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Planning and Lands Branch
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By hand and by email
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13 December 2018

Legislative Council Secretariat
Council Business Division 1
Legislative Council Complex,
1 Legislative Council Road, Central, HK
(Attn: Miss Rita YUNG)

Dear Miss Yung,

Receiving public views on "Planning for land supply in Hong Kong"

At the subject meeting of the LegCo Panel on Development on 19 September 2018, Hon CHU Hoi-dick asked for a full version of the "Strategic Environmental Assessment (SEA) Report – Reclamation Sites" of the "Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement – Feasibility Study".

The SEA Report of the "Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study" was published in 2015 and its Executive Summary, in bilingual version, has been uploaded to the website of the Civil Engineering and Development Department since 2015 (see link: https://www.cedd.gov.hk/eng/reports/enhancing_landsupply/index.html). The full version of the SEA Report, which is available in English version only, is enclosed for Members' reference.

Yours sincerely,

(Miss Tanna CHONG)
For Secretary for Development

Encl.
Enclosure (SEA Report, together with a CD Rom)

Civil Engineering Development Department

Agreement No. 9/2011 Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Final SEA Report - Reclamation Sites

REP/SEA/001

(Addendum No. 1 incorporated)

Job number 217499

由於有關報告於2014年完成，所以報告的部分內容或未反映現時的最新情況。
As the report was completed in 2014, some information of the report may not reflect the latest situation.

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ARUP

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1 Introduction

1.1 Project Background

To respond more flexibly to society's needs for land, it is Government's policy as announced in 2013 Policy Address to develop new land extensively and build up an abundant "land reserve" that can more than meet the short-term demand. The reserve can be used to meet future demand in a timely manner.

Land demand is influenced by various factors, including demographic change, economic performance, property market, Government policy, social needs, public expectations and nature conservation, etc. These factors and their influence to the land demand are difficult to predict, especially in relation to the long-term demand. Owning to the scarce resources of developable land in Hong Kong, ever changing land demand and the long lead time required for land production, it is the prime objective of the Government to increase the supply of developable land as a long-term strategy to cope with future development needs and to capture windfall opportunities in the fast changing market.

The Government is currently relying on rezoning, redevelopment, land resumption and redevelopment of ex-quarry sites as the major methods to supply land. However, these methods have their own challenges and problems and have been significantly affecting the Government to supply land in a timely manner. While the Government will continue to make use of these existing land supply methods, the Government is actively pressing ahead with two other land supply methods which are not commonly used in recent years, including reclamation and rock cavern development.

On 30 June 2011, CEDD commissioned Ove Arup and Partners HK Ltd. (Arup) as the Consultant to undertake this Feasibility Study to strive for an enhanced land supply strategy by focusing on two land supply methods, i.e. reclamation outside Victoria Harbour on an appropriate scale and rock cavern development. The Study includes a two-stage Public Engagement exercise to gauge public views and foster public's understanding and acceptance on the issues.

1.2 Objectives of Assignment

The main objectives of the assignment are to:

a) conduct a territory-wide site search in Hong Kong to identify potential reclamation and rock cavern development sites to be taken forward for more detailed study based on broad technical and environmental assessment;

b) launch a two-stage Public Engagement exercise to engage the public regarding increasing the land supply by reclamation outside Victoria Harbour on an appropriate scale and rock cavern development.

1.3 SEA and Objectives of SEA

The purpose of this SEA Report is to report on the SEA/environmental works undertaken under this Study and the SEA/environmental considerations and findings throughout the site selection process for reclamation.

Strategic Environmental Assessment (SEA) is a systematic process, with multi-stakeholder involvement, for analysing and evaluating environmental implications of proposed policies, plans and programmes, for assisting in strategic or planning decision-making; and for following up strategic or planning decisions.

This SEA study is to identify, assess and compare, at the strategic level, the potential environmental performance and impact of the proposed site under a hypothetical development option. The study involved six stages: (i) Review of Relevant Legislations and Guidelines; (ii) Review of Baseline Conditions; (iii) Identification of Environmental Key Issues/ Constraints, and Opportunities; (iv) Territory-wide Site Search; (v) Broad Environmental Assessment; and (vi) Site Shortlisting Study.

The SEA is undertaken to provide environmental information and integrate environmental factors at the strategic level to support the site identification and shortlisting process, and to recommend follow up works and actions required under the Strategic Environmental Monitoring & Audit (SEM&A) Plan and Programme to resolve and follow up the outstanding environmental issues of the shortlisted sites for reclamation.

1.4 Disclaimer

Any proposals pertaining to the extent, shape, land use, transport infrastructure, etc. for the reclamation sites shown in any report, are solely hypothetical assumptions for the purpose of broad technical assessment and strategic environmental assessment only. They do not represent the extent, shapes, land uses and transport infrastructures to be implemented in future regardless the sites are selected for further study or not. Indeed, all these development parameters will be developed based on future planning and engineering feasibility studies, statutory processes including the Environmental Impact Assessment Ordinance (EIAO), Town Planning Ordinance (TPO), etc. and public consultation.

2 Nomenclature and Abbreviations

The following table lists out the abbreviated titles of government bureaux, departments, offices, statutory bodies and public organizations adopted in this Assignment:

Abbreviation	Full title
ACE	Advisory Council on the Environment
AFCD	Agriculture, Fisheries and Conservation Department
AMO	Antiquities and Monuments Office of the Leisure and Cultural Services Department
ArchSD	Architectural Services Department
CEDD	Civil Engineering and Development Department
CIG	Central Internet Gateway
CPLD	Committee on Planning and Land Development
DEVB	Development Bureau
DLO	District Lands Offices
DO	District Offices
DSD	Drainage Services Department
EACSB	Engineering and Associated Consultants Selection Board
ENB	Environment Bureau
EPD	Environmental Protection Department
ETWB	Environment, Transport and Works Bureau (former Bureau)
FSD	Fire Services Department
FEHD	Food and Environmental Hygiene Department
GEO	Geotechnical Engineering Office of the Civil Engineering and Development Department
HAD	Home Affairs Department
HD	Housing Department
HKPF	Hong Kong Police Force
HyD	Highways Department
LandsD	Lands Department
LCSD	Leisure and Cultural Services Department
LDAC	Land and Development Advisory Committee
LegCo	The Legislative Council
MD	Marine Department
PFC	Public Fill Committee
PlanD	Planning Department
ProPECC	Professional Persons Environmental Consultative Committee
PWL	Public Works Laboratory
SB	Security Bureau

Abbreviation	Full title
SWD	Social Welfare Department
TD	Transport Department
THB	Transport and Housing Bureau
TPB	Town Planning Board
WSD	Water Supplies Department

The following table lists out the meaning of abbreviation for expression adopted in this Assignment:

Abbreviation	Full meaning
ASR	Air Sensitive Receiver
BTA	Broad Technical Assessment
C&D material	Construction and Demolition Material
C&DMMP	Construction and Demolition Material Management Plan
CDF	Confined Disposal Facilities
CASET	Computer Aided Sustainability Evaluation Tool
CV	Curriculum Vitae
DEVBTC(W)	Development Bureau Technical Circular (Works)
DIA	Drainage Impact Assessment
DR	Director's Representative
E&M	Electrical and Mechanical
EIA	Environmental Impact Assessment
EIAO	Environmental Impact Assessment Ordinance, Cap 499
EIS	Ecologically Important Streams
EM&A	Environmental Monitoring & Audit
EP	Environmental Permit issued under EIAO
EPI	Environmental Performance Indicator
ERA	Estimating using Risk Analysis defined under WBTC No. 22/93
ETWBTC(W)	Technical Circulars (Works) issued by the then Environment, Transport and Works Bureau
GA	Geotechnical Assessment
GEOTGN	Technical Guidance Notes issued by GEO
GIS	Geographic Information System
HKSAR	Hong Kong Special Administrative Region
HKPSG	Hong Kong Planning Standards and Guidelines
LMPO	Land (Miscellaneous Provisions) Ordinance, Cap 28

Abbreviation	Full meaning
LPG	Liquefied Petroleum Gas
NENT	North East New Territories
NSR	Noise Sensitive Receiver
NTHA	Natural Terrain Hazard Assessment
PAH	Project Administration Handbook by the HKSAR Government
PE	Public Engagement
PHIs	Potentially Hazardous Installations
PWP	Public Works Programme
RCD	Rock Cavern Development
SA	Sustainability Assessment
SEA	Strategic Environmental Assessment
SEM&A	Strategic Environmental Monitoring and Audit
SENT	South East New Territories
SI	Site Investigation
SIA	Sewerage Impact Assessment
SRM	Systematic Risk Management
SSC	Site Selection Criteria
SSSI	Sites of Special Scientific Interest
TTIA	Transport and Traffic Impact Assessment
UIA	Utility Impact Assessment
VM	Value Management
WBTC	Technical circulars issued by the then Works Bureau, the then Works Branch, the then Lands & Works Branch or the then Public Works Department
WENT	West New Territories
WSR	Water Sensitive Receiver
XP	Excavation Permit

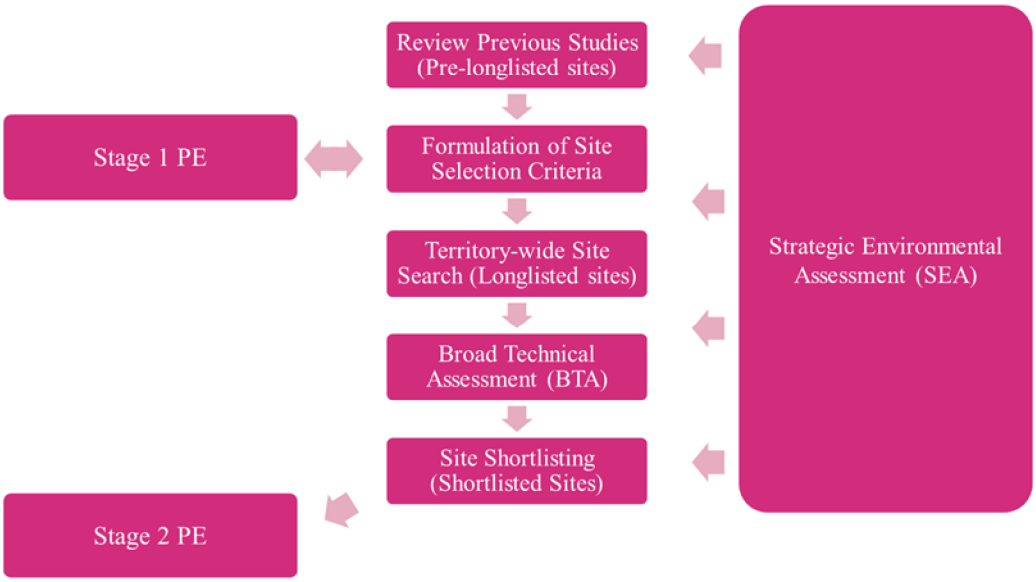
The following table lists out the meaning of words and expressions adopted in this Assignment:

Abbreviation	Full meaning
Cavern Study	CE 66/2009 (GE) – Enhance Use of Underground Space in Hong Kong – Feasibility Study
CDF Study	FM 01/2010 – Preliminary Engineering Feasibility Study on Confined Disposal Option for Contaminated Sediment
Government	Government of the Hong Kong Special Administrative Region
Longlisted Sites	A list of potential sites selected from the pre-longlisted sites based on Site Selection Criteria for further shortlisting

Abbreviation	Full meaning
PR sub-consultants	Separate Public Relations Firm satisfying the qualification requirements stipulated in the Brief
Pre-longlisted Sites	An initial list of potential sites identified based on review of previous studies and constraints mapping
RCD-released Sites	Sites that could be released from relocation of existing government facilities to rock caverns by means of rock cavern development (RCD)
RCD-receiving Sites	Rock caverns to receive the government facilities relocated from the RCD-released sites
Shortlisted Sites	A list of at potential nearshore reclamation sites selected from the longlisted sites for consultation in Stage 2 Public Engagement based on findings of Broad Technical Assessment
Study	CE 9/2011 (CE) – Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement – Feasibility Study
Study Webpage	Webpage for the Study

3 Overall Site Selection Methodology

The site selection process carried out under this Study is broadly illustrated below:



Main tasks include:

a) review of previous studies and constraints for identification of pre-longlisted sites;

b) Stage 1 Public Engagement for formulation of initial site selection criteria (SSC);

c) selection of longlisted sites from the pre-longlisted sites based on the initial SSC;

d) refined SSC after stage 1 PE;

e) broad technical assessment (BTA) for the longlisted sites;

f) site shortlisting based on the findings of BTA, refined SSC after Stage 1 PE and SEA to shortlist sites for consultation in PE2 and further detailed study; and

g) Stage 2 Public Engagement to consult the public on the shortlisted sites.

Strategic Environmental Assessment (SEA) was also carried out to provide environmental input for the entire site selection process.

4 Review of Previous Studies and Constraints

4.1 Overview

There is a broad range of constraints and considerations, in relation to the local community, environment, planning and engineering. The site search exercise is required to bring together all these constraints and considerations, and the associated potential of development with/against these constraints for the ultimate goal of identifying suitable sites or areas. Given that previous studies on reclamation and rock cavern developments were carried out across different timeframe and for different planning/development objectives in generally local areas, a comprehensive territory-wide constraint mapping exercise is carried out in this Study to establish a portfolio of the most recent environmental and non-environmental features, constraints and planning/ engineering proposals.

4.2 Methodology

A review of the previous studies has been carried out, including the previously studied reclamation projects, their opportunities and constraints. This review formed the basis of this Study with regards to the site selection process.

In addition to the review of the previous projects, constraints mapping has been adopted to identify pre-longlisted sites based on Geographic Information System (GIS). The technique provides an effective means to account for areas of constraints to potential development. A constraint mapping exercise began with the identification of key constraints, including predominantly physical, environmental and planning constraints, and a digital map for each category of constraints. These maps are then overlaid to provide an overall constraint map with environmental and non-environmental constraints and considerations.

4.3 Environmental and Non-environmental Constraints & Considerations

For comprehensive site search, constraints and considerations across the territory are identified and the relevant data was collated from the relevant government departments and/or other sources available. The constraints and considerations cover a range of aspects, including ecology, fisheries, water, cultural heritage, hazard to life, landfill gas hazard, noise, material disposal and storage areas, planning and landscape, restriction zone, marine and submarine, future development. These can be grouped into environmental constraints and other constraints. Based on the current development presumptions or requirements, these constraints and considerations can be either classified as “stop areas” or “constrained areas”, of which their definitions are as follows.

“Stop areas” - areas where there is strong presumption against development or where developments are not statutorily permitted under the existing legislation.

“Constrained areas” - areas where any development may be limited by existing constraints or known constraints that will be likely in place in the future.

These constraints are listed in **Table 4.3.1** and shown in **Figures 1 to 35**.

Table 4.3.1 List of environmental and non-environmental constraints and considerations

Constraints	Stop Area	Constrained Area	Development Considerations and Constraints
Environmental Constraints			
Ecology			
1. Country Park and Special Area (**Figure 1**)	√		Designated and protected under the Country Parks Ordinance (Cap 208). Managed by AFCD. Taking of, destruction of or interference with vegetation within a country park are prohibited or restricted. Development within Country Parks or Special Areas is avoided, considering their high protection status and importance for conservation
2. Potential Country Park (**Figure 2**)		√	No legal status for these potential country parks before their gazettal.
3. Marine Park and Marine Reserve (**Figure 3**)	√		Designated and protected under Cap 476. Managed by AFCD. Development within the Marine Parks or Marine Reserve is avoided, considering their high protection status and importance for conservation.
4. Proposed, Committed and Potential Marine Park (**Figure 4**)		√	Though there is no legal status for these proposed, committed and potential Marine Parks before their gazettal, they should still be taken as constraints in the site search exercise as their status might elevate in future. Consulting with AFCD before any developments at proposed, committed and potential Marine Parks is required.
5. Restricted Area (**Figure 5**)	√		Designated and protected under the Wild Animals Protection Ordinance (Cap 170). Entry to Restricted Areas in Restricted Period is not allowed without permit.
6. Ramsar Site (**Figure 6**)	√		All gei wais and the majority of the mangroves and mudflats inside the Ramsar Site are within a Restricted Area under Wild Animals Protection Ordinance (Cap 170), and thus protected from human disturbance. The majority of the Ramsar Site is covered by several SSSIs, and thus precludes any developments unless they are required to support the conservation of the wetland ecosystem in the area. Special land use zones are designed by the Town Planning Board to conserve these areas and guidelines for planning

Constraints	Stop Area	Constrained Area	Development Considerations and Constraints
			application for development within Deep Bay area is issued.
7. Mai Po Nature Reserve (**Figure 6**)	√		The entire reserve is within the Restricted Area under Wild Animals Protection Ordinance (Cap 170), and thus protected from human disturbance.
8. Sites of Special Scientific Interest (SSSI) (**Figure 7**)	√		Normally, no new developments are permitted within a SSSI unless they are necessary to support the conservation of the features of special scientific interest in the site, to maintain and protect the existing character of the site, or for educational and research purposes. Administrative approaches and planning measures are adopted to protect SSSIs.
9. Conservation Area (**Figure 8**)	√		There is a general presumption against development in this conservation zoning in Statutory Town Planning. In general, only developments that are needed to support the conservation of the existing natural landscape or scenic quality of the area or are essential infrastructure projects with overriding public interest may be permitted.
10. Coastal Protection Area (**Figure 9**)	√		There is a general presumption against development in this conservation zoning in Statutory Town Planning. In general, only developments that are needed to support the conservation of the existing natural landscape or scenic quality of the area or are essential infrastructure projects with overriding public interest may be permitted.
11. Wetland Conservation Area (**Figure 10**)	√		New development within the Wetland Conservation Area would not be allowed unless it is required to support the conservation of the ecological value of the area or the development is an essential infrastructural project with overriding public interest.
12. Wetland Buffer Area (**Figure 10**)		√	Developments having negative ecological impact on Wetland Buffer Area are not supported, unless ecological impact assessment can demonstrate that the negative impact could be mitigated through mitigation measures.
13. Priority Sites for Enhanced Conservation (**Figure 11**)		√	Under the New Nature Conservation Policy, development at an agreed scale would be allowed at the ecologically less sensitive portion of a Priority Site provided that the project proponent undertakes conservation and management, on a long-term basis, the rest of the site that is more ecologically sensitive.

Constraints	Stop Area	Constrained Area	Development Considerations and Constraints
14. Ecologically Important Streams (**Figure 11**)		√	ETWB TCW No. 5/2005 provides an administrative framework for the protection of natural streams/rivers from adverse impact arising from construction works associated with government projects and private developments.
15. Seagrass Beds (**Figure 12**)		√	The TM-EIAO indicated that areas and/or habitats of ecological importance (e.g. those listed in Note 1 and 2 of (Appendix A) Annex 16) shall be conserved as far as possible, any project that is likely to result in adverse ecological impact in areas of ecological importance shall not normally be permitted unless the project necessary; it has been proven that no other practical and reasonable alternatives are available, and, adequate on-site and/or off-site mitigation measures are to be employed. Hence, all proposed developments that will affect these habitats should undergo ecological assessment.
16. Mangrove (**Figure 13**)		√	Mangroves are taken as constraints in the site search exercise as they are considered as an important habitat type. According to TM-EIAO, an ecological assessment will be needed if a proposed development will affect established mangrove stands of any size as listed in Note 2 of Appendix A, Annex 16. The TM-EIAO indicated that areas and/or habitats of ecological importance (e.g. those listed in Note 1 and 2 of Appendix A) shall be conserved as far as possible. Any project that is likely to result in adverse ecological impact in areas of ecological importance shall not normally be permitted unless the project necessary.
17. Key Coral Areas (**Figure 14**)		√	Key coral areas are taken as constraints in the site search exercise as they are considered as an important habitat type. According to TM-EIAO, an ecological assessment will be needed if a proposed development will affect established coral communities stands of any size as listed in Note 2 of Appendix A, Annex 16. The TM-EIAO indicated that areas and/or habitats of ecological importance (e.g. those listed in Note 1 and 2 of (Appendix A) Annex 16) shall be conserved as far as possible. Any project that is likely to result in adverse ecological impact in areas of ecological importance shall not normally be permitted unless the project necessary.

Constraints	Stop Area	Constrained Area	Development Considerations and Constraints
18. Intertidal Mudflats (**Figure 15**)		√	According to TM-EIAO, an ecological assessment will be needed if a proposed development will affect mudflats over 0.5 ha in area size as listed in Note 2 of Appendix A, Annex 16. The TM-EIAO indicated that areas and/or habitats of ecological importance (e.g. those listed in Note 1 and 2 of (Appendix A) Annex 16) shall be conserved as far as possible. Any project that is likely to result in adverse ecological impact in areas of ecological importance shall not normally be permitted unless the project necessary; it has been proven that no other practical and reasonable alternatives are available, and, adequate on-site and/or off-site mitigation measures are to be employed.
19. Woodland (**Figure 16**)		√	Woodland in particular Fung Shui Woods would be taken as constraints in the site search exercise as they are considered as an important habitat type. According to TM-EIAO, an ecological assessment will be needed if a proposed development will affect over 1ha of woodland as listed in Note 2 of Appendix A, Annex 16. The TM-EIAO indicated that areas and/or habitats of ecological importance (e.g. those listed in Note 1 and 2 of (Appendix A) Annex 16) shall be conserved as far as possible. Any project that is likely to result in adverse ecological impact in areas of ecological importance shall not normally be permitted unless the project necessary.
20. Juvenile Horseshoe Crab Sites (**Figure 17**)		√	Juvenile Horseshoe Crab Sites are taken as constraints in the site search exercise as they are of importance for the life cycle of a concerned species. The direct and indirect impact on Juvenile Horseshoe Crab Sites should be considered for reclamation works nearby or encroaching the Sites.
21. Dolphin Hotspots (**Figure 18**)		√	Chinese White Dolphin hotspots are taken as constraints in the site search exercise as they are of importance for a concerned species as listed in international conventions for conservation of wildlife. An ecological assessment will be required if the proposed development will affect habits supporting significant population of Chinese White Dolphin according to the TM-EIAO.
22. Finless Porpoise Hotspots		√	Finless Porpoise hotspots are taken as constraints in the site search exercise as they are of importance for a concerned

Constraints	Stop Area	Constrained Area	Development Considerations and Constraints
(**Figure 19**)			species as listed in international conventions for conservation of wildlife and IUCN Red Data Books. An ecological assessment will be required if the proposed development will affect habits supporting significant population of Finless Porpoise according to the TM-EIAO.
Fisheries			
23. Fish Culture Zones (**Figure 20**)		√	Under the Marine Fish Culture Ordinance (Cap 353), polluting water quality and injuring fishes in the Fish Culture Zone are also not allowed. In accordance with the Water Pollution Control Ordinance Cap 358 Section 21, no new effluent will be allowed within 200m of the seaward boundaries of a marine fish culture zone and within 100m of the landward boundaries.
24. Artificial Reef Development Areas (**Figure 21**)		√	Artificial Reef Deployment Areas are taken as constraints in the site search exercise as they are of value for fisheries resources enhancement.
25. Area of Oyster Production (**Figure 22**)		√	Oyster Production Area is taken as constraints in the site search exercise as it is the only site for this aquaculture operation.
Water			
26. Water Gathering Grounds and Reservoir (**Figure 23**)		√	WSD only accepts environmentally sustainable developments within the gathering grounds that will not cause pollution to the water resources. For any development works in Water Gathering Grounds, WSD should be consulted. Standards for effluents discharged into the water gathering grounds are stipulated under the Water Pollution Control Ordinance Cap 358 Section 21.
27. Gazetted Beach and To be Gazetted Beach (**Figure 24**)		√	According to the Water Pollution Control Ordinance Cap 358 Section 21, no new effluent will be allowed within 100m of the boundaries of a gazetted beach in any direction, including rivers, streams and storm water drains.
Cultural Heritage			
28. Declared Monument (**Figure 25**)	√		No person shall undertake acts on declared monuments that are prohibited under Section 6 of the Antiquities and Monuments Ordinance (Cap 53), such as excavation, carrying out building or other works, or planting or felling trees, without a permit granted by the Antiquities Authority. Only adaptive use which will not cause detriment to their

Constraints	Stop Area	Constrained Area	Development Considerations and Constraints
			conditions and protected values are allowed.
29. Site of Archaeological Interest (**Figure 26**)		√	In accordance with the Antiquities and Monuments Ordinance, Cap. 53, no person, other than the Antiquities Authority and a designated person authorized by him, shall excavate or search for antiquities except in accordance with a licence granted to him.
30. Graded and Proposed Graded Historic Building (**Figure 27**)		√	Although the grading has no legal effects, graded historic buildings are protected by administrative measures as far as possible.
Hazard to Life			
31. Consultation Zones of PHIs (**Figure 28**)		√	Within the Consultation Zone of PHIs, planning restrictions may need to be imposed on future developments. Proposals for development that will result in an increase in the number of persons living or working in the Consultation Zone have to be submitted to CCPHI for consideration. Sizable developments are normally not approved. Development proposals in the Consultation Zone will be assessed against the Government risk guidelines to ensure that risks to the public are confined to within acceptable limits.
32. Safety Zone of PHIs (**Figure 28**)	√		Within the Safety Zone for explosives depots, no inhabited buildings or congregation of people will be allowed.
Landfill Gas Hazard			
33. Existing Landfill Site (**Figure 29**)		√	Landfill gas hazard assessment is required for proposed development falling within the 250m Consultation Zone of landfill.
34. Landfill Extension (**Figure 29**)		√	Landfill gas hazard assessment is required for proposed development falling within the 250m Consultation Zone of landfill.
35. Restored Landfill Site (**Figure 29**)		√	Landfill gas hazard assessment is required for proposed development falling within the 250m Consultation Zone of landfill.
Noise			
36. Hong Kong International Airport Aircraft Noise Exposure Forecast (NEF) 25		√	Under the HKPSG, noise sensitive uses relying on open window for ventilation, including domestic premises, education institution, etc, within the NEF 25 contour are not allowed.

Constraints	Stop Area	Constrained Area	Development Considerations and Constraints
Contours (**Figure 30**)			
Other Constraints			
Material Disposal and Storage Areas			
37. Public Fill Bank (**Figure 31**)		√	Under the Statutory Plan of Town Planning Board, Tseung Kwan O Area 137 is designated as 'Deep Waterfront Industry' where it is intended for special industrial which require marine access, access to deep water berths or water frontage [1] . As a result, further reclamation adjacent to this area may not be favourable for marine accessing and/or deep water berthing activities. According to Statutory Plan of Town Planning Board, zone of Tuen Mun Area 38 "is intended primarily for the provision of land for land-extensive and capital-intensive industry as well as for other special industries."[2].
38. Sediment Disposal Areas (**Figure 31**)		√	The identification and management of the supply and demand of marine fill resources and the disposal of dredged/excavated sediment are dealt with by the Marine Fill Committee (MFC) under the chairmanship of the Director of Civil Engineering and Development. Development encroaching sediment disposal areas is constrained.
39. Explosives Dumping Grounds (**Figure 31**)		√	Precautions need to be taken before further development above or near explosives dumping ground.
40. Marine Borrow Area (**Figure 31**)		√	There areas of natural sand deposits below seabed have been borrowed in Hong Kong for reclamation and other purposes. Development encroaching marine borrow area is constrained.
Planning & Landscape			
41. Geopark (**Figure 32**)	√		Located within the Country Parks, Special Areas and Marine Parks, Geoparks are managed by AFCD and protected under the Country Parks Ordinance and the Marine Parks Ordinance. According to Country Park Ordinance Cap 208 Section 10, "No new development shall be carried out within country park area shown in the draft map without the prior approval of the Authority".
42. Green Belt		√	The planning intention of the "Green

[1] Planning Department, Draft Tseung Kwan O Outline Zoning Plan No. S/TKO/19
[2] Planning Department, Approved Tuen Mun Outline Zoning Plan No. S/TM/28

Constraints	Stop Area	Constrained Area	Development Considerations and Constraints
(**Figure 32**)			Belt" zone is primarily for defining the limits of urban and sub-urban development areas by natural features and to contain urban sprawl as well as to provide passive recreational outlet, with a general presumption against development.
43. Traditional Burial Grounds (**Figure 32**)	√		Encroachment of traditional burial ground is not allowed due to their social and cultural significance.
44. Recognized Indigenous Villages (Village Type Development) (**Figure 32**)		√	"V"zones comprise zones covering recognized villages (village type development) and zone covering other villages. Development within "V"zones is constrained.
Restriction Zone			
45. Victoria Harbour (**Figure 33**)	√		The harbour is preserved as a special public asset and a natural heritage under the Protection of Harbour Ordinance (Cap 531) and the Vision Statement promulgated by the Town Planning Board. According to thc judgmcnt handed down by the Court of Final Appeal on 9 Jan 2004 on the Town Planning BoarDs appeal against the High Court's ruling in respect of the Wan Chai North Outline Zoning Plan, the presumption against reclamation can only be rebutted by establishing an overriding public need for reclamation.
46. Closed Area (**Figure 33**)	√		Access to this area is strictly controlled under the Public Order Ordinance.
47. Military Sites (**Figure 33**)	√		According to LegCo Secretariat Paper No.IN04/10-11 of 17.1.2011, there are 14 military sites scattered over Hong Kong area. Further development at these sites may need approval from both sides of Central's People's Government and Hong Kong government.
48. Airport Exclusion Zone (**Figure 33**)		√	Within these restricted areas, the air-draughts of the entering vessel is restricted based on regulation 23 of the Shipping and Port Control Regulations (Cap. 313A). Permission to pass through these areas must be granted from Marine Department and Airport Authority. Although, there is no ordinance restricted any development under adjacent to this area, any factor that would induce to population increase should be avoided for safety reason.
49. Airport Height Restriction (**Figure 33**)		√	Hong Kong Airport (Control of Obstructions) Ordinance Cap 301 was enacted to provide for the restriction and the reduction of building heights in the interest of the safety of airport, for the

Constraints	Stop Area	Constrained Area	Development Considerations and Constraints
			control of lighting and for the erection or provision and the maintenance of aids to air navigation.
50. Deed of Restrictive Covenant of the Hong Kong Disneyland (**Figure 33**)		√	When the Hong Kong Disneyland was developed, the Hong Kong Government entered a Deed of Restrictive Covenant with Walt Disney. The covenant was agreed such that the public outside the park would not be able to see in, and those inside not be able to see the world outside, so as to maintain the aura of fantasy. The Deed requires that any new development or redevelopment should not breach the height limits. In addition, there are other development restrictions regarding uses and visual buffer in the Hong Kong Disneyland Deed of Restrictive Covenant.
Marine & Submarine			
51. Anchorages & Designated Bunkering Areas (**Figure 34**)		√	For the time being, no ordinance restricts the development at anchorage or bunkering areas. If development at anchorage or bunkering areas is proposed, re-provisioning should be considered in consultation with the Authority of Marine Department.
52. Fairway & Navigation Channel (**Figure 34**)		√	Fairways are main channels and passageways for vessel transit north-south or east-west direction. In order to maintain the regularity of shipping activity and safety, it is recommended not to divert these fairways.
53. Sub-sea Tunnel (**Figure 34**)		√	Provide vehicular and rail passages between Hong Kong Island and Kowloon within the Victoria Harbour, development over sub-sea tunnels is restricted.
54. Marine Facilities (**Figure 34**)		√	Those accessible by the public are maintained by the government, whilst others are maintained and operated by private companies. Re-provisioning should be considered if development over these facilities.
55. Submarine Pipelines, Cables & Utilities (**Figure 34**)		√	Re-provisioning should be considered if development over these facilities.
56. Ship Wrecks (**Figure 34**)		√	For reclamation works, marine archaeological study is required for sites at or close to existing identified shipwreck under the Antiquities and Monuments Ordinance (Cap 53).
Future Development			
57. Infrastructure & Development		√	Development interfacing with the planning infrastructure and development

Constraints	Stop Area	Constrained Area	Development Considerations and Constraints
under Construction and/or Feasibility Studies (**Figure 35**)			is restricted.
58. Planning Infrastructure & Development (**Figure 35**)		√	Development interfacing with the planning infrastructure and development is restricted.

4.4 SEA/Environmental Considerations in the Identification of Pre-longlisted Reclamation Sites

The constraints and considerations stated in **Section 4.3.1** are collated to produce constraint maps; these constraints and considerations are grouped as "Stop areas" and "Constrained areas" for reclamation based on the current development resumptions or requirements.

Throughout the constraint mapping process, the SEA has identified the pre-longlisted sites avoiding the sites which fall within environmental-related "Stop Areas", such as existing Marine Parks and Marine Reserves, Ramsar Sites, Mai Po Nature Reserves, SSSIs, Conservation Areas, Coastal Protection Areas, Wetland Conservation Areas, Geoparks, etc. The pre-longlisted sites have avoided all marine and terrestrial environmental/ecological significant/sensitive areas which are prohibited for development. The pre-longlisted sites may be subject to environmental and other constraints, and will be further considered in the next steps of the site selection process.

Based on the stop and constrained areas, a total of 48 nos. of pre-longlisted reclamation sites were identified. These sites are shown in **Figure 36** and listed in **Table 4.4.1** below.

Table 4.4.1 Pre-Longlisted Reclamation Sites

Site No.	Location
1	Mirs Bay
2	Tap Mun
3	Lung Kwu Tan
4	Tuen Mun Promenade
5	Tuen Mun Area 40
6	Tuen Mun Area 27 (Sam Shing)
7	Tai Lam Chung
8	Tsing Lung Tau
9	Sham Tseng
10	Tai Po Industrial Estate
11	Shuen Wan

Site No.	Location
12	Tai Po Kau
13	Ma Liu Shui Extension
14	Ma Liu Shui
15	Wu Kai Sha
16	Whitehead
17	Northwest Lantau
18	Tung Chung East 3
19	Siu Ho Wan
20	Sham Shui Kok
21	Sunny Bay
22	Tsing Chau Tsai East
23	Southwest Tsing Yi
24	Penny's Bay East
25	Discovery Bay
26	Nim Shue Wan
27	Kau Yi Chau West
28	Silver Mine Bay North
29	Silver Mine Bay South
30	Hei Ling Chau West
31	Hei Ling Chau Typhoon Shelter
32	Peng Chau – Hei Ling Chau
33	Lamma North
34	Sandy Bay
35	Heng Fa Chuen
36	Tseung Kwan O Area 131
37	Tseung Kwan O East
38	Jin Island
39	Shek Pik
40	Shek Kwu Chau Northwest
41	South Cheung Chau
42	Yung Shue Wan
43	Lamma Quarry
44	Shek O Quarry
45	Beaufort Island
46	Tai Long Wan Offshore
47	Eastern Waters
48	Southeast Offshore

5 Stage 1 Public Engagement and Formulation of Site Selection Criteria (SSC)

5.1 Stage 1 Public Engagement

The Stage 1 Public Engagement (PE1) was conducted between November 2011 and March 2012. The aim of PE1 was to seek public views on land supply by reclamation outside Victoria Harbour and rock cavern development, and the site selection criteria.

To enhance the public awareness of the PE1 exercise and to encourage public participation, a series of PE activities including public forums and roving exhibitions were organized. The consultation document, PE1 Digest, was widely disseminated to the public at various outlets including District Offices, roving exhibition counters and public forums. A web version of the PE1 Digest and a promotional video was uploaded onto the Study website.

Methodology used in collecting and collating views during Stage 1 Public Engagement includes both quantitative feedback in the form of territory-wide telephone poll and feedback questionnaire, and qualitative feedback in the form of written submissions, signature campaigns or petitions organised by community groups, the online discussion forum on the PE website, comment forms collected during PE activities, and newspaper reports, etc.

5.2 Site Selection Criteria

A set of SSC initially formulated through collaboration with various government departments in a Value Management Workshop (I) was put forward for discussion in PE1.

The proposed SSC were found to be largely agreeable to the general public. For reclamation, the two criteria related to environment include "Environmental impacts" and "Environmental benefits". Based on the results of PE1, "Environmental impacts" is one of the major site selection criteria considered by the public together with "Impact on local community". The SSC include:

Table 5.2.1 Guiding principles and site selection criteria

Guiding Principles	Site Selection Criteria
Social Harmony & Benefits	***Impact on local community***
	Site location and accessibility
	Meeting local needs
Enhanced Environmental Performance	***Environmental impacts***
	Environmental benefits
Economic Efficiency & Practicality	Cost effectiveness
	Planning flexibility
	Engineering feasibility

5.3 SEA/Environmental Comments

Environmental – related Public Comments collected during Stage 1 Public Engagement include:

a) As for quantative feedback, views collected from the telephone poll and feedback questionnaire survey were mixed. In the telephone poll, there were fewer respondents supporting reclamation (33.6%) than those not supporting (46.4%). For the feedback questionnaire, it was the reverse, with 49.4% supporting reclamation and 42.5% not supporting. The major concerns of those who did not support reclamation were related to potential impacts on the environment and local communities. Site location was regarded by many as important when considering reclamation. Many respondents to the feedback questionnaire opposed to some of the 25 illustrative possible reclamation sites.

b) Respondents regarded the following as the more important site selection criteria for increasing land supply: potential impacts on the environment (rated by 72.9% in the telephone poll and 82% in the feedback questionnaire survey as important); impacts on local communities (rated by 61.9% in the telephone poll and 74.2% in the feedback questionnaire survey as important); and site location (rated by 71.4% in the telephone poll as important).

c) As for qualitative feedback, strong opposition was expressed, especially as regards some of the 25 illustrative possible reclamation sites. There were some comments supporting the reclamation option. Many comments collected from signature campaigns/petitions organized in local communities opposed reclamation at some of the specific locations. There were many comments concerned about how reclamation would damage the natural environment. There were also a lot of comments, mostly from one of the 25 possible reclamation sites, viz. Wu Kai Sha, that were concerned about how reclamation would affect Hong Kong's general image.

d) For the initial site selection criteria, the primary concerns expressed were the possible impacts on local community and damage to the natural environment.

5.4 Other Comments

Other key Public Comments collected during Stage 1 Public Engagement include:

a) broad support for establishment of land reserve.

b) broad consensus that more land will be required to meet housing needs, for better living environment and development.

c) broad support for a six-pronged approach for enhancing land supply.

d) site location is important when considering reclamation.

With reference to the feedback from PE1, the site shortlisting exercise will initially highlight the environmental and local community constraints associated with each site as these are considered by the public to be the two crucial criteria.

The Stage 1 Public Engagement Report and Executive Summary can be found on the Study website http://www.landsupply.hk.

5.5 SEA/Environmental Observations

Major SEA/Environmental observations noted in Stage 1 Public Engagement are summarized below:

a) There was no consensus on increasing land supply through reclamation outside Victoria Harbour. A territory-wide telephone poll conducted by the independent Research Centre found more respondents opposing to reclamation than supporting, whereas the feedback questionnaire survey (online, self-administered or face-to-face interview questionnaires), also conducted by the Research Centre, found more respondents in support of reclamation than opposing.

b) The same surveys also found that the major concerns of those who did not support reclamation were related to potential impacts on the environment and local communities. Site location was regarded by many as important when considering reclamation.

c) As for qualitative feedback, many feedback collected from signature campaigns and petitions organised in local communities opposed some of the 25 possible reclamation sites announced by the Government in response to the public to facilitate discussions on the initial site selection criteria. The main concerns were also potential impacts on the environment and local communities. There were a lot of comments, mostly from one of the 25 possible reclamation sites, viz. Wu Kai Sha, that were concerned about how reclamation would affect Hong Kong's general image.

d) There were some comments supporting the reclamation option from development point of view.

e) Overall, there was broad consensus that impacts on the environment and local communities were the most important considerations for increasing land supply and the most important site selection criteria for reclamation outside Victoria Harbour.

6 Selection of Longlisted Sites

6.1 Site Longlisting Methodology

Based on constraint mapping exercise, a total of 48 pre-longlisted reclamation sites were identified for longlisting. A longlisting exercise was carried out which is a screening process to select a smaller batch of sites from the pre-longlist for further study. In the longlisting exercise, each pre-longlisted sites underwent preliminary evaluation. Each site was graded with A, B or C with reference to different site selection criteria based on the preliminary assessment. These grades only provide preliminary indications of the relative performance of the sites with reference to the site selection criteria and are not to indicate their absolute values, and may vary with the results of any further detailed studies/assessment. In this broad comparison of the sites, the more grade As that are identified for the site it is assumed that it is more likely for these sites to be suitable for being selected for further study under this Assignment.

6.2 Initial Site Selection Criteria

As mentioned in **Section 5**, initial site selection criteria were derived based on views collected from public in Stage 1 PE and recommendations from government departments, impacts on the environment and local communities are the most important site selection criteria for reclamation. These initial site selection criteria were categorized into SEA/Environmental Site Selection Criteria and Other Site Selection Criteria, and are summarized below.

6.2.1 SEA/ Environmental Site Selection Criteria

6.2.1.1 Environmental Impacts

The environmental impacts on natural resources and surrounding environment for the reclamation sites are considered based on the established constraints map and identified environmental resources and constraints in previous studies. Issues considered include distance of reclamation site from surrounding environmental resources and constraints. In particular, the major environmental resources and constraints include:

- Site of Special Scientific Interest;
- Bathing beach;
- Marine Park or Marine Reserve;
- Fish Culture Zone;
- Restricted Area;
- Coastal Protection Area;
- Conservation Area;
- Country Park;
- Special Areas;

- Recognized heritage sites; and
- Existing residential area.

The significance of potential impact on surrounding environment identified based on constraints map and previous studies have been considered. The likelihood of the environmental acceptability with mitigation measures in place has also been considered.

This site selection criteria "Environmental Impacts" focuses on the impacts from the proposed reclamation on natural resources and surrounding environment, while the impacts from landfill sites, PHIs, air quality/odours emission sources and noise emission will be considered in "Planning Flexibility". Sea water intakes have been identified in the Study. As the seawater intake can be re-provisioned, the constraints from sea water intakes have been considered in "Engineering Feasibility".

6.2.1.2 Environmental Benefits

The environmental performance of potential environmental benefits for the reclamation site is considered based on the surrounding environment and SSC. Issues considered include:

- Potential of enhancing the ecology, fisheries, cultural heritage and landscape value and visual aspects, local water quality; and
- Volume of public fill that the reclamation works can absorb, etc.

6.2.1.3 Planning Flexibility

This criterion assesses whether the reclamation site is near or within any constraint upon which any development within the reclamation site will be constrained thus reducing the flexibility in planning for the development. Issues considered include:

- Potential constraints on development imposed by the nearby environment (e.g. Airport Height Restrictions, height restriction for development in the vicinity of Hong Kong Disneyland, hazard to life, landfill gas hazard, etc.); and
- Re-provisioning of an existing anchorage area, noise or air quality, existence of unwelcome neighbourhood facilities or industrial areas.

6.2.2 Other Site Selection Criteria

6.2.2.1 Impact on Local Community

This criterion considers the impact on local community that could be brought to the area around the reclamation site. Issues that have been considered in the exercise include impact on local cultural or heritage features, distance between reclamation and the shore or existing residential development, visual impact, etc.

The following conditions have been considered:

- Offshore reclamation site, or reclamation site is far away or separated from existing residential developments by open space or trunk road; and
- Reclamation site separated from existing residential developments by existing local distributor road(s), or reclamation site located near sites of archaeological interest, burial grounds, Fung Shui Area and other cultural features; and
- Reclamation site immediately in front of existing residential developments without separation or promenade, creating substantial visual impact for existing residential developments.

6.2.2.2 Site Location and Accessibility

This criterion considers the accessibility of the site location, condition of existing infrastructures, and scale of new infrastructure required for connection to the site, etc.

The following conditions have been considered:

- Reclamation site is close to existing trunk road or distributor road or local road, and major upgrade is not expected; and
- Reclamation site can be made accessible to existing trunk road by a new distributor road, reclamation site accessibility can be achieved by upgrade of existing trunk road; and
- For offshore reclamation, new marine or land transport connection is required.

6.2.2.3 Meeting Local Needs

This criterion considers whether the proposed works can potentially meet any local needs (e.g. are there any needs of creating Government, Institution or Community (GIC) / housing area or job opportunities in the local community) identified from District Councils and relevant planning studies, how these needs are satisfied by the formation of reclaimed land, etc.

The following conditions have been considered:

- District Council's support and relevant planning study has been carried out; and
- Industrial use, or housing need either supported by DC or studied in previous planning study; and
- No DC's support nor any previous planning study.

6.2.2.4 Cost Effectiveness

The construction cost to reclamation area ratio generally decreases as the reclamation area is enlarged. Therefore, in terms of cost effectiveness, it is generally more economically to reclaim a larger area.

In addition, for offshore island with reclaimed site area, the construction cost of major infrastructure connection has also been considered.

6.2.2.5 Engineering Feasibility

Feasibility of reclamation development is subject to whether the engineering constraints, if any, can be resolved practically within the bounds of feasible engineering solutions. Issues considered include:

- Presence of submarine pipeline(s) or cable(s) and/or existing marine facilities (e.g. typhoon shelter) in the vicinity of the sites;
- Reclamation works potentially limited by clearance restrictions from adjacent bridges, water depth, impact on strategic marine utilities; and
- Re-provisioning of substantial length of quays or strategic infrastructures; and
- Difficulty for utilities connection for remote sites.

6.3 SEA/Environmental Findings in the Longlisting Process for Reclamation

The pre-longlisted reclamation sites have been evaluated under each of the initial SSC outlined above. 27 reclamation sites are selected to form the longlisted sites as listed in **Table 6.3.1**. The locations of these longlisted reclamation sites are shown in **Figure 37**.

The longlisted reclamation sites are divided into the following 4 categories:

- Category A – "Artificial Island";
- Category B – "Reclamation to connect islands";
- Category C – "Reclamation upon artificial or disturbed shoreline"; and
- Category D – "Reclamation upon natural but not protected shoreline".

Taking into account the SEA/environmental site selection criteria, the following categories could be observed during the longlisting process from the 48 longlisted sites:

<u>Sites with Relatively Lower Environmental Impacts</u>

- A3 Lamma North
- C8 Tai Po Industrial Estate
- C10 Ma Liu Shui
- *Penny's Bay East*

<u>Sites with Moderate Environmental Impacts</u>

- A4 East Tsing Chau Tsai
- A5 Kau Yi Chau West
- C1 Tuen Mun Area 40

- C3 Tsing Lung Tau
- C5 Sunny Bay
- C6 Southwest Tsing Yi
- C7 Silvermine Bay South
- C11 Sandy Bay
- C13 Tseung Kwan O East
- D2 Tai Lam Chung
- D3 Silvermine Bay North
- D4 Shuen Wan
- D5 Wu Kai Sha
- D6 Tseung Kwan O Area 131
- D7 Shek O Quarry
- *Discovery Bay*
- *Eastern Waters*
- *Jin Island*
- *Mars Bay*
- *Southeast Offshore*
- *Tuen Mun Promenade*
- *Tung Chung East 3*
- *Whitehead*
- *Heng Fa Chuen*
- *Yung Shue Wan*
- *Shek Pik*
- *Hei Ling Chau Typhoon Shelter*

<u>Sites with Relatively Higher Environmental Impacts</u>

- A1 Hei Ling Chau West
- A2 South Cheung Chau
- B1 Peng Chau – Hei Ling Chau
- B2 Beaufort Island
- C2 Tuen Mun Area 27 (Sam Shing)
- C4 Siu Ho Wan

- C9 Tai Po Kau
- C12 Lamma Quarry
- D1 Lung Kwu Tan
- *Nim Shue Wan*
- *Sham Tseng*
- *Northwest Lantau*
- *Shek Kwu Chau Northwest*
- *Tai Long Wan Offshore*
- *Tap Mun*
- *Ma Liu Shui Extension*
- *Sham Shui Kok*

It is worth to highlight that among the 27 longlisted reclamation sites, despite nine of them may have relatively higher environmental concerns, they were still selected into the longlist for further broad technical assessment and shortlisting because of other considerations, such as less impact to local community, better location and accessibility, engineering feasibility, higher development potential and flexibility, higher cost effectiveness, etc.

For examples, for Hei Ling Chau West, South Cheung Chau, Peng Chau-Hei Ling Chau, Beaufort Island and Siu Ho Wan, they were selected due to relatively low impact on local community. For Tuen Mun Area 27 (Sam Shing), Tai Po Kau and Lung Kwu Tan, they were selected due to good accessibility. For Lamma Quarry, it was selected due to less engineering constraint.

For the 21 reclamation sites which were not selected into the longlist, some were found to have significant environmental impacts (e.g. Nim Shue Wan, Sham Tseng, Northwest Lantau, Shek Kwu Chau Northwest, Tai Long Wan Offshore, Tap Mun, Ma Liu Shui Extension, Sham Shui Kok). However, some sites will have moderate environmental impact (e.g. Discovery Bay, Eastern Waters, Jin Island, Mars Bay, Southeast Offshore, Tuen Mun Promenade, Tung Chung East 3, Whitehead, Heng Fa Chuen, Yung Shue Wan, Shek Pik, Hei Ling Chau Typhoon Shelter) and Penny's Bay East has relatively lower environmental impacts.

For the sites with moderate or less environmental impacts, they were not selected into the longlist because of other considerations, such as significant impact to local community, low development potential, poor location or accessibility, small reclamation area, other planning and engineering constraints, etc. For Penny's Bay East, it was not selected due to potential impact on the Disneyland which is in close proximity, development constraints imposed by the Deed of Restrictive Covenant of the HK Disneyland, impact on the existing Pun Shen Shek Anchorage and Western Anchorage No. 1, etc.

The SEA/environmental findings of the 27 nos. longlisted reclamation sites selected are summarized below.

Table 6.3.1 Longlisted reclamation sites

Site No.	Ref. No.	Site Location	Site Area	Summary of SEA/Environmental Preliminary Findings
30	A1	Hei Ling Chau West	93.6	Likely high impact due to extremely close to Chi Ma Wan Fish Cultural Zone
41	A2	South Cheung Chau	Over 1500, first phase will be 500	Likely high impact due to encroachment into finless porpoise hotspot and close proximity to proposed marine park and fish spawning ground
33	A3	Lamma North	432	Relatively low impact
22	A4	East Tsing Chau Tsai	38	Moderate impact due to archaeological interest and one nesting location for white-bellied Sea Eagle nearby
27	A5	Kau Yi Chau West	475	Moderate impact due to conservation area nearby
32	B1	Peng Chau - Hei Ling Chau	Northern island 150 Southern island 79	Likely high impact due encroachment into key coral areas and Bogadek's Burrowing Lizard nearby
45	B2	Beaufort Island	155.5	Likely high impact due to encroachment into key coral areas, and breeding site of White-bellied Sea Eagle, finless porpoise, site of conservation importance for butterflies, re-fueling ground for migratory bird, Tern breeding colony, potential Country Park and fish spawning ground nearby
5	C1	Tuen Mun Area 40	29	Moderate impact due to CWD hotspot, fish spawning ground nearby
6	C2	Tuen Mun Area 27 (Sam Shing)	13.8	Likelyhigh impact due to extremely close to gazetted beach
8	C3	Tsing Lung Tau	11.7	Moderate impact due to country park and noise/air sensitive uses nearby
19	C4	Siu Ho Wan	133	Likely high impact due to extremely close to commited marine park and CWD hotspot; also close to horseshoe crab site, Priority Site for Enhanced Conservation, PHI, etc.
21	C5	Sunny Bay	75	Moderate impact due to mangrove, seagrass bed and some CWD sightings recorded nearby.
23	C6	Southwest Tsing Yi	106	Moderate impact due to impact on dispersion and dilution of HATS discharge nearby (note: development assumes most PHI nearby will be relocated off site)
29	C7	Silvermine Bay South	5.6	Moderate impact due to country park and air/noise sensitive uses nearby
10	C8	Tai Po Industrial	26	Relative less impact

Site No.	Ref. No.	Site Location	Site Area	Summary of SEA/Environmental Preliminary Findings
		Estate		
12	C9	Tai Po Kau	45	Likely high impact due to extremely close proximity to declared monuments and mangroves.
14	C10	Ma Liu Shui	47	Relative less impact
34	C11	Sandy Bay	22.7	Moderate impact due to some coral communities nearby
43	C12	Lamma Quarry	11.4	Likely high impact due to extremely close proximity to fish culture zone nearby, fish spawning ground and Coastal Protection Area
37	C13	Tseung Kwan O East	49	Moderate impact due to coral communities nearby
3	D1	Lung Kwu Tan	237	Likely high impact due to close proximity to CWD hotspot; also close to site of archaeological interest and horseshoe crab recorded nearby
7	D2	Tai Lam Chung	32.7	Moderate impact due to site of archaeological interest and air/noise sensitive uses nearby
28	D3	Silvermine Bay North	6.5	Moderate impact due to site of archaeological interest and country park nearby
11	D4	Shuen Wan	18.7	Moderate impact due to fish culture zone, air/noise sensitive uses, Tai Po egretry and fish fry collection areas nearby
15	D5	Wu Kai Sha	14.9	Moderate impact due to site of archaeological interest, air/noise sensitive uses and fish fry collection areas nearby
36	D6	Tseung Kwan O Area 131	19.3	Moderate impact due to coral community and graded / proposed historic buildings nearby
44	D7	Shek O Quarry	14	Moderate impact due to Coastal Protection Area, country park, SSSI and noise sensitive uses nearby

7 Broad Environmental Assessments

7.1 Broad Environmental Assessments

Broad environmental assessments were carried out as part of the broad technical assessments of the study for the longlisted reclamation sites. Broad technical assessments were also carried out for the longlisted sites on other different aspects, including land use, urban planning and urban design; traffic impact assessment; civil works, e.g. water, drainage, sewerage, etc.; aircraft and helicopter operations impacts; sustainability assessment; geotechnical appraisal; and implementation, construction and costing.

Any proposals pertaining to the extent, shape, land use, transport infrastructure, etc. for the reclamation sites shown in any report, are solely hypothetical assumptions for the purpose of broad technical assessment and strategic environmental assessment only. They do not represent the extent, shapes, land uses and transport infrastructures to be implemented in future regardless the sites were selected for further study or not. Indeed, all these development parameters will be developed based on future planning and engineering feasibility studies, statutory processes including EIAO, TPO, etc. and public consultation.

The environmental performances of the 27 longlisted reclamation sites have been studied in the broad environmental assessments as part of the broad technical assessments of the study. Different environmental aspects, including air quality, noise, water quality, ecology, fisheries, landscape and visual, waste management, hazard to life and landfill gas hazard have been assessed in broad terms to identify the potential environmental issues/ constraints and opportunities of each longlisted reclamation site at the strategic level. It should be noted that the environmental issues highlighted in this chapter are the situation before introducing mitigation measures. Subject to more detailed studies, the potential impacts may be avoided or mitigated through changing the design of the scheme and/or applying suitable mitigation measures. Detailed assessments in further studies and statutory EIA and town planning processes will be needed in future to confirm the environmental acceptability and mitigation measures required on these different sites and their development proposals.

7.1.1 Environmental Considerations

The environmental aspects of the BTA take into account of air quality, noise, water quality, waste management, ecology, fisheries, cultural heritage, landscape and visual, hazard to life and landfill gas hazard issues. The following sections highlight the potential environmental issues arisen from reclamation during the construction and operational phases, and recommend the general strategic mitigation measures for the issues.

However, given the broad brush nature of this environment assessment, the environmental acceptability of the sites and the practicability and effectiveness of the recommended environmental mitigation options are subject to the future detailed studies, statutory EIA processes under the EIAO, statutory town planning processes, etc. Detailed assessments, statutory EIAO and town planning procedures, etc., have to be implemented in future to confirm the environmental performance of the sites.

7.1.1.1 Air Quality

All key potential Air Sensitive Receivers (ASRs) within the 500m assessment boundary of each potential reclamation site, i.e. residential buildings, schools and hospitals etc., will be identified. During reclamation and construction phase, potential air quality impacts may arise from fugitive dust emission during construction activities. Strategic mitigation measures, such as good site practice, will be recommended when required.

During operational phase, potential air pollution sources, i.e. industrial/ chimeny emissions in the vicinity, vehicular emission from road networks, marine emission and any odour emission sources, etc., will be identified. The potential impact on existing, planned and proposed future ASRs will be addressed through desk-top study. Strategic mitigation measures, such as provision of sufficient setback distance, building height restrictions, will be recommended to minimize the impact.

7.1.1.2 Noise

All key potential Noise Sensitive Receivers (NSRs) within the 300m assessment boundary of each potential reclamation site, i.e. residential buildings, schools and hospitals etc., will be identified.

During construction phase, airborne construction noise will be generated by the use of Powered Mechanical Equipment (PME) during reclamation and land-based construction works. Potential adverse impacts on nearby NSRs will be addressed and strategic mitigation measures, such as use of noise barriers, will be recommended when needed.

During operational phase, potential noise pollution sources, i.e. aircraft noise, helicopter noise, fixed plant noise, road traffic noise, railway noise, marine traffic noise, etc., will be identified. Potential noise impact on future NSRs on each reclamation site from identified pollution sources will be addressed and strategic mitigation measures, such as provision of sufficient setback distance, noise barrier, semi-enclosure or non-noise sensitive uses etc., will be recommended if necessary.

7.1.1.3 Water Quality

The potential water sensitive Receivers (WSRs), e.g. seawater intake points, beaches, fish culture zones, key coral areas, etc., will be identified and the existing water quality conditions will be collected through desktop research.

During construction phase, reclamation may involve dredging, disposal of potentially contaminated sediment, filling of reclamation materials and other marine works. Potential water quality impacts will be addressed and strategic mitigation measures, such as potential employment of non-dredging method, will be recommended.

During operational phase, the reclaimed site may change the flow regime and flushing capacity, potential contaminants may release from increasing surface runoff and generated sewage. The potential water quality impacts will be addressed at strategic level and mitigation measures will be recommended to minimize the impact.

7.1.1.4 Waste Management Implications

The storage, handling, collection, transport and disposal of various types of wastes arising from the construction and operation of the project will be assessed.

During the construction phase, waste generating activities during reclamation and land-based construction works will be identified. Wastes generated during the construction phase would generally include construction and demolition wastes, dredged marine sediment, chemical waste and workforce waste.

During the operational phase, different kinds of wastes generated from the proposed developments will be identified. Proper collection, transfer and disposal system will be explored to encourage reuse of solid wastes and reduce secondary impacts such as odour nuisance, vermin, water pollution and visual impact

7.1.1.5 Ecological Impact

Ecological resources and sensitive receivers within the vicinity of potential reclamation sites, i.e. important terrestrial, marine and intertidal habitats, sites of conservation of importance etc., will be identified. Direct and indirect impacts during construction and operational stages including loss/disturbance to ecological important habitat and sites of conservation interest will be discussed at strategic level. Strategic mitigation measures will be recommended to minimize the potential impacts.

7.1.1.6 Fisheries Impact

Key fisheries resources within the vicinity of potential reclamation sites, i.e. fish culture zone, fish spawning ground, fish nursery ground, high fisheries production area (adult and fry fish) etc., will be identified. Potential direct and indirect impacts during construction and operational phase will be identified. Strategic mitigation measures, such as deployment of artificial reefs, water quality control measures etc., will be recommended to minimize or compensate the adverse impact.

7.1.1.7 Cultural Heritage

Cultural heritage resources within the vicinity of potential reclamation sites, i.e. Declared Monuments, Site of Archaeological Interest and Marine Archaeology etc., will be identified. Potential direct (i.e. encroachment of Sites of Archaeological Interest and Marine Archaeology etc.) and indirect impacts (i.e. vibration and construction dust from construction works etc.) during construction and operational stages will be addressed. Mitigation measures, such as sequencing and scheduling of construction works, will be recommended.

7.1.1.8 Landscape and Visual

Landscape resources (LRs), landscape character areas (LCAs) and visually sensitive receivers (VSRs) within the vicinity will be identified. Potential direct and indirect impacts on LRs, LCAs and VSRs during both construction and operational phases will be assessed. Mitigation measures, such as minimizing the

area of reclamation, well-planning of future land uses, provision of landscape buffers, tree planting etc., will be recommended when necessary.

7.1.1.9 Hazard to Life

For potential reclamation sites which fall within the Consultation Zone of a PHI, strategic evaluation of potential risk will be conducted. Potential risks during construction and operational phase will be identified. Further studies and/or hazard assessments required for preferred Longlisted Sites would be identified.

7.1.1.10 Landfill Gas Hazard

For potential reclamation sites which fall within the 250m Consultation Zone of a landfill site, a qualitative assessment of LFG hazard will be undertaken in accordance with the Landfill Gas Hazard Assessment Guidance Note (EPD/TR8/97) and the Landfill Gas Hazard Assessment for Developments Adjacent to Landfills (ProPECC PN 3/96) based on the "Source – Pathway – Target" model. Mitigation measures for development within the Consultation Zone, e.g. forced ventilation and gas detection system, will be recommended.

7.1.2 Non-environmental Considerations

7.1.2.1 Land Use, Urban Planning and Design

Introduction

The existing land use has been reviewed and future land use on proposed reclamation area have been assumed for BTA. Any proposals pertaining to the extent, shape, land use, transport infrastructure, etc. for the reclamation sites shown in this report, are solely hypothetical assumptions for the purpose of BTA only. They do not represent the extent, shape and land use and transport infrastructure to be implemented in future regardless the sites were selected for further study or not.

Site Characteristics

Desk top study of topography of the proposed reclamation area, Outline Zoning Plans, Development Permission Area Plans (if applicable) and previous studies relevant to individual reclamation sites are reviewed. Existing land use in the vicinity of the proposed reclamation site is also reviewed. Any development opportunities and constraints in the proposed reclamation site are investigated.

Assumed Land Use / Hypothetical Land Use

The land use is assumed based on the site characteristics, development opportunities and constraints in the vicinity of the proposed reclamation site. Infrastructural developments together with community facilities provision are also assumed with reference to the existing and future needs of the community.

7.1.2.2 Geotechnical Appraisal

Introduction

As part of the Broad Technical Assessment a geotechnical appraisal was undertaken on each site. This comprises a study of the available desktop information including, but not limited to:

- Geological maps published by the Hong Kong Geological Survey;
- Existing ground investigation information from Geotechnical Information Unit (GIU);
- Bathymetry plans;
- Meteorological and oceanographic (metocean) information; and
- Aerial photographs taken between 1963 and 2011.

Geology

The geology of the sites have been interpreted from the relevant geological publications and associated geological maps of scale 1:5,000 or 1:20,000 by the Hong Kong Geological Survey of the Geotechnical Engineering Office.

In addition to the geological maps, existing ground investigation data has been obtained through CEDD's Geotechnical Information Unit and Arup's internal database to confirm the findings from the maps. Only relevant boreholes were considered in the interpretation depending on the likely scope of works for the proposed reclamation site.

The assessment of the geology was aimed at detecting complex or difficult ground conditions, such as dissolution features or faulting, which may impose constraints on the type, scope or cost of the proposed development.

Bathymetry

The bathymetry is shown on the Charts for Local Vessels (Hong Kong Waters) 2011 and the electronic navigational charts available through the Marine Department.

Metocean Conditions

Port Works Design Manual (PWDM) is referenced to for the sea levels (mean sea level, mean higher high water level and mean lower low water level) at tidal stations nearest to the proposed reclamation sites.

Site History

A number of aerial photographs, dating from 1963 to 2011 were obtained via Aerial Photograph Library of the Geotechnical Engineering Office. Aerial photograph interpretation was carried out to give a brief account of site development history of the proposed reclamation site, as well as any regional geological features that may require considerations for the proposed development.

7.1.2.3 Traffic Impact Assessment

Introduction

This Section first review the existing traffic condition of the sites. With due consideration to the likely traffic impact due to the assumed land use proposal on the adjacent road network, suitable traffic and transport strategies including improvement proposal have been identified.

Vehicle to Capacity (V/C) Ratio Calculation

The vehicle to capacity ratio is calculated using the most up to date data available at the time of completing this report. Volume to Capacity (V/C) Ratio indicates the proportion of peak hour traffic flow to the capacity of a road link.

The current vehicular usage has been taken from the most recent in-house or externally available surveys (such as flow data from the published Annual Traffic Census 2012) of the relevant roads and junctions within the vicinity of the sites.

Once the most relevant flow data have been identified the V/C ratio is calculated by dividing the number of vehicles using the road by the capacity. Therefore a V/C ratio between 0 to <1 is considered acceptable; a ratio above 1.0 indicates the onset of mild congestion; a ratio between 1.0 and 1.2 would indicate a manageable degree of congestion. A V/C ratio above 1.2 indicates the onset of more serious congestion.

Traffic Forecast Methodology

The Broad Technical Assessment for each potential reclamation site was appraised with the aids of the Local Area Transport Model (LATM) which has been established based on the 2008-based Base District Traffic Models (BDTMs) developed by Strategic Roads Divisions of Transport Department. The area of influence adopted for each potential reclamation area is site specific, and the assessment mainly covers the major road networks at this stage of the Study.

Future Traffic Condition

This Study adopts 2021 as a design year for the Broad Technical Assessment to assess the immediate impact on the traffic and transport network. In deriving the future traffic condition, the latest available input assumptions were taken into consideration as far as possible.

In terms of development trip generation, it is assumed that the full population intake will be in year 2021. The vehicle trips generated by the potential reclamation have been estimated based on the findings from Travel Characteristics Survey 2002 conducted by Transport Department and the projected population for each potential reclamation area. Table below summarises the key parameters applied and the corresponding assumptions made.

Parameters	
Trip Rate*	2.0 trips/person
AM Peak	12% of daily traffic

PM Peak Factor*	10% of daily traffic							
AM Peak Bi-directional Split#	Outbound – 70% and Inbound – 30%, of total person trips generated during AM peak							
PM Peak Bi-directional Split#	Outbound – 40%and Inbound – 60%, of total person trips generated during PM peak							
Transport Mode	Franchised Bus	Rail						
Modal Split*	33%	25%	12%	11%	9%	7%	2%	1%
Occupancy (passenger)#	100	-	16	2	50	2	-	-
PCU Factor#	2.5	-	1.5	1	2	1	-	-

Note:

* Denotes the finding from Travel Characteristics Survey 2002

Assumptions made based on other trip generation and attraction surveys and Transport Planning and Design Manual (TPDM)

Based on these assumptions, the trip generation and attraction for each potential reclamation site can be broadly estimated. The trip generation and attraction of the potential reclamation sites together with the input assumptions made on the future traffic condition, the impact on the existing major road links due to the potential reclamation can then be assessed. The assessment result for each potential reclamation site has been presented individually.

7.1.2.4 Civil Works

For identification of the drainage and sewerage constraints arising from the longlisted sites, the following sources of information have been specifically referred to:

- Environmental Protection Department (EPD) Guidelines for Estimating Sewage Flows for Sewage Infrastructure Planning No.: EPD/TP 1/05;
- Drainage Services Department (DSD) Sewerage Manual – Key Planning Issues and Gravity Collection System;
- Drainage Services Department (DSD) Stormwater Drainage Manual – Planning, Design and Management; and
- Drainage Record Plans obtained from DSD.

For identification of the water supply constraints arising from the proposed sites, the following sources of information have been specifically referred to:

- Water Supplies Department (WSD) Department Instruction DI 1309; and
- Existing Waterworks Record Plans obtained from WSD.

Reference should be made to **Appendix A** for the DSD and WSD plans.

7.1.2.5 Implementation, Construction and Costing

Implementation

Reclamation Programme for each longlisted reclamation site with reference to the construction rates of Hong Kong-Zhuhai-Macao Bridge Hong Kong Boundary Crossing Facilities – Reclamation Works, Contract No. HY/2010/02. The implementation programme for each site is site specific with different constraints and considerations. The programme takes into account the relocation of PHI, reprovisioning of affected facilities and phasings.

Generally the following implementation strategy has been considered:

1) Project commencement;
2) Preliminary work, including feasibility, ordnance authorisation detailed design, EIA, etc.;
3) Construction – single or phased approach;
4) Civil and utilities infrastructure
5) Connecting infrastructure
6) Development

It is likely that some of these stages will be completed concurrently at least in part.

For identification of the development programme from the proposed sites, Kai Tak Development has been referred.

As mentioned previously, due to the increased level of uncertainties and risks involved in the large artificial island sites proposed in the central waters of Hong Kong – namely Tsing Chau Tsai East, Kau Yi Chau West and Lamma North – an implementation programme has not been completed at this stage for these three sites.

7.2 Key Environmental Issues of Longlisted Sites

The environmental performances of the 27 longlisted reclamation sites have been studied in the broad environmental assessments of the study. Different environmental aspects, including air quality, noise, water quality, ecology, fisheries, waste management, landscape and visual, cultural heritage, hazard to life and landfill gas hazard have been assessed in broad terms to identify the potential environmental issues/constraints and opportunities of each longlisted reclamation site at the strategic level.

7.2.1 Site A1 – Hei Ling Chau West

The reclamation site is assumed for residential development. There is no ASR or NSR identified within the assessment area of the site. Although there is no ASR

or NSR within the assessment area, good site practice is recommended during construction phase.

This site may have potential impacts on various water/ecological sensitive receivers such as Hei Ling Chau Typhoon Shelter, fishery resources in the surrounding areas, including corals at Chi Ma Wan, Hei Ling Chau North and South, mangroves at Chi Ma Wan, Cheung Sha Wan Fish Culture Zone, and Adult Fish Production Area of relatively moderate production rate. There may be water quality impact from key water pollution sources from Hei Ling Chau (West) Sewage Treatment Works. Detailed water quality and hydrodynamic modelling is required during future detailed design or EIA stage to assess the impact. Terrestrial Habitat such as the woodland, hillside to the east of Cheung Sha Wan, western edge of Hei Ling Chau and some rare species e.g. Bogadek's Burrowing Lizard and *Phymatodes longissima* may also be affected. Detailed site survey and ecological monitoring is required in further separate studies. The feasibility and effectiveness of artificial reefs deployment and release of fish fry in the artificial reefs are also subject to further separate studies. Dredged sediment will be generated from the reclamation site. Since the coastal waters will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints are presented in **A1** in **Appendix A**.

7.2.2 Site A2 – South Cheung Chau

The reclamation site assumed for eco-park development with recreational facilities is encroached to the Shek Kwu Chau and Soko Islands proposed Marine Park. There is no ASR or NSRs identified within the assessment area.

Other key WSRs include Coastal Protection Area at south Cheung Chau, Shek Kwu Chau and Soko Islands proposed Marine Park, and South Lamma Island potential Marine Park. Due to the massive size and shape of the Island, the site may seriously block water exchange between southern Lantau and the South China Sea. The dispersion efficiency of local STW including the planned Southern Lantau STW outfall would be reduced. Potential hydrodynamic and water quality impact in the central waters would be generated, affecting nearby WSRs. Any transportation infrastructures, such as rail tunnel, that are to be provided to support the artificial island may bring potential impact on the water flow and water quality of the region. Detailed water quality and hydrodynamic modelling is required during future detailed design or EIA stage. A new sewage treatment works is required to treat sewage produced by future users on the reclaimed land.

In addition, this site may have potential impacts on various ecological sensitive receivers and fishery resources in the surrounding areas, including hotspot of Finless Porpoises, Shek Kwu Chau and Soko Islands proposed Marine Park, South Lamma Island potential Marine Park, Coastal Protection Areas at south Cheung Chau and Shek Kwu Chau, horseshoe crab areas and beaches at southern Lantau, Cheung Sha Wan FCZ and Adult Fish Production Area of relatively high production rate. The site is also encroached > 20 ha of fish spawning and nursery ground. Detailed site survey, ecological and fisheries monitoring are required in future studies. The shape of the reclamation site could be further refined to minimize the impact on Finless Porpoises and keep the reclamation footprint

away from the Finless Porpoises hotspot, proposed Shek Kwu Chau Marine Park, and the proposed marine park in Soko Islands as far as possible to minimize the impact to the marine habitat. Dredged sediment will be generated from the reclamation site. Since the landscape resources of southern waters will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

With the implementation of the Integrated Waste Management Facilities Phase 1 at Shek Kwu Chau and an Offshore Wind Farm east to this site, there may be potential cumulative air quality, noise, and water quality impact. Further assessment on cumulative impacts is required during future studies.

Key environmental resources and constraints are presented in **A2** in **Appendix A**.

7.2.3 Site A3 – Lamma North

This reclamation site assumed for residential developments is located in the proximity to the Lamma Power Station and the main navigation channel.

There may be potential air quality impact from marine vessels. Provision of sufficient setback distances and building height restriction are subject to detailed modelling during future detailed design stage. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage.

Significant water quality impact may be resulted from the huge amount of filling activities for the construction of the sized artificial island. Due to its size, location and intended intensive residential developments, this site may have hydrodynamic and cumulative water quality impact on East Lamma Channel and West Lamma Channel on top of the Harbour Area Treatment Scheme (HATS) discharge dispersion. Any transportation infrastructures, such as rail, that are to be provided to link up and support the artificial island with Hong Kong Island may bring potential impact on the water flow and water quality of the region. This site may also have ecology impact due to its short distance to corals sites at Shek Kok Tsui and north to Lamma Island, and the beaches at the southern Hong Kong Island. Impact on Coastal Protection Area at north-western Lamma Island is anticipated. Moreover, the site is located relatively close to Lo Tik Wan Fish Culture Zone and encroaches to Adult Fish Production Area of relatively high production rate. Detailed site survey, ecological and fisheries monitoring is required in further separate studies. Dredged sediment will be generated from the reclamation site. Since the coastal waters of northern Lamma Island will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints are presented in **A3** in **Appendix A**.

7.2.4 Site A4 – Tsing Chau Tsai East

The reclamation site assumed for residential development is relatively close to Ma Wan and main navigation channel of Ma Wan.

Besides impact by marine traffic, this site may also be potentially subject to noise and air quality impacts from fireworks at Disneyland. The site is closed to various

water/ecological sensitive receivers such as Ma Wan Fish Culture Zone, mangroves and mudflat, which may have potential impact on water quality, ecological and fishery resources. In addition, the site may have disturbance to the important habitat for White-bellied Sea Eagle and woodland at Pa Tau Kwu. One nesting location for white-bellied Sea Eagle is recorded to the south of the site in the ecological surveys and sheltered from the site by a hillock. Possible mitigation measures were proven in most EIA studies to mitigate the impact. Detailed site survey and fisheries monitoring is required in further separate studies. The existing Ma Wan Channel will be narrowed further and a water channel gap will be formed between the reclamation site and the existing land boundary of Pa Tau Kwu.

There will also be potential impact on the dispersion and dilution of Harbour Area Treatment Scheme (HATS) discharge and have hydrodynamic and water quality impacts on Kap Shui Mun and Ma Wan Channel. Any transportation infrastructures, such as bridge, tunnel, etc., that are to be provided to link up and support the artificial island with Kau Yi Chau West and/or others may bring potential impact on the water flow and water quality of the region. Detailed water quality and hydrodynamic modelling is required during future detailed design or EIA stage.

There are sites of archaeological interest at Pa Tau Kwu Pak Wan and Pa Tau Kwu within the assessment area of the site. Archaeological field survey such as field scanning and subsurface investigation before construction works would be required to identify any heritage resources. Dredged sediment will be generated from the reclamation site. Since the landscape resources of central waters will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints are presented in **A4** in **Appendix A**.

7.2.5 Site A5 – Kau Yi Chau West

This reclamation site is assumed for multiple land uses and as a new development area within Hong Kong.

There may be potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including recorded coral communities around Kau Yi Chau and Siu Kau Yi Chau, and coral areas at Sunshine Island, southern Peng Chau, and Tung Wan, and Coastal Protection Areas at Peng Chau. Detailed site survey and ecological monitoring is required subject to further separate studies. The large amount of sewage generated from the intense development on the island will have a significant cumulative impact with the dispersion and discharge of the existing Harbour Area Treatment Scheme (HATS) discharge, affecting the overall hydrodynamic and water quality impact on the whole region. Any transportation infrastructures, such as bridge, tunnel, etc., that are to be provided to link up and support the artificial island with Tsing Chau Tsai East and/or others may bring potential impact on the water flow and water quality of the region. Due to the size and location of the site, the filling of reclamation site will pose potential water quality and hydrodynamic impact to the Western Fairway. Detailed water quality and hydrodynamic modelling is required

during future detailed design or EIA stage. A new sewage treatment works is required to treat sewage produced by future users on the reclaimed land. In addition, this site encroaches to Adult Fish Production Area of relatively moderate production rate. Detailed site survey and fisheries monitoring is required during further studies.

The key air and noise pollution source is from the marine traffic in the main navigation channel near the site. Future land uses and building layouts would be well planned after further detailed assessment on air quality and noise. Dredged sediment will be generated from the reclamation site. Since the landscape resources of central waters will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints are presented in **A5** in **Appendix A**.

7.2.6 Site B1 – Peng Chau-Hei Ling Chau

This reclamation site is assumed for residential development.

There may be potential impacts on various water/ecological sensitive receivers in the surrounding areas, including recorded coral communities at Sunshine Island, key coral area at northern Peng Chau and northern Hei Ling Chau, and mudflat at Sunshine Island. The endemic and rare Bogadek's Burrowing Lizard on the nearby Sunshine Island may also be affected. Any transportation infrastructures, such as bridge, tunnel, etc., that are to be provided to link up and support the reclaimed area with Peng Chau and Hei Ling Chau and/or others may bring potential impact on the water flow and water quality of the region. Detailed water quality and hydrodynamic modelling is required during future detailed design or EIA stage. A new sewage treatment works is required to treat sewage produced by future users on the reclaimed land. Water quality impact due to impact on sewage discharge from Hei Ling Chau STW sewage outfall is also anticipated. There may be fisheries impact on Adult Fish Production Area. The site is also encroached to Adult Fish Production Area with relatively moderate production rate. Detailed site survey, ecology and fisheries monitoring are required during further studies.

As the proposed site is located relatively close to main navigation channels, potential air quality and noise issues may be generated. Future land uses and building layouts would be well planned after further detailed assessment on air quality and noise. Dredged sediment will be generated from the reclamation site. Since the landscape resources of central waters will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints are presented in **B1** in **Appendix A**.

7.2.7 Site B2 – Beaufort Island

This reclamation site assumed for residential developments with supporting commercial premises have potential air quality and noise impact to Tin Hau Temple on Po Toi.

It may also have potential impacts on various water/ecological sensitive receivers in the surrounding areas, including finless porpoise habitats, fisheries species, Marine Reserve, Romer's Tree Frog, rare plants and birds at Po Toi Island, key

coral areas at western Po Toi, southern Beaufort Island, Lo Chau Mun and Sung Kong, etc. The breeding colony of tern on Lo Chau Pak Pai nearby may also be affected. Any transportation infrastructures, such as bridge, tunnel, etc., that are to be provided to link up and support the reclaimed area with Beaufort Island and/or others may bring potential impact on the water flow and water quality of the region. The current flow at Lo Chau Mun may be affected by the proposed reclamation and result in erosion or sedimentation. Further detailed hydrodynamic and water quality modelling is required to evaluate the impact and optimize the reclamation shape. Interspacing or culvert could be adopted to allow water exchange. In addition, this site may have disturbance to important land-based species (e.g. Romer's Tree Frog, rare plants and birds at Po Toi Island). Moreover, the whole site falls within the Fish Spawning Ground and encroaches to Adult Fish Production Area of relatively high production rate and Finless Porpoise hotspots. Detailed site survey, ecological and fisheries monitoring are required in further studies. Dredged sediment will be generated from the reclamation site. Since the coastal waters, natural coastline and vegetation will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints are presented in **B2** in **Appendix A**.

7.2.8 Site C1 – Tuen Mun Area 40

This reclamation site assumed for developments including Tuen Mun Western Bypass and the northern portal of the Tuen Mun – Chek Lap Kok Link, is in close proximity of ASRs and NSRs. There are various key air pollution sources, including vehicular emission, chimney emission, dust emission and marine emission. The site is in the proximity of different industrial uses in Tuen Mun with chimney emissions such as Butterfly Beach Laundry and EcoPark, marine traffic and River Trade Terminal, road traffic, and helipads. Various potential land use interfacing issues, including cumulative air quality and noise issues from the increased traffic by Tuen Mun Western Bypass, Tuen Mun-Chek Lap Kok Link, Hong Kong Link Road, Hong Kong-Zhuhai-Macao Bridge, Hong Kong Boundary Crossing Facilities, odour emission from Pillar Point Sewage Treatment Works, fixed plant noise of the Sawmill etc. are anticipated. Detailed air quality modelling is required to determine the building height restriction to decrease the impact from chimney emission and adopt a well-planned building layout. Sufficient buffer distance and proper building orientation etc. will be adopted subject to further noise modelling assessment. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage.

The key water/ecological sensitive receivers and fishery resources in the surrounding areas include Butterfly Beach, Committed Marine Park in the Brothers Islands, Fish Spawning Ground, coral areas, relative moderate production rate of Adult Fish Production Area, etc. There might also be potential impact on the butterfly habitats at Siu Lang Shui SSSI and Lung Kwu Tan Valley SSSI nearby. Detailed site survey, ecological and fisheries monitoring are required in further studies. This site may also have potential hydrodynamic impact on Pillar Point Sewage Treatment Works discharge dispersion and water quality impact in the region. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape to minimize the impacts. Interspacing or culvert would be adopted to allow water exchange. Dredged

sediment will be generated from the reclamation site. Since the coastal waters, natural coastline and vegetation will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C1a** and **C1b** in **Appendix A** respectively.

7.2.9 Site C2 – Tuen Mun Area 27

This reclamation site assumed for residential development is in close proximity of ASRs and NSRs. It is also in close proximity of key vehicular sources from Castle Peak Road and Tuen Mun Road. In addition, the site is in the proximity of different industrial uses such as Tube Ice Plant, marine traffic and Joint User Complex and Wholesale Fish Market and railway lines. Various potential land use interfacing issues, including air quality and noise issues from increased traffic by traffic improvements to Tuen Mun Road Town Centre Section, Castle Peak Road and marine vessels, odour emission from Castle Peak Fish Market, Joint User Complex and Wholesale Fish Market, and public cargo handling area, are anticipated. Detailed air quality modelling is required to adopt a well-planned building layout. Sufficient buffer distance and proper building orientation etc. will be adopted subject to further noise modelling assessment. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage.

The key water/ecological sensitive receivers and fishery resources in the surrounding areas are Castle Peak Beach, Kadoorie Beach and Adult Fish Production Area of relatively moderate production rate, etc. Detailed site survey, ecological and fisheries monitoring are required in further studies. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape to minimize the impacts. Dredged sediment will be generated from the reclamation site. Since the coastal waters in Castle Peak Bay will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C2a** and **C2b** in **Appendix A** respectively.

7.2.10 Site C3 – Tsing Lung Tau

This reclamation site assumed for residential development is in close proximity of ASRs and NSRs, with potential impact from traffic of Castle Peak Road and marine traffic in the main navigation channel. Various potential land use interfacing issues, including air quality issues and noise impact with Castle Peak Road and main navigation channel are to be considered. Detailed air quality modelling is required to adopt a well-planned building layout. Sufficient buffer distance and proper building orientation etc. will be adopted subject to further noise modelling assessment. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage.

There may be potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including Angler's Beach and Ma Wan Fish Culture Zone. Detailed site survey, ecological and fisheries monitoring are required in further studies. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape to minimize the impacts. Dredged sediment will be generated from the reclamation site. Since the coastal waters and natural coastline will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C3a** and **C3b** in **Appendix A** respectively.

7.2.11 Site C4 – Siu Ho Wan

This reclamation site assumed for residential development is in close proximity of ASRs and NSRs. The site is in the proximity of different NIMBY facilities and industrial uses such as Siu Ho Wan Sewage Treatment Works, North Lantau Refuse Transfer Station, planned Organic Waste Treatment Facilities, Siu Ho Wan MTR Depot, various bus depots, vehicle examination centre, maintenance depot, etc. potentially subject to different environmental and land use interfacing issues. The site is also potentially subject to road traffic noise and vehicular emission from increased road traffic induced by future Tung Chung new town developments, Tuen Mun – Chek Lap Kok Link, Hong Kong Link Road and HZM Bridge – Hong Kong Boundary Crossing Facilities, North Lantau Highway and proposed road, MTR railway lines (Airport Express Line and Tung Chung Line), aircraft noise and helicopters noise issues. Portion of the site is located within PHI Consultation Zone of Siu Ho Wan Water Treatment Works and the site is also in the vicinity of Sham Shui Kok Chlorine Transshipment Dock. A quantitative risk assessment (QRA) will be needed during the engineering investigation stage before construction, to assess the potential hazard to life impact on the development proposal of the site.

Portion of the site is located within PHI Consultation Zones of Siu Ho Wan Water Treatment Works and the site is also in the vicinity of Sham Shui Kok Chlorine Transshipment Dock. A quantitative risk assessment (QRA) will be needed during the engineering investigation stage before construction, to assess the potential hazard to life impact on the development proposal of the site.Various potential land use interfacing issues, including air quality issues, odour emission, hazard to life issue, noise impact, are anticipated. Subject to the NEF 25 Contour for 3 Runway-System for aircraft noise, the site may be subject to development constraints for the area encroached by the NEF 25 Contour. Detailed air quality modelling is required to adopt a well-planned building layout. Sufficient buffer distance and proper building orientation etc. will be adopted subject to further noise modelling assessment. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage.

There may have potential impacts on various water/ecological sensitive receivers in the surrounding areas, including Chinese White Dolphin (CWD), Committed Marine Park at The Brothers, Tai Ho Stream SSSI, horseshoe crabs, mangrove areas, etc. The reclamation may pose water quality impact during construction and affect CWD indirectly and also hydrodynamic impact, such as sedimentation

impact, on the Tai Ho Wan estuary. There may be potential hydrodynamic and water quality impacts around Urmston Road. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape to minimize the impacts. The site is encroached to Adult Fish Area with high production rate. Detailed site survey, ecological and fisheries monitoring are required in further studies.

Dredged sediment will be generated from the reclamation site. Since the coastal waters will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C4a** and **C4b** in **Appendix A** respectively.

7.2.12 Site C5 – Sunny Bay

This reclamation site assumed for recreational and commercial uses is relatively close to existing ASRs. Noise sensitive uses are not recommended for the site since most parts of the site fall within the Aircraft NEF 25 Contour for both 3-runway and 2-runway. The site is close to road traffic noise and vehicular sources from North Lantau Highway. The site is also close to other key pollution sources include marine traffic from main navigation channel, railway lines (Airport Express Line and Tung Chung Line) and Sunny Bay MTR Station, and helipad. The site may also be subject to the air emissions and noise generated by the fireworks of the Hong Kong Disneyland. Sufficient buffer distance and proper building orientation etc. will be adopted subject to further noise modelling assessment. Various potential land use interfacing issues, including air quality issues and noise impact from the increased traffic by future Tung Chung East and West Developments, Tuen Mun-Chek Lap Kok Link, Hong Kong Link Road and Hong Kong-Zhuhai-Macao Bridge and Hong Kong Boundary Crossing Facilities, are anticipated. Detailed air quality modelling is required to assess the cumulative air quality impact, determine the highest building restriction to minimize impact from chimney emission and to adopt a well-planned building layout in further separate studies. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage.

Various water/ecological sensitive receivers in the surrounding areas include Chinese White Dolphin, committed The Brothers Marine Park, mangrove, seagrass beds. There may be potential hydrodynamic and water quality impacts around Urmston Road. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape to minimize the impacts. Interspacing or culvert would be adopted to allow water exchange. The proposed site is also encroached to Adult Fish Production Area with relatively moderate production rate. Detailed site survey, ecological and fisheries monitoring are required in further studies. Dredged sediment will be generated from the reclamation site. Since the coastal waters will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C5a** and **C5b** in **Appendix A** respectively.

7.2.13 Site C6 – Southwest Tsing Yi

This reclamation site assumed for residential development with a range of complementary GIC, commercial and open space provision, is in close proximity of existing ASRs and NSRs, with the closest distance less than 10m. The proposed site is close to five Potentially Hazardous Installations (PHIs), including Shell Oil Depot, Chervon HK Ltd. Oil Terminal, ExxonMobil Oil Depot (West), ExxonMobil Oil Depot (East) and Sinopec HK Oil Terminal, along the coastline. These PHIs should be relocated prior to development of the site.

The site will also be potentially subject to various land use interfacing issues, including road traffic noise and vehicular emission from Cheung Tsing Highway, Tsing Yi Road and Tsing Sha Highway; chimney emission from Chemical Waste Treatment Center, Yiu Lian Dockyards Ltd. and diesel generators on the Hong Kong United Dockyards Ltd.; marine traffic emission around Ma Wan Channel and along the western and southern coastline of Tsing Yi and Kwai Chung Container Terminals; helicopter noise from helipad to the north-west; fixed plant noise from container terminals and dockyards; and other land use interfacing issues with container terminals, dockyards, industrial uses and NIMBY facilities such as Chemical Waste Treatment Center and workshops along the western and southern coastline of Tsing Yi. Detailed air quality modelling is required to assess the cumulative air quality impact, determine the highest building restriction to minimize impact from chimney emission and to adopt a well-planned building layout in further separate studies. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage. Sufficient buffer distance and proper building orientation etc. will be adopted subject to further noise modelling assessment.

The key WSRs include Tung Wan Beach, Casam Beach and Ma Wan Fish Culture Zone. There may also be potential impact on hydrodynamic and water quality due to the possible impact of the site on the dispersion and dilution of Harbour Area Treatment Scheme (HATS) discharge. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape to minimize the impacts. Interspacing or culvert would be adopted to allow water exchange. There are some small areas of natural habitats adjacent to the proposed reclamation and it is not very near to Tsing Yi SSSI. The mangroves at Ma Wan are far away from the project site. Detailed site survey and ecological monitoring may be required to evaluate the effectiveness of possible mitigation measures in further separate studies. The site is relatively large and partially encroached to Adult Fish Production Area with quite high production rate. Detailed site survey and fisheries monitoring may be required in further studies.

Dredged sediment will be generated from the reclamation site. Since the coastal waters will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C6a** and **C6b** in **Appendix A** respectively.

7.2.14 Site C7 – Silver Mine Bay South

This reclamation site assumed for residential developments is in close proximity to ASRs and NSRs, since it is just adjacent to existing residential developments. The whole site is within the PHI Consultation Zone of Silver Mine Bay Water Treatment Works. A quantitative risk assessment (QRA) will be needed during the engineering investigation stage before any construction commences to assess the potential hazard to life impact on the development proposal of the site.

Besides the air quality and noise impacts from marine traffic of the adjacent Mui Wo Ferry Pier and road traffic of Mui Wo Ferry Pier Road , the site is in the proximity of different NIMBY facilities and industrial uses such as the adjacent Concrete Batching Plant and Mui Wo Sewage Treatment Works, generating dust emission, odour and fixed noise impact. There may be helicopter noise from the helipad 400m from the site. Various potential land use interfacing issues, including air quality issues, odour emission, noise impact, are anticipated. Further detailed air modelling assessment will be required during detailed design or EIA stage. Further assessment of cumulative odour impact due to the existing Mui Wo Sewage Treatment Works, Mui Wo Refuse Transfer Station and future sewage pumping stations on-site (if any) may be required. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage. Further noise modelling assessment on road and marine traffic, fixed plant noise and helicopter noise are recommended during detailed design or EIA stage.

Sewage may have potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including key coral area at northern Hei Ling Chau and Chi Ma Wan, mangroves at Chi Ma Wan, Silver Mine Bay Beach, Cheung Sha Wan Fish Culture Zone, and Adult Fish Production Area of relatively moderate production rate, etc. There may be ecological impact on key terrestrial habitat in Lantau North and Lantau South Country Park This site may also have potential hydrodynamic impact on Mui Wo Sewage Treatment Works discharge dispersion and water quality impact in the region. The hydrodynamic changes may have potential erosion and water quality impact on Silvermine Bay Beach. Besides water quality and hydrodynamic modelling, more detailed information about sewage and drainage systems will need to be addressed in further studies. Detailed site survey, ecological and fisheries monitoring may be required in further studies.

Dredged sediment will be generated from the reclamation site. Since the coastal waters will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C7a** and **C7b** in **Appendix A** respectively.

7.2.15 Site C8 – Tai Po Industrial Estate

This reclamation site assumed for an extension of the Tai Po Industrial Estate to feature clean manufacturing industries and high technology premises is in close proximity to ASRs and NSRs. The whole site is within the PHI Consultation Zone of fuel tanks of Hong Kong & China Gas Co. Ltd. and part of the site is within the Consultation Zone of Shuen Wan Restored Landfill. Hazard to life and landfill gas hazard issues are anticipated. A quantitative risk assessment (QRA) will be needed during the engineering investigation stage before any construction commences to assess the potential hazard to life impact on the development proposal of the site. A detailed qualitative assessment of LFG hazard is needed in further separate study/studies.

The site may have potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including Lam Tsuen River mouth, mangroves at Tai Po Kau, Tai Po Egretry SSSI, and Yim Tin Tsai Fish Culture Zone, etc. Detailed site survey, ecological and fisheries monitoring are required in further separate studies. This site may also have potential hydrodynamic impact on dispersion of discharge from Tai Po Sewage Treatment Works and water quality impact on the water body of Tolo Habour. Hydrodynamic modelling will be needed to confirm the potential water quality and hydrodynamic impact in Tolo Harbour during future detailed design or EIA. More detailed information about sewage and drainage systems will be needed; and the peak discharges and average discharges would be studied in detailed design stage to ensure they do not exceed the limits and requirements stipulated by previous EIA studies.

The proposed site is in close proximity of ASRs and NSRs, such as the adjacent Tai Po Waterfront Park. In addition, the site is in the proximity of different industrial uses in Tai Po Industrial Estate, road traffic, helipads, fuel tanks of Hong Kong & China Gas Co. Ltd., and Closed Shuen Wan Landfill. There are numerous chimney emissions from Tai Po Industrial Estate and odour emission from the Closed Shuen Wan Landfill and Tai Po Sewage Treatment Works. Various potential land use interfacing issues, including air quality issues, odour emission, noise impact such as fixed plant noise and helicopter noise from the helipad in Tai Po Industrial Estate are anticipated. Construction emission and construction noise are the temporary environmental issues need to be concerned in construction phase. Detailed air quality modelling is required to assess the cumulative air quality impact, determine the highest building height restriction to minimize impact from chimney emission. Detailed noise modelling is required to assess the cumulative noise impact in further separate studies.

Dredged sediment will be generated from the reclamation site. Since the coastal waters will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C8a** and **C8b** in **Appendix A** respectively.

7.2.16 Site C9 – Tai Po Kau

This reclamation site assumed for residential developments is in close proximity to ASRs and NSRs. Various potential land use interfacing issues, including air

quality and noise impact such as vehicular emission and road traffic noise impact from the Tolo Highway, rail noise from East Rail Line and helicopter noise from the adjacent helipad are anticipated. Detailed air quality modelling is required to assess the cumulative air quality impact, determine the highest building height restriction to minimize impact from chimney emission and to adopt a well-planned building layout in further separate studies. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage. Sufficient buffer distance and noise barrier etc. will be adopted subject to further noise modelling assessment.

The site may have potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including mangroves at Tai Po Kau, Lam Tsuen River mouth, mangroves/inter-tidal mudflat at Tai Po Kau, and Yim Tin Tsai Fish Culture Zone, etc. There may be potential water quality impact on the water body of Tolo Harbour. Hydrodynamic and water quality modelling will be needed to confirm the potential water quality and hydrodynamic impact on the Tolo Harbour, the concerned lake, and stream estuary such as the proposed brackish water lake, and Victoria Harbour during future detailed design or EIA. Further refinement of the proposed reclamation site may be necessary to minimize potential hydrodynamic impact subject to hydrodynamic modelling during future detailed design or EIA stage. Detailed site survey, ecological and fisheries monitoring are required in further separate studies.

Culture heritage impact to the declared monument - Island House is anticipated. A baseline condition survey, baseline vibration impact assessment, and careful planning of both construction and operation phase are needed during the detailed design stage. Dredged sediment will be generated from the reclamation site. Since the coastal waters will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C9a** and **C9b** in **Appendix A** respectively.

7.2.17 Site C10 – Ma Liu Shui

This reclamation site assumed for residential developments is in close proximity to ASRs and NSRs. This site is next to Shatin Sewage Treatment Works (STW) and Marine Police's helipad. Odour and helicopter noise are the concerns to the proposed residential and other sensitive uses on the reclamation site, if there are no relocations of the sewage treatment works and helipad. This site will also be subject to road traffic and railway noise issues as the site is adjacent to Tolo Highway, Tate's Cairn Highway and East Rail Line. Detailed air quality modelling is required to assess the cumulative air quality impact to adopt a well-planned building layout in further separate studies. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage. Sufficient buffer distance and noise barrier etc. will be adopted subject to further noise modelling assessment.

The site may have potential impacts on various water/ecological sensitive receivers in the surrounding areas, including Shing Mun River, and seawater intake at Ma Liu Shui, etc. Hydrodynamic and water quality modelling will be needed to confirm the potential water quality and hydrodynamic impact on

Victoria Harbour during future detailed design or EIA. A study of water quality impact to the Tolo Harbour would be carried out in the further study. Detailed site survey and fisheries monitoring is recommended as the site is in a close vicinity of Yim Tin Tsai Fish Culture Zone.

Dredged sediment will be generated from the reclamation site. Since the coastal waters will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C10a** and **C10b** in **Appendix A** respectively.

7.2.18 Site C11 – Sandy Bay

This reclamation site assumed for residential developments is in close proximity to ASRs and NSRs. The site is in the proximity of marine traffic, road traffic, sewage treatment works, and graded historical buildings. Various potential land use interfacing issues, including air quality and noise issues such as traffic from Cyberport Road and Sandy Bay Road, odour emission from Sandy Bay Sewage Treatment Works and Cyberport Sewage Treatment Works, and culture heritage impact to the Grade III building – Villa Ellenbud in Sassoon Road, are anticipated. Detailed air quality modelling is required to assess the cumulative air quality impact to adopt a well-planned building layout in further separate studies. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage. Sufficient buffer distance and noise barrier etc. will be adopted subject to further noise modelling assessment.

In addition, the site may have potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including recorded coral communities at Sandy Bay, and Adult Fish Production Area of relatively moderate production rate, etc. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape.

Dredged sediment will be generated from the reclamation site. Furthermore, this site may also have landscape and visual issues including loss of coastal waters landscape resources.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C11a** and **C11b** in **Appendix A** respectively.

7.2.19 Site C12 – Lamma Quarry

This reclamation site assumed for residential developments maybe in close proximity of planned ASRs at the planned development at ex-Lamma Quarry. The site has various potential land use interfacing issues in air quality issues and noise impact such as chimney emission from Lamma Power Station, dust emission and fixed-plant noise from Cement Works, marine emission and traffic noise from Sok Kwu Wan Ferry Pier, helicopter noise at Sok Kwu Wan Playground (for emergency purpose only), Yung Shue Wan helipad and Lamma Power Station's helipad. Planned development at ex-Lamma Quarry is the nearest ASR and NSR to the proposed site. Detailed air quality modelling is required to assess the

cumulative air quality impact to adopt a well-planned building layout in further separate studies. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage. Sufficient buffer distance and noise barrier etc. will be adopted subject to further noise modelling assessment.

The site may have potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including Sok Kwu Wan Fish Culture Zone, Lo Tik Wan Fish Culture Zone, Fish Nursery Ground, Fish Spawning Ground, artificial reef deployment area at Lo Tik Wan Fish Culture Zone, key coral areas at Luk Chau, finless porpoise hotspots, Coastal Protection Area in eastern to ex-Lamma Quarry and Lamma Island, etc. The proposed site will also have potential environmental impact on Romer's Tree Frog habitat on Lamma Island. Detailed site survey, ecological and fisheries monitoring are required. As the reclamation site is located in Southern Water Control Zone, about 1700m to the sewage discharge of Sok Kwu Wan Sewage Treatment Works, there is potential impact on the sewage discharge dispersion and further investigation is required. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape to minimize the potential water quality and hydrodynamic impact.

In addition, Dredged sediment will be generated from the reclamation site. Since the natural coastline will be irreversibly and permanently loss, landscape and visual issues are subject to further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C12a** and **C12b** in **Appendix A** respectively.

7.2.20 Site C13 – Tseung Kwan O East

This reclamation site assumed for residential, research and development (R&D) purposes may have potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including recorded coral communities in Junk Bay – Junk Island (Fat Tong Chau), WSD Flushing Water Intake Tseung Kwan O, and Adult Fish Production Area of relatively moderate production rate, etc. Detailed site survey, ecological and fisheries monitoring are required. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape to minimize the potential water quality and hydrodynamic impact.

In addition, the site is subject to different environmental issues such as chimney emission and fixed plant noise from Tseung Kwan O Industrial Estate, vehicular emission and road traffic noise from proposed Cross Bay Link and Road D9, marine emission and noise from passing by marine vessel, helicopter noise from helipad at Tseung Kwan O Industrial Estate. Potential odour nuisance will be from Tseung Kwan O Sewage Treatment Works, Biodiesel Plant, South East New Territories (SENT) Landfill and its extension. TWGHs Aided Primary & Secondary School is the nearest ASR and NSR to the proposed site. Detailed air quality modelling is required to assess the cumulative air quality impact to adopt a well-planned building layout in further separate studies. Construction emission and construction noise from the proposed site are the temporary environmental

issues need to be concerned in construction stage. Sufficient buffer distance and noise barrier etc. will be adopted subject to further noise modelling assessment.

The proposed site is also close to Site of Archaeological Interest at Fat Tau Chau, Junk Island and the Declared Monument at Site of Chinese Customs Station. Dredged sediment will be generated from the reclamation site. The reclamation site is close to Biodiesel Plant in Tseung Kwan O Industrial Estate. Any development or redevelopment proposed within the CZ will require the undertaking of a Hazard Assessment. The natural coastline will be irreversibly and permanently loss, but creation of an attractive development will mitigate some views of the existing industrial land use.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C13a** and **C13b** in **Appendix A** respectively.

7.2.21 Site D1 – Lung Kwu Tan

This reclamation site assumed for residential developments may have potential impacts on different water/ecological sensitive receivers, including Chinese White Dolphin, Sha Chau and Lung Kwu Chau Marine Park, Committed Marine Park at The Brothers, and SSSI at Lung Kwu Chau, Tree Island and Sha Chau, horseshoe crabs, and butterfly habitats at Lung Kwu Tan Valley SSSI and Siu Lang Shui SSSI, etc. Detailed site survey, ecological and fisheries monitoring are required. There may be potential hydrodynamic and water quality impact around Urmston Road due to sewage discharge dispersion from Pillar Point STW, San Wan STW, cooling water discharge from Castle Peak A&B Power Station and Black Point Power Station. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape to minimize the potential water quality and hydrodynamic impact.

The site is also surrounded by many existing/ planned/ proposed NIMBY facilities and industrial uses such as Black Point Power Station, Castle Peak A&B Power Station, Green Island Cement Plant, aviation fuel facility, Shiu Wing Steel Mill, EcoPark at Tuen Mun Area 38 associated with the recycling processes of waste, different waste facilities, including West New Territories Landfill (WENT) and its extension, planned Integrated Waste Management Facilities (IWMF), planned Sludge Treatment Facilities, etc. Other key environmental issues include vehicular emission and road traffic noise from Local Distributor — Lung Kwu Tan Road and Lung Mun Road, chimney emissions from Castle Peak A&B Power, Black Point Power Station, EcoPark, Shiu Wing Steel Mill, Green Island Cement Plant, planned Sludge Treatment Facilities (STF) and Integrated Waste Management Facility (IWMF) at Tsang Tsui; odour/smoke emission from the proposed STF and IWMF, WENT and its Extension, and proposed columbarium at Tsang Tsui; dust emission and fixed plant noise from Green Island Cement Plant, marine emission and traffic noise from main navigation channel, helicopter noise from Castle Peak Power Station Helipad CP08 and Black Point Radar Station Helipad CP02. Detailed air quality modelling is required to assess the cumulative air quality impact to adopt a well-planned building layout in further separate studies. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage. Sufficient buffer distance and noise barrier etc. will be adopted subject to further noise modelling assessment.

The reclamation site is adjacent to two Sites of Archaeological Interest, Lau Ancestral Hall at Tuk Mei Chung and Lung Kwu Sheung Tan. Dredged sediment will be generated from the reclamation site. Since the natural coastline will be irreversibly and permanently loss, landscape and visual issues are subject to further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **D1a** and **D1b** in **Appendix A** respectively. .

7.2.22 Site D2 – Tai Lam Chung

This reclamation site assumed for residential developments may have potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including hotspot of Chinese White Dolphin (CWD), Golden Beach and committed Marine Park at Brothers Island, Ma Wan Fish Culture Zone, etc. Detailed site survey, ecological and fisheries monitoring are required. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape to minimize the potential water quality and hydrodynamic impact.

Other key environmental issues include vehicular emission and road traffic noise from Trunk Road — Tuen Mun Road and Local Distributor — Castle Peak Road, helicopter noise from helipad at Customs and Excise Training School. Residential areas along shoreline (e.g. Castle Peak Villas, Fontana Villa) are the nearest ASR and NSR to the proposed site. Detailed air quality modelling is required to assess the cumulative air quality impact to adopt a well-planned building layout in further separate studies. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage. Sufficient buffer distance and noise barrier etc. will be adopted subject to further noise modelling assessment. The proposed reclamation site is adjacent to Site of Archaeological Interest – Siu Lam and mitigation measure to reduce of disturbance to the heritage resources is required. Dredged sediment will be generated from the reclamation site. Since the natural coastline will be irreversibly and permanently loss, landscape and visual issues are the subject for further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **D2a** and **D2b** in **Appendix A** respectively.

7.2.23 Site D3 – Silver Mine Bay North

This reclamation site assumed mainly for elderly housing development may have potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including Silver Mine Bay Beach and key coral area at northern Hei Ling Chau, Cheung Sha Wan Fish Culture Zone, etc. Detailed site survey, ecological and fisheries monitoring are required. Subject to the size and shape of the reclamation site, this site may also have potential hydrodynamic impact on Mui Wo Sewage Treatment Works discharge dispersion, erosion and water quality impact on Silvermine Bay Beach. A new sewage treatment works may be needed to treat sewage produced by future users of the reclaimed land. Detailed water quality and hydrodynamic modelling is required

during future detailed design or EIA stage. The proposed site is in proximity to Lantau North (Extension) Country Park, potential impact on key terrestrial habitat would be the environmental issue.

The proposed site is adjacent to the Site of Archaeological Interest – Chok Tsai Wan and mitigation measure to reduce of disturbance to the heritage resources is required. Dredged sediment will be generated from the reclamation site. Since the natural coastline will be irreversibly and permanently loss, landscape and visual issues are subject to further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **D3** in **Appendix A** respectively.

7.2.24 Site D4 – Shuen Wan

This reclamation site assumed for residential developments may have potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including Centre Island SSSI, and mangroves at Tai Po Kau, Shuen Wan Egretry, Yim Tin Tsai Fish Culture Zone, etc. Detailed site survey and fisheries monitoring are required. There may be potential water quality and hydrodynamic impact on the Tolo Harbour. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape to minimize the potential water quality and hydrodynamic impact.

Other key environmental issues include vehicular emission and road traffic noise from Local Distributor — Ting Kok Road and Sam Mun Tsai Road, chimney emission from Tai Po Industrial Estate, dust emission and fixed plant noise from adjacent Cement Plant, odour nuisance from Tai Po Wholesale Fish Market, Tai Po Sewage Treatment Works and Restored Shuen Wan Landfill. Residential development at Fortune Garden is the nearest ASR and NSR to the proposed site. Detailed air quality modelling is required to assess the cumulative air quality impact to adopt a well-planned building layout in further separate studies. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage. Sufficient buffer distance and noise barrier etc. will be adopted subject to further noise modelling assessment.

Dredged sediment will be generated from the reclamation site. Portion of the site is located within the 250m Consultation Zone of the Restored Shuen Wan Landfill from “medium” to “very high” risk. A detailed qualitative assessment of Landfill gas hazard is needed in further separate study/studies. Since the natural coastline will be irreversibly and permanently loss, landscape and visual issues are subject to further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **D4a** and **D4b** in **Appendix A** respectively. .

7.2.25 Site D5 – Wu Kai Sha

This reclamation site assumed for residential and recreational development may have potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including Centre Island SSSI, Yim Tin Tsai Fish Culture Zone, Yim Tin Tsai (East) Fish Culture Zone, etc. Detailed site

survey, ecological and fisheries monitoring are required. There may be potential water quality and hydrodynamic impact on the Tolo Harbour. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape to minimize the potential water quality and hydrodynamic impact.

Other key environmental issues include vehicular emission and road traffic noise from District Distributor — Sai Sha Road, odour nuisance and fixed plant noise from White Head (Pak Shek) sewage pumping stations, railway noise from Ma On Shan Line. Residential development at Villa Oceania is the nearest ASR and NSR to the proposed site. Detailed air quality modelling is required to assess the cumulative air quality impact to adopt a well-planned building layout in further separate studies. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage. Sufficient buffer distance and noise barrier etc. will be adopted subject to further noise modelling assessment.

The proposed reclamation site is adjacent to Site of Archaeological Interest –Nos. 31-33 First Lane and mitigation measure to reduce of disturbance to the heritage resources is required. Dredged sediment will be generated from the reclamation site. Since the natural coastline will be irreversibly and permanently loss, landscape and visual issues are subject to further assessment.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **D5a** and **D5b** in **Appendix A** respectively.

7.2.26 Site D6 – Tseung Kwan O 131

This reclamation site assumed for development of data centre park may have potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including recorded coral community at Lei Yue Mun Point and Adult Fish Production Area of relatively high production rate, etc.. Detailed site survey, ecological and fisheries monitoring are required. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape.

Other key environmental issues include vehicular emission and road traffic noise from planned Tseung Kwan O - Lam Tin Tunnel, planned Cross-Bay Link and proposed Road D9, marine emission and noise from main navigation channel, smoke and odour nuisance from Junk Bay Chinese Permanent Cemetery and fixed plant noise from associated ventilation buildings of planned Tseung Kwan O - Lam Tin Tunnel. Village houses at Ma Pui Tsuen are the nearest ASR and NSR to the proposed site. Construction emission and construction noise are the temporary environmental issues need to be concerned in construction phase. Dredged sediment will be generated from the reclamation site. This site may also have landscape and visual issues including loss of coastal waters and natural coastline landscape resources.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **D6a** and **D6b** in **Appendix A** respectively.

7.2.27 Site D7 – Shek O Quarry

This reclamation site assumed for residential developments may have potential impacts on various water/ecological sensitive receivers and fishery resources in the surrounding areas, including Cap D' Aguilar Marine Reserve, Coastal Protection Area at Shek O Quarry, Shek O Country Park and Adult Fish Production Area of relatively high production rate, etc. Detailed site survey and fisheries monitoring are required. Subject to the size of the site, there may be potential hydrodynamic and water quality impact on the sewage discharge dispersion from Stanley STW. Further detailed hydrodynamic and water quality modelling is required for the optimization of reclamation shape.

Other key environmental issues include vehicular emission and road traffic noise from Shek O Road and Cape D'Aguilar. Village houses at To Tei Wan Village are the nearest ASR and NSR to the proposed site. Detailed air quality modelling is required to assess the cumulative air quality impact to adopt a well-planned building layout in further separate studies. Construction emission and construction noise from the proposed site are the temporary environmental issues need to be concerned in construction stage. Sufficient buffer distance and noise barrier etc. will be adopted subject to further noise modelling assessment. Dredged sediment will be generated from the reclamation site. This site may also have landscape and visual issue s including loss of coastal waters landscape resources.

Key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **D7a** and **D7b** in **Appendix A** respectively.

7.3 Overall Strategic Environmental Findings of the Longlisted Reclamation Sites

It is observed that all 27 Recommended Longlisted Sites for reclamation have different environmental issues and constraints. Therefore, no highly environmentally favourable sites were identified.

7.3.1.1 Overall Strategic Environmental Performances

Among all the Recommended Longlisted Sites, the commonly appear environmental constraints are related to air quality, noise, water quality, ecology, fisheries, and landscape and visual.

- For sites in Category A – Artificial island and sites in Category B – Reclamation to connect islands, the common critical environmental issues include water quality, ecology, fisheries, and landscape and visual.
- For sites in Category C – Reclamation upon artificial or disturbed shoreline and Category D – Reclamation upon natural but not protected shoreline, the common critical environmental issues include air quality and noise due to the land use interfacing uses, water quality, ecology, fisheries, and landscape and visual.
- Hazard to Life issue is also a key issue for Site C4 Siu Ho Wan, Site C7 Silver Mine Bay South, Site C8 Tai Po Industrial Estate and Site C13 Tseung Kwan O East.

- Site A4 Tsing Chau Tsai East appears to have less environmental constraints, while comparatively, Site C4 Siu Ho Wan, Site C5 Sunny Bay, Site C7 Silver Mine Bay South, Site C9 Tai Po Kau, Site C12 Lamma Quarry, Site D1 Lung Kwu Tan and Site D4 Shuen Wan, appeared to have more environmental constraints.
- On waste generation, different types of waste would be generated include construction and demolition materials, marine sediment, chemical waste, general refuse and sewage during the construction stage; and municipal waste, chemical waste and sewage during the operational stage.

7.3.1.2 Considerations of Mitigation Measures

Some issues (e.g. landfill gas hazard) will be subject to future detailed assessments to address their impacts, while other impacts (e.g. chimney emission) will be mitigated subject to further studies/assessments, future statutory EIAs, town planning processes, etc., to confirm their environmental impacts.

- Construction dust and noise impact are normally transient. Proper mitigation measures, except under special situations, have been proven to be effective in many previous cases. Operational air quality and noise impact will require for detailed investigation and modelling assessment, while certain mitigation measures (i.e. sufficient setback distances, proper landuse layout, etc) can be considered.
- Potential impact on water quality during construction phase will normally be mitigated by non-dredged method and deployment of silt curtain, subject to further assessment. Potential impact on water quality during operational phase, including the hydrodynamic impact, will require further investigation. The feasibility and effectiveness of the mitigation measures are subject to further studies/assessments, future statutory EIAs, land use planning, etc. for confirmation.
- For ecology and fisheries, it will require further comprehensive baseline survey, monitoring and impact assessment to confirm the impact. Water quality relevant mitigation measures may be applicable to minimise ecological and fisheries impact subject to further studies/assessments. Other site-specific ecology and fisheries mitigation measures to minimise the impacts to CWD and other ecological/fisheries species/habitats for Site D1 Lung Kwu Tan, C4 Siu Ho Wan and C5 Sunny Bay, will also be needed, and assessed and recommended in further studies/assessments.
- Potential impact on landscape and visual during construction phase and operational phase will normally be mitigated through integrated landscape and urban design and viewing corridors, subject to further studies/assessments, future statutory EIAs, land use planning, etc. for confirmation.
- For the sites subject to hazard to life issues, quantitative risk assessments are required during engineering investigation stages to assess and address the hazard to life impacts of the development proposals of the site.
- The size and shape of reclamation will be revisited as one of the possible means to address the environmental issues.

- Potential environmental impacts due to waste generated from proposed developments during construction and operational phase can be mitigated by proper collection, transportation, treatment and disposal system/arrangement. Secondary impact such as odour nuisance, vermin, water pollution and visual impact shall also be reduced.

8 Site Shortlisting and Key Environmental Issues and Opportunities of the Shortlisted Sites and Artificial Islands

8.1 Site Shortlisting Methodology

Site shortlisting is to select shortlisted sites from the longlist by qualitative assessment based on the results of Broad Technical Assessment and the refined Site Selection Criteria. This shortlisting process is to select sites that have higher potential for consultation with the public in PE2 and further detailed study. Reclamations (under Item C of Schedule 2) and engineering feasibility studies of urban development projects with study areas more than 20 ha or involving population of more than 100 000 (under Schedule 3) are Designated Projects under the EIAO. There would also be other potential Designated Project elements on the shortlisted reclamation sites. All the shortlisted sites will need to eventually go through separate feasibility studies, statutory processes under EIAO, Town Planning Ordinance, etc. and public consultations to confirm their environmental acceptability and mitigation measures required.

Qualitative review was undertaken to take into account the potential key issues/constraints, and possible mitigation measures of the longlisted sites.

With reference to the feedback from PE1, environmental impact is one of the key site selection criteria considered by the public during the public engagement activities, and therefore environmental impact is initially considered in the site shortlisting stage together with impact on local community which is also considered as the key criteria by the public in Stage 1 PE.

The selected sites are then assessed with reference to other key considerations revealed from the Broad Technical Assessments in the site shortlisting process. These may include but are not limited to development potential and constraints, transport links, traffic impact, aircraft and helicopter flight paths, etc. Environmental-related factors, such as planning constraints and land use interfacing issues, such as aircraft and helicopter noise issues, were also considered in site shortlisting together with other factors.

8.2 Site Shortlisting with SEA/Environmental Considerations

8.2.1 Strategic Environmental Performance Indicators (EPIs)

To facilitate the site shortlisting study, strategic environmental performance indicators (EPIs) were established to compare the relative environmental performances of the recommended longlisted sites. Strategic EPIs were established based on consideration of environmental legislations, standards and guidelines, e.g. Hong Kong Planning Standard and Guidelines (HKPSG), Water Pollution Control Ordinance (WPCO), Environmental Impact Assessment Ordinance (EIAO), Air Pollution Control Ordinance (APCO), Waste Disposal Ordinance (WDO), Noise Control Ordinance (NCO), and other relevant guidelines/guidance notes/studies/references, as appropriate.

With reference to the Strategic EPIs, the relevant significant levels for each longlisted reclamation site on the aspects of air quality, noise, water quality, waste management, ecology, fisheries, cultural heritage, landscape and visual, hazard to life and landfill gas hazard have been appraised

8.2.1.1 Air Quality

With reference to APCO, EIAO, TM-EIAO, HKPSG, and other relevant guidelines/guidance notes/studies/references, the following aspects have been considered:

- Construction emissions: considering distances to existing/planned air sensitive uses in the vicinity;
- Vehicular emission: considering distances to road networks (e.g. primary distributors, district distributors, local distributors, etc.) in the vicinity;
- Chimney emissions: considering distances to chimney stacks (e.g. industrial uses, power stations, etc.) in the vicinity;
- Marine emission: considering distances to main navigation channels, piers, container terminals, etc. in the vicinity; and
- Odour nuisance: considering distances to odour sources (e.g. sewage treatment works, sewage pumping stations, refuse transfer stations, crematoria, etc.) in the vicinity.

8.2.1.2 Noise

With reference to NCO, EIAO, TM-EIAO, HKPSG, and other relevant guidelines/guidance notes/studies/references, the following aspects have been considered:

- Construction noise: considering distances to existing/planned noise sensitive uses in the vicinity;
- Aircraft noise: considering distances to Noise Exposure Forecast (NEF) 25 Contours;
- Helicopter noise: considering distances to helipads and helicopters flight path in the vicinity;
- Road traffic noise: considering distances to road networks (e.g. primary distributors, district distributors, local distributors, etc.) in the vicinity;
- Marine traffic noise: considering distances to main navigation channels, piers, container terminals, etc. in the vicinity;
- Railway noise: considering distances to railway lines in the vicinity; and
- Fixed-plant noise: considering distances to major fixed-plants (e.g. warehouse loading areas, container terminals, industrial areas, etc.) in the vicinity.

8.2.1.3 Water Quality

With reference to WPCO, EIAO, TM-EIAO, and other relevant guidelines/guidance notes/studies/references, the following aspects have been considered:

- Impact on water sensitive receivers: considering distances to marine-based and land-based water quality sensitive uses in the vicinity; and
- Water pollution sources: considering distances to water pollution sources (e.g. sewage discharge outfall, industrial waste water discharge) in the vicinity.

8.2.1.4 Cultural Heritage

With reference to WPCO, EIAO, TM-EIAO, and other relevant guidelines/guidance notes/studies/references, the following aspect has been considered:

- Disturbance to recognized cultural heritage resource: considering distances to declared monuments, site of archaeological interest, and graded historical building in the vicinity.

8.2.1.5 Waste Management

With reference to WDO, EIAO, TM-EIAO, and other relevant guidelines/guidance notes/studies/references, the following aspects have been considered:

- Whether marine sediment/mud is generated; and
- Whether contaminated marine sediment/mud is generated.

8.2.1.6 Ecology

With reference to EIAO, TM-EIAO, and other relevant guidelines/guidance notes/studies/references, the following aspect has been considered:

- Distances to hotspots of Chinese White Dolphin (CWD) or finless porpoise;
- Distances to important marine habitat;
- Distances to important intertidal habitat; and
- Distances to important terrestrial habitat.

8.2.1.7 Fisheries

With reference to EIAO, TM-EIAO, and other relevant guidelines/guidance notes/studies/references, disturbance to important fisheries resources has been considered:

- Considering distances to Future Fisheries Protection Areas, Oyster Production Area, Fish Culture Zone, and Artificial Reef Deployment Area, Fish Spawning and Nursery Ground in the vicinity; and
- Considering encroachment areas and production rates of Fry Fish Collection Area and Adult Fish Production Area.

8.2.1.8 Landscape and Visual

With reference to EIAO, TM-EIAO, "Preparation of Landscape and Visual Impact Assessment under the Environmental Impact Assessment Ordinance" (EIAO Guidance Note No. 8/2010), and other relevant guidelines/guidance notes/studies/references, the following aspect has been considered:

- Relative significant level of adverse impact on the existing landscape resources (LRs) in the vicinity; and
- Relative significant level of adverse impact on the existing landscape characteristics areas (LCAs) in the vicinity.

8.2.1.9 Hazard to Life

With reference to EIAO, TM-EIAO, HKPSG, and other relevant guidelines/guidance notes/studies/references, the following aspect has been considered:

- Whether the proposed reclamation development falls within the Consultation Zone (CZ) of a PHI.

8.2.1.10 Landfill Gas Hazard

With reference to EIAO, TM-EIAO, "Landfill Gas Hazard Assessment Guidance Notes" (EPD/TR8/97), and other relevant guidelines/guidance notes/studies/references, the following aspect has been considered:

- Whether the proposed reclamation development falls within the CZ of a landfill site; and
- The risk level of the proposed reclamation development falling within the Consultation Zone (CZ) of a landfill site.

8.2.2 SEA/Environmental Considerations

To facilitate site comparison in site shortlisting, SEA was involved in the qualitative assessment, with reference to strategic environmental performance indicators (EPIs), as mentioned in **Section 8.2.1**, to consider the environmental issues/constraints of the longlisted sites and the likelihood of environmental mitigation measures to address the potential environmental issues/constraints. The following categories could be observed during the site shortlisting process from the 27 longlisted site.

<u>Sites with Relatively Lower Environmental Impacts</u>

- A3 Lamma North

- C8 Tai Po Industrial Estate

Sites with Moderate Environmental Impacts

- A4 Tsing Chau Tsai East
- A5 Kau Yi Chau West
- C1 Tuen Mun Area 40
- C3 Tsing Lung Tau
- C5 Sunny Bay
- C6 Southwest Tsing Yi
- C7 Silvermine Bay South
- C10 Ma Lui Shui
- C11 Sandy Bay
- C13 Tseung Kwan O East
- D2 Tai Lam Chung
- D3 Silvermine Bay North
- D4 Shuen Wan
- D5 Wu Kai Sha
- D6 Tseung Kwan O Area 131
- D7 Shek O Quarry

Sites with Relatively Higher Environmental Impacts

- A1 Hei Ling Chau West
- A2 South Cheung Chau
- B1 Peng Chau – Hei Ling Chau
- B2 Beaufort Island
- C2 Tuen Mun Area 27 (Sam Shing)
- C4 Siu Ho Wan
- C9 Tai Po Kau
- C12 Lamma Quarry
- D1 Lung Kwu Tan

Based upon the site shortlisting exercise, the following five nearshore reclamation sites are shortlisted:

(1) C4 Siu Ho Wan

(2) C5 Sunny Bay

(3) C6 Southwest Tsing Yi

(4) 10 Ma Liu Shui

(5) D1 Lung Kwu Tan

Besides, the site shortlisting exercise has identified there is great development potential for artificial islands in the central waters that worth further exploring. As regards the option of artificial islands, we have reviewed the eastern waters, the central waters and the western waters of Hong Kong. The eastern waters are of high ecological value whilst the western waters are already heavily constrained by a number of major infrastructure projects. The central waters however are relatively less ecologically sensitive. There are many other considerations that need to be studied further (e.g. impacts on fairways, anchorage areas, ferry routes, port operation, marine traffic, water flow and water quality, ecology, fisheries, etc.) in a strategic way. Despite the great development potential for artificial islands in the central waters, the approximate location and extent of artificial islands could only be ascertained subject to further studies.

The shortlisted nearshore reclamation sites and artificial islands in the central waters were taken forward for consultation in PE2, while the remaining sites may be studied further if opportunities arise in the future.

It is worth to highlight that among these 5 shortlisted nearshore reclamation sites, despite some of them may have relatively higher environmental concerns (e.g. Siu Ho Wan and Lung Kwu Tan), they were still selected into the shortlist due to the following specific reasons:

Siu Ho Wan

- opportunity to expand on the proposed MTR and Topside development;
- good access through existing North Lantau Highway and railway network and future Tuen Mun-Chek Lap Kok Link; and
- synergy effect with the on-going Tung Chung Development and other developments in North Lantau.

Lung Kwu Tan

- large site area for integrated development including residential, educational and business/logistic operations and facilities to meet local needs;
- opportunity for coherent planning by relocating the existing bad neighbour facilities; good accessibility to existing transport infrastructure;
- generation of jobs opportunities particularly for Tuen Mun; and
- opportunity to remediate the existing erosion at the Lung Kwu Tan beach.

For the reclamation sites which were not selected into the shortlist, some were found to have significant environmental impacts (e.g. Tai Po Kau, Beaufort Island, Lamma Quarry, Tuen Mun Area 27 (Sam Shing)). However, some sites will have moderate environmental impact (e.g. Wu Kai Sha, Tai Lam Chung, Shuen Wan, Tseung Kwan O Area 131, Tseung Kwan O East, Sandy Bay, Shek O Quarry, Tsing Lung Tau, Tuen Mun Area 40) and Tai Po Industrial Estate has low environmental impact.

For the sites with moderate environmental impacts, they were not selected into the shortlist because of other considerations, such as significant impact to local community, low development potential, poor location or accessibility, small reclamation area, other planning and engineering constraints, etc. For Tai Po

Industrial Estate, it was not selected due to other considerations such as impact on amenities and environment of the existing Tai Po Waterfront Park and the associated water promenade.

8.3 Shortlisted Sites, Artificial Islands and Key Environmental Issues and Opportunities

The section provides qualitative discussion of the key environmental and other issues/constraints and opportunities of each of the shortlisted nearshore reclamation sites and artificial islands in the central waters with reference to the broad environmental assessment.

8.3.1 Siu Ho Wan

Siu Ho Wan is located at a strategic location in North Lantau. It is near the Airport, can link up with major trunk road and infrastructure (e.g North Lantau Highway, railway lines, Tuen Mun Chek Lap Kok Link, Hong Kong Link Road, etc.), and is close to many tourism spots. It offers synergy with other developments in North Lantau including the nearby Tung Chung new town. The proposed area of reclamation is 133ha, potentially for the development of residential uses, GIC and commercial provisions.

Impact on Environment

- Environmental impact may be high. There will be potential ecological impact on Chinese White Dolphin habitats as Chinese White Dolphin hotspot is in extremely close proximity to the site. Other critical environmental impacts include, air quality, noise, water quality, ecology (e.g. potential ecological impact on committed Marine Park at The Brothers, Tai Ho Stream SSSI, mangrove areas and horseshoe crabs, etc.), fisheries, landscape and visual. Detailed site survey and ecological monitoring is required to investigate the potential impact on Chinese White Dolphins in nearshore area.

Potential Constraints

- Potential land use interface issues with the nearby various NIMBY facilities and industrial uses, such as sewage treatment works, waste facilities, etc., and hazard to life issues from the water treatment works and chlorine transshipment dock in the vicinity.
- Aircraft and helicopter noise; road traffic noise and vehicular emission from North Lantau Highway; and railway noise from the nearby MTR networks.

Major environmental and non-environmental opportunities and constraints for this shortlisted site are shown in **Figure 38**. In particular, key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C4a** and **C4b** in **Appendix A** respectively.

8.3.2 Sunny Bay

Sunny Bay is located at a strategic location in North Lantau. It is close to the Airport, can link up with major truck road and infrastructure (e.g North Lantau Highway, railway lines and station, Tuen Mun Chek Lap Kok Link, etc.), and is close to many tourism spots. Sunny Bay has the potential for recreational and

tourism development as already identified in the OZP. It offers synergy with other developments in North Lantau. The proposed area of reclamation is 75ha, potentially for the development of recreational and commercial uses.

Impact on Environment

- Moderate environmental impact is anticipated. There will be potential ecological impact on Chinese White Dolphin habitats as some sightings of Chinese White Dolphins were recorded in nearby area. Other critical environmental impacts include air quality, noise, water quality, ecology (e.g. potential ecological impact on committed Marine Park at The Brothers, mangrove areas and seagrass bed, etc.), fisheries, landscape and visual. Detailed site survey and ecological monitoring is required to investigate the potential impact on Chinese White Dolphins in nearshore area.

Potential Constraints

- Aircraft and helicopter noise; road traffic noise and vehicular emission from North Lantau Highway; and railway noise from the nearby MTR networks.

Major environmental and non-environmental opportunities and constraints for this shortlisted site are shown in **Figure 39**. In particular, key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C5a** and **C5b** in **Appendix A** respectively.

8.3.3 Southwest Tsing Yi

Southwest Tsing Yi is located in area with good access to existing transportation nodes. Given the strategic location of this site, this site has great potential of integrated development with adjacent area. The proposed area of reclamation is 106ha, potentially for the development of residential uses with a range of complementary GIC, commercial and open space provision.

However, its development potential is limited by adjacent industrial land uses. At present, the site is suitable for extending port facilities to create a regional logistic node. Residential or other development is also feasible if all oil depots/terminals in the vicinity and the adjacent industrial land uses are relocated, releasing a large piece of prime land and benefiting the entire district. Under this Study, this site has been assessed on the assumption that all existing oil depots/terminals and industrial land uses in the surrounding areas are relocated.

Impact on Environment

- Ecological impact is anticipated to be relatively low comparing to other sites. Critical environmental impact includes air quality, noise, and hydrodynamic and water quality due to impact on HATS discharge.

Potential Constraints

- Five oil depots/terminals in the vicinity constituting hazard to life issues requiring relocation of these PHIs before development of the site; and land use interfacing issues with the nearby various NIMBY and industrial facilities/uses.
- Road traffic noise and vehicular emission from Cheung Tsing Highway and Tsing Yi Road, and marine emission around Ma Wan Channel.

Major environmental and non-environmental opportunities and constraints for this shortlisted site are shown in **Figure 40**. In particular, key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C6a** and **C6b** in **Appendix A** respectively.

8.3.4 Ma Liu Shui

Ma Liu Shui can provide valuable land in developed district for residential development near Shatin New Town. It is located within area with good access to existing / future traffic and railway network (e.g. Tolo Highway, Tate's Cairn Highway, Shing Mun Tunnel, Shatin Heights Tunnel, Lion Rock Tunnel, Tate's Cairn Tunnel, MTR East Rail, and future SCL, etc.). It can also provide community facilities to meet the needs in the district. The reclamation will create synergy with the development proposals of the adjacent site released by relocating the Sha Tin Sewage Treatment works to rock cavern. The proposed area of reclamation is 47ha, potentially for the development of residential uses and other beneficial uses including community and recreational facilities.

Impact on Environment

- Ecological impact is anticipated to be relatively low comparing to other sites. Critical environmental impacts include air quality, noise, water quality, landscape and visual.

Potential Constraints

- Social impacts on the Chinese University and residential development in Ma On Shan.
- Potential land use interface issues, including odour and helicopter noise from the nearby sewage treatment works and Marine Police's helipad.
- Road traffic noise and vehicular emission from Tolo Highway and Tate's Cairn Highway, and railway noise from MTR East Rail.

Major environmental and non-environmental opportunities and constraints for this shortlisted site are shown in **Figure 41**. In particular, key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **C10a** and **C10b** in **Appendix A** respectively.

8.3.5 Lung Kwu Tan

Lung Kwu Tan is easily accessible via existing traffic networks (e.g. Lung Kwu Tan Road, Lung Fu Road, Lung Mun Road, etc.) which have spare capacity with further road widening. It presents opportunity for relatively large-scale reclamation (200 – 300 ha) site which is suitable for comprehensive planning. This proposed reclamation site is proposed for a science and business park, residential uses with complementary GIC facilities and local open space.

Impact on Environment

- Environmental impact may be high. There will be potential ecological impact on Chinese White Dolphin habitats as the site is close to Chinese White Dolphin hotspot. Other critical environmental impacts include air quality, noise, water quality, ecology (e.g. ecological impacts on Sha Chau & Lung

Kwu Chau Marine Park, committed Marine Park at The Brothers, SSSI at Lung Kwu Chau, Tree Island and Sha Chau, horseshoe crabs, etc.), fisheries, landscape and visual. Detailed site survey and ecological monitoring is required to investigate the potential impact on Chinese White Dolphins in nearshore area.

- Potential disturbance on the Lung Kwu Tan Valley SSSI (400m way) and butterfly hotspot in the proximity.

Potential Constraints

- Potential land use interface issues with the nearby various NIMBY and industrial uses/facilities, such as two power stations, cement plants, steel mill, different waste facilities, aviation fuel facility, other industrial uses, etc.
- Road traffic noise and vehicular emission from Lung Kwu Tan Road and Lung Mun Road, and marine emission around Urmston Road.

Major environmental and non-environmental opportunities and constraints for this shortlisted site are shown in **Figure 42**. In particular, key environmental resources and constraints and key air sensitive receivers and noise sensitive receivers are presented in **D7a** and **D7b** in **Appendix A** respectively.

8.3.6 Artificial Islands

The option of artificial islands in the central waters, between Hong Kong Island and Lantau can generally avoid shorelines of high ecological value and, if artificial islands are provided with suitable transport infrastructure, they could be extended as new development areas from the current urban areas.

Impact on Environment

- Environmental impact may be high at some locations in the central waters. There would be potential hydrodynamic and water quality impacts from the artificial islands due to impact on HATS discharge. Artificial islands would also potentially affect different ecological and fisheries significant/sensitive species/areas, such as finless porpoises, corals, fish production areas, proposed and potential marine parks, coastal protection areas, etc. It is recommended to conduct a separate comprehensive strategic study on building artificial islands in the central waters covering different aspects, including hydrodynamic and water quality, ecological and fisheries impacts, etc. to derive the extent, shape, broad land use and transport infrastructure of the artificial islands.

Potential Constraints

- There are a number of fairways, anchorage areas, ferry routes in the central waters, and the impacts of artificial islands on port operation, marine traffic and water flow etc.

8.3.7 Potential Cumulative Environmental Impacts

Apart from the individual environmental issues of the respective shortlisted site, cumulative environmental impacts are anticipated from the shortlisted sites, particularly those reclamation sites in Western Waters where there are Chinese

White Dolphin habitats, existing and committed marine parks, SSSIs, and other ecological/fisheries sensitive areas; many ongoing/committed/planned/proposed major development projects undertaken, such as airport 3rd runway, Tung Chung new town extension development, Hong Kong – Zhuhai – Macau bridge-related developments. There are also different land use interfacing issues anticipated from the shortlisted sites as various NIMBY/industrial and incompatible facilities/uses are located in the vicinity. Detailed assessments on the cumulative impacts to the environment are needed.

The central waters is the major channel for water flows from Pearl River Estuary through the Hong Kong marine territory towards the South China Sea. There are different ecological/fisheries sensitive species/areas and water sensitive receivers around the central water areas, such as finless porpoises, corals, fish production areas, proposed and potential marine parks, beaches, etc. The artificial islands in the central waters would potentially bring significant hydrodynamic effects on the water flow within Hong Kong and dispersion of the treated effluent from the Harbour Area Treatment Scheme (HATS) outfall. There are different water sensitive receivers around the central water areas, such as beaches at the southern HK Island, corals and beaches at the Lamma Island, etc. Detailed assessments on the cumulative impacts on hydrodynamic/water quality and ecology/fisheries are needed.

Apart from different land use interfacing and hazard to life issues with regard to the existing land uses of Tsing Yi, the shortlisted reclamation to the southwest of Tsing Yi near Ma Wan Channel and Kap Shui Mun would have potential cumulative impact together with any other new/proposed developments on the hydrodynamic and water flow of Ma Wan Channel, Kap Shui Mun and any other relevant channels and also cumulative impact on HATS discharge potentially affecting ecological and fisheries sensitive habitats/areas and water sensitive receivers in the vicinity.

There may also be potential cumulative implications on the land use interfacing of the shortlisted reclamation near Tolo Harbour together with the adjacent site of the Sha Tin STW planned for relocation to the rock cavern with the nearby traffic networks, and potential impact on hydrodynamic and water flow of the Tolo Harbour.

9 Stage 2 Public Engagement

9.1 Stage 2 Public Engagement

Stage 2 Public Engagement (PE2) was conducted between 21 March 2013 and 21 June 2013. The aim of PE2 was to seek public views on the possible land uses for the shortlisted sites as well as the areas of concern to be addressed in future technical studies.

To enhance the public awareness of the PE2 exercise and to encourage public participation, a series of PE activities including public forums and roving exhibitions were organized. The consultation document, PE2 Digest, was widely disseminated to the public at various outlets including District Offices, roving exhibition counters and public forums. A web version of the PE2 Digest was uploaded onto the Study website.

The Panel on Development of the Legislative Council was consulted on 23 April 2013. Government representatives attended a Special Meeting of the Panel on 1 June 2013 to listen to the views of the deputation. Seven District Councils, in which constituencies the five potential nearshore reclamation sites, three Rock Cavern Development (RCD) sites and artificial islands in the central waters are located, were also consulted, amongst other stakeholders including green groups, local concerns groups and residents' groups.

The Stage 2 Public Engagement Report and Executive Summary can be found on the Study website http://www.landsupply.hk.

9.2 SEA/Environmental Comments

Environmental – related Public Comments collected during Stage 2 Public Engagement include:

a) Impact on marine ecology including encroachment on habitats of CWDs, ecological conservation, potential impact on the landscape or habitats along the shorelines, etc. were common major SEA/environmental concerns shared by the potential nearshore reclamation sites and artificial islands in the central waters.

b) Major SEA/environmental concerns as regards Lung Kwu Tan included impact of NIMBY facilities nearby, air pollution near the development sites, deterioration of seawater quality, etc.

c) Major SEA/environmental concerns as regards Siu Ho Wan included noise pollution near the development sites, deterioration of seawater quality, encroachment on nearby conservation areas, etc.

d) Major SEA/environmental concerns as regards Sunny Bay deterioration of seawater quality, noise pollution near the development sites, air pollution near the development sites, etc.

e) Major SEA/environmental concerns as regards Tsing Yi Southwest included noise pollution near the development sites, air pollution near the development sites, and deterioration of seawater quality, etc.

f) Major SEA/environmental concerns as regards Ma Liu Shui included impact on cultural heritage, air pollution near the development sites,

affecting water flow, deterioration of seawater quality, noise pollution near the development sites, increased flooding risk at Shing Mun River, etc.

g) Major SEA/environmental concerns as regards possible artificial islands in the central waters included deterioration of seawater quality, air pollution near the development site, impact on fisheries, noise pollution near the development site, affecting water flow, impact on cultural heritage.

9.3 Other Comments

Other Public Comments collected during Stage 2 Public Engagement include:

a) Land reserve, residential development (in particular public rental housing), recreational or leisure facilities and public parks were the four land uses that received most support among those providing feedback on reclamation;

b) The large volume of combined resistance to all potential reclamation sites, mostly generated from the signature campaigns and petitions and Facebook campaign organized by a group of Chinese University Hong Kong students but also from some other sources, could indicate considerable resistance to any of the five reclamation sites. On the other hand, the combined acceptance of all five reclamation sites expressed by some construction industry groups suggested an economic argument for reclamation (e.g. in terms of creating jobs) which was supported in some quarters of the community;

c) There were fewer specific objections to Sunny Bay and Tsing Yi Southwest. The number of specific objections to artificial islands in the central waters was also comparatively small.

9.4 SEA/Environmental Observations

Major SEA/Environmental observations made in Stage 2 Public Engagement are summarized below:

a) The potential impact on marine ecology, including encroachment on habitats of Chinese White Dolphins (CWDs), and ecological conservation were two common themes of concerns about reclamation sites (including artificial islands in the central waters).

b) There was particularly strong resistance against the proposed reclamation at Ma Liu Shui as conveyed through feedback questionnaires collected in Ma On Shan as well as signature campaigns and petitions (SCPs) organized by some local groups and residents' groups. SCPs and Facebook campaign (FB) initiated by the Student Union of The Chinese University of Hong Kong (CUHK) also contributed to such resistance. Concerns about the environment including coastal landscape and habitats, marine ecology, air and noise pollution, water flow and quality of Shing Mun River were the key SEA/environmental reasons behind the resistance.

c) Many respondents made their views explicit through SCPs expressing combined opposition to all five near shore reclamation sites. The SCPs and FB organised by the Student Union of CUHK constituted the biggest source of combined rejection of all five near shore reclamation sites.

d) Acceptance of the reclamation sites was also expressed in the form of combined acceptance of all sites through SCPs, with some groups in the construction industry providing the bulk of such combined acceptance.

e) A considerable number of general views towards the proposals without naming specific sites were received. The potential impact on the habitats of CWDs, concerns about ecological conservation, and potential impact on landscape or habitats along shorelines were most frequently mentioned among the main reasons cited against reclamation proposals in general.

f) There were relatively fewer specific objections to Sunny Bay and Tsing Yi Southwest. The number of specific objections to artificial islands in the central waters was also comparatively small.

10 Strategic Environmental Monitoring and Audit (SEM&A) Plans

The follow-up actions / mitigation measures which would be implemented by the relevant departments / parties are presented in this section. It should be reminded that some of the follow-up actions / mitigation measures are initially recommended for further consideration. The common follow-up works to be taken for the shortlisted sites are shown in **Table 10.1** below.

Table 10.1 Common follow-up works for the shortlisted sites and artificial islands

Potential Site	Major Follow-up Work/Action
5 shortlisted nearshore reclamation sites 1. Siu Ho Wan 2. Sunny Bay 3. Southwest Tsing Yi 4. Ma Liu Shui 5. Lung Kwu Tan Artificial islands in the central waters	Technical assessments and studies, such as planning and engineering feasibility studies, statutory EIAs (Reclamations (under Item C of Schedule 2) and engineering feasibility studies of urban development projects with study areas more than 20 ha or involving population of more than 100 000 (under Schedule 3) are Designated Projects under the EIAO. There would also be other potential Designated Project elements on the shortlisted reclamation sites and artificial islands.), etc.

10.1 Siu Ho Wan

Further specific assessments and follow-up works for this Shortlisted Site shall be conducted to resolve and address the strategic key environmental issues discussed in previous sections which are highlighted in the following:

- Cumulative environmental impact assessment to assess quantitatively the total environmental effects of the potential reclamations on ecology, fisheries, air quality and water quality;
- Site Specific Chinese White Dolphin Field Monitoring Survey;
- Liaison with AFCD on the Committed Marine Park in the Brothers;
- Confirmation from HKAA/CAD on the NEF 25 Contour for the 3-runway for the land use proposal of the reclamation;
- Negotiation with WSD for the relocation of Sham Shui Kok Chlorine Transshipment Dock, or any other possible measure to settle the hazard to life issue;
- Negotiation with WSD for the relocation of Siu Ho Wan Water Treatment Works, or any other possible measure to settle the hazard to life issue; and

- Key issues particularly to be assessed including ecological impacts and land use interfacing issues with different NIMBY/industrial facilities/uses in the vicinity.

10.2 Sunny Bay

Further specific assessments and follow-up works for this Shortlisted Site shall be conducted to resolve and address the strategic key environmental issues discussed in previous sections which are highlighted in the following:

- Cumulative environmental impact assessment to assess quantitatively the total environmental effects of the potential reclamations on ecology, fisheries, air quality and water quality;
- Site Specific Chinese White Dolphin Field Monitoring Survey;
- Confirmation from HKAA/CAD on the NEF 25 Contour for the 3-runway for the land use proposal of the reclamation;
- Liaison with AFCD on the Committed Marine Park in the Brothers; and
- Key issues particularly to be assessed including ecological impacts and aircraft noise impact.

10.3 Southwest Tsing Yi

Further specific assessments and follow-up works for this Shortlisted Site shall be conducted to resolve and address the strategic key environmental issues discussed in previous sections which are highlighted in the following:

- Negotiation with Shell HK Ltd., Chevron HK Ltd., ExxonMobil HK Ltd and Sinopec (HK) Ltd. on the relocation of the five Potentially Hazardous Installations (PHIs) for comprehensive planning and development of the sites with the reclamation, or any other possible measure to settle the hazard to life issue;
- Negotiation with Yiu Lian Dockyards Ltd., Hong Kong United Dockyards Ltd. and Euroasia Dockyards Enterprise and Development Ltd., and Tien Chu Industrial Centre etc. on the relocation of the various NIMBY/industrial uses/facilities for comprehensive planning and development of the sites with the reclamation;
- Liaison with relevant bureau/ departments for coordination with the proposals of Container Terminal 10 study; and
- Key issues particularly to be assessed including hydrodynamic and water quality impact due to potential impact on HATS discharge, cumulative air quality impact including marine emission, etc.

10.4 Ma Liu Shui

Further specific assessments and follow-up works for this Shortlisted Site shall be conducted to resolve and address the strategic key environmental issues discussed in previous sections which are highlighted in the following:

- Negotiation with Marine Police for the relocation of Marine Police headquarter (including helipad) for comprehensive planning and development of the reclamation with the site of Marine Police headquarter;
- Negotiation with DSD for comprehensive planning and development of the reclamation with the site of Shatin STW; and
- Key issues particularly to be assessed including road traffic noise, railway noisc, etc.

10.5 Lung Kwu Tan

Further specific assessments and follow-up works for this Shortlisted Site shall be conducted to resolve and address the strategic key environmental issues discussed in previous sections which are highlighted in the following:

- Cumulative environmental impact assessment to assess quantitatively the total environmental effects of the potential reclamations on ecology, fisheries, air quality and water quality;
- Site Specific Chinese White Dolphin Field Monitoring Survey;
- Archaeological field survey; and
- Key issues particularly to be assessed including ecological impacts and land use interfacing issues with different NIMBY/industrial facilities/uses in the vicinity, including power stations, ecopark, cement plant, steel mill, landfills, different waste facilities, etc..

10.6 Artificial Islands in Central Waters

Further specific assessments and follow-up works for artificial islands in the central waters shall be conducted to resolve and address the strategic key environmental issues discussed in previous sections which are highlighted in the following:

- Strategic studies on the engineering feasibility and environmental acceptability of the proposed artificial islands in the central waters; and
- Key issues particularly to be assessed including hydrodynamic and water quality impacts, ecological and fisheries impacts, etc.

11 Conclusion

SEA has been carried as part of the study to provide environmental consideration in each step of the site selection process. SEA has identified that the potential sites for reclamation have different environmental issues/constraints and there are no highly environmental favourable potential reclamation sites. Each of the shortlisted sites and artificial islands for reclamation has different potential environmental issues/constraints and opportunities. In the future, further studies/assessments, statutory EIAs and town planning processes will be needed to confirm the environmental acceptability of these different shortlisted sites for reclamation and artificial islands before their construction programmes commence.

11.1 Site Selection Process

Apart from other considerations, the study involved SEA to take into account environmental consideration throughout the site selection process of reclamation sites, including the following:

a) In the territorial constraint mapping exercise, 48 pre-longlisted reclamation sites were identified taking into account environmental "Stop Areas" and "Constrained Areas" and avoiding different environmental significant/sensitive areas which are prohibited for development.

b) In the longlisting stage, 27 longlisted reclamation sites were identified with reference to the environmental-related site selection criteria consulted in the Stage 1 PE, including environmental impacts and benefits and planning/land use considerations.

c) In the broad technical assessment stage, broad environmental assessment was carried out on the 27 longlisted reclamation sites to identify the key environmental issues/constraints and possible mitigation measures.

d) In the site shortlisting stage, the 27 longlisted reclamation sites were further evaluated and compared with reference to the broad environmental assessment findings adopting some indicators on environmental performance and eastern, central and western waters were compared. Five nearshore reclamation sites were shortlisted and artificial islands in the central waters were identified for the Stage 2 PE.

11.2 Shortlisted Sites and Artificial Islands for Reclamation

The five shortlisted nearshore reclamation sites are:

- Siu Ho Wan
- Sunny Bay
- Southwest Tsing Yi
- Ma Liu Shui
- Lung Kwu Tan

Besides, the site shortlisting exercise has identified there is great development potential for artificial islands in the central waters that worth further exploring. As regards the option of artificial islands, we have reviewed the eastern waters, the central waters and the western waters of Hong Kong. The eastern waters are of high ecological value whilst the western waters are already heavily constrained by a number of major infrastructure projects. The central waters however are relatively less ecologically sensitive. There are many other considerations that need to be studied further (e.g. impacts on fairways, anchorage areas, ferry routes, port operation, marine traffic, water flow and water quality, ecology, fisheries, etc.) in a strategic way. Despite the great development potential for artificial islands in the central waters, the approximate location and extent of artificial islands could only be ascertained subject to further studies.

It is worth to highlight that throughout the entire site selection process under the Study, the SEA identified different environmental and planning issues of all the sites assessed. Due to environmental/planning constraints throughout the territory and other consideration factors, these shortlisted nearshore reclamation sites and artificial islands in the central waters also have different potential environmental issues. Reclamations (under Item C of Schedule 2) and engineering feasibility studies of urban development projects with study areas more than 20 ha or involving population of more than 100 000 (under Schedule 3) are Designated Projects under the EIAO. There would also be other potential Designated Project elements on the shortlisted reclamation sites and artificial islands. It is important that the shortlisted sites and artificial islands in the central waters are required to go through planning and engineering feasibility studies, statutory processes under the EIAO, statutory planning processes under the Town Planning Ordinance, further detailed studies/assessments, etc. and public consultations in future to confirm their environmental acceptability. The SEA has identified the following key potential environmental issues of the shortlisted sites and artificial islands in the central waters:

Siu Ho Wan

- Impacts on different ecological significant/sensitive species/areas, such as Chinese White Dolphins, committed marine park, SSSI, horseshoe crabs, mangroves, etc. and fisheries areas;
- Different land use interfacing issues given many NIMBY/industrial uses/facilities located in the vicinity;
- Hazard to life issues given water treatment works and chorine transshipment dock located in the vicinity of Siu Ho Wan;
- Road traffic noise and vehicular emission and railway noise from the nearby major road and rail networks; and
- Aircraft and helicopter noise.

Sunny Bay

- Impacts on ecological significant/sensitive species/areas, such as Chinese White Dolphins, committed marine park, mangroves and seagrass bed, etc.;
- Aircraft and helicopter noise; and

- Road traffic noise and vehicular emission and railway noise from the nearby major road and rail networks.

Southwest Tsing Yi

- Hazard risk given five oil depots/terminals located in the vicinity requiring relocation of these PHIs before development of the site;
- Different land use interfacing issues given many NIMBY/ industrial uses/facilities located in the vicinity;
- Hydrodynamic and water quality impacts due to impact on HATS discharge;
- Marine emission; and
- Road traffic noise and vehicular emission from the nearby major road networks.

Ma Liu Shui

- Odour from the STW and helicopter noise from the Marine Police's helipad in the vicinity requiring comprehensive development of the site together with the STW and marine police sites; and
- Road traffic noise and vehicular emission and railway noise from the nearby major road and rail networks.

Lung Kwu Tan

- Impacts on different ecological significant/sensitive species/habitats, such as Chinese White Dolphins, marine park and committed marine park, SSSIs, horseshoe crabs, etc. and fisheries areas;
- Different land use interfacing issues given many NIMBY/industrial uses/facilities located in the vicinity;
- Marine emission; and
- Road traffic noise and vehicular emission from the nearby major road networks.

Artificial Islands in Central Waters

- Impacts on different ecological/fisheries significant/sensitive species/areas, such as finless porpoises, corals, fish production areas, proposed and potential marine parks, coastal protection areas, etc.; and
- Hydrodynamic and water quality impacts due to impact on HATS discharge.

These shortlisted nearshore reclamation sites and the artificial islands in the central waters were taken forward for consultation in PE2, while the remaining sites may be studied further if opportunities arise in the future.

11.3 Works Ahead of the Shortlisted Sites and Artificial Islands for Reclamation

The shortlisted reclamation sites will also potentially give rise to cumulative impacts to the environment. To address public concerns regarding potential cumulative impacts due to potential reclamation sites, their potential impacts on Chinese White Dolphin habitats and other ecological/fisheries sensitive areas, their cumulative environmental impacts with various ongoing/committed/planned/proposed development projects, such as airport 3rd runway, Tung Chung new town extension development, Hong Kong – Zhuhai – Macau bridge-related developments, etc., different land use interfacing issues potentially induced, and other potential issues/constraints, the government has commissioned separate consultancies to undertake assessments and explore mitigation measures in advance:

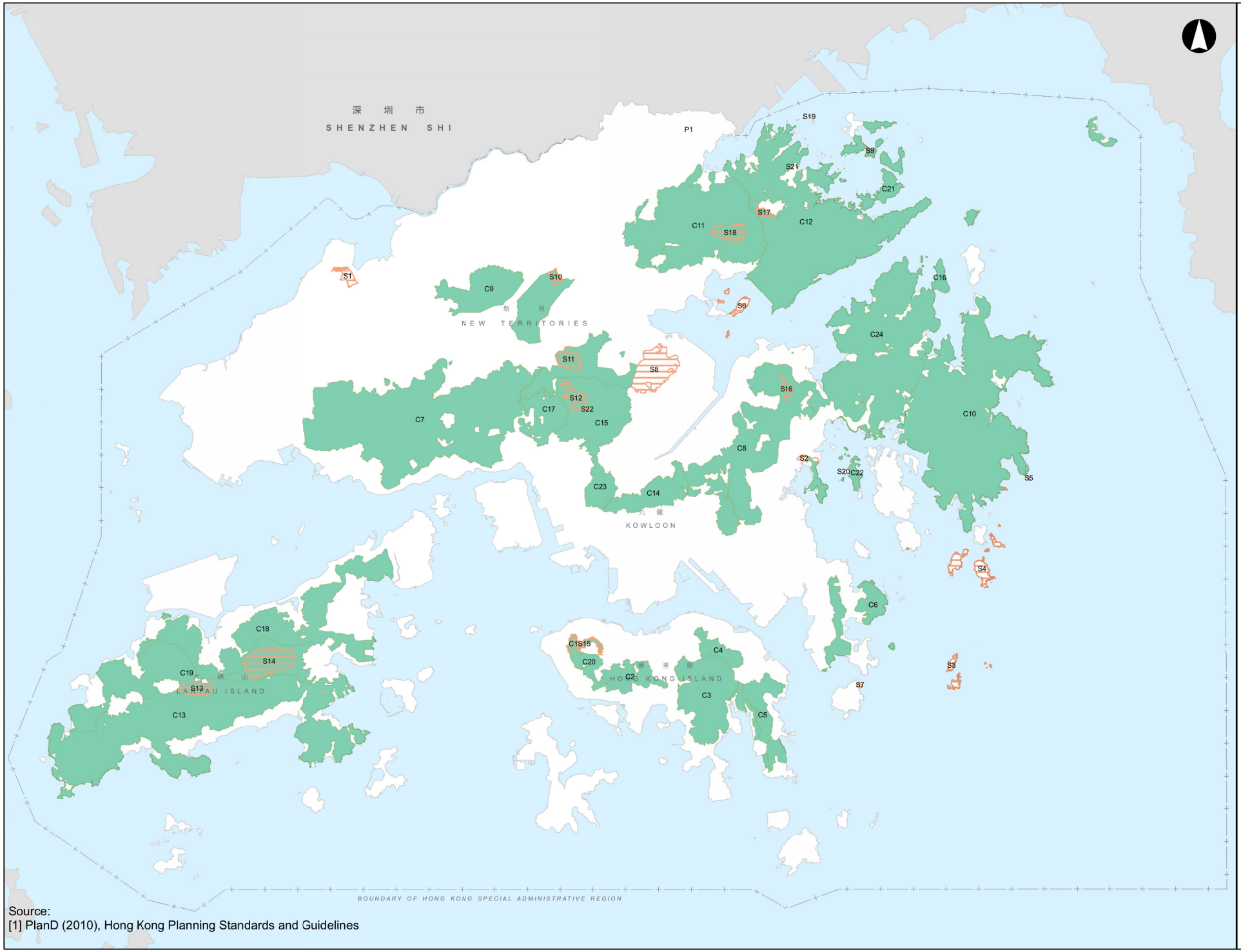
- CWD monitoring in shallow water of Lung Kwu Tan, Siu Ho Wan and Sunny Bay;
- Cumulative Environmental Impact Assessment (CEIA) Study for the Three Potential Nearshore Reclamation Sites in Western Waters of Hong Kong to assess quantitatively the total environmental effects of the potential reclamations on ecology, fisheries, air quality and water quality; and
- Strategic Study on Artificial Islands in the central waters, which is yet to be commissioned.

With reference to the findings of the above separate consultancies and other projects, the government will carry out further detailed studies including planning and engineering feasibility studies and will go through the statutory processes under the EIAO and the Town Planning Ordinance, etc. and public consultations for the shortlisted reclamation sites and artificial islands in the central waters, during which the details of the development proposals, including the reclamation extents, development parameters, mitigation works, etc. will be developed and further discussed with the public.

Figures

Appendix A

Environmental Resources and Constraints for 27 Recommended Longlisted Sites



Source:
[1] PlanD (2010), Hong Kong Planning Standards and Guidelines

Legend

- Country Park
- Special Area

Issue	Date	By	Chkd	Appd
01	2013-09-28	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

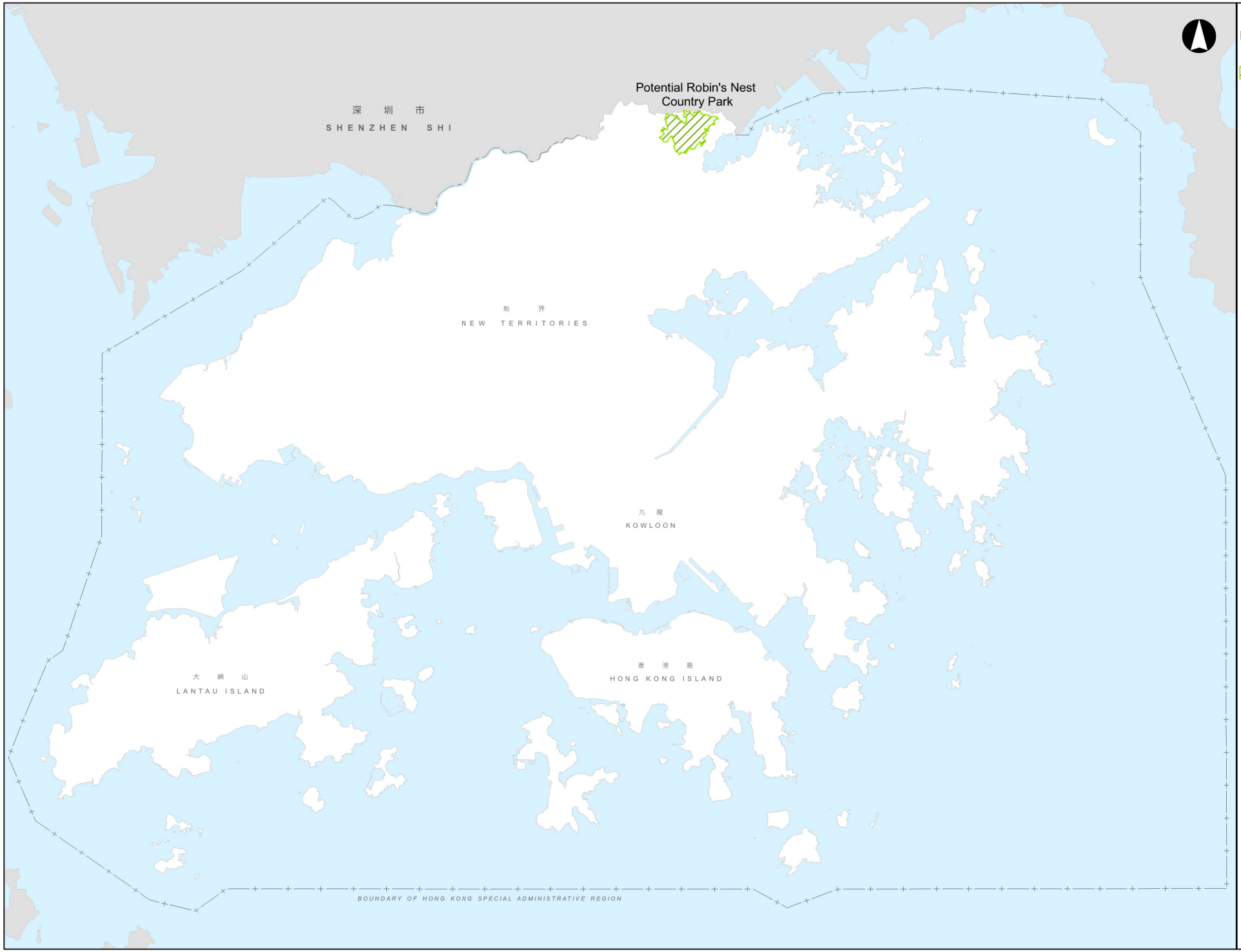
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Country Parks and Special Areas in Hong Kong

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	1	D3



Legend

Potential Robin's Nest Country Park

Issue	Date	By	Chkd	Appd
01	2013-09-26	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

Level 17 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Potential Country Park in Hong Kong

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
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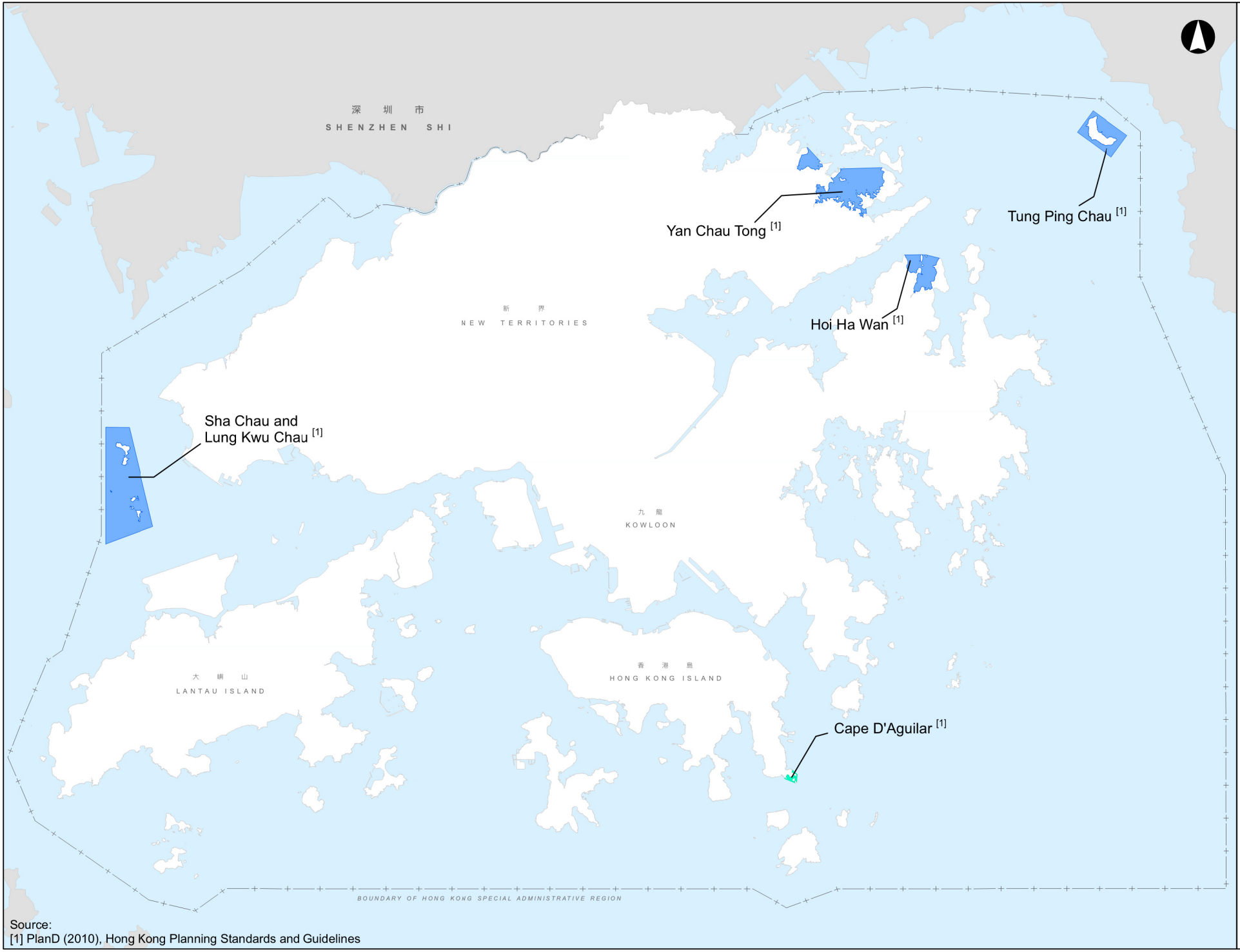

Source:
[1] PlanD (2010), Hong Kong Planning Standards and Guidelines

Legend

- Marine Park
- Marine Reserve

Issue	Date	By	Chkd	Appd
01	2013-09-26	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

Level 5 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Marine Parks and Marine Reserve

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
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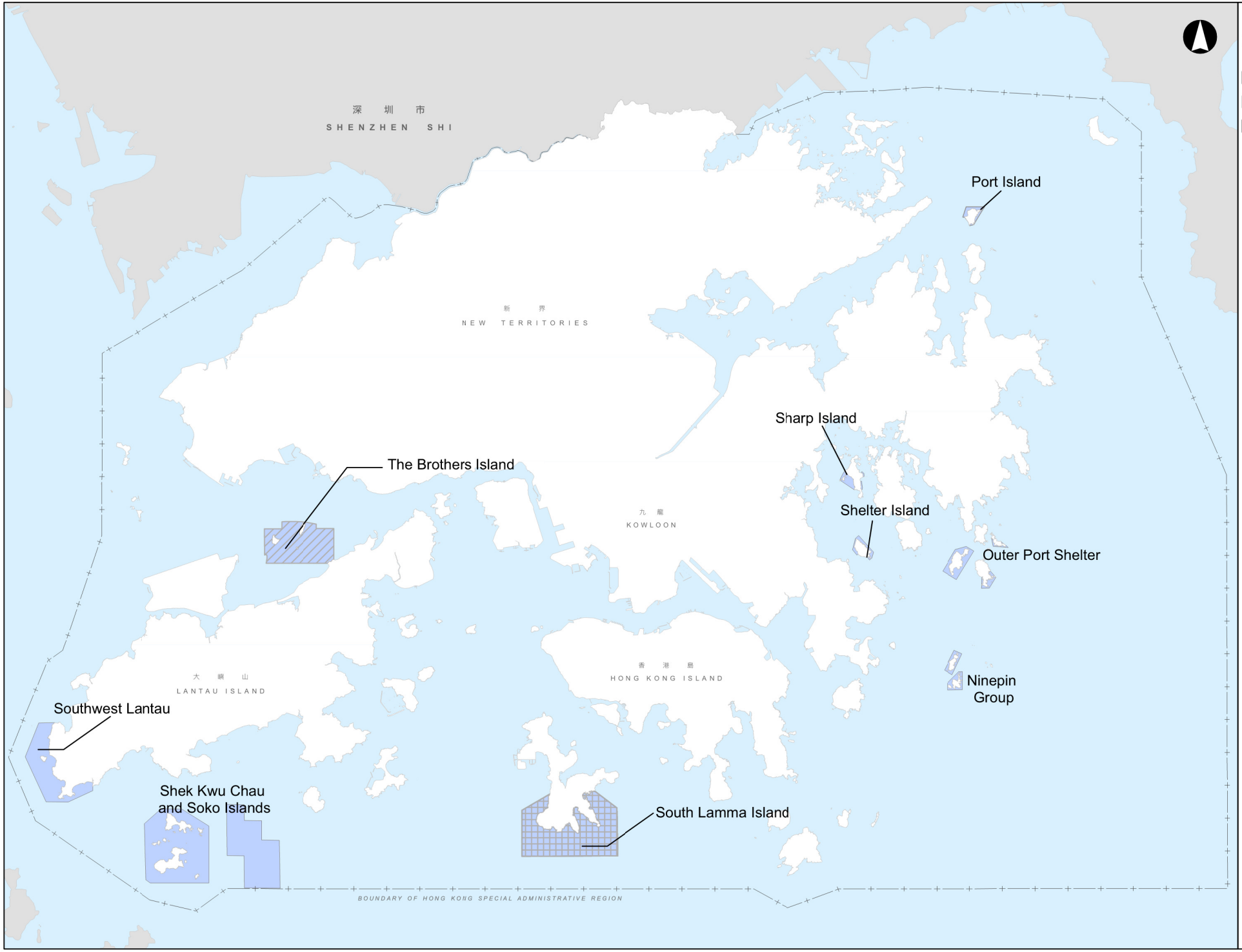

Legend

- Committed Marine Park
- Proposed Marine Park
- Potential Marine Park

Issue	Date	By	Chkd	Appd
01	2013-09-26	BC	KL	ST

Kilometres
0 1.25 2.5 5 7.5

Level 5 Festival Walk
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Hong Kong

Client
Civil Engineering and Development Department

Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Committed, proposed, and Potential Marine Parks

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
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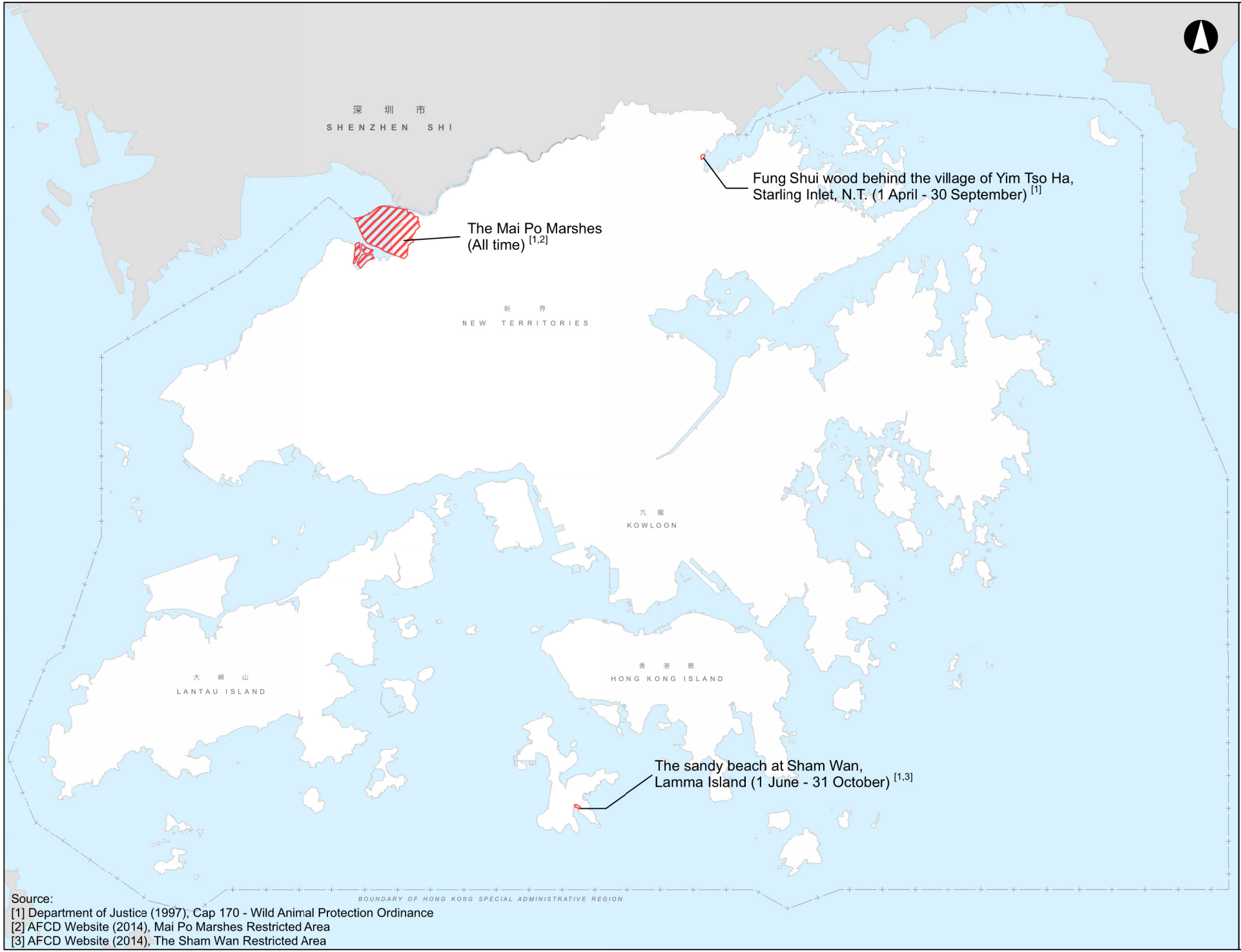


Source:
[1] Department of Justice (1997), Cap 170 - Wild Animal Protection Ordinance
[2] AFCD Website (2014), Mai Po Marshes Restricted Area
[3] AFCD Website (2014), The Sham Wan Restricted Area

Legend

Restricted Area under WAPO

Issue	Date	By	Chkd	Appd
01	2013-09-04	BC	KL	ST

Kilometers 0 1.25 2.5 5 7.5

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

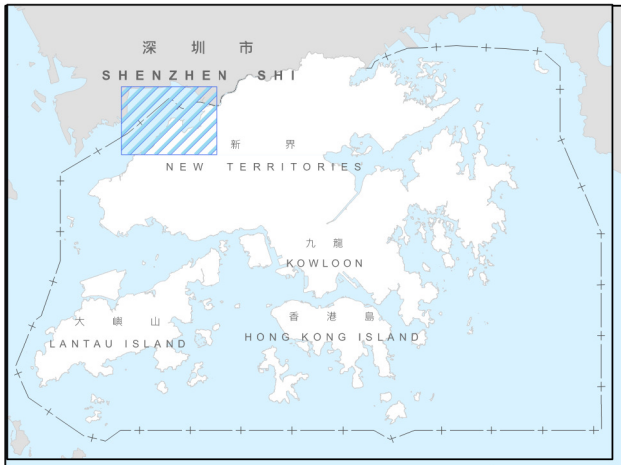
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Restricted Areas under the Wild Animals Protection Ordinance in Hong Kong

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	5	D3



BOUNDARY OF HONG KONG SPECIAL ADMINISTRATIVE REGION

Legend

- Ramsar Site [1]
- Mai Po Nature Reserve [2]

Source:
[1] AFCD (2010), Mai Po Inner Deep Bay Ramsar Site Management Plan
[2] WWF (2006-2010), Management Plan for the Mai Po Marshes Wildlife Education Centre and Nature Reserve

Issue	Date	By	Chkd	Appd
03	2013-09-04	SC	KL	ST

Kilometers
0 0.25 0.5 1 1.5

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

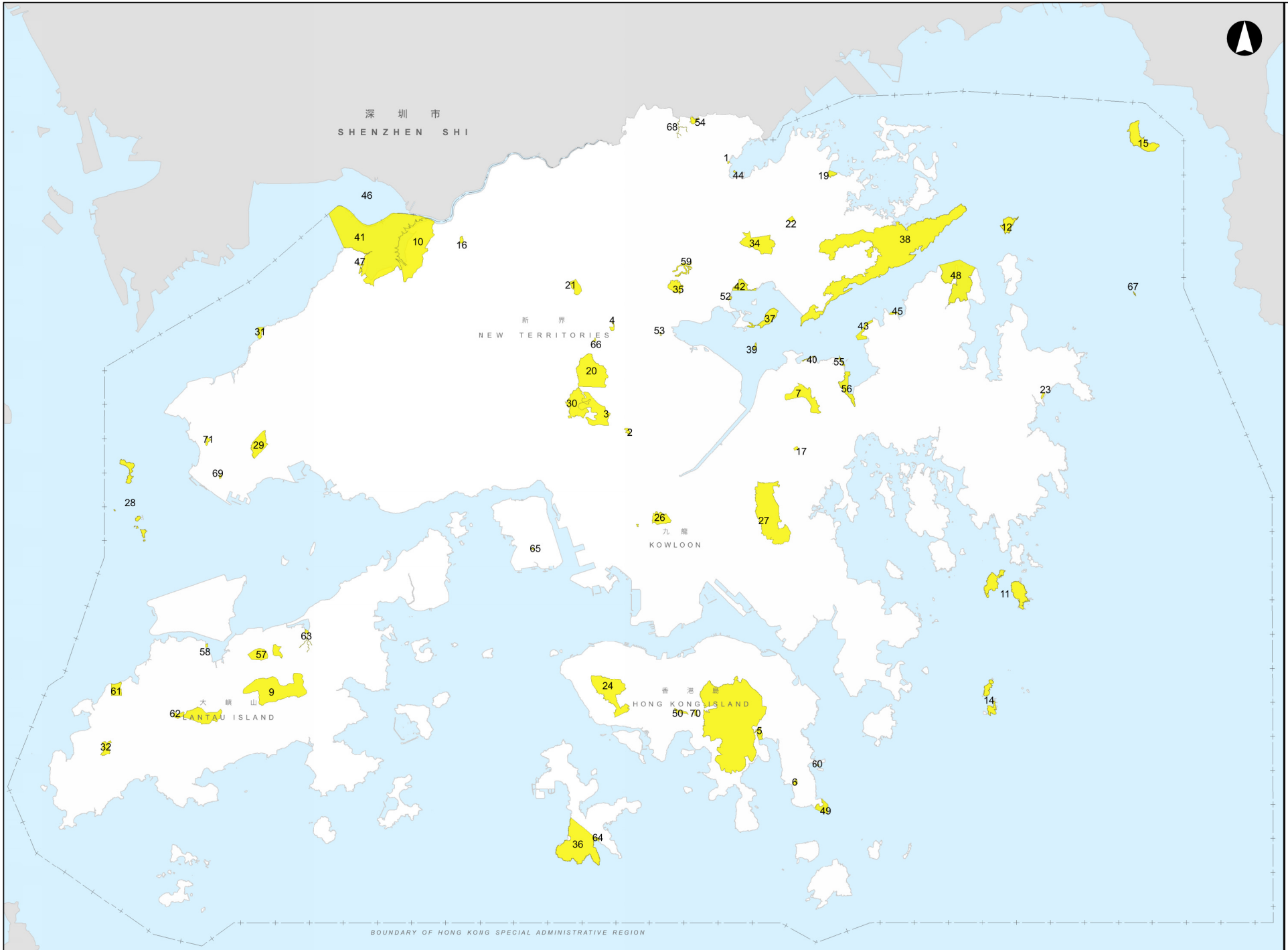
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Ramsar Site, Mai Po Nature Reserve

Scale at A3
1:35,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	6	D3



Source:
[1] Agriculture, Fisheries and Conservation Department

Legend

Site of Special Scientific Interest

Id	Name
1	Yim Tso Ha Egretry
2	Sheng Mun Fung Shui Woodland
3	Tai Mo Shan Montane Scrub Forest
4	She Shan Fung Shui Woodland
5	Tai Tam Harbour (Inner Bay)
6	D'Aguilar Peninsula
7	Ma On Shan
9	Sunset Peak
10	Mai Po Marshes
11	Bluff Island & Balsalt Island
12	Port Island
14	Ninepin Group
15	Ping Chau
16	Mai Po Village
17	Mau Ping
19	Lai Che Wo Beach
20	Ho Tung Chau
21	Pak Tai To Yan
22	Cho Kung Tam
23	Tai Long Bay
24	Pok Fu Lam Reservoir Catchment Area
25	Tai Tam Reservoir Catchment Area
26	Beacon Hill
27	Ho Chung Valley
28	Lung Kwu Chau, Tree Island & Sha Chau
29	Castle Peak
30	Tai Mo Shan
31	Pak Nai
32	Man Chung Po
33	Lantau Peak
34	Pat Sin Range
35	Fung Yuen Valley
36	South Lamma Island
37	Yim Tin Tsai and Ma Shi Chau
46	Inner Deep Bay
41	Tsim Bei Tsui
47	Tsim Bei Tsui Egretry
69	Siu Lang Shui
61	San Chau
58	San Tau Beach
57	Pok To Yan and Por Kai Shan
62	Ngong Ping
65	South Tsing Yi
64	Sham Wan
50	Ham Fung Road Woodland
70	Deep Water Bay Valley
49	Hok Tsui (Cape D'Aguilar)
60	Shek O Headland
63	Tai Ho Stream
66	Tai Om Fung Shui Woodland
68	Lin Ma Hang Stream
54	Lin Ma Hang Lead Mines
44	A Chau
38	Tolo Channel (Northern Coast)
48	Hoi Ha Wan
45	Lai Chi Chong
43	Sham Chung Coast
40	Nai Chung Coast
55	Tsuen Tau Coast
56	Kei Ling Ha Mangal
67	Shek Ngau Chau
53	Tai Po Egretry
39	Centre Island
52	Shuen Wan Egretry
42	Ting Kok
59	Sha Lo Tung
71	Lung Kwu Tan Valley

Issue	Date	By	Chkd	Appd
01	2013-09-26	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

Level 17 Festival Walk
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Hong Kong

Client
Civil Engineering and Development Department

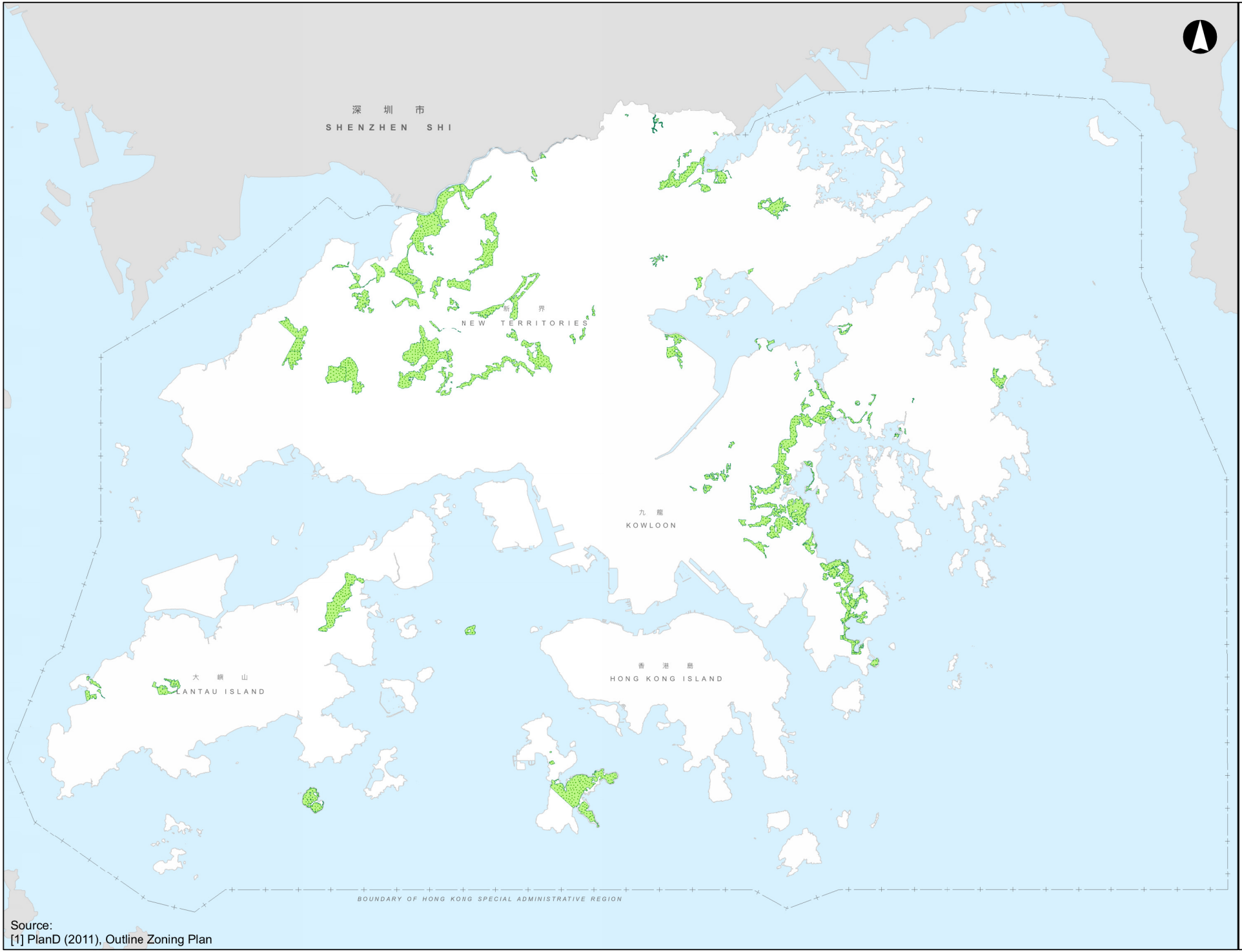
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Location of Site of Special Scientific Interest in Hong Kong

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	7	D3



Source:
[1] PlanD (2011), Outline Zoning Plan

Legend

Conservation Area

Issue	Date	By	Chkd	Appd
03	2013-09-04	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

Level 1-7 and 41-44
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

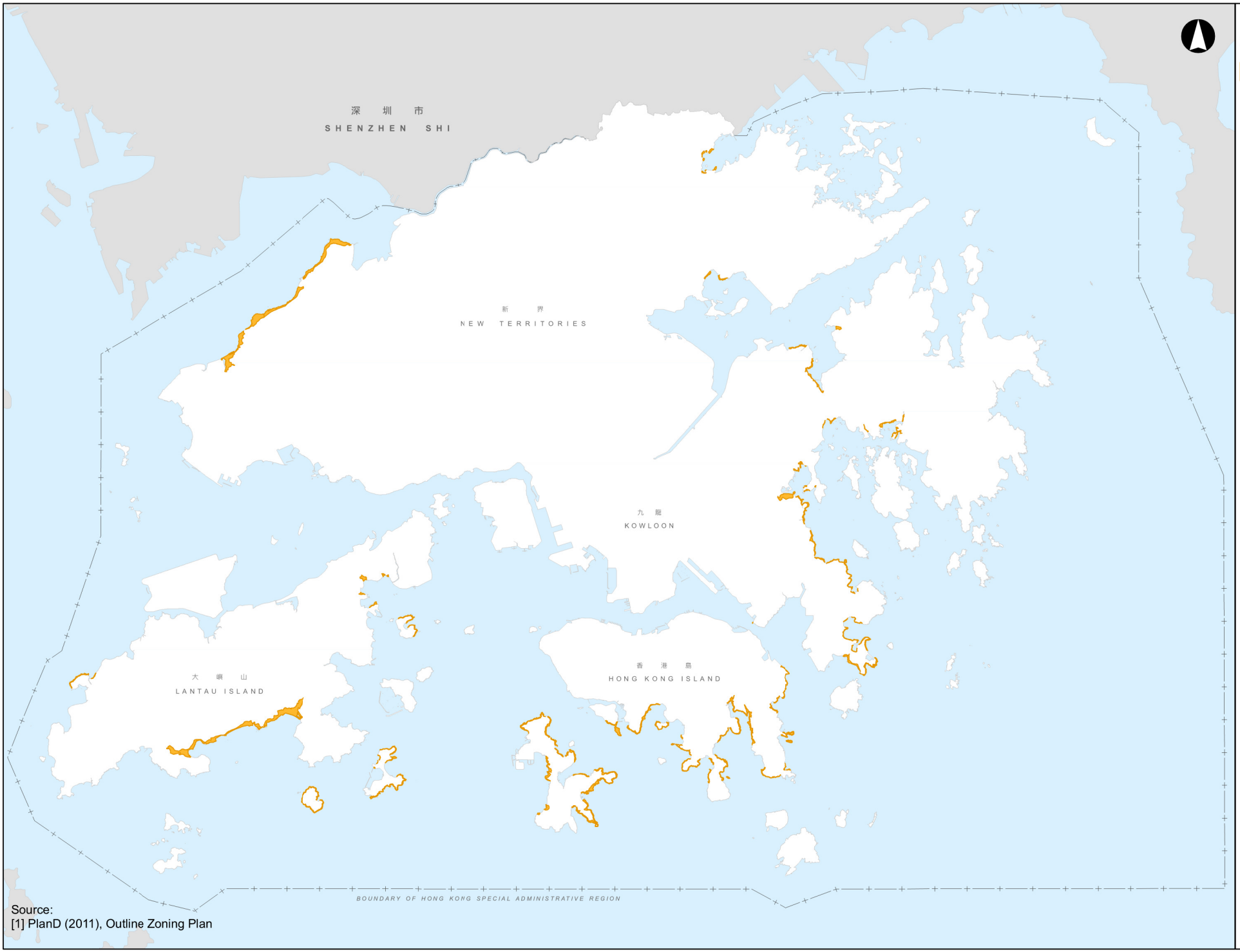
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Locations of Conservation Areas in Hong Kong

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	8	D3



Source:
[1] PlanD (2011), Outline Zoning Plan

Legend

Coastal Protection Area

Issue	Date	By	Chkd	Appd
01	2013-09-04	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

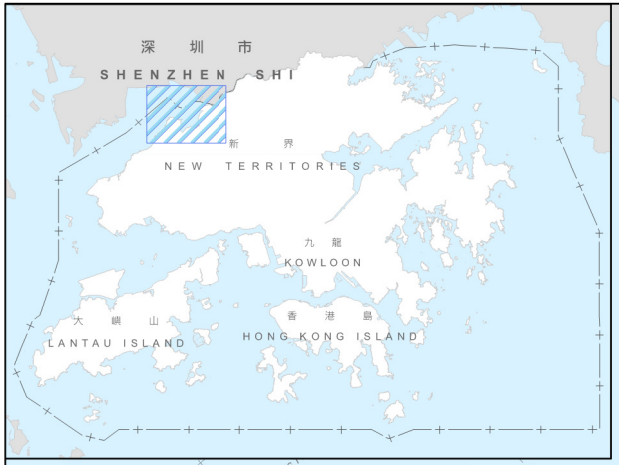
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Locations of Coastal Protection Areas in Hong Kong

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	9	D3



BOUNDARY OF HONG KONG SPECIAL ADMINIST

Legend

- Wetland Buffer Area
- Wetland Conservation Area

Issue	Date	By	Chkd	Appd
03	2013-09-04	BC	KL	ST

Kilometers
0 120 0.5 1 1.5

Level 1-7 and 43 Wah
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

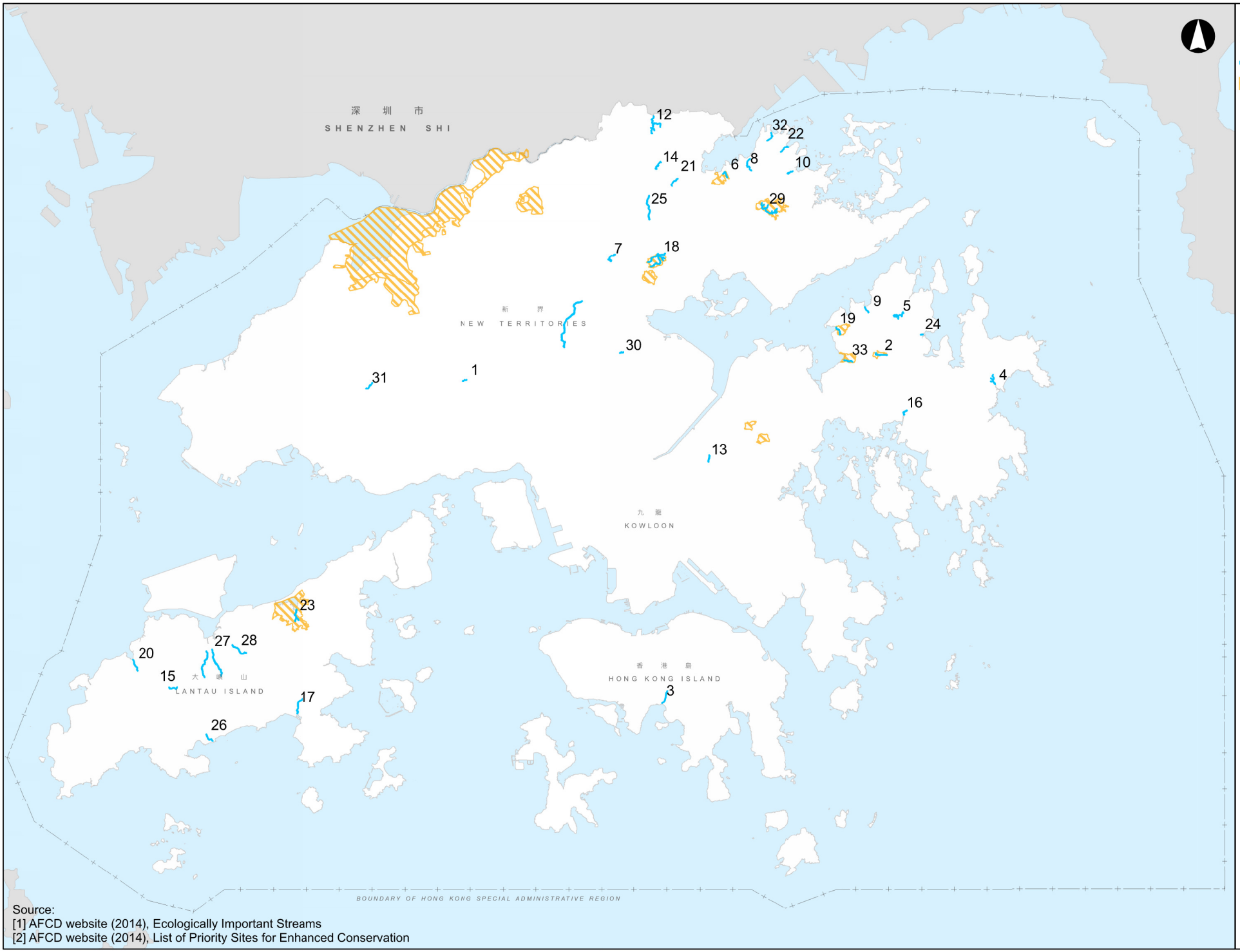
Drawing Title
Locations of Wetland Conservation Area and Wetland Buffer Area

Scale at A3
1:35,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	10	D3

Source:
[1] PlanD (1999), Town Planning Board Guidelines for Application for Developments within Deep Bay Area TPB PG-No. 12B



Source:
[1] AFCD website (2014), Ecologically Important Streams
[2] AFCD website (2014), List of Priority Sites for Enhanced Conservation

Legend

Ecologically Important Stream

Priority Sites for Enhanced Conservation

Issue	Date	By	Chkd	Appd
01	2013-09-04	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

Level 5 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

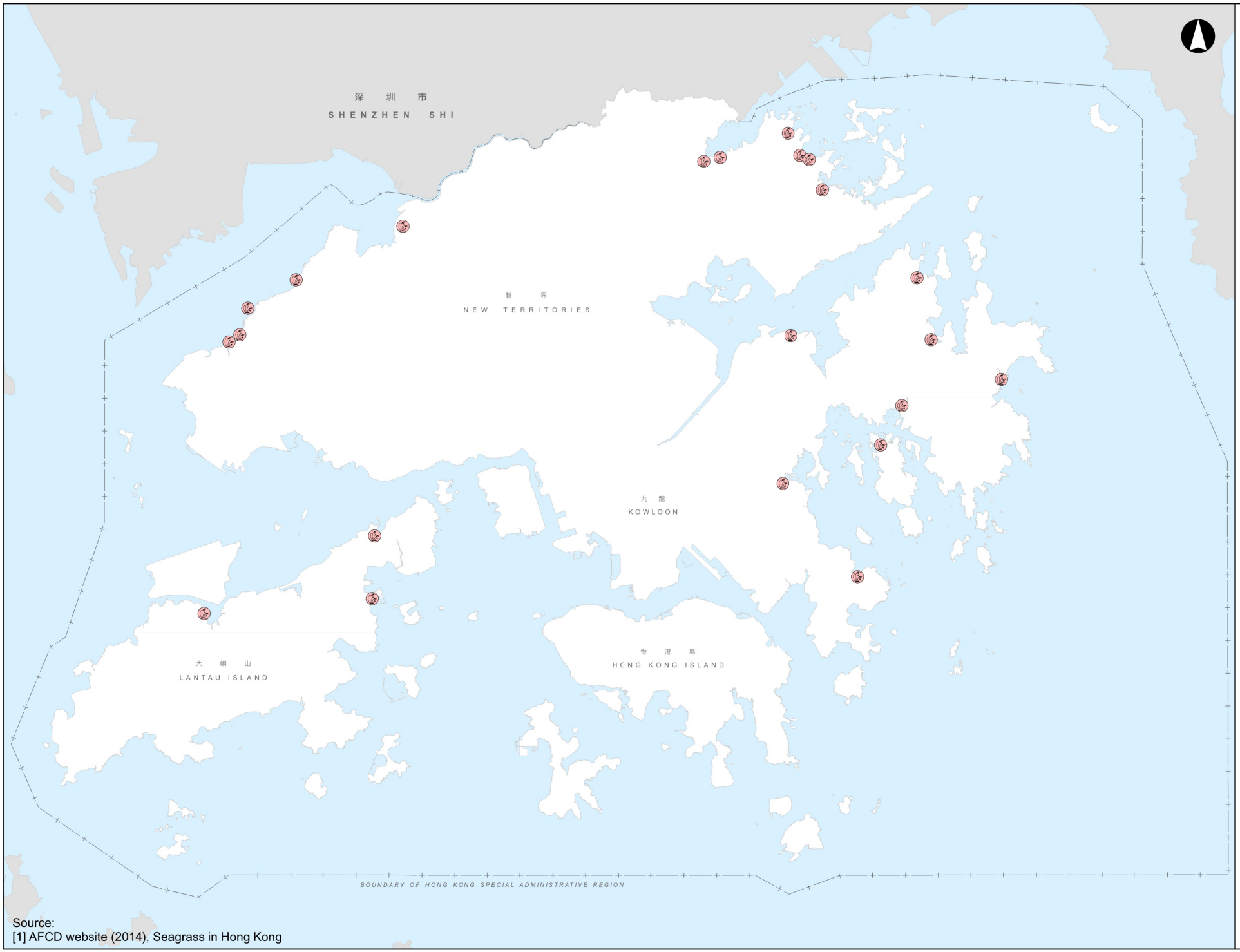
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Locations of Priority Sites for Enhanced Conservation and Ecologically Important Streams (EIS)

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	11	D3



Source:
[1] AFCD website (2014), Seagrass in Hong Kong

Legend

Seagrass

Issue	Date	By	Chkd	Appd
01	2013-09-24	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

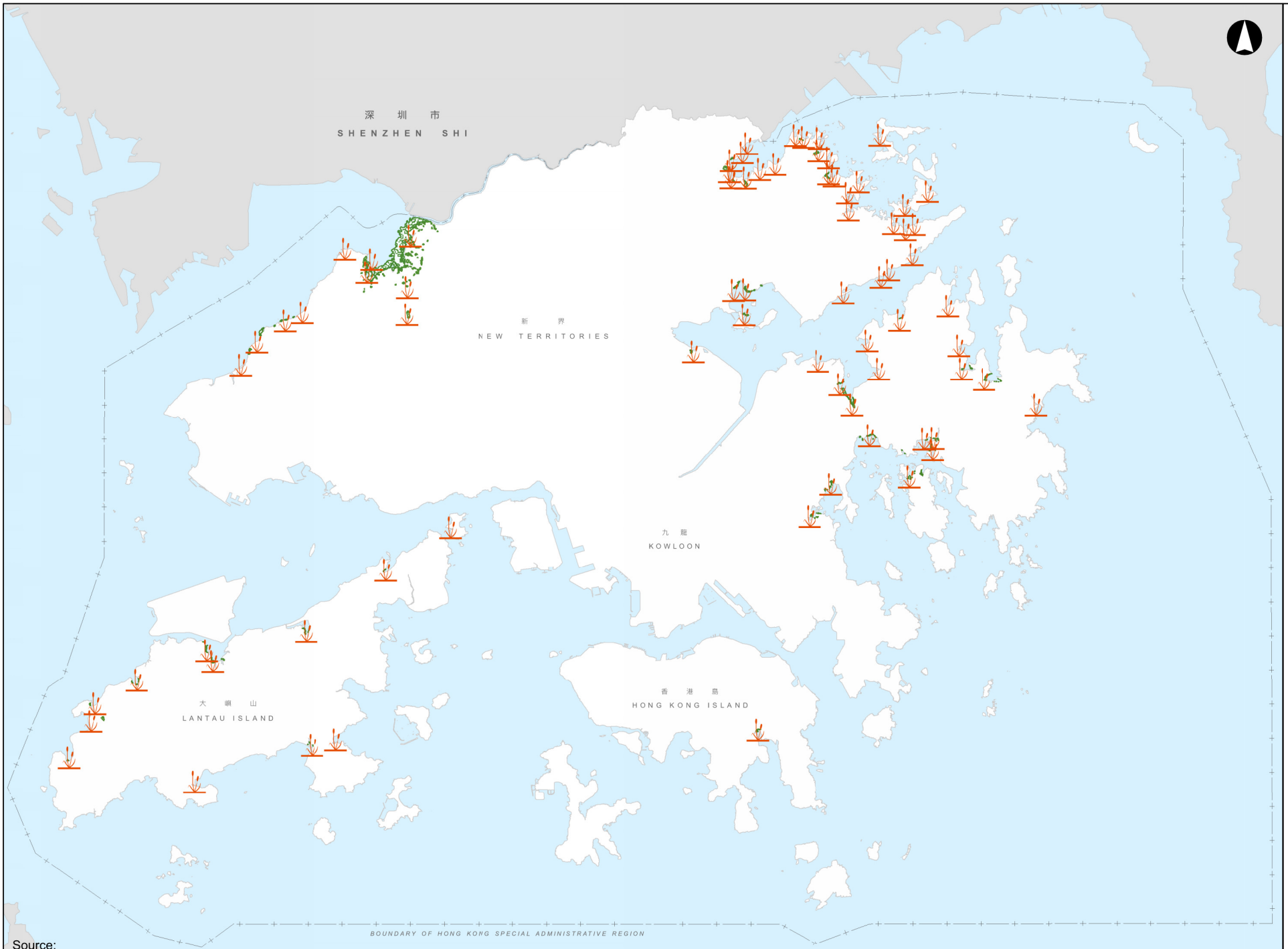
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Locations of Seagrass Beds

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	12	D3



Source:
[1] ERM (2009), 2008 update of Terrestrial Habitat Mapping and Ranking Based on Conservation Value
[2] AFCD Website (2014), Mangroves in Hong Kong: Distribution

Legend

- Mangrove (AFCD, 2011)[2]
- Mangrove[1]

Issue	Date	By	Chkd	Appd
01	2013-09-04	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

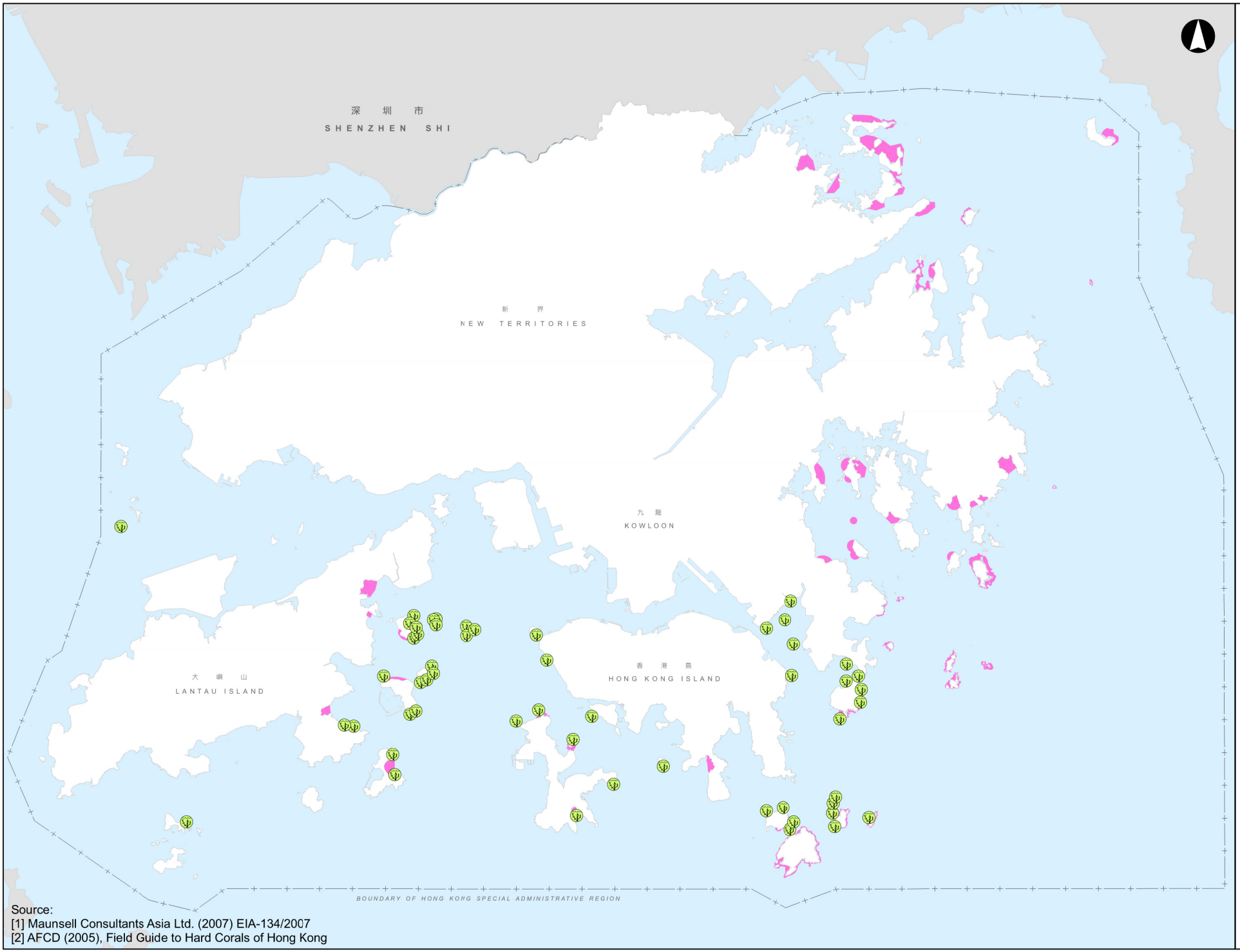
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Locations of Mangroves

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	13	D3



Legend

- Key Coral Area (EIA-134/2007)
- Key Coral Area

Issue	Date	By	Chkd	Appd
01	2013-09-04	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

Level 5 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, kowloon
Hong Kong

Client

Job Title

Drawing Title

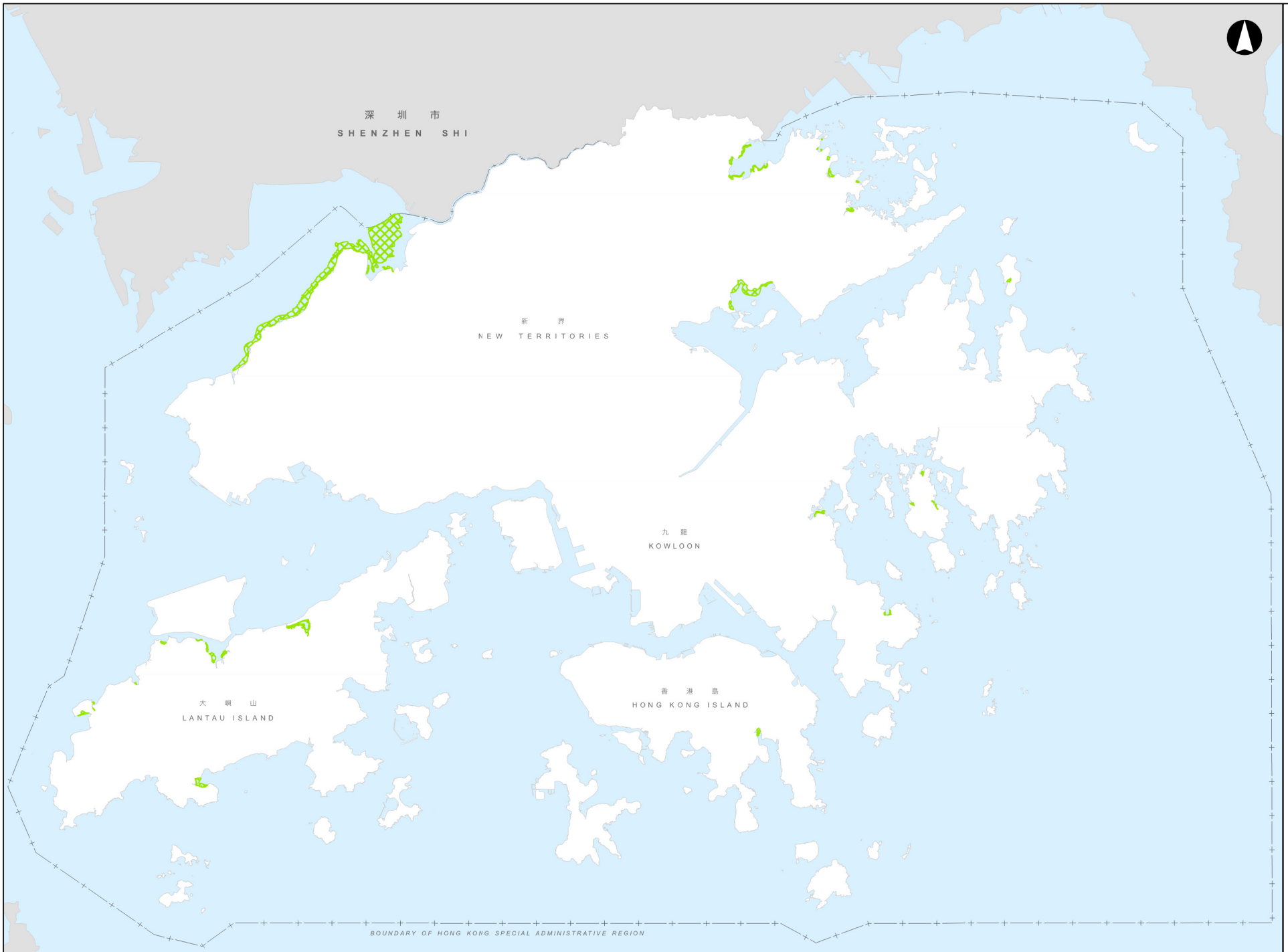
Locations of Key Coral Areas

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
	14	D3

Source:
[1] Maunsell Consultants Asia Ltd. (2007) EIA-134/2007
[2] AFCD (2005), Field Guide to Hard Corals of Hong Kong



Source:
[1] ERM (2009) 2008 update of Terrestrial habitat Mapping and Ranking Based on Conservation Value

Legend

Intertidal Mudflat

Issue	Date	By	Chkd	Appd
01	2013-09-04	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

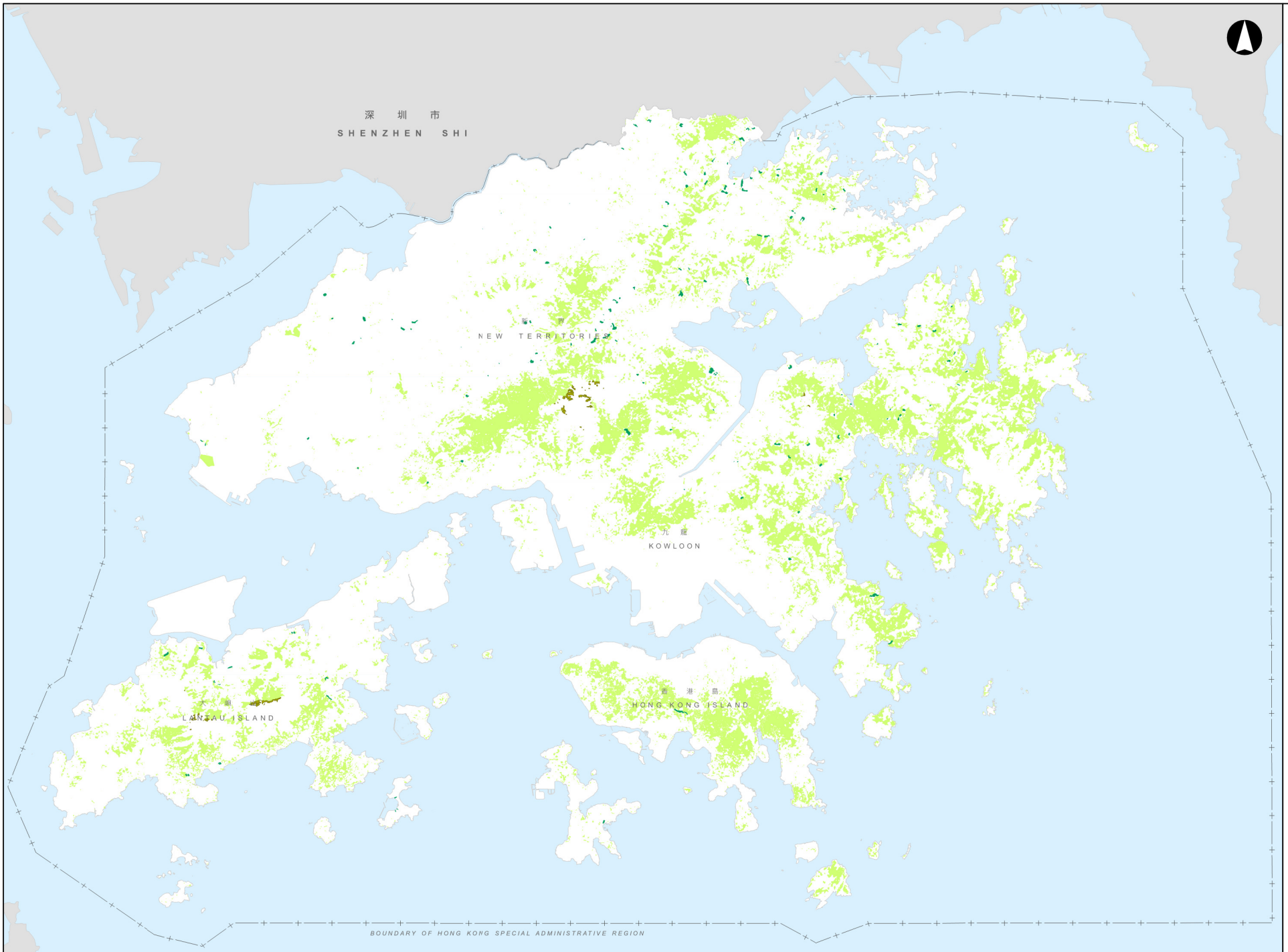
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Locations of Key Mudflat Areas

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	15	D3



Legend

- Fung Shui Woods
- Montane Forest
- Lowland Forest

Issue	Date	By	Chkd	Appd
01	2013-09-04	SC	KL	ST

Kilometers: 0, 1.25, 2.5, 5, 7.5

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

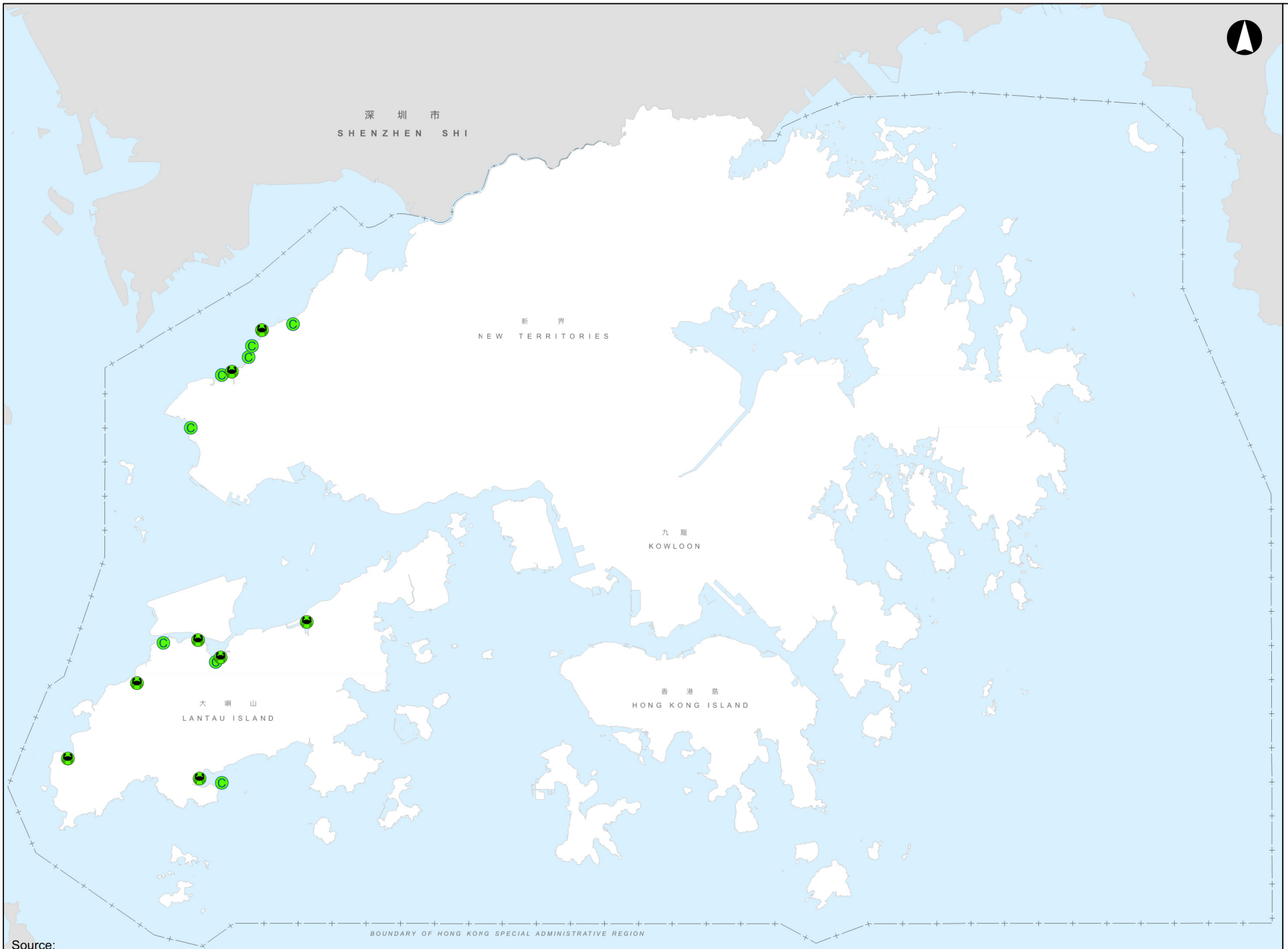
Drawing Title
Locations of Fung Shui Woods, Montane Forest and Lowland Forests

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	16	D3

Source:
[1] ERM (2009) 2008 update of Terrestrial habitat Mapping and Ranking Based on Conservation Value



Source:
[1] AFCD Website (2014), Horseshoe crabs in Hong Kong
[2] Morton (1999), Asian Marine Biology 16 (Based on survey between March 1993 to June 1998)

Legend

- Juveniles Horseshoe Crab Site (AFCD, 2011)[1]
- Juveniles Horseshoe Crab Site (Morton, 1993)[2]

Issue	Date	By	Chkd	Appd
01	2013-09-04	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

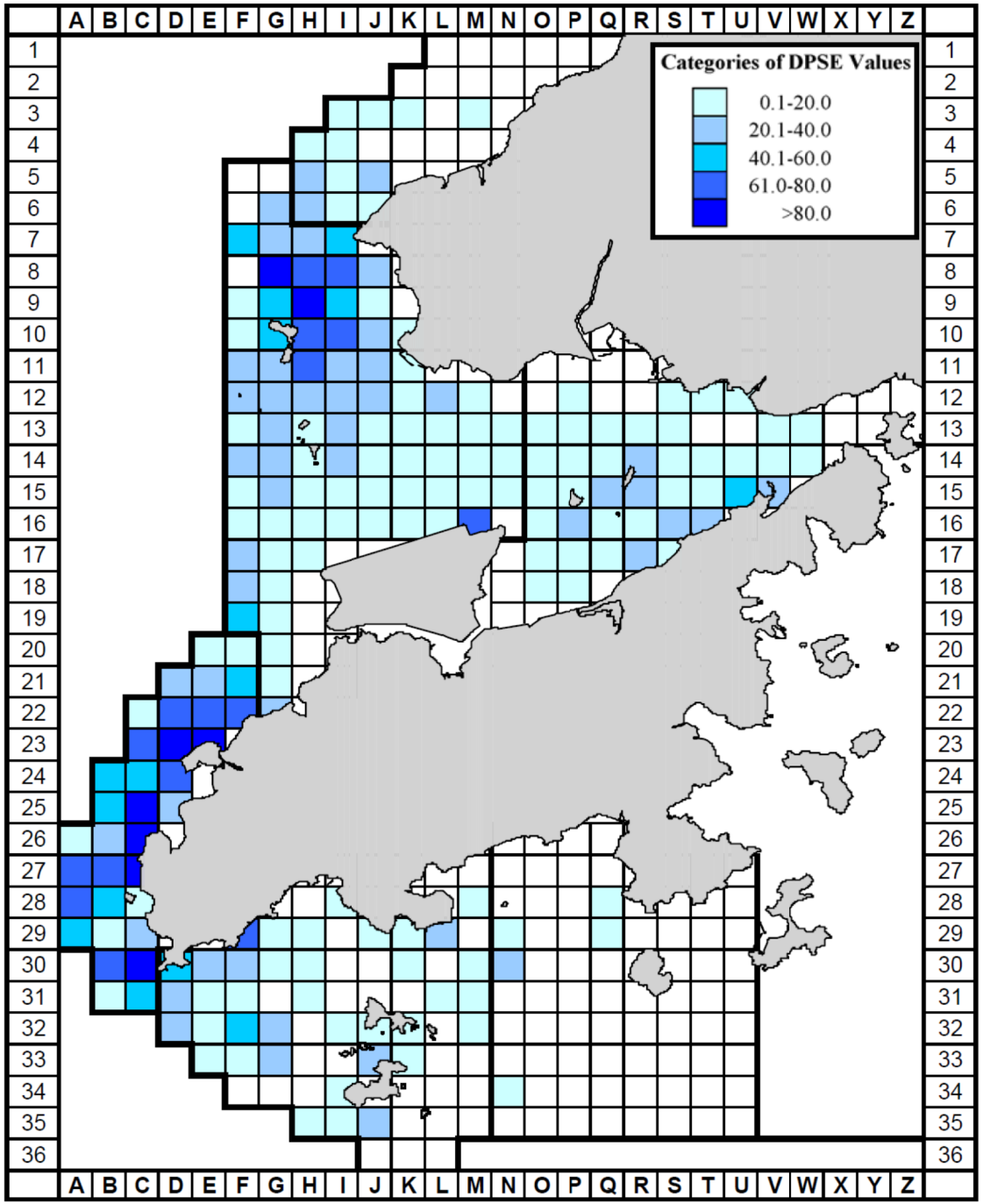
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Locations of these key *Juvenile* Horseshoe Crab sites

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	17	D3



Notes:
[1] Density of Chinese white dolphins with corrected survey effort per km^2 in waters around Lantau Island during 2008-12 (number within grids represent "DPSE" = no. of dolphins per 100 units of survey effort)
[2] Source: Samuel,Y.K. HUNG (2013), Monitoring of Marine Mammals in Hong Kong Waters, Final Report (1 April 2012 - 31 March 2013)

Issue	Date	By	Chkd	Appd
03	2013-09-04	SC	KL	ST

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue,
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

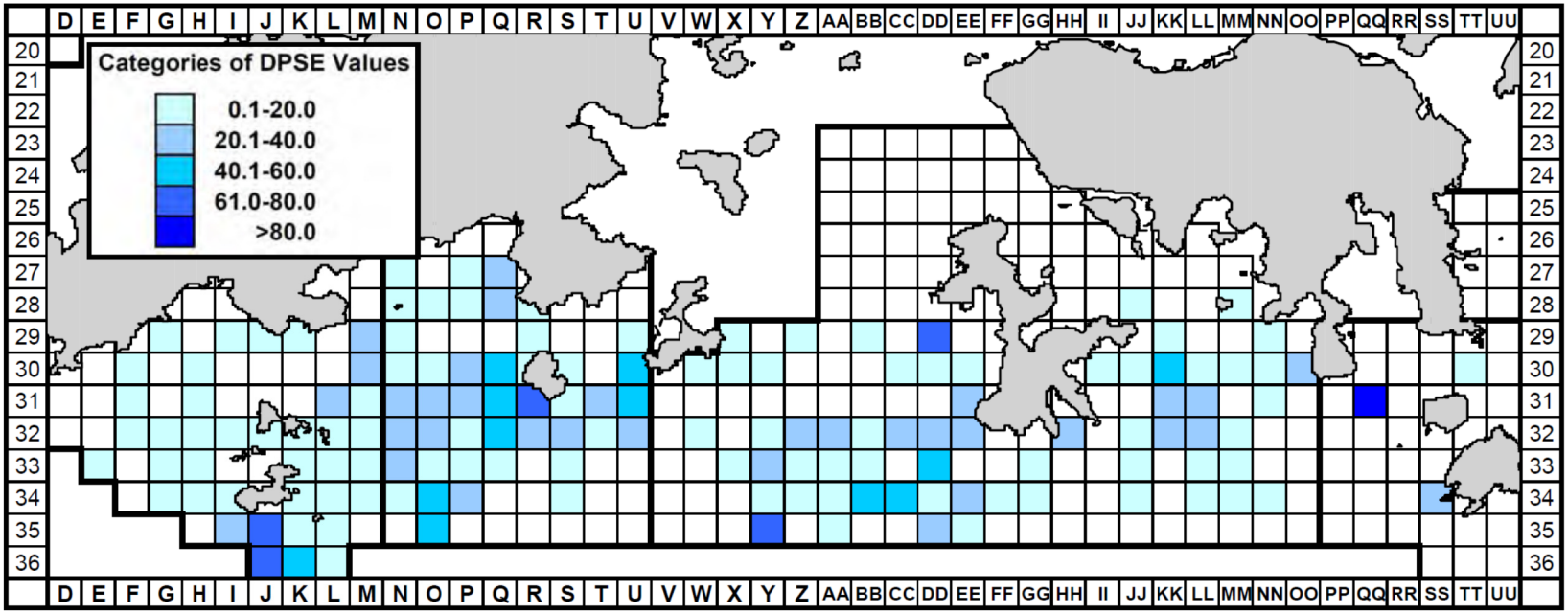
Drawing Title
Locations of Chinese White Dolphin Habitats

Scale at A3
As Shown

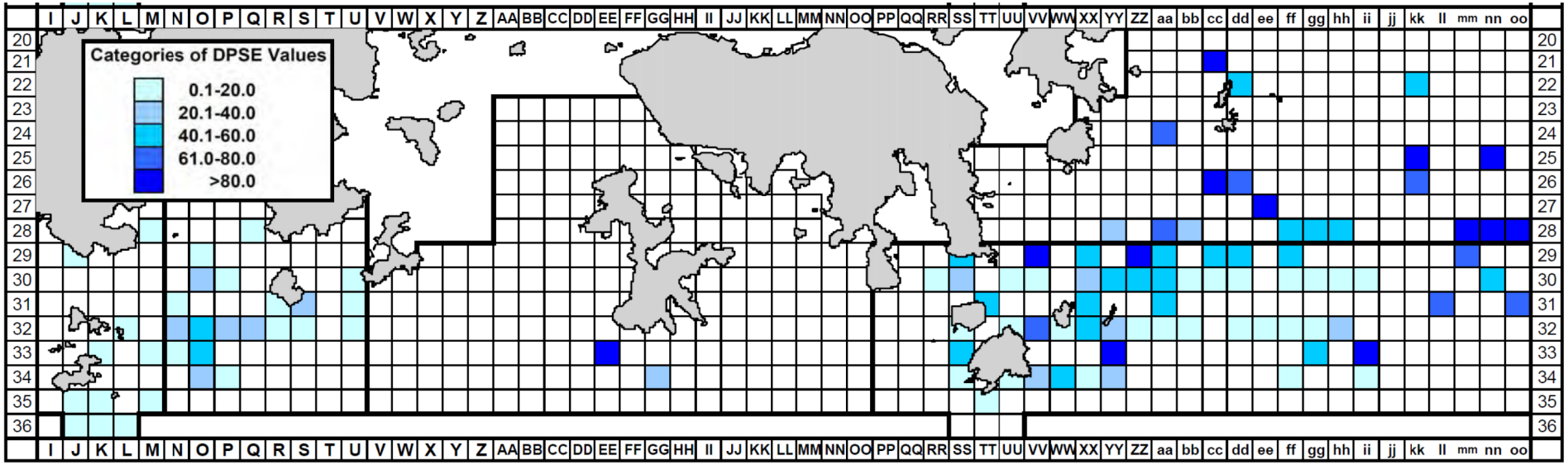
Drawing Status
Draft

Job No	Drawing No	Issue
217499	18	D3

Dry Season (Dec. - May)



Wet Season (Jun. - Nov.)



Notes:

[1] Density of finless porpoises with corrected survey effort per km^2 in southern waters of Hong Kong during dry season (top) wet season (bottom) using data collected during 2004-12
(DPSE = no. of porpoises per 100 units of survey effort)

[2] Source: Samuel,Y.K. HUNG (2013), Monitoring of Marine Mammals in Hong Kong Waters, Final Report (1 April 2012 to 31 March 2013)

Issue	Date	By	Chkd	Appd
01	2013-09-04	SC	KL	ST

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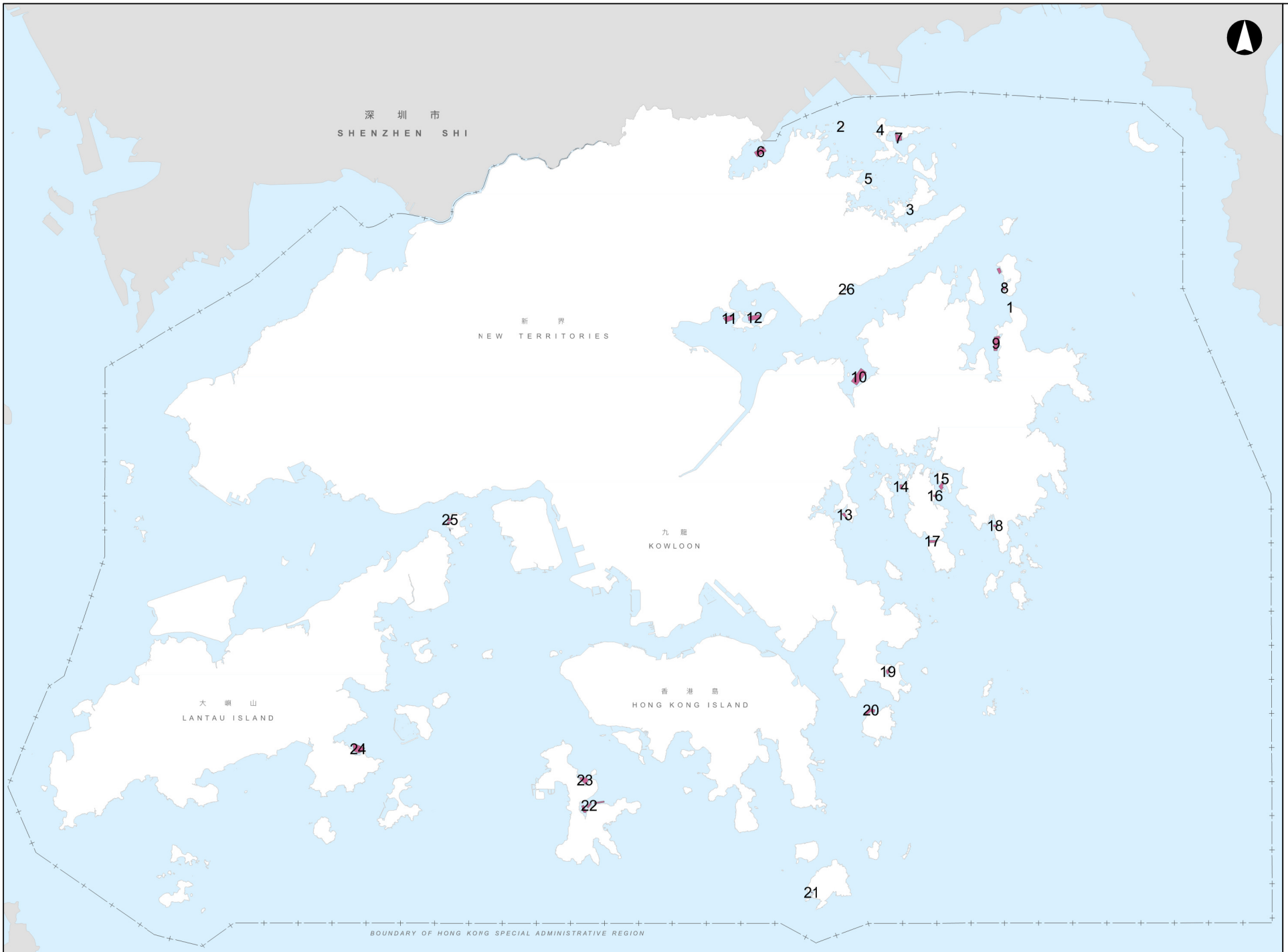
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Locations of Finless Porpoise Hotspots

Scale at A3
As Shown

Drawing Status
Draft

Job No	Drawing No	Issue
217499	19	D3



Source:
[1] AFCD Website (2014) Fish Culture Zones in Hong Kong

Legend

Fish Culture Zone

Issue	Date	By	Chkd	Appd
01	2013-09-04	C	KL	ST

Kilometers
0 1.25 2.5 5 7.5

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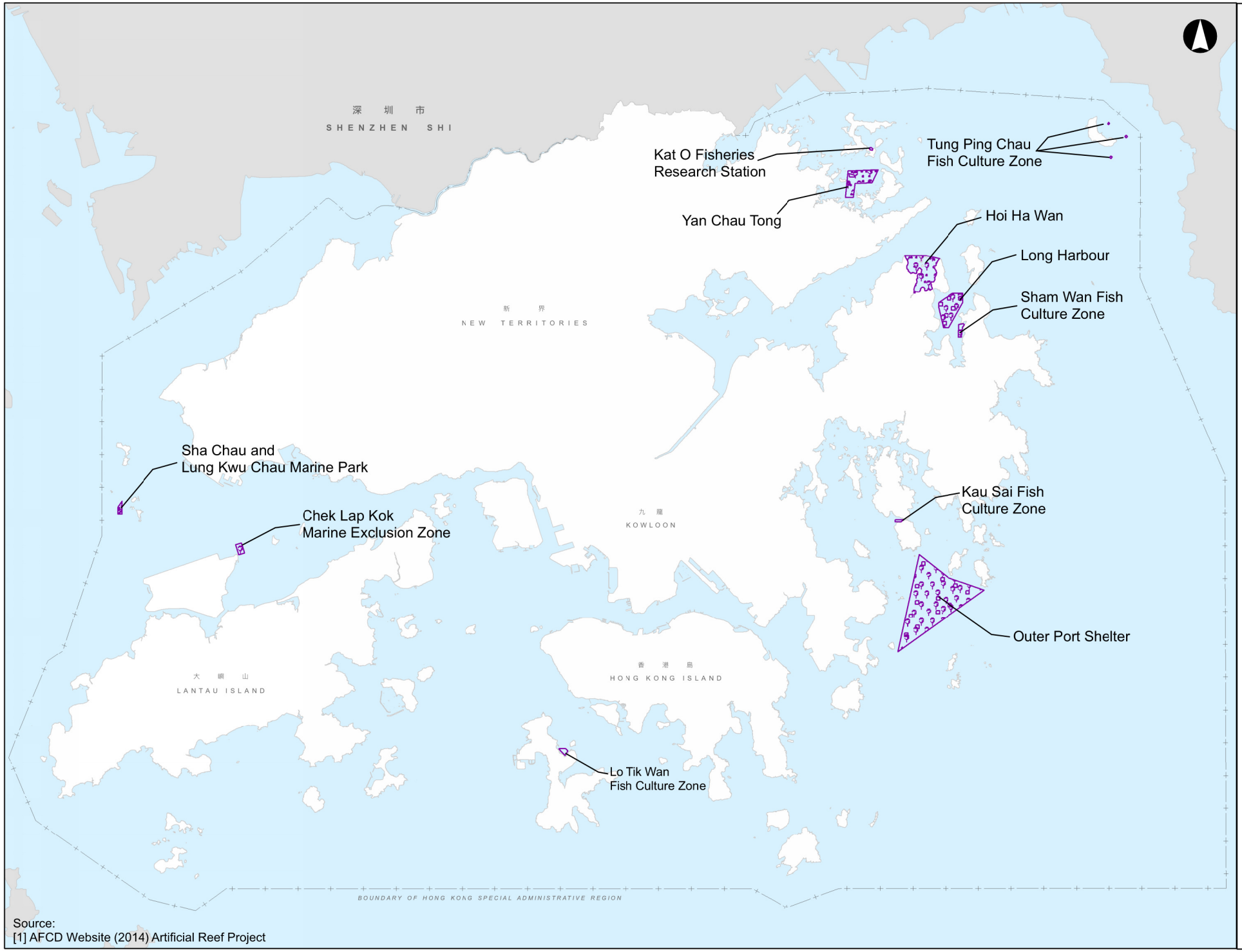
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Locations of Fish Culture Zones

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	20	D3



Source:
[1] AFCD Website (2014) Artificial Reef Project

Legend

Artificial Reef Deployment Area

Issue	Date	By	Chkd	Appd
01	2013-09-04	RC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

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Hong Kong

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Job Title
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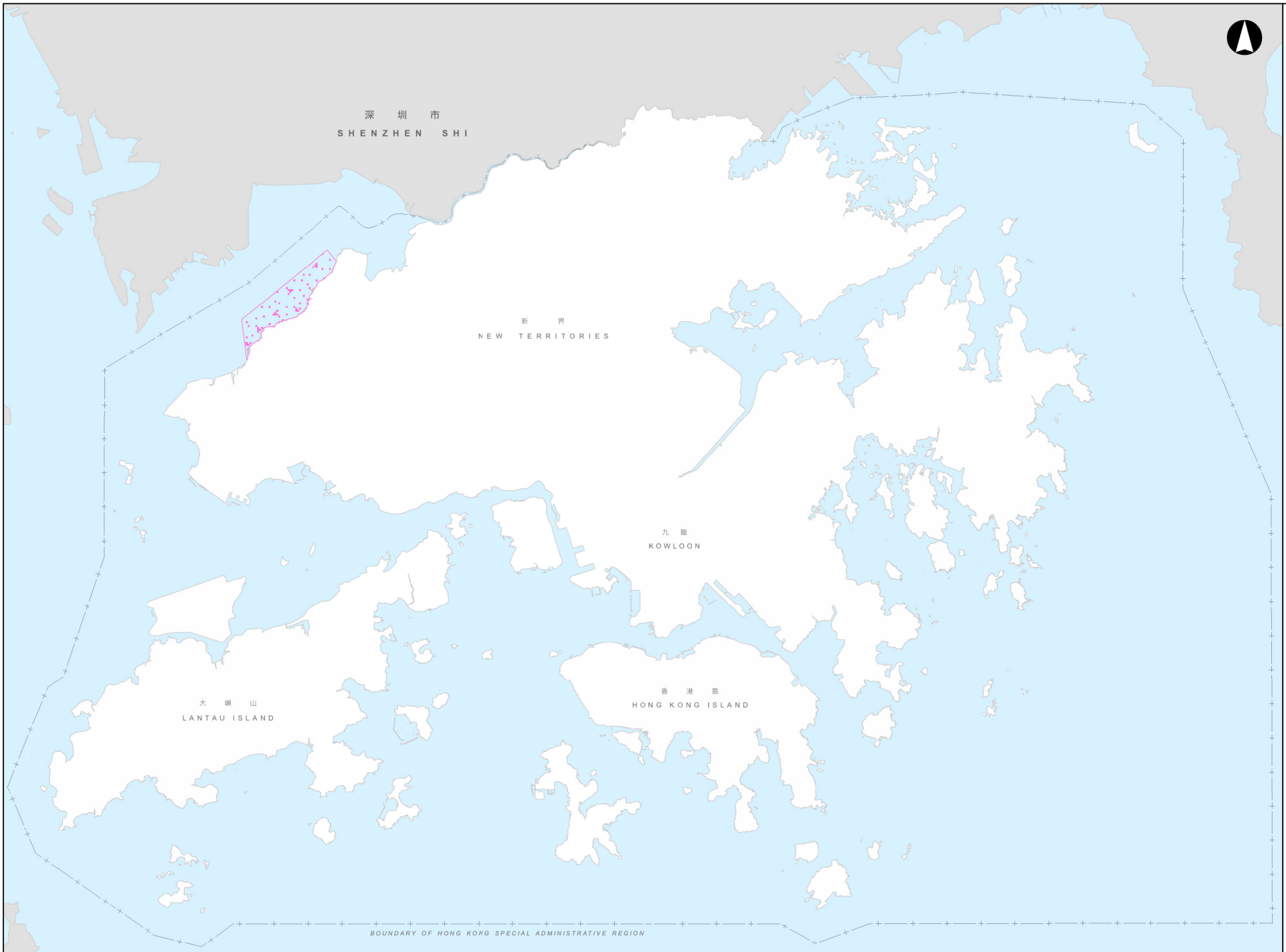
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Locations of Artificial Reef Deployment Area

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	21	D3



Source:
[1] AFCD Website (2014) Oyster Production Area

Legend

Area of Oyster Production

Issue	Date	By	Chkd	Appd
01	2013-09-04	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

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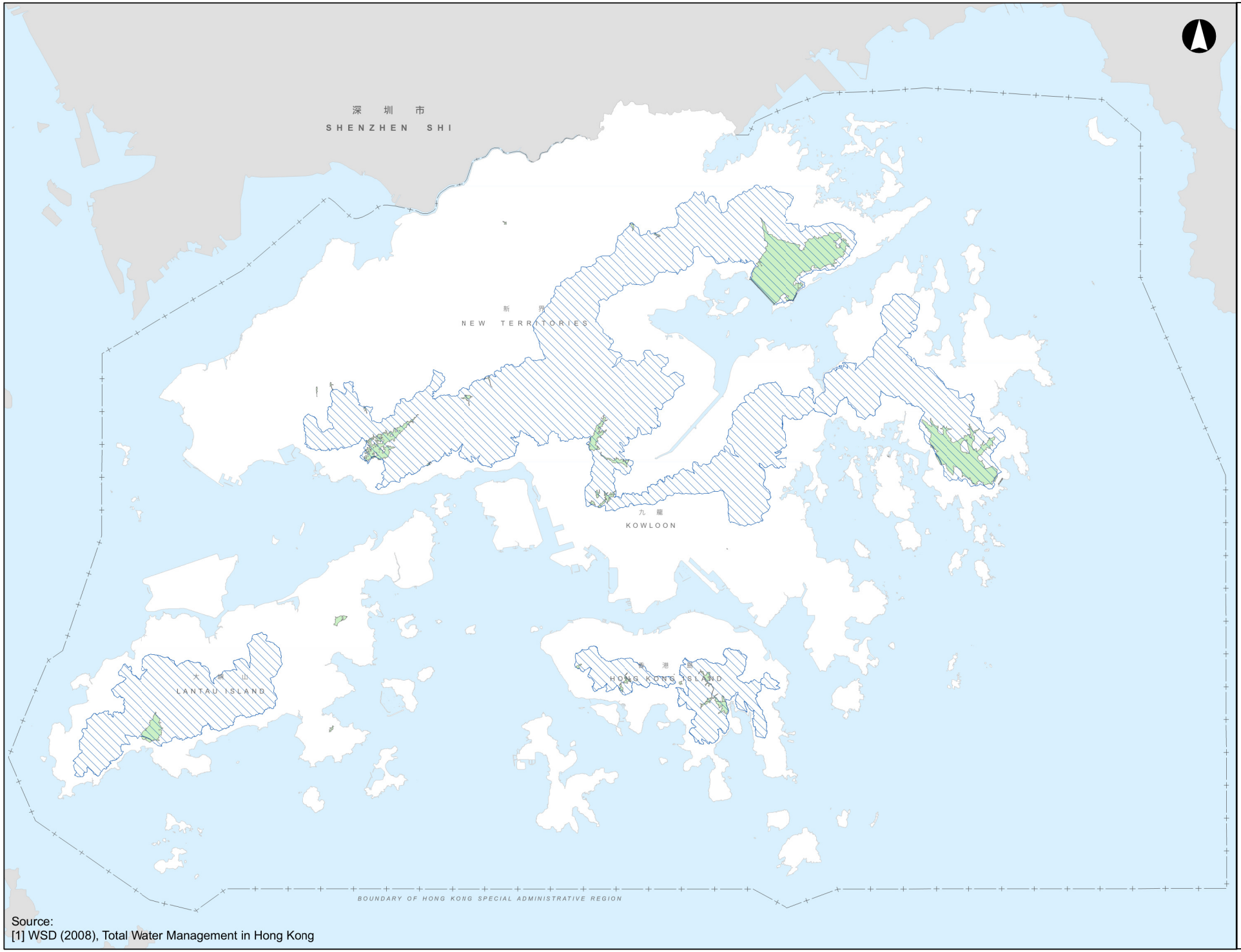
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Areas of Oyster Production in Hong Kong

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	22	D3



Source:
[1] WSD (2008), Total Water Management in Hong Kong

Legend

- Impouding Reservoir
- Water Gathering Ground

Issue	Date	By	Chkd	Appd
01	2013-09-04	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

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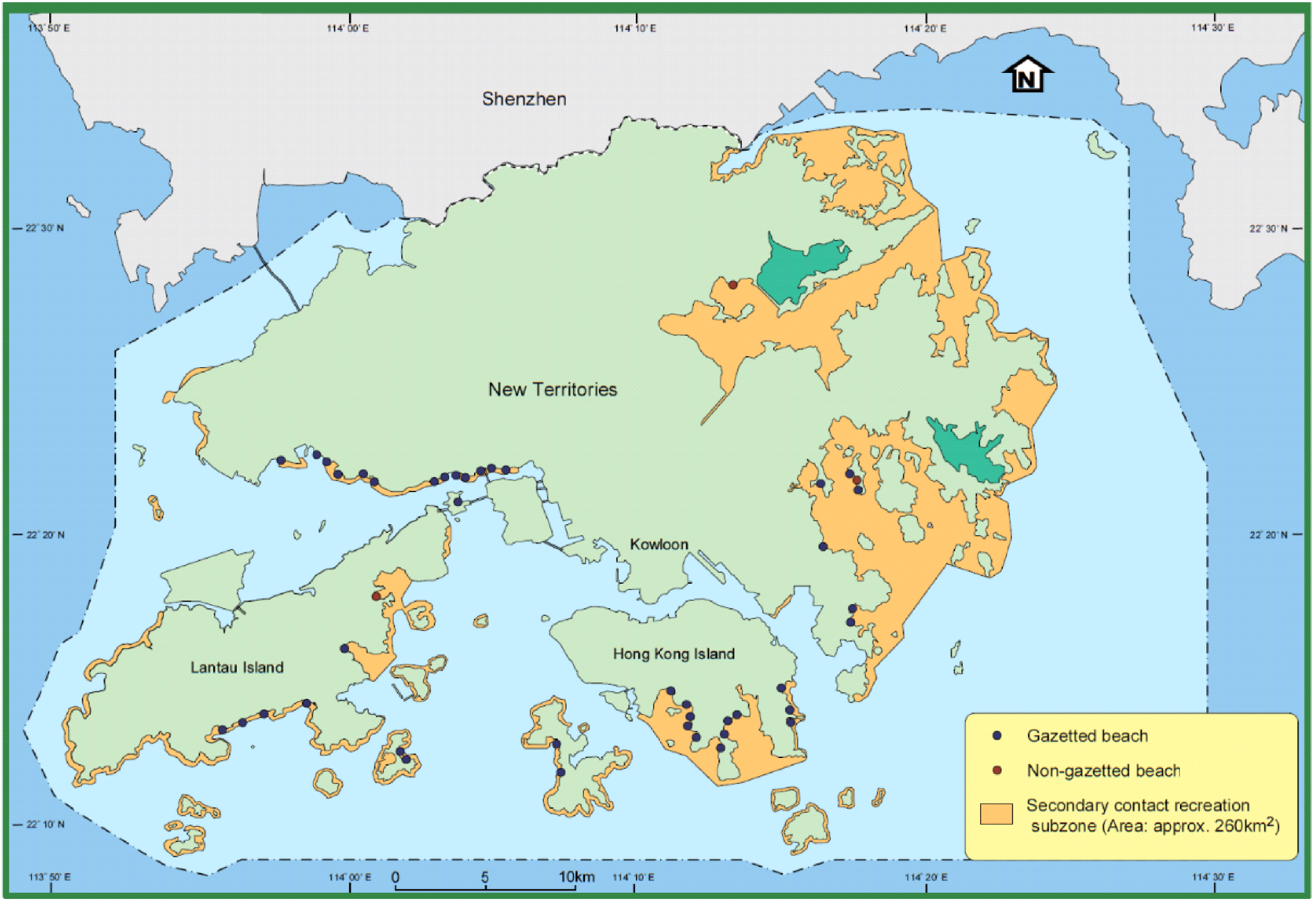
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Water Gathering Grounds and Reservoirs in Hong Kong

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	23	D3



Source:
[1] EPD(2012), Marine Water Quality in Hong Kong

Issue	Date	By	Chkd	Appd
01	2013-09-04	SC	KL	ST

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Hong Kong

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Civil Engineering and Development Department

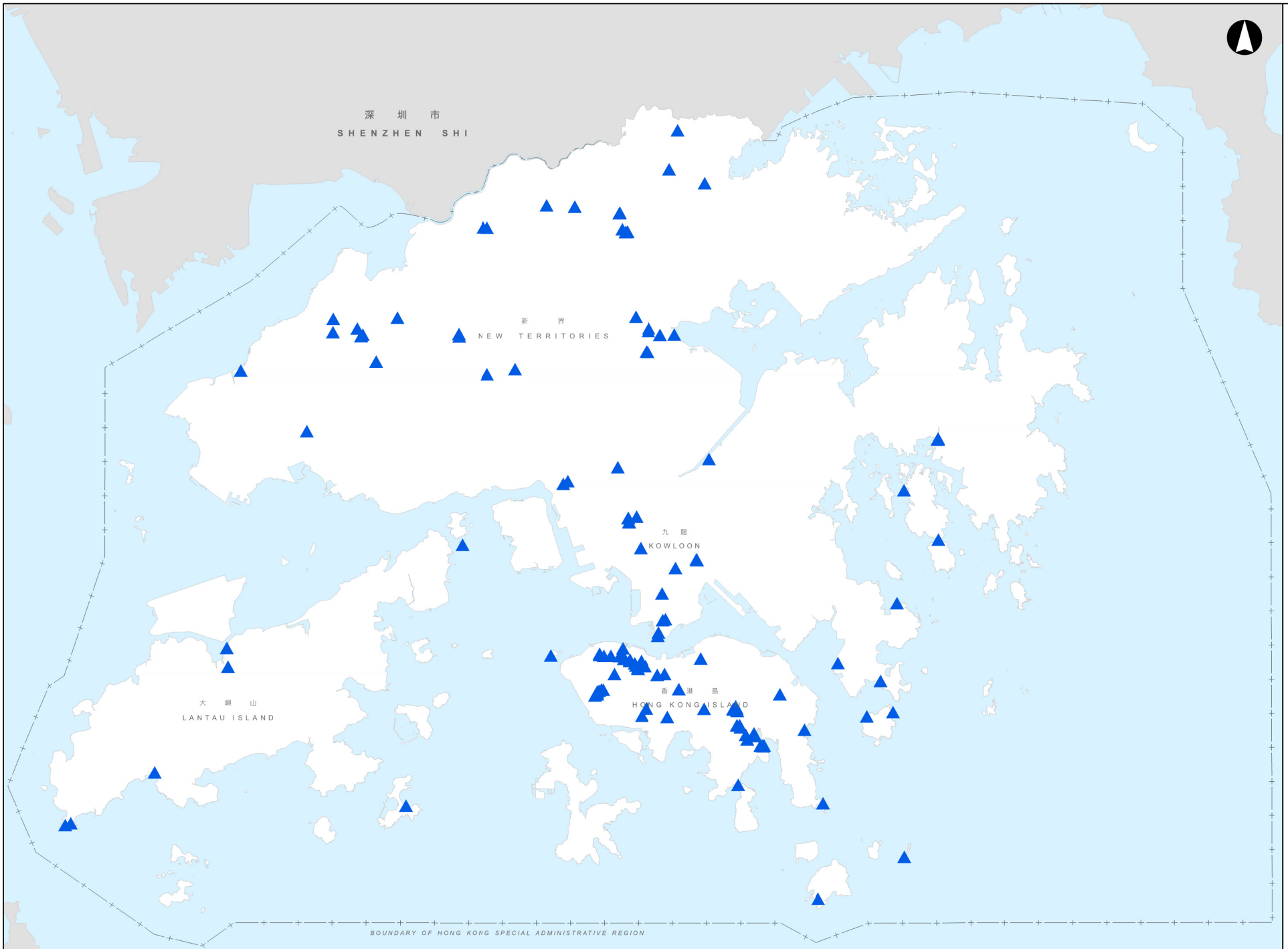
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Gazetted Beaches and Secondary Contact Recreation Subzones in Hong Kong

Scale at A3
As Shown

Drawing Status
Draft

Job No	Drawing No	Issue
217499	24	D3



Source:
[1] AMO Website (2013) Location Map of Declared Monuments

Legend

Declared Monument

Issue	Date	By	Chkd	Appd
03	2013-09-04	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

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Civil Engineering and Development Department

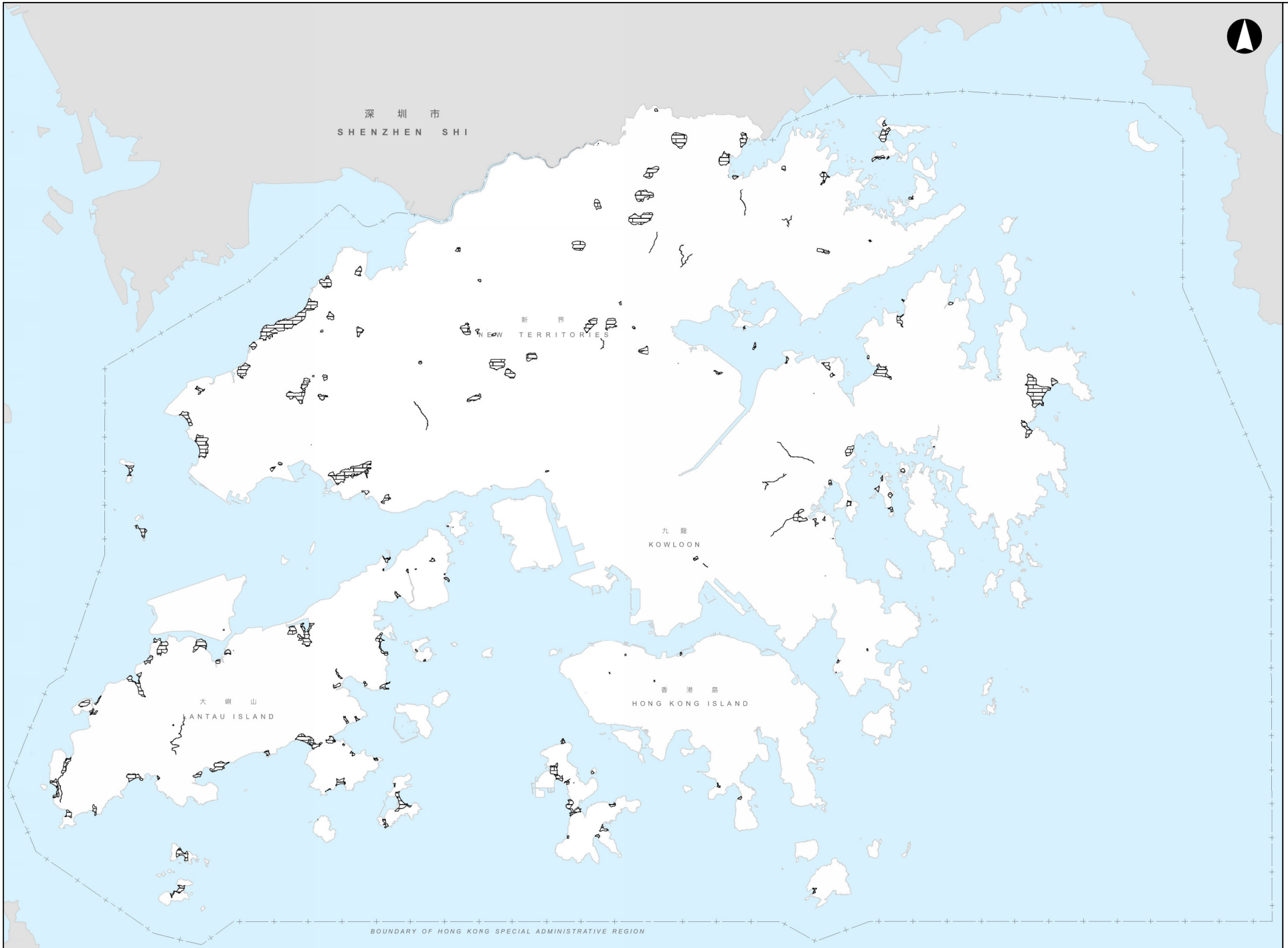
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Locations of Declared Monuments

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	25	D3



Source:
[1] AMO Website (2013) List of Sites of Archaeological Interest in Hong Kong

Legend

Sites of Archaeological Interest

Issue	Date	By	Chkd	Appd
D3	2013-09-04	SC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

Level 3 Festival Walk
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Hong Kong

Client
Civil Engineering and Development Department

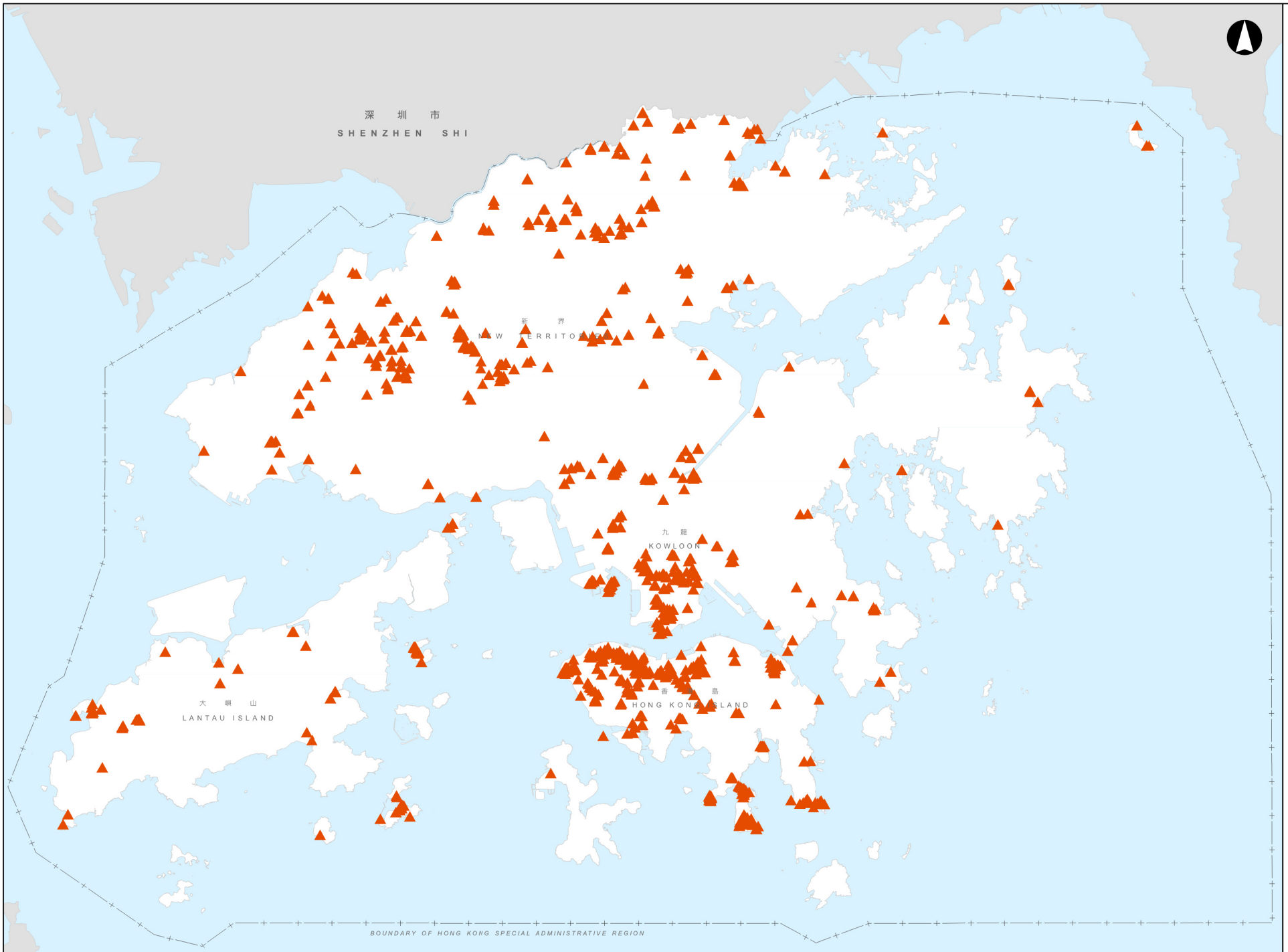
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Locations of Sites of Archaeological Interest

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	26	D3



Source:
[1] AMO Website (2011) List of the Historic Buildings in Building Assessment

Legend

▲ Graded/ Proposed Built Heritage

Issue	Date	By	Chkd	Appd
01	2013-09-04	SC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

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Civil Engineering and Development Department

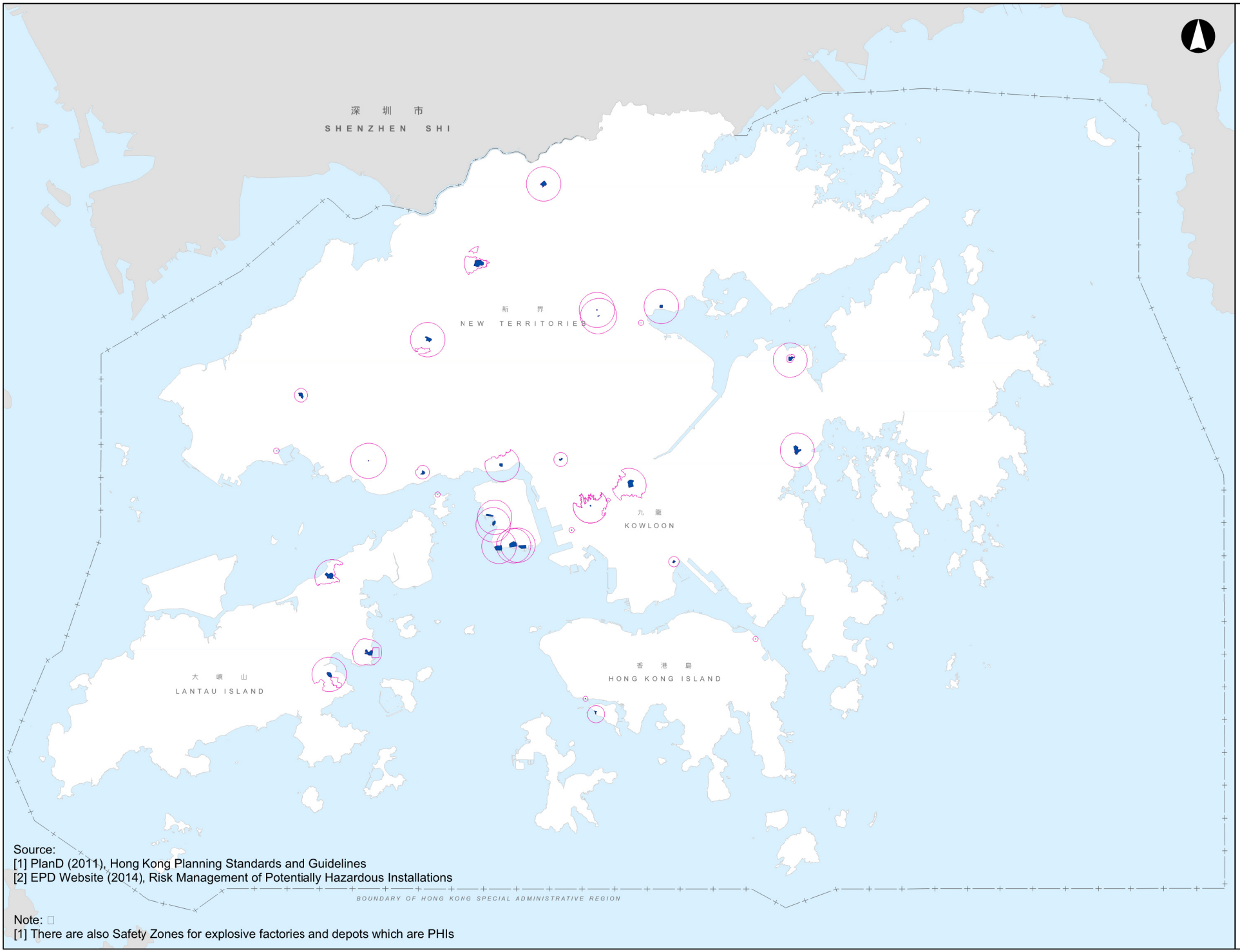
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Locations of Graded/Proposed Built Heritage

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	27	D3



Source:
[1] PlanD (2011), Hong Kong Planning Standards and Guidelines
[2] EPD Website (2014), Risk Management of Potentially Hazardous Installations

Note:
[1] There are also Safety Zones for explosive factories and depots which are PHIs

Legend

- PHI
- PHI Consultation Zone

Issue	Date	By	Chkd	Appd
D3	2013-09-04	BC	KL	ST

Kilometres
0 1.25 2.5 5 7.5

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Client
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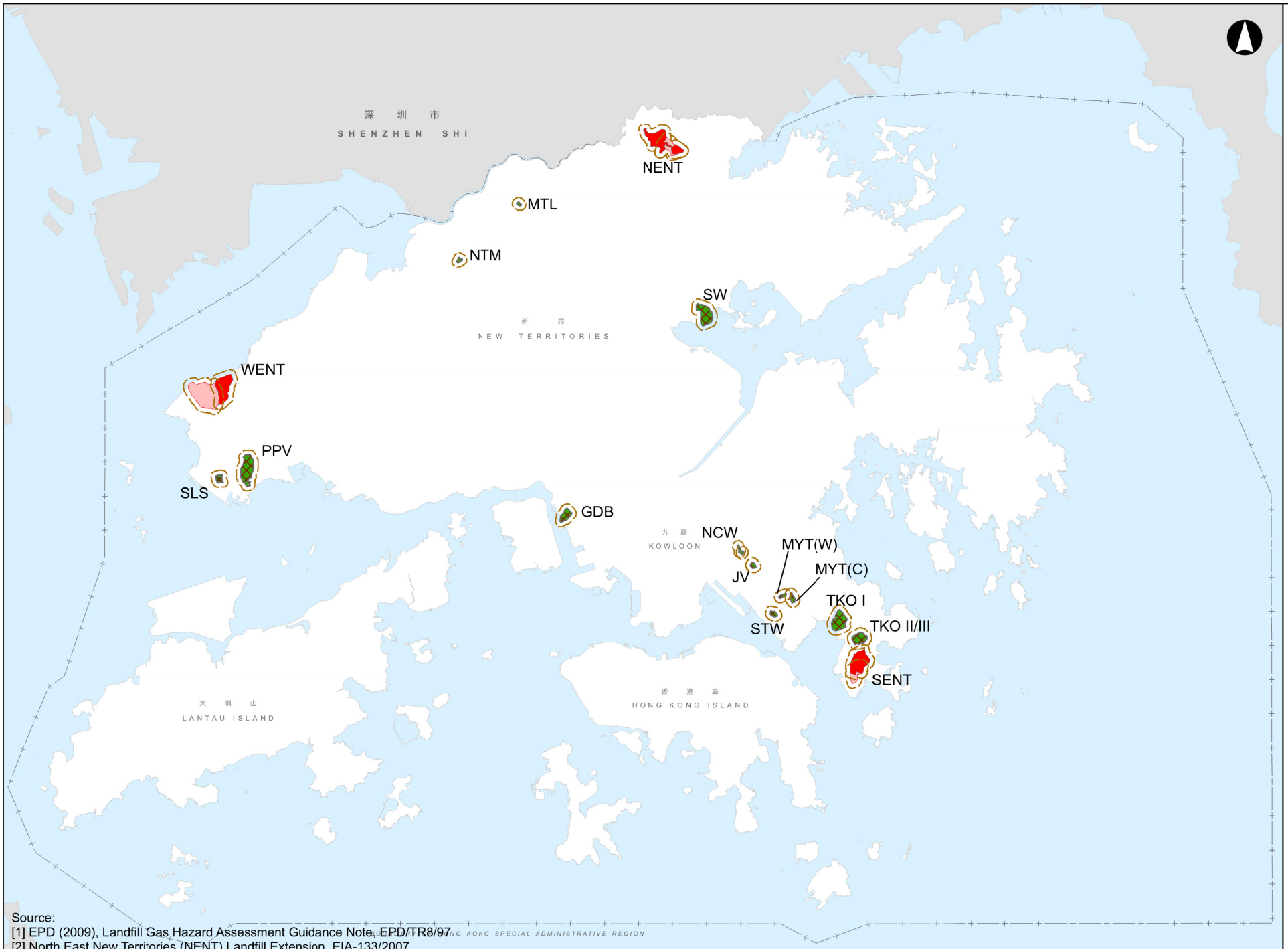
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Consultation Zones of Potentially Hazardous Installations in Hong Kong

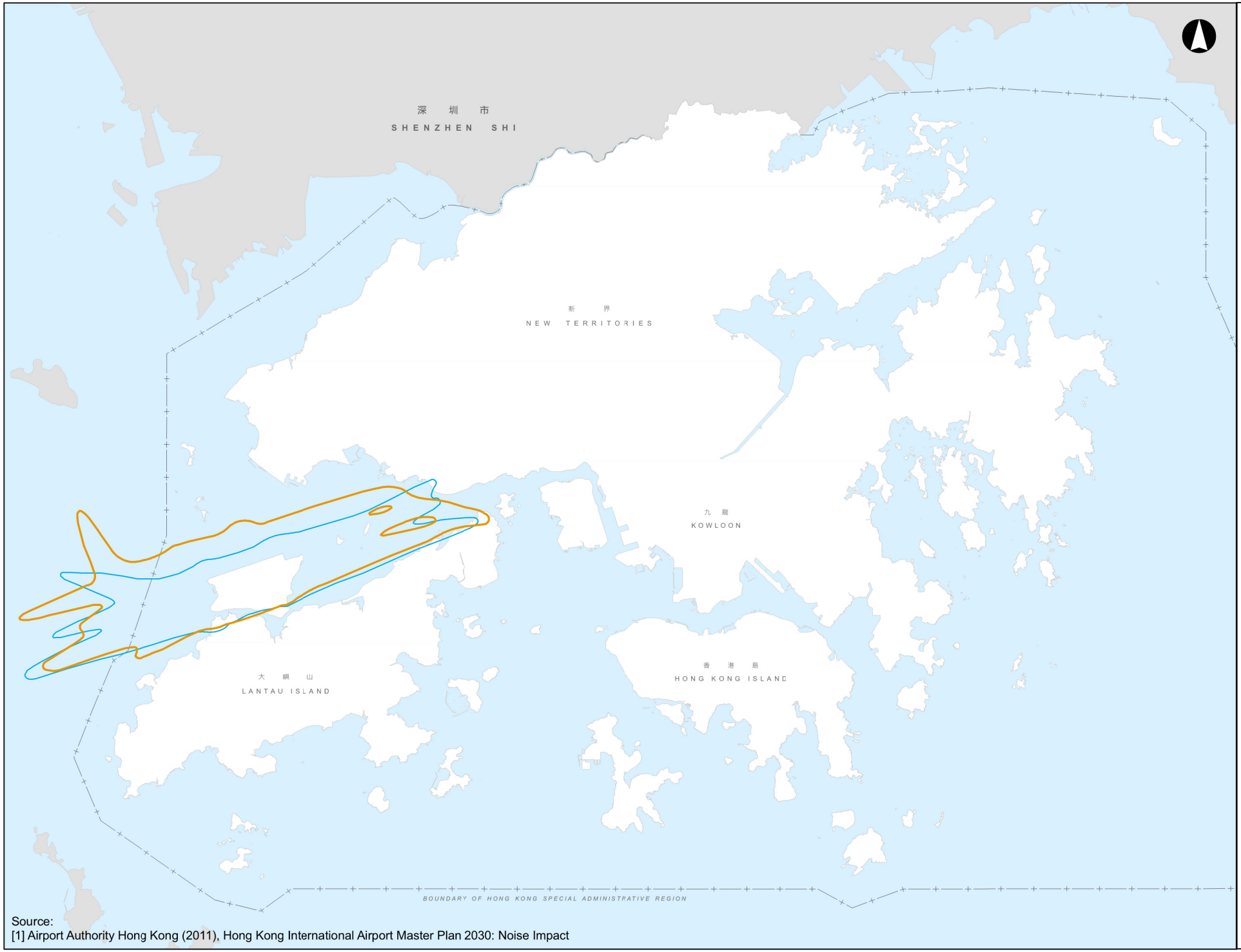
Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	28	D3



Source:
[1] EPD (2009), Landfill Gas Hazard Assessment Guidance Note, EPD/TR8/97
[2] North East New Territories (NENT) Landfill Extension, EIA-133/2007
[3] West New Territories (WENT) Landfill Extensions, EIA-171/2009
[4] South East New Territories (SENT) Landfill Extension, EIA-143/2007



Source:
[1] Airport Authority Hong Kong (2011), Hong Kong International Airport Master Plan 2030: Noise Impact

Legend

NEF 25 Contours

Two-Runway Option

Three-Runway Option
(Tentative, and subject to revision)

Issue	Date	By	Chkd	Appd
01	2013-09-28	SC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

Level 5 Festival Walk
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Hong Kong

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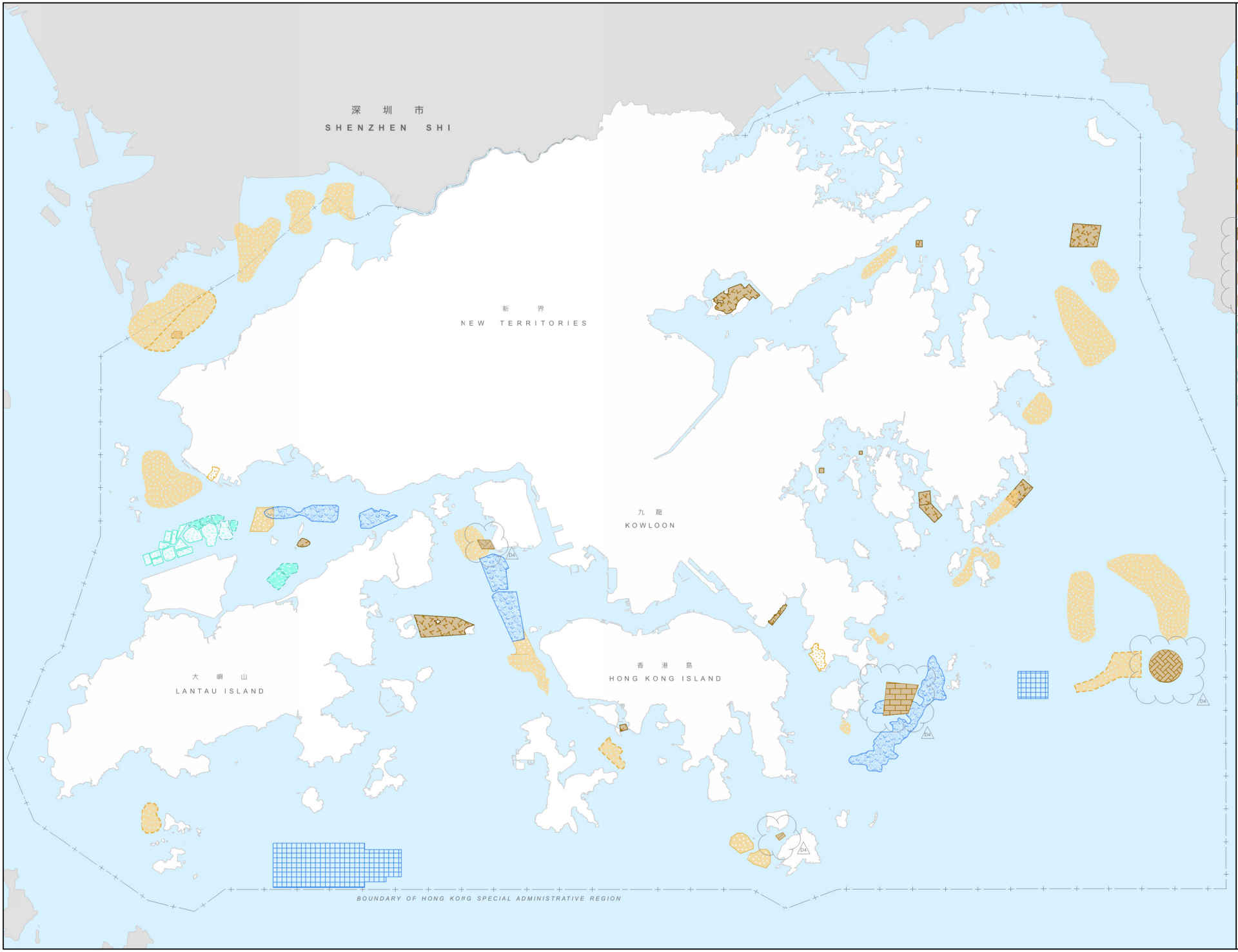
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Existing and predicted Hong Kong International Airport (Aircraft) Noise Exposure Forecast (NEF) 25 contours

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	30	D3



Legend

- Public Fill Bank
- Exhausted Sand Borrow Pit for Disposal of Uncontaminated Sediment
- Open Sea Disposal Area for Disposal of Uncontaminated Sediment
- Sand Deposit - Extent Prior to Dredging
- Sand Deposit - With Constraints on Dredging (e.g. environmental limitations, thick overburden, etc)
- Sand Deposit - Not Being Used on Environmental or Other Grounds
- Spoil Ground (Disused)
- Dumping Ground
- Explosive Dumping Ground
- Explosive Dumping Ground (Disused)
- Active CPDCS (Contained Pit for Disposal of Contaminated Sediment)
- Filled & Already Fully Capped CPDCS
- Planned CPDCS
- Proposed Mud Pit

Addendum No.1 incorporated.

Issue	Date	By	Chkd	Appd
D4	2019-12-05	JH	TL	AC
D3	2013-06-11	BC	KL	ST

Kilometers: 0, 1.25, 2.5, 5, 7.5

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Hong Kong

Client
Civil Engineering and Development Department

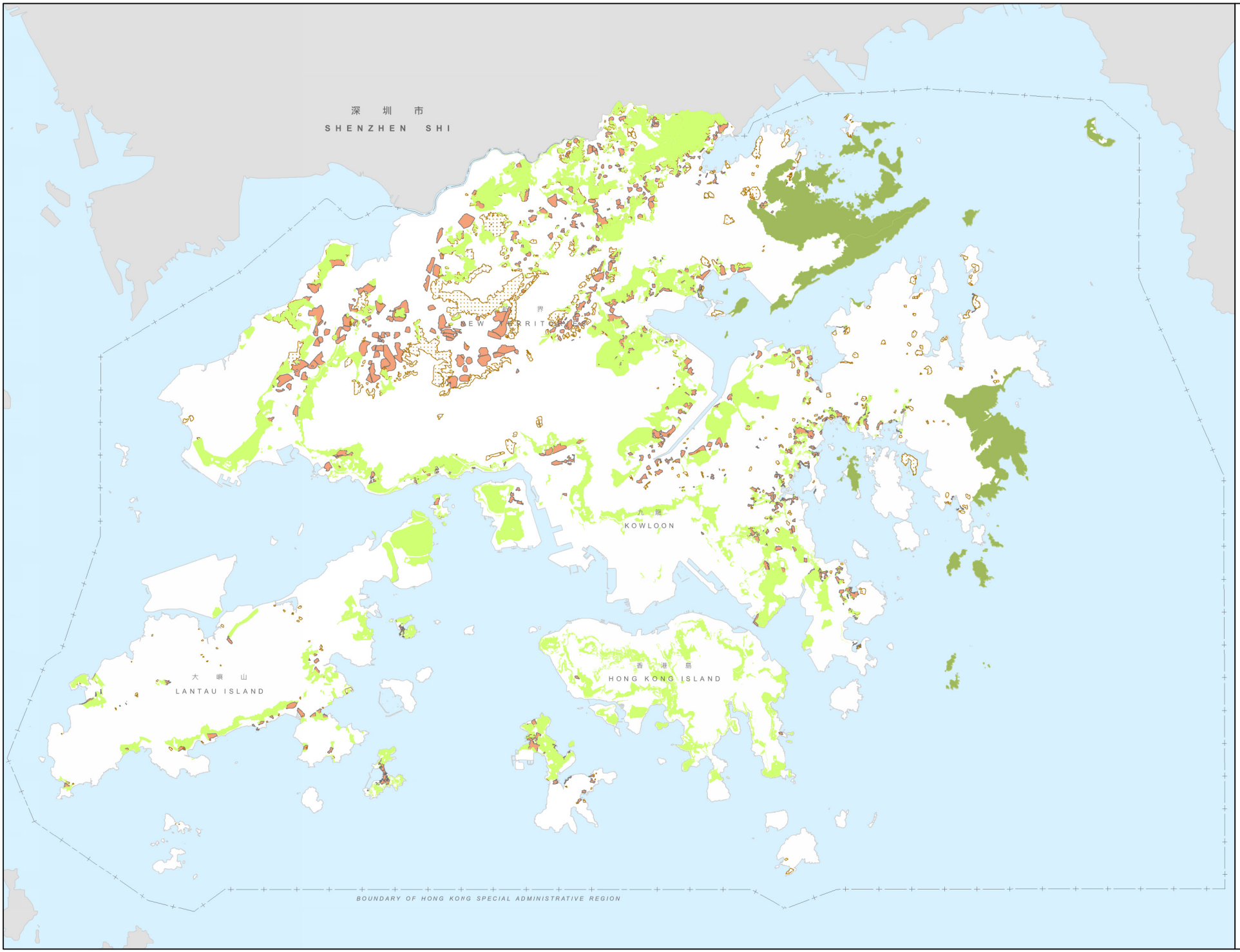
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Material Disposal and Storage Area Constraints

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	31	D4



Legend

- Green Belt
- Geopark
- Traditional Burial Ground
- Village Type Development

Issue	Date	By	Chkd	Appd
01	2013-06-11	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

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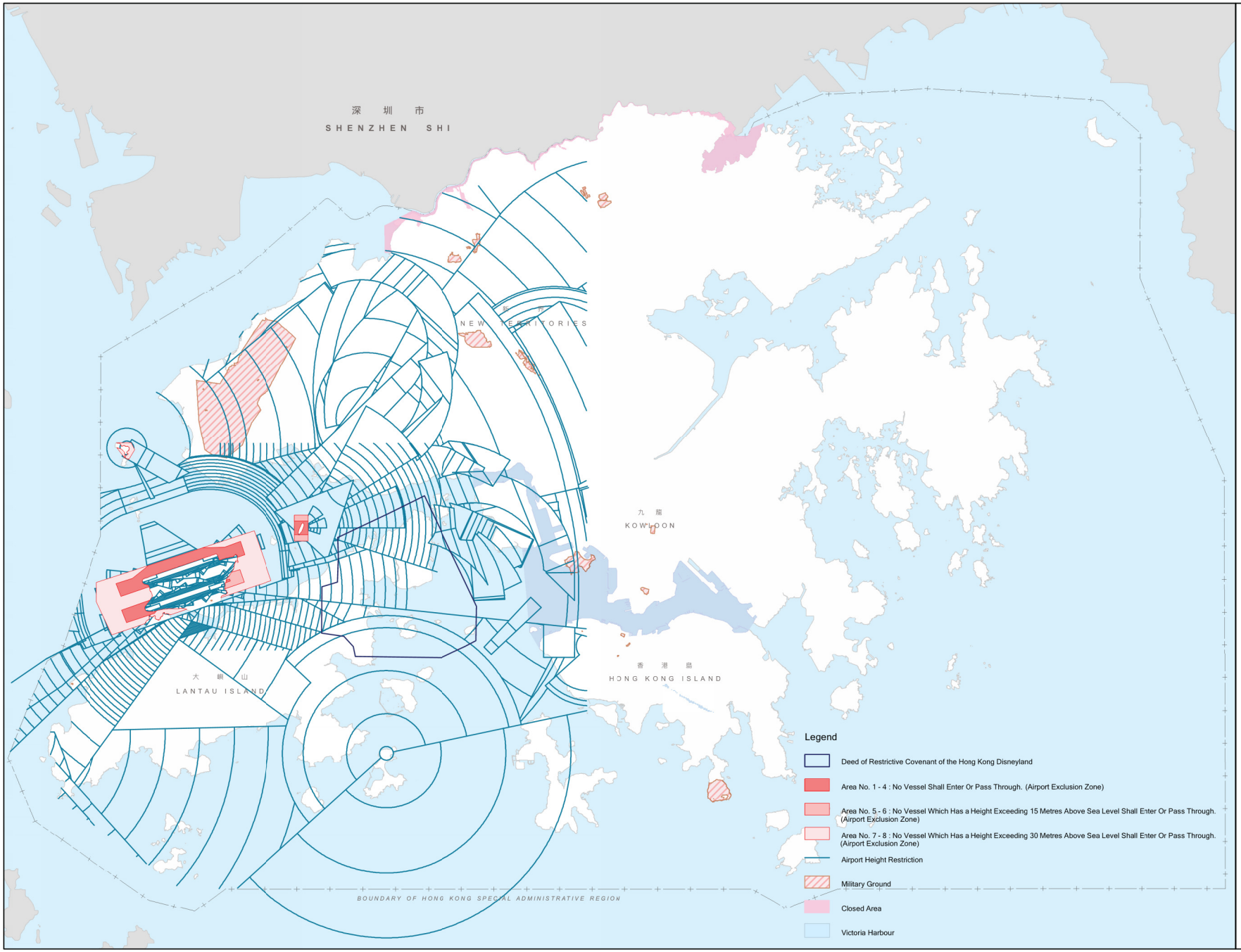
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Planning & Landscape Constraints

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	32	D3



D3	2013-05-15	SC	KL	ST
Issue	Date	By	Chkd	Appd

Kilometers

0.5 0 0.5 1

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Job Title

Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title

Restriction Zones

Scale at A3

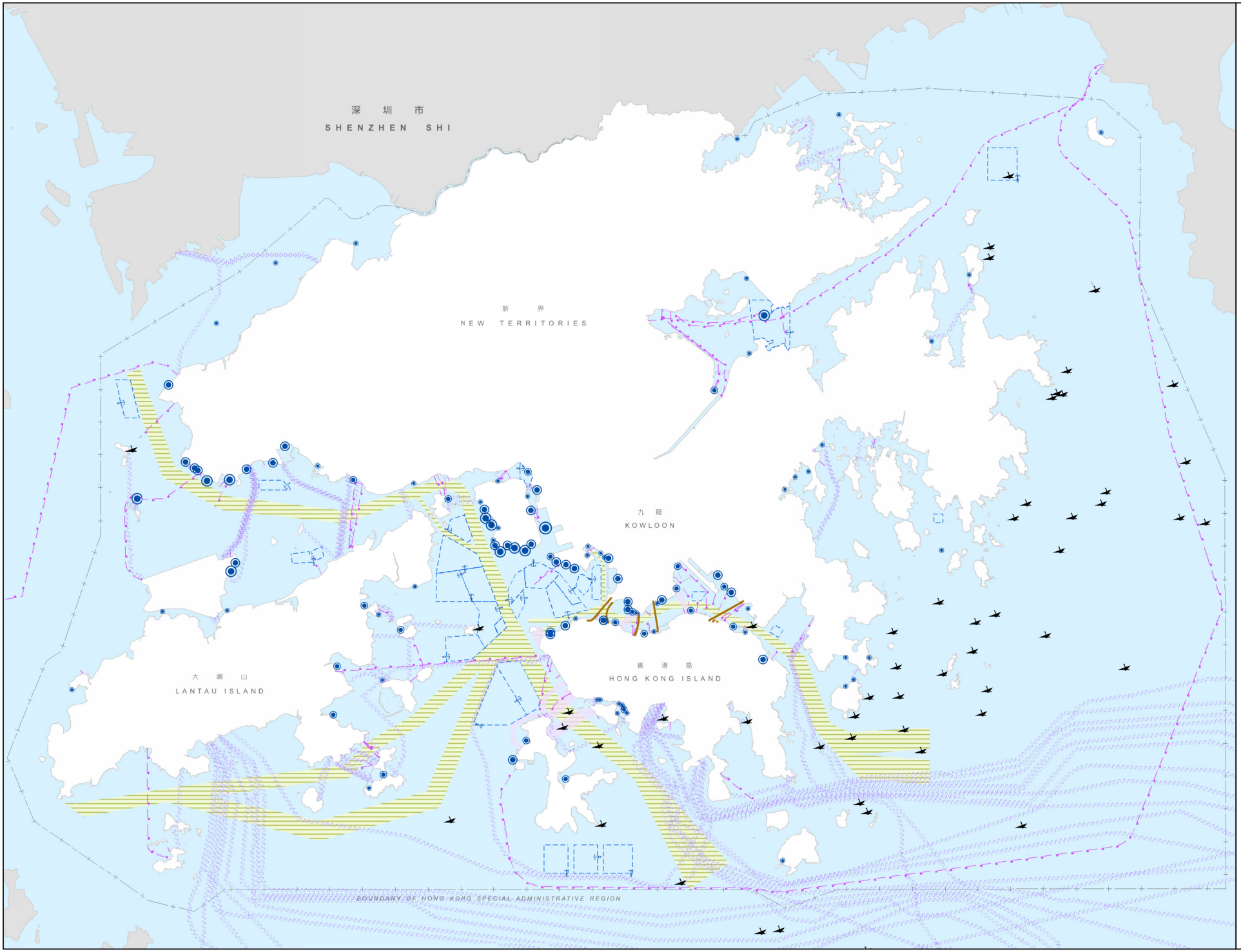
1:200,000

Drawing Status

Draft

Job No.	Drawing No.	Issue
217499	33	**D3**

D:\Land Supply.mxd



Legend

- Marine Facility
- Ship Wreck
- Submarine Cable
- Submarine Pipeline
- Utility Area
- Tunnel
- Anchorage
- Fairway

Issue	Date	By	Chkd	Appd
03	2013-06-11	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

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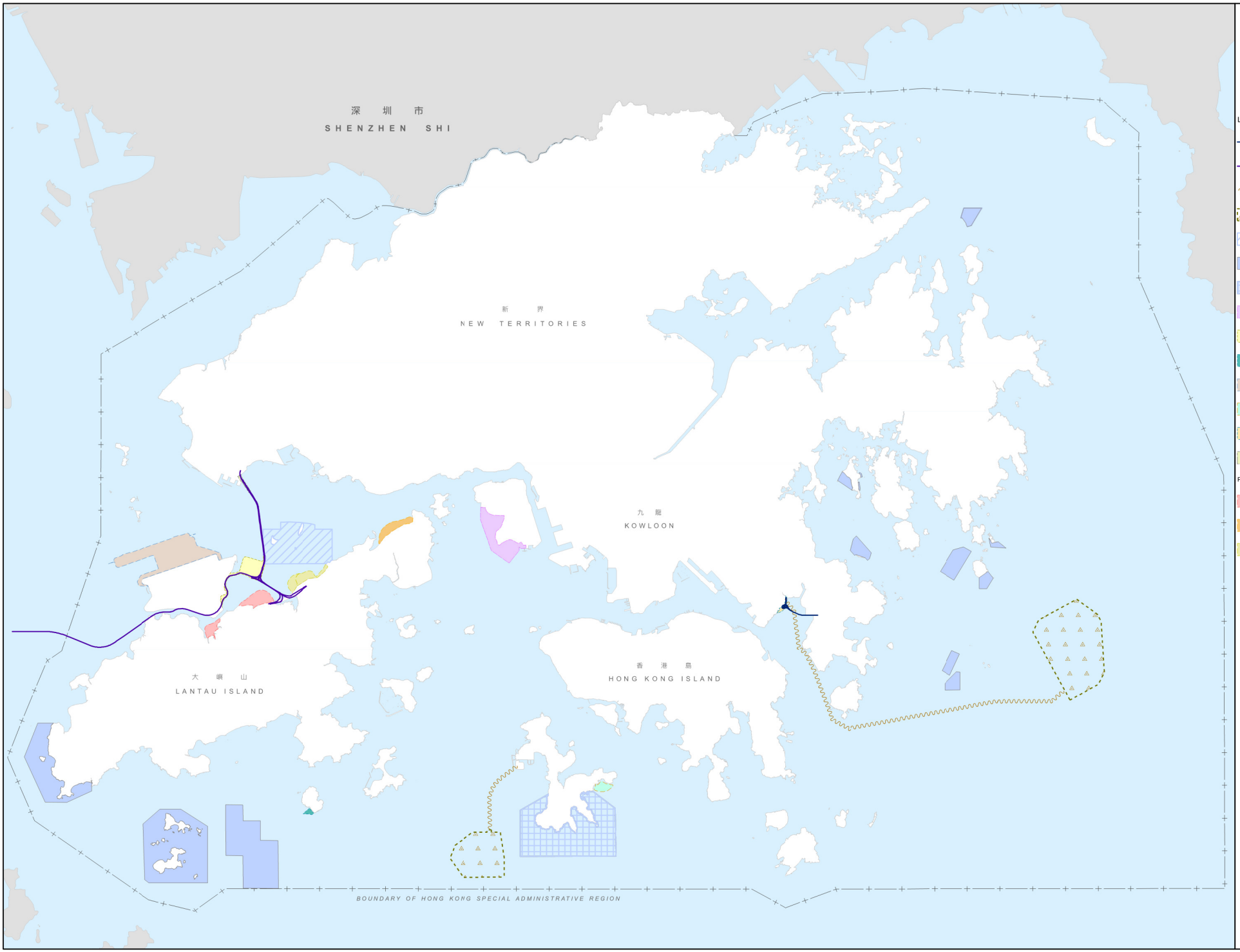
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Marine & Submarine Constraints

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	34	D3



Legend

- Proposed Cross Bay Link Alignment
- Proposed TM-CLKL Alignment
- Proposed Windfarm Cable
- Proposed Windfarm
- Committed Marine Park
- Proposed Marine Park
- Potential Marine Park
- Proposed CT10
- Proposed HKBCF / TM-CLKL Reclamations
- Proposed IWMF Reclamation
- Proposed Third Runway Reclamation
- Proposed Lamma Marina / Resort
- Proposed Cross Bay Link Reclamation
- Proposed HKLR Reclamation

Proposed Lantau Development

- Proposed Tung Chung New Town Extension Area
- Proposed North Lantau Leisure & Entertainment Node
- Proposed Lantau Logistics Park

Issue	Date	By	Chkd	Appd
D3	2013-06-11	BC	KL	ST

Kilometers
0 1.25 2.5 5 7.5

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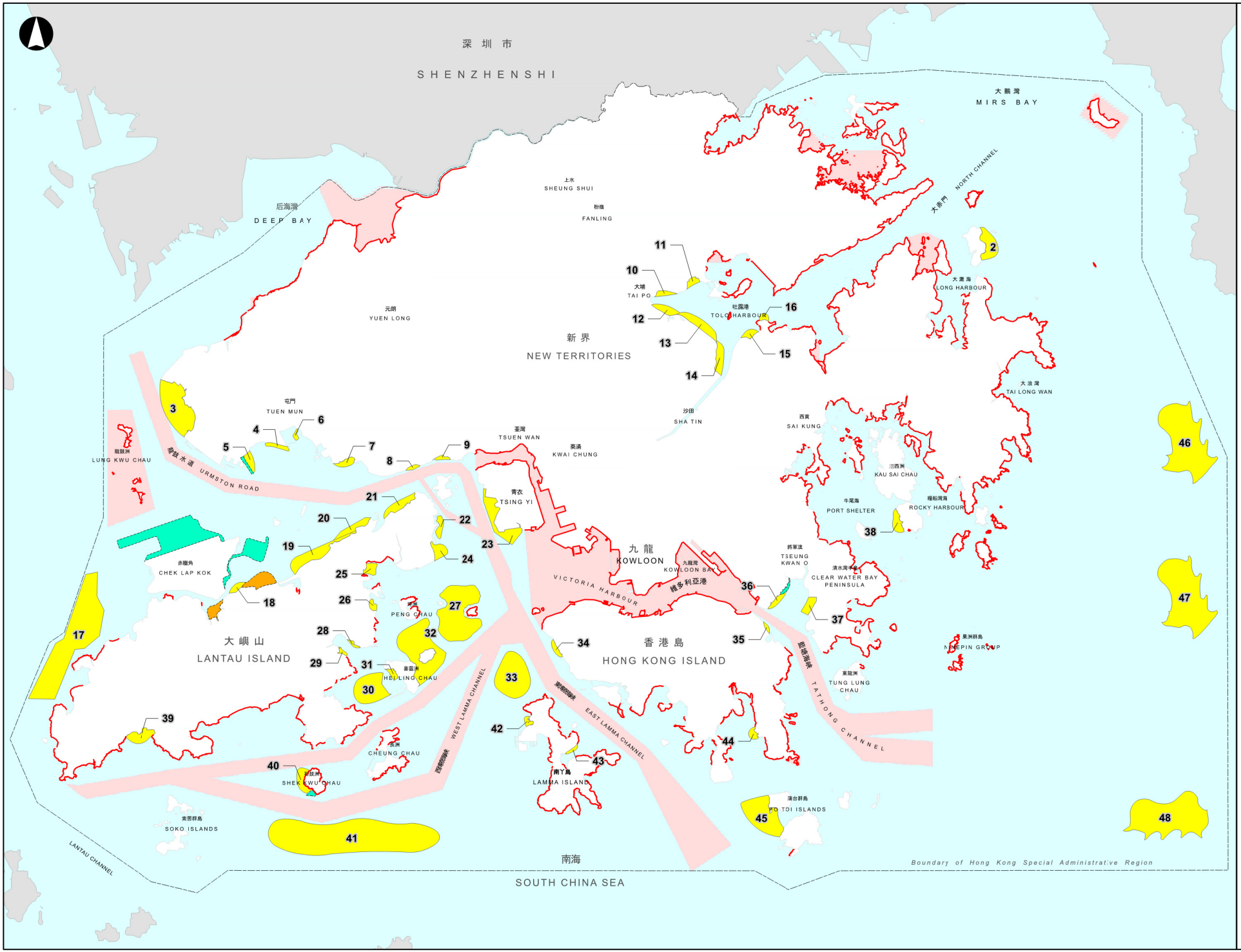
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Infrastructure & Development under Construction and/or Feasibility Studies, Planning Infrastructure & Development

Scale at A3
1:200,000

Drawing Status
Draft

Job No	Drawing No	Issue
217499	35	D3



LEGEND

- Reclamation Site under Investigation / Study (by CEDD)
- Reclamation Site under Investigation / Study (by Others)
- Pre-Longlisted Reclamation
- Marine Stop Area
- Sensitive Shoreline

Note:
Size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA carried out at the corresponding stage of site selection process only. They do not represent any actual design to be implemented.

Metres 0 1,000 2,000 3,000 4,000 5,000

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Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
PRE-LONGLISTED RECLAMATION SITES

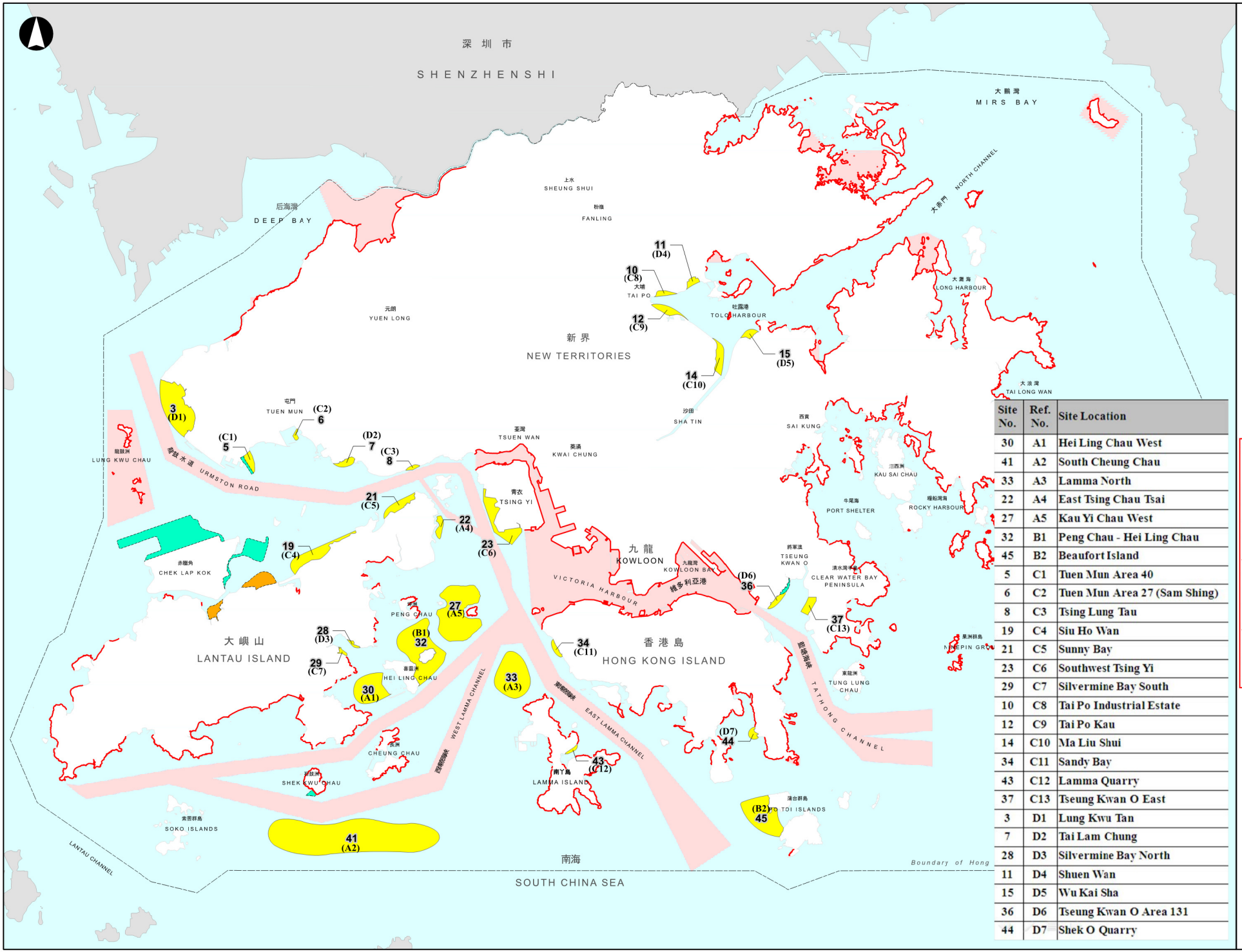
Scale
1:200,000

Drawing Status
Issue

Job No.
217499

Drawing No.
36

Issue
P9



Site No.	Ref. No.	Site Location
30	A1	Hei Ling Chau West
41	A2	South Cheung Chau
33	A3	Lamma North
22	A4	East Tsing Chau Tsai
27	A5	Kau Yi Chau West
32	B1	Peng Chau - Hei Ling Chau
45	B2	Beaufort Island
5	C1	Tuen Mun Area 40
6	C2	Tuen Mun Area 27 (Sam Shing)
8	C3	Tsing Lung Tau
19	C4	Siu Ho Wan
21	C5	Sunny Bay
23	C6	Southwest Tsing Yi
29	C7	Silvermine Bay South
10	C8	Tai Po Industrial Estate
12	C9	Tai Po Kau
14	C10	Ma Liu Shui
34	C11	Sandy Bay
43	C12	Lamma Quarry
37	C13	Tseung Kwan O East
3	D1	Lung Kwu Tan
7	D2	Tai Lam Chung
28	D3	Silvermine Bay North
11	D4	Shuen Wan
15	D5	Wu Kai Sha
36	D6	Tseung Kwan O Area 131
44	D7	Shek O Quarry

LEGEND

- Reclamation Site under Investigation / Study (by CEDD)
- Reclamation Site under Investigation / Study (by Others)
- Recommended Longlisted Reclamation Sites
- Marine Stop Area
- Sensitive Shoreline

Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

Issue	Date	By	Chkd	Appd
P3	19-01-12	JT		

Metres 1,000 0 500 1,000 2,000

ARUP

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Hong Kong

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Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
LONGLISTED RECLAMATION SITES

Scale
1:200,000

Drawing Status
Issue

Job No. 217499 | 37 | Issue P9

OPPORTUNITIES

1. The Proposed reclamation could create a prime waterfront development sites.
2. The existing Siu Ho Wan stabling yard may allow for the development of an MTR station.
3. The proposed reclamation at Siu Ho Wan enjoys proximity to the regional GIC facilities within Tung Chung.
4. The proposed reclamation can provide solution space for facilities which Tung Chung is not currently equipped.
5. The proposed reclamation enjoys good accessibility with the connected to the existing North Lantau Highway and the proposed Tuen Mun – Chek Lap Kok Link and the Hong Kong Zhuhai – Macao Bridge and other strategic transport links.
6. If the existing Sewage Treatment Works could be relocated to rock cavern, the proposed reclamation could be developed in a coherent manner with the RCD-released site as well as the possible topside development above the stabling yard.

J. Potential noise impact and development constraints from the fight path of Government Flying Services (GFS) helicopters.

K. Potential ecological impacts on Chinese White Dolphin habitats, committed Marine Park, SSSI, mangroves, and other ecological/ fisheries significant/sensitive areas.

L. Potential development constraints from NEF 25 contour for 3rd Airport Runway due to potential aircraft noise impact.

M. Potential noise impact to the proposed reclamation site due to the adjacent railway.

CONSTRAINTS

A. The hinterland of Siu Ho Wan is occupied by a number of NIMBY/industrial uses /facilities posing different land use interfacing issues, eg. Siu Ho Wan Sewage and Water Treatment Works. A planned Organic Waste Treatment Facility (OWTF) is also located within the Siu Ho Wan hinterland.

B. The proposed reclamation abuts the existing Refuse Transfer Station (RTS) to its east. Appropriate measures will need to be implemented to address the interface between the future development upon the reclamation and the RTS.

C. Two columbarium developments are also proposed to be located east of the proposed reclamation which may have potential impact on traffic conditions on the proposed reclamation.

D. The existing Siu Ho Wan Water Treatment Works (WTW) is a Potentially Hazardous Installation (PHI) with a Consultation Zone of 1,000m in radius. Given potential hazard to life issue, if the WTW is not relocated it may undermine the development potential of part of the proposed reclamation.

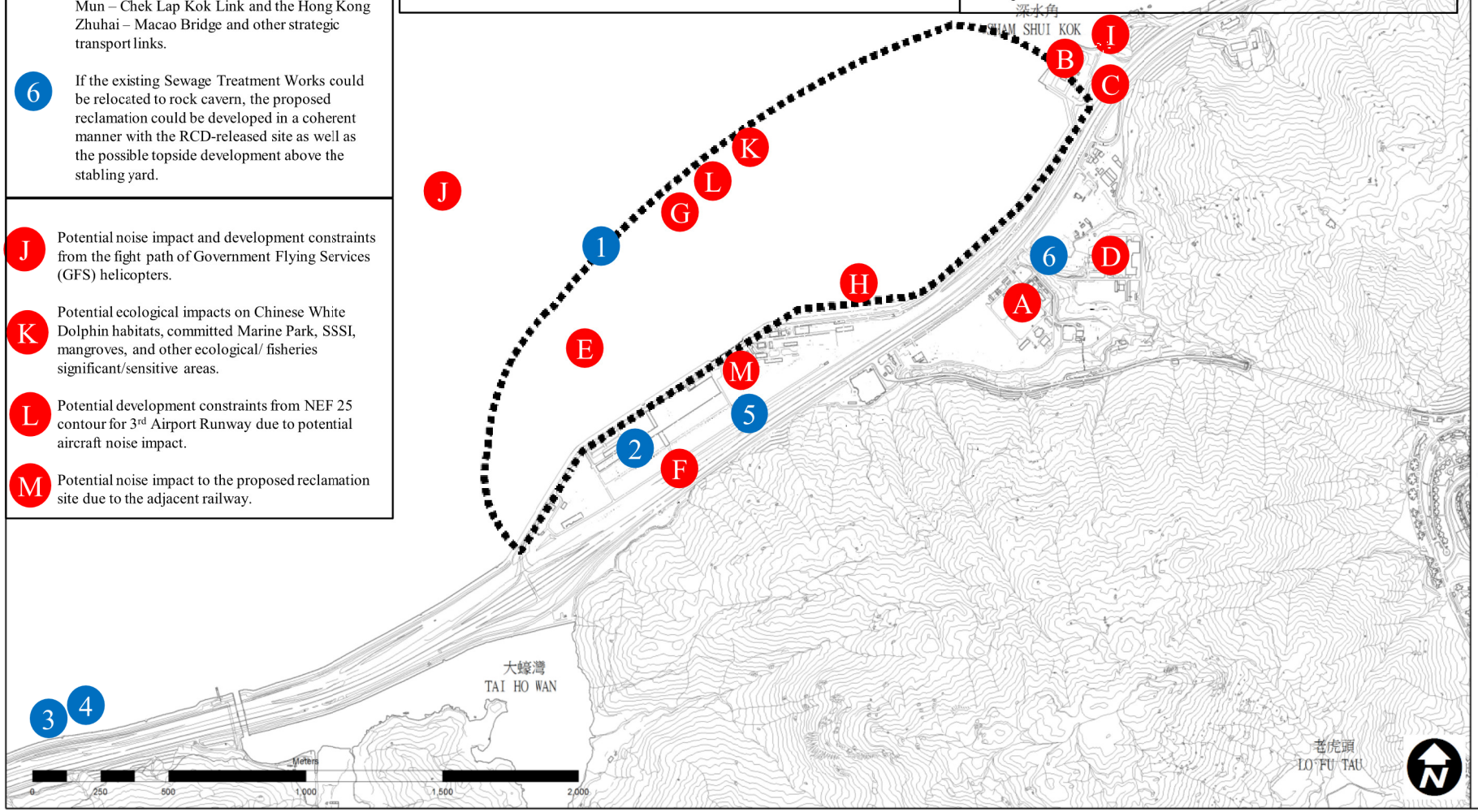
E. The existing Airport Height Restrictions will have an impact on the development potential of the proposed reclamation. Future development on the proposed reclamation will be limited to building heights ranging from 80mPD to 100mPD.

F. The adjacent transport infrastructure will have potential impacts on the future development of the reclamation. These potential impacts include air pollution and traffic noise generated by the North Lantau Highway.

G. The proposed reclamation is located within proximity to a committed Marine Park. Further reclamation beyond that proposed is unlikely.

H. The proposed Road P1 will have to be provided to sustain the development of Siu Ho Wan. However, the proposed road may occupy a rather significant portion of the reclamation.

I. Given potential hazard to life issue, the existing Sham Shui Kok Chlorine Transshipment Dock may also impact the development potential of the reclamation site.



Note:
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ARUP

Civil Engineering and Development Department

Agreement No. 9/2011 Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Opportunities and Constraints for Siu Ho Wan

1 : 15000

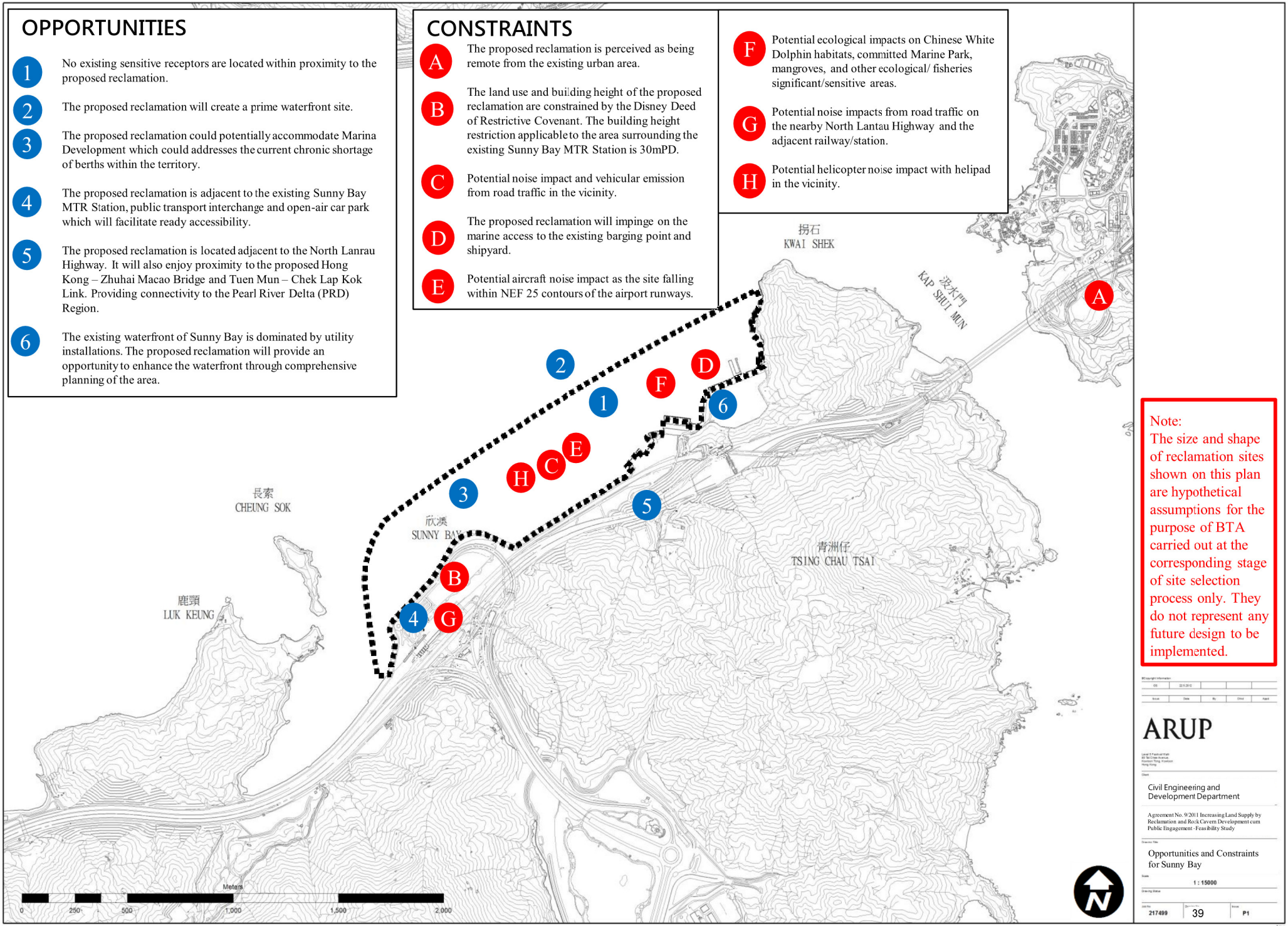
217499 | 38 | P1

OPPORTUNITIES

1. No existing sensitive receptors are located within proximity to the proposed reclamation.
2. The proposed reclamation will create a prime waterfront site.
3. The proposed reclamation could potentially accommodate Marina Development which could addresses the current chronic shortage of berths within the territory.
4. The proposed reclamation is adjacent to the existing Sunny Bay MTR Station, public transport interchange and open-air car park which will facilitate ready accessibility.
5. The proposed reclamation is located adjacent to the North Lanrau Highway. It will also enjoy proximity to the proposed Hong Kong – Zhuhai Macao Bridge and Tuen Mun – Chek Lap Kok Link. Providing connectivity to the Pearl River Delta (PRD) Region.
6. The existing waterfront of Sunny Bay is dominated by utility installations. The proposed reclamation will provide an opportunity to enhance the waterfront through comprehensive planning of the area.

CONSTRAINTS

- A The proposed reclamation is perceived as being remote from the existing urban area.
- B The land use and building height of the proposed reclamation are constrained by the Disney Deed of Restrictive Covenant. The building height restriction applicable to the area surrounding the existing Sunny Bay MTR Station is 30mPD.
- C Potential noise impact and vehicular emission from road traffic in the vicinity.
- D The proposed reclamation will impinge on the marine access to the existing barging point and shipyard.
- E Potential aircraft noise impact as the site falling within NEF 25 contours of the airport runways.
- F Potential ecological impacts on Chinese White Dolphin habitats, committed Marine Park, mangroves, and other ecological/ fisheries significant/sensitive areas.
- G Potential noise impacts from road traffic on the nearby North Lantau Highway and the adjacent railway/station.
- H Potential helicopter noise impact with helipad in the vicinity.



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ARUP

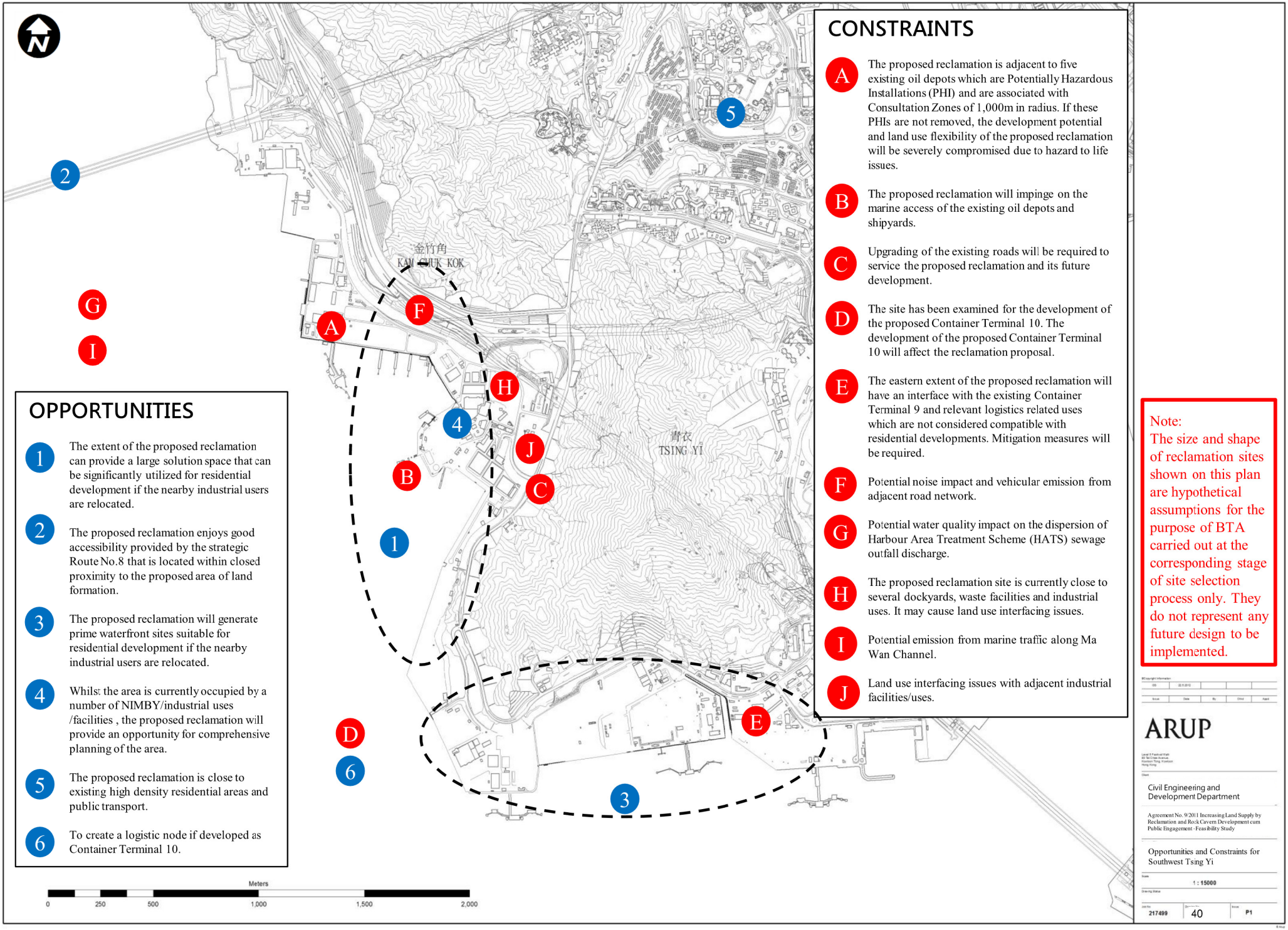
Civil Engineering and Development Department

Agreement No. 9/2011 Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Opportunities and Constraints for Sunny Bay

1 : 15000

217499 | 39 | P1



OPPORTUNITIES

1. The extent of the proposed reclamation can provide a large solution space that can be significantly utilized for residential development if the nearby industrial users are relocated.
2. The proposed reclamation enjoys good accessibility provided by the strategic Route No.8 that is located within closed proximity to the proposed area of land formation.
3. The proposed reclamation will generate prime waterfront sites suitable for residential development if the nearby industrial users are relocated.
4. Whilst the area is currently occupied by a number of NIMBY/industrial uses /facilities , the proposed reclamation will provide an opportunity for comprehensive planning of the area.
5. The proposed reclamation is close to existing high density residential areas and public transport.
6. To create a logistic node if developed as Container Terminal 10.

CONSTRAINTS

- **A** The proposed reclamation is adjacent to five existing oil depots which are Potentially Hazardous Installations (PHI) and are associated with Consultation Zones of 1,000m in radius. If these PHIs are not removed, the development potential and land use flexibility of the proposed reclamation will be severely compromised due to hazard to life issues.
- **B** The proposed reclamation will impinge on the marine access of the existing oil depots and shipyards.
- **C** Upgrading of the existing roads will be required to service the proposed reclamation and its future development.
- **D** The site has been examined for the development of the proposed Container Terminal 10. The development of the proposed Container Terminal 10 will affect the reclamation proposal.
- **E** The eastern extent of the proposed reclamation will have an interface with the existing Container Terminal 9 and relevant logistics related uses which are not considered compatible with residential developments. Mitigation measures will be required.
- **F** Potential noise impact and vehicular emission from adjacent road network.
- **G** Potential water quality impact on the dispersion of Harbour Area Treatment Scheme (HATS) sewage outfall discharge.
- **H** The proposed reclamation site is currently close to several dockyards, waste facilities and industrial uses. It may cause land use interfacing issues.
- **I** Potential emission from marine traffic along Ma Wan Channel.
- **J** Land use interfacing issues with adjacent industrial facilities/uses.

Note:
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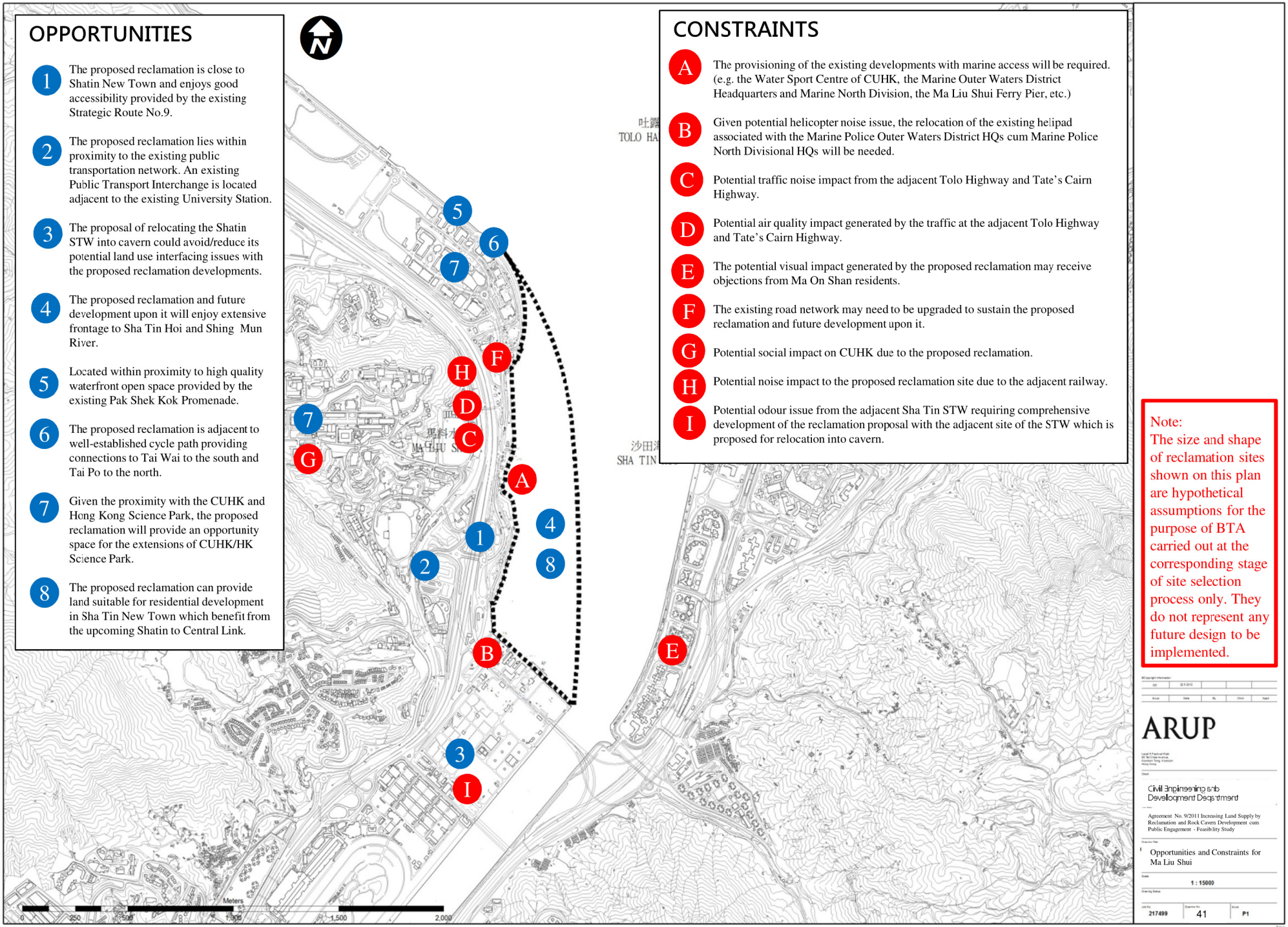
Agreement No. 9/2011 Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Opportunities and Constraints for Southwest Tsing Yi

1 : 15000

217499 | 40 | P1


OPPORTUNITIES
1 The proposed reclamation is close to Shatin New Town and enjoys good accessibility provided by the existing Strategic Route No.9.
2 The proposed reclamation lies within proximity to the existing public transportation network. An existing Public Transport Interchange is located adjacent to the existing University Station.
3 The proposal of relocating the Shatin STW into cavern could avoid/reduce its potential land use interfacing issues with the proposed reclamation developments.
4 The proposed reclamation and future development upon it will enjoy extensive frontage to Sha Tin Hoi and Shing Mun River.
5 Located within proximity to high quality waterfront open space provided by the existing Pak Shek Kok Promenade.
6 The proposed reclamation is adjacent to well-established cycle path providing connections to Tai Wai to the south and Tai Po to the north.
7 Given the proximity with the CUHK and Hong Kong Science Park, the proposed reclamation will provide an opportunity space for the extensions of CUHK/HK Science Park.
8 The proposed reclamation can provide land suitable for residential development in Sha Tin New Town which benefit from the upcoming Shatin to Central Link.
CONSTRAINTS
A The provisioning of the existing developments with marine access will be required. (e.g. the Water Sport Centre of CUHK, the Marine Outer Waters District Headquarters and Marine North Division, the Ma Liu Shui Ferry Pier, etc.)
B Given potential helicopter noise issue, the relocation of the existing helipad associated with the Marine Police Outer Waters District HQs cum Marine Police North Divisional HQs will be needed.
C Potential traffic noise impact from the adjacent Tolo Highway and Tate's Cairn Highway.
D Potential air quality impact generated by the traffic at the adjacent Tolo Highway and Tate's Cairn Highway.
E The potential visual impact generated by the proposed reclamation may receive objections from Ma On Shan residents.
F The existing road network may need to be upgraded to sustain the proposed reclamation and future development upon it.
G Potential social impact on CUHK due to the proposed reclamation.
H Potential noise impact to the proposed reclamation site due to the adjacent railway.
I Potential odour issue from the adjacent Sha Tin STW requiring comprehensive development of the reclamation proposal with the adjacent site of the STW which is proposed for relocation into cavern.
TOLO HA
SHA TIN
Meters
0 250 500 1,000 1,500 2,000
Note:
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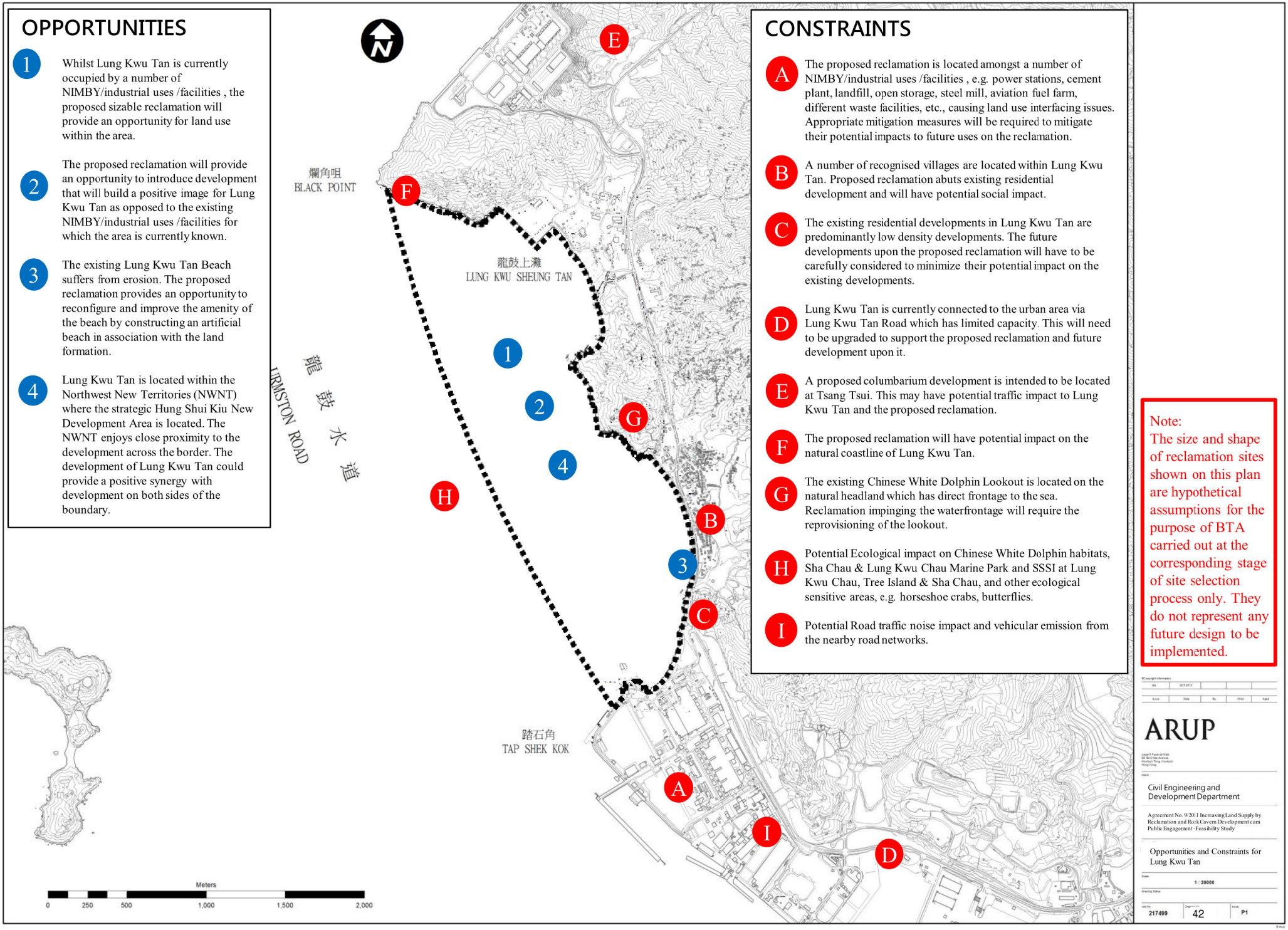
Agreement No. 9/2011 Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study
Opportunities and Constraints for Ma Liu Shui
1 : 15000
217499
41
P1


OPPORTUNITIES
1 Whilst Lung Kwu Tan is currently occupied by a number of NIMBY/industrial uses /facilities , the proposed sizable reclamation will provide an opportunity for land use within the area.
2 The proposed reclamation will provide an opportunity to introduce development that will build a positive image for Lung Kwu Tan as opposed to the existing NIMBY/industrial uses /facilities for which the area is currently known.
3 The existing Lung Kwu Tan Beach suffers from erosion. The proposed reclamation provides an opportunity to reconfigure and improve the amenity of the beach by constructing an artificial beach in association with the land formation.
4 Lung Kwu Tan is located within the Northwest New Territories (NWNT) where the strategic Hung Shui Kiu New Development Area is located. The NWNT enjoys close proximity to the development across the border. The development of Lung Kwu Tan could provide a positive synergy with development on both sides of the boundary.
CONSTRAINTS
A The proposed reclamation is located amongst a number of NIMBY/industrial uses /facilities , e.g. power stations, cement plant, landfill, open storage, steel mill, aviation fuel farm, different waste facilities, etc., causing land use interfacing issues. Appropriate mitigation measures will be required to mitigate their potential impacts to future uses on the reclamation.
B A number of recognised villages are located within Lung Kwu Tan. Proposed reclamation abuts existing residential development and will have potential social impact.
C The existing residential developments in Lung Kwu Tan are predominantly low density developments. The future developments upon the proposed reclamation will have to be carefully considered to minimize their potential impact on the existing developments.
D Lung Kwu Tan is currently connected to the urban area via Lung Kwu Tan Road which has limited capacity. This will need to be upgraded to support the proposed reclamation and future development upon it.
E A proposed columbarium development is intended to be located at Tsang Tsui. This may have potential traffic impact to Lung Kwu Tan and the proposed reclamation.
F The proposed reclamation will have potential impact on the natural coastline of Lung Kwu Tan.
G The existing Chinese White Dolphin Lookout is located on the natural headland which has direct frontage to the sea. Reclamation impinging the waterfrontage will require the reprovisioning of the lookout.
H Potential Ecological impact on Chinese White Dolphin habitats, Sha Chau & Lung Kwu Chau Marine Park and SSSI at Lung Kwu Chau, Tree Island & Sha Chau, and other ecological sensitive areas, e.g. horseshoe crabs, butterflies.
I Potential Road traffic noise impact and vehicular emission from the nearby road networks.
爛角咀
BLACK POINT
龍鼓上灘
LUNG KWU SHEUNG TAN
龍鼓水道
URMSTON ROAD
踏石角
TAP SHEK KOK
Meters
0 250 500 1,000 1,500 2,000
Note:
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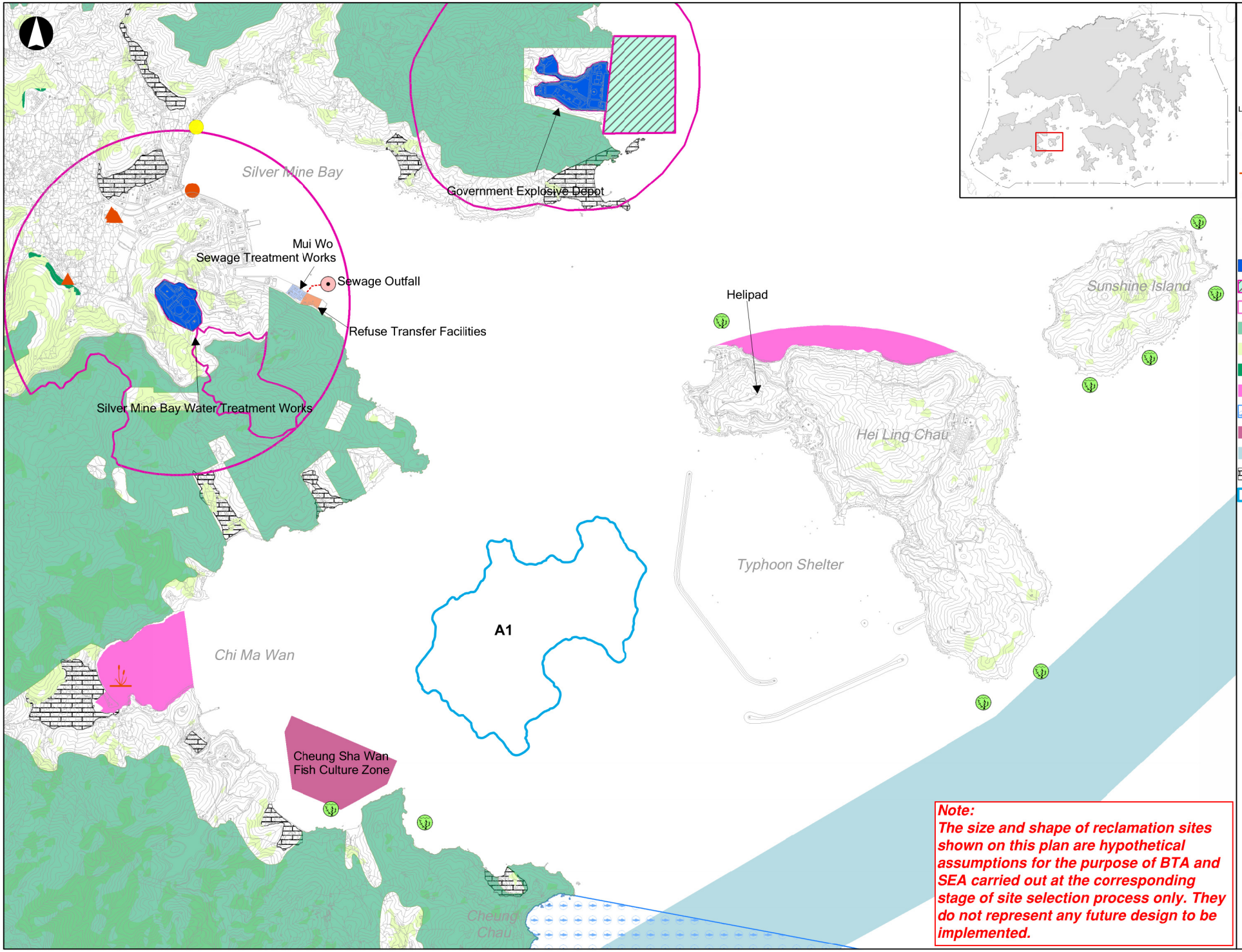
ARUP
Civil Engineering and Development Department
Agreement No. 9/2011 Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study
Opportunities and Constraints for Lung Kwu Tan
1 : 20000
217499
42
P1

Appendix A

Environmental Resources and Constraints for 27 Recommended Longlisted Sites



Note:
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Issue	Date	By	Chkd	Apprd
P0	2012-03-16	SC		

Metres 0 125 250 500 750

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

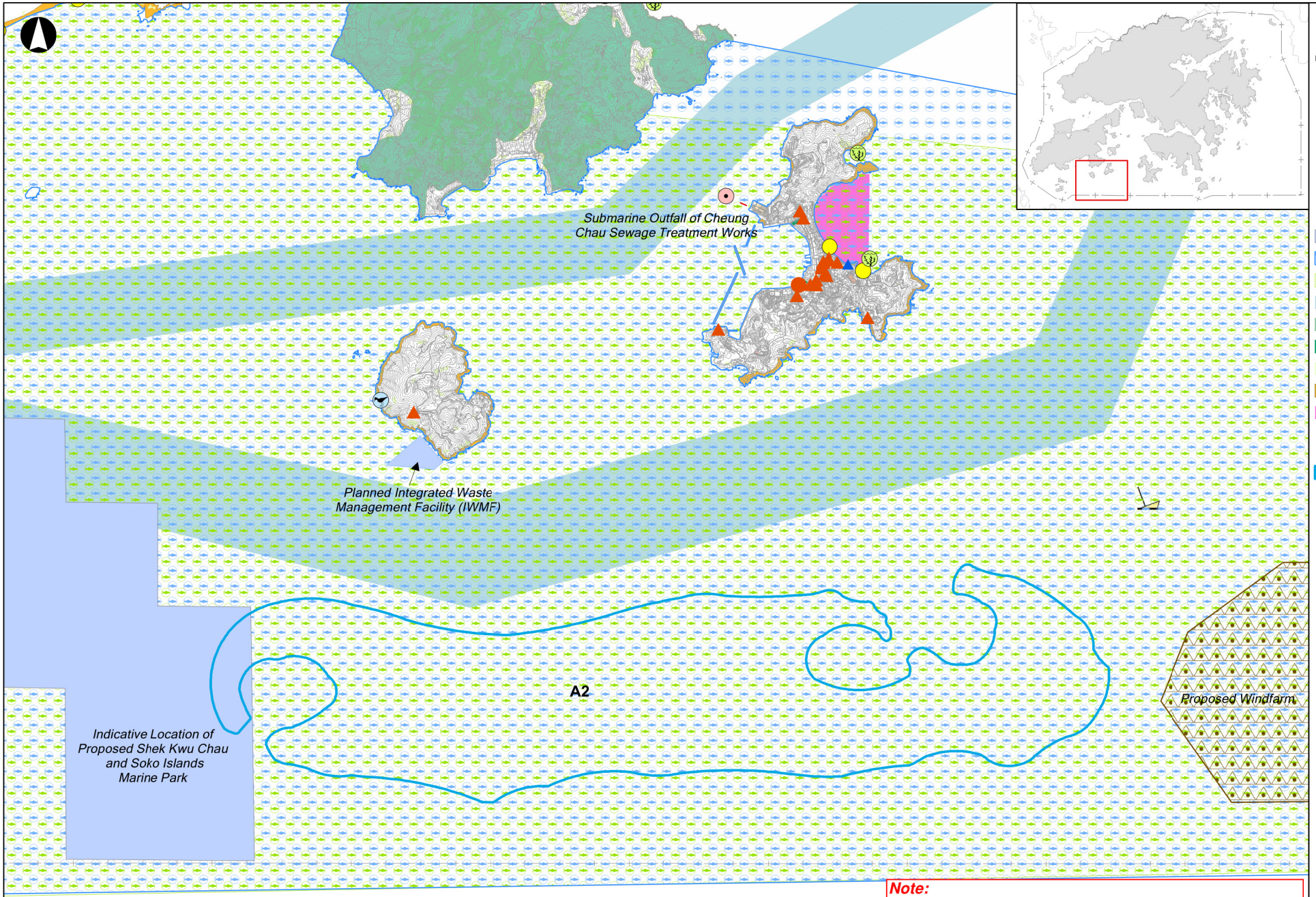
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Environmental Resources and Constraints (Reclamation Site A1)

Scale at A3
1:20,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	A1	P0



Note:
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Issue	Date	By	Chkd	Appd
P0	2012-01-11	SC		

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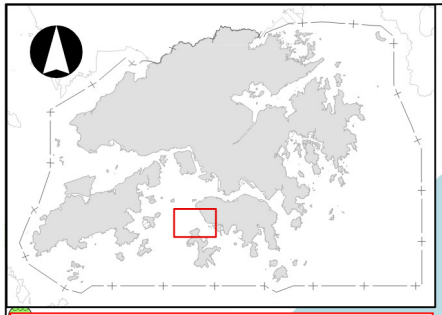
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Environmental Resources and Constraints (Reclamation Site A2)

Scale at A3
1:40,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217459	A2	P0



Note:
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Submarine Outfall of
Sandy Bay Sewage Treatment Works

Submarine Outfall of
Cyberport Sewage Treatment Works

Submarine Outfall of
Wah Fu Sewage Treatment Works

A3

West Lamma Channel

East Lamma Channel

Lamma Power Station

Legend

- Key Coral Area (EIA-134/2007)
- Homeport
- Coral (EIA 134-2007)
- Juveniles Horseshoe Crab (Morton, 1999)
- Seawater Intake Points
- Gazetted Beach
- Declared Monument
- Graded/Proposed Graded Historic Buidling
- Shipwreck
- Water Gathering Ground and Reservoir
- Fairway & Navigation Channel
- PHI
- PHI Consultation Zone
- Fish Nursery Ground
- Artificial Reef Deployment Area
- Fish Culture Zone
- Sites of Archaeological Interest
- Lamma North
- Country Park
- Special Area
- Lowland Forest
- Key Coral Area
- Conservation Area
- Coastal Protection Area

Issue	Date	By	Chkd	Apprd
P0	2012-01-11	SC		

Metres
0 125 250 500 750

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Job Title
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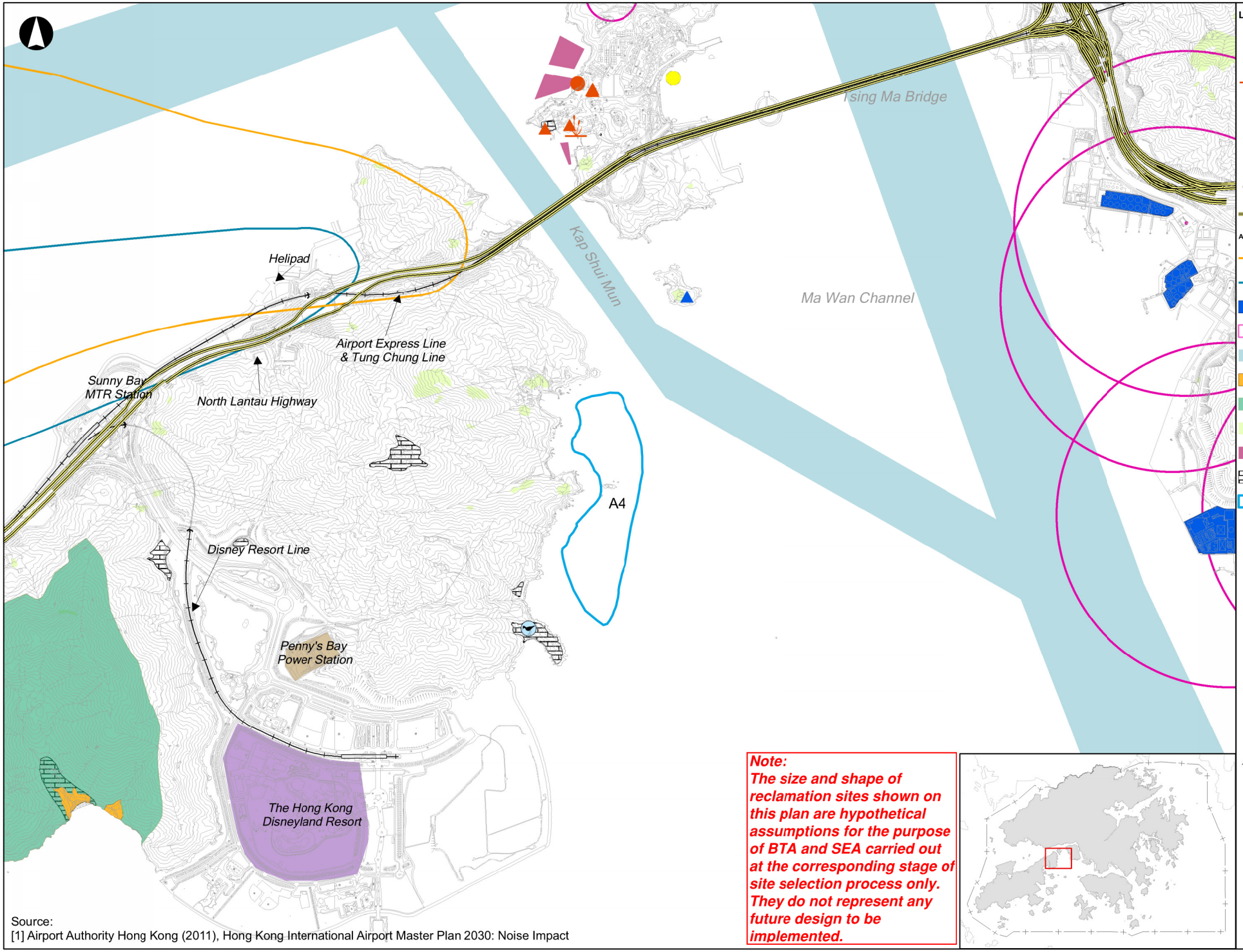
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Environmental Resources and Constraints (Reclamation Site A3)

Scale at A3
1:27,451

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	A3	P0



Source:
[1] Airport Authority Hong Kong (2011), Hong Kong International Airport Master Plan 2030: Noise Impact

Note:
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Issue	Date	By	Chkd	Apprd
P0	2012-01-13	SC		

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Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Environmental Resources and Constraint (Reclamation Site A4)

Scale at A3
1:20,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
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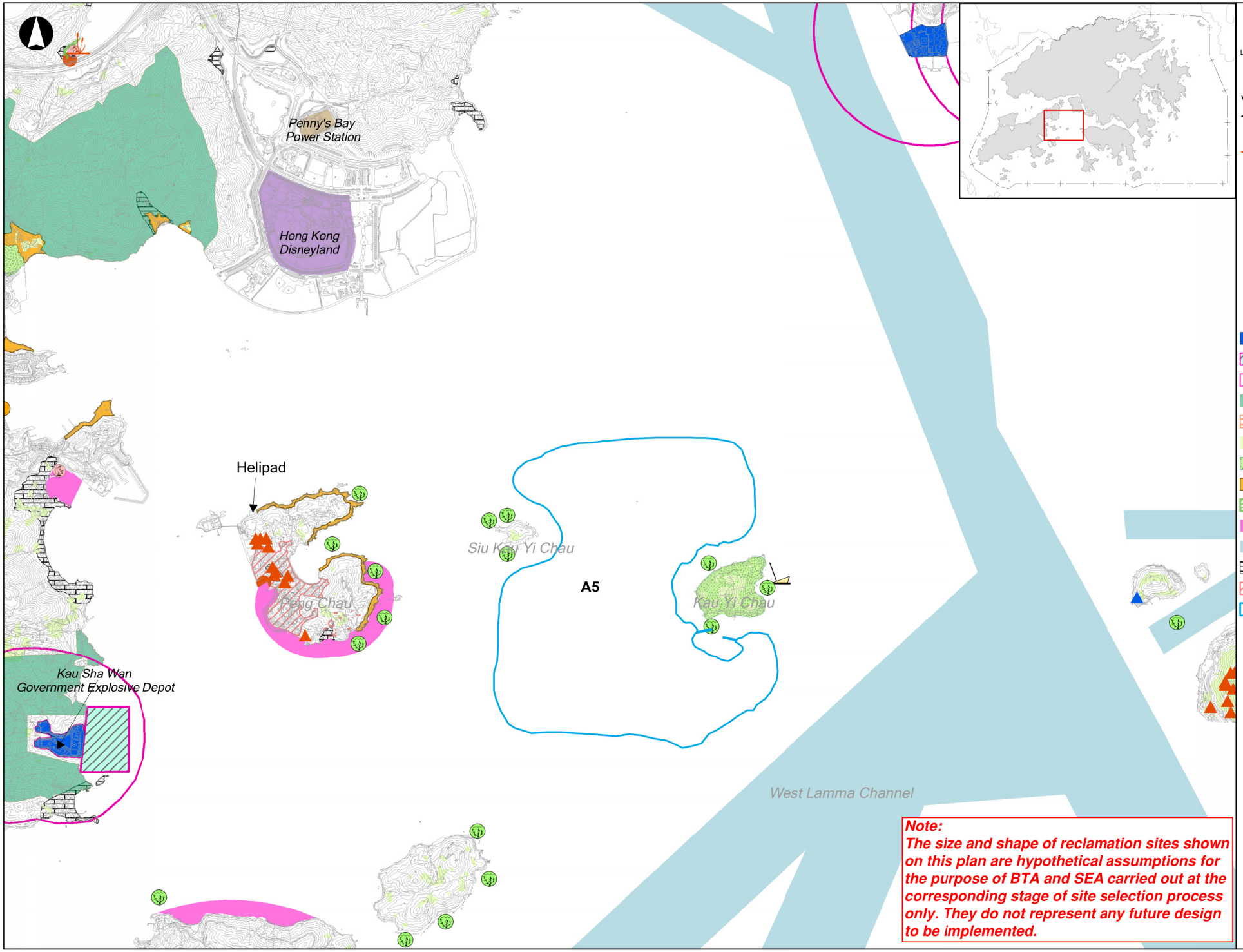

Note:
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Issue	Date	By	Chkd	Appd
P0	2012-01-13	SC		

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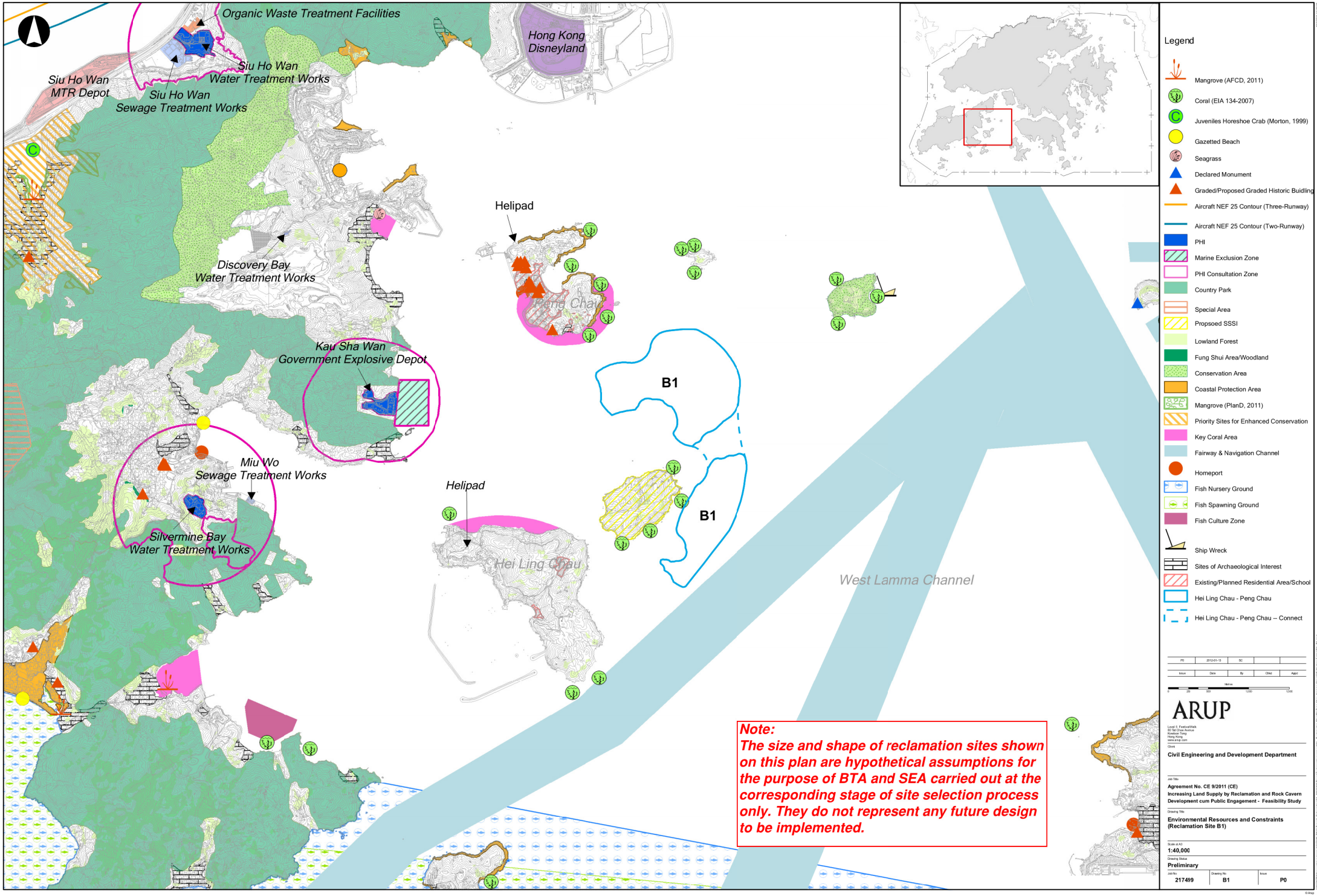
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Environmental Resources and Constraints (Reclamation Site A5)

Scale at A3
1:30,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	A5	P0


Organic Waste Treatment Facilities
Hong Kong Disneyland
Siu Ho Wan MTR Depot
Siu Ho Wan Water Treatment Works
Siu Ho Wan Sewage Treatment Works
Helipad
Discovery Bay Water Treatment Works
Peng Chau
Kau Sha Wan Government Explosive Depot
B1
Miu Wo Sewage Treatment Works
Helipad
B1
Silvermine Bay Water Treatment Works
Hei Ling Chau
West Lamma Channel
Legend
Mangrove (AFCD, 2011)
Coral (EIA 134-2007)
Juveniles Horeshoe Crab (Morton, 1999)
Gazetted Beach
Seagrass
Declared Monument
Graded/Proposed Graded Historic Buidling
Aircraft NEF 25 Contour (Three-Runway)
Aircraft NEF 25 Contour (Two-Runway)
PHI
Marine Exclusion Zone
PHI Consultation Zone
Country Park
Special Area
Propsoed SSSI
Lowland Forest
Fung Shui Area/Woodland
Conservation Area
Coastal Protection Area
Mangrove (PlanD, 2011)
Priority Sites for Enhanced Conservation
Key Coral Area
Fairway & Navigation Channel
Homeport
Fish Nursery Ground
Fish Spawning Ground
Fish Culture Zone
Ship Wreck
Sites of Archaeological Interest
Existing/Planned Residential Area/School
Hei Ling Chau - Peng Chau
Hei Ling Chau - Peng Chau -- Connect
Note:
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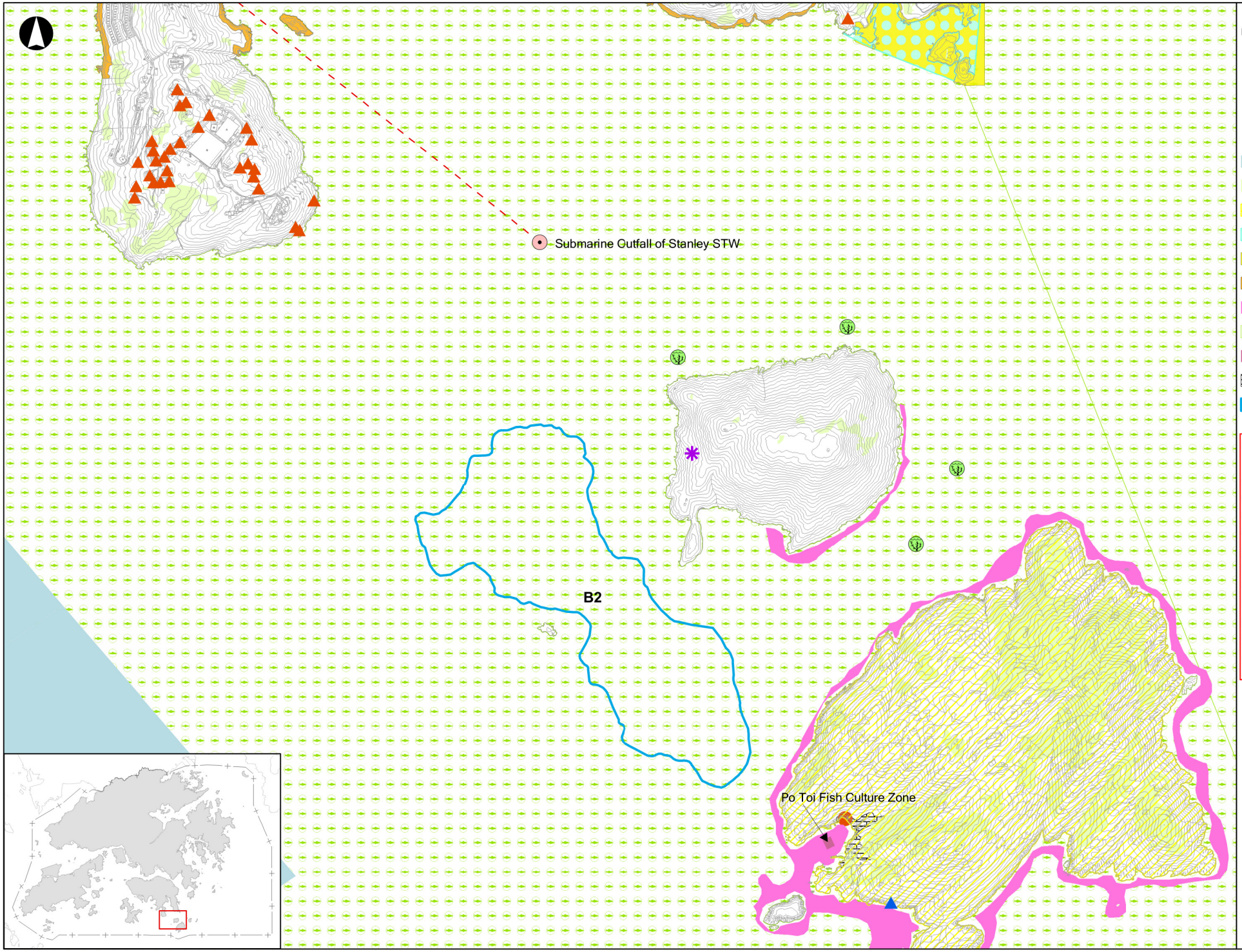
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study
Environmental Resources and Constraints (Reclamation Site B1)
1:40,000
Preliminary
217499
B1
P0



Legend

- Homeport
- Coral (EIA 134-2007)
- Declared Monument
- Graded/Proposed Graded Historic Buidling
- Fairway & Navigation Channel
- Lowland Forest
- Propsoed SSSI
- Marine Rreserve
- SSSI
- Coastal Protection Area
- Key Coral Area (Chan et al. 2005)
- Fish Spawning Ground
- Fish Culture Zone
- Sites of Archaeological Interest
- Potential Reclamation Site

Note:
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Issue	Date	By	Chkd	Apprd
P0	2012-01-11	SC		

Metres
0 125 250 500 750

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong, Kowloon
Hong Kong

Client
Civil Engineering and Development Department

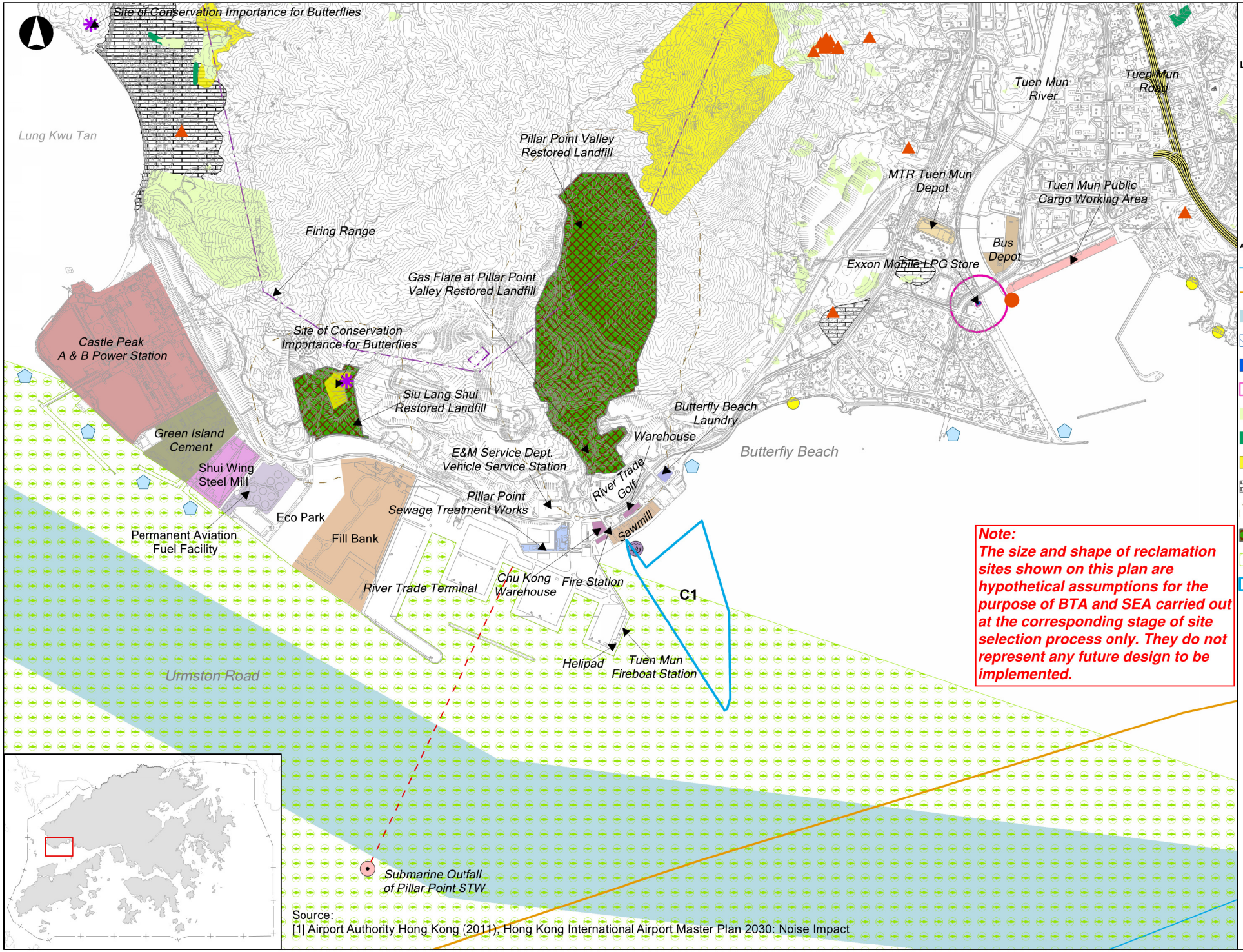
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Environmental Resources and Constraints (Reclamation Site B2)

Scale at A3
1:20,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	B2	P0



Source:
[1] Airport Authority Hong Kong (2011), Hong Kong International Airport Master Plan 2030: Noise Impact

ARUP

Civil Engineering and Development Department

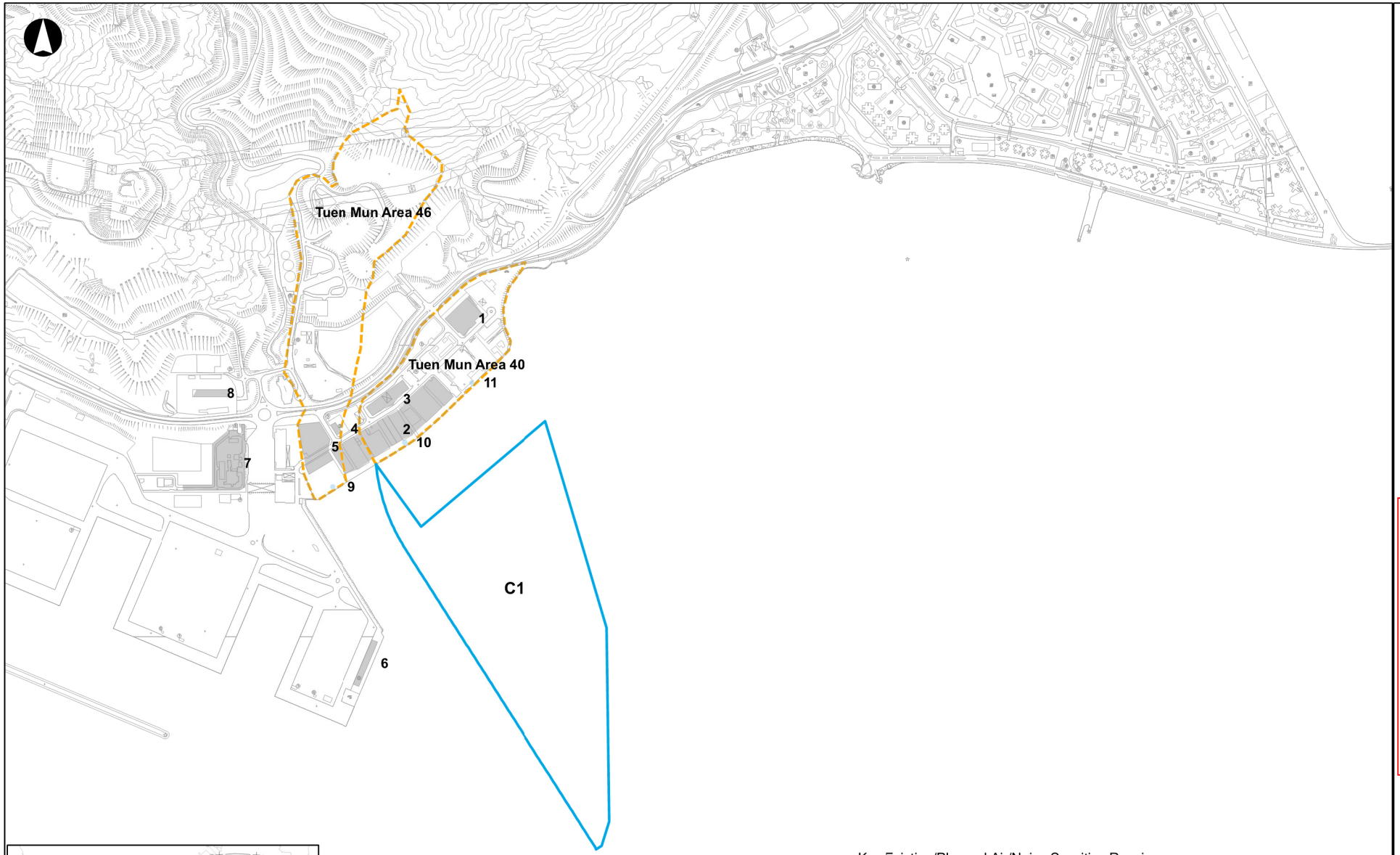
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

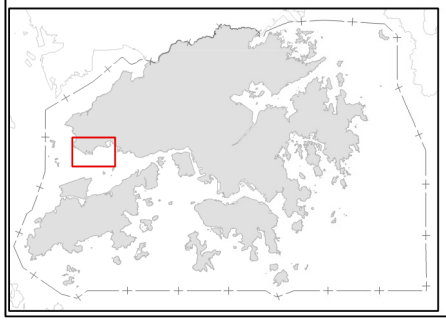
Environmental Resources and Constraints (Reclamation Site C1)

1:20,000

Preliminary

Job No	Drawing No	Issue
217459	C1.a	P0





Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR	Butterfly Beach Laundry	Industrial
2	ASR	Sawmill	Industrial
3	ASR	Warehouse	Industrial
4	ASR	Fire Station	Government
5	ASR	Chu Kong Warehouse	Industrial
6	ASR	Tuen Mun Fireboat Station	Government
7	ASR	Pillar Point Sewage Treatment Works	Office
8	ASR	E&M Service Department Vehicle Service Station	Government
9	ASR/NSR	Proposed Developments in Tuen Mun Area 46	-
10	ASR/NSR	Proposed Developments in Tuen Mun Area 40	-
11	ASR/NSR	Proposed Developments in Tuen Mun Area 40	-

Legend

- Key ASR/NSR
- Key ASR
- Tuen Mun Proposed Planning Area
- Potential Reclamation Site

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Issue	Date	By	Chkd	Apprd
P0	2012-01-11	SC		

Metres
0 62.5 125 250 375

ARUP

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Hong Kong

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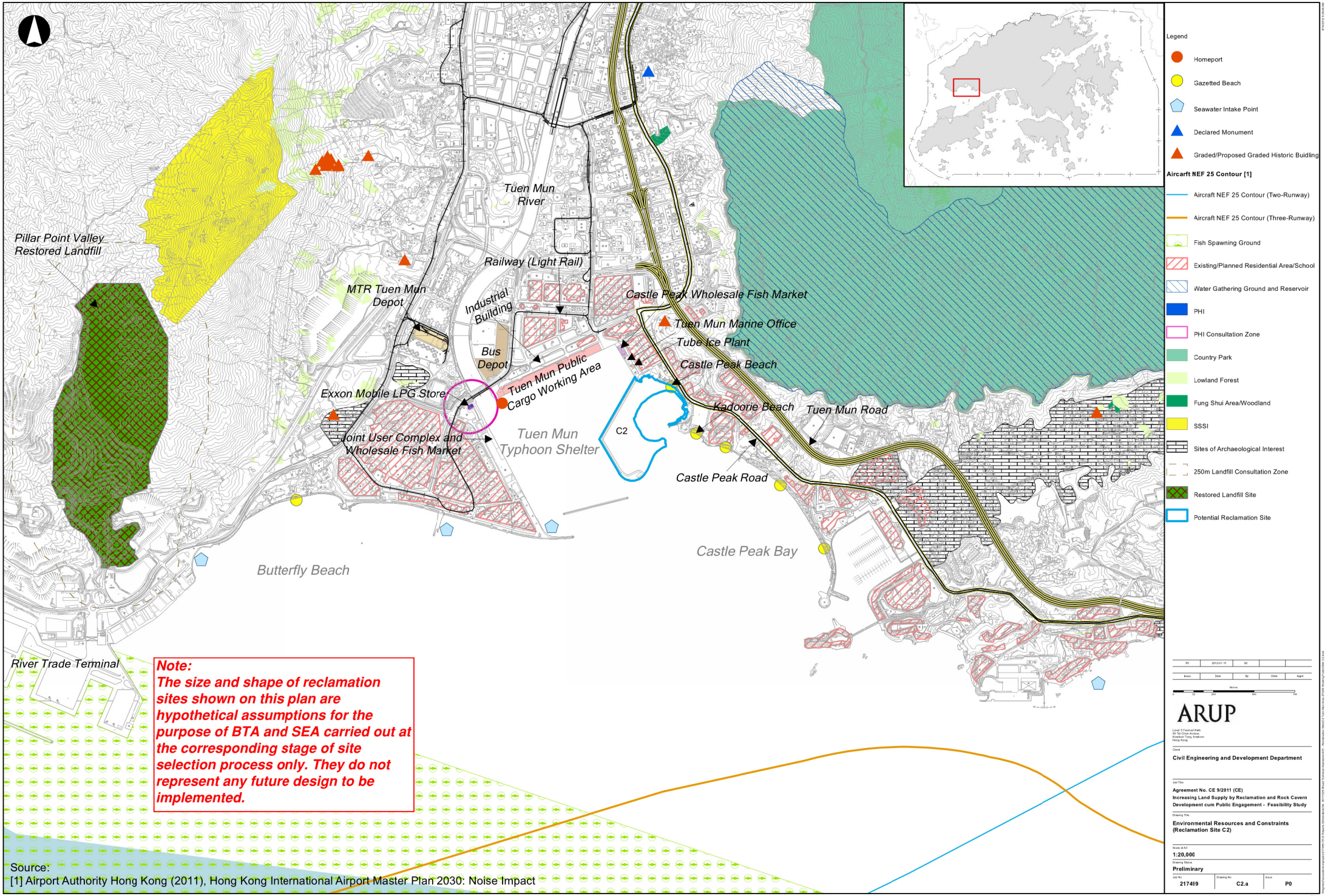
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site C1)

Scale at A3
1:9,985

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	C1.b	P0



Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

Source:
[1] Airport Authority Hong Kong (2011), Hong Kong International Airport Master Plan 2030: Noise Impact

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Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Environmental Resources and Constraints (Reclamation Site C2)

1:20,000

Preliminary

Job No	Drawing No	Issue
217459	C2.a	P0

Legend

- Key ASR
- Key ASR/NSR
- Potential Reclamation Site

Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR	Tube Ice Plant	Industrial
2	ASR	Tuen Mun Marine Office	Government
3	ASR	Castle Peak Fish Market	Market
4	ASR/NSR	Sam Shing Estate	Residential
5	ASR	Hoi Tin Garden Restaurant	Restaurant
6	ASR	Fish Market	Market
7	ASR/NSR	Palm Cove	Residential
8	ASR/NSR	Dragon Villa	Residential
9	ASR/NSR	Dragon Inn Court	Residential
10	ASR/NSR	Castle Peak Bay Garden	Residential
11	ASR/NSR	Verdant Villa	Residential
12	ASR/NSR	Pine Villas	Residential
13	ASR/NSR	South Crest	Residential
14	ASR/NSR	Bayview Terrance	Residential
15	ASR/NSR	Aquamarine Garden	Residential
16	ASR	Tuen Mun Public Cargo Working Area	Industrial

Issue	Date	By	Chkd	Apprd
P0	2012-01-11	SC		

Metres: 0 62.5 125 250 375

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Job Title
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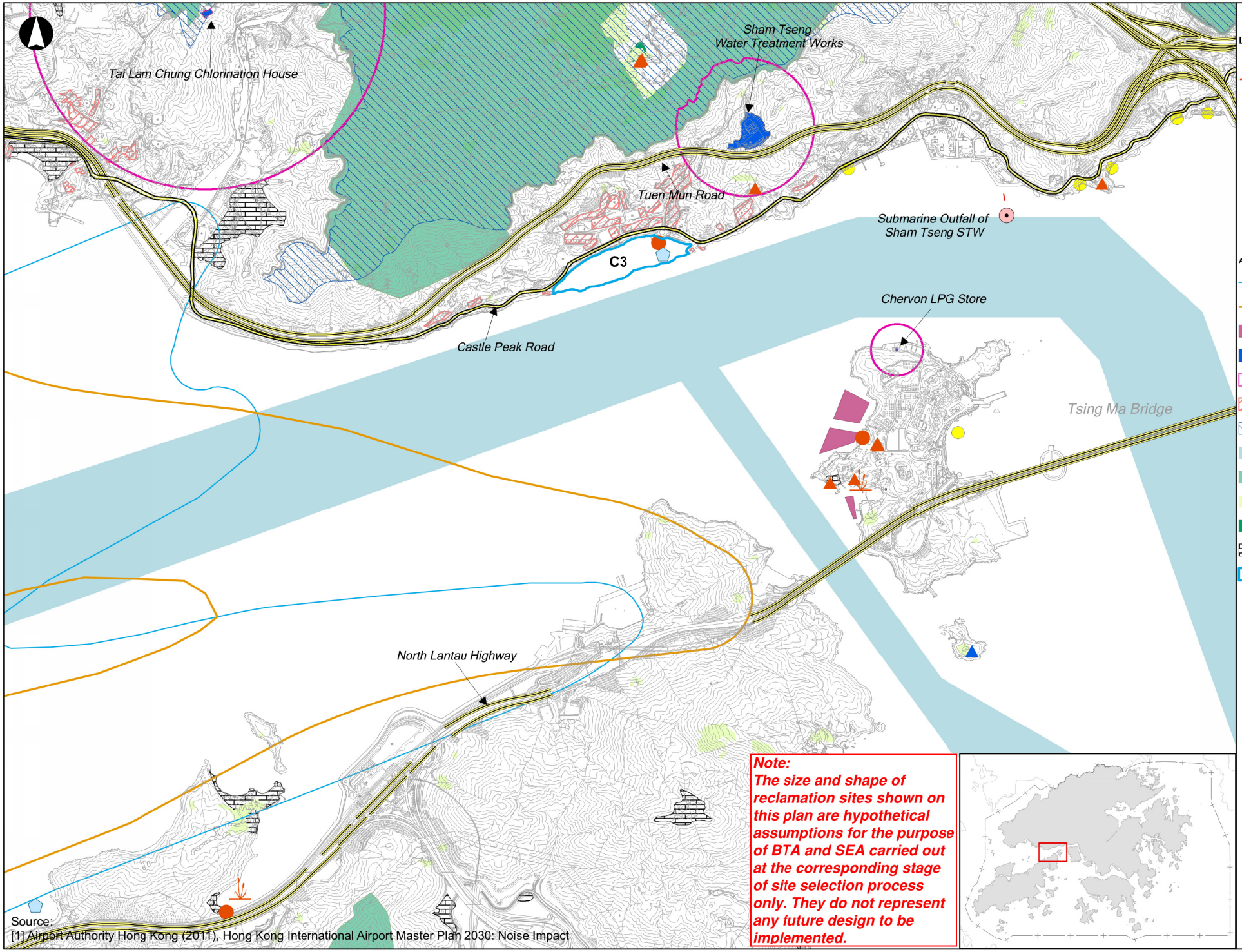
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Key Sensitive Air/Noise Sensitive Receivers (Reclamation Site C2)

Scale at A3
1:10,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	C2.b	P0



Source:
[1] Airport Authority Hong Kong (2011), Hong Kong International Airport Master Plan 2030: Noise Impact

Note:
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Issue	Date	By	Chkd	Apprd
P0	2012-03-12	SC		

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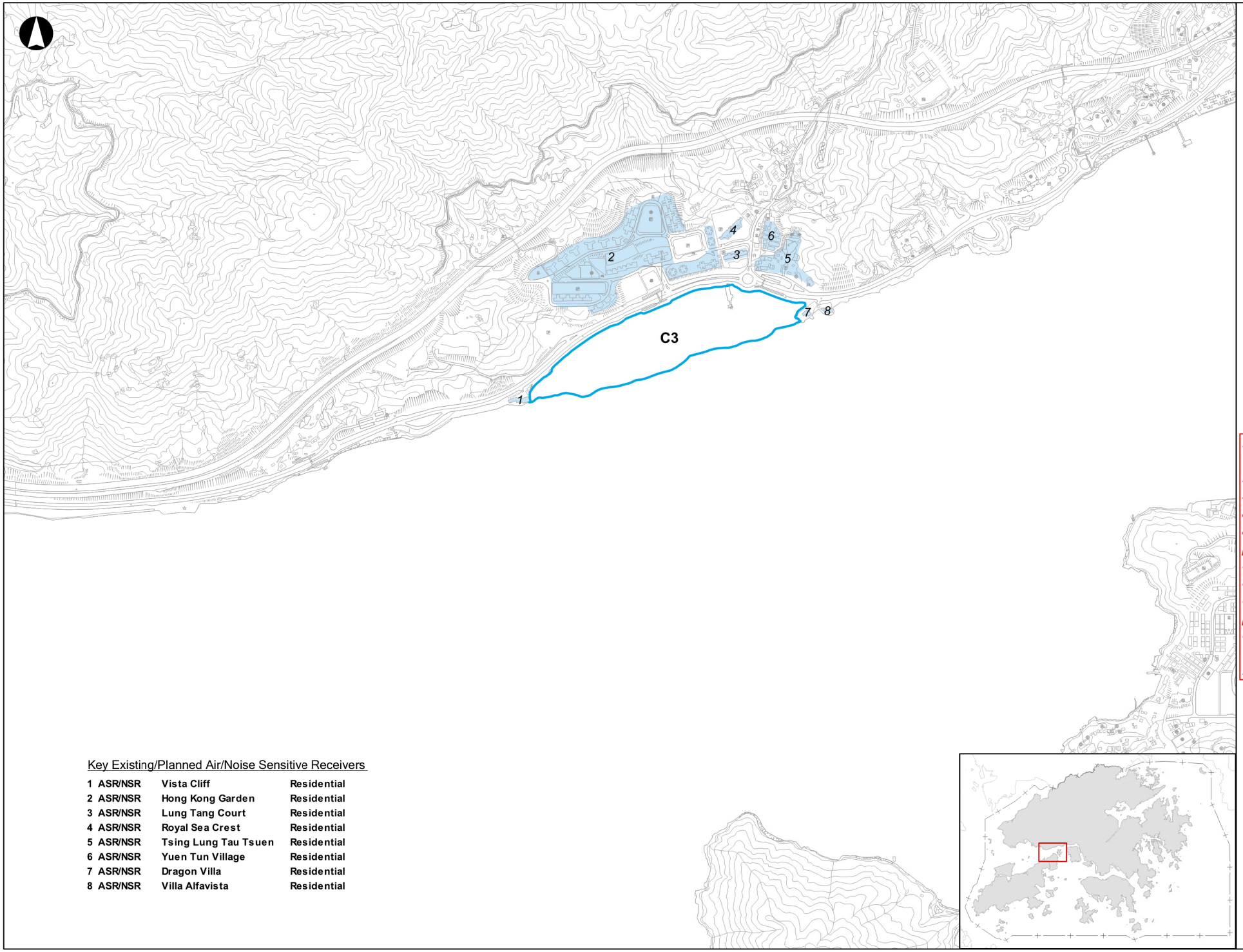
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Environmental Resources and Constraints (Reclamation Site C3)

Scale at A3
1:20,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	C3.a	P0



Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR/NSR	Vista Cliff	Residential
2	ASR/NSR	Hong Kong Garden	Residential
3	ASR/NSR	Lung Tang Court	Residential
4	ASR/NSR	Royal Sea Crest	Residential
5	ASR/NSR	Tsing Lung Tau Tsuen	Residential
6	ASR/NSR	Yuen Tun Village	Residential
7	ASR/NSR	Dragon Villa	Residential
8	ASR/NSR	Villa Alfavista	Residential

Issue	Date	By	Chkd	Apprd
P0	2012-03-12	SC		

Metres
0 62.5 125 250 375

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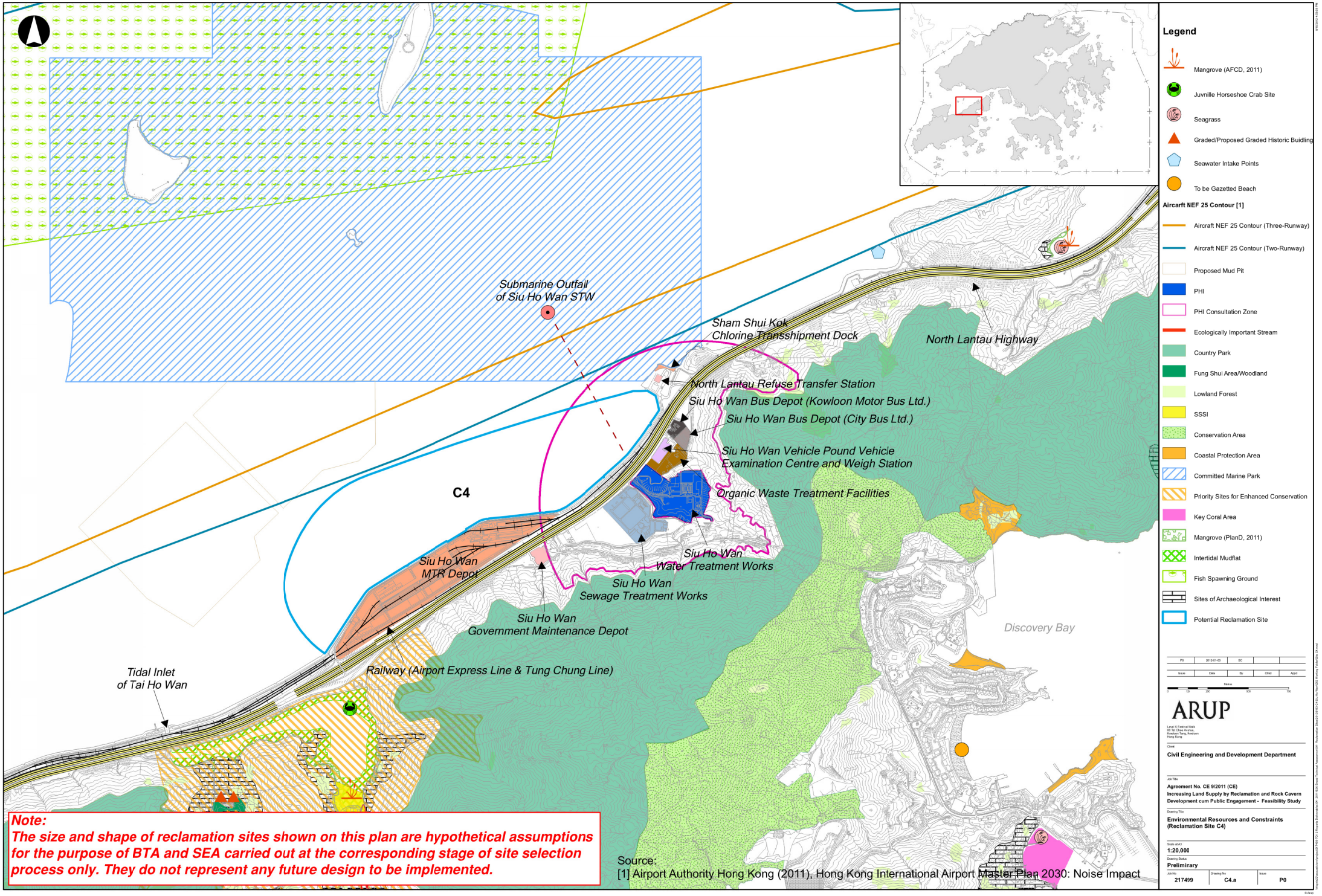
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site C3)

Scale at A3
1:10,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	C3.b	P0



Note:
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Source:
[1] Airport Authority Hong Kong (2011), Hong Kong International Airport Master Plan 2030: Noise Impact

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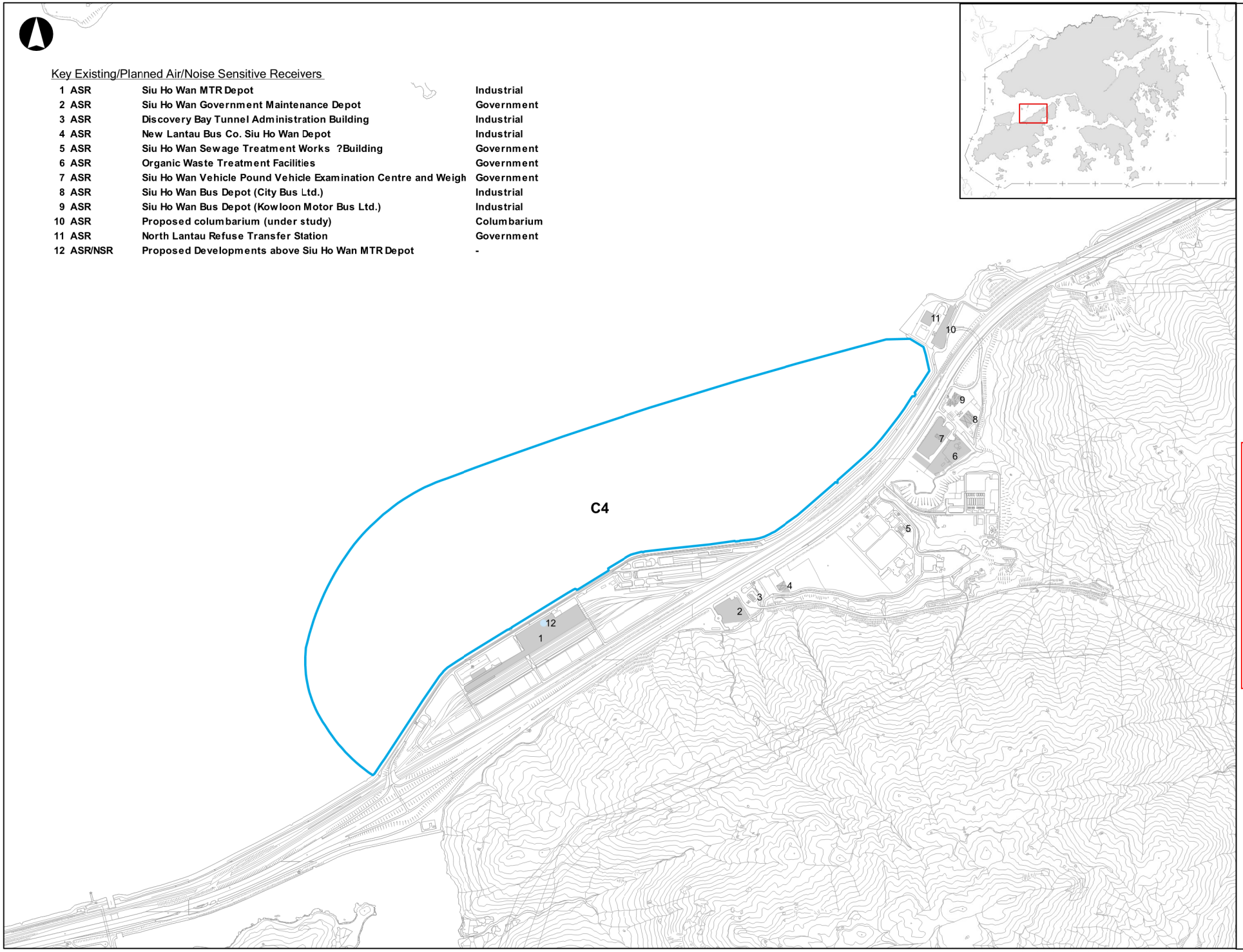
Civil Engineering and Development Department

Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Environmental Resources and Constraints (Reclamation Site C4)

Scale at A3: 1:20,000
Drawing Status: Preliminary

Job No	Drawing No	Issue
217499	C4.a	P0



Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR	Siu Ho Wan MTR Depot	Industrial
2	ASR	Siu Ho Wan Government Maintenance Depot	Government
3	ASR	Discovery Bay Tunnel Administration Building	Industrial
4	ASR	New Lantau Bus Co. Siu Ho Wan Depot	Industrial
5	ASR	Siu Ho Wan Sewage Treatment Works ?Building	Government
6	ASR	Organic Waste Treatment Facilities	Government
7	ASR	Siu Ho Wan Vehicle Pound Vehicle Examination Centre and Weigh	Government
8	ASR	Siu Ho Wan Bus Depot (City Bus Ltd.)	Industrial
9	ASR	Siu Ho Wan Bus Depot (Kowloon Motor Bus Ltd.)	Industrial
10	ASR	Proposed columbarium (under study)	Columbarium
11	ASR	North Lantau Refuse Transfer Station	Government
12	ASR/NSR	Proposed Developments above Siu Ho Wan MTR Depot	-

Legend

- Key ASR/NSR
- Key ASR
- Potential Reclamation Site

Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

Issue	Date	By	Chkd	Apprd
P0	2012-01-03	SC		

Metres
0 62.5 125 250 375

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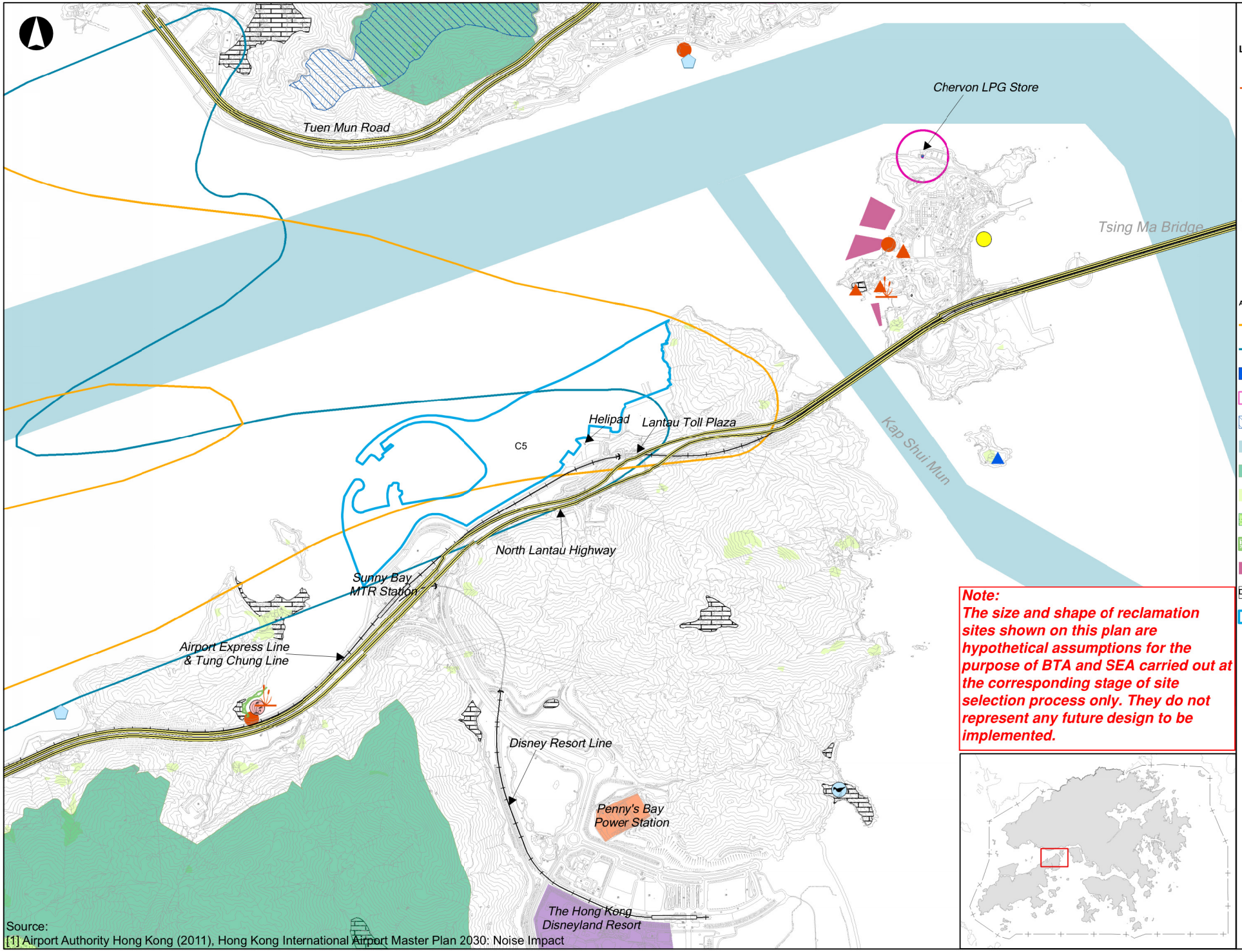
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site C4)

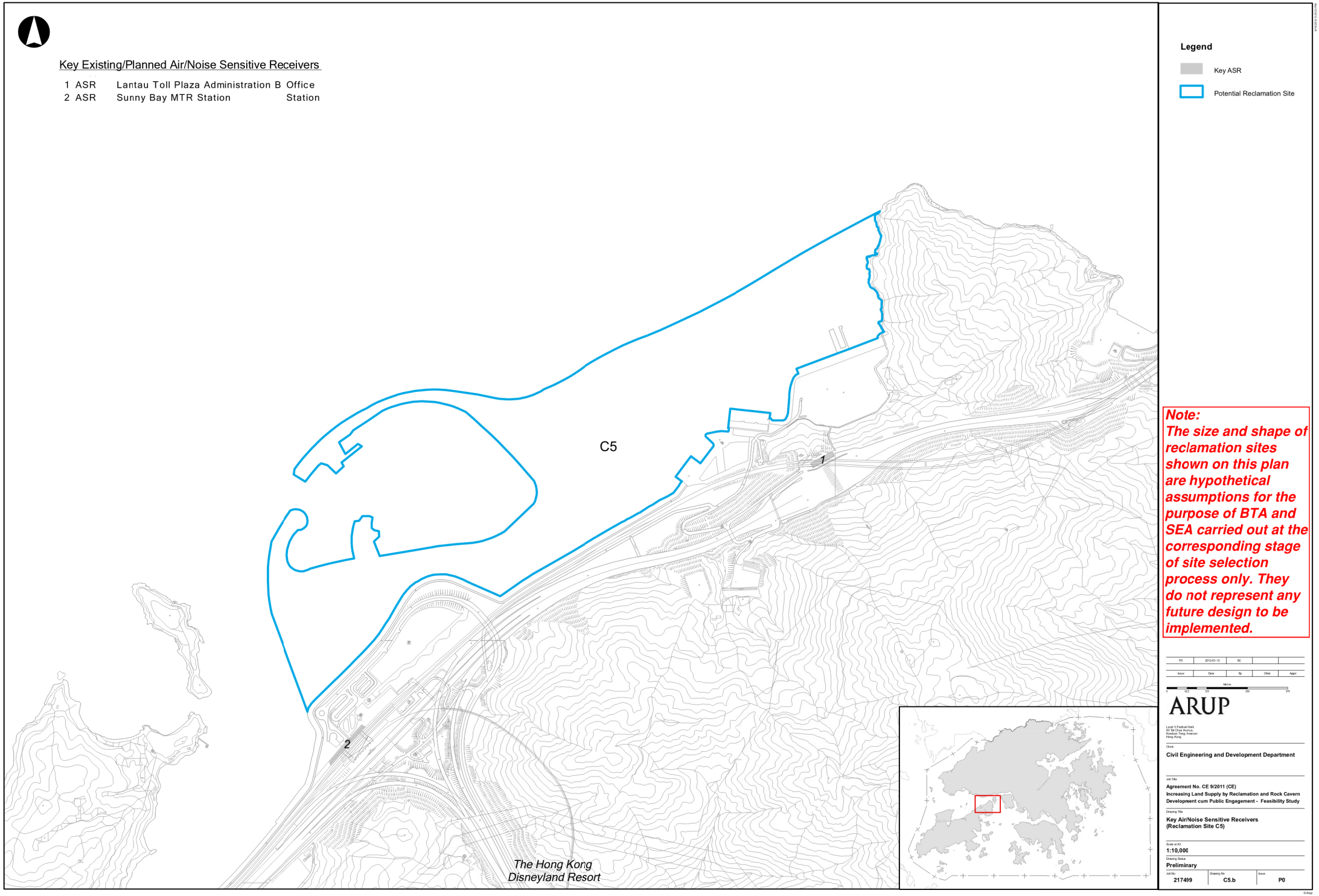
Scale at A3
1:12,828

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	C4.b	P0



Source:
[1] Airport Authority Hong Kong (2011), Hong Kong International Airport Master Plan 2030: Noise Impact


Key Existing/Planned Air/Noise Sensitive Receivers
1 ASR Lantau Toll Plaza Administration B Office
2 ASR Sunny Bay MTR Station Station
C5
1
2
The Hong Kong
Disneyland Resort
Legend
Key ASR
Potential Reclamation Site
Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.
P0 2012-01-13 SC
Issue Date By Chkd Appd
Metres
0 62.5 125 250 375
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Hong Kong
Client
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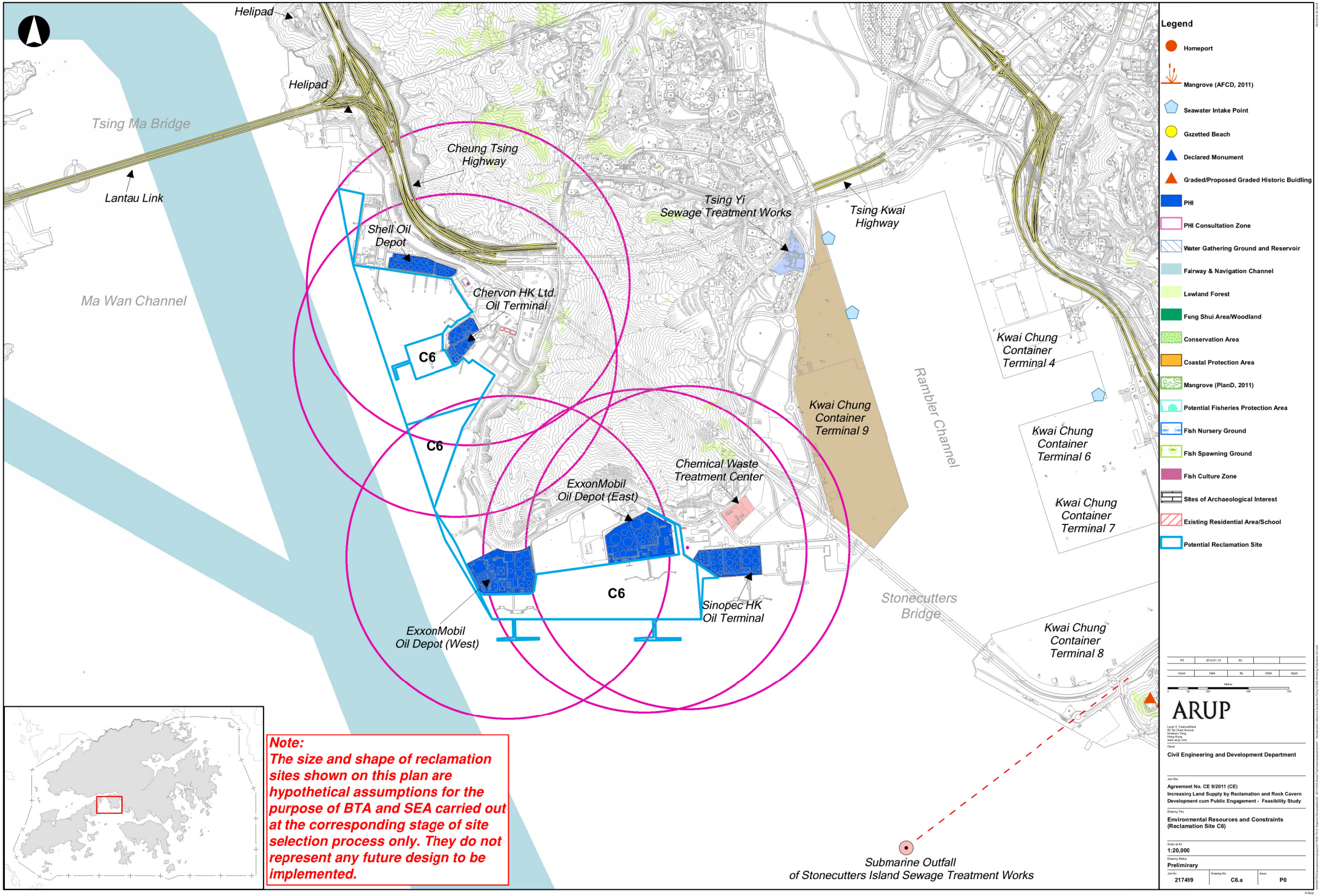
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study
Drawing Title
Key Air/Noise Sensitive Receivers
(Reclamation Site C5)
Scale at A3
1:10,000
Drawing Status
Preliminary
Job No 217499
Drawing No C5.b
Issue P0



Note:
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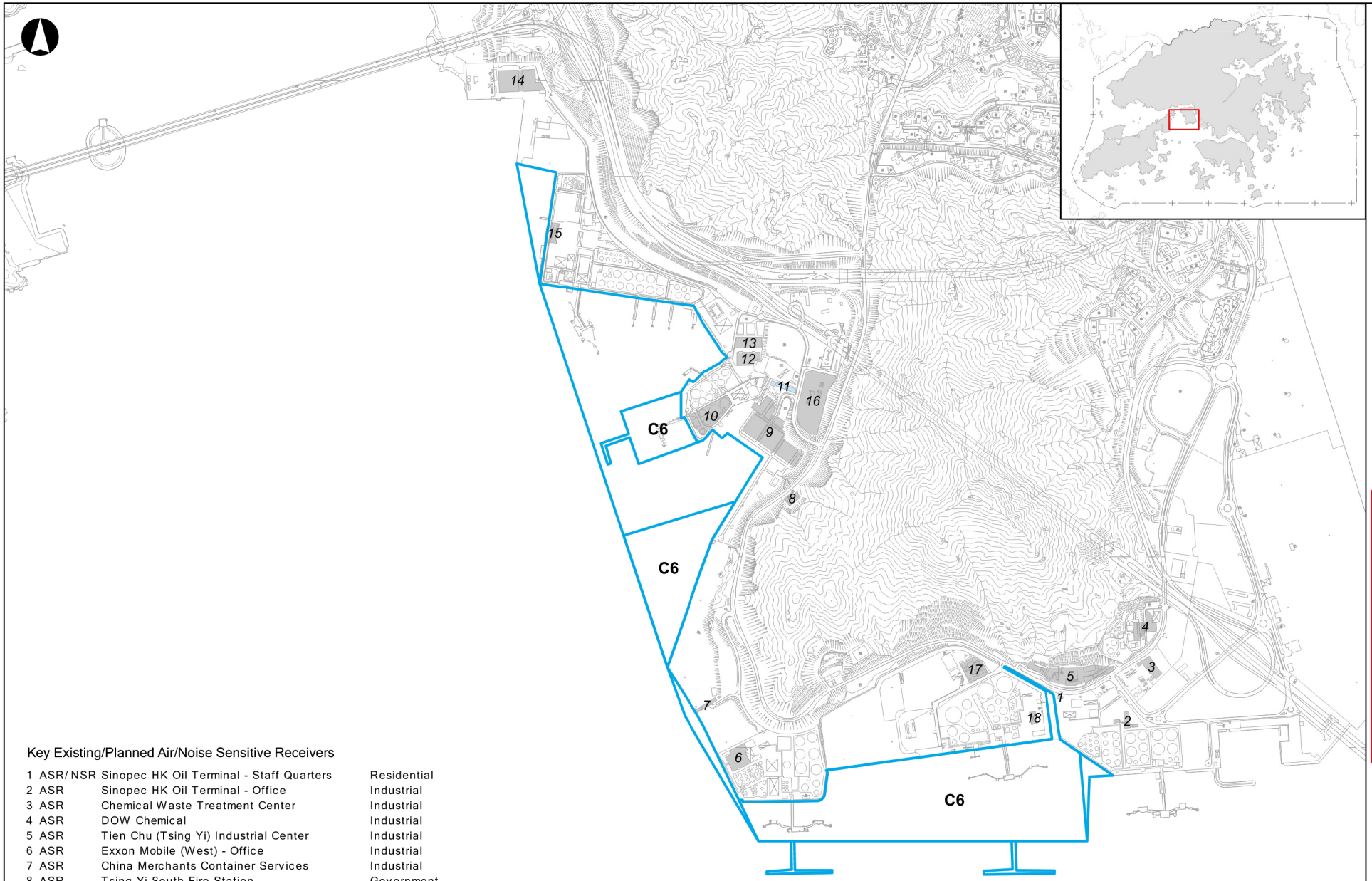
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Environmental Resources and Constraints (Reclamation Site C6)

Scale at A3: 1:20,000

Drawing Status: Preliminary

Job No	Drawing No	Issue
217499	C6.a	P0



Legend

- Key ASR
- Key ASR/NSR
- Potential Reclamation Site

Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR/ NSR	Sinopec HK Oil Terminal - Staff Quarters	Residential
2	ASR	Sinopec HK Oil Terminal - Office	Industrial
3	ASR	Chemical Waste Treatment Center	Industrial
4	ASR	DOW Chemical	Industrial
5	ASR	Tien Chu (Tsing Yi) Industrial Center	Industrial
6	ASR	Exxon Mobile (West) - Office	Industrial
7	ASR	China Merchants Container Services	Industrial
8	ASR	Tsing Yi South Fire Station	Government
9	ASR	Yiu Lian Dockyards Ltd. - Workshoprs & Office	Industrial
10	ASR	Chevron Hk Ltd. Tsing Yi Oil Terminal - Store	Industrial
11	ASR/ NSR	Yiu Lian Dockyards Ltd. - Staff Quaters	Residential
12	ASR	DSL Office	Industrial
13	ASR	ICI D.G. Building	Industrial
14	ASR	Hong Kong United Dockyards Ltd.	Industrial
15	ASR	Shell Tsing Yi Installation - Office	Industrial
16	ASR	KMB Tsing Yi Bus Depot	Industrial
17	ASR	CLP Power Hong Kong Ltd. - Tsing Yi Center	Industrial
18	ASR	Exxon Mobile (East) - Office	Industrial

Issue	Date	By	Chkd	Apprd
P0	2012-01-13	SC		

Metres 0 100 200 400 600

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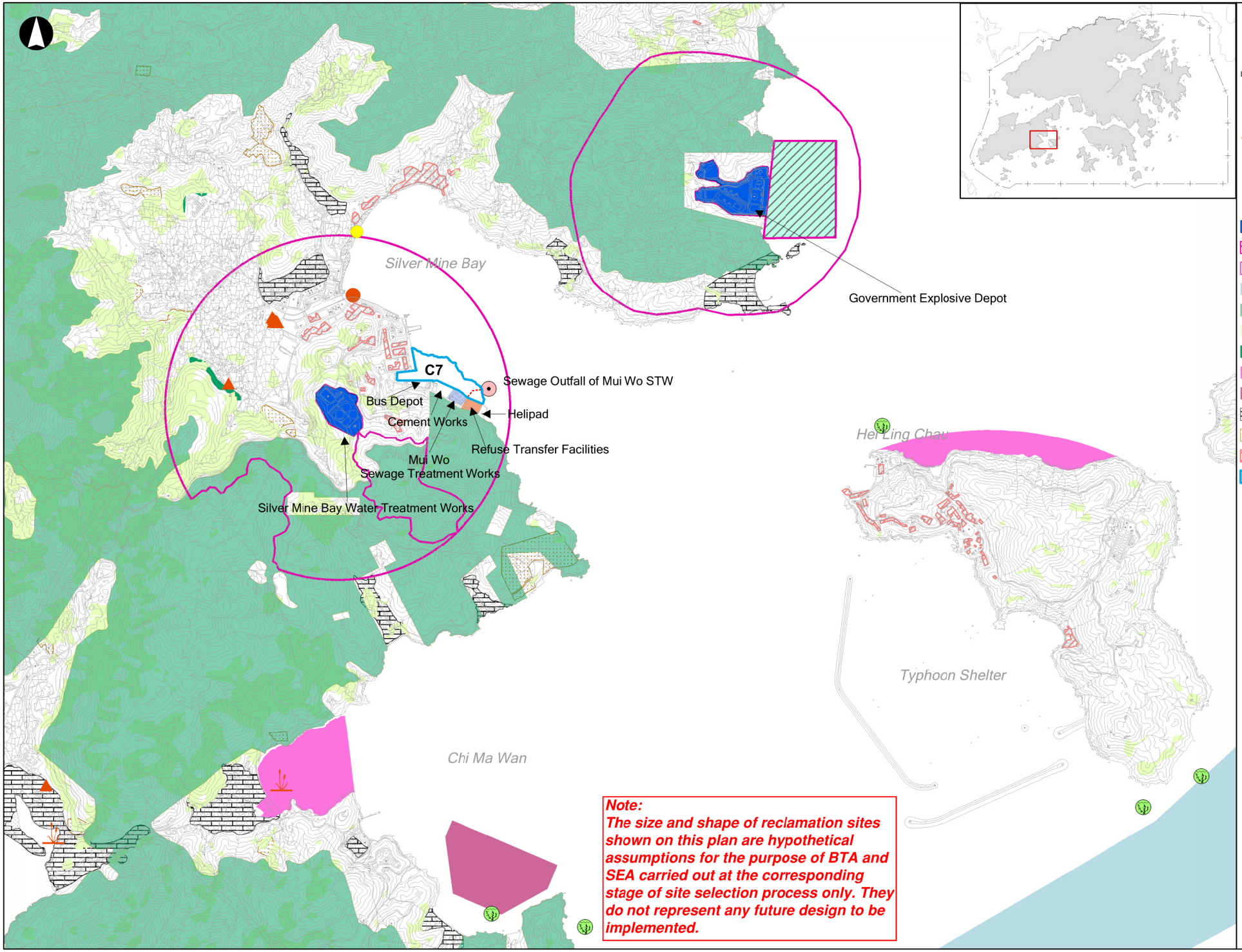
Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site C6)

Scale at A3
1:15,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	C6.b	P0



Note:
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Issue	Date	By	Chkd	Apprd
P0	2012-03-16	SC		

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Civil Engineering and Development Department

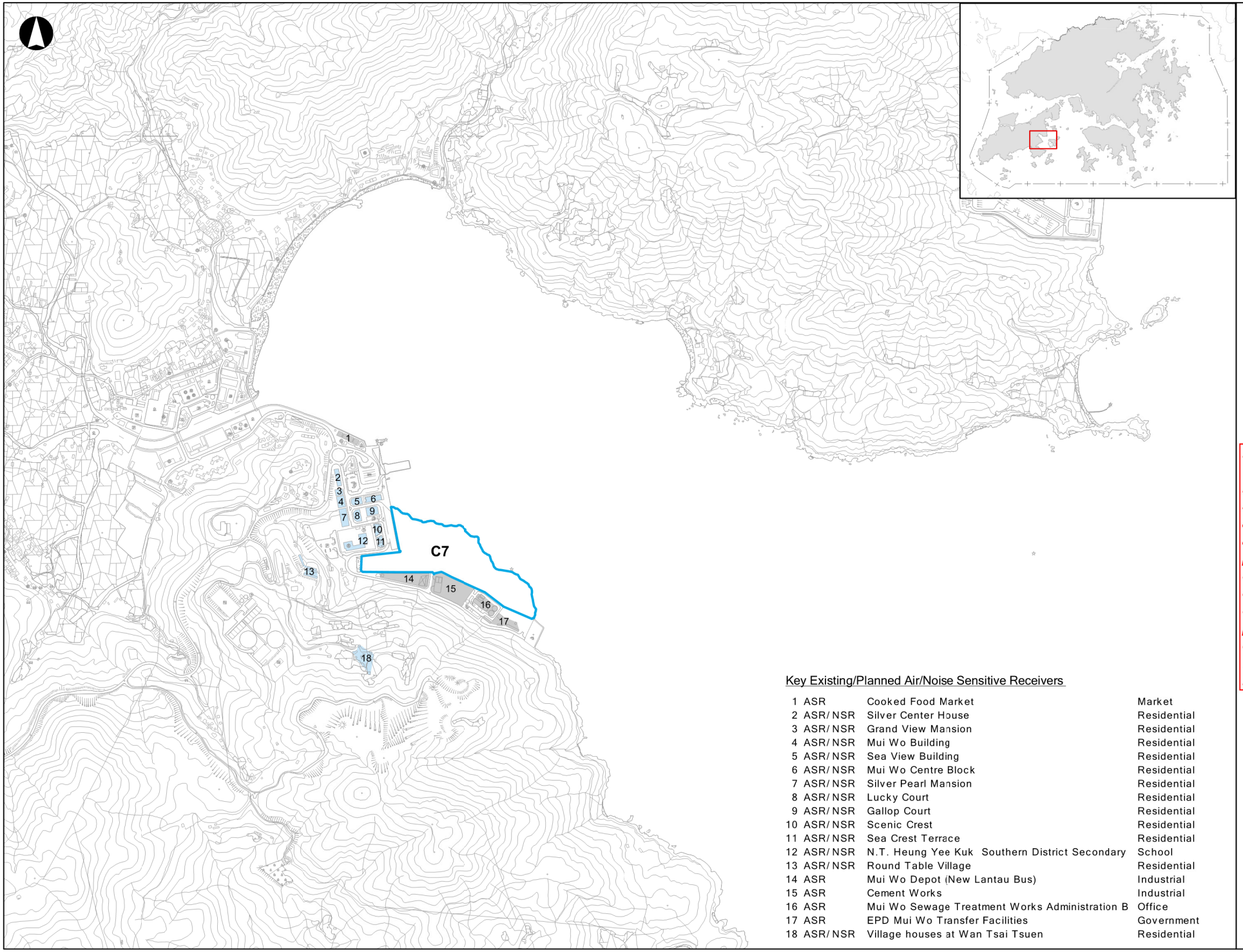
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Environmental Resources and Constraints (Reclamation Site C7)

Scale at A3: 1:20,000

Drawing Status: Preliminary

Job No	Drawing No	Issue
217499	C7.a	P0



Legend

- Key ASR
- Key ASR/NSR
- Potential Reclamation Site

Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR	Cooked Food Market	Market
2	ASR/ NSR	Silver Center House	Residential
3	ASR/ NSR	Grand View Mansion	Residential
4	ASR/ NSR	Mui Wo Building	Residential
5	ASR/ NSR	Sea View Building	Residential
6	ASR/ NSR	Mui Wo Centre Block	Residential
7	ASR/ NSR	Silver Pearl Mansion	Residential
8	ASR/ NSR	Lucky Court	Residential
9	ASR/ NSR	Gallop Court	Residential
10	ASR/ NSR	Scenic Crest	Residential
11	ASR/ NSR	Sea Crest Terrace	Residential
12	ASR/ NSR	N.T. Heung Yee Kuk Southern District Secondary	School
13	ASR/ NSR	Round Table Village	Residential
14	ASR	Mui Wo Depot (New Lantau Bus)	Industrial
15	ASR	Cement Works	Industrial
16	ASR	Mui Wo Sewage Treatment Works Administration B	Office
17	ASR	EPD Mui Wo Transfer Facilities	Government
18	ASR/ NSR	Village houses at Wan Tsai Tsuen	Residential

Note:
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Issue	Date	By	Chkd	Apprd
P0	2012-03-16	SC		

Metres: 0 63 125 250 375

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Job Title
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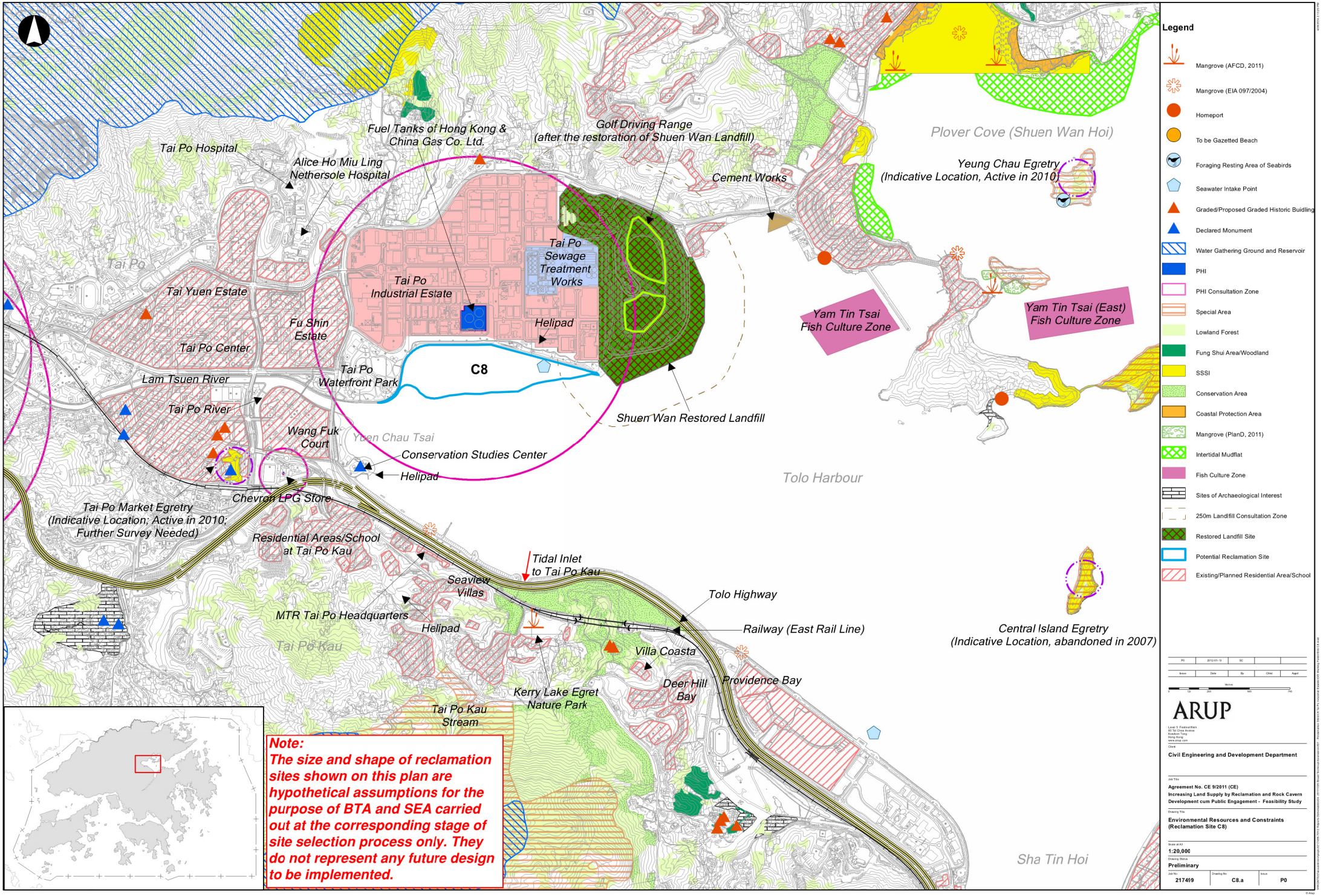
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site C7)

Scale at A3
1:10,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	C7.b	P0


Legend
Mangrove (AFCD, 2011)
Mangrove (EIA 097/2004)
Homeport
To be Gazetted Beach
Foraging Resting Area of Seabirds
Seawater Intake Point
Graded/Proposed Graded Historic Buidling
Declared Monument
Water Gathering Ground and Reservoir
PHI
PHI Consultation Zone
Special Area
Lowland Forest
Fung Shui Area/Woodland
SSSI
Conservation Area
Coastal Protection Area
Mangrove (PlanD, 2011)
Intertidal Mudflat
Fish Culture Zone
Sites of Archaeological Interest
250m Landfill Consultation Zone
Restored Landfill Site
Potential Reclamation Site
Existing/Planned Residential Area/School
Tai Po Hospital
Alice Ho Miu Ling Nethersole Hospital
Fuel Tanks of Hong Kong & China Gas Co. Ltd.
Golf Driving Range (after the restoration of Shuen Wan Landfill)
Plover Cove (Shuen Wan Hoi)
Yeung Chau Egretry (Indicative Location, Active in 2010)
Cement Works
Tai Po
Tai Po Sewage Treatment Works
Tai Po Industrial Estate
Tai Yuen Estate
Fu Shin Estate
Helipad
Yam Tin Tsai Fish Culture Zone
Yam Tin Tsai (East) Fish Culture Zone
Tai Po Center
C8
Tai Po Waterfront Park
Lam Tsuen River
Tai Po River
Shuen Wan Restored Landfill
Wang Fuk Court
Yuen Chau Tsai
Conservation Studies Center
Helipad
Tolo Harbour
Chevron LPG Store
Tai Po Market Egretry (Indicative Location; Active in 2010; Further Survey Needed)
Residential Areas/School at Tai Po Kau
Tidal Inlet to Tai Po Kau
Seaview Villas
Tolo Highway
MTR Tai Po Headquarters
Helipad
Railway (East Rail Line)
Tai Po Kau
Villa Coasta
Deer Hill Bay
Providence Bay
Kerry Lake Egret Nature Park
Tai Po Kau Stream
Central Island Egretry (Indicative Location, abandoned in 2007)
Sha Tin Hoi
Note:
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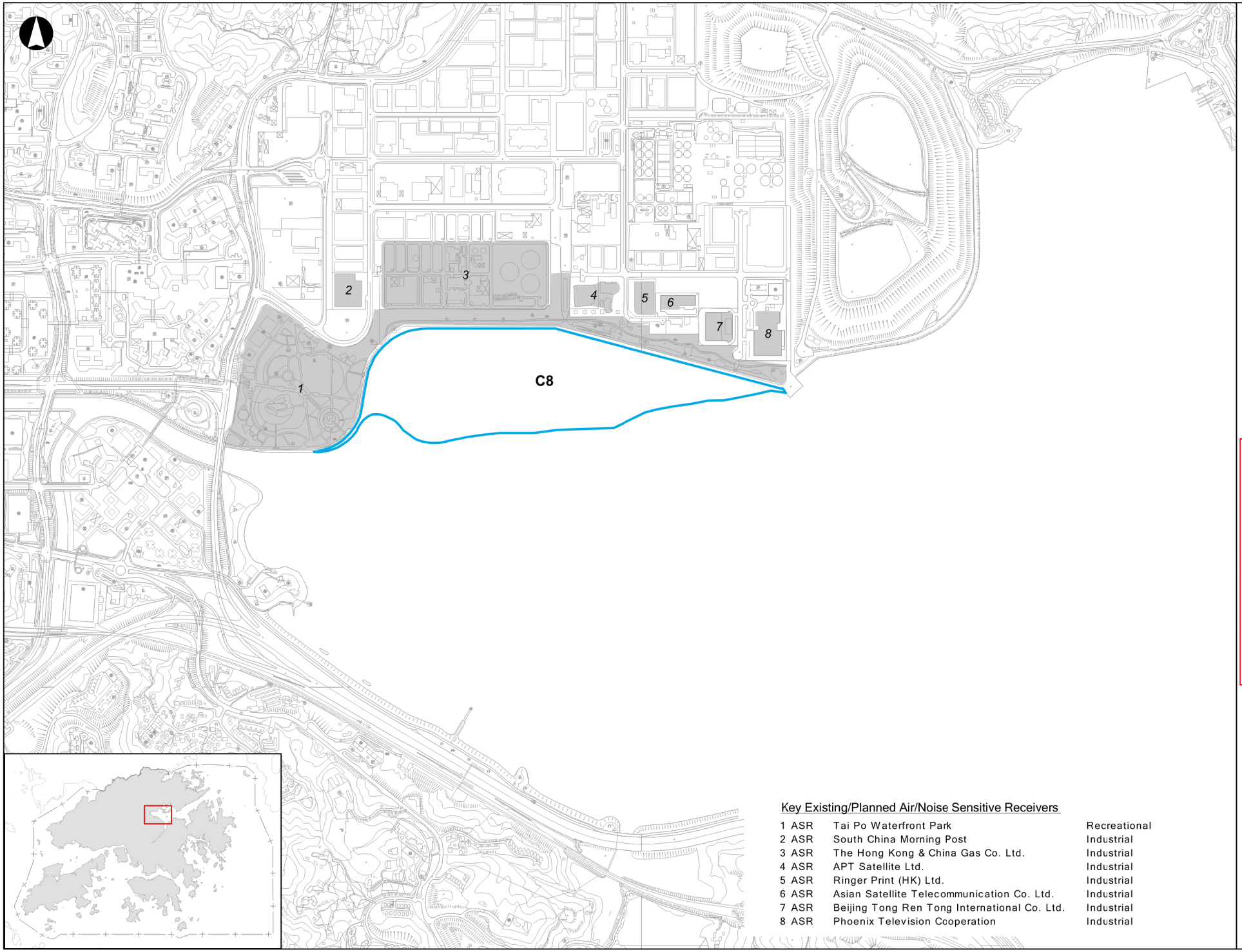
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study
Environmental Resources and Constraints (Reclamation Site C8)
1:20,000
Preliminary
217459
C8.a
P0



Legend

- Key ASR
- Potential Reclamation Site

Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

Key Existing/Planned Air/Noise Sensitive Receivers

1 ASR	Tai Po Waterfront Park	Recreational
2 ASR	South China Morning Post	Industrial
3 ASR	The Hong Kong & China Gas Co. Ltd.	Industrial
4 ASR	APT Satellite Ltd.	Industrial
5 ASR	Ringer Print (HK) Ltd.	Industrial
6 ASR	Asian Satellite Telecommunication Co. Ltd.	Industrial
7 ASR	Beijing Tong Ren Tong International Co. Ltd.	Industrial
8 ASR	Phoenix Television Ccoperation	Industrial

Issue	Date	By	Chkd	Appd
P0	2012-01-13	SC		

Metres
0 63 125 250 375

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Job Title
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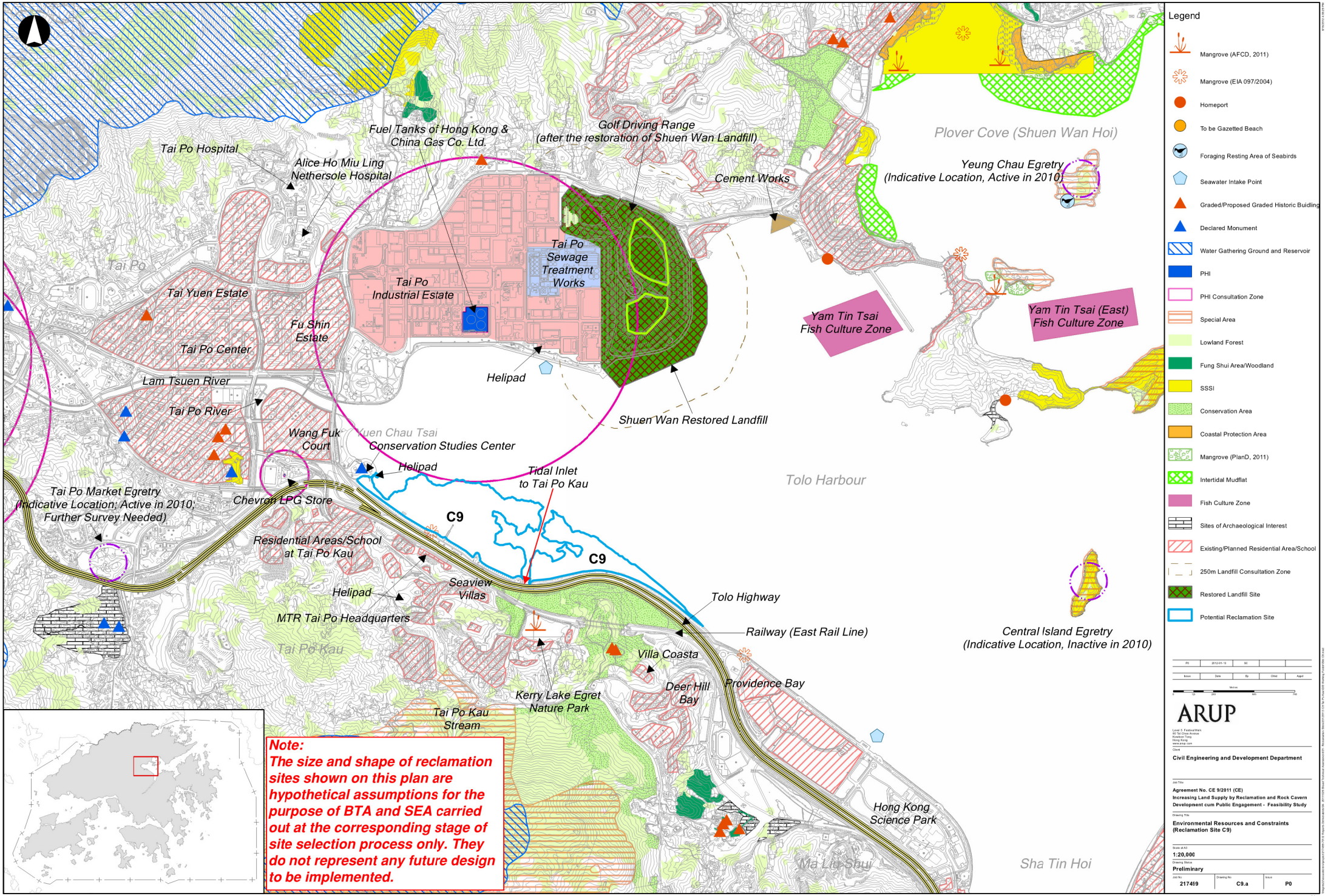
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

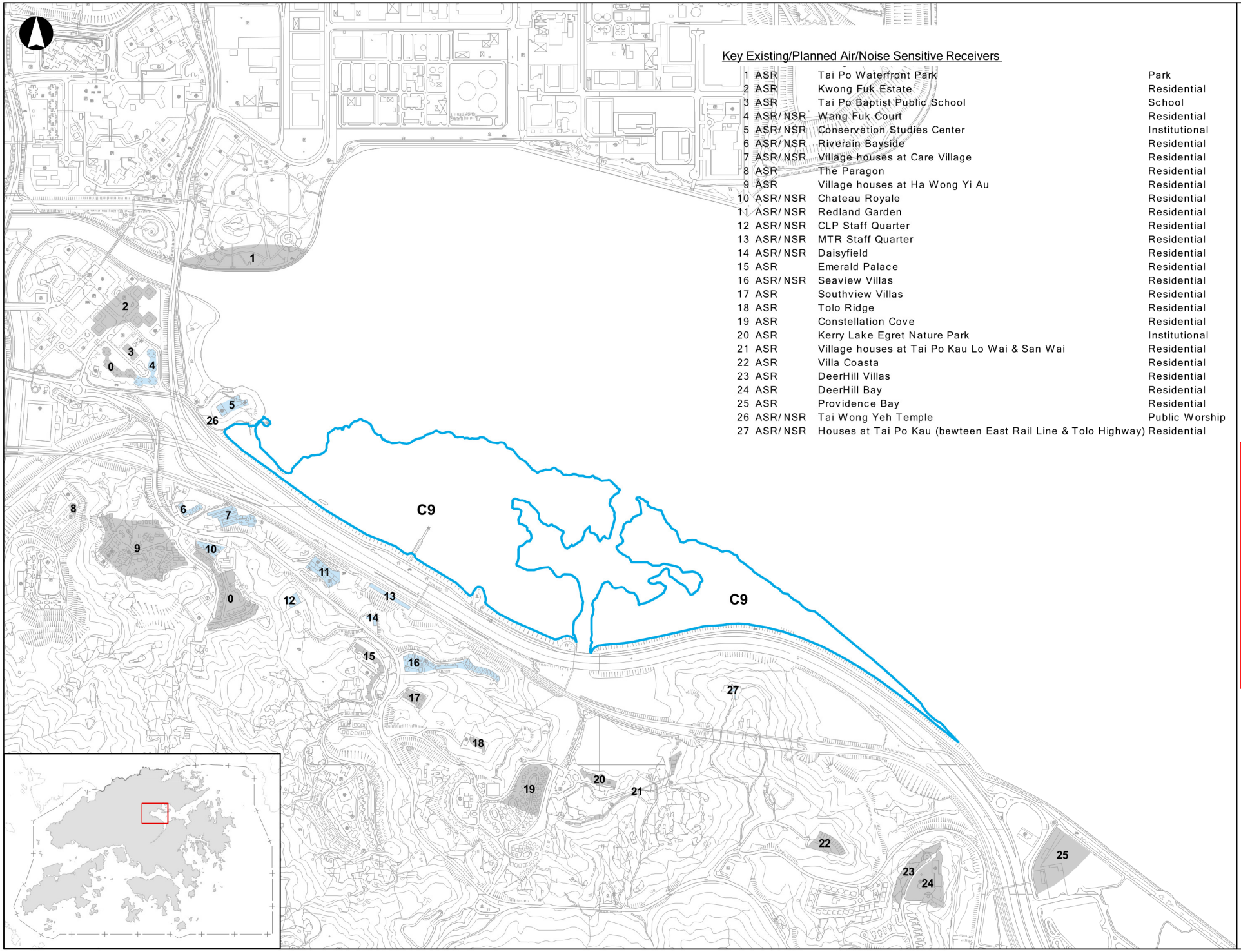
Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site C8)

Scale at A3
1:10,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	C8.b	P0


Legend
Mangrove (AFCD, 2011)
Mangrove (EIA 097/2004)
Homeport
To be Gazetted Beach
Foraging Resting Area of Seabirds
Seawater Intake Point
Graded/Proposed Graded Historic Buidling
Declared Monument
Water Gathering Ground and Reservoir
PHI
PHI Consultation Zone
Special Area
Lowland Forest
Fung Shui Area/Woodland
SSSI
Conservation Area
Coastal Protection Area
Mangrove (PlanD, 2011)
Intertidal Mudflat
Fish Culture Zone
Sites of Archaeological Interest
Existing/Planned Residential Area/School
250m Landfill Consultation Zone
Restored Landfill Site
Potential Reclamation Site
Tai Po Hospital
Alice Ho Miu Ling Nethersole Hospital
Fuel Tanks of Hong Kong & China Gas Co. Ltd.
Golf Driving Range (after the restoration of Shuen Wan Landfill)
Plover Cove (Shuen Wan Hoi)
Yeung Chau Egretry (Indicative Location, Active in 2010)
Cement Works
Tai Po
Tai Yuen Estate
Fu Shin Estate
Tai Po Center
Tai Po Industrial Estate
Tai Po Sewage Treatment Works
Yam Tin Tsai Fish Culture Zone
Yam Tin Tsai (East) Fish Culture Zone
Helipad
Lam Tsuen River
Tai Po River
Shuen Wan Restored Landfill
Wang Fuk Court
Yuen Chau Tsai Conservation Studies Center
Helipad
Tidal Inlet to Tai Po Kau
Tolo Harbour
Tai Po Market Egretry (Indicative Location; Active in 2010; Further Survey Needed)
Chevron LPG Store
C9
Residential Areas/School at Tai Po Kau
C9
Helipad
Seaview Villas
Tolo Highway
MTR Tai Po Headquarters
Railway (East Rail Line)
Tai Po Kau
Villa Coasta
Deer Hill Bay
Providence Bay
Kerry Lake Egret Nature Park
Tai Po Kau Stream
Central Island Egretry (Indicative Location, Inactive in 2010)
Hong Kong Science Park
Ma Liu Shui
Sha Tin Hoi
Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.
ARUP
Civil Engineering and Development Department
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study
Environmental Resources and Constraints (Reclamation Site C9)
1:20,000
Preliminary
217459
C9.a
P0



Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR	Tai Po Waterfront Park	Park
2	ASR	Kwong Fuk Estate	Residential
3	ASR	Tai Po Baptist Public School	School
4	ASR/ NSR	Wang Fuk Court	Residential
5	ASR/ NSR	Conservation Studies Center	Institutional
6	ASR/ NSR	Riverain Bayside	Residential
7	ASR/ NSR	Village houses at Care Village	Residential
8	ASR	The Paragon	Residential
9	ASR	Village houses at Ha Wong Yi Au	Residential
10	ASR/ NSR	Chateau Royale	Residential
11	ASR/ NSR	Redland Garden	Residential
12	ASR/ NSR	CLP Staff Quarter	Residential
13	ASR/ NSR	MTR Staff Quarter	Residential
14	ASR/ NSR	Daisyfield	Residential
15	ASR	Emerald Palace	Residential
16	ASR/ NSR	Seaview Villas	Residential
17	ASR	Southview Villas	Residential
18	ASR	Tolo Ridge	Residential
19	ASR	Constellation Cove	Residential
20	ASR	Kerry Lake Egret Nature Park	Institutional
21	ASR	Village houses at Tai Po Kau Lo Wai & San Wai	Residential
22	ASR	Villa Coasta	Residential
23	ASR	DeerHill Villas	Residential
24	ASR	DeerHill Bay	Residential
25	ASR	Providence Bay	Residential
26	ASR/ NSR	Tai Wong Yeh Temple	Public Worship
27	ASR/ NSR	Houses at Tai Po Kau (bewteen East Rail Line & Tolo Highway)	Residential

Legend

- Key ASR
- Key ASR/NSR
- Potential Reclamation Site

Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

Issue	Date	By	Chkd	Apprd
P0	2012-01-13	SC		

Metres 0 62.5 125 250 375

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Client
Civil Engineering and Development Department

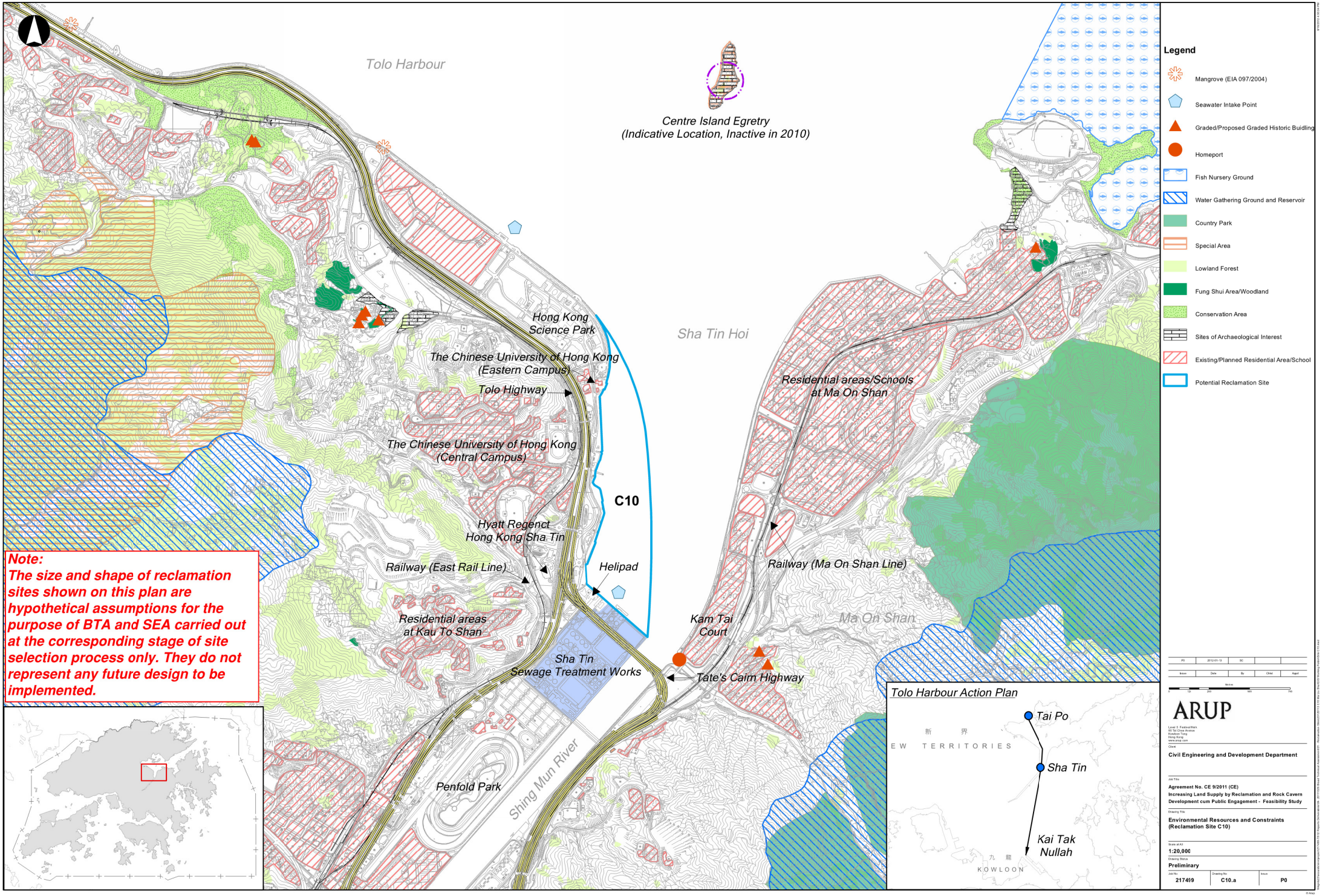
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site C9)

Scale at A3
1:10,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	C9.b	P0


Tolo Harbour
Centre Island Egretry
(Indicative Location, Inactive in 2010)
Sha Tin Hoi
Hong Kong
Science Park
The Chinese University of Hong Kong
(Eastern Campus)
Tolo Highway
The Chinese University of Hong Kong
(Central Campus)
C10
Hyatt Regenct
Hong Kong Sha Tin
Railway (East Rail Line)
Helipad
Residential areas
at Kau To Shan
Sha Tin
Sewage Treatment Works
Penfold Park
Shing Mun River
Residential areas/Schools
at Ma On Shan
Railway (Ma On Shan Line)
Kam Tai
Court
Tate's Cairn Highway
Ma On Shan
Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.
Legend
Mangrove (EIA 097/2004)
Seawater Intake Point
Graded/Proposed Graded Historic Buidling
Homeport
Fish Nursery Ground
Water Gathering Ground and Reservoir
Country Park
Special Area
Lowland Forest
Fung Shui Area/Woodland
Conservation Area
Sites of Archaeological Interest
Existing/Planned Residential Area/School
Potential Reclamation Site
Tolo Harbour Action Plan
Tai Po
Sha Tin
Kai Tak
Nullah
NEW TERRITORIES
KOWLOON
ARUP
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Agreement No. CE 9/2011 (CE)
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Environmental Resources and Constraints
(Reclamation Site C10)
1:20,000
Preliminary
217469
C10.a
P0

Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR	Hong Kong Science Park	Industrial/ Commer
2	ASR/ NS	Eastern Campus of The Chinese University of Ho	School
3	ASR/ NS	Central Campus of The Chinese University of Ho	School
4	ASR/ NS	Hotel Project of The Chinese University of Hong	Hotel
5	ASR/ NS	Hyatt Regenct Regency Hong Kong Sha Tin	Hotel
6	ASR	Marine Police Headquarters	Government
7	ASR	The Red Bridge Bungallows	Residential
8	ASR	Sha Tin Knoll	Residential
9	ASR/ NS	S.K.H. Ma On Shan Holy Spirit Primary School	School
10	ASR/ NS	Kam Tai Court	Residential
11	ASR	Commercial Complex at Kam Tai Court	Commercial
12	ASR	Tak Shun Secondary School	School
13	ASR	Mountain Shore	Residential
14	ASR	Sausalito	Residential
15	ASR	La Costa	Residential

Legend

- Key ASR
- Key ASR/NSR
- Potential Reclamation Site

Note:
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Issue	Date	By	Chkd	Apprd
P0	2012-01-13	SC		

Metres: 0 62.5 125 250 375

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Job Title
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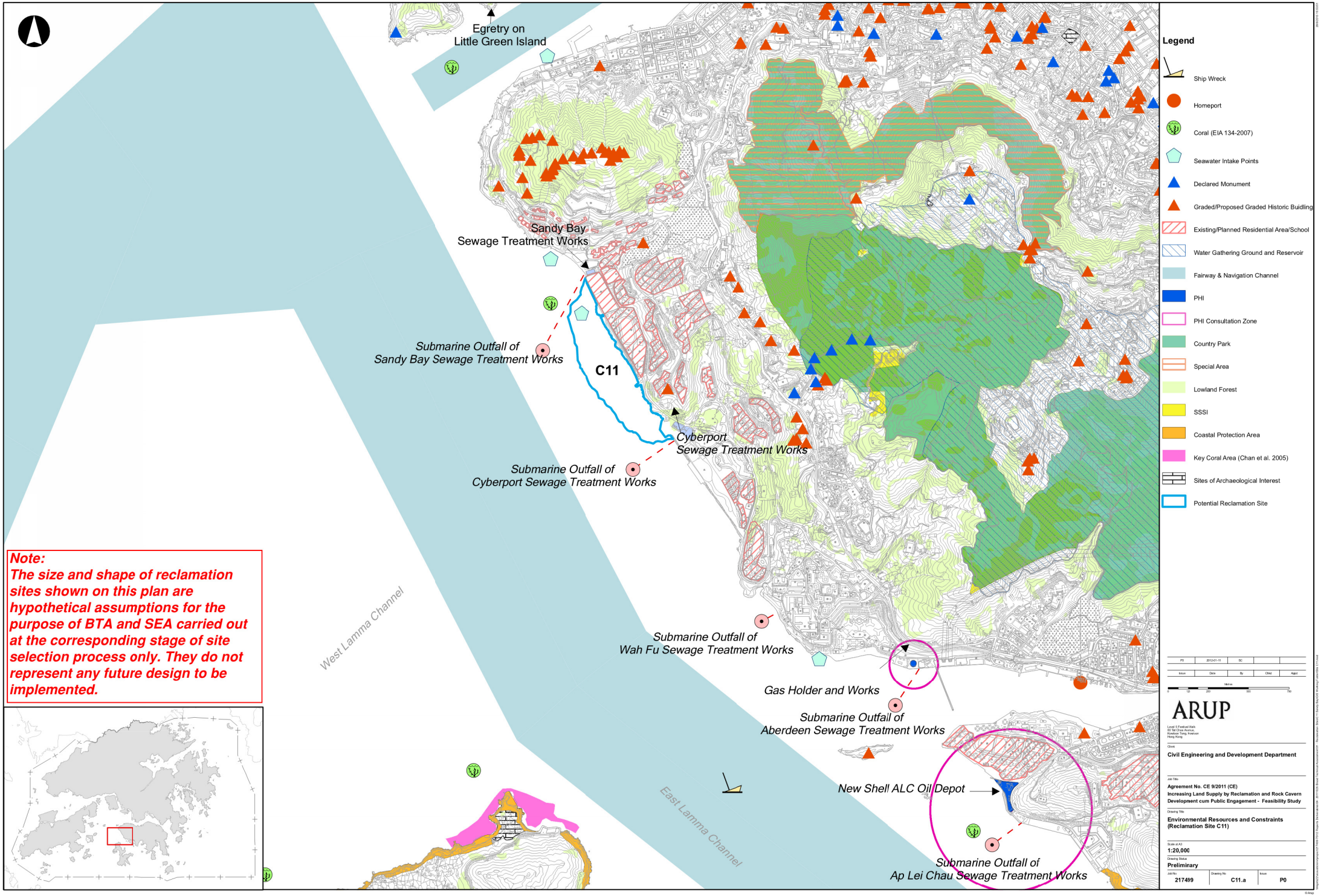
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site C10)

Scale at A3
1:15,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	C10.b	P0



Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

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Civil Engineering and Development Department

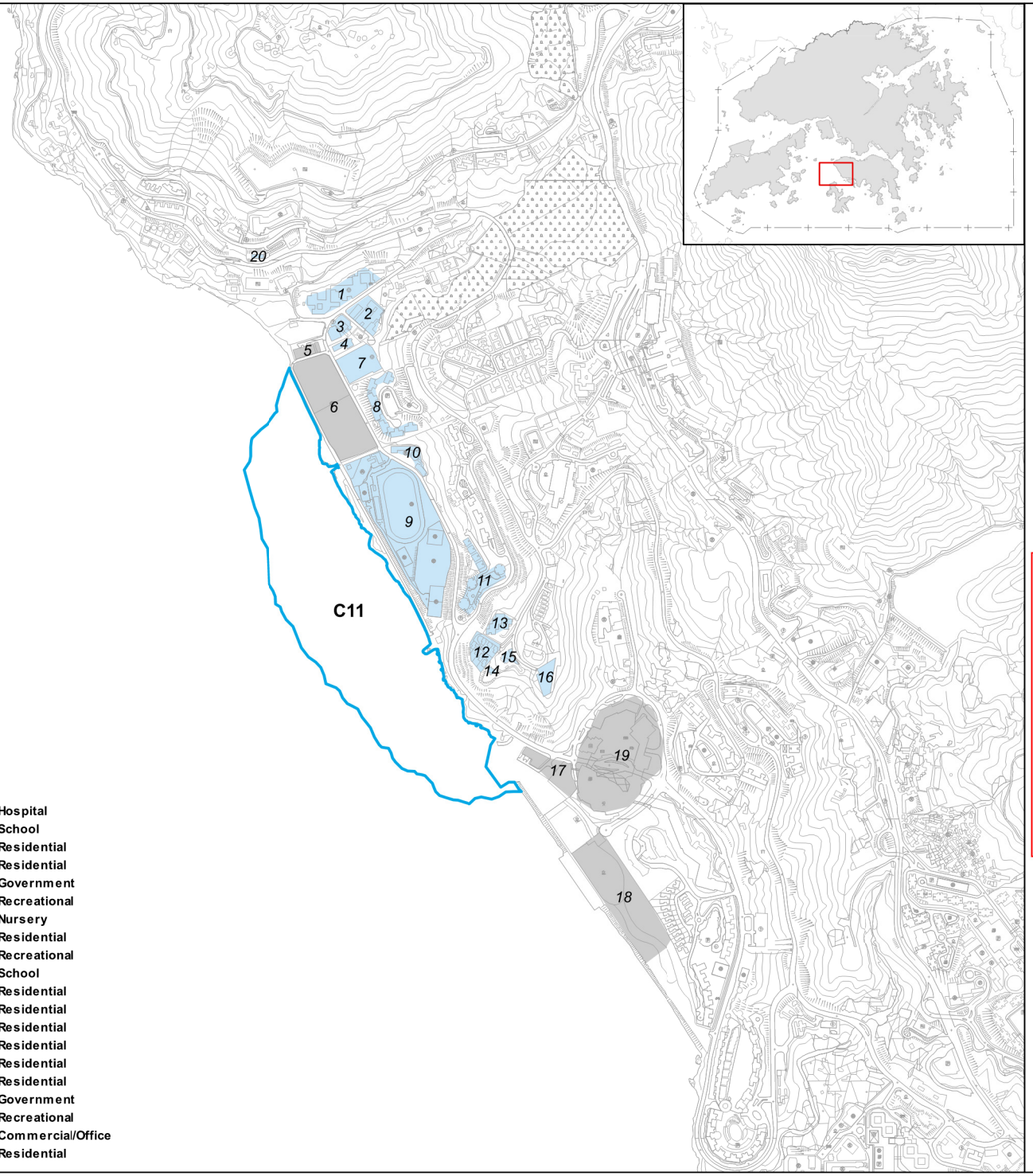
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Environmental Resources and Constraints (Reclamation Site C11)

Scale at A3: 1:20,000

Drawing Status: Preliminary

Job No	Drawing No	Issue
217499	C11.a	P0



Legend

- Key ASR
- Key ASR/NSR
- Potential Reclamation Site

Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR/NSR	The Duchess of Kent Children□ Hospital	Hospital
2	ASR/NSR	kennedy Center	School
3	ASR/NSR	Ho Sin Hang Home for Elderly	Residential
4	ASR/NSR	Chuk Lam Ming Tong Care and Attention Home for Elderly	Residential
5	ASR	Sandy Bay Sewage Treatment Works	Government
6	ASR	Sport Ground	Recreational
7	ASR/NSR	MacLehose Medical Rehabilitation Center	Nursery
8	ASR/NSR	Scenic Villas	Residential
9	ASR/NSR	HKU - Stanley Ho Sport Center	Recreational
10	ASR/NSR	Kennedy School	School
11	ASR/NSR	Pine Court	Residential
12	ASR/NSR	Magnolia Villas	Residential
13	ASR/NSR	Seascape	Residential
14	ASR/NSR	Point Breeze	Residential
15	ASR/NSR	Villa Blendub	Residential
16	ASR/NSR	Aegean Villas	Residential
17	ASR	Cyberport Sewage Treatment Works	Government
18	ASR	Cyberport Waterfront Park	Recreational
19	ASR	Cyberport	Commercial/Office
20	ASR/NSR	No.53 Mount Davis Road	Residential

Issue	Date	By	Chkd	Apprd
P0	2012-01-11	SC		

Metres 0 63 125 250 375

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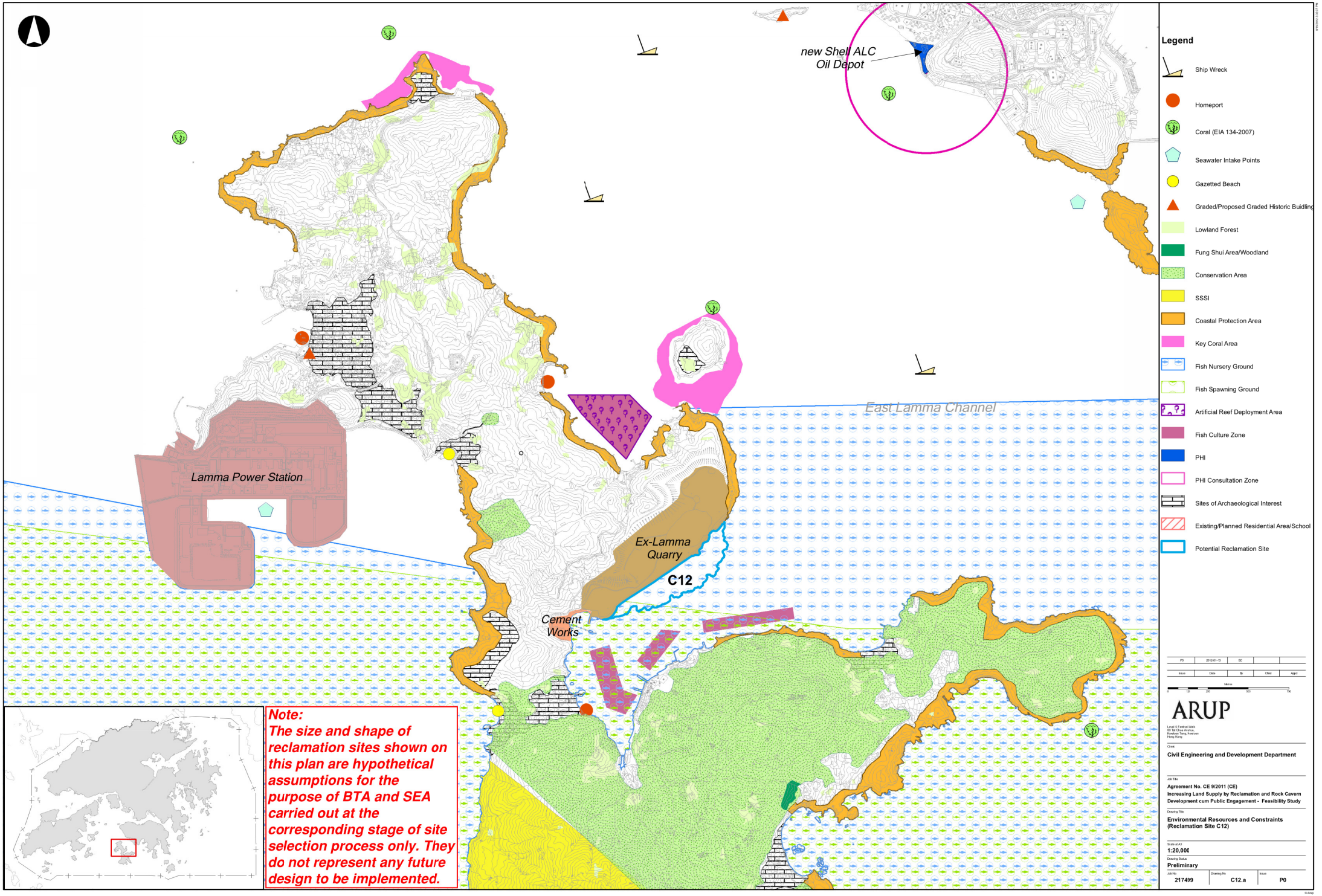
Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site C11)

Scale at A3
1:10,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	C11.b	P0


new Shell ALC
Oil Depot
East Lamma Channel
Lamma Power Station
Ex-Lamma
Quarry
C12
Cement
Works
Legend
Ship Wreck
Homeport
Coral (EIA 134-2007)
Seawater Intake Points
Gazetted Beach
Graded/Proposed Graded Historic Buidling
Lowland Forest
Fung Shui Area/Woodland
Conservation Area
SSSI
Coastal Protection Area
Key Coral Area
Fish Nursery Ground
Fish Spawning Ground
Artificial Reef Deployment Area
Fish Culture Zone
PHI
PHI Consultation Zone
Sites of Archaeological Interest
Existing/Planned Residential Area/School
Potential Reclamation Site
Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.
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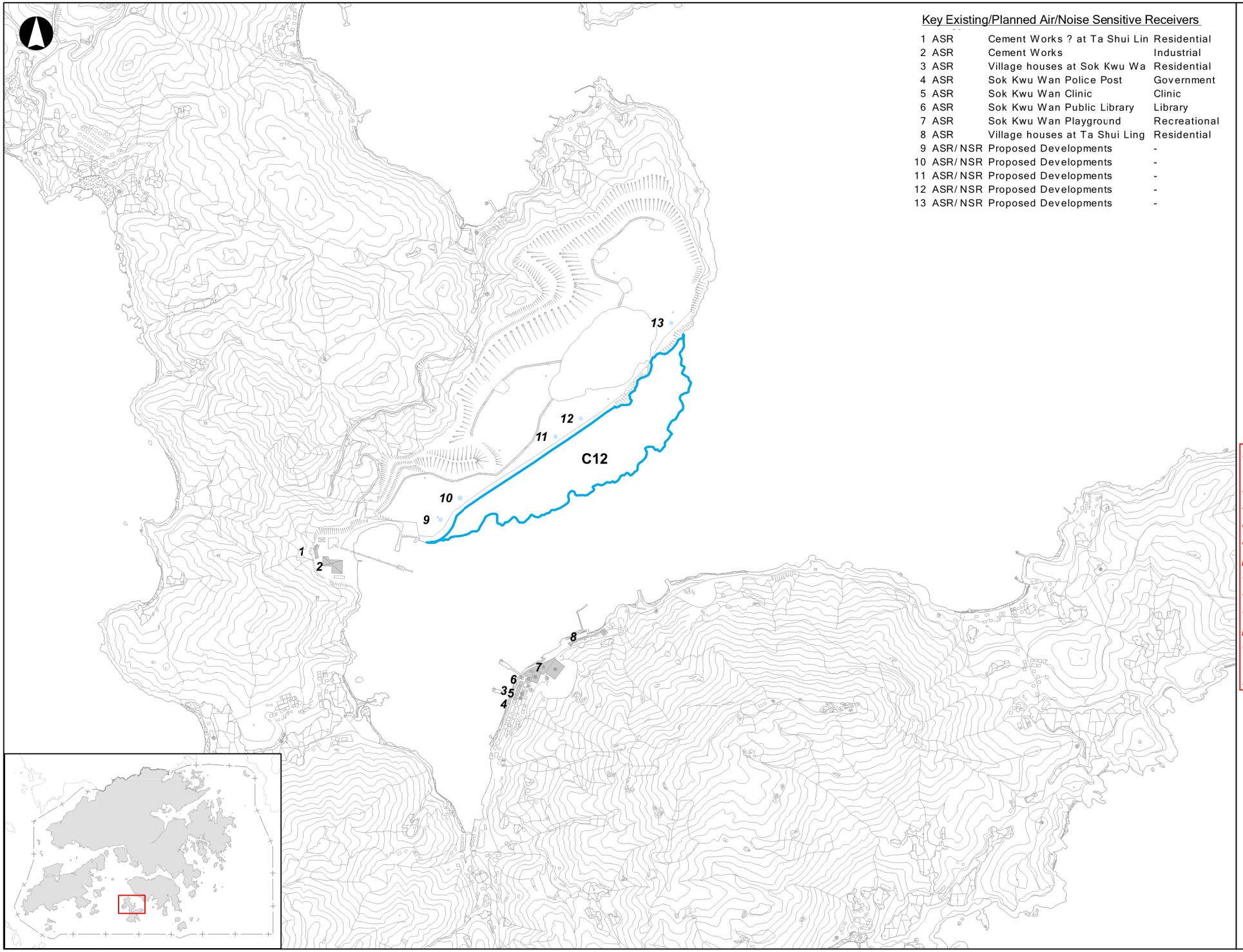
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study
Environmental Resources and Constraints (Reclamation Site C12)
1:20,000
Preliminary
217499
C12.a
P0



Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR	Cement Works ? at Ta Shui Lin	Residential
2	ASR	Cement Works	Industrial
3	ASR	Village houses at Sok Kwu Wa	Residential
4	ASR	Sok Kwu Wan Police Post	Government
5	ASR	Sok Kwu Wan Clinic	Clinic
6	ASR	Sok Kwu Wan Public Library	Library
7	ASR	Sok Kwu Wan Playground	Recreational
8	ASR	Village houses at Ta Shui Ling	Residential
9	ASR/ NSR	Proposed Developments	-
10	ASR/ NSR	Proposed Developments	-
11	ASR/ NSR	Proposed Developments	-
12	ASR/ NSR	Proposed Developments	-
13	ASR/ NSR	Proposed Developments	-

Legend

- Key ASR
- Key ASR/NSR
- Potential Reclamation Site

Note:
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Issue	Date	By	Chkd	Apprd
P0	2012-01-13	SC		

Metres
0 62.5 125 250 375

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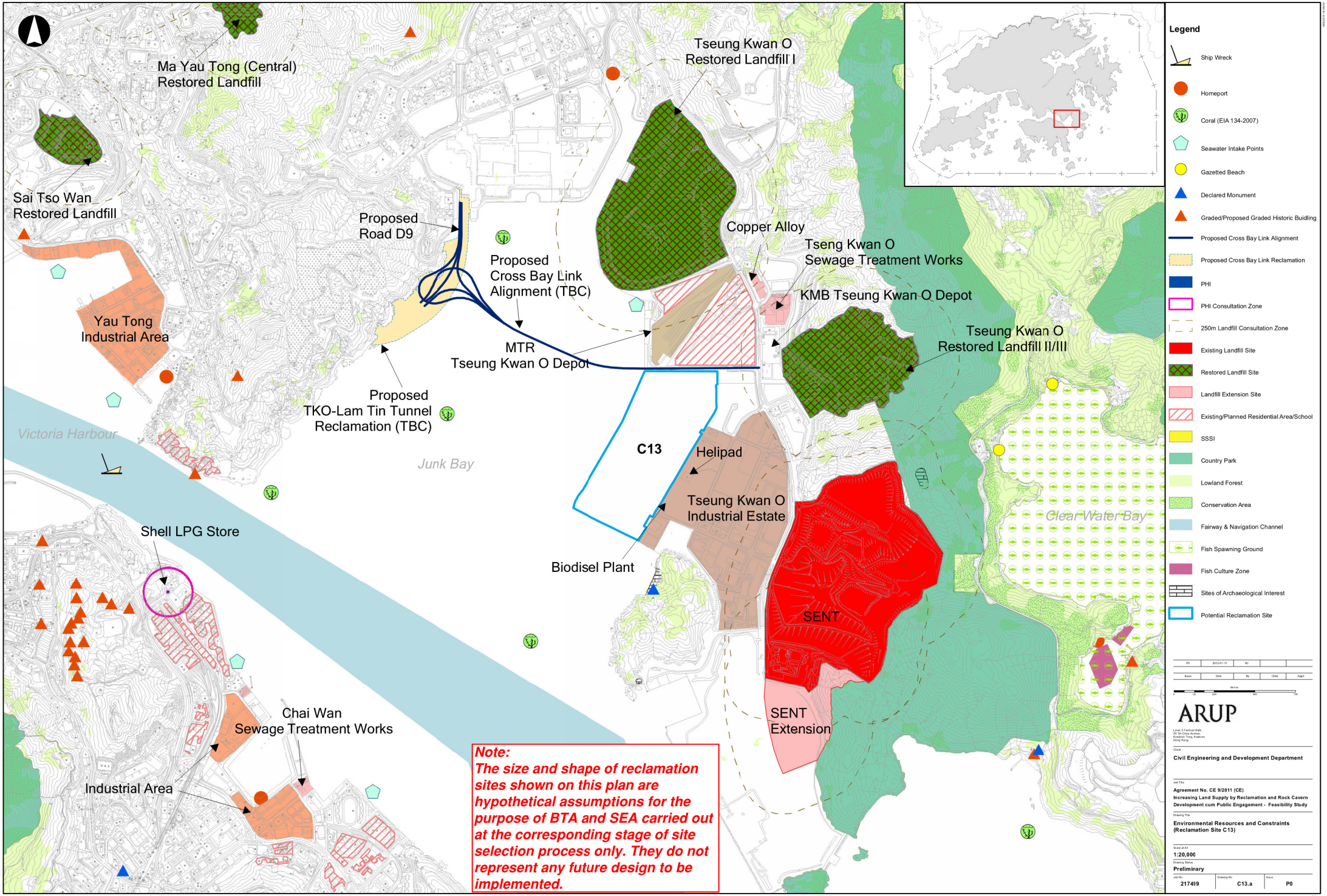
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site C12)

Scale at A3
1:10,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	C12.b	P0


Ma Yau Tong (Central)
Restored Landfill
Tseung Kwan O
Restored Landfill I
Sai Tso Wan
Restored Landfill
Proposed
Road D9
Proposed
Cross Bay Link
Alignment (TBC)
Copper Alloy
Tseng Kwan O
Sewage Treatment Works
KMB Tseung Kwan O Depot
Yau Tong
Industrial Area
MTR
Tseung Kwan O Depot
Tseung Kwan O
Restored Landfill II/III
Proposed
TKO-Lam Tin Tunnel
Reclamation (TBC)
Victoria Harbour
Junk Bay
C13
Helipad
Tseung Kwan O
Industrial Estate
Clear Water Bay
Shell LPG Store
Biodisel Plant
SENT
SENT
Extension
Chai Wan
Sewage Treatment Works
Industrial Area
Note:
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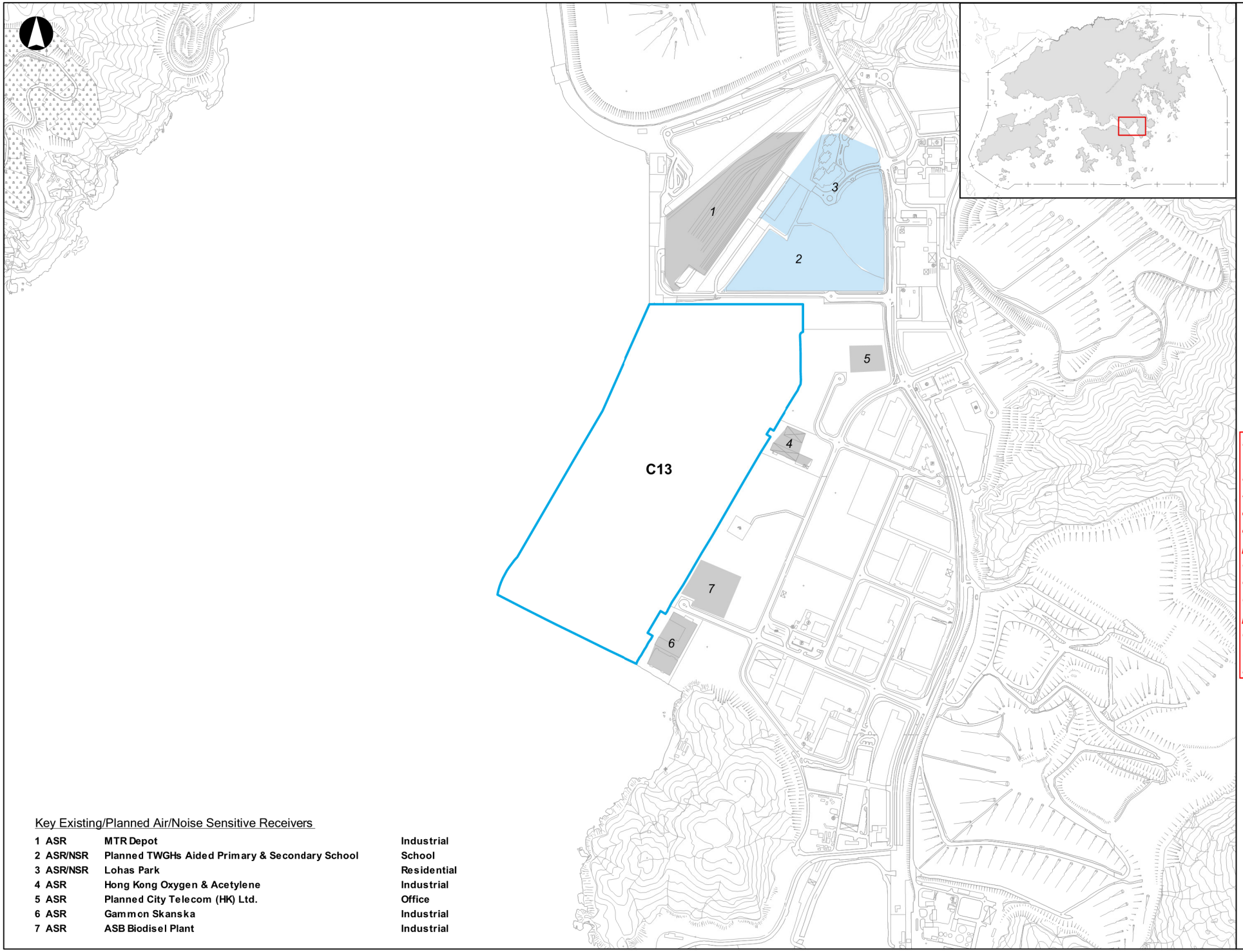
Legend
Ship Wreck
Homeport
Coral (EIA 134-2007)
Seawater Intake Points
Gazetted Beach
Declared Monument
Graded/Proposed Graded Historic Buidling
Proposed Cross Bay Link Alignment
Proposed Cross Bay Link Reclamation
PHI
PHI Consultation Zone
250m Landfill Consultation Zone
Existing Landfill Site
Restored Landfill Site
Landfill Extension Site
Existing/Planned Residential Area/School
SSSI
Country Park
Lowland Forest
Conservation Area
Fairway & Navigation Channel
Fish Spawning Ground
Fish Culture Zone
Sites of Archaeological Interest
Potential Reclamation Site
ARUP
Civil Engineering and Development Department
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study
Environmental Resources and Constraints (Reclamation Site C13)
1:20,000
Preliminary
217459
C13.a
P0



Legend

- Key ASR
- Key ASR/NSR
- Potential Reclamation Site

Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR	MTR Depot	Industrial
2	ASR/NSR	Planned TWGHs Aided Primary & Secondary School	School
3	ASR/NSR	Lohas Park	Residential
4	ASR	Hong Kong Oxygen & Acetylene	Industrial
5	ASR	Planned City Telecom (HK) Ltd.	Office
6	ASR	Gammon Skanska	Industrial
7	ASR	ASB Biodisel Plant	Industrial

Issue	Date	By	Chkd	Apprd
P0	2012-01-11	SC		

Metres 0 63 125 250 375

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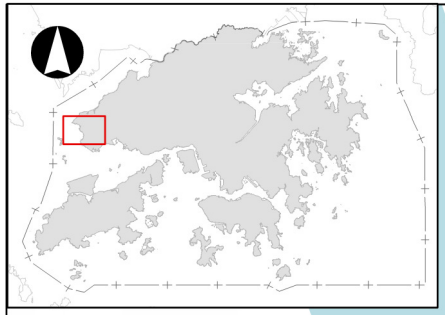
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Environmental Resources and Constraints (Reclamation Site C13)

Scale at A3
1:10,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	C13.b	P0



Note:
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Black Point Power Station

WENT Landfill

Potential WENT Landfill Extension

Firing Range Boundary

Site of Conservation Importance for Butterflies

D1

Sha Chau and Lung Kwu Chau Marine Park

Submarine Outfall of San Wai Sewage Treatment Works

Helipad

Urmston Road

Castle Peak A & B Power Station

Green Island Cement

Site of Conservation Importance for Butterflies

Legend

- Graded/Proposed Graded Historic Buidling
- Juveniles Horseshoe Crab (Morton, 1999)
- Ship Wreck
- Fish Culture Zone
- Fish Culture Zone
- Area of Oyster Production
- Artificial Reef Deployment Area
- Potential Fisheries Protection Area
- Fish Nursery Ground
- Fish Spawning Ground
- Fairway and Navigation Channel
- Marine Park
- Country Park
- Special Area
- Lowland Forest
- Fung Shui Area/Woodland
- SSSI
- Sites of Archaeological Interest
- Traditional Burial Ground
- Existing/Planned Residential Area/School
- Potential Reclamation Site
- 250m Landfill Consultation Zone
- Existing Landfill Site
- Landfill Extension
- Restored Landfill Site

Issue	Date	By	Chkd	Appd
P0	2012-01-13	BC		

Metres
0 125 250 500 750

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Job Title
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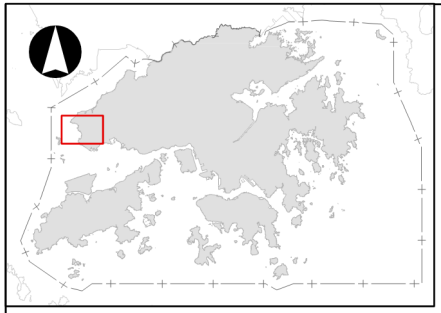
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

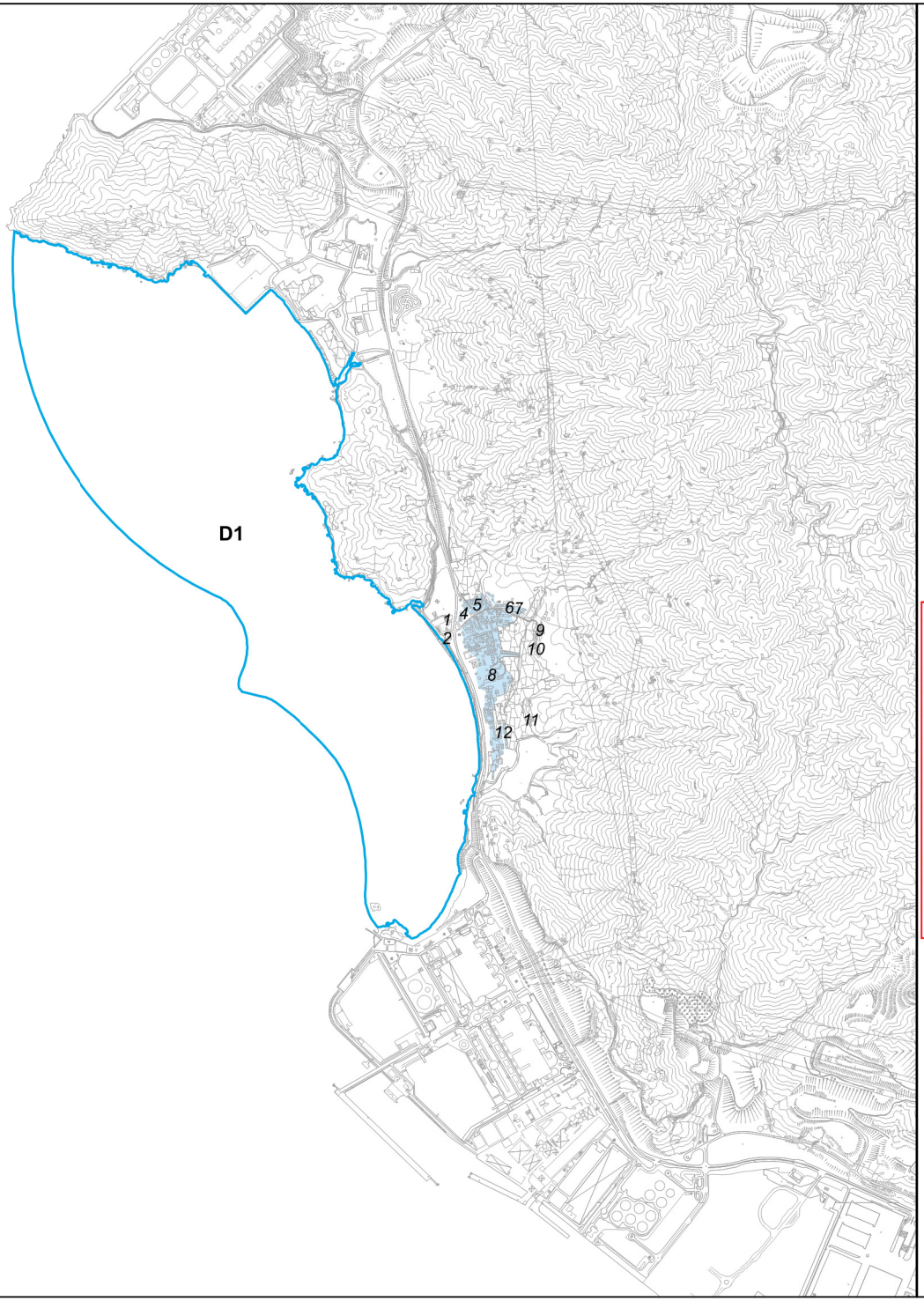
Drawing Title
Environmental Resources and Constraint (Reclamation Site D1)

Scale at A1
1:20,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	D1.a	P0





Legend

- Key ASR
- Key ASR/NSR
- Potential Reclamation Site

Note:
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Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR	Tin Hau Temple	Public Worshi
2	ASR	Village Office of Lung Kwu Tan	Community
3	ASR/ NSR	Hai Grove	Residential
4	ASR/ NSR	Le Horizon	Residential
5	ASR/ NSR	Dragon Oasis	Residential
6	ASR/ NSR	Village house at Pak Long	Residential
7	ASR	Lau Ancestral Hall at Pak Long	Public Worshi
8	ASR/ NSR	Dragon Cove	Residential
9	ASR	Temple at Nan Long	Public Worshi
10	ASR	Village houses at Nan Long	Residential
11	ASR	Lau Ancestral Hall at Tuk Mei Chung	Public Worshi
12	ASR/ NSR	Cenfa Villa	Residential

Issue	Date	By	Chkd	Apprd
P0	2012-01-13	SC		

Metres
0 125 250 500 750

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Job Title
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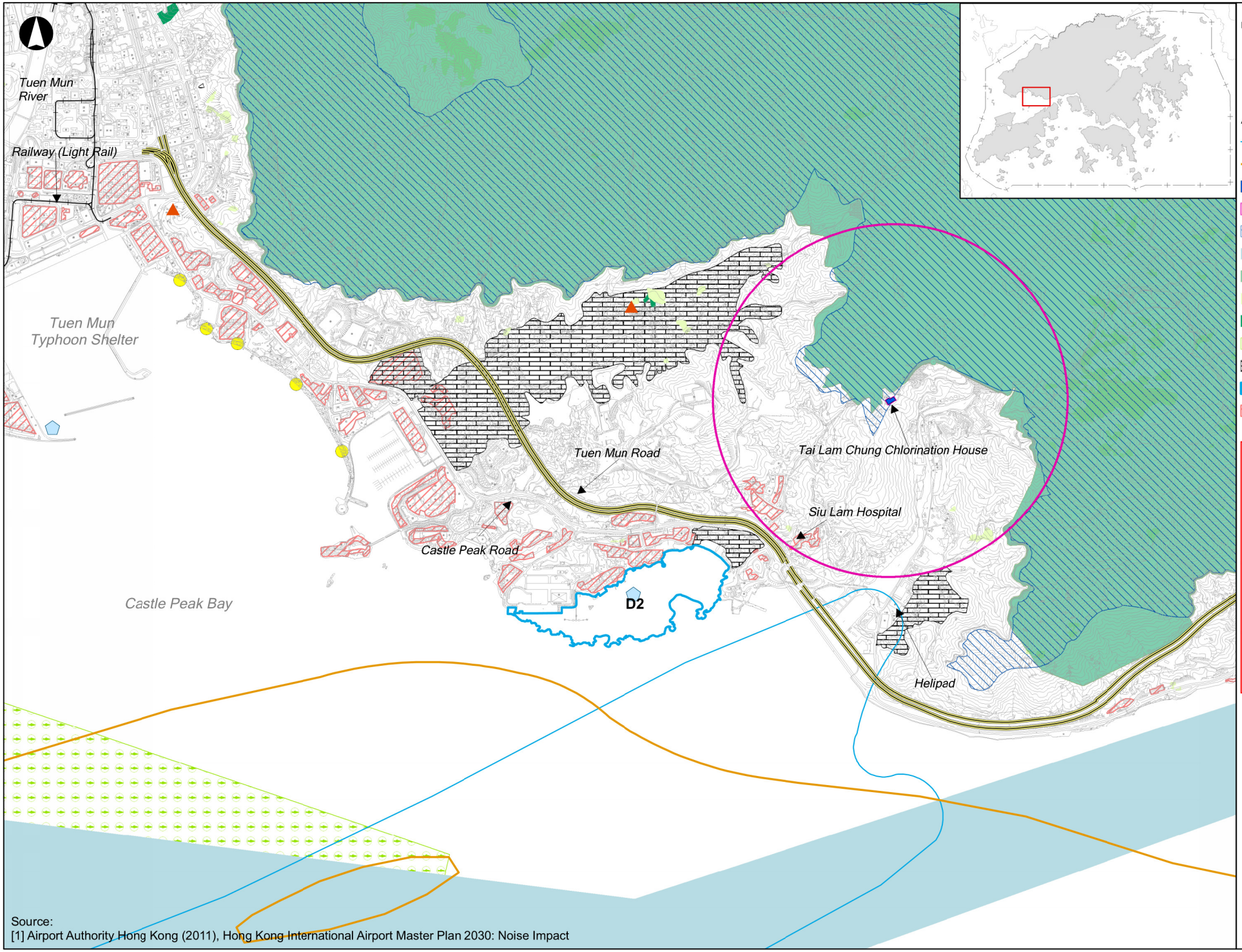
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site D1)

Scale at A3
1:20,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	D1.b	P0



Legend

- Gazetted Beach
- Seawater Intake Point
- Graded/Proposed Graded Historic Buidling

Aircarft NEF 25 Contour [1]

- Aircraft NEF 25 Contour (Two-Runway)
- Aircraft NEF 25 Contour (Three-Runway)
- PHI
- PHI Consultation Zone
- Water Gathering Ground and Reservoir
- Fairway & Navigation Channel
- Country Park
- Lowland Forest
- Fung Shui Area/Woodland
- Fish Spawning Ground
- Sites of Archaeological Interest
- Potential Reclamation Site
- Existing/Planned Residential Area/School

Note:
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Issue	Date	By	Chkd	Apprd
P0	2012-03-12	SC		

Metres: 0 125 250 500 750

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Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Environmental Resources and Constraints (Reclamation Site D2)

Scale at A3
1:20,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	D2.a	P0

Source:
[1] Airport Authority Hong Kong (2011), Hong Kong International Airport Master Plan 2030: Noise Impact

Legend

- Key ASR
- Key ASR/NSR
- Potential Reclamation Site

Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR	Siu Lam Flea Market	Commerical
2	ASR/NSR	Barbecue Gardens/Villas	Residential
3	ASR/NSR	Yu Tai Hing Project	Residential
4	ASR/NSR	South Sea Villa	Residential
5	ASR/NSR	Fontana Villas	Residential
6	ASR/NSR	Castle Peak Villas	Residential
7	ASR/NSR	Villa de Mer	Residential
8	ASR/NSR	The Castle Bay	Residential
9	ASR	Siu Lam BBQ Ground	Commercial/Recreational
10	ASR/NSR	CDS Married Staff Quarters	Residential
11	ASR	Custom & Exercise Station	Government
12	ASR	Tai Lam Chung Marine Police Base	Government

Issue	Date	By	Chkd	Apprd
P0	2012-03-12	SC		

Metres: 0 62.5 125 250 375

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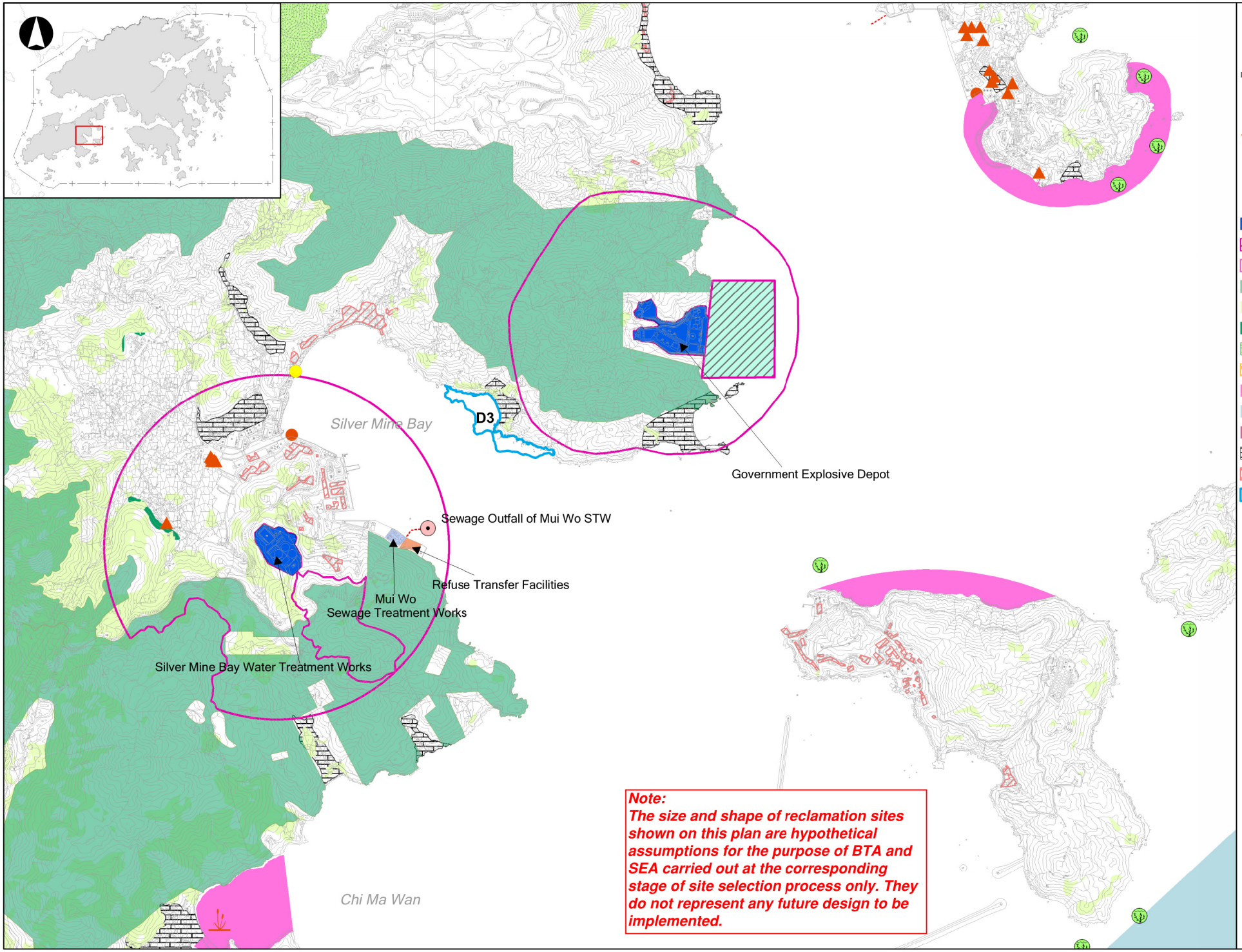
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

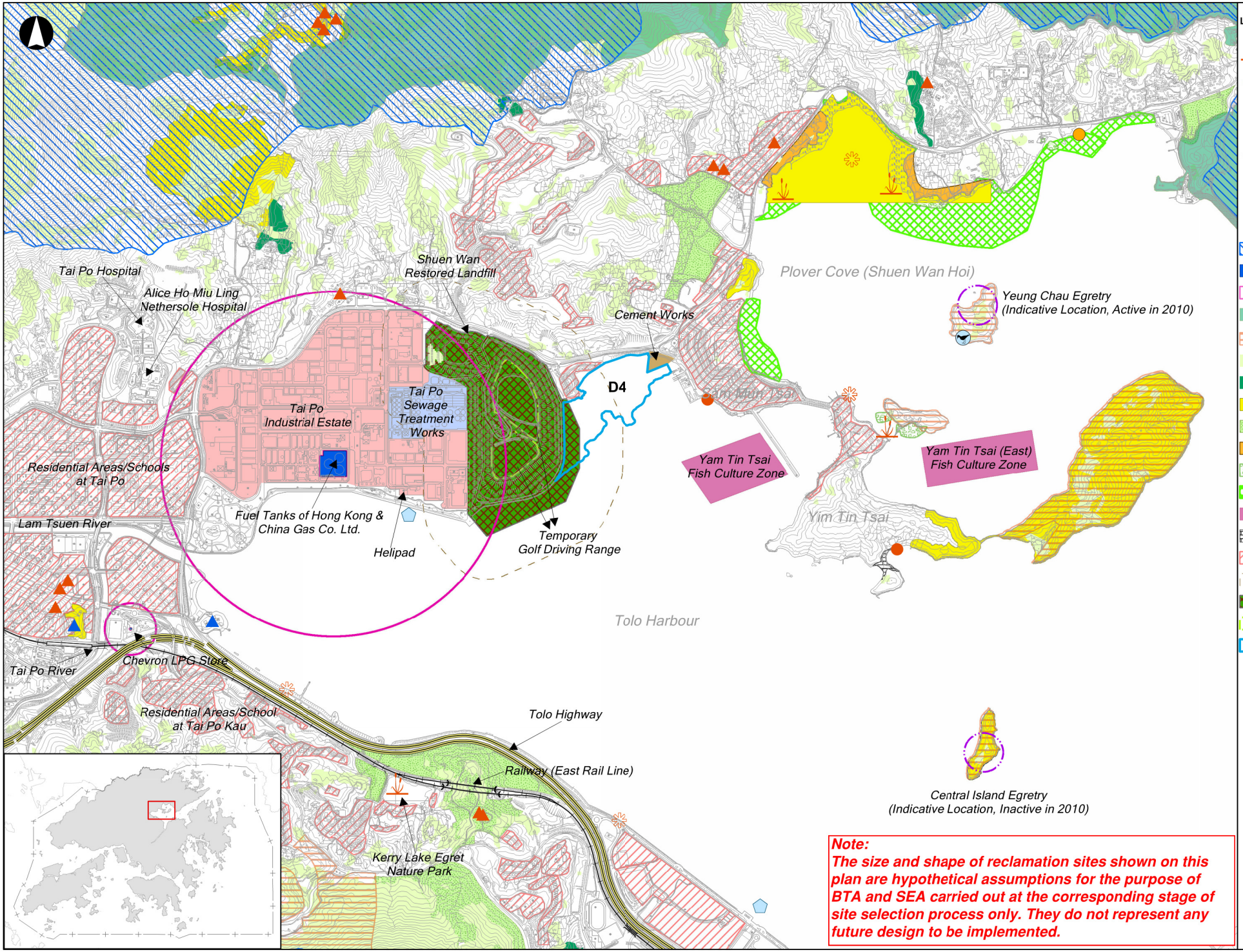
Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site D2)

Scale at A3
1:10,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	D2.b	P0


Silver Mine Bay
D3
Government Explosive Depot
Sewage Outfall of Mui Wo STW
Refuse Transfer Facilities
Mui Wo
Sewage Treatment Works
Silver Mine Bay Water Treatment Works
Chi Ma Wan
Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.
Legend
Homeport
Mangrove (AFCD, 2011)
Coral (EIA 134-2007)
Gazetted Beach
Graded/Proposed Graded Historic Buidling
PHI
Marine Exclusion Zone
PHI Consultation Zone
Country Park
Lowland Forest
Fung Shui Area/Woodland
Conservation Area
Priority Sites for Enhanced Conservation
Key Coral Area
Fairway & Navigation Channel
Fish Culture Zone
Sites of Archaeological Interest
Existing/Planned Residential Area/School
Potential Reclamation Site
ARUP
Civil Engineering and Development Department
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study
Environmental Resources and Constraints (Reclamation Site D3)
1:20,000
Preliminary
217499
D3
P0



Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

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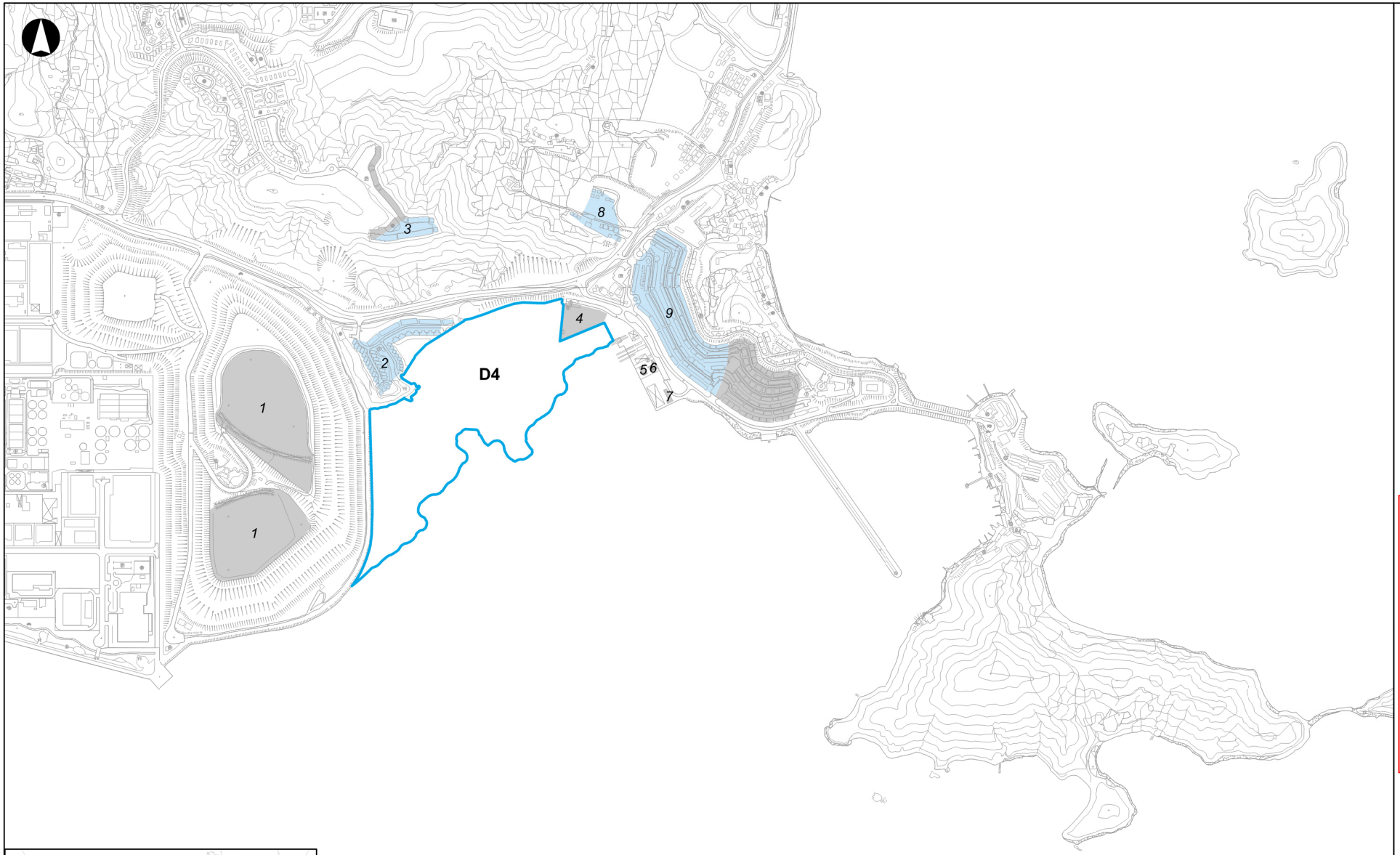
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Environmental Resources and Constraints (Reclamation Site D4)

1:20,000

Preliminary

Job No	Drawing No	Issue
217459	D4.a	P0



Legend

- Key ASR
- Key ASR/NSR
- Potential Reclamation Site

Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.

Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR	Golf Park	Recreational
2	ASR/ NSR	Fortune Garden	Residential
3	ASR/ NSR	Tycoon Place	Residential
4	ASR	Cement Works	Industrial
5	ASR	Ice Factory	Industrial
6	ASR	Tai Po Marine Office & Fisheries Office	Government
7	ASR	Tai Po Wholesale Fish Market	Market
8	ASR/ NSR	Village houses at Wong Yue Tan	Residential
9	ASR/ NSR	The Beverly Hills	Residential

Issue	Date	By	Chkd	Apprd
P0	2012-01-13	SC		

Metres
0 63 125 250 375

ARUP

Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Hong Kong
www.arup.com

Client
Civil Engineering and Development Department

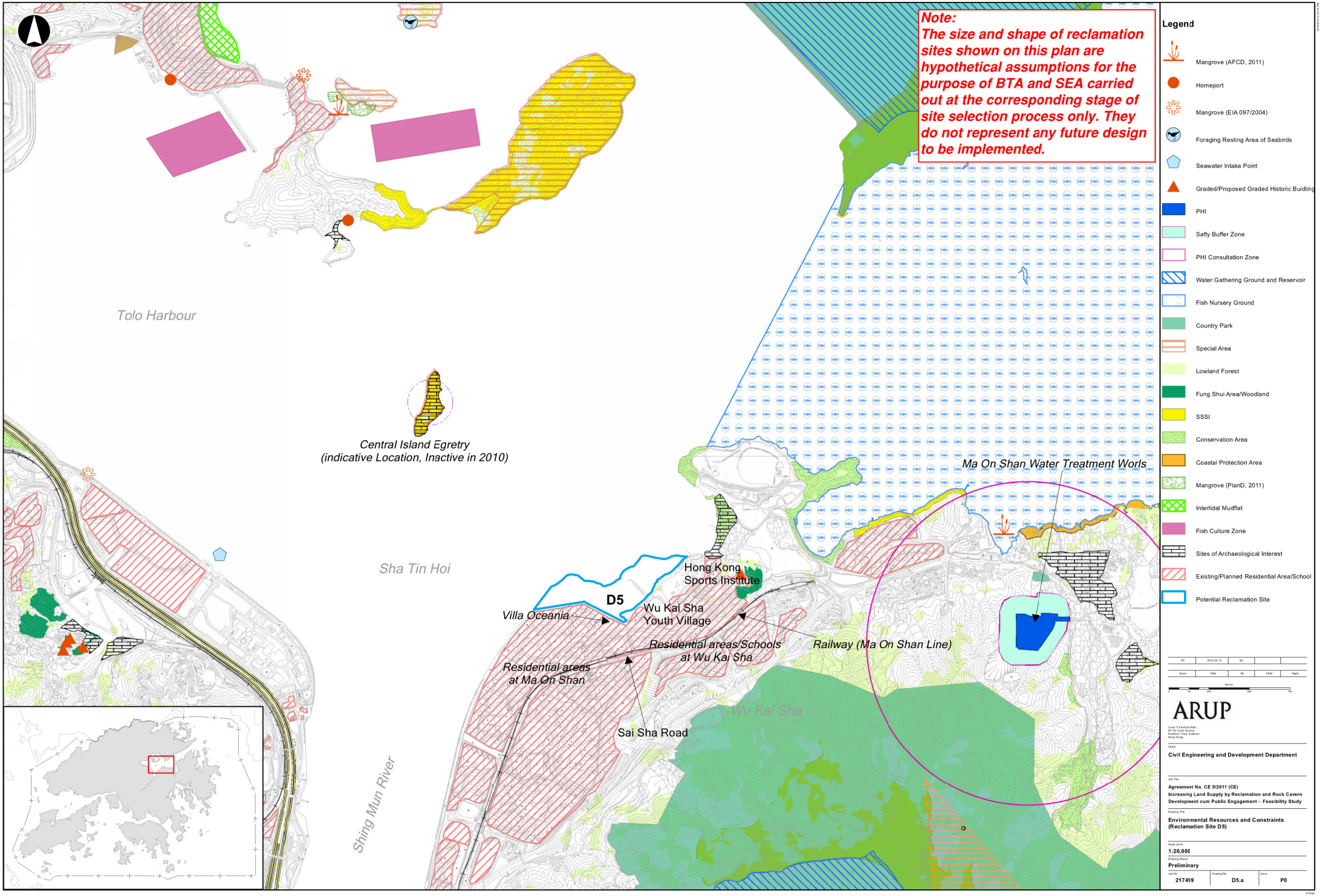
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site D4)

Scale at A3
1:10,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	D4.b	P0


Note:
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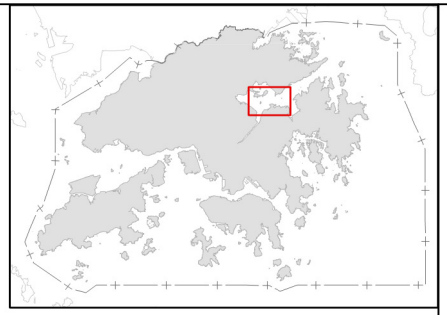
Legend
Mangrove (AFCD, 2011)
Homeport
Mangrove (EIA 097/2004)
Foraging Resting Area of Seabirds
Seawater Intake Point
Graded/Proposed Graded Historic Buidling
PHI
Safty Buffer Zone
PHI Consultation Zone
Water Gathering Ground and Reservoir
Fish Nursery Ground
Country Park
Special Area
Lowland Forest
Fung Shui Area/Woodland
SSSI
Conservation Area
Coastal Protection Area
Mangrove (PlanD, 2011)
Intertidal Mudflat
Fish Culture Zone
Sites of Archaeological Interest
Existing/Planned Residential Area/School
Potential Reclamation Site
Tolo Harbour
Central Island Egretry
(indicative Location, Inactive in 2010)
Sha Tin Hoi
Ma On Shan Water Treatment Worls
Hong Kong
Sports Institute
D5
Villa Oceania
Wu Kai Sha
Youth Village
Residential areas/Schools
at Wu Kai Sha
Railway (Ma On Shan Line)
Residential areas
at Ma On Shan
Sai Sha Road
Wu Kai Sha
Shing Mun River
ARUP
Civil Engineering and Development Department
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study
Environmental Resources and Constraints
(Reclamation Site D5)
1:20,000
Preliminary
217469
D5.a
P0

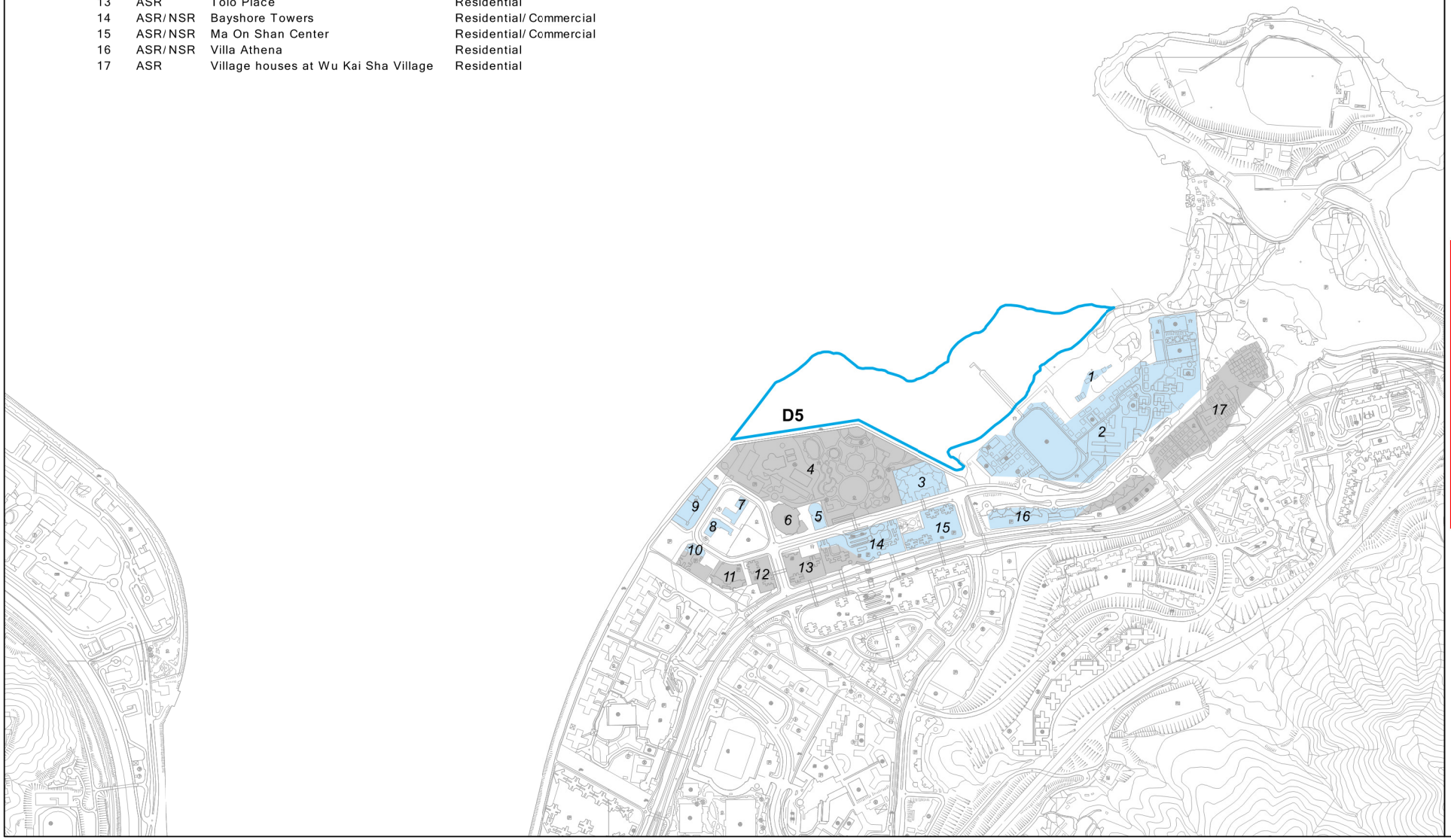
Key Existing/Planned Air/Noise Sensitive Receivers

1	ASR/NSR	Villages houses at Cheung Kang	Residential
2	ASR/NSR	Wu Kai Sha Youth Village	Institution
3	ASR/NSR	Villa Oceania	Residential
4	ASR	Ma On Shan Park	Park
5	ASR/NSR	Ma On Shan Library	Library
6	ASR	Ma On Shan Sports Center	Sports Center
7	ASR/NSR	Shun Yeung Primary School	School
8	ASR/NSR	River Rain Primary School	School
9	ASR/NSR	Horizon Suit Hotel	Hotel
10	ASR/NSR	Marbella	Residential
11	ASR	The Water Side	Residential
12	ASR	Fuk On Garden	Residential
13	ASR	Tolo Place	Residential
14	ASR/NSR	Bayshore Towers	Residential/ Commercial
15	ASR/NSR	Ma On Shan Center	Residential/ Commercial
16	ASR/NSR	Villa Athena	Residential
17	ASR	Village houses at Wu Kai Sha Village	Residential



Legend

- Key ASR
- Key ASR/NSR
- Potential Reclamation Site



Note:
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Issue	Date	By	Chkd	Apprd
P0	2012-03-12	SC		

Metres
0 63 125 250 375

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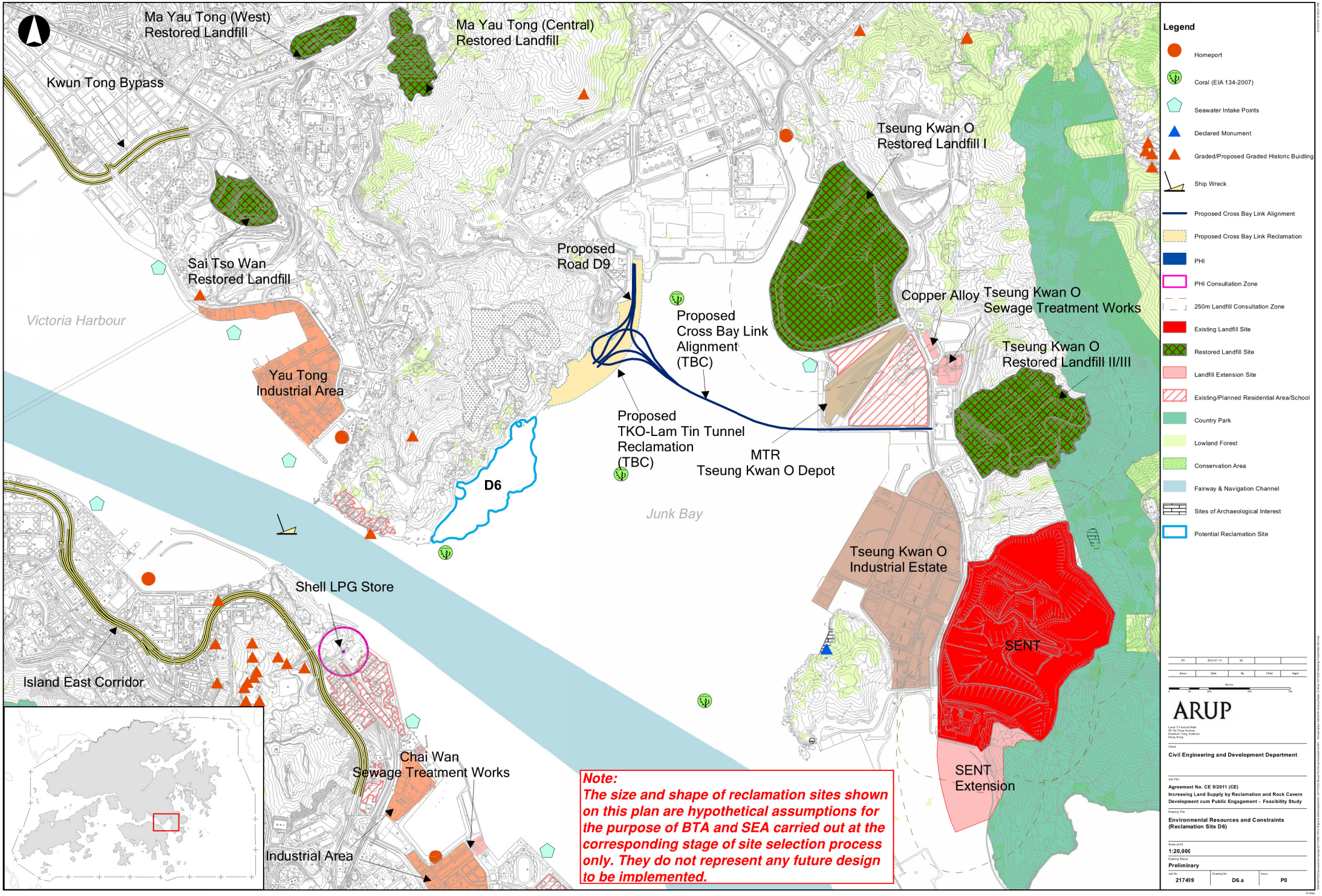
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Key Ai/Noise Sensitive Receivers (Reclamation Site D5)

Scale at A3
1:10,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	D5.b	P0


Ma Yau Tong (West)
Restored Landfill
Ma Yau Tong (Central)
Restored Landfill
Kwun Tong Bypass
Tseung Kwan O
Restored Landfill I
Proposed
Road D9
Sai Tso Wan
Restored Landfill
Victoria Harbour
Proposed
Cross Bay Link
Alignment
(TBC)
Copper Alloy
Tseung Kwan O
Sewage Treatment Works
Tseung Kwan O
Restored Landfill II/III
Yau Tong
Industrial Area
Proposed
TKO-Lam Tin Tunnel
Reclamation
(TBC)
MTR
Tseung Kwan O Depot
D6
Junk Bay
Tseung Kwan O
Industrial Estate
Shell LPG Store
SENT
Island East Corridor
Chai Wan
Sewage Treatment Works
SENT
Extension
Industrial Area
Note:
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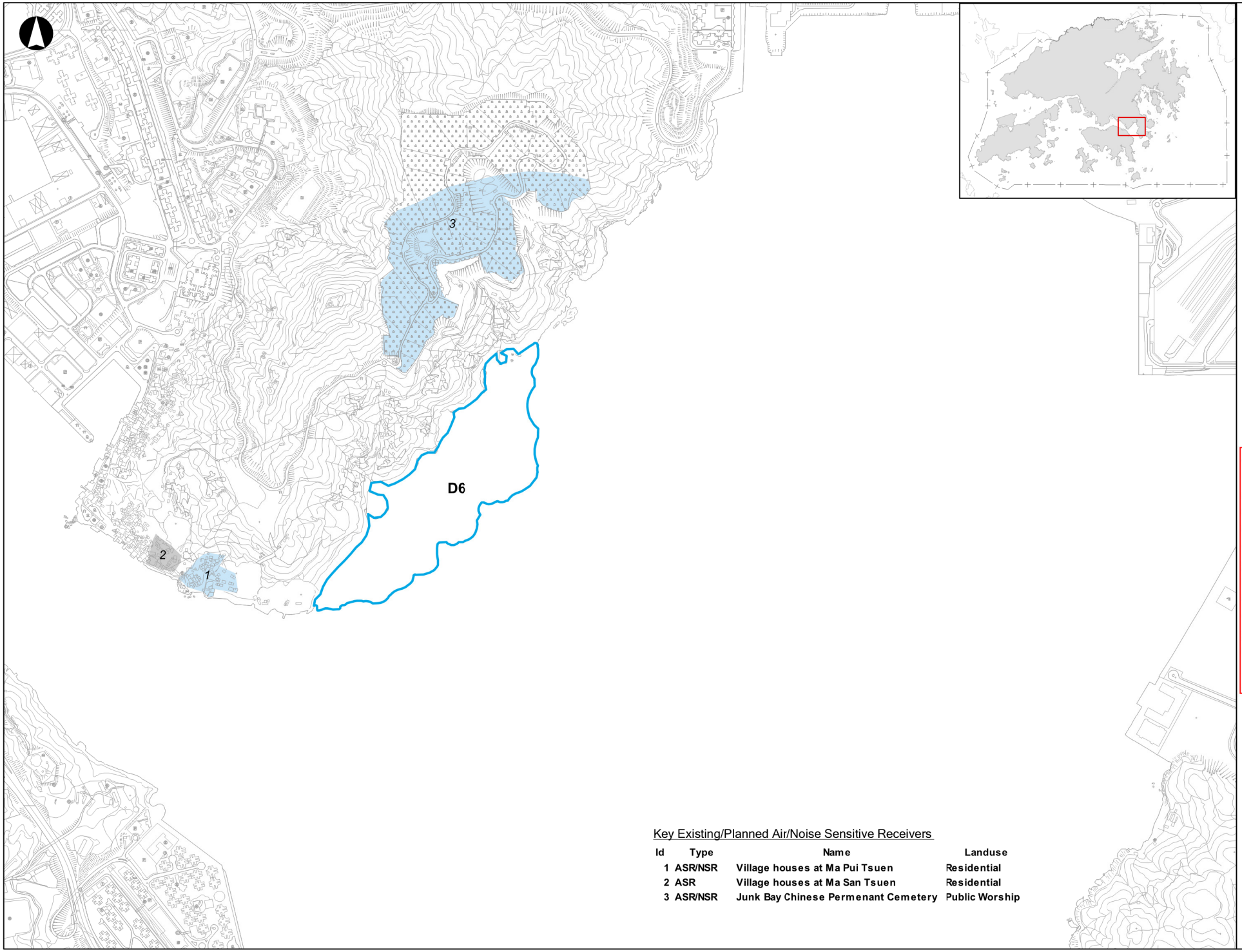
Legend
Homeport
Coral (EIA 134-2007)
Seawater Intake Points
Declared Monument
Graded/Proposed Graded Historic Buidling
Ship Wreck
Proposed Cross Bay Link Alignment
Proposed Cross Bay Link Reclamation
PHI
PHI Consultation Zone
250m Landfill Consultation Zone
Existing Landfill Site
Restored Landfill Site
Landfill Extension Site
Existing/Planned Residential Area/School
Country Park
Lowland Forest
Conservation Area
Fairway & Navigation Channel
Sites of Archaeological Interest
Potential Reclamation Site
ARUP
Civil Engineering and Development Department
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study
Environmental Resources and Constraints (Reclamation Site D6)
1:20,000
Preliminary
217459
D6.a
P0



Legend

- Key ASR
- Key ASR/NSR
- Potential Reclamation Site

Note:
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Key Existing/Planned Air/Noise Sensitive Receivers

Id	Type	Name	Landuse
1	ASR/NSR	Village houses at Ma Pui Tsuen	Residential
2	ASR	Village houses at Ma San Tsuen	Residential
3	ASR/NSR	Junk Bay Chinese Permenant Cemetery	Public Worship

Issue	Date	By	Chkd	Apprd
P0	2012-01-11	SC		

Metres
0 63 125 250 375

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Hong Kong

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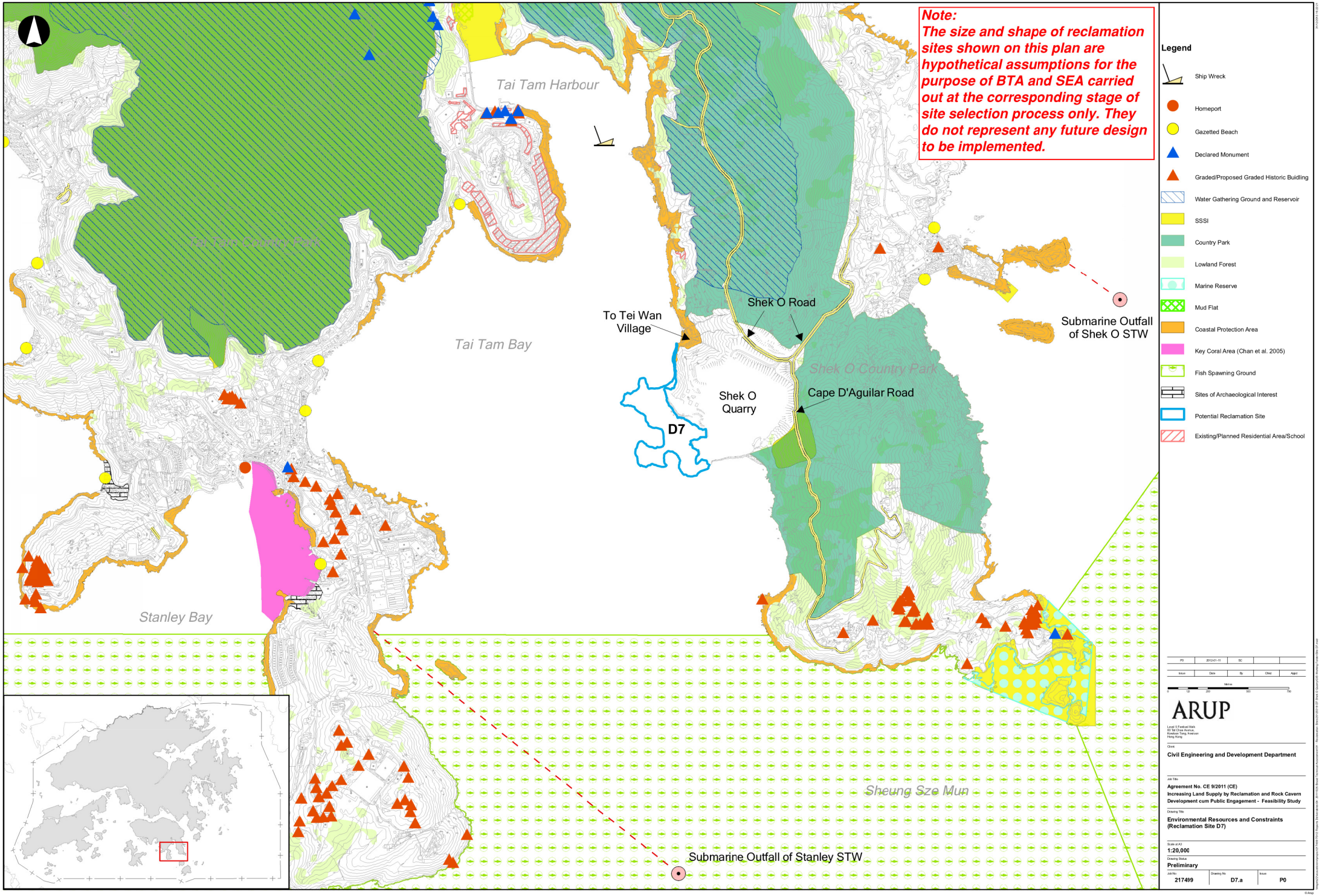
Job Title
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

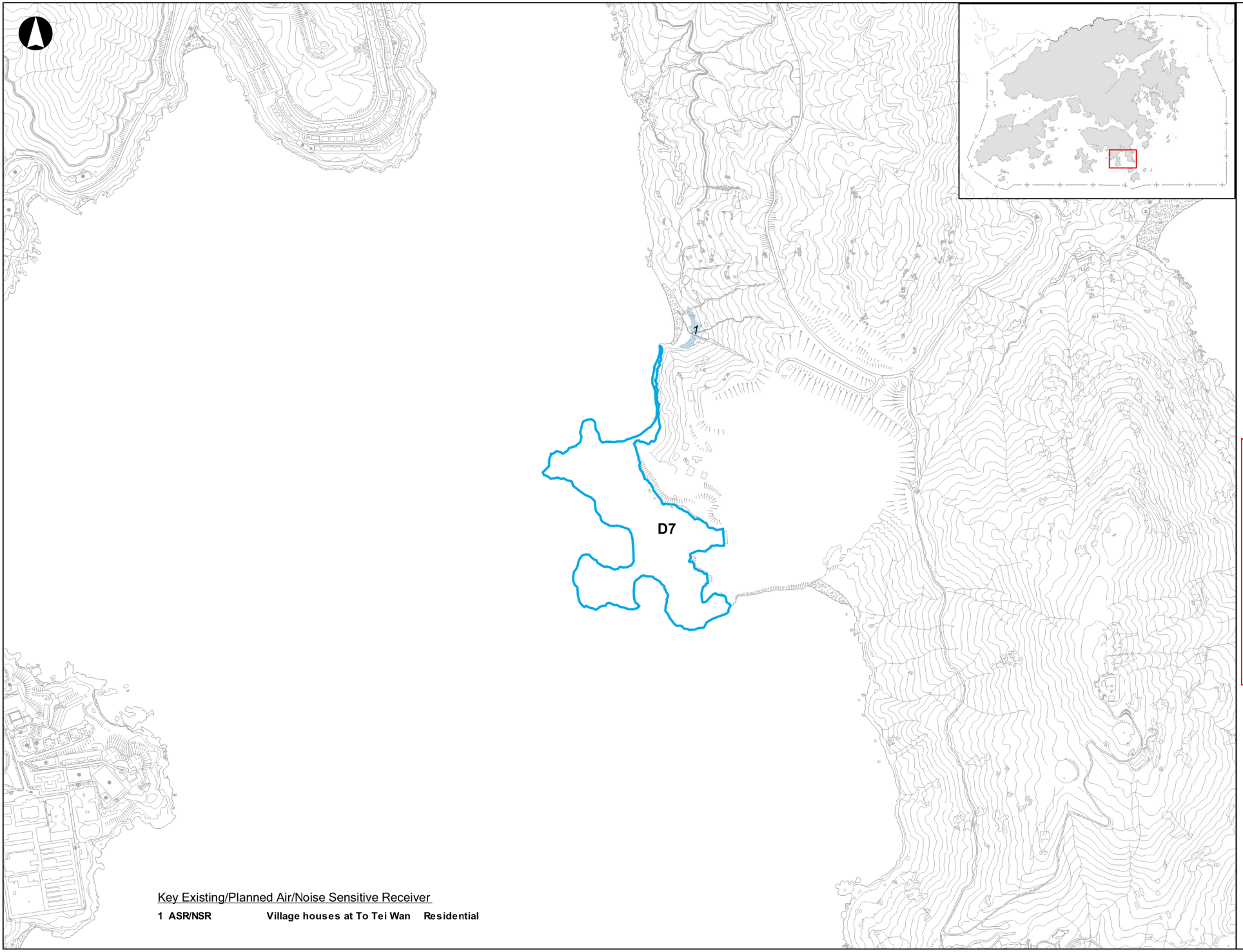
Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site D6)

Scale at A3
1:10,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	D6.b	P0


Note:
The size and shape of reclamation sites shown on this plan are hypothetical assumptions for the purpose of BTA and SEA carried out at the corresponding stage of site selection process only. They do not represent any future design to be implemented.
Tai Tam Harbour
Tai Tam Country Park
Tai Tam Bay
To Tei Wan Village
Shek O Road
Submarine Outfall of Shek O STW
Shek O Country Park
Shek O Quarry
Cape D'Aguilar Road
D7
Stanley Bay
Sheung Sze Mun
Submarine Outfall of Stanley STW
Legend
Ship Wreck
Homeport
Gazetted Beach
Declared Monument
Graded/Proposed Graded Historic Buidling
Water Gathering Ground and Reservoir
SSSI
Country Park
Lowland Forest
Marine Reserve
Mud Flat
Coastal Protection Area
Key Coral Area (Chan et al. 2005)
Fish Spawning Ground
Sites of Archaeological Interest
Potential Reclamation Site
Existing/Planned Residential Area/School
ARUP
Civil Engineering and Development Department
Agreement No. CE 9/2011 (CE)
Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study
Environmental Resources and Constraints (Reclamation Site D7)
1:20,000
Preliminary
217499
D7.a
P0



Legend

Key ASR/NSR

Potential Reclamation Site

Note:
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Key Existing/Planned Air/Noise Sensitive Receiver

1 ASR/NSR **Village houses at To Tei Wan** **Residential**

Issue	Date	By	Chkd	Apprd
P0	2012-01-11	SC		

Metres
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Increasing Land Supply by Reclamation and Rock Cavern Development cum Public Engagement - Feasibility Study

Drawing Title
Key Air/Noise Sensitive Receivers (Reclamation Site D7)

Scale at A3
1:10,000

Drawing Status
Preliminary

Job No	Drawing No	Issue
217499	D7.b	P0