Islands District Council Paper IDC 45 / 2008

Installation of Asia-America Gateway Submarine Cable System Tong Fuk of Lantau Island to southern border of Hong Kong SAR

Purpose

1. The purpose of this document is to present advanced information to the District Council Members on a proposed project by Reach Networks Hong Kong Limited ("Reach") for the installation of an international submarine telecommunication cable system hereinafter referenced as the Asia-America Gateway Submarine Cable System (the "AAG"). The project boundary starts from south Lantau Island from Tong Fuk Beach and traversing 10k southward (See Figure 1); the installation work that will affect the IDC area is only a small portion of the overall project. Representatives from Reach will be present at the District Council Meeting to respond to any questions on this project.

Background

2. The project involves the installation of two fibre optic telecommunications cables of approximately 10km in length (with in the Hong Kong SAR waters), starting from the Tong Fuk beach area southward, extended to the South China Sea and connected to the AAG Cable System, which links to several South East Asian Countries as well as to the North America.

3. For this project Reach has already applied with the District Lands Office, Island for the relevant licenses, and the Gazettal and public consultation process. All relevant lands documents are currently being organized by the Lands Department, Islands District Office.

4.		
a. Project Title	:	Installation of Asia-America Gateway Submarine Cable System., South Lantau
b. Objectives and Nature of Project	:	The project will involve the installation of two submarine fibre optic telecommunication cables in order to cater for the increasing needs of the HKSAR and to enhance Hong Kong's position as the telecommunications hub in the region.
c. Timetable	:	The project will be installed within the HKSAR installed in August and is expected to be completed by September 2008.
d. Communications with other Offices	:	The Office of the Telecommunications Authority of HKSAR supports the AAG project. The District Lands Office, Island has already consulted relevant government offices and there have been no objections received on this project to date. Reach has applied with the District Lands Office for project gazettal under the Foreshore and Seabed (Reclamations) Ordinance and the relevant Gazettal is expected to be published in May 2008 for public consultation.

Basic Information

Methodology

5.		
a. Project Location and Scale	:	The project includes two cables (Segment S1 and S2). Both cables will extend approximately 10km to the south off-shore up to the boundary of the HKSAR waters where it will connect with the rest of the AAG (see Figure 1). For the on-shore segments, cable S2 will enter into the existing manhole at Tong Fuk Beach and cable S1 will enter the existing manhole south west of Tong Fuk Village (see Figure 2a and 2b). The intended burial depth of the off-shore cable segments and near-shore/on-shore sections will be approximately 7m and 2m below seabed, respectively.
		For the on-shore portions (beach and tidal zone), the cables will be installed through minor trenching hence to bring the cables into the existing manholes. For the tidal zone to 400m off-shore, the cables will be installed by divers who will trench the cable to about 2m below seabed using jetting techniques. Off-shore burial of the cables will be undertaken by a cable laying barge that will inject the cables to a 7m burial depth approximately.
b. Project Programme	:	The AAG system is scheduled for between August and September 2008. The expected construction schedule within HK SAR waters is as follows:
		(i) Beach Manhole to Low Water Mark(LWM) 1 - 2 days
		(ii) LWM to 400m seaward 7 - 14 days
		(iii) 400m seaward to HKSAR Boundary 5 - 7 days
		The installation of route S1 and S2 will be undertaken in sequence. S1 is expected to be installed first with S2 to be installed approximately 2 weeks after the installation of S1.
c. Location Activities	:	(i) On-shore Activities
		The 2m depth trench work for on-shore cable installation will be undertaken by a small excavator. The cable will be placed in the trench which will then be backfilled with the excavated materials. This work is expected to be undertaken during daytime hours but should work be required in the evening a construction noise permit will be applied for.
		(ii) Near-shore Cable Installation
		From the LWM the cable-laying and burial will be carried out by divers using jet probes to sink the cables into the sediment. This will be undertaken for the first 400m off shore to a point where the barge can safely access the cable with sufficient clearance without disturbing the seabed. The target burial depth will be

		2m for this segment. This work is expected to be undertaken during daytime hours but should work be required in the evening a construction noise permit will be applied for.
		(iii) Off-shore Cable Installation
		The off-shore cable laying process will be undertaken through injection jetting techniques. The cable is placed in an injector that is then carefully laid into the seabed at the desired burial depth (7m). The injector then liquefies the sediment while laying the cable to aid with the burial. The cable is thus simultaneously laid and buried with minimal disturbance to the seabed with only very localised impacts to the marine water quality.
		For a discussion on the implications to Fisheries please refer to Section 6(e).
d. Cable Dimension	:	The cable diameter is 32mm. For the land based segment to 400m off-shore, the cable will be encased with cast iron (160mm) articulated pipe for addition protection.

Environmental Impact Assessment Findings

6. The project Environmental Impact Assessment (EIA) report was submitted to the Environmental Protection Department in October 2007. The public consultation required under the EIAO was completed and no objections were received. The EIA findings were accepted by EPD and an Environmental Permit for the project was issued in December 2007 (EP-298/2007). As stated in the EIA report, the project will not generate significant adverse environmental impacts. A summary of the findings are provided below:

a. Beach	:	The cable will be installed into a trench of about 2m (D) X 1m (W). After installation of the cable, the material being excavated will be used to backfill to its original state and no waste will be generated from the project works. All domestic waste from the workers and any packing materials will be collected in rubbish bin provided by the contractor and disposed of properly off site.
b. Foreshore and Seabed Area Affected	•••	There will be about 0.5ha of the foreshore and seabed that will be temporarily affected by the project. The off- shore cable will be buried into a 0.25m width trench and the near-shore cable will be buried into a 2m width trench.
c. Water Quality	:	The near and on-shore installation work will be undertaken during the low tide and the installation and backfilling will be completed within a very short time period to reduce the amount of disturbance from the rising tide. Suspended sediments in the marine waters are expected to settle to the seabed very quickly and

		would be localized to the area of the construction activities. The works will not significantly affect the marine environment.
		For the first 400m of the off-shore section, the cable installation will be undertaken by divers in the water using jet probes to place and bury the cable to a depth of 2m. Based on the experience gained from similar projects, the suspended solids generated during the diver assisted installation would be localised and short term in duration. There will only be minimal disturbances to water quality which will not significantly affect the marine environment.
		For the off-shore section, where the water depth is sufficient for a barge to operate without affecting the marine sediments, the cables will be installed through injection jetting. This process simultaneously lays that cable which is then backfilled naturally by the sediment. The injection tool is approximately 15cm in width. Also based on previous experience, there will only be minimal disturbance to the seabed. The cable- laying procedures will not have significant adverse impacts to water quality and suspended fine sediments in the water column are expected to resettle onto the seabed within about 3 minutes, with a maximum distance of transport of less than 100m.
		During the cable installation, water quality monitoring will be undertaken in accordance with the requirements from EPD to ensure compliance with the water quality criteria. A water quality monitoring programme will be submitted to EPD.
d. Marine Ecology	:	(i) Marine seabed ecology
		Based on the results of a sub-tidal (dive) survey of the area and a review of existing information on the marine communities surrounding the cable routes, the landing sites in the Tong Fuk area are located on a semi- exposed pebble beach (Route S1) and a sandy beach (Route S2), which are typical of the South Lantau coastline. These areas have been studied with regard to ecological impacts and it was found that the conditions in these locations support only a low diversity of intertidal and sub-tidal sessile and soft bottom assemblages, which are commonly found in Hong Kong. There will be a direct loss of benthic organisms (burrowing animals in the seabed) along the cable routes; however, this is not considered to be an adverse or irreversible ecological impact as the colonization of benthic organisms on benthic substrate is expected to occur promptly after the cable installation work and no habitat will be lost permanently, monitoring will be arranged during the project works.

		(ii) Chinese White Dolphins There are studies showing that the majority of Chinese White Dolphins sightings are in waters around the western and northern coasts of Lantau. Based on previous studies, the presence of this mammal along south water area where the cable aligns will be very limited thus very little impact is expected.
		(iii) Inter-tidal shore assemblages The two cable landing sites along the Tong Fuk coastline are on the sandy/pebble and sandy beach respectively, no species of conservation interest are present within the landing site area. Further, as the landing point for Route S2 is located at Tong Fuk Gazetted Bathing Beach, thus, adverse impacts will not result to the ecology on this beach.
		(iv) Coral communities A dive survey was undertaken for the project and no rare species were found. Only small size colonies, ranged from 1 to 25 cm ² , were found within the vicinity of Site S1, they are very common species of low ecological value and found in shallow muddy waters. Prior to the cable installation, a verification survey will be carried out in order to ensure the avoidance of impacts to the coral communities.
e. Fishery	:	A literature review of the fisheries resources and operations within the Study Area identified the areas adjacent to the two cable routes as supporting fisheries of low-medium ranking. There are no Fish Culture Zones within the Study Area and no predicted impacts to fisheries resources or operations are expected to result of the cable-laying work or operation of the cable systems. Any disturbance of seabed sediment will be temporary and localised and the cables will be buried to a sufficient depth to prevent any accidental interference or damage from fisheries operations.
		There will be some minor, short-term impacts to the seabed; it is considered that these indirect effects of the cable-laying operation will not have any impacts to fisheries resources or operations. Fisheries aspects associated with the project have been undertaken through consultation with AFCD through the conventional channels.
f. Noise	:	A small excavator will be utilised to excavate the land based trench and a temporary generator may be required for the on-shore and near-shore works. Some noise will be generated from this work but noise levels are minimal and short term in nature (less than 2 days at each site) and will be located more than 100m from noise sensitive receivers. According to the

		assessment results, the noise level at the nearest Noise Sensitive Receivers would not exceed 65dB and can comply with the legislative requirement of 75dB. Therefore, adverse impacts are not expected to occur to noise sensitive receivers during daytime hours. A construction noise permit will be applied for during restricted hours, if required.
g. Cultural Heritage	:	The Hung Shing Temple is approximately 300m away from any excavation work for the on-shore section of Route S1 and the nearest grave sites are located about 280m from the site. It is considered that there will be no adverse impact on the Temple or grave sites as a result of the small-scale and temporary excavation work required on the beach.
		A marine archaeological assessment was undertaken by a qualified marine archaeologist along the cable route alignment. There were no other features identified on the seabed that indicate the presence of archaeological resources. As such, marine archaeological impacts are not expected to result from the project.

Others

Gaseous Emissions

7. It is expected that exhaust emissions from construction plant will be insignificant due to the limited plant required for excavation. As such, adverse impacts on air quality will not result from the construction activities.

Dust

8. Dust generated from the project is expected to be negligible due to the limited excavation area (in between the beach and the low tide area on land), the small quantity of materials to be excavated and short duration of the works.

Odour

9. Since chemicals are used during the excavation; therefore, the construction activities are not expected to result in any odour other than normal exhaust emission from construction plant.

Night-time operations

10. It is expected that work will be undertaken during daytime hours; however, should evening or night-time operations be necessary, a construction noise permit will be applied for.

Traffic Arrangement

11. The land-based construction will only require limited construction plant (e.g. small excavator) and most of the plant and equipment will be delivered to the site by marine vessel. As such, no major traffic will be generated during the cable installation. The adjacent public car park will be used should parking be required. According to the comments from the Town Planning Board, a specific plan regarding transportation will be submitted to the Town Planning Board prior to construction to ensure loading/ unloading of equipment is carried out properly.

With regard to the marine works, a marine traffic impact assessment is being undertaken which will be then submitted to the Marine Department.

Generation of Waste and By-products

12. All trenches will be backfilled with the excavated material once the cable has been laid and the site will be reinstated to its original condition. Domestic waste generated from workers and packing materials will be collected in the rubbish bins provided by the Contractor and disposed of properly off site.

Manufacture Storage, Use, Handling, Transport, or Disposal of Dangerous Goods, Hazardous Materials or Wastes

13. Dangerous goods and hazardous materials are not anticipated to be used or generated during the construction process.

Risk of Accidents Resulting in Pollution or Hazard

14. No pollution or hazards are expected to result from cable installation. No chemicals use is required for this cable installation project. Land-based Project works will be undertaken based on the conventional risk management plan and no particular risks have been identified as this type of installation process has been undertaken extensively and is a well proven method of installing cables. Marine works will be carried out in accordance with the risk management requirements from the Marine Department.

Disposal of Spoil or Contaminated Material

15. As no chemicals will be used during the cable installation, no spoil or contaminated material will be excavated or generated from the construction work. General construction waste/ construction materials will be collected in the waste collection containers provided on site.

Landscape and Visual

16. The cable is to be buried under the beach and under the seabed. As such, no visual or landscape impacts are predicted.

Terrestrial Ecology

17. The land based works will be undertaken on semi-exposed pebble beach and sandy beach with low ecological value. There will be no impacts to terrestrial ecology resulting from the construction and operation of these two submarine cables.

Nuisance / Others

18. The S2 cable will be located within the Tong Fuk Gazetted Beach. The cable has been routed to avoid the designated bathing area and is outside the shark net, but will be installed on the eastern end of the gazetted beach area. The Leisure and Cultural Services Department has been contacted with regard to the project. The Project works are expected to be carried out by middle of 2008 after completion of consultation with the public and District Council has been completed. Should works be necessary during the bathing beach season, prior approval from the LCSD as well as the Director of Environmental Protection is required before commencement.

Measures to Protect the Public

- 19. Safety measures for the public will be incorporated during cable installation, as follows:
 - i. On-shore Cable Installation

- Warning signs will be placed at visible locations
- The work area will be fenced off and security guards will be provided for both daytime and night-time in order to prevent non-authorised entry
- Lighting will be provided within the construction area.
- ii. Near-shore Cable Installation
 - Surface marker buoys will be installed around the Project area
 - When diving works are carried out, small vessels will be standing by in order to prevent any non-authorised entry
- iii. Off-shore Cable Installation
 - The installation work barge with has necessary licence issued from the Marine Department and be allowed to work within the HKSAR boundary, hence safety measures to protect the public would be enforced
 - The barge will display proper light signal and flag code for the works.
 - A marine works notice required by the Marine Department will be issued prior to works
 - The barge master will monitor and take extra precaution and kept close communication to traffic nearby.

Public Enquiries

20. The installation works will be undertaken in accordance with the Environmental Permit requirements and a public notice board will be provided at the construction site during construction. A 24-hr hotline will be established to answer enquiries from the public and will be managed by the installation contractor and project management team.

District Lands Office, Islands

April 2008