

## 9 CULTURAL HERITAGE

### 9.1 INTRODUCTION

9.1.1 The objectives of the cultural heritage assessment were to identify if there are any sites of cultural heritage, including historic buildings and structures, pre-war graves, landscape features and archaeological sites, and to recommend appropriate mitigation measures for those identified heritage features with significant historical, archaeological and architectural values. The cultural heritage assessment was based upon the findings from desktop study and field survey.

### 9.2 RELEVANT LEGISLATION, POLICIES, PLANS, STANDARDS AND CRITERIA

9.2.1 The following legislation is applicable to the assessment of cultural heritage resources in Hong Kong:

- (a) Environmental Impact Assessment Ordinance (Cap. 499) and the associated Technical Memorandum on the EIA Process (EIAO-TM);
- (b) Antiquities and Monuments Ordinance (Cap. 53);
- (c) Marine Archaeological Investigation Guidelines; and
- (d) Hong Kong Planning Standards and Guidelines (HKPSG).

#### **Environmental Impact Assessment Ordinance Technical Memorandum on the EIA Process**

9.2.2 The EIAO-TM outlines the approaches required in investigating and assessing the impacts on cultural heritage sites. The following Sections of the EIAO-TM are applicable:

*Annex 19: "There is no quantitative standard in deciding the relative importance of these sites, but in general, sites of unique archaeological, historical or architectural value will be considered as highly significant. A baseline study shall be conducted: (a) to compile a comprehensive inventory of places, buildings, sites and structures of architectural, archaeological and historical value within the proposed project area; and (b) to identify possible threats of, and their physical extent, destruction in whole or in part of sites of cultural heritage arising from the proposed project."*

9.2.3 The EIAO-TM also outlines the criteria for assessment of impact on sites of cultural heritage as follows:

*Annex 10: "The criteria for evaluating impact on sites of cultural heritage includes: (a) The general presumption in favour of the protection and conservation of all sites of cultural heritage because they provide an essential, finite and irreplaceable link between the past and the future and are points of reference and identity for culture and tradition; (b) Adverse impacts on sites of cultural heritage shall be kept to the absolute minimum."*

- 9.2.4 The EIAO-TM also outlines the approach in regard to the preservation in totality, in part, and not at all cultural resources:

*Annex 19: "Preservation in totality will be a beneficial impact and will enhance the cultural and socio-economical environment if suitable measures to integrate the sites of cultural heritage into the proposed project are carried out. If, due to site constraints and other factors, only preservation in part is possible, this must be fully justified with alternative proposals or layout designs, which confirm the impracticability of total preservation."*

- 9.2.5 Annexes 10 and 19 of EIAO-TM are the most relevant criteria for assessment of cultural heritage.

### **Antiquities and Monuments Ordinance, Cap. 53**

- 9.2.6 "This Ordinance provides for the preservation of objects of historical, archaeological and palaeontological interest..."

The Ordinance defines an antiquity as a relic (a movable object made before 1800) and a place, building, site or structure erected, formed or built by human agency before the year 1800. The Ordinance also states, amongst other things, that the discovery of an antiquity shall be reported to the Authority (Secretary for Home Affairs); that ownership of all relics discovered after 1976 shall be vested in the Government; that the Authority can declare a place, building, site or structure to be a monument, historical building or archaeological or palaeontological site or structure (and therefore introducing certain additional controls for these sites); and that licences and permits can be granted for excavation and for other work.

### **Marine Archaeological Investigation (MAI) Guidelines**

- 9.2.7 Guidelines for MAI which detail the standard practice, procedures and methodology which must be undertaken in determining the marine archaeological potential, presence of archaeological artefacts and defining suitable mitigation measures are stated in the Appendix G of the Study Brief for this Project. Baseline review, geophysical survey and establishing archaeological potential are considered the first stage of a MAI. Subject to the results of the first stage MAI, further investigation may or may not be required.

### **Hong Kong Planning Standards and Guidelines (HKPSG)**

- 9.2.8 Chapter 10 of the HKPSG provides guidelines relating to the conservation of historic buildings, archaeological sites and other antiquities. The guidelines detail the methods for the conservation and preservation of protected monuments, the method of identifying and recording antiquities, particularly buildings that should be conserved and the recording and grading of such buildings and archaeological sites. The process of monuments and the development control through the planning process is also highlighted.

## 9.3 BASELINE CONDITION

### Desktop Study and Review

- 9.3.1 Desktop research was undertaken to compile a comprehensive inventory of record cultural heritage resources within the Project Area. The search included the review of:
- (a) Archive information held by the Antiquities and Monuments Office;
  - (b) Publications on local historical, architectural, anthropological archaeological and other cultural studies;
  - (c) Literature documents held in public libraries, tertiary institutions and other government departments such as old maps and aerial photos held in the Lands Department; and
  - (d) Admiralty Charts held in Hong Kong Hydrographic Office and United Kingdom Hydrographic Office.

### Peng Chau Characteristics

- 9.3.2 The Study Area is located off the south west coast of Tai Lei island, about 120 metres to the west of Peng Chau, which is just over 0.5 km to the east of Lantau Island and south of Discovery Bay, Lantau Island.

### Geology

- 9.3.3 Peng Chau and the islands between Lantau Island and Hong Kong Island are "...mainly composed of granite intruded by rhyolite dykes. The islands are surrounded by steep cliffs and generally have rounded tops. In some cases the coastlines are characterised by large boulders that have toppled off the steep sides of the islands." (Fyfe, et.al., 2000:37-38).
- 9.3.4 The offshore seabed formations around Hong Kong consist mainly of Chek Lop Kok as the lowest formations and considered to be Middle to Late Pleistocene in age and consisting of colluvium, alluvium and lacustrine sediments (ibid: 6). On top of this formation are sediments related to the Holocene period (from about 13,000 BP to the present day) and referred to as the Hang Hau formation consisting of clayey silt sediments and some sand.
- 9.3.5 During the late Pleistocene period (18,000BP) sea levels began to rise until about 6,000 years BP and which is about the level of present day sea level. The extent of the rise could be as great as perhaps 140 metres in parts (ibid:40). Fyfe, et.al., (2000:39) stated that "The landscape of Hong Kong has the distinct appearance of a recently drowned mountain range."
- 9.3.6 More modern sediments are related to the discharge from the Pearl River, having a seasonal discharge of about 370,000 million cubic metres each year (ibid:7). They consist of sand, mud and some gravel.

9.3.7 Archaeological evidence indicates seafarers have used the waters of Hong Kong for around 6,000 years (Bard, 1988). The sediments of the Late Holocene period and those associated with the Pearl River could offer great potential to include well-preserved remains associated with the occupation and use of the islands in Hong Kong waters. In the Study Area marine deposits vary in thickness from 2 metres to about 12 metres.

### Archaeological/Historical Background

9.3.8 Information regarding the human occupation and use of the Study Area and Tai Lei island in general, is scarce. Tai Lei is a very small rock fringed island, "...and has a rock to the South, opposite a beacon on Tai Lei. In a West South West direction from Tai Lei is Pillar Rock, which is unmarked and has a dangerous rock which covers to its West" (Glibbery, 1994:86). It is likely human occupation and use was minimal, given its limitations on shore as well as offshore. The findings of the literature review, i.e. the lack of any information in regard to the human use and occupation of the Study Area, verified this.

9.3.9 However, what was revealed in the literature survey was that the general area around Tai Lei, Peng Chau and Lantau Island was well used, particularly in regard to maritime activities, which provides the potential for cultural heritage sites and objects to be located in the Study Area.

9.3.10 Lantau Island is the largest island in the SAR and located in the most western part of Hong Kong. It therefore provides shelter for the waters between it and Hong Kong Island. Being located at the outlet of the Pearl River "...rightly called the artery of Southern China" (Lo, 1963:15-16) the area had "...established contacts with the outer world by the Chin Dynasty (ibid:2). Archaeological material "...dating back to the Neolithic (2500-1500BC) and Bronze Age (1500-221 BC) [have been] found on its shore" (Glibbery, 1994:75). An early maritime industry was the pearl fishing industry and "...governmental control of this activity only began in the time of the Five Dynasties..." (Lo, 1963:7). Lantau Island also became a prolific incense-producing district, although "...nothing remains of it to recall the origin of the name Hong Kong (i.e. Fragrant Port)" (ibid:9). The bay inside of Lantau Island attracted "...trading vessels from Arabia, Persia, India, IndoChina, and the East Indies..." (ibid:16), and local vessels involved in the fishing and salt making industries. Pirates were prolific in the area, as well as settling on Lantau Island, and forts and batteries were also built on the island to assist the Imperial Navy in controlling pirates.

9.3.11 In regard to Peng Chau before it passed into British rule in 1899, it had been a base for Tanka, Hoklo and to a lesser extent, Hakka and Cantonese fishermen since about the beginning of the 19<sup>th</sup> century. "Peng Chau's past is shrouded in mystery" and "...little information on Peng Chau [is] available in the *Hsin-an Hsien-chih* or the *Gazetter of Hsin-an*, 1688 or 1819 edition" (Hayes, 1983:34). "With the establishment of the temple [for the fishermen in c. 1798] Peng Chau's place as a permanent base for fishermen was probably assured, since this would have set the seal on its popularity" (ibid:35). The temple, "...located on the western side of the island, has a stone tablet in front of it erected in 1835. The tablet records the decision by the Viceroy, that Government officers were prohibited from taking over fishing boats in

order to chase pirates” (Glibbery, 1994: 87). A children’s popular storybook *The Pirates of Peng Chau* (MacKay, 1988) has obviously some factual backing, and which is supported by Lo (1963: 34).

- 9.3.12 In addition to the fishing industry based around Peng Chau, the other major industry for the island was the recovery of coral for the lime-kilns “...by the end of the century [19<sup>th</sup> century]; it was, in fact, the largest in the New Territories” (Hayes, 1983:38). “Fishing, and the recovery of coral for the lime-kilns, was such a large-scale enterprise in Peng Chau waters at this time that, as two elders have put it to me on different occasions, you could practically walk on boats as far as the adjacent shore of Lantau Island, a distance of almost one mile” (ibid:36). In between Peng Chau and Lantau Island is Tai Lei and the area under investigation.
- 9.3.13 Two known archaeological sites on Peng Chau—one known as Peng Chau (South) Archaeological Site, the other is Peng Chau Archaeological Site located some 1,300 m and 700 m respectively from Tai Lei—testify to the human occupation and use of the area around Peng Chau from prehistoric period to historic period. Hard geometric pottery and lime kiln had been identified (**Figure 9-1**).

#### **Known Terrestrial Archaeological Sites and Historical Buildings and Features**

- 9.3.14 Apart from the two archaeological sites located to the south/southeast of Tai Lei island outside the Project Area as described in above section, no known sites of cultural heritage are identified within the Project Area.

#### **Marine Archaeological Resources**

- 9.3.15 Little is known about the archaeological potential of the seabed deposits in Hong Kong. This is probably because there were no dedicated marine archaeological surveys until the introduction of *EIA Ordinance* in 1998. Marine archaeology is therefore a new area of study in Hong Kong with very little baseline data to draw upon.
- 9.3.16 Shipwrecks are the primary archaeological site located underwater (Muckelroy, 1978). Since they are random and haphazard events it is difficult to predict their exact location as little written references survive or were ever made. A review of the literature for the Peng Chau/Lantau Island region found that many ships were active in this region. However, the area off Tai Lei that is under review has a number of features that would make mariners avoid it in general. It is relatively shallow; close to a lee shore (when the winds are from the south); and has some identified shipping hazards in the area. Although this area in general—between Peng Chau and Lantau Island—is calm and sheltered from most winds apart from the south west monsoons, it is unlikely vessels would use the Study Area as an anchorage. The most likely scenario for shipwrecks to be in the area, was if they were blown into it and sunk through hitting the bottom or the hazards.
- 9.3.17 Empson (1992) provides information on the development of the charts for the Hong Kong/New Territories area dating back to a Chinese strip map of c.1425 that records Lantau Island as Tai Kai Shan. Being the largest of the islands in this region it is understandable that this island be recorded, while the small islands of Peng Chau

and Tai Lei are not shown on a chart until the 1866 chart produced by Volonteri and titled “Map of Sun On District”.

- 9.3.18 The review of a number of charts and data from the United Kingdom and Hong Kong Hydrographic Offices was carried out to ascertain if there was any documentation of shipwrecks in the Peng Chau area.
- 9.3.19 The United Kingdom Hydrographic Charts 1918, 1919 and 3206 which are different scaled charts of the area encompassing the Peng Chau and Tai Lei did not record any shipwrecks to be located in the Study Area. These charts have used similar historical data (surveys and charts) in their production but have incorporated the latest survey data according to their publication dates.
- 9.3.20 No shipwrecks were recorded to be located near Peng Chau or Tai Lei, according to the Hong Kong Hydrographic Office.

## 9.4 GEOPHYSICAL SURVEY

- 9.4.1 A geophysical survey was undertaken for the Project and the objectives of the survey was to determine sub-seabed lithology, to map features (anomalies), man-made objects on and beneath the seabed within the MAI Study Area (see **Figure 9-2**). The survey was undertaken on 18 February 2003 by the Institute of Geophysical and Geochemical Exploration (IGGE), Hong Kong Office. The coverage of the MAI Study Area had included all seabed area that may be potential impacted by the construction work of the Project. The geophysical survey was implemented from a vessel that employed 10 metre survey lanes and this ensured an adequate overlap of data being collected from each survey lane. A qualified marine archaeologist as approved by the Antiquities and Monuments Office was engaged in the data review process.
- 9.4.2 The following equipment was used during the geophysical survey:
- (a) DELPH Seismic Reflection System;
  - (b) DF3200MK II Echo Sounder;
  - (c) Valeport VLR740 Automatic Tide Logger;
  - (d) eason TRACKER Navigation System;
  - (e) EPC-1086 Printer;
  - (f) Bar Check Plate;
  - (g) Side Scan Sonar System: Edge Tech 560A;
  - (h) NT-300D DGPS Differential Signal Receiver; and
  - (i) Survey Vessels.
- 9.4.3 The geophysical survey data obtained by IGGE was processed by geophysicists and included an analysis of the side scan sonar and seismic original records and

annotation of anomalies on the records. In addition, IGGE compiled a comprehensive report comprising:

- (a) location of the Study Area;
- (b) documentation of the survey process;
- (c) details of the accuracy of the position fixing, water depth and tidal measurements;
- (d) Interpreted side scan sonar profiles (and fixed by the navigation system);
- (e) seismic profiles and interpreted seismic profiles showing the depth of the marine deposits (similarly fixed by the navigation system);
- (f) plans of the tracks used by the survey vessel over the Study Area;
- (g) contour plans of the seabed, marine deposits and Rock Head level.

9.4.4 The overlap and the accuracy employed in the collection of the geophysical data ensured a comprehensive assessment of the seabed and below seabed for any anomalies that could be of a cultural heritage nature. All of raw data was reviewed by a qualified marine archaeologist.

9.4.5 A review of the geophysical survey data indicated that the seabed of the Study Area was found to be composed of predominantly mud or fine sand with some small stones or gravel. Some natural rock/stone outcrops were located in the Project Area. No anomalies of a cultural heritage nature were found on the seabed in the Project Area.

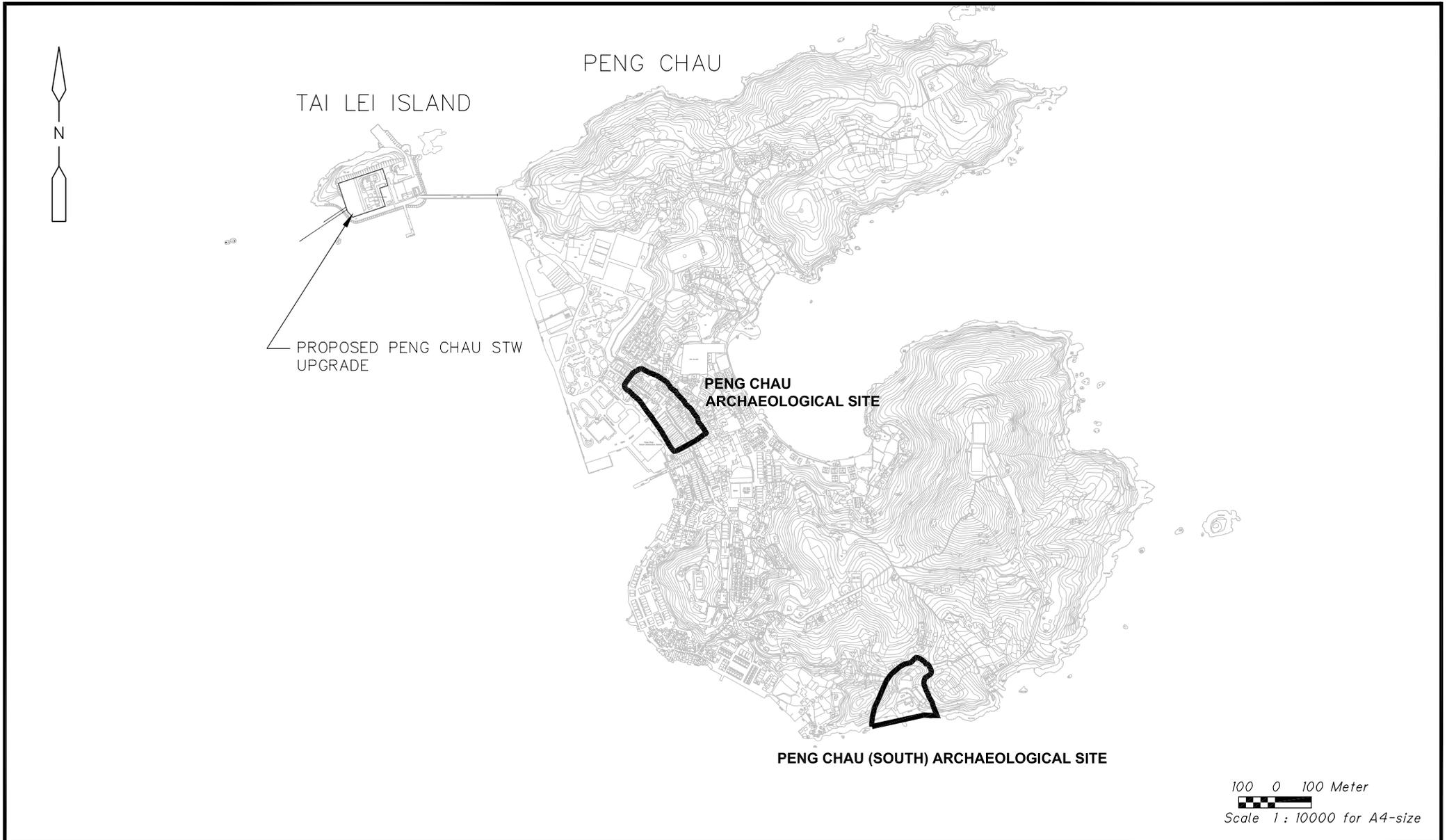
9.4.6 The seismic records were of a sufficient quality to interpret the seabed, marine deposits, including the deposit layers, and head rock. An interpretation and review of these records showed that below the seabed no material could be interpreted to be of a cultural heritage nature.

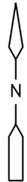
## **9.5 IMPACT ASSESSMENT**

9.5.1 As no cultural heritage interest sites are identified within the Project Area, no impact arising from the Peng Chau STW Upgrade is identified.

## **9.6 CONCLUSIONS AND RECOMMENDATIONS**

9.5.2 A baseline review was conducted on the cultural heritage sites identification, with data supplement from geophysical surveys at the proposed dredged area for outfall construction. There is no cultural heritage sites of interest are identified and impacts arising from the construction and operation of Peng Chau STW Upgrade is not expected.





LEGEND:

- AREA OF GEOPHYSICAL SURVEY
- SURVEY TRAVERSES

POINT	CO-ORDINATE	
	EASTING	NORTHING
G1	821172.752	816611.764
G2	821253.556	816444.233
G3	821358.939	816495.061
G4	821395.070	816652.370
G5	821326.773	816686.051

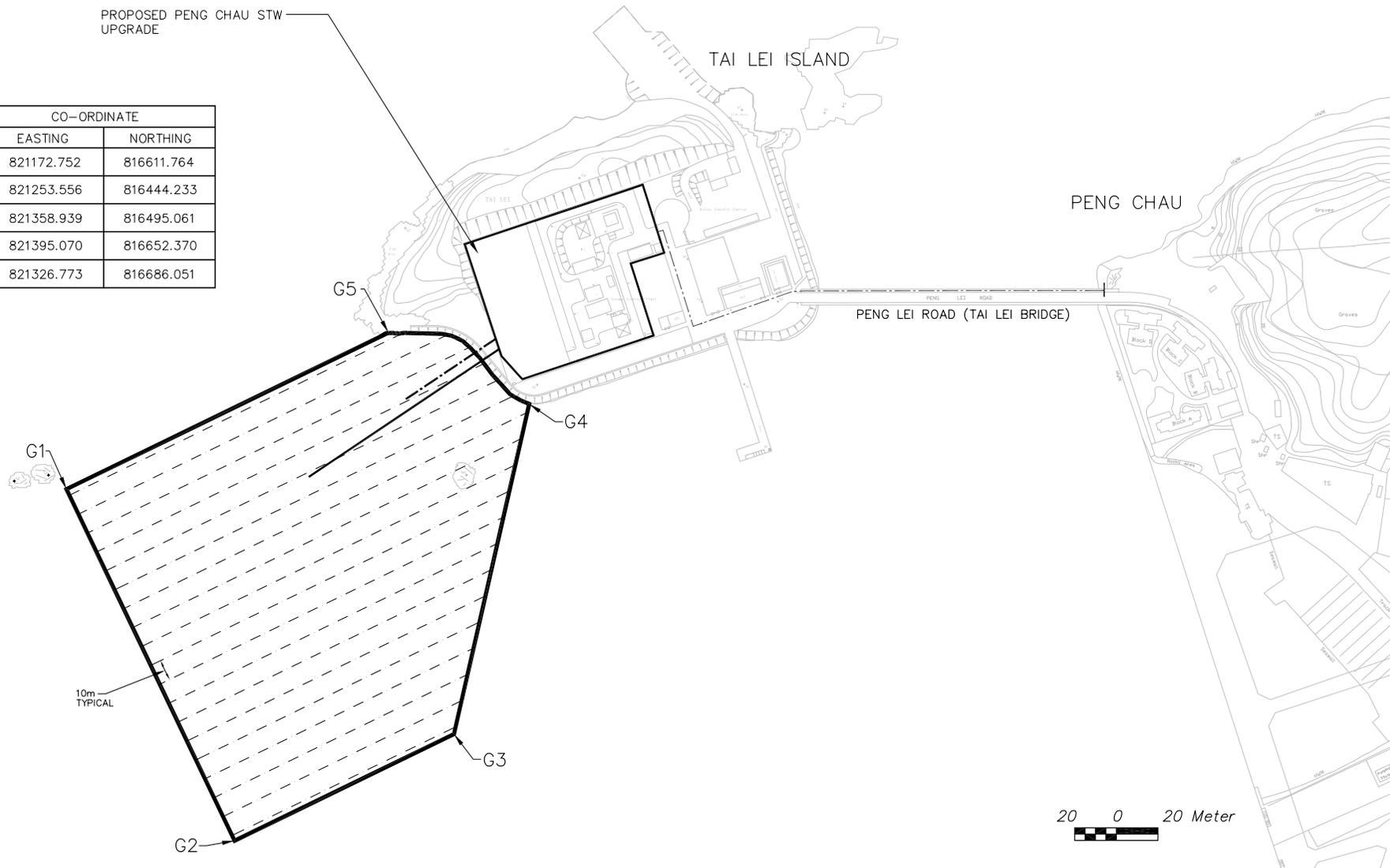


Figure 9-2

Extent of the Geophysical Survey