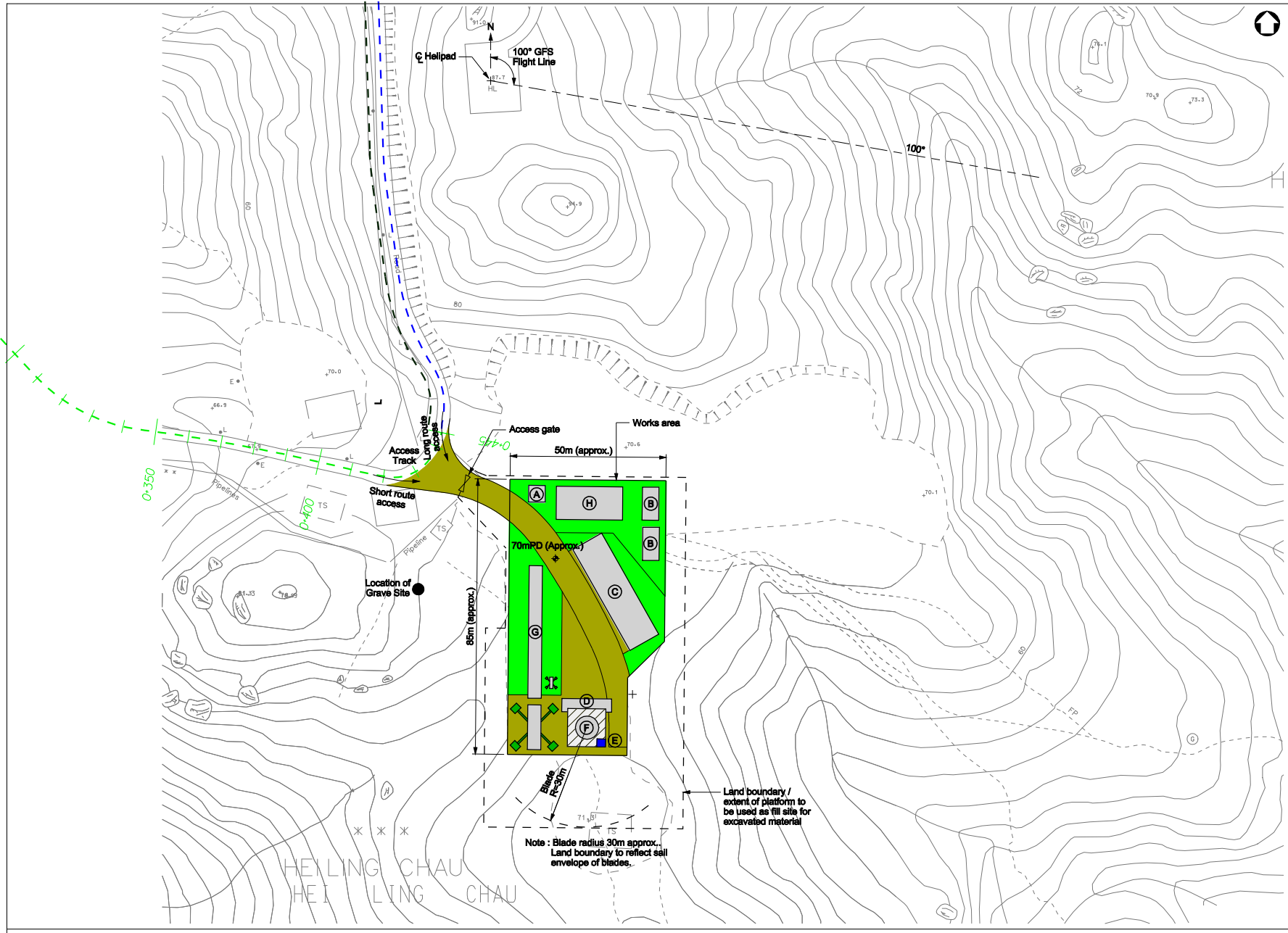
Figure 2.6c

CLP/CAPCO Commerical Scale Wind Turbine Pilot Demonstration
Hei Ling Chau Project Site and its Surrounding Environment

FILE: 0019313aa5
DATE: 10/03/2006

Environmental Resources Management

ERM



Legend:

- (A) Substation 5mx6m
- (B) Temporary Cabins 5mx10m
- (C) Turbine Lay Down Area A 10mx35m
- (D) Turbine Lay Down Area B 4mx20m
- (E) Set Up Transformer 2.4mx2.6m
- (F) Turbine Foundations 9mx9m
- (G) Jib Assembly Area 4mx40m
- (H) Materials Lay Down Area
- Concrete Hardstand Area
- Compacted Fill / Lay Down Area
- Tower Foundation

Note

All dimensions indicated are preliminary and are subject to detailed design

FIGURE 2.6d

CLP/CAPCO Commercial Scale Wind Turbine Pilot Demonstration
Preliminary Site Arrangement for Hei Ling Chau Project Site

USTN FILE: 0019313_12_HLC.dgn
DATE: 03/03/2006

Environmental Resources Management

ERM

2.6.3 The Wind Turbine

Wind turbine technology is evolving rapidly and it is not possible at this stage to be specific as to the exact type of wind turbine that will be installed. It is currently envisaged that a wind turbine with a rated capacity of roughly 800 kW to 1.3 MW will be installed. The proposed wind turbine will be a three-bladed horizontal axis machine. In a typical wind turbine, the main electrical and mechanical parts, including the gearbox, the generator and the yaw mechanism, are housed in the nacelle, which sits on top of a tower. The tower will be a tubular structure and commonly constructed of steel, but can also be of other materials such as concrete. The tower will stand upon a concrete base with approximate dimensions of 9 m x 9 m.

The rotor blades capture the wind and transfer its power to the rotor hub, which is connected to the electrical generator via the gearbox. The electrical power generated is transmitted via a step-up transformer to a substation, from where the power is fed into the nearest existing 11 kV power grid through overhead or underground transmission cables. A summary of the general wind turbine specification is presented in *Table 2.1*.

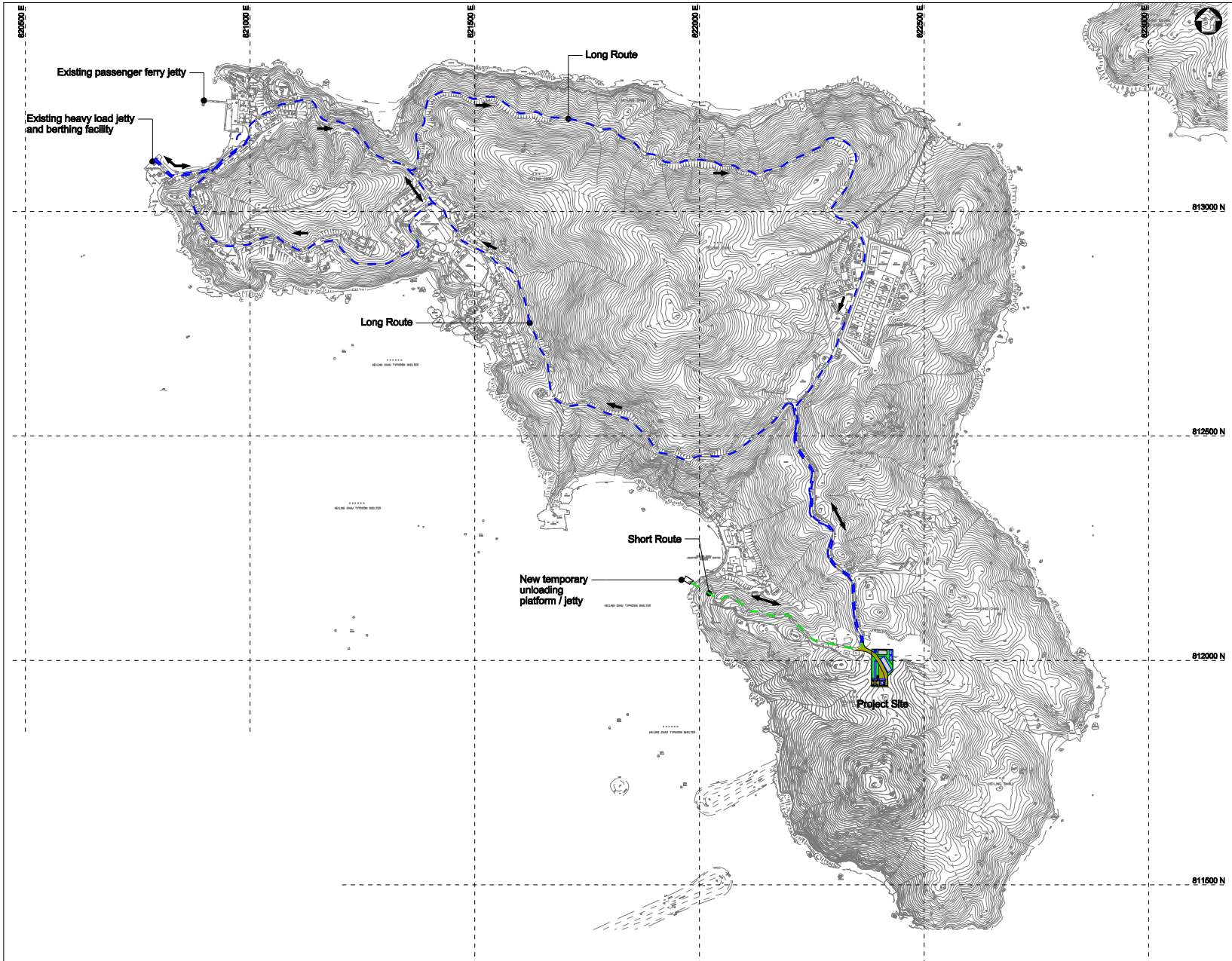
Table 2.1 A Summary of the General Wind Turbine Specification

Parameter	General Specification
Type	3-bladed horizontal axis machine
Rated Capacity	800kW – 1.3 MW, 50 Hz, 690 V
Grid Connection	11 kV
Power Regulation	Stall or pitch control
Design Lifetime	20 years
Size of Rotor Blade	Up to 30 m length, 5 t weight (assembled 3-bladed rotor weighs up to 21.5 t)
Size of Nacelle	Up to 10 m (l) x 3.75 m (h) x 3.0 m (w), 58.5 t weight
Size of Tower	Up to 60 m height
Overall Size of Wind Turbine	Up to 90 m tip height

2.6.4 Construction of the Project

The major construction activities for the Project will include upgrading of existing roads and/or creation of temporary access for the delivery of construction materials and equipment, formation of the platform for the erection of the tower, construction of the tower foundation, erection of the tower, installation of the nacelle and rotor and installation of the control and transmission systems.

Two access routes have been identified for the delivery of construction materials and equipment to the Project Site (*Figure 2.6e*). The first route, the Long Route, makes use of the existing heavy load berthing facilities and road system. The route will take the northern part of the existing loop route and follow the existing alignment to the Project Site. Enabling works including utility diversions, removal of structures blocking the transport route, signs



Legend:

- Long Route
- Short Route
- One-way direction of local traffic on existing road
- Two-way direction of local traffic on existing road

Notes:

1. One way traffic system generally in operation.
2. Night time construction and transportation not feasible due to CSD security procedures.

FIGURE 2.6e

CLP/CAPCO Commercial Scale Wind Turbine Pilot Demonstration
Construction Access Routes for Hei Ling Chau Project Site

USTN FILE: 0019313_9_HLC.dgn
DATE: 03/03/2006

Environmental Resources Management

ERM

and street furniture, and minor road widening and slope works are expected to be required to facilitate vehicle passage. The Long Route will also be used for the delivery of general construction materials and plant and of the critical wind turbine components if they can be broken down into reasonably sized parts and re-assembled at the Project Site.

Another route, the Short Route, has also been identified as a contingency measure in the event that the enabling works required for the Long Route prove to be excessive. This route will involve the upgrading or extension of the existing jetty in the south-western part of the island. The temporary jetty will be a steel platform on steel pre-bored H-piles for receiving the heavy wind turbine components from a derrick lighter. A temporary steel bridge structure supported on temporary steel piers will be constructed on the slope above the temporary jetty. The installation of the temporary steel bridge will require the construction of foundations in the form of spread footing or mini-piles on the slope above the temporary jetty. A mobile crane will lift the heavy and bulky components from the temporary steel platform of the jetty to a waiting trailer on the haul road. The components will then be delivered on the trailer to the Project Site via the existing road.

Key considerations in the choice of the delivery route will be the material and method for the construction of the wind turbine tower and the possibility of breaking down the nacelle into smaller components. If a standard steel tubular tower is used, the tower will be supplied in three factory-fabricated tubular sections of lengths up to 23m. It is anticipated that the tower sections will be delivered on a trailer lorry. An alternative to the steel tubular tower will be a concrete tower constructed from precast concrete ring segments. The ring segments will be cast off-site and stitched together at the Project Site to form a tubular tower. The segments will have diameters from 3.5m to 5m and a height of about 2.4m.

The passage of long multi-axle articulated vehicles carrying the prefabricated steel tower sections will require diversion of existing utilities and removal of some street furniture along the existing road of the Long Route. Widening of the existing road at critical locations may also be required. For the Short Route, it is also likely that minor widening or slope trimming may be required at certain locations for the passage of long vehicles delivering the tower sections. If the concrete tower option is adopted and the nacelle can be broken down to smaller components, the Long Route may be able to accommodate the transportation of the materials and hence the Short Route may not be required; but this cannot be confirmed until the wind turbine procurement process is completed.

Table 2.2 presents the key features of the two access routes.

Table 2.2 Key Features of Access Routes

Long Route	Short Route
• Widening of existing road at critical locations for wind turbine component delivery • Utilities diversion along the existing road • Some street furniture to be removed and replaced	• Temporary jetty upgrading or extension may require works in the foreshore • Foundations for piers of the temporary steel bridge on the slope above the temporary steel jetty • Minor widening of existing road connecting the Project Site and the temporary steel bridge.

The Project Site will occupy an approximate area of around 50m x 85m, including the lay down areas for construction materials and wind turbine components. It is currently anticipated that only minor site clearance and formation will be required. A preliminary engineering review indicates that the materials underneath the Project Site comprise poor quality fill overlying rock. A reinforced concrete foundation with pre-bored H-piles will be required for supporting the wind turbine.

The main construction activities at the Project Site are:

- site clearance and formation;
- pre-bored H-piling and construction of reinforced concrete foundation (9m x 9m x 2m) for the wind turbine;
- erection of wind turbine tower by assembling pre-fabricated steel tower sections or stitching of precast concrete ring segments;
- installation of nacelle and rotor blades;
- installation of step up transformer and substation;
- installation of transmission cables between the substation and the 11 kV supply grid;
- testing and commissioning of the wind turbine system.

2.6.5 Operation of the Project

The operation of the wind turbine, including start-up and shut-down, will be automatic. The wind turbine will be unmanned and attendance of operational personnel will only be required during emergencies or routine maintenance.

2.7 PLANNING AND IMPLEMENTATION PROGRAMME

The Project will be planned and implemented by CAPCO together with consultants and contractors. There are no known interactions with other projects. The front-end engineering design for the Project has commenced. The key stages of the Project, according to the currently envisaged Project Programme, are presented in *Table 2.3*.

Table 2.3 Proposed Project Programme

Key Stage of the Project	Indicative Date
Commencement of front-end engineering design	Q4, 2005
Land application	2006 to 2007
Gazettal under the *Foreshore and Seabed (Reclamations) Ordinance* (*FSRO*) if the Short Route is used and the extension of the jetty at the typhoon shelter is required	2006 to 2007
Commencement of construction	Early 2007
Operation of the wind turbine	Late 2007

3 MAJOR ELEMENTS OF THE SURROUNDING ENVIRONMENT

The Project Site is located in the southern part of Hei Ling Chau (*Figure 2.6c*). The area was previously cleared for the storage of materials for other construction activities and is currently not covered by any Outline Zoning Plan (OZP).

The northern boundary of the Project Site is close to an engineered slope. An existing vehicular road is located at the north-western corner of the Project Site. The Project Site will encroach upon most of the temporary structures currently used by works contractors for storage. Natural hill slopes are found to the east and south of the Project Site. The vehicular road to the north-west will be the access point to the Project Site. A grave is found to the west of the Project Site.

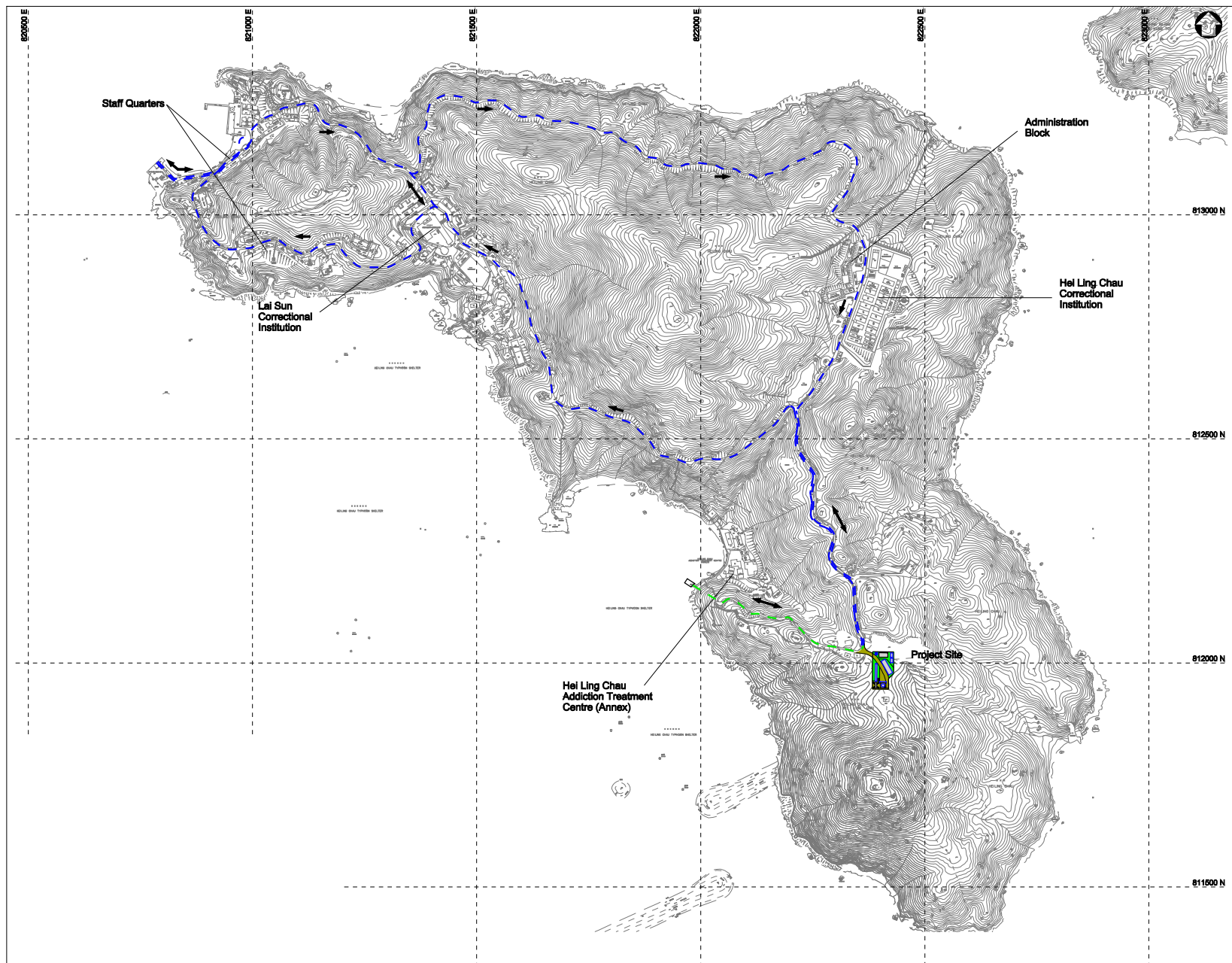
A helipad is located on top of the cut slope, at a distance of approximately 110m from the northern boundary of the Project Site (the wind turbine will be located over 150m from the limit of the operation sector of the helipad). The helipad is in active use. According to information provided by the Civil Aviation Department (CAD) and GFS, the helipad is used solely by the GFS.

In addition to the areas in the vicinity of the Project Site where the wind turbine will be installed, the environment along the construction access routes will need to be considered.

In terms of the ecological environment, the island is dominated by shrubland and plantation with patches of developed area in between. No declared monuments, graded buildings, or known archaeological sites have been identified on the island.

Most of the buildings on the island, including the Hei Ling Chau Correctional Institution, Hei Ling Chau Addiction Treatment Centre, Hei Ling Chau Addiction Treatment Centre (Annex), Lai Sun Correctional Institution, the staff quarters and the administration buildings, will be potential Air Sensitive Receivers (ASRs) and Noise Sensitive Receivers (NSRs). The locations of these potential ASRs and NSRs are shown in *Figure 3.1a*.

Hei Ling Chau is within the Southern Water Control Zone (WCZ) and a typhoon shelter is found to the south-west of the Project Site.



Legend:

- Long Route
- Short Route
- One-way direction of local traffic on existing road
- Two-way direction of local traffic on existing road

Notes:

1. One way traffic system generally in operation.
2. Night time construction and transportation not feasible due to CSD security procedures.

FIGURE 3.1a

CLP/CAPCO Commercial Scale Wind Turbine Pilot Demonstration
Potential Air and Noise Sensitive Receivers for Hei Ling Chau Project Site

USTN FILE: 0019313_15_HLC.dgn
DATE: 10/03/2006

Environmental Resources Management

ERM

4 POSSIBLE IMPACT ON THE ENVIRONMENT

The construction and operation of the Project may give rise to potential environmental impacts. These potential impacts are identified in *Table 4.1* and are addressed in the sections that follow.

Table 4.1 Potential Environmental Impacts Arising from the Project

Potential Impact	Construction	Operation
• Gaseous Emission	✓	–
• Dust	✓	–
• Odour	–	–
• Noise	✓	✓
• Night-Time Operations	–	✓
• Traffic (Land & Marine)	✓	–
• Liquid Effluents, Discharge or Contaminated Runoff	✓	–
• Generation of Waste or By-products	✓	–
• Manufacturing, Storage, Use, Handling, Transport, or Disposal of Dangerous Goods	–	–
• Hazard to Life	–	–
• Landfill Gas Hazard	–	–
• Disposal of Spoil Material	✓	–
• Disruption of Water Movement or Bottom Sediment	✓(only if the Short Route is used)	–
• Unsightly Visual Appearance	✓	✓
• Cultural & Heritage	–	–
• Terrestrial Ecology	✓	✓
• Marine Ecology	–	–
• Cumulative Impacts	–	–

Legend:

'✓' = Possible '–' = Not Expected

4.1 CONSTRUCTION PHASE

4.1.1 Air Quality

Given the limited number of construction vehicles and plant required for the construction of a wind turbine, the potential impact from gaseous emissions from these vehicles and plant will be negligible. Dust nuisance is the only potential air quality impact during the construction of the Project. Foundation construction, piling and stabilisation works will be the main potential sources of construction dust. With the small Project Site area and a relatively short construction period, adverse impacts associated with construction dust are not expected.

4.1.2 Noise Impact

The amount of construction equipment to be used during construction is small given the relatively small scale of the Project and the nature of construction. A small number of Powered Mechanical Equipment (PME) such as generator, excavator, concrete lorry mixer, heavy duty tracked crane and mobile crane will be used during construction. If the Short Route is required for the delivery of bulky wind turbine components, the potential noise impact to the Hei Ling Chau Addiction Treatment Centre (Annex) during the construction of the temporary jetty extension and the temporary steel bridge will need careful consideration. Other than this, no adverse construction noise impact is envisaged.

4.1.3 Traffic Generation

With the relatively small scale and short duration of construction activities, the amount of marine and road traffic generated will be small. As the road system on the entire island is under the control of CSD, any potential traffic issues can also be resolved through close liaison and frequent communication with CSD. It is expected that the construction workforce required for the works will be small. The construction workers should be able to travel to the island using the existing scheduled passenger ferry service. No adverse impacts on traffic are anticipated.

4.1.4 Waste Management

The construction activities associated with the Project may generate the following broad categories of waste:

- construction and demolition (C&D) materials, mainly inert materials arising from foundation and piling works;
- small quantities of chemical waste, such as batteries and lubricating oils from the maintenance of construction vehicles and equipment;
- small quantities of general refuse, including food waste from the on-site work force and the packaging from the construction materials.

It is expected that inert materials generated from the construction works will be properly segregated and will be reused for backfilling on-site. The amount of C&D waste requiring off-site disposal and the associated potential impacts will be negligible.

The construction activities would involve a limited number of construction vehicles and equipment. The quantities of chemical waste to be generated from regular maintenance of these vehicles and equipment should be minimal and no impact is expected in this respect. With proper housekeeping measures and refuse collection in place, minimal or no impact is expected to result from refuse generated during the construction phase of the Project.

4.1.5 Water Quality

The majority of the construction activities associated with the Project will involve only pre-fabricated steel or precast concrete components, and therefore the potential for adverse water quality impacts arising from the works on-site will be low. Adverse water quality impacts from site runoff are not expected if proper site management practices are fully implemented.

Marine works in the foreshore maybe required for upgrading or extension of the existing jetty within the typhoon shelter if the Short Route is adopted. Potential water quality impacts may include a short-term increase in suspended solids in the water column and a minor alteration of the hydrodynamic regime by the temporary works. However, with the small size of the jetty extension (approximately 12m x 20m) and the short duration over which the temporary jetty extension is required, adverse impacts to water quality are not anticipated if proper mitigation measures are implemented.

4.1.6 Visual Impact

Construction activities, including site formation and construction activities for wind turbine foundation, piles and pile caps, lifting of turbine components by crane and temporary hoarding may pose limited and transient visual impacts on the surrounding Visual Sensitive Receivers (VSRs). No adverse impacts are envisaged owing to their transient nature.

4.1.7 Ecology

The Project Site has been optimised to avoid sensitive wildlife habitats, including that for the rare and endemic Bogadek's Burrowing Lizard previously recorded on the island. The proposed Project Site is an area of wasteland and is dominated by weeds and climbers. The wasteland within the Project Site was used as a storage area and occupied by surplus construction materials. Site clearance will be required before construction for the Project. The enabling works on the access routes may also require the removal of vegetation. An initial review indicates that most of the plant species found in the vicinity of the Project Site are common in Hong Kong. No significant ecological impacts are envisaged during the construction phase of the Project.

4.2 OPERATIONAL PHASE

4.2.1 Noise Impact

The main sources of noise from the operating wind turbine will include aerodynamic noise around the rotor blades and the rotation of mechanical parts. Modern wind turbines have incorporated low-noise designs as standard features. Sound insulation materials are used in the nacelle to totally enclose the generator, shaft and gearbox so as to minimise medium and

high frequency noise. Airfoil blades are purposely designed to reduce aerodynamic noise generated during wind turbine operation. Operational noise impacts at the closest NSR, Hei Ling Chau Addiction Treatment Centre (Annex) at a distance of approximately 400m, are expected to be negligible as a result of the built-in standard low-noise features of the wind turbine and the large horizontal separation distance with topographical screening.

4.2.2 Visual Impact

Potential visual impacts during the operational phase are associated with the wind turbine structure and the rotating blades. The wind turbine will have a rotor tip height of up to 90m and a swept area of about 2,800 m^2. The wind turbine will be unavoidably visible from the surrounding areas, such as the south-eastern part of Lantau and Cheung Chau and over the sea. Whether the visual impact is beneficial or adverse would however very much depend on the viewers' acceptance of the use of this kind of renewable energy generation. The level of acceptance by viewers on the island is expected to be high as environmental awareness amongst CSD staff is generally high and the department is supportive of the use of renewable energy.

As a result of the proximity of the Project Site to an actively operated helipad, it is envisaged that certain conspicuous markings and hazard warning lighting will be required for aviation safety reasons. Consultation with CAD and GFS will be necessary to ensure that aviation safety requirements are met while the potential visual impacts produced by such markings and lighting are minimised.

Some visual disturbances may also arise as a result of the periodic reflection and sunlight interruption produced by the rotating blades. Careful considerations on the surface finish of rotor blades should minimise such disturbances. A suitable overall colour scheme for the wind turbine may also be considered to further reduce the visual intrusion of the Project.

4.2.3 Ecology

Bird collision is the main concern for any wind turbine development in terms of ecological impacts during operation. The Project Site is not situated within any important bird habitat or on the flight path of migratory birds. These factors, combined with the fact that a single wind turbine will be installed, would present relatively low risks of bird collision.

The noise produced by the operating wind turbine will be a low, constant sound of a predictable level. As the Project Site is not within any important bird habitat, the significance of potential noise impacts on birds is expected to be low.

5 DESCRIPTION OF MITIGATION MEASURES

5.1 CONSTRUCTION PHASE

5.1.1 Air Quality

With the limited dust impacts associated with the construction of the Project implementation of standard construction site management practices for dust control, including erection of site hoardings and watering of any exposed soil surfaces, will be sufficient to further minimise any residual dust impacts.

5.1.2 Noise

Implementation of standard construction site management measures for noise control, such as the use of well-maintained construction plant and planning of the construction plant team, will be sufficient to ensure compliance with the construction noise limits.

5.1.3 Water Quality

Site run-off and drainage impacts will be minimised with reference to the control measures stipulated in the EPD's *Professional Persons Environmental Consultative Committee Practice Note for Professional Persons* on *Construction Site Drainage* (*ProPECC PN 1/94*). The implementation of good housekeeping and best management practices for stormwater will ensure that *Water Pollution Control Ordinance* (*WPCO*) standards are met.

In the event that the Short Route is adopted and works at the foreshore are required, measures to reduce the release of suspended solids into the typhoon shelter will be implemented as required during the construction of the temporary jetty extension to minimise the potential water quality impacts.

5.1.4 Waste Management

Only limited quantities of construction waste are expected to arise from the construction of the Project, of which only a small portion would require disposal at landfills. To further minimise waste arisings and to keep environmental impacts within acceptable levels, good site management practices will be adopted to minimise waste generated and waste on-site will be properly segregated to increase the feasibility of recycling certain components of the waste streams, such as steel.

In the event that chemical waste is generated during the construction of the Project, it will be properly stored in accordance with the EPD's *Code of Practice on the Packaging, Labelling and Storage of Chemical Waste* before collection for disposal by a licensed Chemical Waste Collector. General refuse generated

on-site will be stored in enclosed bins and transported to the refuse transfer facility on the island for off-site disposal.

5.2 OPERATIONAL PHASE

5.2.1 Noise

With the use of a wind turbine with a built-in low-noise design and the large separation with topographical screening between the Project Site and the nearest NSR, operational noise impacts are expected to be negligible. No additional mitigation measure is considered necessary.

5.2.2 Visual Impact

With careful consideration given to the surface finish of rotor blades to minimise the periodic reflection and sunlight interruption and the use of a colour scheme to reduce visual intrusion, no further visual mitigation measure is considered necessary during the operational phase.

5.2.3 Ecology

The risks of bird collision with the wind turbine have been minimised through the careful selection of the Project Site location and the avoidance of important bird habitats. No additional mitigation measure is considered necessary.

6 USE OF PREVIOUSLY APPROVED EIA REPORTS

In the preparation of this Project Profile, reference has been made to the EIA Report submitted by The Hongkong Electric Co Ltd and approved on 27 October 2004, for a similar project entitled *Renewable Energy by a Wind Turbine System on Lamma Island* (EIAO Register No: AEIAR- 080/2004). The nature and purpose, scale and operations of the wind turbine system assessed in the aforementioned approved EIA Report are similar to those of the wind turbine pilot demonstration presented in this Project Profile.