Civil Engineering and Development Department and Planning Department

Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung - Feasibility Study

Final Final Report for the Whole Feasibility Study

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(Volume 1 of 2)

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It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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Ove Arup & Partners Hong Kong Ltd
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
www.arup.com

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Abbreviations and acronyms

AHR	Airport Height Restrictions
AFCD	Agriculture, Fisheries and Conservation Department
CDA	Comprehensive Development Area
CEDD	Civil Engineering and Development Department
CFS	Comprehensive Feasibility Study

DLO	District Lands Office
GFA	Gross Floor Area
G/IC	Government, Institution or Community
GLA	Government Land Allocation
HKSAR	Hong Kong Special Administrative Region
LandsD	Lands Department
LCSD	Leisure and Cultural Services Department
LegCo	Legislative Council
MUDP	Master Urban Design Plan
MLP	Master Landscape Plan
NT	New Territories
PLP	Preliminary Layout Plan
PlanD	Planning Department
PNTEA	Potential New Town Expansion Area
RLP	Recommended Layout Plan
RODP	Recommended Outline Development Plan
ROZP	Recommended Outline Zoning Plan
PRH	Public Rental Housing
HD	Housing Department
SHWSTW	Siu Ho Wan Sewage Treatment Work
SHWWTW	Siu Ho Wan Water Treatment Work
TCE	Tung Chung East
TCW	Tung Chung West
TCV	Tung Chung Valley

1 Introduction

1.1 Study Background

1.1.1 The development of Tung Chung New Town started in the 1990s under the original goal of establishing a supporting community for Hong Kong's new international airport. In 2007, The Revised Concept Plan for Lantau was completed, [redacted] Under the Revised Concept Plan, Tung Chung would be developed into a new town with increased population. According to Census 2011, the existing population in Tung Chung is 78,400.

1.1.2 In order to increase land supply to satisfy the housing demand and other development needs of the territory, the Civil Engineering and Development Department (CEDD) and the Planning Department (PlanD) of the Government of HKSAR jointly commissioned Ove Arup & Partners Hong Kong Limited (the Consultant) under Agreement No. CE 32/2011 (CE) in January 2012 to carry out a planning and engineering study on Tung Chung New Town Extension (the Study). The Study aims to explore the feasibility of extending Tung Chung to the east and west to form an integrated new community with local employment opportunities and various community facilities to meet the demand of the local residents, and with a balance for development and conservation.

1.2 Study Area

1.2.1 Study Area covers the entire area of Tung Chung and its expansion (TCE and TCW) in the form of fallow land, foreshore and sea-bed, places and waters as shown in **Figure 1.1**.

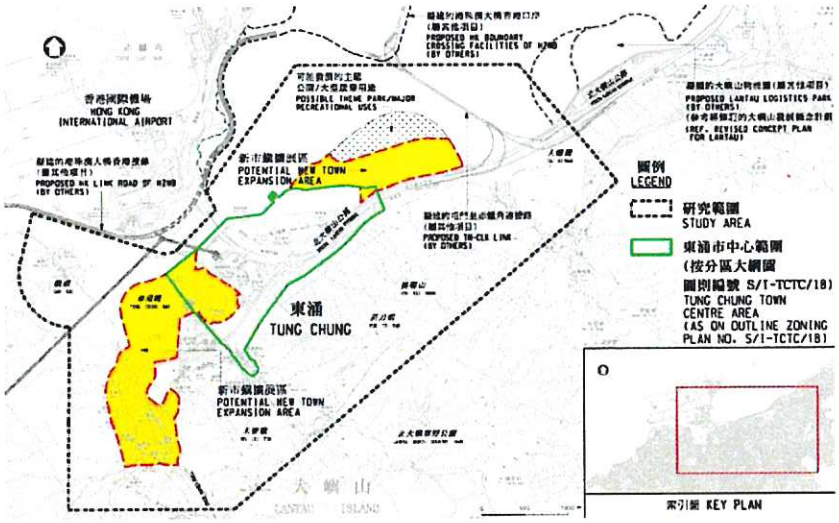


Figure 1.1 Study Area

1.3 Purpose of this Final Report

1.3.1 The purpose of this Final Report is to present a consolidated compilation of the overall findings, proposal and recommendation of the works carried out under the Study. More details on individual aspects are presented separately in respective reports and technical papers.

2 Overview of Study Flow

2.1.1 The study flow is briefly summarized as follows:

a) Baseline review, identification of opportunities and constraints and key issues;

b) Stage 1 Public Engagement;

c) Establish planning principles;

d) Formulate initial land use options;

e) Stage 2 Public Engagement;

f) Formulate draft RODP, draft ROZP, draft MUDP, draft MLP, and PLP;

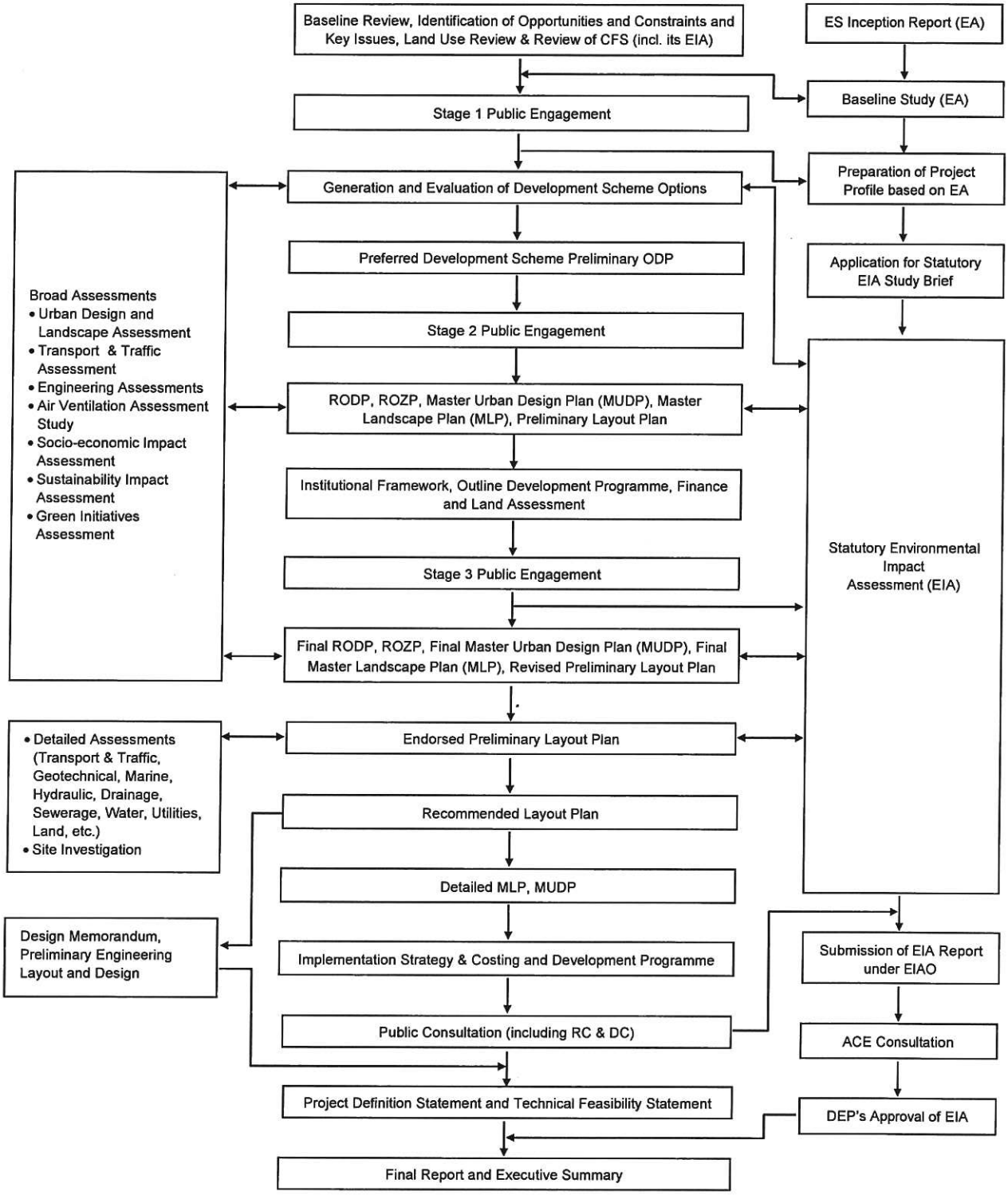
g) Stage 3 Public Engagement;

h) Formulate final RODP, final ROZP, final MUDP, final MLP and Revised PLP.

2.1.2 Technical assessments and statutory Environmental Impact Assessment was also carried out in parallel along the entire study process.

2.1.3 The study process is shown in the flow chart in **Figure 2.1** below.

Figure 2.1 Flow chart of Study Process



3 Public Engagement

3.1 Overview

3.1.1 Three stages of Public Engagement (PE) were carried out to solicit public views on the proposed Tung Chung new town extension throughout the Study.

3.1.2 Stage 1 PE was conducted from 12 June 2012 to 12 August 2012. The objective was to introduce to the Study background, the development opportunities and constraints, and to collect views on the development of Tung Chung. Roving exhibitions, briefing sessions and consultation meetings with various stakeholders, a public forum were held, and a survey was conducted to share the study background and to collect views on the proposed Tung Chung further development. The public had also submitted their views via fax, post and email. More than 2,300 suggestions and proposals were received during the Stage 1 PE.

3.1.3 PE2 was conducted from 21 May 2013 to 21 July 2013, with over 3,000 public comments received on the initial land use options. Two proposed initial land use options in TCE were introduced to the public, titled "Theme 1: Livable Town" and "Theme 2: Economic Vibrancy", while the land use theme in TCW was "Development and Conservation – A Balance". Various public engagement activities were held to introduce the planning and engineering considerations and the proposed initial land use options of the Study to the general public. These activities include roving exhibition, a Community Workshop, a Public Forum, Focus Group meetings with interested stakeholders and consultation meetings with statutory advisory bodies. Public views were collected via different channels including email, post, fax, by hand, by phone, Opinion Forms collected throughout the PE period, Comment Forms collected at the Public Forum, and views recorded during Community Workshop / Public Forum / Focus Group Meetings. 3,099 submissions were received, including 2,189 written submissions, 428 Opinion Forms/Questionnaires and 482 Comment Forms.

3.1.4 After careful consolidation and analysis of all the opinions on the initial land use options received in Stage 2 PE, a draft RODP was formulated and was consulted in the Stage 3 PE during the period between 15 August 2014 and 31 October 2014. In the draft RODP, attention was given to the commercial development and jobs introduced by other development projects on Lantau, such as the North Commercial District (NCD) of the Hong Kong International Airport (HKIA) and development of the Hong Kong Boundary Crossing Facilities (HKBCF) of the Hong Kong-Zhuhai-Macao Bridge (HZMB). The proposed reclamation in TCW was deleted in response to public comments. Balance between nature and urban development was achieved through the development of a Town Park, preservation of rural characteristics and conservation of areas with high ecological value. A balance was also achieved in TCE through the planning of the high-density Metro

Core Area, and provision of green walkways and waterfront promenade. Planning concepts including stepped height profile and Transport Oriented Development (TOD) were also included in the RODP.

3.1.5 During Stage 3 PE, the public submitted their views via different channels and at different events. Submission methods included email, post, fax, by hand and by phone. The public could also submit their views by filling in the Comment Form available at the Public Forum. Views expressed during the Focus Group meetings and Public Forum were also recorded. There were a total of 4,086 public submissions received, with 558 individual submissions, 3,515 standard submissions from groups such as Prajna Dhyana Temple, San Tau Village, villages of Tai Ho, etc., and 13 signature campaigns. Out of these 4,086 public submissions, 3,913 were written submissions received through email (1302), fax (6), post (315), by hand (2,270) and telephone (20), whereas 173 were received at the Public Forum on 11 October 2014 via Public Forum Comment Forms. 13 signature campaigns with a total of 7,536 signatures from various groups and villages were also received.

3.1.6 Key comments and suggestions received during the three stages of PE are broadly summarised in following sections.

3.2 Stage 1 PE

3.2.1 The broad consensus collected in Stage 1 PE is briefly summarized below:

General

3.2.2 There was broad consensus that Tung Chung needed further development. The benefits of more community and recreational facilities, local economic development and improvement of transport infrastructure were acknowledged. Transportation, community / recreational facilities and job/business opportunities were considered most important among others aspects consulted.

3.2.3 There was concern that the density of housing development would be too high. A balanced mix of public and private housing was generally demanded. There was suggestion that Tung Chung could be developed into a commercial, tourism and recreational hub with resorts, hotels, water sports centres, flea markets, marina, fisherman's wharf, and eco-tourist facilities (e.g. ecological parks, organic farms, eco-tourism and environmental educational centre, etc.).

Reclamation

3.2.4 Reclamation in TCW and land resumption for reselling to private developers was strongly opposed, while developing fallow agricultural land was supported. There was no major objection to reclamation in TCE.

Community Facilities

3.2.5 More community and recreational facilities, particularly hospitals, medical care facilities, sports grounds and wet markets were requested. These facilities should be more evenly distributed between TCE and TCW.

Transportation

3.2.6 Improvement on internal and external transportation connectivity, and an additional MTR station in TCW was clearly requested. More transport types and services were also suggested to help reduce transportation cost and to support population growth. Improvement and extension of the existing cycle tracks to Sunny Bay were also mentioned.

Environment

3.2.7 There were grave concerns about the adverse impacts of development on the ecology around Tung Chung Stream and Tung Chung Bay, and the disturbance to butterflies, birds, fish, horseshoe crabs and Chinese White Dolphins. There were also concerns about traffic noise caused by nearby roads and railway.

Cultural Heritage

3.2.8 Monuments, historical buildings and rural villages of preservation values should be protected. Ma Wan Chung should be preserved and revitalised and the existing fishing village should be developed into a Fisherman's Wharf. Prajna Dhyana Temple at Shek Mun Kap should be preserved.

Economy

3.2.9 Increasing job and business opportunities for local residents were considered very important.

3.3 Stage 2 PE

3.3.1 Brief summary of major views collected in Stage 2 PE are discussed below:

General

3.3.2 In Stage 2 PE, there was broad consensus for further development in Tung Chung as soon as possible, and the existing problems in Tung Chung (e.g. poor connectivity, insufficient community facilities and job opportunities, etc.) should be addressed.

3.3.3 The public requested for sustainable development under a holistic approach to better integrate TCE and TCW. Other suggestions include balanced housing mix, better building design and avoidance of "wall-effect" residential development.

3.3.4 The public suggested that the development should not only focus on housing development but also on commercial and tourism growth. They agreed that tourism development could bring enormous economic

benefits and create ample opportunities for both Tung Chung and Hong Kong, hence more facilities such as hotels, commercial premises and shopping malls were suggested. Leisure tours such as eco-tourism and concert tours were also suggested.

3.3.5 There were concerns that the additional population would overload the carrying capacity of the existing infrastructures.

TCE

3.3.6 On TCE, the proposed development was generally supported with higher development density near the core area and around the transportation hubs preferred. A hybrid development of Theme 1 "Livable Town" and Theme 2 "Economic Vibrancy" was generally supported. There was relatively less concern on the proposed 120ha reclamation comparing to TCW. Major concerns include environmental impact, visual impact, impact on water flow and ecology near Tai Ho, cumulative impact on marine ecology and Chinese White Dolphins, narrowing of the navigation channel. There were suggestions to review the extent of reclamation in TCE. Views on the needs, scale and location of the marina was diverse, with some stakeholders believed that the marina would only benefit the affluent minority, while others considered that it could enhance the economy of Tung Chung and make Tung Chung a more interesting recreation and tourism destination.

TCW

3.3.7 There was strong opposition to the proposed reclamation due to the adverse impact on the ecology and water flow in Tung Chung Bay, thus deteriorating the current odour problem near Ma Wan Chung. There was also objection to the proposed private housing development near the Town Park. The proposed revitalisation of Ma Wan Chung village was however supported.

3.3.8 Comments on development scale and land uses in TCW were diverse.

a) Some public supported more developments in TCW (e.g. commercial facilities on top of the railway station and higher plot ratio around) while some did not.

b) There were many suggestions on the land uses. Some suggested developing all available fallow agricultural land. There were proposals to develop some specific sites (e.g. a hill slope at Nim Yuen Village, an area between Lam Che Village and YMCA of HK Christian College, etc.) for other uses (e.g. religious and tourism purposes with an organic farm and a memorial hall). There were also proposal to develop TCW into a recreational tourist spots under the theme with Buddhism characteristics, and zone the area around Prajna Dhyana Temple as G/IC and to retain the existing view from the temple. Other suggestions also included zoning some areas as Residential, Agriculture, G/IC and Recreation.

c) At the same time, there were oppositions to the proposed zoning of particular sites near existing villages as Green Belt, Conservation Area and Agricultural because of the restraint on future development potential. There were also oppositions to the proposed development near Shek Mun Kap and the Prajna Dhyana Temple and requested for lower plot ratio.

d) On the other hand, Green Groups supported the proposed Conservation Area and Green Belt and preservation of the important ecological assets (e.g. Tung Chung Stream, Tung Chung Bay, Fung Shui Woodland, etc,). They urged the Government to proceed with the gazettal of the DPA plan as they were concerned that the areas with high ecological values will be adversely affected by the human activities arising from nearby developments.

Community Facilities

3.3.9 There was broad consensus that the facilities were not evenly distributed between TCE and TCW. The public requested for a balanced community facilities provisions for the youth, the elderly and the ethnic minorities, for more recreation, leisure, civic amenities and all levels of education land uses. Facilities that were frequently mentioned include wet market, G/IC complex, community / religious facilities, recreational facilities (e.g. cricket, ruby, water sports, etc.), local shops, cycling tracks to other parts of Lantau, G/IC facilities for the youth and the elderly, hospital, childcare centre, etc. There were suggestions that the proposed sport ground should be located between TCE and TCW.

Educational Facilities

3.3.10 Interested parties advised that conventional primary and secondary schools are currently more than sufficient in Tung Chung, and therefore there was no imminent need for more educational facilities in Tung Chung except tertiary education facilities or school for special needs students.

Transportation

3.3.11 There were strong requests for improvement of the transportation and connectivity within Tung Chung and to better connect with other parts of Hong Kong. The proposed railway stations in TCE and TCW were welcomed, but the public also expressed concerns that the existing rail and road capacity may not be sufficient to cope with the additional population. Proper cycling paths connecting all areas within Tung Chung were also requested. Other suggestions included electrification of the transportation system and green-road infrastructures, making use of the seven existing piers, developing monorail system, etc.

Environment

3.3.12 The public generally appreciated the proposed preservation of the natural environment and protection of the high ecological value areas in TCW in particular Tung Chung Stream and Tung Chung Bay. Green Groups expressed their concerns about the cumulative impact on the

environment and marine ecology in particular the Chinese White Dolphins brought by the surrounding developments.

Cultural Heritage

3.3.13 The proposed preservation of the local cultural heritage such as Hau Wong Temple, Tung Chung Fort, Tung Chung Battery and the local villages, etc. was supported. There were suggestions to incorporate these assets as part of a cultural tourism programme or within a wider tourism plan.

Economy

3.3.14 The public called for more diverse job opportunities in Tung Chung that can match the local skillsets. More local business such as street shops, commercial facilities including retail premises should be provided so that more diverse job opportunities could be created. There were suggestions that the development of Tung Chung should capitalise the advantages of its strategic geographic bridgehead location to develop business centre or MICE which could well integrate with the HZMB and HKIA.

3.4 Stage 3 PE

3.4.1 Brief summary of major views collected in Stage 3 PE are discussed below:

General

3.4.2 As in Stage 1 and Stage 2 PE, the public continued to urge for earliest implementation of the proposed development. The public urged for a balance development among economic, environmental and ecological protection considerations.

3.4.3 There were diverse views on population increase. Some parties worried about the impact due to increase in population, while there were also opinions that the population should meet the demand of more economic development and job requirements in future.

3.4.4 The public generally appreciated a balance provision of public and private housing in Tung Chung. Some suggested increasing the plot ratio for housing development in TCW to better utilise the land.

Reclamation

3.4.5 Deletion of the proposed reclamation in TCW was strongly supported. There was no major objection to the proposed reclamation in TCE and Road P1. Nevertheless, some concerned about the potential direct and indirect impacts on marine ecology and Chinese White Dolphins due to the proposed reclamation.

TCE

3.4.6 The concept of transport-oriented development was supported. There were other suggestions including more leisure spaces with local

characteristics, a balance provision of land for educational use, and better utilization of underground space for development.

3.4.7 The public generally supported the proposed marina in TCE and believed it can enhance the vibrancy of the area. Some suggested that the marina should be open for public use, while some suggested providing a sheltered water area by the Government for local vessels to help meet the growing demand of sheltered and safe berthing spaces in Hong Kong. Other suggestions include limiting the capacity of the marina to 300 vessels, integrating the marina into the pedestrian walkway networks so that the promenade and scenic view of the water area and the Airport could be best utilised. Green Groups concerned about the potential impact on Chinese White Dolphins due to increase in marine traffic outside the Marina.

TCW

3.4.8 Considerable amount of public comments on the proposed zonings in TCW were received during Stage 3 PE. They include:

a) Green Groups suggested zoning the Fung Shui woodland as "CA" or GB, designating the areas on the bank of Tung Chung Stream near Fong Yuen and Shek Mun Kap as "CA" and "GB" to protect the natural environment and the habitats for butterflies.

b) There was objection to designating "GB" and "CA" zonings along the bank of Tung Chung Stream, and at the village area around Lam Che and Nim Yuen. They suggested changing the land use of two sites around Lam Che and Nim Yuen from "GB" and R4 to Government, Institution or Communities ("G/IC"). They also expressed that the land in front of Hau Wong Temple should be used for traditional festival celebrations.

c) Villagers opposed to any development near the village. They suggested that the proposed R3 site should be moved eastward, agricultural land in the village be preserved. They also commented that the village boundary shown in the RODP was incorrect and requested to extend their village boundary. There was requested for expansion of the Village Type Development ("V") zone to meet their future small house demand. They also objected to the proposed R2 site near the town park due to hilly terrain and possible walled effect created by the buildings.

d) The proposed land uses around Prajna Dhyana Temple in Shek Mun Kap was generally appreciated, while there was also suggestion to relocate the residential development near Prajna Dhyana Temple to the other side of Tung Chung Stream.

e) There were comments that the proposed development intensities in TCW were too low and the plot ratio for the proposed R3 sites along Tung Chung Stream should be increased to 1.5 to 3.5.

f) Villagers requested that suitable compensation should be provided if private land was zoned for conservation purpose.

g) Some private land owners opposed zoning the areas around Nim Yuen Village as institution and community use instead of "GB". Some also objected to the proposed zoning of their land holdings near Tung Chung Bay, and suggested designation of "OU" (Mixed use) zoning and a R3 site around the railway station which they considered in line with the TOD concept.

h) Other suggestions include the better use of abandoned farmlands, designating the conservation area as a park to be managed by the government through land swap or resumption with compensation, designating the proposed R3 site at Shek Mun Kap as Natural Park, relocating the proposed public housing development nearer to future railway station, retaining "Area 23" for high density residential use, rezoning the proposed R4 sites near future railway station to R3, rezoning the area at the western side of the estuary of Tung Chung Stream for GIC or recreation uses, deleting all non-building areas in TCW, etc.

Existing Tung Chung Town Centre

3.4.9 Suggestions on land uses within the existing town centre area include: Areas 1, 2 and 3 should be used as transport interchange and parking areas for coaches; "Area 52" to be used as public leisure space; the waterfront area could be used for commercial, recreational, cultural and educational purposes; extension of the covered walkway from the town centre to Tung Chung North and other new development areas and to improve public access to waterfront events; and to provide more diversified forms of open space.

Community Facilities

3.4.10 In general, the public considered that more community facilities should be provided specifically for different people in Tung Chung such as the youth, elderly and ethnic minorities. The facilities provided should be more balance between TCE and TCW. Facilities frequently mentioned include open spaces, reserved lands for Non-Government Organisations (NGOs), government municipal building; wet markets, cooked food markets, city hall, childcare and elderly centres, arts venue/theatre, clinics, government offices, facilities for ethnic minorities, sport facilities such as rugby pitch and stadium, hostel and community centre operated by a charitable foundation, etc. Some suggested that the shopping centres and markets shall be managed by more than one companies so as to allow competition among businesses.

3.4.11 There were concerns that the proposed R2 site in TCW would affect the Tung Chung Community Services Complex, and relocating of the existing services provided by the NGOs in the Services Complex should be provided to ensure minimum impact to the provision of services.

3.4.12 There were comments about the need of the proposed clinic/healthcare centre in TCW which would be located only 500 meters away from North Lantau Hospital.

Religious Facilities

3.4.13 A religious organization concerned that the proposed R2 site near Wong Nai Uk Village will affect the site of existing religious facilities. Another religious organization generally welcomed the draft RODP. Comment of the urgent need to have a Catholic church in Tung Chung to cater for the local Catholic community is also received. There was request to reserve some private lands at Nim Yuen, Lam Che and Shek Lau Po for "IC" uses, including religious uses to promote Tibetan Buddhism and other related activities such as Tibetan medicine and arts in Hong Kong.

Education Facilities

3.4.14 On education facilities, there are grave concerns on the provision of primary and secondary schools in both TCE and TCW and requested for a critical review of the provision taking into account the latest school plans allocation in Tung Chung. There were requests for specific tertiary education facilities including a university, aviation-training centre, vocation education and training centre. There were however diverse opinions on development of international schools.

Transportation

3.4.15 On transportation, as clearly voiced out in previous stages of PE, the public strongly requested that the internal and external transport and infrastructure network and connectivity should be improved, and frequency and modes of public transport services including bus and ferry services should be increased. They particularly concerned that the new population would overload the road and railway networks. Other suggestions include the use of environmentally-friendly transport systems such as electric buses, electric cars and bicycle sharing system.

3.4.16 On railway, the public supported the two proposed railway stations. Some suggested extending the Tung Chung Line to a new Siu Ho Wan Station and the Airport Island. There were also suggestions that a Public Transport Interchange (PTI) should be planned near the railway station in TCE and within the Metro Core area, in order to encourage the use of railway network and facilitate a seamless connection between railway and other modes of transport.

3.4.17 On road network, the proposed Tai Ho Interchange and Road P1 was generally supported. There were suggestions to link up Cheung Tung Road with Tai Ho Interchange and the existing pedestrian and cycling underpass from Tai Ho access point to the shoreline. Other proposals include a new road at Chung Yat Street, widening of Cheung Tung Road into four lanes, widening and improving the coverage of local pedestrian paths, building cycling paths and promenades, minimising roads but to provide more greenery walkways, etc.

3.4.18 There were requests on improving the cycle track network in Tung Chung to cater for the needs of local residents, tourists and professional/sports cyclists in the area. The existing cycle track network

should be linked up and connected to both TCE and TCW so as to promote the use of bicycles and enhanced connectivity. Some suggested that there should not be any restrictions for cyclists to use Cheung Tung Road and strict speed limits should be set for all users for safety reason. There were also suggestions to allow professional cyclists to have shared use of the roads with designated cycling lane. Ancillary facilities such as cycle parking spaces and rental kiosks, were also suggested.

Sewerage, Drainage and Flooding Measures

3.4.19 There were calls for improvements on the sewerage and drainage systems in TCW, as well as improvements on district-level storm water and sewage drainage. In particular, communal sewer connecting the villages was requested.

3.4.20 Some queried about the necessity and effectiveness of the proposed polders for flood prevention. Some concerned that the polder will affect the ecological connectivity across Tung Chung Stream, therefore the footprint should be kept to a minimum. Other flood prevention measures such as building bypass floodways, relocating residential uses away from the Stream and enforcement of laws to prevent illegal waste dumping were suggested.

Environment

3.4.21 On ecology and environment, the public supported that the biodiversity and natural environment of Tung Chung should be preserved and the natural scenery, environment and wildlife habitats in TCW should be maintained.

3.4.22 Green Groups concerned about the disturbance on Tung Chung Stream, natural coastlines, riverbanks, Fung Shui woodland and other ecologically valuable sites due to development, and requested for protection of valuable natural habitats. In particular, they requested for a Development Permission Area (DPA) Plan in TCW to control human activities and possible environmental disturbance in the area. More stringent measures for protecting Tung Chung Stream, particularly around the Site of Special Scientific Interest along the Stream, Tung Chung Bay and Wong Lung Hang, were requested. Channelization of Tung Chung Stream, civil engineering works and human activities that would pollute the ecologically sensitive areas should be minimized. De-channelization and rehabilitation of the channelized section of Tung Chung Stream should also be considered.

3.4.23 There were concerns on the cumulative environment impact, in particular noise and air pollution due to increased traffic generated by the various developments in North Lantau. Some particularly concerned about the developments would further increase the already high level of ozone concentration in Tung Chung. Strategic Environment Assessment to ascertain such cumulative impact was requested.

Economic Development

3.4.24 On economic development, the commercial and economic elements introduced in the finalised RODP, taken into account nearby developments in Lantau, was generally appreciated by the public. As clearly voiced out in previous stages of PE, the public requested that local job opportunities should be provided which should match with the skills of the residents in Tung Chung. There were suggestions for technology development and business related to the environment in Tung Chung.

3.4.25 There were supports for the increase in commercial floor space and provision of waterfront retail and street shops selling variety of affordable goods to promote local economy and increase employment opportunities. There were suggestions that local economy could include public wet markets, flea markets, cooked food centres, underground shopping mall, local farming on rehabilitated land, retail uses on future footbridges between Metro Core Area and TCE railway station. There were also suggestions to develop business such as vessel maintenance, scientific research centres and other high value-added technology in Tung Chung.

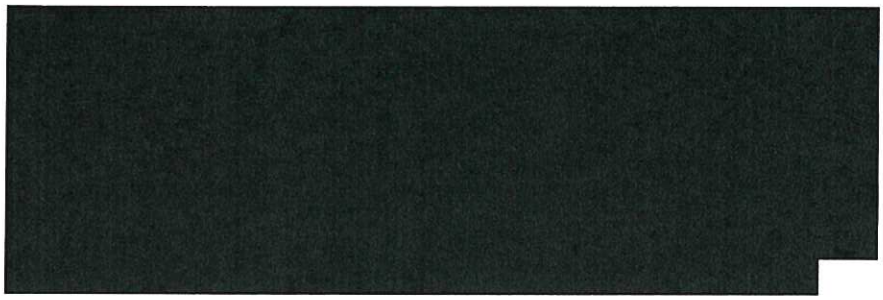
Tourism

3.4.26 There were suggestions on measures to enhance tourist attraction, to preserve sites with historical and cultural values, improve the natural shorelines and linkage to the waterfront. There were also suggestions to promote eco-tourism by preserving the natural scenery and development of "ecology and heritage park". The public was however concerned about the potential conflict between livelihood of local residents and tourist activities.

4 Outline Development Plan and Layout Plan

4.1 Formulation of the Revised Outline Development Plan

4.1.1



4.1.2

Tung Chung is being developed in phases. To date, the Tung Chung development is up to Phase 3A [redacted], with the reclamation works completed in 2003 and the public and private housing development is currently under construction. Nevertheless, due to environmental concerns, the proposed reclamation of the Tai Ho Wan area [redacted] will cease, and the works beyond Phase 3A are not yet completed due to the relaxed population increase in the last decade. Therefore, the development of Tung Chung is yet to be completed, which, understood from public opinions, has resulted in a mismatch of job opportunities, inadequacy of G/IC facilities, etc.

4.1.3

With the opportunities and changing planning circumstances brought by new infrastructures in North Lantau, including HZMB and its Link Road, TM-CLK Link, HKBCF, NCD, Airport's Third Runway, etc., this Study is therefore commenced to critically review the land uses for the remaining areas of Tung Chung to cater for the latest needs.

4.1.4

The Study has undergone three stages of public engagement (details elaborated in Section 3 above). Stage 1 PE is an "Envisioning" stage which is intended to understand the key issues and concerns on further developments. With the issues solicited from Stage 1 PE, the initial land use concepts for TCE and TCW are brought up for discussion during the Stage 2 PE. Of the comments received in Stage 2 PE, with the key objection towards reclamation at the ecologically sensitive Tung Chung Bay area. Subsequently, a more detailed Preliminary Outline Development Plan has been formulated for public discussion during the Stage 3 PE.

4.1.5

Taking into account the comments received from Stage 3 PE, together with the requirement from various government bureaux/departments and latest planning circumstances, a Recommended Outline Development Plan (RODP) has been formulated. Various technical assessments and EIA were conducted based on the RODP to confirm the technical feasibility of the development proposals. Based on the RODP, a more detailed set of plans namely Layout Plans, Recommended Outline Zoning Plan, Master Urban Design Plan and

Master Landscape Plan has also been formulated accordingly as the outcome of this Study. A set of plans are included in **Appendix 4.1 to Appendix 4.3**.

4.2 Overall Planning Intention and Urban Design Concepts

4.2.1 Planning Intention

4.2.2 Tung Chung Potential New Town Expansion Area (PNTEAs) are situated in a unique position within the dramatic landscape of Lantau Island. The PNTEAs are divided into two distinct zones with different character and development potential based on their topographic context, visibility from surrounding areas and accessibility.

4.2.3 Tung Chung East is the most visible part of the PNTEA, being well situated across the sea from HKIA, the under-construction Hong Kong Boundary Crossing Facilities (HKBCF) and the new TM-CLK link. Comprised entirely of reclaimed land, development in TCE will be the natural continuation of the existing TCNT, framed against the vegetated backdrop of North Lantau (Extension) Country Park.

4.2.4 Development in TCW balances the sensitive ecological character of Tung Chung Bay, the Tung Chung Stream and the rural topography of TCV with the intense development in the vicinity of the proposed TCW Railway Station. Residential clusters nested within the Valley are carefully located as distinct micro-settlements integrated with the verdant vegetation and existing rural village-type development.

4.2.5 Key Design Principles

4.2.6 Urban design of the PNTEAs is driven by a series of design concepts that were developed during the course of the study and embody the opportunities for increasing pedestrian connectivity between TCE, TCW and the existing TCNT, capitalizing on the location of the proposed new railway stations and integration with the surrounding context.

Transit-Oriented Development

4.2.7 To capitalize on the development opportunities presented by major new public transport links to the territory but also within Tung Chung itself the concept of TOD is utilized to create highly concentrated hubs of activity and residential areas in close proximity to the proposed railway stations.

4.2.8 The increased development intensity around the proposed railway stations is seen as an opportunity to create a new, highly visible centrality that is emblematic of the New Town and its aspirations to become the home of a new generation of residents.

Connectivity

4.2.9 Convenient physical mobility between residential areas and key activity nodes is crucial to creating an open and accessible spatial setting within which can inspire a feeling of belonging to the place for new residents.

4.2.10 Planning for enhanced connectivity is one of the major underlying themes of the layout in the PNTEAs, with particular attention paid to the linkages between the Tung Chung Town Centre and TCW via the Town Park as well as the connections between TCE and Tung Chung Town Centre. The goal is to create a mobility system that considers the entire Tung Chung as a unified town composed of distinct districts.

Integration

4.2.11 As an extension to the existing Tung Chung, new development seeks to maximize integration with the existing built form and to balance the need for new residential development with the natural features of the site. In order to create a unified urban form that respects the existing layout and minimizes adverse impacts on the natural environment integration strategies are employed throughout the PNTEAs.

4.2.12 Please refer to **Figure 4.3.1** and **4.3.2** for the overall urban design concept for the TCE and TC PNTEAs.

4.3 Key Development Parameters

4.3.1 As an extension to the existing Tung Chung New Town, the TCE and TCW PNTEAs seek to maximize integration with the existing built form and to balance the need for new residential development with the natural features of the site. In order to create a unified urban form that respects the existing layout and minimizes adverse impacts on the natural environment integration strategies are employed throughout the PNTEAs.

4.3.2 **Land Use Budget**

4.3.3 The broad land use budget for the PNTEAs in the Finalized RODP is summarized in **Tables 4.3.1 to 4.3.4** below.

4.3.4 **Overall**

4.3.5 The overall land use budget for new developments in the TCE and TCW PNTEAs (including the P1 area) are as follows:

Table 4.3.1 Land Use Budget for the Tung Chung PNTEAs (TCE+TCW)

Major Land Uses	Approx. Area (ha)	% in Total Area
Comprehensive Development Area (CDA)	7.65	3.05%
Residential	71.90	28.70%
G/IC and Utilities		
- GIC	12.46	4.97%
- Education	9.11	3.64%
- OU	2.03	0.81%
Commercial	8.76	3.50%
Open Space		
- Existing DO (DO and Town Park) in New Town (DO)	19.24	7.68%
- Waterfront Promenade (RO)	14.06	5.61%
- Cycling Park (RO)	1.37	0.55%
- District Open Space (DO)	14.44	5.76%
Village Type Development	14.00	5.59%
Agriculture	4.97	1.98%
Coastal Protection Area	4.94	1.97%
OU (Riverpark)	3.32	1.33%
OU (Polders)	1.68	0.67%
Conservation Area	10.42	4.16%
Green Belt	13.24	5.28%
Roads	36.97	14.76%
TOTAL	**250.55**	**100.00%**

[1] Large site reduction factor (LSRF) of about 10% is assumed for residential sites during the preliminary estimation of flat production at the draft RODP stage. The provision of internal roads is assumed in LSRF.

[2]Tai Ho Section of Road P1 is included.

Tung Chung East Land Use Budget

Table 4.3.2 Land Use Budget for Tung Chung East

Major Land Uses	Approx. Area (ha)	%
CDA (metro core)	7.65	6.25%
Residential	43.95	35.92%
G/IC and Utilities		
- GIC	7.44	6.08%
- Education	9.11	7.44%
- OU	1.92	1.57%
Open Space		
- Waterfront Promenade	10.74	8.78%
- District Open Space	10.74	8.77%
Commercial	7.64	6.24%
Roads	23.19	18.95%
TOTAL	**122.37**	**100.00%**

Table 4.3.3 Land Use Budget for P1 ROAD

Major Land Uses	Approx. Area (ha)	%
Open Space		
- Waterfront Promenade	1.56	17.69%
- Cycling Park	1.37	15.51%
Roads	5.89	66.80%
TOTAL	8.82	100.00%

Tung Chung West Land Use Budget

Table 4.3.4 Land Use Budget for Tung Chung West

Major Land Uses	Approx. Area (ha)	%
Residential	27.95	23.41%
G/IC and Utilities		
- GIC	5.02	4.21%
- OU	0.11	0.09%
Open Space		
- Waterfront Promenade	1.76	1.48%
- Existing DO (Town Park)	19.24	16.12%
- District Open Space	3.70	3.10%
OU (River Park)	3.32	2.78%

Major Land Uses	Approx. Area (ha)	%
OU (Polders)	1.68	1.41%
Commercial	1.12	0.94%
Village Type Development	14.00	11.73%
Agriculture	4.97	4.17%
Coastal Protection Area	4.94	4.14%
Conservation Area	10.42	8.73%
Green Belt	13.24	11.09%
Roads	7.88	6.60%
TOTAL	**119.37**	**100.00%**

4.3.6 The proposed land use zonings of the Finalized RODP are shown in **Figures 4.3.3 and 4.3.4.**

4.3.7 **Planned Flat Provision and Population**

4.3.8 To cope with the territorial need on housing, the residential development potential of the Tung Chung PNTEAs are explored and the land resources should be optimized, while maintaining a suitable environment and opportunities for commercial development that compatible with the regional developments and recreational facilities.

4.3.9 Taking into account the local context, public views from PE activities as well as territorial aspirations, the land use proposal of the Finalized RODP is to provide a total of about 49,475 flats, with an additional population of around 144,400.

4.3.10 Please refer to the following **Table 4.3.5** for the proposed flat provision and anticipated population of the Finalized RODP and in comparison with the existing Tung Chung New Town.

Table 4.3.5 Flat Provision and Anticipated Population

Existing and Planned		
	Population	**Flat No.**
Existing	75,394	28,804
Existing + Planned[1]	123,902	44,250
Newly proposed for the Finalized RODP		
	Population	**Flat No.**
TCE	118,873[2]	40,820
TCW	25,500	8,655
Total	144,373	49,475

[1] already taken into account the latest Area 27 HOS development

[2] This population and flat number has excluded the population/flat of the proposed married police quarter in the Planning Scheme Area.

Overall Population Upon Full Development (Existing + Planned + Newly Proposed)		
	Population	**Flat No.**
Total	268,373	93,725

4.3.11 Housing Mix

4.3.12 In response to the recommendations of the Long Term Housing Strategy in 2014, and subsequently requested by Housing Department in Jan 2014, the public:private housing ratio for newly proposed development in the PNTEAs will be at least 63:37, which the housing mix of the Finalized RODP (based on flat no.) has corresponded to this territorial direction accordingly.

Table 4.3.6 Public: Private Housing Ratio

Existing & Planned (already taken into account the latest "Area 27" HOS development)			
	TCE	**TCW**	**TCE + TCW**
Public	11200	16850	28050
Private	16200	0	16200
Total	27400	16850	44250
% of Public Flat	**41%**	**100%**	**63%**
% of Private Flat	**59%**	**0%**	**37%**
Newly Proposed for Revised PODP			
	TCE	**TCW**	**TCE + TCW**
Public	25,729	5,223	30,952
Private	15,091	3,432	18,523
Total	40,820	8,655	49,475
% of Public Flat	**63%**	**60%**	**63%**
% of Private Flat	**37%**	**40%**	**37%**
Overall Flat Upon Full Development (Existing + Planned + Newly Proposed)			
	TCE	**TCW**	**TCE + TCW**
Public	36,929	22,073	59,002
Private	31,291	3,432	34,723
Total	68,220	25,505	93,725
% of Public Flat	54%	87%	**63%**
% of Private Flat	46%	13%	**37%**

4.3.13 "G/IC" and Open Space Provision

4.3.14 In order to support the target population of about 144,400, "G/IC" uses and Open Space provision are proposed in the Finalized Layout Plan and summarized in **Table 4.3.7** below. This provision has been based on the requirements under the Hong Kong Planning Standard and Guidelines as well as liaison with different Government Departments.

Table 4.3.7 Schedule of GIC and Open Space in Finalized RODP

G/IC Facilities & Open Space Provision	Provision in the Finalized RODP	Site Area Required (sqm)	Remarks
Nursery Classes and Kindergartens (unit : classroom)	72	N/A	
30-classroom Primary Schools (unit : school)	6	37,200	
30-classroom Secondary Schools (unit : school)	2	13,900	
Other School Use	1	15,000	
Post-Secondary Institution	1	24,000	

G/IC Facilities & Open Space Provision	Provision in the Finalized RODP	Site Area Required (sqm)	Remarks
Clinics/Health Centres	2	10,000	
District Police Station	1	4,650	
Married Police Quarter	1	4,650	
Fire Stations	1	2,960	
Integrated Family Service Centres (IFSC)	1	NOFA of 535 sq m	
Social Security Field Unit (SSFU)	1	NOFA of 464 sq m	
Family and Child Protective Services Unit (FCPSU) Sub-Office	1	NOFA of 84 sqm	
Integrated Children and Youth Services Centres (ICYSC)	3	NOFA of 631 sq m for each total = 1893sqm	
150-Place Residential Care Home for the Elderly (RCHE)	2	NOFA of 1575sqm for each, total = 3150sqm (150 places each)	

G/IC Facilities & Open Space Provision	Provision in the Finalized RODP	Site Area Required (sqm)	Remarks
Day Care Unit for Elderly	1	NOFA of 70sqm	[redacted]
Neighbourhood Elderly Centre (NEC)	1	NOFA of 303sqm	[redacted]
Child Care Centre (for children age under 3)	2	NOFA of 303sqm for each, total = 606sqm	[redacted]
District Support Centre for Persons with Disabilities (DSC) Sub-base	1	NOFA of 170 sq m	[redacted]
Integrated Community Centre for Mental Wellness (ICCMW)	1	NOFA of 454 sq m	[redacted]
Sports Centre	2	12,000	[redacted]
Sports Ground	1	30,000	[redacted]
Government Reserve	3	21,534	[redacted]

G/IC Facilities & Open Space Provision	Provision in the Finalized RODP	Site Area Required (sqm)	Remarks
			[redacted]

4.3.15 As an extension to the existing Tung Chung, new development seeks to maximize integration with the existing built form and to balance the need for new residential development with the natural features of the site. In order to create a unified urban form that respects the existing layout and minimizes adverse impacts on the natural environment integration strategies are employed throughout the PNTEAs.

Table 4.3.8 Open Space Provision in the Finalized RODP

G/IC Facilities & Open Space Provision	HKPSG Requirement for 144,400 Population	Provision in the Finalized RODP	Site Area Required (sqm)	Location in the Finalized RODP
Regional Open Space (sqm)	N/A	154,300	154,300	Mainly along the Waterfront Promenade of both PNTEAs and the Waterfront Park at the northern tip of TCE PNTEA
District Open Space (sqm) *	144,400	144,400	144,400	In all planning areas
Local Open Space (sqm)	144,400	144,400	-	To be provided within individual residential sites

*Excluding the existing and planned "DO" in TCW with about 19.7ha (Town Park and the existing open space west of Hau Wong Temple). As the 19.7ha provision has already be calculated as existing/planned provision for the TCNT [redacted].

4.3.16 **Commercial GFA and Job Opportunities**

4.3.17 As an extension to the existing Tung Chung, new development seeks to maximize integration with the existing built form and to balance the need for new residential development with the natural features of the site. In order to create a unified urban form that respects the existing layout and minimizes adverse impacts on the natural environment integration strategies are employed throughout the PNTEAs.

4.3.18 It is clearly understood that the completion of the HZMB in the coming

years and other infrastructures projects in vicinity will brought about opportunities for bridgehead economy in Tung Chung. It is important for the Finalized RODP of the PNTEAs to review the is commercial component from time to time in capturing the opportunities ahead as well as to take into account of commercial proposals nearby in the airport island.

4.3.19 The commercial element of the Finalized RODP is summarized below and distribution are shown in **Figure 4.3.7 and 4.3.8**.

4.3.20 The details analysis and assumptions for deriving the commercial GFA and employment figures will be further elaborated in the separate socio-economic assessment paper.

"Major Office Node"

4.3.21 It is understood [redacted] that hotel and retail projects [redacted] would be the mainstays of commercial development in the NCD in the HKIA[3].Our latest information on the potential commercial development in the HKBCF will likely to go for retail and hotel facilities. It was subsequently considered a right approach to upgrade the role of Tung Chung as a "Major Office Node" with a commercial GFA of about 500,000sqm. The scale is comparable to about the office floor space of two IFC1 and IFC2 in Central.

4.3.22 According to the Study on the Propensity for Office Decentralization and the Formation of an Office Land Development Strategy as well as the HK2030 Planning Vision and Strategy Working Paper No. 46 Planning Strategy for CBD Grade A Offices, it suggested the critical mass for office nodes and as shown in **Table 4.3.9** below.

4.3.23 This "Major Office Node" will mainly be clustered in the commercial belt around the TCE Station along the NLH, to be located in "Area 110", "Area 129", "Area 130" and the "Area 115a" and "Area 115b" "CDA" zones in the TCE PNTEA.

Table 4.3.9 Critical Mass for Office Nodes/Business Estate

Size	Major Office or I/O Node	Minor Node/Business Estate
Office GFA	0.5 million m^2	0.2 million m^2
Major Buildings	7 major buildings	3 major buildings*
[redacted]		

Regional Retail Cluster

4.3.24 With the said positioning for commercial development in Tung Chung

[3] http://www.hongkongairport.com/eng/media/press-releases/pr_1119.html

to plan towards a "Major Office Node" in the Finalized RODP, together with the latest development proposals in the NCD and the HKBCF, the retail commercial component in the Tung Chung PNTEAs is to ensure complementary with the surrounding developments.

4.3.25 Currently, about 163,300 m^2 retail GFA is proposed in the Finalized RODP mainly due to the following reasons:

- Hotel and retail projects would be the mainstays of commercial development in the NCD in the HKIA [redacted]
- According to the Chief Executive's 2014 Policy Address, the Government has carried out a preliminary review of the supporting infrastructure to explore the feasibility of developing major shopping, dining, entertainment and hotel facilities at the HKBCF and a detailed study will be commenced as soon as possible.[5] According to PlanD's latest proposal, about 350,000 m^2 commercial GFA for retail/dining/entertainment and hotel use will be provided in the HKBCF.

4.3.26 It is [redacted] that up to about 1 million sqm for shopping/dinning/entertainment and hotel use might be yielded in the HKBCF bridgehead zone, and the implication of this figure on the retail GFA provision in the Tung Chung PNTEA will be reviewed critically when more clear information is provided later on.

4.3.27 The regional retail node will mainly be clustered around the proposed TCE Station, to be located in "Area 57a", "Area 129", "Area 130" and the "Area 115a" and "Area 115b" "CDA" Sites, with some retail activities at "Area 145" and "Area 142" Sites along the waterfront in the TCE PNTEA. For the proposed scale of retail GFA around the proposed TCE Station, it is comparable to 0.9 of the Metro City Plaza located on-top of Po Lam MTR Station in Tseung Kwan O. For the regional retail node around the TCE waterfront, it is about 1 Tung Chung City Gate.

1000-room Hotel

4.3.28 With the future connectivity to Pearl River Delta (PRD) and increased air passenger after the expansion of HKIA Third Runway, on top of the existing and planned hotel developments in Tung Chung, it is considered that an additional 1,000 hotel rooms is appropriate in the Tung Chung to support the hotel demand in the district and long-term demand for Hong Kong.

4.3.29 Hotel GFA of about 49,000sqm is proposed in the waterfront area of

[5] http://www.policyaddress.gov.hk/2014/eng/p38.html

TCE PNTEA (at "Area 145") in association with the proposed marina. This is equivalent to an approximate of 1000 rooms (estimation in association with the existing room size of Novotel Citygate Hotel). This 49,000sqm (about 1,000 room) hotel proposal has already been presented in the PE2 and has received general public acceptance. The scale is comparable to about 2.2 Novotel Citygate Hotel in Tung Chung.

Local Retail

4.3.30 Conveniently located local retail areas are clearly defined in TCE. They are located mainly in parallel to the north-south Linear Parks within residential plots and are anticipated to provide jobs in addition to enhancing the vibrancy of the Parks. Additional areas for local retail establishments are also defined on the perimeter of the Central Park as well as along the Waterfront Promenade on the edge of the water inlet. The proposed local retail GFA of 114,000sqm in TCE are derived from the total floor area provided in the 2-storey local commercial belts indicated on the Finalized RODP. Not only the importance of the local retail to enhance the convenience for local residents, their function is also to add "street life" which is repeated demanded by local communities in the PE activities.

4.3.31 For the proposed local retail GFA of about 51,000sqm refers to the total floor area provided at the 3 commercial sites near to the proposed TCW Station as well as commercial uses to be provided in the proposed subsidized housing sites at "Area 42" and "Area 46". To capitalize on the synergy of the proposed TCW Railway Station, new commercial areas are located in close proximity to the station exits. These commercial lots form a continuous path along Yu Tung Road turning northwards towards the Hau Wong Temple to create a well-defined entrance to the public spaces adjacent to the Temple grounds.

4.3.32 **Anticipated Job Opportunities**

4.3.33 **Table 4.3.10** below summarized the amount of commercial GFA proposed in the PNTEAs mentioned above and the anticipated job opportunities derived based on a broad estimation of 1 job opportunities/ 20sqm of commercial GFA. The estimated job opportunities should be interpreted with caution, as the number of jobs created per unit of commercial GFA in reality could be different from the assumed ratio of 1 job to 20 sq.m. Also, given that the commercial GFA might crowd out certain similar activities in the rest of Hong Kong, the net employment created for Hong Kong as a whole could be lower than the estimated jobs for the commercial GFA in the PNTEAs.

4.3.34 Meanwhile, detailed estimation of job opportunities offered by the commercial developments as well as other "G/IC" facilities in the TC PNTEAs will be provided in the detailed design stage.

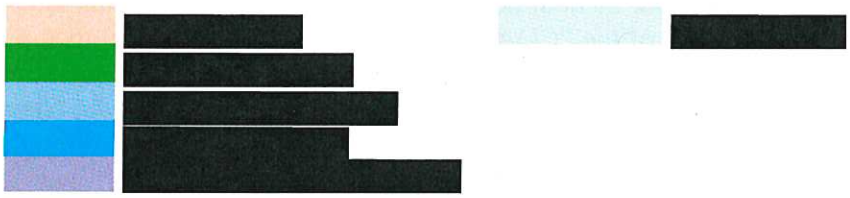
Table 4.3.10 Proposed Commercial GFA in the PNTEAs and anticipated job opportunities

	TUNG CHUNG EAST		TUNG CHUNG WEST	
	GFA (sq m)	No of jobs	GFA (sq m)	No of jobs
Retail (local)*	113,695	5,685	50,725	2,536
Retail (regional)*	**163,346**			
• **Along TCE MTR**	121,427	6,071		
• **Along TCE waterfront#**	41,919	2,096		
Office (Major Office Node)	500,000	25,000		
Hotel	48,573	2,429		
	(about 1000 rooms)			
Total	**825,614**	**41,281**		**2,536**

Assumptions:

- *Excluding GFA for Kindergarten
- # Excluding the boatyard/maintenance area of the proposed marina/ yacht
- **No of job** : assumed on broad assumption of 1 job/ 20sqm (According to HKPSG Chp8 Table 2: Business Use: 20-25sqm/job)
- **Local retail GFA** : calculated based on detailed design in the revised draft ODP
- **Regional retail GFA** : adjustment of regional retail GFA due to the likeliness for the HKIA NCD to provide a substantial amount of regional GFA and hotel developments
- **Office GFA**: Development of a "Major Node" (500,000sqm) with reference to the HK2030 Working Paper No. 46 and the SEKD Comprehensive Planning and Engineering Review
- **Hotel Room:** estimated by 50sqm per room, reference to Novotel City Gate Hotel (Tung Chung)

Scale Reference:



4.4 Disposition of Land Use in the Finalized RODP

Comprehensive Development Area ("CDA") – Total 7.65 ha

4.4.1.1 Two sites, i.e. "Area 115a" & "Area 115b", with an area of 3.90ha and 3.75ha respectively are proposed in the TCE PNTEA for comprehensive residential-cum-commercial development. These two sites form a Metro Core Area of the TCE PNTEA. The Metro Core Area is intended to function as the key centre for the entire development.

4.4.1.2 The planning intention for the "CDA" sites are to facilitate the comprehensive development of the area to achieve the function as a Metro Core Area for the TCE PNTEA. The designation of the "CDA" zoning will require future developers to submit a master layout plan for approval by the Town Planning Board to facilitate Authority's appropriate control over the development mix, scale, design and layout of the development at this prominent location at the TCE PNTEA. Given its connectivity with the proposed TCE MTR station and its emblematic centrality, higher development intensity will be appropriate for this Metro Core Area. However, the core urban design principles such as the stepped building profile will still be retained. As such, development within these sites is subject to a plot ratio (PR) of 8.8, including PR6 for domestic use and PR2.8 for non-domestic use. A maximum building height restriction is ranging from about 105mPD to 195mPD under the constraints brought by the Airport Height Restrictions, while the building height should descend towards the north of these sites. The higher development intensity would allow the Metro Core Area to be distinguished from a distance from the surrounding buildings and its role as the development core of the TCE PNTEA will be emphasised. Moreover, some district-based facilities serving the entire TCE reclamation will be required within the "OU" zone, including 1 Public Transport Interchange (PTI), 1 public toilet and 2 6-classroom kindergartens. In order to enhance the connectivity of the "OU" site to the MTR Station as a gateway for the TCE reclamation, 24-hour pedestrian linkage should be maintained by future developer of the "CDA" sites to the MTR Station, the open plaza and connection to the linear park to the north. The design intention of the NBA labelled as Metro Public Plaza opposite the Railway Station is to provide a monumental entrance and activity node through which pedestrians enter Tung Chung East and find their way into the development and towards the waterfront.

4.4.1.3 Given its central location and proximity to the proposed TCE MTR Station, a major office area with a large retail component targeting regional demand is also proposed for the Metro Core Area. A non-domestic PR of 2.8 is therefore designated for the two "CDA" sites which from the Metro Core Area, which contribute to the development of a "Major Office Node" in Tung Chung which was proposed in complementary to the surrounding developments in the NCD and HKBCF etc. The scale and layout of non-domestic PR of the "CDA" sites have been carefully considered to serve as a barrier against

nuisance brought by the NLH to the domestic portion further inland.

Commercial Uses ("C")– Total 8.76 ha

4.4.2 A Retail and Office Belt along NLH, constituted of "Area 57a", "Area 129" & "Area 130", is proposed as an extension to the east and west of the proposed "CDA" zone at the metro-core area ("Area 115a" and "Area 115b". This commercial belt, designated with a PR from 9 to 9.5 (total GFA of about 430,000sqm) is intended to form part of the "Major Office Node" proposed in the TCE PNTEA along the NLH with retail facilities on the lower floors. The scale of office development (in terms of BH and site coverage) of the Site has been carefully considered to effectively serve as a barrier against nuisance brought by the NLH to the domestic uses further inland.

4.4.3 A "C" Site designated with PR3, i.e. site "Area 142", is proposed at the northern tip of the TCE PNTEA which is intended to support the proposed marina. This location is intended to develop together with the "OU (Boatyard and Maintenance Area), into a marina clubhouse with retail and dining activities to create a vibrant waterfront, likely to be privately owned and operated, providing with a GFA of about 42,000sqm. It should be noted that the scale of the proposed marina will maintained with 95 berths and further expansion is not desirable from urban design point of view. Thus, while the water inlet could potentially accommodate a marina of up to 150 berths, such a use would potentially occupy the entire aquatic space minimizing the intended expansive views across the inlet and the intimate relationship that it creates with the sea. The "C" site is also intended to synergize with the proposed waterfront park at its door-front to form a vibrant activity node in the TCE PNTEA. Maximum building height of this site is limited by the AHR and is set to +45mPD.

4.4.4 To the west of the Marina Clubhouse is another "C" Site designated with PR3, i.e. site "Area 145", which is intended to capitalize the extensive view of the waterfront for hotel development up to a GFA of about 49,000sqm (about 1000 rooms). The edge facing the waterfront promenade will cater for alfresco dining and shop-fronts to create a vibrant waterfront promenade and form an activity cluster along the coastline.

4.4.5 In TCW PNTEA, three "C" Sites are designated with PR3, i.e. "Area 67", "Area 66b" and "Area 66a" outside the proposed TCW MTR Station. These commercial sites are intended to serve as a central hub of retail activities serving the future TCW population, as well as population in Yat Tung Estate and future population in the "Area 39" PRH. The scale of these "C" sites are limited in terms of its PR (PR2 and PR3) and BH (ranging from 20 to 35mPD) to keep with the character of the Tung Chung Estuary as well as to intended for design to match the scale of the proposed "DO" near the Hau Wong Temple and Tung Chung Estuary. A Public Transport Interchange (PTI) of not

less than 3,000sqm is also required to be developed in an integrated manner with the "Area 66a" site next to the TCW MTR Station.

Residential Uses – Total 71.90 ha

Special Residential ("RS")

4.4.6 13 sites are proposed for "RS" zoning for high density subsidised residential development in the Tung Chung PNTEAs.

4.4.7 Within the TCE PNTEA, 11 sites are proposed for "RS" zoning. They include Areas 116, 119, 102, 103, 132a, 132b, 132c, 111, 110, 122 and 127. These sites mostly within the 500m catchment around the proposed TCE MTR Station to allow convenient access to public transport. Development within these sites is subject to a maximum domestic PR ranging from 5 to 6.5 and a maximum building height restriction ranging from 90mPD to 140mPD constrained by the AHR and stepped building height considerations with surrounding planned developments.

4.4.8 To retain a stepped building height profile and taken into account the airport height restriction, building height in these sites generally descends towards the waterfront. Compatible non-domestic uses including commercial are proposed at PR0.4 as requested by Housing Department. Different "G/IC" facilities serving the population need, including a total of 36 kindergarten classrooms, 2 integrated children and youth services centres, 1 residential care home for the elderly with 1 Day Care Unit, 1 District Support Centre for Persons with Disabilities, 1 Integrated Community Centre for Mental Wellness, 1 Integrated Family Service Centre, 1 Security Field Unit office, 1 Child Care Centre (for children under age of 3), and 1 Family and Child Protective Services unit are to be provided within 8 "RS" sites. Besides, 2 PTIs with a minimum size of 3000sqm are to be provided within "Area 132b" and "Area 102" respectively to serve the district transport need, subject to detail study and agreement with the relevant Government departments. 20m-wide Non-building Areas (NBAs) in a general East-to-West direction are proposed within 8 RS sites to facilitate air ventilation, while additional North-to-South NBAs are proposed for view and routing purposes. Within these NBAs, landscaping and street furniture and underground structures will be permitted, fence or boundary walls that are designed to allow for high air porosity will also be allowed.

4.4.9 Within the TCW PNTEA, 2 sites are proposed for "RS" zoning. They include "Area 42" and "Area 46" along Tung Chung Road. "Area 42" is located to the southeast of planned public housing at "Area 39". Development within this site is subject to a maximum domestic PR of 6 and a maximum building height restriction 130mPD. "Area 46" is located at the southern end of the TCV. Development within this site is subject to a maximum domestic PR of 5 and a maximum building height of 140mPD. The development intensity of both sites reflects the high accessibility of their location along Tung Chung Road. Especially for

site "Area 81", proximity to the proposed TCW railway station and the planned PRH at "Area 39" (also of domestic PR6) permits a relatively higher PR, while the mountain backdrop to the east of both sites is respected by the residential towers as the top of both sets of structures remains below the ridgeline. Compatible non-domestic use including commercial uses are proposed at the non-domestic portion on both "RS" sites with a non-domestic PR of about 0.4. Different "G/IC" facilities to serve the district need is to be provided within the "Area 42" "RS" site, including 1 6-classroom kindergarten, 1 residential care home for the elderly, 1 neighbourhood elderly centre, 1 integrated children and youth services centre and 1 child care centre (for children under age of 3).

Residential Zone 1 ("R1")

4.4.10 2 sites are proposed for "R1" zoning intended for high-density private residential development in the PNTEAs. Both sites are within the TCE PNTEA, which are "Area 117" & "Area 118". They are located to the immediate north of the Metro Core Area. District Open Space of at least 30m wide is proposed between the two sites, connecting with the "DO" and open plaza from the Metro Core Area. Development within these two sites is subject to a maximum domestic PR of 6.5 and a maximum building height restriction of 105mPD constrained by the AHR.

Residential Zone 2("R2")

4.4.11 3 sites are proposed for "R2" zoning intended for medium to high density private residential development ranging from PR4 to 5 in the PNTEAs. In all these "R2" sites, compatible non-residential uses including a number of commercial and "G/IC" uses are proposed on the lowest two floors of the buildings above ground to serve the local neighbourhood.

4.4.12 Within the TCE PNTEA, 2 sites are proposed for "R2" zoning. They include "Area 123" and "Area 124". They are located to the north of the Central Green at the centre of the TCE PNTEA. Development within the "R2" sites are subject to a maximum domestic PR of 5 and a maximum building height restriction of 90mPD. Non-domestic PR of about 0.4 are proposed for local commercial uses for the two sites for synergizing with the Central Green.

4.4.13 Within the TCW PNTEA, "Area 23" site located to the west of the planned Town Park is proposed for "R2" zoning. It is proposed for a maximum domestic PR of 4 and a maximum building height restriction of 75mPD. The adjustment of PR from 5 (from the "R(A)" zone of the existing Tung Chung Town Centre OZP S/I-TCTC/19) to 4 is due to detailed layout design of the Site to a scale adhere to the height of the Town Park knoll (of 75mPD). Non-domestic PR of 0.1 is reserved at the site which serves local retail as well as 1 6-classroom kindergarten

to serve the district need. On top of that, a GFA of about 2,411sqm[6] will be reserved at this site for re-provision of the existing Tung Chung Community Services Complex [7].

Residential Zone 3("R3")

4.4.14 15 sites are proposed for "R3" zoning intended for low to medium intensity private residential development in the PNTEAs in respect to the site context such as near to the waterfront and the rural context of the TCV. Non-domestic component such as local commercial and "G/IC" uses are proposed on lower floors of selective sites with higher accessibility for residents.

4.4.15 Within the TCE PNTEA, 11 sites are proposed for "R3" zoning. They include "Area 112a", "Area 112b", "Area 112c", "Area 113", "Area 143", "Area 144", "Area 126", "Area 141", "Area 140a", "Area 138" & "Area 140b". All these sites are located along the waterfront. For sites in the north-western part of the Planning Scheme Area, i.e. "Area 112a", "Area 112b" & "Area 112c", development within these sites are subject to a maximum domestic PR of 3.5 and a maximum BHR of 70mPD. For sites "Area 113" and "Area 143", development are subject to a maximum domestic PR of 3.5 and a non-domestic PR of 0.3 to 0.4 and a maximum BHR of 70mPD. For sites in the north-eastern part of the Planning Scheme Area, i.e. "Area 144", "Area 126", "Area 141", "Area 140a", "Area 138" & "Area 140b", development within these sites is subject to a maximum domestic PR of 2.5 to 3, and/or a maximum non-domestic PR of 0.3 to 0.4 and a maximum BHR ranging from 45mPD to 70mPD. The maximum BHR descends towards the northeast due to the AHR.

4.4.16 20m-wide NBAs are proposed within "Area 138", in between "Area 140b" and "Area 140a", in between "Area 112c" and "Area 112b" and in between "Area 112a" and "Area 112b" to serve different purposes including air ventilation, visual permeability and pedestrian connections. The tip of "Area 126" includes an NBA to cater for routing and view purposes. Within the NBAs, landscaping and street furniture and underground structures will be permitted, fence or boundary walls that are designed to allow for high visual/air porosity will also be allowed. In "Area 113", "Area 143", "Area 144", "Area 138" & "Area 141" which are located along the linear open space and waterfront promenade, compatible non-residential uses including a number of commercial and "G/IC" uses are also proposed.

4.4.17 Within the TCW PNTEA, 4 sites are proposed for "R3" zoning. They include "Area 33", "Area 48a", "Area 99a" & "Area 99b". "Area 33" is located on the west of the Yat Tung Estate. Development within this site is subject to a maximum domestic PR of 3.5 and a maximum

[6] It is advised by HAD on 22 Apr 2015 that 2410.68m2 should be reserve for re-provisioning of the Tung Chung Community Service Complex

[7]

building height of 70mPD. "Area 48a" is located between the planned town park and the Ma Wan Chung village, which is a residential site newly added to this Finalized RODP. Given its elongated site layout and close proximity to the low-rise Ma Wan Chung village, it is subject to a relatively low domestic PR of 2 and maximum building height of 55mPD. "Area 99a" & "Area 99b" are located in the southern (inner) part of the TCV. Development within these two sites is subject to a maximum domestic PR of 1.5 and a maximum building height restriction of 45mPD. A 30m-wide NBA in North-South orientation is proposed within "Area 99a" to enhance visual/perceptual permeability for community/religious considerations, starting at Shek Mun Kap, through the Fung Shui Wood and leading to Shek Lau Po, preserving a spatial reference towards the bay. Within the NBA, landscaping and street furniture and underground structures will be permitted, while fence or boundary walls that are designed to allow for high visual porosity will also be allowed.

Residential Zone 4("R4")

4.4.18 5 sites are proposed for "R4" zoning is intended for low-density private residential development in the TCV of the TCW PNTEA, which development intensity ought to pay due respect to compatibility with the naturalistic and rural context of the area. They include "Area 61a", "Area 61b", "Area 61c", "Area 74", "Area 91" and the newly added "Area 81" (in front of Ngau Au, at the mouth of the Tung Chung Estuary) . All of them are located at the heart of the TCV and along the environmentally-sensitive Tung Chung Stream. They are currently mainly covered by abandoned agricultural land and orchard. Based upon the updated Habitat Map, there are currently no ecological features (species or habitats) of special conservation importance found within these sites. However, taken into account the land use compatibility with the existing naturalistic and rural settlement character of the TCV and the potential disturbance to the adjacent woodland habitats and natural stream courses during operational phase, a lower development intensity is therefore proposed.

4.4.19 Hence, development within these sites is subject to a maximum domestic PR of 1 and a maximum building height restriction ranging from 20mPD to 55mPD. It is considered that given the rural and scenic topography of the Valley, the location of these sites between village-type developments and the proximity to ecologically sensitive resources, a relatively low PR is preferable to respect with the surroundings and prevent altering the character of the Valley. The maximum building height restriction general descends towards the northeast due to the difference in site level resulted from the topography of the TCV. A 20-m wide NBA of east-to-west direction is proposed to enhance air ventilation at "Area 74" Site. Within the NBA, landscaping and street furniture and underground structures will be permitted, while fence or boundary walls that are designed to allow for high air porosity

will also be allowed.

Shop-Fronts

4.4.20 In TCE PNTEA, shop-fronts are a key feature that creates a nearly continuous frontage of shops mainly along the Linear Parks leading towards the waterfront, around the Central Green and waterfront promenade. These are configured as two-storey establishments located in the lower stories of residential developments, intended for local commercial uses serving daily needs of residents. These nevertheless create generous openings for entry into the individual residential estates on the ground floor level, allowing the commercial floor to continue uninterrupted on the second floor. This is to encourage "street-life" and encourage small shops serving the locals and promotion of lively streetscapes and activities. This is in-line with the community aspirations received in the PE activities.

4.4.21 The encouragement of active shop-fronts will be supported by the designation of small street block design throughout the Finalized RODP. Reference could be made to the similar development restrictions to facilitate shop fronts stipulated in the Tseung Kwan O and Kai Tak OZP [8], to add requirements on the ODP and its Explanatory Statements for retail and commercial activities to be developed along the edge fronting major pedestrian corridors.

Provision of Social Welfare Facilities

4.4.22 [redacted]

Nevertheless, to maintain flexibility in the future, the two proposed clinic sites in TCE and TCW PNTEAs can be explored to develop in joint-user arrangement for a "G/IC" complex to accommodate social welfare facilities, if necessary. Further liaison will be made with Food

[8] On the Residential (Group B) zone on the Kai Tak OZP (S/K22/4), it is specified on the Plan and in the Schedule of Use that "On land designated design 'Shops and Services' and 'Eating Place' uses only in the 'Residential (Group B)1' and 'Residential (Group B)2', building not exceeding 2 storeys to accommodate 'Shops and Services' and 'Eating Place' uses shall be provided". Besides, in the Explanatory Statement of Residential (Group A)5 zone on the Tseung Kwan O OZP (S/TKO/20), it is specified that "Retail and commercial activities should be developed along the edge that fronts onto the town plaza and the waterfront park." These examples may serve as references for similar requirements to be provided in the draft ODP for the PNTEAs in Tung Chung.

and Health Bureau (FHB) and SWD when need arises. As requested by SWD on 2.11.2015, the Clinic Site in TCW could be used for accommodating the re-provisioning of Tung Chung Social Security Field Unit.

4.4.23 Detailed designation of non-domestic PR for individual residential sites to accommodate the above local commercial uses and social welfare facilities are detailed in the detailed development scheduled by Plot No. in Appendix A and B. It should be clarified that the non-domestic figure provided has included the provision of both local commercial and "G/IC" facilities at the relative residential sites.

Village Type Development ("V") – Total 14.30 ha

4.4.24 There are currently 8 recognized villages within the TCW PNTEA, i.e. Ma Wan Chung, Wong Nei Uk, Shek Lau Po, Shek Mun Kap, Mok Ka, Nim Yuen, Lam Che, and Ngau Au, and they will be designated as "V" zone in the PNTEAs.

4.4.25 The planning intention of this zone is to reflect these existing recognized villages, and to provide land considered suitable for village expansion according to the outstanding small house demand and 10-year small house demand forecast [redacted] The "V" zone is also intended to concentrate village type development within this zone for a more orderly development pattern, efficient use of land and provision of infrastructure and services.

4.4.26 [redacted]

Table 4.4.1 Demand for Small Houses for Villages

Village Name	Outstanding SH applications	10-year SH demand
Ma Wan Chung	[redacted]	[redacted]
Wong Nei Uk	[redacted]	[redacted]
Shek Lau Po	[redacted]	[redacted]
Shek Mun Kap	[redacted]	[redacted]
Mok Ka	[redacted]	[redacted]
Nim Yuen	[redacted]	[redacted]
Lam Che	[redacted]	[redacted]
Ngau Au	[redacted]	[redacted]

[redacted]

4.4.27 [redacted]

4.4.28 [redacted]

4.4.29 [redacted]

4.4.30 For the Wong Nei Uk village and Mok Ka village mentioned above, consideration could be made to cater their outstanding SH demand in "V" zones for other villages, subject to the agreement of LandsD Department.

Government, Education, Community and Institution Uses ("G", "E", "IC") – Total 21.57 ha

Government ("G")

Sports Ground

4.4.31 A "G" site ("Area 137") with an area of 3ha is reserved for a Sports Ground with seating capacity for about 10,000 spectators towards the eastern edge of the TCE PNTEA. The Sports Ground will provide a 400m track (all weather) and a grass infield for athletics (field events) which will also be used as an 11-a-side football pitch suitable for high graded soccer matches. It should be noted that this is facility strongly advocated by locals in the PE activities. [redacted] the 11-a-side football pitch can be used in a joint-user arrangement for rugby pitch to meet local demand raised in the PE activities.

Sports Centres

4.4.32 Two "G" sites are reserved for Sports Centres in the PNTEA in accordance with the HKPSG. Both sites are located in the TCE PNTEA, in "Area 109a" and "Area 139a". Area of 0.6ha is reserved for each site according to the requirement of the HKPSG. Development within these two sites is subject to a maximum building height of 5 storeys.

4.4.33 [redacted]

4.4.34 These Sports Centres cater for a range of core activities including badminton, squash, basketball, table tennis, fitness, dance and gymnastics.

Fire Station

4.4.35 A "G" site with an area of 2,960sqm is proposed for a Standard Divisional Fire Station at "Area 135", towards the south-eastern end of the TCE PNTEA [redacted] Development within this site is subject to a maximum building height of 9 storeys.

District Police Station

4.4.36 A "G" site with an area of 4,650sqm for a District Police Station is proposed at "Area 136" towards the south-eastern edge of the TCE PNTEA [redacted]

Married Police Quarters

4.4.37 A "G" site with an area of 4,650sqm in the north of the District Police Station, i.e. "Area 133" is reserved for the Married Police Quarters [redacted] development within this site is subject to a maximum building height of 21 storeys[11]. By rough estimation, the site can provide an approximately of 420 flats serving the need of the HKPF.

Clinics & GIC Complexes

4.4.38 Two "G" sites each are proposed for Clinics in the PNTEAs in accordance with the HKPSG. One is located in "Area 59a" in the TCE PNTEA and the other one is located at "Area 36a" in the southeast of the Hau Wong Temple in the TCW PNTEA. Development within the site in the TCE PNTEA is subject to a maximum building height of 5 storeys. As requested by the FHB on 19.1.2015, the originally planned RCP immediately south of the TCE clinic in the PODP are relocated to the "C" site [redacted] due to the infection control/hygienic concern

[redacted]

of two facilities being located together.

4.4.39 [redacted]

4.4.40 The site reservation for the two sites (each of 0.5ha) are larger than the requirement stipulated in the HKPSG (i.e. 2,200sqm) to facilitate the joint-user arrangement of the clinics with other social welfare facilities and "G/IC" facilities in the future when need arises [redacted]

Salt Water Pumping Station

4.4.41 One "G" site with an area of 0.5ha is reserved for a salt water pumping station towards the western end of the proposed "RO" waterfront promenade at "Area 106" in the TCE PNTEA. This location in proximity to the seafront will provide a convenient access to clean sea water. This location also has adequate vehicular access to facilitate maintenance and transportation of materials and dangerous goods (disinfectant substances, etc.). This Salt Water Pumping Station will provide flushing salt water to support the future developments in the PNTEA.

Sewage Pumping Stations

4.4.42 Two sites on the TCE PNTEA, at the "Area 59c" and "Area 131b", are reserved for sewage pumping stations for collecting sewage flows from the PNTEA and pumping the sewage to the Siu Ho Wan Sewage Treatment Works. Both sites will have a site area of about 1000 to 1200sqm.

4.4.43 In the TCW PNTEA, 4 "G" sites are designated for sewage pumping Stations. Of the 4 "G" sites, 3 of them are new sewage pumping stations (at "Area 45c","Area 44" and "Area 92") of about 400sqm each to serve the new developments; while 1 of them is to reflect the existing Chung Yan Road Sewage Pumping Station (at "Area 24a").

Government Reserves

4.4.44 A total of 3 new Government Reserve sites are proposed in the PNTEAs, 1 is located in the TCE PNTEA, i.e. "Area 125", with recommended maximum building height of +45mPD and 2 are located in the TCW PNTEA, i.e. "Area 23" and "Area 24b".

4.4.45 [redacted] and the rationale of keeping it as Government Reserve is to retain flexibility in the land use in case of need arise from future population growth, therefore with a maximum BH of about 45mPD as stipulated on the plan.

4.4.46 For "Area 23", [redacted] the site is also combined with some additional land obtained by decking over the existing nullah as well as a STT site for a Muslim Mosque. The intention of this Government Reserve Site is for supporting facilities to facilitate the revitalization scheme of the Ma Wan Chung village, e.g. car parking and coach parking space. And this can be developed in multi-storey structures to cater for other uses when future need arises.

4.4.47 For the "Area 24b", it is added into the TCW PNTEA because of the new area added to the TCW PNTEA boundary, to the immediate south of the existing Chung Yan Road Sewage Pumping Station. The rationale of keeping it as Government Reserve is to retain flexibility in the land use in case of need arise from future population growth. It needs to be noted that no new school is required in TCW [redacted]

Attenuation Ponds

4.4.48 A total area of about 1.8ha is designated for attenuation ponds, which are located adjacent to each residential development plot within the TCV in the TCW PNTEA. The intention is to ensure each development area within the sensitive TCV will be fitted with a water quality treatment and attenuation pond to remove pollutants generated within new urban development before and to mitigate flood risk.

Education ("E")

Nursery Classes and Kindergartens

4.4.49 According to the requirements of the HKPSG, a total of 72 classrooms of nursery classes/kindergartens are proposed in the Finalized RODP to support the additional population generated from the PNTEAs, taken into account of the existing surplus/deficit in the existing Tung Chung New Town. With respect to the HKPSG, the size of kindergarten for most of the plots are with a minimum of 6 classrooms. Their proposed

locations are listed in Table 3.6.1.1.

Primary and Secondary Schools

4.4.50 According to the HKPSG, a total of 8 primary schools and 4 secondary schools are required in the Finalized RODP to support the future population, taken into account of existing surplus/deficit. In response to the concerns from school principals during the PE3, further liaison has been made with the EDB. [redacted] the total number of primary schools and secondary schools to be provided in the PNTEAs are reduced to 6 and 2 respectively.

4.4.51 In terms of location, all the primary schools and secondary schools are located in TCE PNTEA, which are distributed in clusters around residential developments.

Post- Secondary Institution

4.4.52 In response to public comments received from the PE activities, further liaison with EDB has been made and a site of about 25,000sqm has been reserved for a post-secondary institution in TCE PNTEA. [redacted]

4.4.53 It is proposed to be located at [redacted] immediately south of the proposed Sports Ground. Post-secondary institution, usually equipped with central air-conditioning is considered suitable at the location which is subject to noise impact from the Tuen Mun-Chek Lap Kok Link running to its east.

Other School Use

4.4.54 In response to public comments received from the PE activities, further liaison with EDB has been made and a site of about 15,000sqm has been reserved for Other School Use in the TCE PNTEA [redacted] It is proposed to be located at "Area 134", immediately opposite to the proposed Sports Ground.

Institution and Community ("IC")

4.4.55 Two "IC" sites have been designated on the TCW PNTEAs, which comprises the existing Hau Wong Temple (about 2,100sqm) near the Tung Chung Estuary and the Prajna Dhyana Temple (about 1,000sqm) in the TCV. Both "IC" zones are designated accordingly to the existing land use and existing building height, as well as taken into consideration with their land holdings.

Other Specified Uses ("OU") – Total 7.03 ha

Railway Station

4.4.56 "Area 114", across the North Lantau Highway, opposite to the TCE reclamation is reserved for the Tung Chung East Station. It is a new station on the Tung Chung Line situated next to the Tung Chung East development between Sunny Bay Station and Tung Chung Station. The station would mainly serve the planned population in the Area.

Electricity Sub-Station

4.4.57 An electricity sub-station (ESS) is reserved at "Area 59b" in the TCE PNTEA, but in a different orientation when compared to the planned one on the Adopted Tung Chung Town Centre Layout Plan No.L/I-TCTC/1G. It is aimed to serve the future demand in the Area together with the existing ESS in "Area 9" in the Tung Chung Town Centre.

Petrol Filling Station

4.4.58 A Petrol Filling Station (PFS) is reserved at "Area 51" in the TCE PNTEA, at the opposite side of the Road P1 in accordance to the requirement of the HKPSG.

Boatyard and Maintenance Area

4.4.59 To support the proposed marina development at the northern tip of the TCE PNTEA, a Boatyard and Maintenance Area is reserved at "Area 146" Site.

Pier

4.4.60 The existing pier at "Area 29d" and the associated car parking facilities locates to the immediate north of the Ma Wan Chung village is to be designed as pier to reflect the existing use.

Telephone Exchange

4.4.61 A telephone exchange originally located in "Area 40" affected by planned public housing development at "Area 39". As requested by the Office of the Communications Authority (OFCA), a relocation site of similar size should be reserved within the TCW PNTEA. It is proposed to be relocated to the "Area 36b" in TCW PNTEA, with a site area of about 1,060sqm, similar to the original site in "Area 40". Together with the existing provision in the Tung Chung Town Centre in "Area 12", the site is reserved to facilitate possible competing operators of fixed telecommunication network services to roll out their networks in the New Town.

Polder

4.4.62 To mitigate flood risk due to anticipated high water level of Tung Chung Stream during extreme rain events, a total area of about 1.7ha is reserved along the Tung Chung Stream in the TCW PNTEA for approximately 1.5m high earth embankments.

River Park

4.4.63 On the eastern tributary of the Tung Chung Stream, from the edge of the planned PRH at "Area 39" to the Shek Mun Kap Road, will be developed into a "River Park" with a total area of about 3.1ha on both side of the river for public recreational use and managed by the Drainage Services Department.

4.4.64 Certain public utility facilities required by the HKPSG which is of a smaller scale will also be provided in the detailed layout plan design stage, e.g. social welfare facilities, RCPs, public toilets, railway ventilation and associated plants etc.

4.4.65 Please refer to **Figure 4.4.1 and 4.4.2** for the distribution of "G/IC" and utility facilities within the PNTEAs, and **Figure 4.4.3** for the distribution of proposed "G/IC" facilities and existing/planned "G/IC" facilities in the Tung Chung New Town.

Open Space ("DO", "RO") – Total 47.51 ha

Regional Open Space

4.4.66 The waterfront promenade linking TCE and TCW will form a distinctive component of Tung Chung's coastal identity and will also serve as pedestrian walkway to enhance connectivity of the entire TCNT. The curved coastline incorporates different characters based on location with an eco-shoreline to the east beginning close to Tai Ho Wan, a leisure waterfront with marina and commercial facilities around the water inlet and a slower-paced residential coastline linking the west edge of the reclamation with the existing Tung Chung Town Centre. Waterfront parks at the edges of the TCE reclamation aims to provide a formal spatial experience and views towards Airport Island and the HKBCF, as well as synergized with the proposed marina clubhouse development immediately south of it.

4.4.67 In response to the public comments received in the Stage 3 PE activities, the waterfront promenade between the existing TCNT and the TCW PNTEA that was previously "disconnected" by the topography of the town park is "reconnected" by proposing a pedestrian walkway. This is to be provided along the coastal area above high water mark to avoid any kind of reclamation in Tung Chung Bay. At this location, consideration may also be given during detailed design stage to provide

cycle track along this walkway (about 6m-7m) subject to further assessment on visual and environmental aspects.

4.4.68 Along the western edge of the Yat Tung Estate an area is required to be a railway reserve for the construction of the railway that will terminate at the proposed TCW MTR Station. It is advised that within the railway reserve, no new structure is proposed for construction. Nevertheless, in order to make full use of the space of the area, the said railway reserve has been designated as part of the regional open space. However, adequate space has been left for the construction of any new structures in this plot without encroaching into the railway reserve. (**Figures 4.4.4 and 4.4.5** refers)

District Open Space

4.4.69 North-south Linear Parks with landscaped facilities in TCE will allow visual relief / corridors and enhance air ventilation and pedestrian mobility amongst residential neighbourhoods, waterfront promenade and mass-transit facilities in a comfortable manner. Special urban design features include a public plaza in the Metro Core Area that creates a monumental central entrance to TCE. The Plaza is connected to the Linear Park system as well as pocket parks with seating and sports activities. These can serve as focal nodes and transform public space into event venues for community and festive activities to foster community identity and attract visitors. The Linear Park system in particular is envisioned as a multifunctional series of activity corridors that enhance pedestrian connectivity by linking together residential neighbourhoods, distribute passive open space throughout the development and provide an identifiable open space network with activity nodes tailor-made for TCE. In the heart of the development, a Central Green forms a shared meeting place for people from all neighbourhoods (the size of the Central Green and its extension towards its north and south is approximately 5ha). The space is flanked by retail activities on ground level adding vibrancy to the area. Shop fronts are concentrated within the Central Park area of this pedestrian spine to create a unique activity node that would otherwise be diffused with additional commercial frontage along the entire length

4.4.70 Moreover, to enable smooth pedestrian access to the waterfront directly from the proposed TCE Railway Station, the district distributor bisecting the reclamation from east to west is sunken at the height of the Central Green to allow the creation of a pedestrian platform over its entire width. This platform, which will form part of the continuous open space network in TCE, will enable pedestrians to walk uninterrupted northwards utilizing the open space system as a safe and comfortable walking environment.

4.4.71 In TCW, a series of district open space areas are dispersed close to the new developments and are intended to serve both the new and existing residents. Immediately to the east of Hau Wong Temple a proposed

open space covers the corner of the area. The space is intended to complement the open views from Hau Wong Temple into the surroundings. With the release of a sports centre site as mentioned above along the western edge of the Yat Tung Estate, it will form a new waterfront park area accompanied with a couple of sports-facilities, e.g. a 7-a-side football court, 2 basketball courts, seating areas and greenery. This will help to retain a view corridor towards the north and create a pedestrian passage parallel to the existing residential estate.

4.4.72 It should also be noted two pieces of existing and planned "DO" are also within the boundary of the TCW PNTEA, which amounts to about 19ha. One of it is the existing open area west of Hau Wong Temple, where there is an existing 7-a-side football pitch. Another one is the planned town park at "Area 29", which is of an approximate land area of about 18ha, which is intended to maintain and utilize the existing vegetated knoll in the future design. It should be noted that these two pieces of existing and planned "DO" has already been counted as existing and planned provisions for the existing and planned population of the TCNT, and therefore should not be counted towards the provision of "DO" for the additional population generated by the Tung Chung PNTEAs.

Local Open Space

4.4.73 Local Open Space are assumed be provided within individual residential sites according to HKPSG of 1sqm/person standard to provide activity space and enhance the living environment by fulfilling the requirement for local open space provision.

4.4.74 Please refer to **Figures 4.4.4 and 4.4.5** for the distribution of open space in the PNTEAs. **Table 4.4.2** below further elaborate the provision of various kinds of open space with reference to the proposed population in the PNTEAs.

Table 4.4.2 Breakdown of Open Space Provision in the PNTEAs

Additional Population in the PNTEAs	About 144,400
Regional Open Space	about 15.43ha (TCE: 13.67ha) (TCW: 1.76ha)
District Open Space newly provided in the PNTEA in accordance to the requirement in HKPSG (1sqm/ population)	about 14.44ha (TCE: 10.74ha) (TCW: 3.70ha)
Existing District Open Space (the planned town park and existing open space west of Hau Wong Temple) in Tung Chung New Town	about 19.24ha (TCE: 0ha) (TCW: 19.24ha)

Local Open Space in accordance to the requirement in HKPSG (1sqm/ population)	about 14.44ha (assumed to be within individual residential plots)

Green Belt ("GB") – Total 13.24 ha

4.4.75 A few sites are designated as "GB" in the TCW PNTEA in the TCV, with a planning intention to define the limits of urban and rural area and sub-urban development areas by natural features and to contain urban sprawl as well as to provide passive recreational outlets. There is a general presumption against development within this zone.

4.4.76 The "GB" zone along Tung Chung Road (in between "Area 42" and "Area 46" Sites) is intended to maintain the integrity of the hydrological linkage from the natural slopes to the wet abandoned agricultural land and finally to Tung Chung Stream, which would in turn help the preservation of the current core habitat of the rare butterfly. Hence, it is suggested that, further to the "CA" covering a 30m buffer zone along the stream course, the remaining of the middle and southern sections of Fong Yuen area should be assigned with a land use with greening purposes.

4.4.77 A large tract of land surrounded by "CA" is zoned as "GB" to the west of TC Stream Estuary. This large area is currently composed of fallow agricultural land without significant ecological value in itself. Given the location of this area to the west of the TC Estuary essentially removed from the key development areas of TCV, this "GB" zone is considered crucial to serve as green buffer between proposed development areas and the rural environment of the TC Estuary and the country park at the backdrop.

4.4.78 Patches of Feng Shui woods are scattered throughout TCV. They are mostly situated close to the existing village-type development and have both environmental and culture importance. To prevent these areas from being developed in the future, they are zoned as "GB" and excluded from the formulation of "V" boundaries.

4.4.79 Please refer to **Figure 4.4.5** for the distribution of "GB" in the PNTEAs.

Agriculture ("AGR") – Total 4.97 ha

4.4.80 The areas in between proposed "V" zones as well as in between low-rise residential developments in the TCV are designated as "AGR" zone. They are mainly the remaining areas of VE after the designation of the "V" zones. With the formulation of village zone boundaries the land between the boundary of village environs and village zone boundary has been zoned as "AGR" except for specific areas such as Feng Shui woodlands which have been zoned as "GB". This is to allow continuation of existing farming practices, if applicable, as well as to serve as a buffer between these developments in the valley area. Besides

this buffering function which will enhance the ecological value of the "CA" zones, the "AGR" will also help to minimize habitat loss as currently these areas contribute to the habitat of local insect and animal species.

Conservation Area ("CA") – Total 10.42 ha

4.4.81 Two main areas are designated as "CA" in the TCW PNTEA in the TCV, with a general presumption against development. It generally consists of two parts: 1) belt shaped zones along the main branches of Tung Chung Stream (for natural sections) together with the concourse, and 2) the surroundings of an area between the coastline of Tung Chung Bay and the northern of Ngau Au Village. The "CA" zoning allows a certain extent of eco-tourism, education and research opportunities which is in-line with the suggestions raised by Joint Green Groups.

4.4.82 There is a general presumption against development at the "CA" zone. Belt shaped zones along the natural sections of the main branches of Tung Chung Stream as well as the concourse near the outlet could act as the stream buffer zone. Tung Chung Stream is of high ecological value. It is recognised as an Ecologically Important Stream by AFCD, and also houses the second most diverse stream fish communities in Hong Kong (only lower than Tai Ho Stream). Fish species of conservation importance, such as Beijing Thick-lipped Barb which is only recorded in very limited locations in Hong Kong, are found in Tung Chung Stream. Buffer zones would be needed for the protection of Tung Chung Stream as the riparian vegetation which are an integrated part of a stream ecosystem could be preserved and earthworks adjacent which might cause sedimentation impact on the stream courses could be prevented.

4.4.83 The area to the north of Ngau Au Village is immediately to the west of the concourse of Tung Chung Stream. Its northern side is the coastline of Tung Chung Bay, and its western side is closer to Lantau North (Extension) Country Park boundary. Buffer zones should be established along the eastern and northern sides of this area for the protection of Tung Chung Stream (as stream buffer zone) and Tung Chung Bay (as coastal buffer zone). The western part of this area is currently colonised by woodland habitat. This woodland is part of a large extent of woodland habitat extending from the western side of Ngau Au to San Tau, and thus should be preserved. Woodland habitat over 1 ha is listed as important habitat type in the EIAO-TM. There is also a stream course in the southern side of this area, immediately to the north of Ngau Au Village. This stream course is one of the major tributaries of Tung Chung Stream and thus should also be preserved and provided with some buffer zone along it.

4.4.84 Please refer to **Figure 4.4.5** for the distribution of CA in the PNTEAs.

Coastal Protection Area ("CPA") – Total 4.94 ha

4.4.85 An elongated site along the Tung Chung Estuary has been designated as "CPA" in the TCW PNTEA. It is intended to conserve, protect and retain the natural coastlines and the sensitive coastal natural environment of high landscape, scenic or ecological value, with a minimum of built development. There is a general presumption against development in this zone.

4.4.86 The "CPA" zone outside Hau Wong Temple could act as a buffer zone for the mudflat habitat in Tung Chung Bay which is of high ecological value. Species of conservation importance including horseshoe crab juveniles, seagrass beds, pipe fish, seahorse, etc. have been reported from Tung Chung Bay. One part of the "CPA" zone is narrower to the NW of Hau Wong Temple since it is already occupied by an existing football pitch (Tung Chung Playground).

4.4.87 Please refer to **Figure 4.4.5** for the distribution of "CPA" in the PNTEAs.

Roads – Total 36.97 ha

Roads

4.4.88 The road network in TCE PNTEA will consist of primary, district and local distributors. In general, the road configuration for primary and district distributors will be either dual 2-lane or single 4-lane carriageway, while local distributor will be single 2-lane road. The primary distributor will connect to North Lantau Highway through Tung Chung Eastern Interchange and the proposed Tai Ho Interchange.

4.4.89 In TCE PNTEA, the primary distributor includes Tung Chung Waterfront Road, Ying Hei Road and a new road named Road P1 Tai Ho Section which will serve as the primary east-west connection to and from North Lantau Highway. The Road P1 Tai Ho Section is proposed to be mainly on at-grade road on reclamation. Grade separated interchange, namely Tai Ho Interchange, in the form of elevated bridge structures are proposed for connection to North Lanatu Highway.

4.4.90 Connected to Road P1 in TCE PNTEA are the district distributors: D1, D2, D3 and D4. D1 together with D4 provide a link to the west of the TCE PNTEA, whereas D2 provides connection to the east. D3 is located in between D1 and D2 which provides a north-south link from Road P1 to the north of the development. The remaining roads (L1-L9) in the TCE development are local distributors that provide links to specific land parcels within the development. All local distributors are assumed to have one lane per direction.

4.4.91 The road network in TCW PNTEA will consist of district and local distributors. In general, the road configuration for district distributor Chung Mun Road will be single 4-lane carriageway, while local distributors will be single 2-lane road. The district distributor will

connect to Yu Tung Road, which connect further to North Lantau Highway via Tung Chung Eastern Interchange.

4.4.92 In terms of existing roads in the vicinity of the TCW PNTEA, Tung Chung Road will be maintained as a two-lane (one lane each direction) rural road, while Yu Tung Road (district distributor) and Chung Yan Road (local distributor) will be two lanes per direction. Shek Mun Kap Road, which connects to Tung Chung Road, is proposed to be widened from a single lane access track to a single 2-lane carriageway.

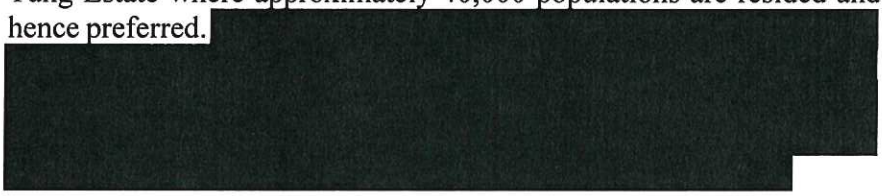
4.4.93 TCW PNTEA is located immediately south-west of Tung Chung. Regarding the western portion of the development, it involves the extension of Chung Mun Road to the development that will serve as the district distributor in the development with two lanes per direction. Chung Mun Road will connect the northern part of the development to Yu Tung Road. There will be two local distributors (L30 and the improved Shek Mun Kap Road) connecting the middle and southern part of the development to Tung Chung Road respectively. A new local distributor (L29) connecting Chung Mun Road and the improved Shek Mun Kap Road will form a corridor to connect other local distributors (L24 – L28) to the external road network via Chung Mun Road, L30 and Shek Mun Kap Road. The local distributors are also extended to connect to existing villages like Ngau Au, Lam Che, Nim Yuen and Mok Ka.

4.4.94 Regarding the northern portion of the development, Tung Chung Road North, L21 and L31 will be local distributors while L31 will involve formation of a new left-in-left-out vehicular access on Yu Tung Road.

Railway

4.4.95 The existing Tung Chung Station for Tung Chung Line (TCL) is located at the centre of the TCNT, which is approximately 1.4 km away from the most southern portion of the proposed new development in TCE PNTEA. A new railway station close to the TCE PNTEA is hence considered to be beneficial to the transport network for an improved connectivity and accessibility for the entire Tung Chung development. The TCE station is proposed to be added to the existing TCL to the east of Caribbean Coast. The station is about 3 km west of the Siu Ho Wan depot abutting the Future Road P1. The Station is well served by the proposed future Road P1 as well as two linear parks to the east and west that are intended to promote walking and cycling to and from the Station. The TCL tracks will be diverted to vacate space for the station construction between the tracks. [redacted] Supporting facilities including feeder services such as buses and minibuses connecting the residential areas north of the new station shall be provided to enlarge the catchment areas.

4.4.96 The existing Tung Chung Station for TCL is located at the centre of the TCNT, which is approximately 1.7 km away from the most northern portion of the proposed new development in TCE PNTEA. The TCW station is proposed to be close to the boundary of the proposed Sports Centre site at "Area 39" adjacent to Yu Tung Road, which is about 1 km away from the existing Tung Chung Station. The new station will not only serve the TCW Development but also enhance the accessibility of Yat Tung Estate and the local villages. This can also respond to the strong request from local resident for a new railway station near Yat Tung Estate where approximately 40,000 populations are resided and hence preferred.



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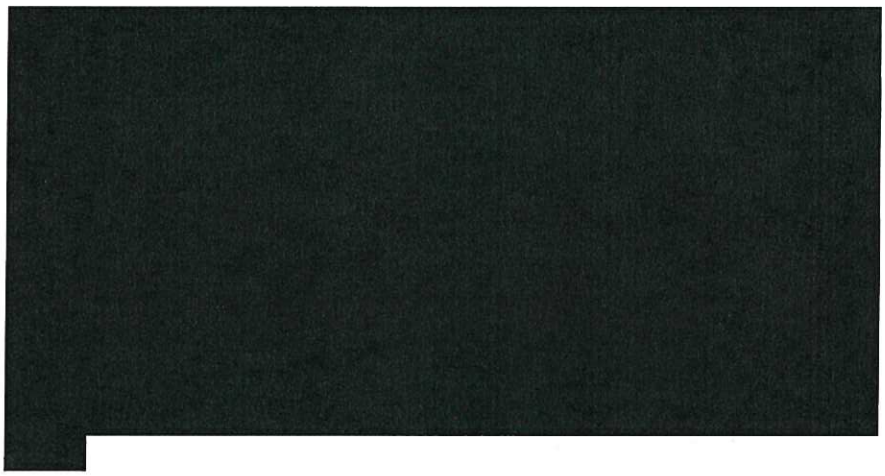

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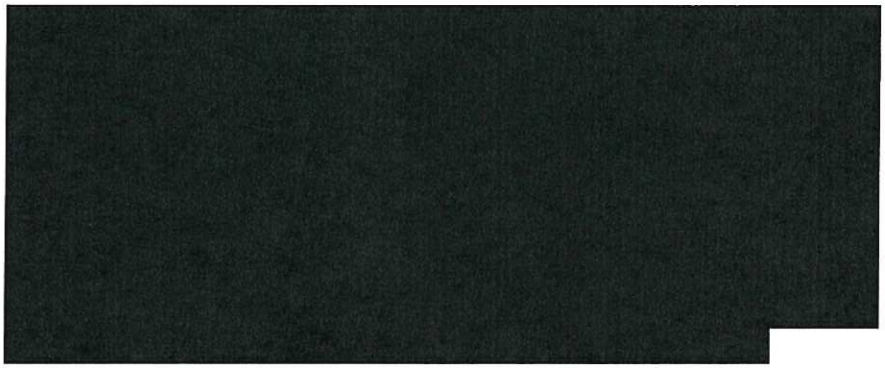


Public Transport Interchange

4.4.99 In TCE, there are 3 PTIs proposed while one is located at the centre of the development and next to the planned TCE rail station with the other two located next to Road L4 and Road L6. It is expected the residents would rely on rail as the major external transport mode.

4.4.100 In TCW, there are 2 PTIs proposed while one is located at the edge of the development and next to the planned TCW rail station and the other

is an on-street bus terminus located along Shek Mun Kap Road. It is expected that majority of the residents would rely on the road-based public transport services, either as the ultimate mode of transport bringing them to their final destinations or just as feeder service. Hence, sufficient road-based public transport facilities would have to be provided to serve the development needs.

4.4.101 In view of the above, feeder bus routes are proposed in TCE and TCW shuttling residents to the PTIs as well as to the railway stations.

Pedestrian and Cycle Track Connections

4.4.102 Pedestrian and cycling connectivity throughout the PNTEAs is one of the key urban design concepts driving the configuration of the spatial framework. Primarily the key pedestrian/ cycling routes are located in parallel to the Linear Parks and within the Waterfront Promenade connecting directly to the mass-transport facilities in TCE. It is considered that the greening and activity within the Linear Parks will create a pleasant, shaded environment that will enhance the pedestrian experience and encourage the use of non-motorized transportation within the new development areas.

4.4.103 In TCW, pedestrian and cycling routes are strategically located either along the Waterfront Promenade or in parallel to the road system. The consideration is to create opportunities for residents living in TCV to access the proposed TCW Railway Station via walking and cycling. In addition, as the routes within the Valley also follow the TC Stream the allocation of pedestrian and cycling routes can be utilized for leisure purposes and enjoyment of the scenic character of TCW.

4.4.104 The basic principles considered in formulating the cycling network are:

4.4.105 Connectivity – The proposed cycling network will be connected to the existing Tung Chung cycle track network. There is also flexibility to be extended to a possible future cycle track along the shoreline of North Lantau. This will be the major guiding principle.

4.4.106 Safety – In view of high traffic volumes and speeds on many roads of Tung Chung and surrounding network, separated cycle track from the main vehicle carriageway for the whole network is proposed.

4.4.107 Sufficient and safe cycle parking provision – As identified in the HIS 2002 Study, the cycling trip rate in the existing new towns are significantly higher than the urban areas. Thus the parking provision for the new town extension should be higher than the HKPSG recommendations. The parking provision will be further identified at amenity area and near railway station at later stage.

4.4.108 It is recommended to generally provide two-way cycle track in the Tung Chung PNTEAs. The design parameters including cycle track width, separation from carriageways, gradients and horizontal radii would be referenced to the HKPSG and TPDM requirements. Standard 2-way

cycle is at 4m wide.

4.4.109 In order to maintain a balance between cycle track connectivity and valuable land resources, it is proposed that cycle track will only be put on one side of the carriageway. Cycle track is also proposed along the promenade for leisure purpose.

4.4.110 The benefits of walking whether for utilitarian or recreational purposes can be expressed in terms of improved environmental and personal health, reduced traffic congestion, enhanced quality of life and economic rewards. Based on the guiding principles of CTS-3 and HKPSG, integrated pedestrian network within the new development area including walkway system, pedestrian facilities, pedestrianized plazas, linkage to PTIs and railway stations would be provided. Emphasis will be placed on the needs of pedestrians in transport and land use planning. This aims to reduce the number of short motorised trips and the conflict between pedestrians and vehicles with a view to increasing mobility, enhancing road safety and improving pedestrian environment in general.

4.4.111 The cross section of the footpath follows the recommendations in the HKPSG and TPDM. A three-zone concept is adopted in designing the footpath. The through zone is the clear width for pedestrian flow and its width is determined according to the nearby planned zoning. The building frontage zone provides some area adjacent to the building frontages. The street furniture and the greening zone provides space for tree planting, lighting and possible cycle parking space. In order to promote the green environment of the NDA, a 3m wide is reserved for large tree planting in the urban area while a narrower 2m width is allowed in rural environment. Cycle track is added between the roadside amenity and the footpath when appropriate.

4.4.112 Please refer to **Figure 4.4.6 and 4.4.7** for the pedestrian and cycling network for TCE and TCW PNTEAs.

Table 4.4.3 Summary Table of the Specifications of Footpaths and Cycle Tracks

Type	Footpath(1)	Cycle Track(2)	Roadside Amenity / Parking Strip / Lay-by / Noise Barrier
Tung Chung East (Residential Zone 1)	4.0m (3.5m through zone + 0.5m frontage)	4.0m	3.0m
Tung Chung East (Residential Zone 2)	3.25m (2.75m through zone + 0.5m frontage)	4.0m	3.0m
Tung Chung Wet (Residential Zone 1)	4.0m (3.5m through zone + 0.5m frontage)	4.0m	2.0m (locally widened for lay-by when necessary)

Type	Footpath[1]	Cycle Track[2]	Roadside Amenity / Parking Strip / Lay-by / Noise Barrier
Tung Chung West (Residential Zone 3)	2.5m (2.0m through zone + 0.5m frontage)	4.0m	2.0m (locally widened for lay-by when necessary)
Promenade (in TCE)	6.0m (minimum width)	4.0m	
River Walk (in TCW)	4.0m	4.0m	2.0m
Road P1	4.5m + 3.5m verge for trunk utility	4.0m	3.0m

Remarks:

(1) Footpath refers to the through zone plus the building frontage zone

(2) Cycle track is added between the footpath and the roadside amenity according to the cycle track network design

5 Engineering Assessments

5.1 General

5.1.1 Technical assessments on various aspects including traffic and transport, geotechnical and natural terrain hazard, air ventilation, marine, drainage, sewerage, water supply and utilities have been conducted. The findings of these assessments have confirmed that the proposed developments under the finalised RODP are feasible without insurmountable planning and engineering problems. The key findings of the assessments are summarized below.

5.2 Drainage Impact Assessment

5.2.1 The proposed new development schemes will generate a large amount of runoff as well as intercept or divert offsite flow toward Tung Chung Bay. The estimated impact on existing drainage systems and the requirement for mitigation measures to control these drainage impacts to acceptable levels are discussed. Hydrological and hydraulic models are established using InfoWorks ICM 5.5 for hydraulic analysis of the existing and proposed drainage systems and Tung Chung Stream.

5.2.2 Criteria for assessing hydraulic performance of the proposed drainage system is based on the freeboard requirement as stipulated in SDM. For the urban branch and trunk drains, 300mm freeboard is adopted.

5.2.3 Due to the change in land use from rural to urban in the TCW area, the flood protection standard will be increased from 1 in 10-years to 1 in 200-years. Site platform levels and earth bunds under the polder scheme at Tung Chung Stream are elevated to achieve a minimum 300mm freeboard above the anticipated 200-year flood water level.

5.2.4 WSD owns and maintains three waterworks intake risers in the upland of the Tung Chung (TC) catchment and another two risers in the upland of the neighbouring Wong Lung Hang (WLH) catchment that capture and divert runoff for purposes of raw water supply to Shek Pik Reservoir. Runoff is diverted to the reservoir by a large (around 4.0m diameter) drainage tunnel passing below both catchments. The intake of runoff to these risers has bearing on the hydraulic capacity of the East and West Streams, and as such may result in a change in water level during peak flow condition.

5.2.5 To comply with SDM Section 6.7, this study assesses the greater of the following two scenarios:

A. Maximum runoff generated by TC catchment alone assuming the absence of WSD catchments; and

B. Runoff generated by 90% of the TC catchment plus 10% of flow diverted by the WSD risers in WLH catchment toward TC catchment.

5.2.6 Both the TC and WLH catchments are mainly hillside and therefore have the same runoff coefficient. Thus a check of the two runoff scenarios can be made based on the total catchment area as summarized in Table 2.3 below. Since the total catchment area under scenario A is greater than the combined catchments under scenario B, there shall be more expected runoff generated by TC catchment alone, and therefore scenario A shall govern for this DIA.

Table 5.1 Total Drainage Catchment Area under Two Scenarios

Scenario	100% TC Catchment Area (ha)	90% TC Catchment Area [1] (ha)	10% WLH Catchment Area [1] (ha)	Total Catchment Area (ha)
A	743.5	-	-	743.5
B	-	669.2	47.3	716.5

[1] – It is estimated under separate study that around 10% of runoff is diverted into each WSD riser under large flows.

5.2.7 According to the location of DSD Flooding Blackspots as at March 2015 available from the DSD website, there are no flooding blackspots within the Study Area.

5.2.8 The Study Area is not covered by any existing Drainage Master Plan Study undertaken by DSD. Catchments within the Study Area are divided into east and west by the Tung Chung Town and contain 12 existing outfalls as shown in **Figure 5.1**. Another 4 existing outfalls are located along the existing North Lantau Highway reclamation area immediately east of the east Tung Chung catchment connecting an inland waterway to the sea.

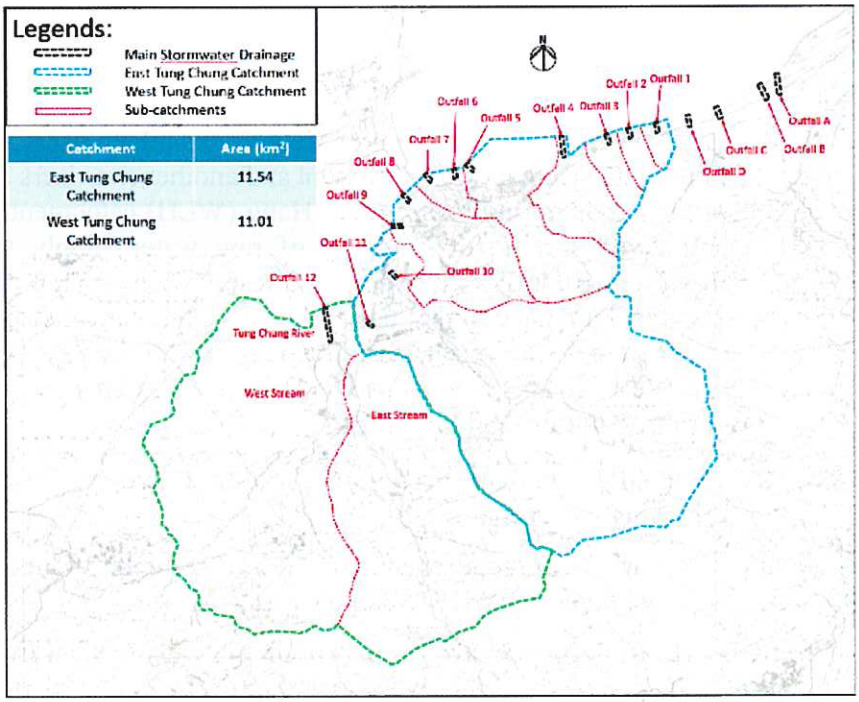


Figure 5.1 Layout of Study Catchments and Outfalls

Tung Chung East

5.2.9 TCE is located partially within the East Tung Chung Catchment. It has interface with eight drainage outfalls as summarized in **Table 5.2**. As urban trunk drainage, the outfalls should offer 200-year flood protection standard. Four outfalls (A, B, C and D) will be extended from their existing location to the new northern seawall of proposed Road P1 (Tung Chung-Tai Ho Section). Three outfalls (1, 2 and 3) are proposed to combine into one large box culvert and be diverted to the new eastern sea wall of TCE development. The four-cell 3.2m diameter pipes will be diverted across the TCE development to the new northern sea wall.

Table 5.2 Drainage Outfalls Interfacing with TCE Development

Drainage Outfall / Channel	Discharge Node ID [1]	No. of Cell	Width (m)	Height (m)	Downstream Invert Level (mPD)
1	SWE34	1	2.0	2.0	+1.38
2		1	2.0	2.0	+0.83
3		1	2.0	2.0	+1.74
4	SWE4	4 (Pipes)	3.2 diameter		+0.46
A	-	2	2.0	2.0	+0.03
B	SWE14	2	2.0	2.0	+0.16
C	SWE10	1	2.0	2.0	unknown
D	-	1	21.5	n/a	Seabed

5.2.10 As the TCE development is made up of reclaimed land, there is no change in land use from the existing condition to consider. An urban drainage system is proposed within the TCE development area with discharge of surface runoff northward and eastward to the sea. Refer to **Drawing Nos. 219844/DR/1000** to **1010** for layout of the proposed drainage network.

5.2.11 There are three proposed outfalls to serve runoff generated by the onsite TCE development, as shown in **Drawing Nos. 219844/DR/ 1003** and **1004**. A depressed roadway is planned within the central portion of TCE development area to make way for an at-grade Central Park. A stormwater pumping station will be located at the low point of the roadway with rising main discharging to onsite storm drains which drain by gravity to the sea.

5.2.12 To overcome the impact on hydraulic performance of the box culverts at Outfalls 1, 2 and 3 due to increased friction, as well as the introduction of flow from within the TCNTE development, the length of each extension is kept as short as possible. All three outfalls are combined into one large 3-cell box culvert with sufficient size as to accommodate the minimum freeboard required under 200-year design

event. Thus there is no impact on the existing drainage network served by Outfalls 1, 2 and 3.

5.2.13 To overcome the impact on hydraulic performance of the 4-cell (3.2m diameter) pipes at Outfall 4 due to increased friction and downstream flow conditions, the length of extension has been kept as short as possible. Consideration is given to route the extensions along straight path or with minimal bends, as shown in **Drawing Nos. 219844/DR/1002** to **1004**. As such, the minimum freeboard requirement is met under 200-year design event with no impact on the existing drainage network.

5.2.14 The proposed TCE drainage network has been designed to accept the 200-year design event while meeting the minimum freeboard requirement. Thus there is no impact on the proposed drainage network.

Tung Chung West and Valley

5.2.15 TCW is located within portions of both East and West Tung Chung catchments. It has interface with three outfalls including Tung Chung Stream. As urban trunk drains, they all should offer 200-year flood protection standard. Details are summarized in **Table 5.3**.

Table 5.3 Drainage Outfalls Interfacing with Tung Chung West

Drainage Outfall / Channel	Discharge Node ID [1]	No. of Cell	Width (m)	Height (m)	Invert Level (mPD)
10	SWW8	2 (Pipe)	2.25 diameter		+2.87
11	-	4	4.5	3.8	+2.06
12	2	n/a	Varies		Seabed

[1] – Discharge node numbers refer to Figures 5.2.1 to 5.2.10

5.2.16 Tung Chung Valley is located within the TCW development area, and resides within the west Tung Chung catchment. The west Tung Chung catchment is drained by Tung Chung Stream, which has two tributaries, namely East and West Streams. The East Stream includes a section of engineered channel, which is approximately 625m long with bottom width varying from 8m upstream to 10m downstream. The rest of Tung Chung Stream is mainly a natural river.

5.2.17 An evaluation of the flooding susceptibility under 200-year design event has been carried out for the existing Tung Chung Stream using *Infoworks ICM 5.5* modelling software. Simulation results under the 2D model indicate the risk of flooding along the banks of the East and West Stream is expected under 200-year design event conditions; the locations of flooding with extents and indicative depths are shown in the **Figure 5.2**.

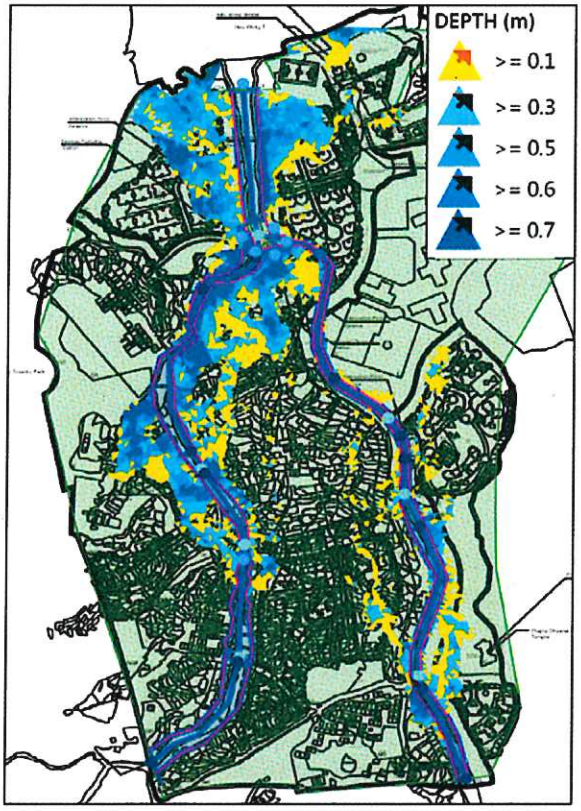


Figure 5.2 Estimated Flooding Locations for Existing Tung Chung Stream under 200-year Design Return Period

5.2.18 The developments at TCW will change existing land use and increase impermeable surfaces. An urban drainage system is proposed within the TCW development area with discharge of surface runoff either directly to Tung Chung Bay or to the Tung Chung Stream flowing northward to Tung Chung Bay. Refer to **Drawing Nos. 219844/DR/1001 to 1010** for layout of the proposed drainage network.

5.2.19 Certain sections of the natural Tung Chung Stream have been identified to have high ecological value. A buffer zone generally 30m in width along both banks of Tung Chung Stream is proposed in order to preserve its high ecological value and to serve as flood storage area during heavy rainstorm events.

5.2.20 Due to the net increase in runoff to the Tung Chung Stream and to accommodate in increase in flood protection standard of the existing villages from 10-year to 200-year, a polder scheme is proposed. At portions of the west edge of 30m buffer zones along the East and West Streams, flood protection will be achieved by elevating proposed roadways to maximum 1.5m above existing ground with 1:2 sloping embankments. At the east edge and portions of the west edge of 30m buffer zones along the West Stream, flood protection will be achieved by earth bunds up to 1.8m above existing ground with 1:2 sloping sides.

5.2.21 To overcome the impact imposed by site formation at development

areas TCV-6 and TCV-7, hillside runoff collected by existing drain inlets east of Tung Chung Road will be diverted by new drain pipes along Tung Chung Road and proposed roadways with discharge directly to Tung Chung Stream.

5.2.22 Raising of site platforms above the flood level of Tung Chung Stream is proposed for some of the development sites. Areas TCV-1, TCV-8, COM-1, COM-2 and COM-3 are proposed for private development and it is envisaged that minor adjustment of the existing ground level is required to bring the formation level of the whole site area above the flood level due to tidal effect. Areas TCV-6 and TCV-7 are proposed for subsidized residential housing and the site formation works will be carried out by government. The provision of site formation required for the adequate flood protection standard in these development areas are defined in **Table 5.4**. Attention is drawn that the effect of climate change is not taken into account in current Study and shall be considered in the detailed design. With the consideration of climate change, it is envisaged that the required minimum site formation level for drainage control will be higher, in particular the area near Tung Chung Bay. The drainage control could possibly be carried out by further increasing the proposed site formation level within the development parcel, or constructing polders along the Coastal Protection Area and shall be studied in the detail design stage.

Table 5.4 Development Areas Requiring Site Formation

Development Area [1]	200-Year Water Level at Tung Chung Stream (mPD)	Proposed Minimum Site Formation Level for Drainage Control (mPD)	Proposed Site Formation Level in Preliminary Layout Plan (rounded to nearest 0.5m)
COM-1, COM-2 and COM-3	+3.75	+4.05	+4.0
TCV-1	+3.75	+4.05	+5.0
TCV-8	+3.75	+4.05	+4.0
TCV-6	+11.0	+11.3	+12.0
TCV-7	+22.1	+22.4	+24.0 / +22.5

5.2.23 It is expected that TCE and TCW developments will cause a net increase in common pollutants derived from urban development which are transported by the "first flush" into the drainage network. Such pollutants include gross solids, sediments, nutrients, oil/petrol and metals. For this study, the first flush is defined as 50% of the 1-year rainfall intensity with 30-minutes duration for flow-based treatment devices (e.g. bioswale) and 15mm depth of rainfall for volume-based treatment devices (e.g. rain garden) which is found under international case studies to provide substantial removal of suspended solids, nitrogen and phosphorous which are key performance indicators.

5.2.24 Green groups have undertaken investigations of existing streams throughout Hong Kong and found several instances of illicit connection of sewage waste to the drainage network. Therefore illicit connections from existing villages in the Tung Chung Valley area are expected.

Stormwater Quality Mitigations in TCE and TCW

5.2.25 To mitigate the expected increase in pollutant concentration in stormwater generated by the development, it is recommended that a comprehensive Sustainable Urban Drainage System (SUDS) plan be developed during detailed design stage. SUDS refers to greening techniques that retain and treat stormwater near the source of rainfall, thus reducing the rate and volume of runoff and preventing pollutants from entering the drainage network.

5.2.26 SUDS measures are categorized as either source-control or treatment-control. Source-control SUDS prevent pollutants from entering the storm drainage network by eliminating them altogether, or by diverting them to a controlled location for easy maintenance. Proposed measures include car washing stations, installing educational signage stating "no dumping, drains to the sea" and prohibiting the use of toxic fertilizers within the Tung Chung Stream catchment.

5.2.27 Treatment-control measures are aimed at removing pollutants that have been washed up by the "first flush". Proposed measures include rain gardens, infiltration planters, oil/water separators, vegetated swales, filter strips, porous pavements and sand filters. **Figure 5.3** illustrates the proposed locations of treatment-control devices within the roadway section.

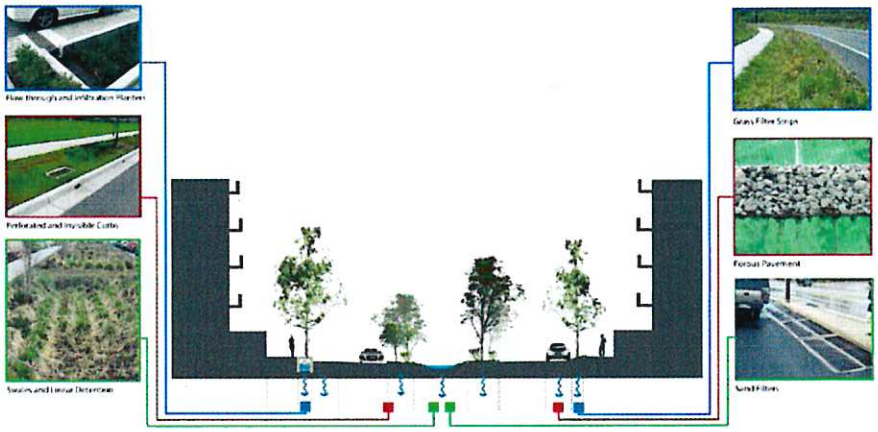


Figure 5.3 Proposed SUDS Techniques within the Roadway Section

5.2.28 In the absence of local design guidelines, it is recommended that SUDS devices be designed to the standards set out by the Engineering Procedures for ABC Waters Design Features under the *Active, Beautiful and Clean Waters* programme by Singapore PUB.

5.2.29 In addition, one of the cells of proposed box culvert near proposed SPS no. 2 could be considered as emergency storage facility for sewage under emergency events of the SPS.

Stormwater Attenuation and Treatment Ponds in TCW Only

5.2.30 To ensure comprehensive treatment of stormwater runoff within the Tung Chung Valley, dual-function attenuation and treatment ponds are proposed to provide enhanced mitigation. Each pond will serve as a regional stormwater system, treating runoff from roadways, development parcels, and local villages. The primary purpose of the ponds is to provide water quality treatment and therefore attenuation is a secondary benefit to offset the increased runoff due to land use change. The attenuation/ wet pond will contain high- and low-flow weirs to mitigate peak flows by gravity. To provide emergency protection during the 200-year event, each pond will be fitted with a pumping station with discharge directly to the adjacent river or channel. Due to the site formation of some development areas above the Tung Chung Stream high water level, pumping would not be required at these development areas. **Figure 5.4** illustrates the typical arrangement of the ponds and their components, while **Table 5.5** summarizes their proposed catchment arrangements.

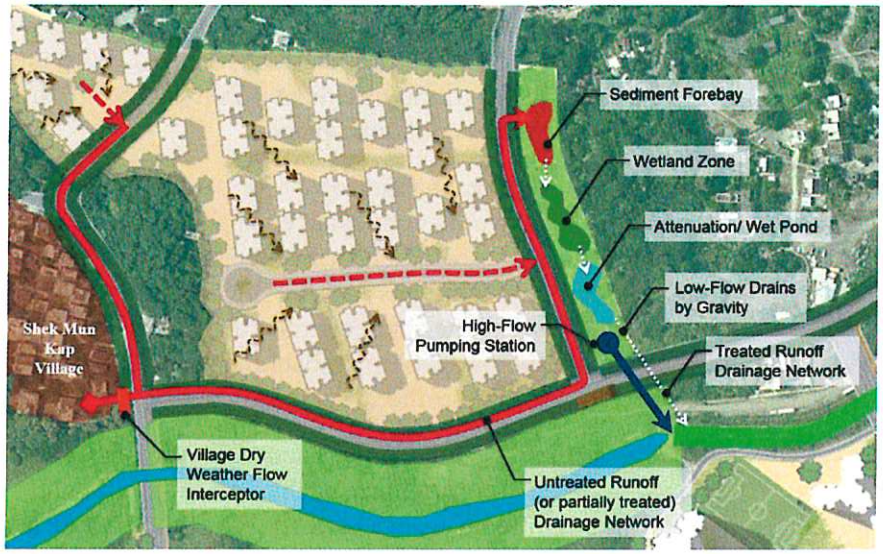


Figure 5.4 Conceptual Layout of Attenuation and Treatment Ponds

Table 5.5: Summary of Regional Attenuation & Treatment Ponds

Attenuation & Treatment Pond No. [1]	Existing and Proposed Development Areas Served	Estimated Contributing Catchment Area (ha)	Estimated Treatment Storage Volume Required [2] (m^3)	Pumping Station Flow Rate [3] (m^3/s)
A	TCV-1, COM-1, COM-2 and COM-3	10.9	16,350	n/a
B	TCV-2 and Shek Lau Po Village	15.2	22,800	13.2
C	TCV-3, TCV-4, Lam Che, Nim Yuen and Mok Ka Villages	6.5	9,750	19.8
D	TCV-5 and Shek Mun Kap Village	13.8	20,700	10.0
E	TCV-6	4.2	6,300	n/a
F	TCV-7	1.0	1,500	n/a
G	TCV-8 and Ngau Au Village	7.1	10,650	n/a

[1] - Attenuation & treatment pond nos. refer to Figures 1008 and 1009.

[2] - Treatment storage is estimated as the contributing catchment area times 15mm depth.

[3] - The pumping station flow rates are based on the estimated 200-year flow from each respective catchment.

5.2.31 Sewage effluent should not be discharged into the storm water drain. The risk of deterioration of water quality of attenuation pond in dry season due to unexpected illicit discharge to the drainage system from the village has to be minimized. For prudent sake, dry weather flow interception (DWFI) is proposed at the connection point of each village to the public drainage network. The interceptor will contain a penstock to divert and retain the very low flows to a nearby chamber for disposal to the sewage treatment works or other disposal facility, by tankering away or other conveyance method approved by EPD. Level sensor and alarm system will be installed to notify DSD for a potential illicit

connection. DSD will then inspect, sample and test the flow for elevated organics and notify EPD of further action required. With the installation of DWFI, the impact to the treatment ponds by the illicit discharge to the drainage network is not anticipated.

5.2.32 The existing drainage channel of 8~10m wide shall be widened and steepened to improve its conveyance capacity. Some reaches may be widened up to 23m in width. Stormwater diverted to attenuation ponds within polder embankments nearby the upgraded channel will be discharged directly to the channel rather than the Stream. Green channel improvements, such as gabion embankments, will be incorporated into the design to improve aesthetic and biodiversity.

5.2.33 As Tung Chung Stream and Tung Chung Bay are ecologically connected, the existing engineering channel (approximately 625m long) in Tung Chung Stream would be revitalised, and part of it will become a River Park which would be further extended upstream to reach Shek Mun Kap Road. This River Park would introduce elements of eco-education such as viewing decks / boardwalk and passive recreation zone for appreciation of the natural environment. The area is zoned OU in the RODP for further detailed design in future. Detailed planning of the river park will be carried out in the detailed design phase of the project.

5.3 Sewerage Impact Assessment

5.3.1 The proposed new development schemes will generate a large amount of sewage flow. The expected impact on the existing sewerage systems and the requirement for any measures to accommodate the sewage flows are discussed in this section.

5.3.2 The Sewerage Impact Assessment is based on the estimated population proposed in the RODP which is shown in **Table 5.6** below. With an existing residential population of 124,000 in Tung Chung, an additional population of approximately 144,400 residents is proposed under TCNTE. The projected total population of Tung Chung would be approximately 268,400.

Table 5.6 Planned Population

Type	Tung Chung East	Tung Chung West
Residential Population	118,900	25,500
Employee (Commercial and GIC)	45,277	2,954
School (Student)	13,390	1,530

5.3.3 The proposed Tung Chung New Town Extension (TCNTE) project falls within the North Lantau/ Airport Sewerage Catchment. Siu Ho Wan Sewage Treatment Works (SHWSTW) was a preliminary sewage treatment works when it was commissioned in 1996. It was subsequently upgraded under the Project PWP Item 4224DS "Outlying Islands Sewerage Stage 1 Phase 1C - Upgrading of Siu Ho Wan Sewage Treatment Plant" to chemically enhanced primary treatment (CEPT). The SHWSTW has a design Average Dry Weather Flow (ADWF) of 180,000 m^3/day according to information given by DSD.

5.3.4 An ultra-violet (UV) disinfection system was implemented in 2006 to receive the CEPT effluent and further improve the effluent quality. It consists of 2 screen inlet channels (1 duty and 1 standby) and 3 UV channels, and has an ADWF capacity of 90,000 m^3/day and peak flow capacity of 1,875 l/s, which is based on the situation where all 3 UV channels are operating in parallel. Two spare screen channels and one spare UV channel have been reserved for future expansion. An effluent pumping station was also provided downstream of the UV disinfection system to ensure the effluent is discharged to the outfall during high tide condition and in case of insufficient hydraulic head. It has a peak flow capacity of 2,500 l/s and 2 spare channels are reserved for future expansion.

5.3.5 Currently SHWSTW receives sewage from Hong Kong International Airport (HKIA), Tung Chung, Disneyland and Penny's Bay, Sunny Bay, Discovery Bay and Siu Ho Wan. The treated effluent is discharged into the marine waters of North Western Water Control Zone via a DN1840 submarine outfall.

Existing and Planned Sewerage Network

5.3.6 The existing and planned sewerage network of Tung Chung is shown in **Drawing nos. 219844/SW/1000 to 1010**. Currently, sewage from the west of Tung Chung is collected by Chung Mun Road Sewage Pumping Station (CMRSPS) and Chung Yan Road Sewage Pumping Station (CYRSPS), and is transferred to Tung Chung Sewage Pumping Station (TCSPS). TCSPS collects sewage from CYRSPS and Tung Chung Town Centre. It then conveys the sewage to SHWSTW via a DN1200 sewage rising main along Cheung Tung Road parallel with the North Lantau Highway.

5.3.7 CMRSPS was constructed under the Contract No. NL6/95 "Tung Chung Development Phase IIB – Main Works – Sewage Pumping Stations No. 1 and No. 2" and commenced its operation in 2000. It is located near the junction of Chung Mun Road and Yu Tung Road, and has the design peak flow capacity of 143 l/s. Currently CMRSPS collects sewage from adjacent schools and village houses. The sewage from CMRSPS is pumped into a DN350 rising main along Yu Tung Road and discharged into a DN375 sewer at the road junction with Chung Yan Road, and finally discharged into CYRSPS.

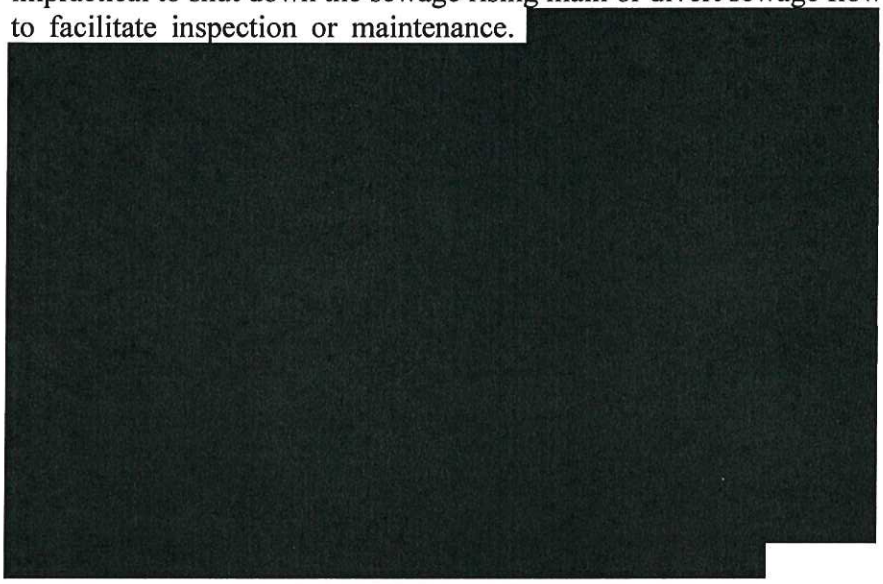
5.3.8 CYRSPS was also constructed under the Contract No. NL6/95 "Tung Chung Development Phase IIB – Main Works – Sewage Pumping Stations No. 1 and No. 2" and commenced its operation in 2000. It is located at the southbound of Chung Yan Road and collects sewage from the adjacent areas including Yat Tung Estate and other village houses, as well as that discharged from CMRSPS. It has a design peak flow capacity of 780 l/s. Discharge from CYRSPS flows through the DN700 rising main followed by a DN500 sewer directly to TCSPS.

5.3.9 TCSPS was constructed under Contract No. NL3/93 "North Lantau Sewage Treatment Works and Pumping Station." It is located at Cheung Tung Road, and collects sewage from Tung Chung Town Centre and HKIA, as well as that discharged from CYRSPS. The existing capacity of the installed pump set at TCSPS is 1,840 l/s (with 2 duty pumps and 1 standby pump of each capacity 920 l/s). The sewage passes into a DN1200 rising main that runs along Cheung Tung Road, which is a service road that runs parallel to North Lantau Highway, and is then discharged to SHWSTW. A super-oxygenation facility with design ADWF capacity of around 45,000 m^3/day was installed at the dry well in 2010 for the control of sewage septicity and odour of TCSPS by introducing a large amount of dissolved oxygen to the sewage. Space has been reserved within the TCSPS for additional coarse screens and pump sets. Additional pump sets to double the existing pumping capacity would provide for the designed maximum handling capacity of 3,680 l/s. [redacted]

5.3.10 The existing DN1200 rising main between TCSPS and SHWSTW is

about 6,169m long, and was commissioned in 1997 to convey sewage from TCSPS to SHWSTW along Cheung Tung Road parallel with North Lantau Highway.

5.3.11 The abovementioned existing rising main is currently the only means for conveying sewage from Tung Chung to SHWSTW and it is impractical to shut down the sewage rising main or divert sewage flow to facilitate inspection or maintenance.



5.3.12



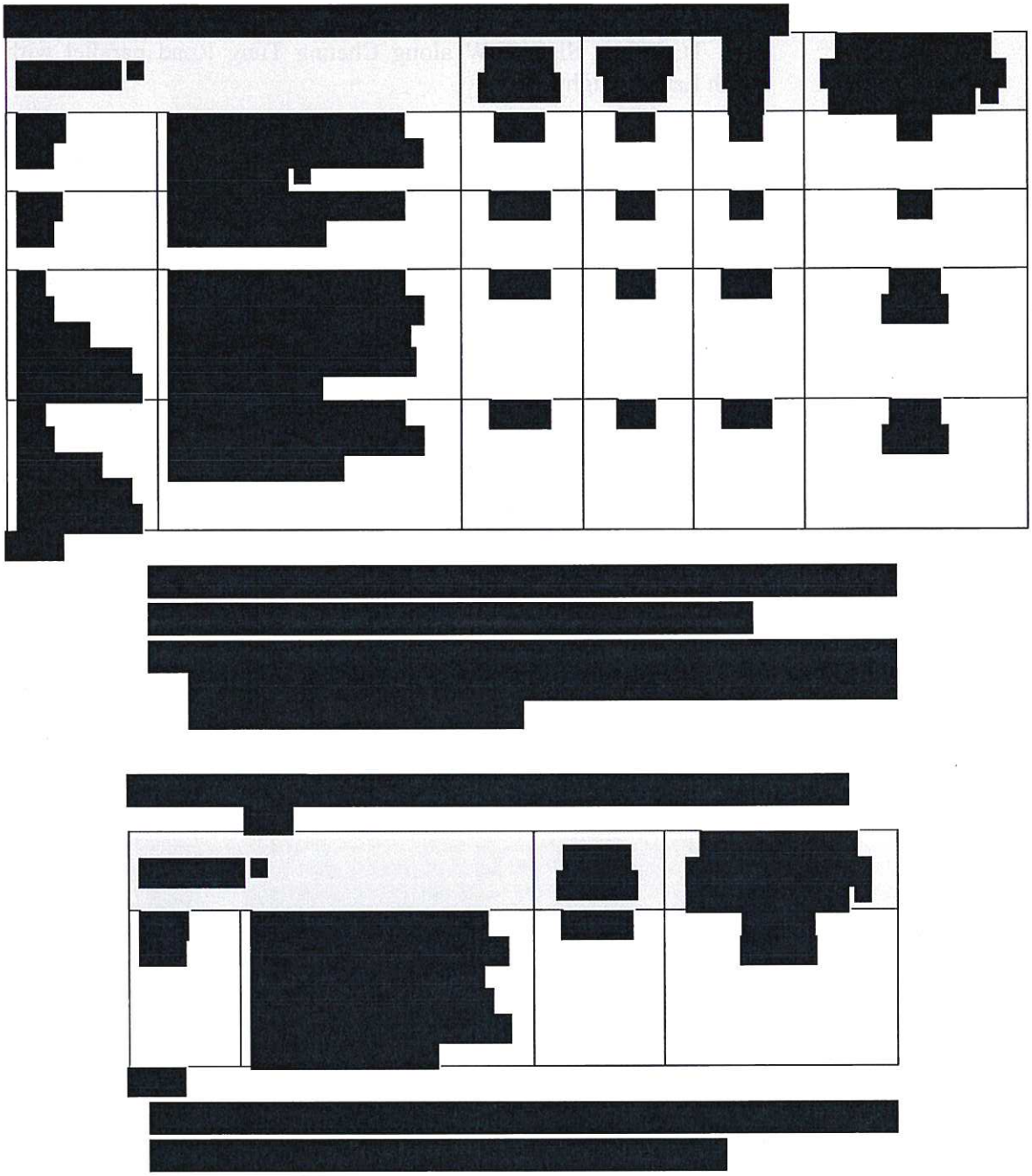
Proposed Sewerage Flow Estimation

5.3.13 The estimated sewage flows generated by TCE and TCW developments are summarised in **Table 5.7**.

Table 5.7 Sewage Flow Estimation from Tung Chung East and Tung Chung West Developments

Proposed Development	ADWF (m^3/day)
Tung Chung East	43,070
Tung Chung West	7,010

5.3.14 A year-by-year flow build-up assessment has been conducted from Year 2011 to Year 2031, with TCNTE ultimate scenario occurring in Year 2031. The projected sewage flows at each SPS and SHWSTW are estimated and compared with the respective design capacities, and are summarized in **Table 5.8** and **Table 5.9.**



Tung Chung East Development – Interim Stage Years 2023 to 2026

5.3.15 The western portion of TCE development will undergo early population intake from Year 2023 to Year 2026, while the eastern portion of TCE development will undergo later population intake from Year 2027 to Year 2030. In order to serve the early population intake at the western portion, an interim stage sewerage scheme is proposed. **Figure 5.5** below indicates the western portion of TCE development planned for early population intake.

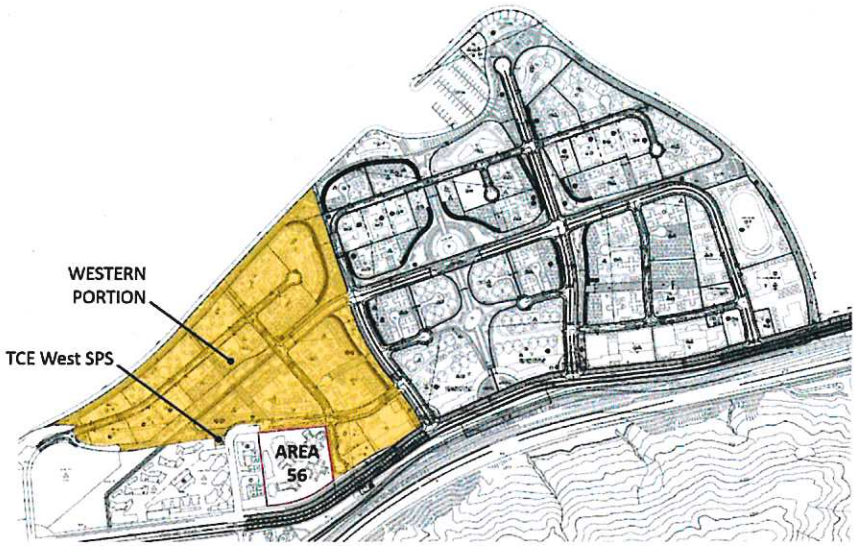


Figure 5.5 Western Portion of TCE Development

5.3.16 A new sewerage system will be provided to serve the western portion of TCE development, and a new sewage pumping station (SPS) is proposed and designated "TCE West SPS." All sewers and rising mains will be laid along existing and proposed roads or within drainage reserves. **Table 5.10** summarizes the estimated pumping capacity required at TCE West SPS during the interim stage, which includes the provision of ultimate sewage flow derived from Area 56.

Table 5.10 Estimated Sewage Flow for Proposed Sewage Pumping Station during Interim Stage

SPS	Area Served	ADWF (m^3/day)	Peaking Factor	Peak Flow (l/s)
TCE West SPS (Interim Stage)	New development areas in the western portion of Tung Chung East and Area 56	12,891	3.00	448

5.3.17 For the interim stage twin DN450 rising mains are proposed to divert flow from TCE West SPS along Ying Tung Road and Man Tung Road, crossing above the MTR Tung Chung Line tunnel. They will then pass along an existing drainage reserve and below the Airport Express Line (AEL) and North Lantau Highway. In order to avoid disturbance to the AEL, North Lantau Highway and existing utilities, the twin rising mains are proposed to be installed within an existing pressure sewer subway tunnel that crosses below AEL and North Lantau Highway. After the tunnel, the rising mains will discharge to a proposed inlet pressure breaking chamber (manhole) within the TCSPS site compound and discharge to the inlet screen channel inside the TCSPS main building via twin gravity sewers. Refer to **Drawing no. 219844/SW/1005** for details of the proposed connection.

Tung Chung East Development – Ultimate Stage Years 2027 to 2030

5.3.18 To accommodate the planned population intake in the eastern portion of TCE development from Year 2027 to Year 2030, an ultimate stage sewerage scheme is proposed. A new sewerage system will be provided within the eastern portion of TCE development, and another sewage pumping station (SPS) is proposed and designated "TCE East SPS." Sewage flow from TCE West SPS will be diverted by new twin DN450 rising mains and gravity sewers to the TCE East SPS. All sewers and rising mains will be laid along existing and proposed roads or within drainage reserves. **Table 5.11** summarizes the estimated pumping capacities required at each SPS during the ultimate stage.

Table 5.11 Estimated Sewage Flows for Proposed Sewage Pumping Stations during Ultimate Stage

SPS	Area Served	ADWF (m^3/day)	Peaking Factor	Peak Flow (l/s)
TCE West SPS (Ultimate Stage)	New development areas in the western portion of Tung Chung East and Area 56	12,891	3.00	448
TCE East SPS (Ultimate Stage)	All new development areas in Tung Chung East and Area 56	45,732	2.79	1,479

5.3.19 The proposed TCE East SPS, which will serve the entire TCE development, will transfer the sewage flow via proposed twin DN600 rising mains along Road P1 (Tung Chung – Tai Ho Section) and then along the footpath at the rear of the existing seawall at existing MTRCL Siu Ho Wan Depot. The rising mains will then cross below the MTR Tung Chung Line (TCL) tunnel and Airport Express Line (AEL) and North Lantau Highway, then along an existing drainage reserve and maintenance access road with discharge to SHWSTW. [redacted]

Tung Chung West Development

5.3.20 A new public sewerage system will be provided to serve the TCW development as well as to provide a village sewerage system for the existing unsewered village areas of Shek Mun Kap, Mok Ka, Nim Yuen, Lam Che, Ngau Au, Shek Lau Po, Ma Wan Chung and Wong Nai Uk. New sewers will be laid along existing and proposed roads, footways or drainage reserves.

5.3.21 To overcome the constraint posed by the presence of the Tung Chung East and West Streams, three new sewage pumping stations are proposed, two serving those developments west of the West Stream (designated "TCV West SPS" and "TCV North SPS") and the third

serving all of TCW development (designated "TCV East SPS").

5.3.22 The TCV West SPS will deliver flow from proposed development areas TCV-3 and TCV-4 as well as existing villages of Mok Ka, Lam Che and Nim Yuen to the TCV East SPS via twin DN200 rising mains. Refer to **Drawing nos. 219844/SW/1007 to 1009** for the location of proposed developments in TCW.

5.3.23 The TCV North SPS will deliver flow from proposed development area TCV-8 and the existing village of Ngau Au to the TCV East SPS via twin DN200 rising mains.

5.3.24 Sewage arising from proposed development areas TCW-1, TCW-2, TCW-3, TCV-1, COM-1, COM-2, COM-3 and existing villages Ma Wan Chung and Wong Nai Uk will be discharged by proposed sewers laid along existing and proposed roads to Chung Mun Road Sewage Pumping Station (CMRSPS). The CMRSPS will be upgraded such that new stand-alone inlet chamber, screens, wet well and pump sets are provided to serve the proposed developments and two existing villages. Refer to **Drawing no. 219844/SW/1008** for details of the proposed connection. The Upgraded CMRSPS will discharge directly to TCV East SPS via new twin DN250 rising mains laid along Chung Mun Road.

5.3.25 The TCV East SPS will serve the entire TCW development including flows from Upgraded CMRSPS, TCV West SPS, TCV North SPS and existing villages including Shek Mun Kap, Mok Ka, Nim Yuen, Lam Che, Ngau Au, Shek Lau Po, Ma Wan Chung and Wong Nai Uk. The TCV East SPS will deliver flow with direct discharge to the TCSPS via new twin DN450 rising mains laid along Chung Mun Road and Yu Tung Road, thus bypassing the Chung Yan Road SPS. **Table 5.12** summarizes the estimated pumping capacities required at the TCV West SPS, TCV North SPS, TCV East SPS, and Upgraded CMRSPS.

Table 5.12 Estimated Sewage Flows for Proposed Sewage Pumping Stations serving Tung Chung West Development

SPS	Area Served	ADWF (m^3/day)	Peaking Factor	Peak Flow (l/s)
TCV West SPS	New development areas TCV-3, TCV-4 and existing villages Mok Ka, Lam Che and Nim Yuen	551	4.00	26
TCV North SPS	New development area TCV-8 and existing village Ngau Au	278	6.00	19
TCV East SPS	All new development areas in TCW and existing villages Mok Ka, Lam Che, Nim Yuen, Shek Mun Kap, Ngau Au, Shek Lau Po, Ma Wan Chung and Wong Nai Uk	8,864	3.00	308
Upgraded CMRSPS	New development areas TCW-1, TCW-2, TCW-3, TCV-1, COM-1, COM-2, COM-3 and existing villages Ma Wan Chung and Wong Nai Uk	3,119	3.50	126

Enhancements and Additional Provisions

5.3.26 Due to the key concerns of the ecological sensitivity of the Tung Chung Stream and the Tung Chung Bay, the following provisions are proposed to enhance the sewerage network reliability and minimize environmental impacts due to system failure or in case of emergency situations:

1. Twin rising mains are proposed from all proposed SPSs and the Upgraded CMRSPS. If one of the duty mains should be suspended from operation for maintenance, the remaining one would be arranged to deliver more flow at a higher velocity (exceeding 3m/s) during that period.
2. Proposed gravity sewers and rising mains will adopt high density polyethylene (HDPE) pipe. As gravity sewers will not be pressurized, they carry no risk of bursting. Further protection on proposed rising mains with concrete surround will be provided to prevent the rising mains from bursting.
3. To mitigate the risks of pump, rising main and/or power failure, several mitigation measures are proposed to cater for the emergency situations including a) 100% standby pumping capacity within each SPS, with spare pump up to 50% pumping capacity stockpiled in each SPS for any emergency use; b) twin rising mains; c) dual-feed power supply; d) emergency storage facilities of up to 6-hours ADWF capacity; and e) emergency communication mechanism

amongst relevant government departments.

5.3.27 Considering the possible emergency situations and respective risks, as well as the practicality of construction, the above mitigation measures are considered the most appropriate and practical measures to deal with the emergency situations of the proposed SPSs in TCE and TCW developments. Therefore emergency discharge from the proposed SPSs is not expected, and thus no adverse impact on water quality or ecology due to emergency discharge from the proposed SPSs is anticipated.

Chung Mun Road Sewage Pumping Station

5.3.28 The existing pumping capacity of CMRSPS is inadequate to serve the increased sewage flows from new development areas TCW-1, TCW-2, TCW-3, TCV-1, COM-1, COM-2, COM-3 and existing villages Ma Wan Chung and Wong Nai Uk starting in Year 2023. To avoid impact on the operation of the existing CMRSPS, it is proposed to provide new inlet chamber, screens, wet well and stand-alone pump sets to serve the additional sewage flows.

5.3.29 As the sewage flow from portions of TCW development will be pumped by separate stand-alone pump sets at the Upgraded CMRSPS with discharge to the TCV East SPS, there will be no net increase in flow and thus no impact to the existing CMRSPS.

5.3.30 With the provision of mitigation measures to cater for the emergency situations, emergency discharge from Upgraded CMRSPS is not expected and thus no adverse impact on water quality or ecology due to the emergency discharge is anticipated.

Chung Yan Road Sewage Pumping Station (CYRSPS)

5.3.31 All sewage flow from proposed TCW development will be pumped by the TCV East SPS with direct discharge to TCSPS, thus bypassing the CYRSPS. Therefore there will be no net increase in flow and thus no impact to the CYRSPS.

Tung Chung Sewage Pumping Station (TCSPS) and Rising Main (Interim Stage)

5.3.32 It is estimated that the existing pumping capacity of TCSPS (i.e. 1,840 l/s delivered by 2 duty pumps) would be exceeded in Year 2023 after the first population intake of TCNTE and the commissioning of the 3RS project at HKIA. To mitigate this impact, EPD has arranged with DSD to fit out the TCSPS to its designed maximum handling capacity (3,680 l/s) by Year 2023.

5.3.33 The TCSPS (Interim Stage) will discharge the proposed flows to SHWSTW, including those from TCE West SPS, TCV West SPS, TCV North SPS, TCV East SPS, and Upgraded CMRSPS with stand-alone pump sets.

5.3.34 Consent has been obtained from EPD to discharge the following sewage

flow arising from the proposed TCNTE development to the public sewerage system:

a) discharge not more than 7,010 m^3/day of sewage flow arising from the TCW development to the TCSPS;
b) discharge not more than 10,230 m^3/day of sewage flow arising from the TCE development to the TCSPS up to Year 2026 or a later date agreed by EPD.

Tung Chung Sewage Pumping Station (TCSPS) and Rising Main (Ultimate Stage)

5.3.35 From Year 2026, sewage from TCE West SPS will be diverted toward TCE East SPS for direct connection to SHWSTW, thus no more sewage from TCE development shall be discharged to TCSPS. As such, the ultimate capacity at TCSPS of 3,680 l/s after completion of fitting out works is sufficient to serve the additional sewage flow derived from TCW development. EPD has arranged with DSD to fit out the TCSPS to its designed maximum handling capacity (3,680 l/s) by Year 2023.

5.3.36 The TCSPS (Ultimate Stage) will discharge the proposed flows to SHWSTW including those from TCV West SPS, TCV North SPS, TCV East SPS, and Upgraded CMRSPS. Consent has been obtained from EPD to redirect not more than 10,230 m^3/day of sewage flow arising from the TCE development away from the TCSPS with direct discharge to SHWSTW which is scheduled for completion by Year 2026.

Siu Ho Wan Sewage Treatment Works (SHWSTW)

5.3.37 It is estimated that the projected flow (ADWF) in year 2031 at SHWSTW will reach 144,585 m^3/day. While SHWSTW has a designed maximum handling capacity of 180,000 m^3/day, some of its treatment units have not been fully fitted out to the designed maximum handling capacity. EPD has arranged with DSD to fit out the remainder of the treatment units at SHWSTW to its designed maximum handling capacity (180,000 m^3/day) by 2024 in order to cope with the projected sewage flows within its catchment.

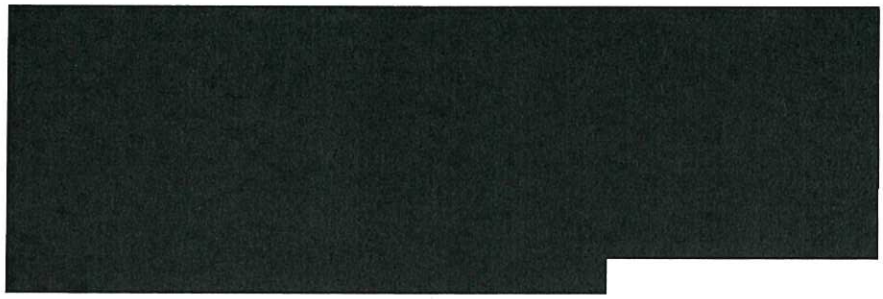
5.3.38 As both the planned DN1200 rising main under Agreement No. CE 6/2012(DS) and the proposed twin rising mains under this Project will discharge to SHWSTW, a combined vortex chamber arrangement to accommodate the proposed twin DN600 rising mains from TCE East SPS in future has been explored. A preliminary arrangement amongst all the inlet rising mains is shown in **Drawing no. 219844/SW/1001**.

5.3.39 Consent has been obtained from EPD to increase the total sewage flow arising from the TCE development to the SHWSTW from 10,230 m^3/day to not more than 43,070 m^3/day after Year 2026.

Existing Sewers and Rising Mains

5.3.40 A new separate sewerage system will be provided to serve TCW and

TCE developments. All sewage from proposed developments will discharge directly to proposed sewers, proposed and/or upgraded SPSs and to SHWSTW without discharging to existing sewers and rising mains other than TCSPS rising main as described above. Therefore, the TCNTE development induces no impact to existing sewers and rising mains.

5.3.41 

5.3.42 As gravity sewers will not be pressurized, they carry no risk of bursting. All proposed rising mains will be encased in concrete surround, it is expected that there will be no bursting of rising mains, and therefore there will be no impact to water quality or ecology due to sewer bursting discharge.

Septicity and Odour Assessment

5.3.43 Qualitative study has been carried out to investigate the effect of sewerage and sewage characteristics on the potential to cause the sewage to turn septic and therefore lead to odour emission and corrosive damage in both sewage collection network and infrastructure at SHWSTW.

5.3.44 Septicity control will be necessary in this sewage collection network. Potential odour nuisance and significant corrosion of sewerage system are anticipated when the sulphide level in sewage is above 2mg/L. This value can be potentially used to trigger mitigation measures such as the addition of chemicals like nitrate salts or sodium chlorite to control septicity and H_2S emission to acceptable levels.

5.3.45 Odour emission from the pump wells/ sumps will be anticipated. For the odour control, all pumping stations should be enclosed in building with sufficient ventilation in order to maintain negative pressure preventing foul air escape from the building. It is suggested that ventilation rate for the man and non-man access should be able to achieve at least 10 and 5 air changes per hour respectively. Wet well can be air sealed, the ventilated foul air should be treated by a deodourization system before discharging into the atmosphere.

5.4 Water Supply

5.4.1 The proposed new development scheme will generate large demands for fresh and flushing water supply. The expected impact on the existing water supply systems and the requirement for any upgrading works to meet such demands are discussed in this section.

5.4.2 This Water Supply Impact Assessment is based on the estimated population proposed in the RODP. With an existing residential population capacity of 124,000 in Tung Chung, space for an additional approximate 144,400 residents is proposed under TCNTE. The proposed total residential population of Tung Chung would be approximately 268,400.

5.4.3 The proposed development areas fall within supply zone of Siu Ho Wan Water Treatment Works (SHWWTW). SHWWTW was commissioned in November 1996 and has a nominal capacity of 150,000 m^3/day. Allowance has been made for expansion to an ultimate capacity of 300,000 m^3/day, and implementation status is yet to be determined. The main source of raw water is from Tai Lam Chung Reservoir while there is a back-up source from Shek Pik Reservoir.

5.4.4 Treated water from SHWWTW is delivered by Siu Ho Wan Fresh Water Pumping Station (FWPS) through trunk mains ranging from DN1600 to DN1000, laid along Cheung Tung Road, to Tung Chung No. 1 Fresh Water Service Reservoir (FWSR). Tung Chung No. 1 FWSR has a capacity of 41,695 m^3 and supplies fresh water to Tung Chung, Airport and Ngong Ping (via Shek Mun Kap Pump House). There is also a side branch from the said trunk main which distributes fresh water to Siu Ho Wan and Tai Ho. Another trunk main delivers fresh water from SHWWTW to Sunny Bay FWSR, which has a capacity of 13,000 m^3, to serve Disneyland.

5.4.5 The SHWWTW supply zone is divided into several service reservoir distribution zones as summarized in **Table 5.4.1**.

Table 5.4.1 SHWWTW Service Zones

Service Reservoir	Area Served
Sunny Bay Fresh Water Service Reservoir (FWSR)	Sunny Bay and Disneyland
Siu Ho Wan FW PS - Direct Feed	Siu Ho Wan, Tai Ho, Discovery Bay
Tung Chung No.1 FWSR	Tung Chung Town, Airport, Ngong Ping (For both Fresh Water and Flushing Water)

5.4.6 Currently, the average water supply of SHWWTW is approximately 50,000 m^3/day according to WSD. This includes flushing water supply to Tung Chung, Siu Ho Wan, Tai Ho and Ngong Ping since fresh water is used for flushing purpose through temporary mains for flushing (TMF) in these areas.

5.4.7 With reference to WSD record plans and WSD schematic layout of fresh water supply in SHWWTW, the existing fresh water supply services which potentially interface with the proposed developments comprise the following:

Table 5.4.2 Existing Fresh Water Mains

Service No.	Services	System	Location
FW-T1	DN1600 pipe	Trunk water main delivery from SHW WTW	From SHWWTW
FW-T2	DN1200 pipe	Trunk water main delivery from SHW WTW to TC FWSR & Discovery Bay	Along Cheung Tung Road
FW-T3	DN1000 pipe	Trunk water main delivery from SHW WTW to TC FWSR (after branching off from Discovery Bay)	Along Cheung Tung Road
FW-D1	DN1000, DN800, DN600	Main distribution system from TC No.1 FWSR to Tung Chung	Within existing Tung Chung
FW-D2	DN600	Designated distribution main from TC No.1 FWSR to International Airport	Along Yu Tung Rd and Shun Tung Rd

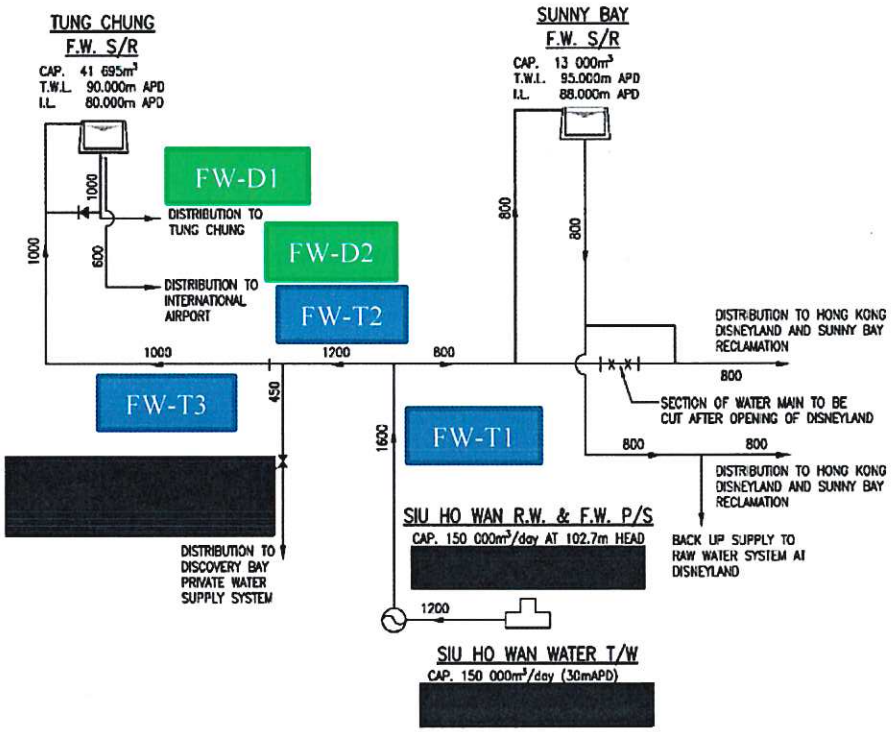


Figure 5.4.1 Siu Ho Wan Water T/W Supply Zones

5.4.8 Currently, flushing water within Tung Chung is supplied by TC No.1 FWSR and corresponding TMF. The TMF is independent from fresh water distribution mains. With reference to WSD record plans and WSD schematic layout of flushing water supply in SHWWTW, the existing TMF which potentially interface with the proposed developments comprise the following:

Table 5.4.3 Existing Temporary Mains for Flushing (TMF)

Service No.	Services	System	Location
SW-T1	DN700 pipe	Main distribution system from TC No.1 FWSR	Along Yi Tung Rd and Ying Hei Rd
SW-T2	DN450 pipe	Main distribution system from TC No.1 FWSR	Across North Lantau Highway near Tung Chung Eastern Interchange, along Yu Tung Road
SW-D1	DN450 pipe	Main distribution system from TC No.1 FWSR	Within Tung Chung

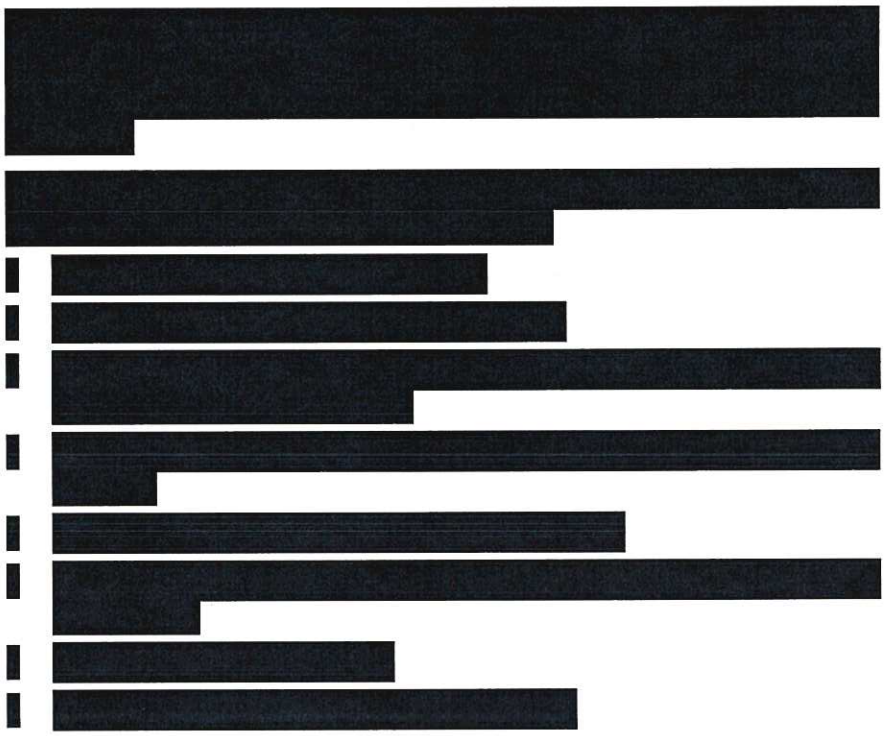
5.4.9 The existing fresh water supply system layout is illustrated in **Drawing nos. 219844/WS/1001 to 1009.** The existing flushing water supply system layout is shown in **Drawing nos. 219844/WS/2001 to 2009.**

5.4.10 [redacted]

[redacted]

5.4.11 [redacted]

5.4.12 [redacted]



5.4.13

5.4.14 The estimated fresh water demand in the SHWWTW supply zone and flushing water demand for existing area and planned developments are summarised in **Table 5.4.4** and **Table 5.4.5** respectively.

Table 5.4.4 Estimate of Fresh Water Demands for Existing and Planned Developments at Year 2031

Existing and Planned Fresh Water Supply Zone	**Estimated Fresh Water Mean Daily Demand (m^3/d)**
Existing Tung Chung Town	
Discovery Bay and Tai Ho (including TMF)	
Total	

Table 5.4.5 Estimates of Flushing Water Demand for Existing and Planned Developments at Year 2031

Existing and Planned Flushing Water Supply Zone	Estimated Flushing Water Mean Daily Demand (m^3/d)
[redacted]	[redacted]
Remaining Supply Zone	Not assessed as the flushing water system would not interface with this Project
Total	[redacted]

5.4.15 The estimated water demand for proposed Tung Chung New Town Extension, including proposed TCE and TCW are based on the detailed development parameters in the latest RODP and make reference to WSD DI 1309 for the unit demands. Detailed breakdown of the estimation are summarized in **Table 5.4.6** below.

Table 5.4.6 Estimate of Water Demands for TCE and TCW

Proposed Water Supply Zone	Estimated Fresh Water Mean Daily Demand (m^3/d)	Estimated Flushing Water Mean Daily Demand (m^3/d)
Tung Chung West and Valley	9,546	2,969
Tung Chung East	54,549	26,279
Total	64,096	29,249

Proposed Fresh Water Supply System

5.4.16 In view of the close proximity of TC No.1 FWSR and planned TC No.2 FWSR, it is proposed that proposed TCW development will source fresh water from the reservoirs and associated distribution mains [redacted]

5.4.17 For proposed TCE development, it was planned [redacted] that fresh water would be supplied by planned SHW FWSR. [redacted]

5.4.18 Given the geographic proximity, a separate Tung Chung WSZ could be served by both the existing and proposed Tung Chung FWSRs, while another North Lantau WSZ may be served by the existing and proposed FWSRs in Sunny Bay / Siu Ho Wan areas. [redacted]

5.4.19 The schematic diagram of proposed fresh water supply system within

SHWWTW supply zone is shown in **Figure 5.4.2** and the proposed delineation of SHWWTW water supply zones for existing, planned and proposed developments are tabulated in the **Table 5.4.7** below. The total estimated water demand for fresh water service reservoirs is summarized in **Table 5.4.8** below.

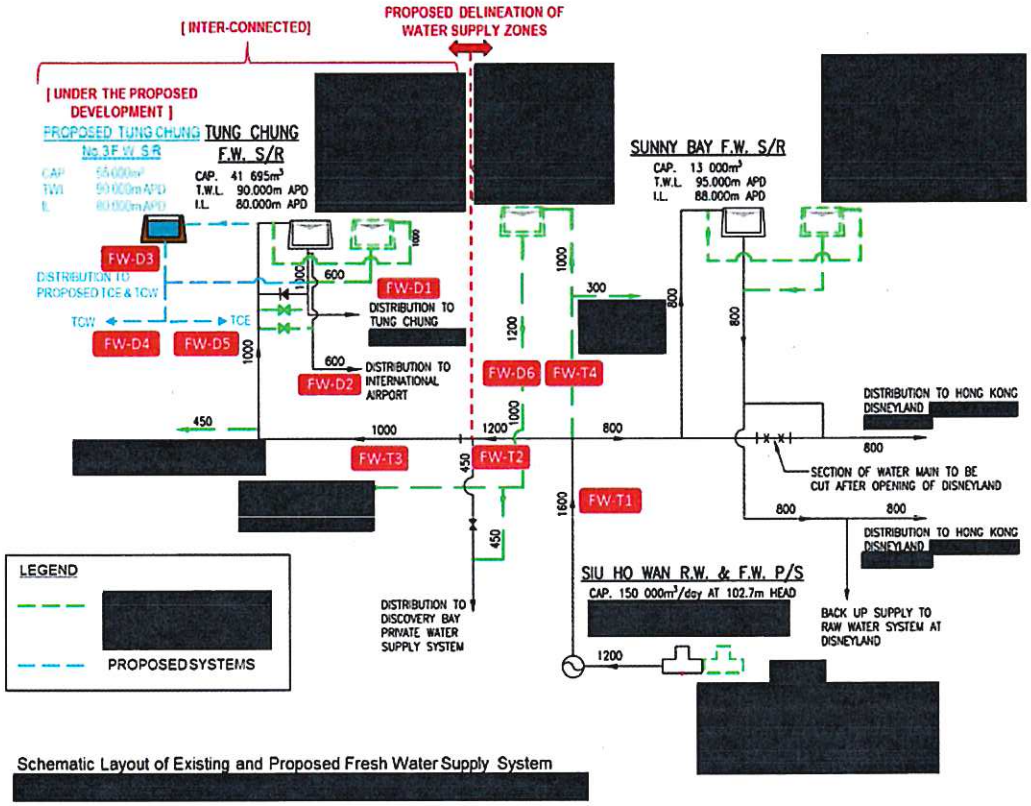


Figure 5.4.2 Schematic Diagram of Proposed Fresh Water Supply System in SHWWTW Supply Zone

Table 5.4.7 Proposed Delineation of SHWWTW Fresh Water Supply Zones

Fresh Water Service Reservoir	Existing Supply Zone	Proposed Supply Area / Development
Sunny Bay Fresh Water (FW) Service Reservoir (SR)	• Disneyland	• Disneyland
Siu Ho Wan FW PS - Direct Feed	• Discovery Bay • Tai Ho	• Discovery Bay • Tai Ho
	-	•

Fresh Water Service Reservoir	Existing Supply Zone	Proposed Supply Area / Development
		• [redacted]
Tung Chung No.1 FWSR [redacted]	• Tung Chung Town • Nong Ping • Airport	• Tung Chung Town • Ngong Ping • Airport [redacted]
Proposed Tung Chung No.3 FWSR (under TCNTE)	-	• Proposed TCW and TCE Developments

Table 5.4.8 Total Fresh Water Demand in Ultimate within SHWWTW Supply Zone (with Proposed TCE & TCW Development)

Supply Zone	Fresh Water Demand (m^3/d)	TMF Demand (m^3/d)	Total Water Demand (m^3/d)	Required Capacity (1) (m^3)	Existing Capacity (m^3)	Planned Capacity (m^3)	Remarks
Sunny Bay FWSR [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Siu Ho Wan FW PS (Direct Feed)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Tung Chung FWSR [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Tung Chung FWSR (Newly proposed No.3)	64,096	-	64,096	50,799	-	55,000	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

[redacted]

Fresh Water Service Reservoirs (Conforming Scheme)

5.4.20 It is proposed to adhere to WSD's DI 1309 (2006 amendment) and the latest WSD's planning standard, [redacted] Additional capacity of FWSR(s) and the associated water mains will be required.

5.4.21 An additional FWSR capacity to serve the water demand arising from TCNTE, in order of 55,000m^3, is proposed. It is proposed that the major distribution mains from the three FWSRs are to be interconnected to enhance the reliability of the distribution system. The proposed Tung Chung No. 3 FWSR will serve the proposed TCNTE developments [redacted] The preliminary location of this proposed Tung Chung No. 3 FWSR shall be in proximity to the existing Tung Chung [redacted] FWSR, with the same invert levels to allow future operational flexibility.

Siu Ho Wan Water Treatment Works (Conforming Scheme)

5.4.22 [redacted]

5.4.23 [redacted]

Trunk Mains and Major Distribution Mains (Conforming Scheme)

5.4.24 The existing trunk main FW-T1 (DN1600) from SHWWTW shall give a maximum flow velocity of 1.64 m/s. This velocity is [redacted] acceptable. No major upgrading would be envisaged at this stage.

5.4.25 The existing trunk main FW-T2 (DN1200) from SHWWTW to Tung

Chung and Discovery Bay shall give a maximum flow velocity of 2.30 m/s. This velocity is [redacted] acceptable. No major upgrading is envisaged at this stage.

5.4.26 In serving proposed TCE and TCW [redacted] the existing trunk main FW-T3 (DN1000) from SHWWTW (after branching off to Discovery Bay) to Tung Chung FWSR would give a maximum flow velocity of 2.99 m/s. While trunk main FW-T3 can serve TCW and TCE developments at Year 2023 it needs to be upgraded by Year 2029 to serve the total population intake from TNCTE [redacted] Likewise, as the existing DN1000 trunk main is a crucial element in supporting the whole Tung Chung fresh water supply and the maximum flow velocity is just merely below the maximum allowable velocity of 3 m/s, the provision of an additional trunk main between Siu Ho Wan Water Treatment Works (SHWWTW) and proposed FWSR may be considered to further improve the reliability.

5.4.27 To minimize disruption and impact on the existing and planned distribution systems, it is proposed to construct a designated distribution main FW-D3 (DN1200) from Tung Chung No.3 FWSR to proposed TCE and TCW developments. However the proposed outlet main FW-D3 will be connected to the outlet mains of Tung Chung [redacted] FWSR distribution mains (FW-D1 and FW-D2) to form an inter-connected distribution system. No adverse impact and modification on the above existing major distribution system is expected as there is no interface with the existing distribution system. The FW-D3 will be branched off into two major distribution mains, i.e. FW-D4 (DN600) serving the existing Tung Chung Village and proposed TCW development while FW-D5 (DN1000) serving the proposed TCE development.

5.4.28 In addition to the above mentioned major distribution mains, branch distribution mains within the development to serve various parcels within TCE and TCW are also required.

5.4.29 The potential impacts arising from the proposed development are summarised in **Table 5.4.9** below.

Table 5.4.9 Summary of Potential Impacts on Existing Fresh Water Supply Systems

Service No.	Services	System	Potential Impact
FW-T1	Existing DN1600 Trunk Main	SHW WTW	Utilization ratio = 55%
FW-T2	Existing DN1200 Trunk Main	SHW WTW to TC FWSR & Discovery Bay	Utilization ratio = 77%
FW-T3	Existing DN1000 Trunk Main	From SHW WTW to TC FWSR (after branching off from Discovery Bay)	Utilization ratio = 100%
FW-D1	Existing DN1000, DN800, DN600 Distribution Main	From TC No.1 FWSR to Tung Chung Town	No Interface
FW-D2	Existing DN600 Distribution Main	From TC No.1 FWSR to International Airport	No Interface
FW-D3	Proposed DN1200 Distribution Main	Designated distribution main from proposed TC No.3 FWSR to TCW and TCE	Construction of DN1200 main (490 m)
FW-D4	Proposed DN600Distribution Main	Major distribution main for TCW	Construction of DN600 main (2200 m)
FW-D5	Proposed DN1000 Distribution Main	Major distribution main for TCE	Construction of DN1000 main (3800 m)
-	Proposed Distribution Main	Branch distribution mains within TCE and TCW	Construction of branch distribution mains
-	[redacted]	-	[redacted]
-	Tung Chung FWSR (No.3)	-	Construction of new FWSR with capacity of 55,000 m^3(Provided 10.8% MDD additional storage)
-	[redacted]	-	[redacted]

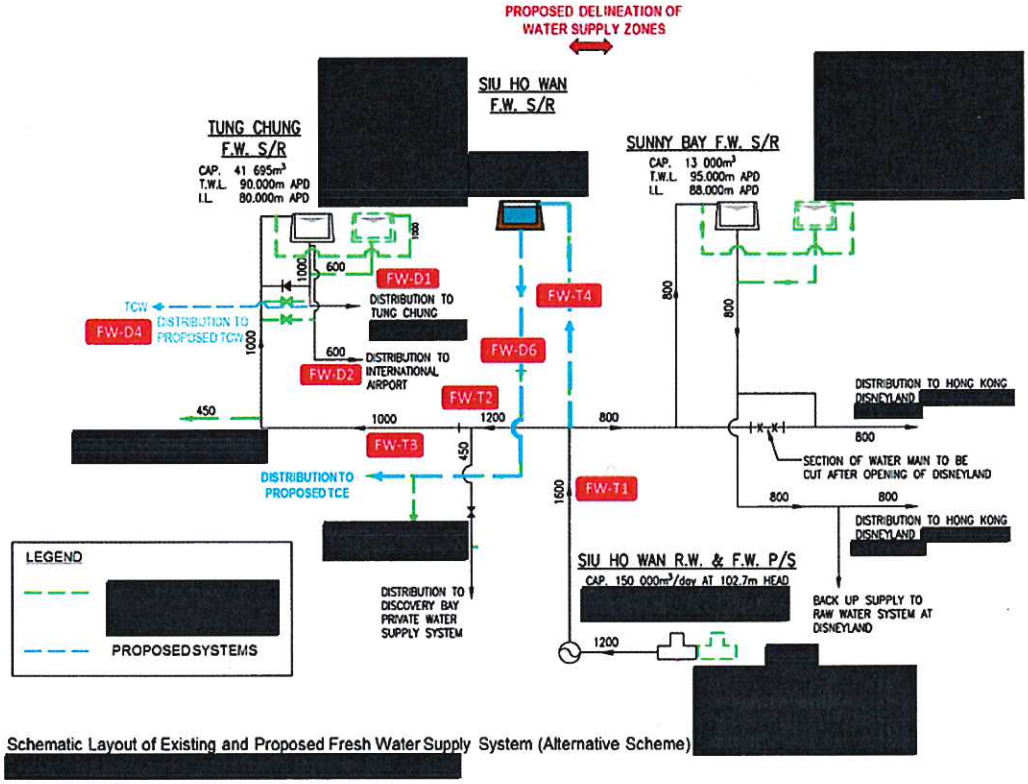
Fresh Water Service Reservoirs (Alternative Scheme)

5.4.30 Considering the latest status of interfacing projects in North Lantau area [redacted] an alternative scheme may be considered to relieve the impact on the existing trunk main and to enhance reliability of the fresh water supply in the North Lantau area. [redacted] However, the scheme would rely on the implementation programme and funding arrangement of different projects and shall be further investigated in the detailed design stage of the project.

5.4.31 It is proposed that TCW development will source fresh water from the TC FWSR [redacted] and associated distribution mains [redacted] The proposed SHW FWSR to cater for the Tung Chung New Town Extension is tentatively proposed to be built to a capacity required for TCE and TCW (i.e. to meet fresh water demand of 54,549 m^3 /d + 9,546 m^3 /d). The supply zone of Tung Chung [redacted] will then be shifted to include TCW and give up part of existing Tung Chung Town, while the SHW FWSR will supply TCE and the excluded part of existing Tung Chung Town. Further liaison shall be made with WSD on the proposed capacity in the detailed design stage.

5.4.32 It is proposed that TCE development will source water from SHW FWSR instead of TC No.3 FWSR. [redacted]

5.4.33 The schematic diagram of proposed fresh water supply system within SHWWTW supply zone is shown in **Figure 5.4.3** and the proposed delineation of SHWWTW water supply zones for existing, planned and proposed developments are tabulated in the **Table 5.4.10** below. The total estimated water demand for fresh water service reservoirs is summarized in the **Table 5.4.11** below.



Schematic Layout of Existing and Proposed Fresh Water Supply System (Alternative Scheme)

Figure 5.4.3 Schematic Diagram of Proposed Fresh Water Supply System in SHWWTW Supply Zone – Alternative Scheme

Table 5.4.10 Proposed Delineation of SHWWTW Fresh Water Supply Zones – Alternative Scheme

Fresh Water Service Reservoir	Existing Supply Zone	Proposed Supply Area / Development
Sunny Bay Fresh Water (FW) Service Reservoir (SR)	• Disneyland	• Disneyland
Siu Ho Wan FW PS - Direct Feed	• Discovery Bay • Tai Ho	• Discovery Bay • Tai Ho
	-	•
Proposed Siu Ho Wan FWSR	-	• Proposed TCE Development • Tung Chung Town Portion
Tung Chung No.1 FWSR	• Tung Chung Town • Nong Ping • Airport	• Tung Chung Town Remaining Portion • Ngong Ping • Airport

		• [redacted] • [redacted] • Proposed TCW Development

*Text in half-tone: Same as Conforming Scheme

Table 5.4.11 Total Fresh Water Demand in Ultimate within SHWWTW Supply Zone (with Proposed TCE & TCW Development) – Alternative Scheme

Supply Zone	Fresh Water Demand (m^3/d)	TMF Demand (m^3/d)	Total Water Demand (m^3/d)	Required Capacity (1) (m^3)	Existing Capacity (m^3)	Planned Capacity (m^3)	Remarks
Sunny Bay FWSR [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Siu Ho Wan FW PS (Direct Feed)	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
Proposed Siu Ho Wan FWSR [redacted]	64,095	-	64,095	50,799	-	52,000	[redacted]
Tung Chung FWSR [redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]

*Text in half-tone: Same as Conforming Scheme

[redacted]

5.4.34 Under such supply scenarios, the combined capacity of the [redacted] Tung Chung [redacted] FWSR [redacted] will be adequate to serve the existing WSZ and proposed TCW development with about 16.7% MDD additional storage. In case WSD require additional storage up to

20% MDD, the proposed fresh water mains in TCE can extend to the adjacent planned developments at north of Ying Hei Road (Tung Chung Area 56, Area 89..etc) such that part of the fresh water demand arising from the planned developments would be offset by FWSRs at SHW.

5.4.35 An additional SHW FWSR [redacted] to serve the water demand arising from TCE development, in order of 52,000m^3, is proposed. The preliminary location of this proposed FWSR shall be in proximity to the existing SHW WTW. The proposed location is the shown in **Figure 5.4.4** below. The details and the respective site formation works will be further studied under detailed design stage.

5.4.36 The planned SHW FWSR and the associated site formation for the other interfacing developments should be designed and constructed by others due to the mismatch in implementation programme.

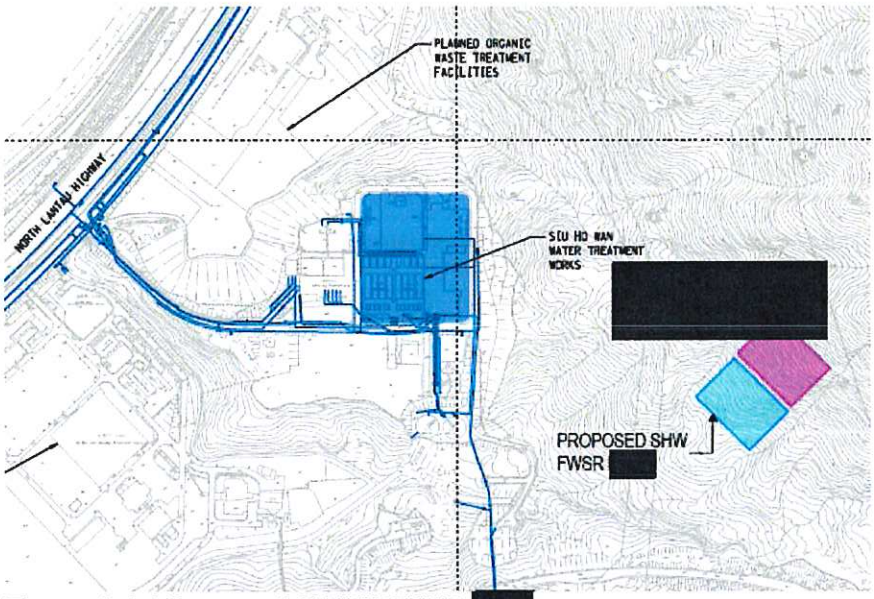


Figure 5.4.4 Proposed SHW FWSR [redacted]

Siu Ho Wan Water Treatment Works (Alternative Scheme)

5.4.37 The potential impact on SHW WTW under Alternative Scheme is the same as Conforming Scheme.

Trunk Mains and Major Distribution Mains (Alternative Scheme)

5.4.38 Fresh water will be delivered from the treated water pumping station at Siu Ho Wan Water Treatment Works via a proposed FW-T4 (DN800) trunk main to SHW FWSR [redacted]

5.4.39 Proposed FW-D6 (DN1200) is required to serve the proposed TCE development, [redacted] After branching off [redacted] the distribution main will be reduced to DN1000 size to serve the proposed TCE development and part of existing Tung Chung Town.

5.4.40 The existing FW-D1 (DN1000) from TC [redacted] FWSR have

adequate capacity to serve existing Tung Chung Town, [redacted] and proposed TCW development. No upgrading works would be envisaged at this stage.

5.4.41 Branch distribution mains FW-D4 (DN600) – extension of existing FW-D1 in Yu Tung Road is proposed to serve the existing Tung Chung Village and proposed TCW development.

Future Tung Chung Salt Water Service Reservoir and Tung Chung Salt Water Pumping Station

5.4.42 **Table 5.4.5** and **Table 5.4.6** show that the total estimated flushing water demand of Tung Chung area, including both the existing Tung Chung New Town and TCNTE, is 42,353 m^3/day (13,105 +29,249). Based on WSD's DI 1309, a SWSR storage capacity of 0.25MDD or 11,000 m^3 would be required.

5.4.43 A new SWSR is therefore proposed near the existing Tung Chung No. 1 FWSR for TCNTE salt water supply zone. The reserved SWSR and the proposed SWSR under current Study are proposed to be placed alongside each other with realignment of the existing maintenance access. The invert level of SWSR are designed at approximately +60mPD to +65mPD.

5.4.44 Under this new development scheme, an area near the shore of the proposed reclamation in Tung Chung East is allocated for the proposed SWPS as shown in **Figure 5.4.5** below. Salt water mains will be laid to connect the proposed SWPS and SWSR with the existing flushing water mains to supply salt water to the supply zone.

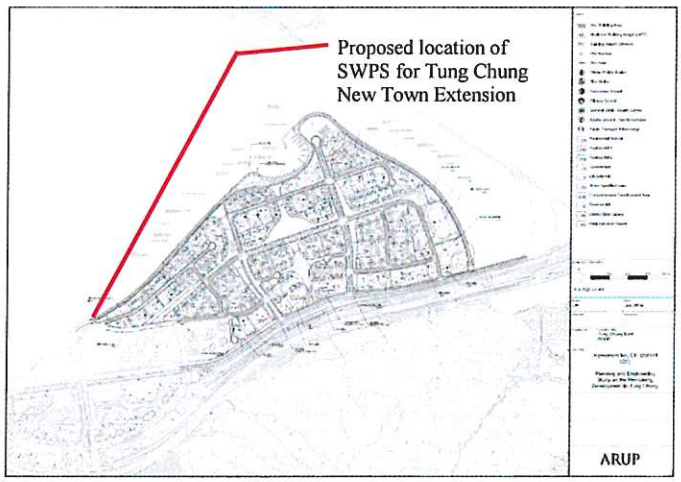


Figure 5.4.5 Proposed Location of SWPS for Tung Chung Area

5.4.45 The existing TMF (and proposed extension) trunk main SW-T1 (DN700) from Tung Chung SWPS to Tung Chung SWSR shall give maximum flow velocity of 1.63 m/s. This velocity is [redacted] acceptable. The existing SW-T2 (DN450) from Tung Chung SWPS to Tung Chung SWSR shall give maximum flow velocity of 1.40 m/s. This velocity is

[redacted] acceptable. Therefore, it is proposed to utilize the existing pre-laid TMF as the flushing water supply system.

5.4.46 It is also proposed to branch a new distribution main SW-D1 (DN300) from the existing DN450 TMF to supply salt water to TCW development and existing villages.

5.4.47 On-going liaison with WSD is maintained on the tentative schedule of implementation of the reserved SWSR for existing population in Tung Chung which could ease the planning of a holistic solution to the proposed SWSRs, while matching the implementation programme of the TCNTE.

Implementation Plans

5.4.48 The overall phasing of TCW development will be implemented in 2 phases to support the population intake from 2023 to 2030. The sequencing of freshwater and saltwater distribution main laying works within the development will follow the 2 phases of population intake respectively.

Table 5.4.12 Phasing of Population Intake at Tung Chung West

TCW Phase	Proposed Population Intake Programme	Assumed Population Intake %
Phase 1	2023	75%
Phase 2	2030	100%

5.4.49 The overall phasing of TCE development will be implemented in 4 phases to support the population intake from 2023 to 2030. The sequencing of freshwater and saltwater distribution main laying works within the development will follow the 4 phases of population intake respectively.

Table 5.4.13 Phasing of Population Intake at Tung Chung East

TCE Phase	Proposed Population Intake Programme	Assumed Population Intake %
Phase 1	Third quarter of 2023	50%
Phase 2	Fourth quarter of 2024	50%
Phase 3	Fourth quarter of 2027	75%
Phase 4	From 2029 to 2030	100%

5.4.50 The proposed TC FWSR No.3, New SWPS and SWSR are required to be completed by Year 2023 to support the TCW and TCE developments. As the proposed new trunk mains and distribution mains, are designated for the proposed developments, they are also

necessary to be commissioned by Year 2023. While trunk main FW-T3 can serve TCW and TCE developments at Year 2023, it needs to be upgraded by Year 2029 to serve the total population intake from TNCTE and other interfacing developments.

5.4.51 On-going liaison with WSD is maintained and the particulars of water infrastructure implementation is proposed and summarised in **Table 5.4.14** below. The proposed infrastructure implementation programme should be updated in detailed design stage upon the availability of updated implementation programme of interfacing projects.

Table 5.4.14 Implementation of Water Infrastructure (subject to further liaison with WSD)

Description	Implementation agent	Proposed Implementation Programme
Fresh Water		
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
Additional capacity for the proposed TC FWSR No. 3 in order of 55,000m^3	CEDD	Complete by Year third quarter of 2023
[redacted]		[redacted]
Trunk Main FW-T3 upgrading	CEDD	Complete by Year 2029
Distribution mains from new FWSRs	CEDD	Complete by third quarter of Year 2023 (For distribution mains within development site, to be installed in stages on or after Year 2023 to match with the development implementation programme)
[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]
Distribution main from SHW FWSR [redacted] (under Alternative Scheme)	CEDD	Complete by Year third quarter of 2023
Flushing Water		
Proposed SWPS – site formation	CEDD	Complete before SWPS construction

Description	Implementation agent	Proposed Implementation Programme
Proposed SWPS	Entrusted to CEDD from WSD	Complete by third quarter of Year 2023
Site formation works and service road for Proposed SWSR	CEDD	Complete before SWSR construction
Proposed SWSR (11,000 m^3)	CEDD	Complete by third quarter of Year 2023
Trunk mains and distribution mains	CEDD	Complete by third quarter of Year 2023 (For distribution mains within development site, to be installed in stages on or after Year 2023 to match with the development implementation programme)

5.5 Utilities Impact Assessment

Power Supply

5.5.1 The existing, planned and proposed power supply network is presented in **Drawing No. 219844/UT/1000.**

5.5.2 Given the spare capacity of existing Tung Chung Town 132kV Substation is only about 45MVA and the other 132kV substations are relatively far away from the new development, it is anticipated that a new 132kV bulk infeed substation is required in Tung Chung East.

5.5.3 It is proposed to reserve a land parcel for a new Tung Chung East 132kV Substation near Area 107 and next to future Road P1.

5.5.4 In phasing, the 132kV bulk infeed substation should be available at least 1 year before the target first population intake (to allow time for testing and commissioning). Utility services should be provided to the substation earlier to allow early issue of the Occupation Permit of the substation. The detailed design consultants should keep CLP updated on the programme of Tung Chung New Town Extension project and maintain close liaison with CLP such that CLP would complete the substation as planned in order to serve the 1st population intake.

5.5.5 As the assumed new population in Tung Chung West is relatively small, it is anticipated that the spare capacity in existing Tung Chung Town 132kV Substation can already support the remaining development in Tung Chung West.

5.5.6 It is proposed to extend the existing 132kV power cable on Tung Chung Waterfront Road to the proposed Tung Chung East 132kV Substation.

5.5.7 11kV power cables are proposed to run along future road network in

Tung Chung East to connect the proposed Tung Chung East 132kV Substation to future individual consumer's substation.

5.5.8 In the longer term, there is potential scope to further extend the 132kV power cable to the east along future Road P1 to connect to Siu Ho Wan area and back to the Sham Shui Kok 132kV Substation, so as to form a circulatory network. However, this highly depends on the implementation programme of future Road P1.

5.5.9 It is proposed that the power supply to Tung Chung West will be provided by the reserve capacity of the existing Tung Chung Town 132kV Substation.

5.5.10 In connection to potential development in Tung Chung Valley, the 11kV power cables will run along the existing Shun Tung Road, Chung Yan Road, Yu Tung Road and Tung Chung Road to individual consumer's substation.

Gas Supply

5.5.11 The existing, planned and proposed gas supply network is presented in **Drawing No. 219844/UT/2000.**

5.5.12 As advised by HKCG, the existing gas supply system has reserved capacity for an increase in population, subject to the scale of remaining development proposed in this Study.

5.5.13 The design capacity of Tai Ho Gas Offtake and Pigging Station is 61,000 standard cubic metre per hour.

5.5.14 It is anticipated that the existing gas offtake and pigging station can already support the remaining development in Tung Chung East and West.

5.5.15 It is proposed to extend the existing gas supply network in Tung Chung New Town to the potential development in Tung Chung East. Possible tee-off locations include the pre-laid IPA400 gas main near Tai Ho, the IPA250 gas main on Man Tung Road and the IPA400 gas main on Tung Chung Waterfront Road. & 2007.

5.5.16 Connecting these tee-off points along future Road P1 forms a circulatory gas supply network and enhances the gas supply reliability of Tung Chung.

5.5.17 It is anticipated that the future Road P1 to Tai Ho might be implemented at later stage. Gas supply will first reply on extension from the Tung Chung Waterfront Road initially. It can connect to the Tai Ho area in the long term when Road P1 is constructed.

5.5.18 It is proposed to extend the existing gas supply network in Tung Chung New Town to the potential development in Tung Chung West. Possible tee-off locations include the IPA315 gas main on Yu Tung Road and the IPA250 gas main on Chung Mun Road.

Telecommunications

5.5.19 The existing telecommunication network is shown in **Drawing Nos. 219844/UT/3001 to 3005.**

5.5.20 Record plans for telecommunication have been obtained from various telecommunication companies, including PCCW, Cable TV, NWT, HGC and HKBN. Wharf T&T, Towngas Telecommunications and TraxComm have confirmed that they have no existing telecommunication cables within the Study Area.

5.5.21 There is an existing telephone exchange on Cheung Tung Road near Fu Tung Estate. From the advice of the Office of Communications Authority (OFCA), the existing telephone exchange is currently leased to PCCW, NWT & HGC.

5.5.22 Other telecommunication companies like Wharft T&T & HKBN currently relies on individual telecommunications and broadcasting equipment (TBE) rooms in residential / commercial land parcels to distribute the communication.

5.5.23 In the existing North Lantau New Town Phase IIB Area (Part) Layout Plan (Plan No. L/I-TCIIB/1C, part of Area 40 is reserved for a future telephone exchange. However, during the course of the Study, HD suggests to relocate the proposed Telephone Exchange site at Area 40 to other parts of Tung Chung in order to increase the development intensity at Area 39 with 4 domestic blocks and requests for a replacement site to be identified under the Tung Chung Study.

5.5.24 This Study has identified a potential replacement site with a site area of about 1,000m² near Yu Tung Road. The reserved location is well accessible by existing telecommunication network and close to the centre of potential development in Tung Chung West.

5.5.25 Due to the advance in telecommunication technology, it is also reviewed that the site area requirement of telecommunication infrastructure is much reduced. TBE rooms in individual residential / commercial land parcels can support the telecommunication distribution and it might not be necessary to provide an additional site for telephone exchange in Tung Chung. Further consultation with the telecommunication service providers on their planning on future telecommunication infrastructure in Tung Chung is on-going.

5.5.26 The reserved land for telephone exchange in Tung Chung West will be released to other land use later in the project, if it is concluded that no telecommunication service providers will require the site.

5.5.27 Existing telecommunication network exists along Ying Hei Road. The network can be extended to serve Tung Chung East via the new local road network.

5.5.28 Existing telecommunication network exists along Shun Tung Road, Yu Tung Road and Tung Chung Road. The network can be extended to

serve Tung Chung West via the new local road network. Potential extension route is shown in Drawing No. 219844/UT/3018.

Highway Lighting

5.5.29 Street lightings are required along all public roads including the internal road within the new development area in Tung Chung East and West and connecting road into the development. These lights shall be powered by low voltage cable from the CLP network. The space requirements for the cables and pillar boxes are very minor and considered to be feasible to be incorporated into the proposed layout under the RODP.

5.5.30 The highway lighting will form part of the detailed design of the proposed roadwork.

5.6 Site Formation and Reclamation

5.6.1 Reclamation

General

5.6.1.1 Approximate 120.5 hectares and 8.6 hectares of reclamation (above high water mark) is proposed for the new town extension at TCE and Road P1 – Tai Ho Section respectively. Layout of the proposed reclamation is shown in **Drawing No. 219844/GEO/RN003**.

5.6.1.2 For the reclamation of TCE and Road P1, various types of seawall, reclamation and ground improvement measures have been studied. Non-dredged seawall with ground improvement works and non-dredged reclamation are proposed for the reclamation. Preliminary stability analyses for the proposed sloping and vertical seawall during the construction stage and operation stage have been carried out on selected critical sections to demonstrate the feasibility of the seawall scheme. Preliminary calculation of residual settlement is carried out on selected representative geology. It is proposed that vertical band drains shall be installed and surcharge of 6m to 8m height with a surcharge period of 6 months to 7 months are provided. Typical section of seawalls are shown in **Drawing Nos. 219844/GEO/RN021 to RN022**.

5.6.1.3 The reclamation sequence is assumed to start with installation of silt curtain, ground treatment for seawall, seawall construction, sand blanket installation, geotextile installation, marine band drain installation, reclamation filling, surcharging and surcharge removal.

5.6.1.4 Reclamation works for TCE is targeted to be handed over in phases for the housing development and necessary construction of supporting infrastructure.

Preliminary Assessment of Reclamation Settlement

5.6.1.5 Based on the available geological information to date and the assumed soil parameters, a preliminary assessment of reclamation settlement is carried out for various reclamation methods. In view of insufficient information to ascertain the soil properties and thickness of marine deposit and alluvium, the preliminary assessment is carried out in a ballpark figure approach. Detailed assessment shall be carried out in the design stage when the results of detailed ground investigation and laboratory testing are available.

5.6.1.6 Based on the available GI information, 4 representative cases have been selected for the estimation of residual settlement in TCE and Road P1. From limited GI information, the marine deposit layer are predominately clayey in nature, while the alluvium layer consist of clay, silt, sand and gravel with a high proportion of clay. In assessing the settlement for the reclamation, the full thickness of marine clay/silt is

taken into account. For alluvium layer, it is assumed that 75% of the total alluvium thickness are clay/silt which contributes to the residual settlement where the remaining are sand/gravel. This assumption shall be reviewed and updated when the detailed stage GI are available.

Table 5.6.1 – Selected Representative Cases for Estimation of Residual Settlement

Basic Information	TCE - Case 1	TCE - Case 2	TCE - Case 3	Road P1
Description	Deepest marine deposit and deepest seabed in TCE (Near northern-western edge of reclamation)	Deepest alluvium and deepest seabed in TCE (Near northern tip of reclamation)	Majority of central part of TCE reclamation	Deepest marine deposit and deepest seabed in Road P1
Seabed level (mPD)	-5.0mPD	-5.0mPD	-2.5mPD	-4mPD
Marine deposit thickness	18m	8m	12m	12m
Alluvium thickness	12m	28m	20m	20m
Alluvial clay / silt thickness (assumed as 75% total thickness)	9m	21m	15m	15m
Formation level (mPD)	+5.5mPD	+5.5mPD	+5.5mPD	+5.5mPD
Reclamation fill thickness above seabed (m)	10.5m	10.5m	8m	9.5m

5.6.1.7 Various combinations of band drain spacing and surcharge amount are considered to achieve this task. As a preliminary estimate, band drain spacing of 1.2m in triangular pattern, surcharge of 6m to 8m high and surcharge period of 6-7 months are assumed considering the constructability of the surcharge with maximum height on site.

5.6.1.8 In general, the band drains are proposed extend to 2m below the marine deposit-alluvium interface to account for the undulations in the stratigraphy. From limited borehole results, thick layer of alluvium of up to 28m with high proportion of clayey material is noted in some area. For these cases, the band drain is proposed to extend into the top part of soft alluvial clay layer to control the long-term primary consolidation of soft alluvial clay. Attention is drawn that if the alluvium consists of some interbedded hard material/ stiff strata including cobbles, gravels and stiff sand, there would be obstruction to the installation of band drains. Preboring may be required prior to band drains installation which would have time implications on the construction programme.

5.6.1.9 The estimated settlement is shown in **Table 5.6.2**. The calculated residual settlement are within 500mm. The majority of the residual

settlement are contributed by the secondary consolidation settlement of marine deposit and the primary and secondary consolidation settlement of alluvial clay. Attention is drawn that the calculated value is highly dependent on the assumed construction programme and compressibility parameters of the marine deposit and alluvial clay, and shall be reviewed in detailed design stage of project where more information are available. Adjustment on the surcharge period and surcharge height might be required.

Table 5.6.2 – Estimated Residual Settlement

Basic Information	TCE - Case 1	TCE - Case 2	TCE - Case 3	Road P1
Proposed band drain	1.2m c/c spacing down to 2m in MD-alluvium interface (Horizontal drainage in MD only)	1.2m c/c spacing down to 8m in MD-alluvium interface (Horizontal drainage in MD and top 8m of soft alluvial clay)	1.2m c/c spacing down to 2m in MD-alluvium interface (Horizontal drainage in MD only)	1.2m c/c spacing down to 2m in MD-alluvium interface (Horizontal drainage in MD only)
Proposed surcharge period	7 months	6 months	6 months	7 months
Proposed surcharge height	8m	8m	6m	8m
Estimated total settlement during construction stage	5.7m	4.9m	4.1m	4.4m
Estimated total residual settlement	0.50m	0.46m	0.49m	0.49m

Recommendations for next stage assessment of reclamation settlement

5.6.1.10 As mentioned, the above preliminary assessment is carried out in a ballpark figure approach in the absence of detailed GI information. When the result from detailed stage GI are available, the seabed, stratigraphy and parameters shall be reviewed and more representative geological profile for settlement analysis could be identified. Once the analysis has been undertaken for each individual profile, settlement (total and residual settlement) contours shall be generated for the site. Residual settlement and/or differential settlement shall then be made reference with using the contour plans.

5.6.1.11 From limited GI result currently available, the alluvium within the TCE and Road P1 area contains a high proportion of compressible clayey material which would possibly contribute to a large proportion of total residual settlement. The detailed stage GI shall target to collect data on the material properties (amount of silt/clay content, water content, excess pore pressure etc.) and over-consolidation ratio for both the marine deposit and alluvial clay/silt for the determination of thickness, drainage path and properties of the alluvial silt/clay to be adopted. The

soft compressible clay layers within alluvial deposits shall be taken into account in the consolidation calculations, while the consolidation settlement contributed by firm alluvial clay layers shall be negligible. [redacted]

5.6.1.12 The stratified nature of the alluvium layer needs particular attention and care. [redacted] Only top and bottom drainage are available, with the top being the sand fill above the marine deposits and the base being the lowest sand and gravel layer below the alluvial clay. With band drains, the tips of the drains have been assumed to provide an equivalent horizontal drainage layer at the surface of the alluvial clay.

Instrumentation

5.6.1.13 As a minimum it is expected that the performance of the proposed reclamation will be monitored by means of 'clusters' of the following instruments:

(a) surface marker to record total settlement

(b) extensometers to record settlement at distinct horizons and within certain strata

(c) vibrating wire piezometers to record water pressures in fine grained materials

(d) standpipe piezometers installed in various potential drainage layers as well as the sand fill

(e) inclinometer installed close to the seawalls to confirm stability and the lateral displacement of the upper marine clay

5.6.1.14 The choice of instrument and the planning and design of the instrumentation monitoring system can be optimised [redacted]

5.6.1.15 The instrumentation strategy will be designed ahead of reclamation in order to provide baseline pre-reclamation background movement data and groundwater levels and to allow direct analysis of the impact of the reclamation as the construction works progress. The instrumentation will comprise, as described above, piezometers, extensometers and inclinometers installed within different soil/rock layers, sub-surface and surface movement stations, as well as tilt meters located on sensitive structures and crack meters at expansion joints to monitor the differential movement and settlement/upheaval. Viable mitigation measures to mitigate against excessive movements / groundwater

losses, will be investigated and identified prior to the reclamation works such they could be readily implemented, if necessary.

5.6.2 Site formation

General

5.6.2.1 In TCW, site formation works is required for some of the proposed development. For subsidized housing and infrastructure works, the associated site formation works will be carried out by the government. These includes:

- Site formation works at Area No. 42 (TCV-6) (subsidized housing)
- Site formation works at Area No. 46 (TCV-7) (subsidized housing)
- Site formation works at proposed service reservoirs and the associated access road.

5.6.2.2 For Area No. 23 (TCW-2), the site formation works is proposed to be implemented by the future developer after land sale and design of development layout. This has the advantage over site formation works to be carried out by Government on the ground that a more cost-effective site formation works could be design to suit the development layout. Due to the extensive nature of the site formation works, it is studied under the current consultancy to demonstrate the feasibility.

5.6.2.3 The location of these sites are shown in **Drawing No. 219844/GEO/SF001** and are discussed in the following sections.

5.6.2.4 In addition, minor embankment filling will be required for the roadworks in the TCV Valley area which is coupled with the flood protection polder scheme.

5.6.2.5 As for the remaining market-driven type private residential development in TCV, any site formation works (if necessary) shall be initialized by private developer based on the building layout and detailed design at the time of development.

Rationale for Proposed Site Formation

5.6.2.6 In order to provide a flat platform for the development at these area located on sloping ground, site formation works including cut slope, fill slope and retaining wall are envisaged. Based on commonly adopted experience, the following measures are proposed:

- Soil cut slope of limited height: Where proposed cut slope are of limited height, say less than 4m, cut slope at 30° is proposed.
- Higher soil cut slope: Higher cut slope, say more than 4m, is proposed to be stabilized by soil nailing works. Based on local experience, slope angle of about 55° degree are commonly adopted

and is proposed. Where the slope height is more than 7.5m, a berm of 1.5m is proposed at mid-height in accordance with *GEO Geotechnical Manual for Slopes*. As such, an average angle of 45° is proposed for cut slope with soil nails.

- Rock cut slope: The maximum degree of rock cut slope depend on the rock joint conditions. At this preliminary stage, a slope angle of 60° with slope stabilization works is assumed in the site formation works.
- Fill slope: Where filling works is needed for limited height, e.g. less than 4m, 1(V):2(H) fill slope (i.e. approx. 26°) is proposed.
- Retaining wall: Where the level difference to be retained is large and/or space constraints limits the construction of slope works, retaining wall may be proposed to maintain the level difference between the site and the adjacent ground. For limited retaining height, mass concrete or L-shape retaining wall at-grade are envisaged. For larger retaining height, L-shape retaining wall on piles, or other types of wall, e.g. bored pile wall may be considered.

5.6.2.7 A combination of the above proposal will be applied to each of the development site where appropriate.

5.6.2.8 The proposed site formation works may be located adjacent to existing natural and man-made slopes and retaining walls. Geotechnical appraisal of all new permanent geotechnical works and all existing natural and man-made slopes and retaining walls which could affect or be affected by the proposed development and infrastructure shall be studied in detail in the detailed design stage. Further reviews on the impact to and from man-made features shall be studied.

5.6.2.9 Preliminary slope stability analyses on critical sections have been performed to demonstrate the feasibility of the proposed site formation scheme.

Site Formation Works at Area No. 42 (Area TCV-6)

5.6.2.10 The existing ground level of Area No. 42 varies from approx. +10mPD to +12mPD at the western side of the site to approx. +15mPD to +21mPD to the eastern side adjoining Tung Chung Road. A number of existing features are located adjacent to Tung Chung Road adjoining the site, including 9SE-D/F18 and 9SE-C/C96, 9SE-C/R51 and 9SE-C/FR42. 2 features are located at the other side of Tung Chung road further away from the site, including 9SE-B/C33 and 9SE-D/FR17.

5.6.2.11 The site formation level of Area No. 42 is proposed at +12.0mPD. In general, soil cutting works is required for the eastern part of the site and filling works is required for the western part. At the eastern and southern boundary, soil cut slope of up to 10m height is proposed. At the western boundary, fill slope of limited height of up to 2m is proposed to bring the fill platform level to +12.0mPD. At the northern

boundary, the site adjoins proposed Road L30 where the tentative road level is similar to the road level at approx. +11.3mPD to +12.0mPD.

5.6.2.12 The proposed site formation plan and section is shown in **Drawing Nos. 219844/GEO/SF021 to SF024**. The location of existing features is also overlay to the plans.

Site Formation Works at Area No. 46 (Area TCV-7)

5.6.2.13 The existing ground level of Area No. 46 varies from approx. +20mPD at the north-western side of the site to approx. +30mPD to +35mPD to the eastern side adjoining Tung Chung Road. Existing feature 9SE-D/F21 is located at the crest of the Area No. 46. A number of features are located at the other side of Tung Chung road further away from the site, including 9SE-D/C71, 9SE-D/ND2, 9SE-D/ND3 and 9SE-D/ND9.

5.6.2.14 The site formation level of Area No. 46 is proposed at +24.0mPD. In general, soil cutting works is required for the southern part and north-eastern part of the site and filling works is required for north-western part. At the eastern and southern boundary, soil cut slope of up to approx. 10m height is proposed. At the western boundary, fill slope of limited height of up to approx. 3m is proposed to bring the fill platform level to +24.0mPD. At the northern boundary, the site adjoins proposed modified Shek Mun Kap Road where the tentative road level varies from approx. +24.0mPD to +32.5mPD. Slope works of filling and cutting are envisaged to retain the level difference between the site and the adjacent ground assuming that the site formation works and road construction are to be carried out at difference phases. The site formation layout shall be reviewed in detailed design stage to suit construction phasing.

5.6.2.15 The proposed site formation plan and section is shown in **Drawing Nos. 219844/GEO/SF041 and SF042**. The location of existing features is also overlay to the plans.

Site Formation Works at Area No. 23 (Area TCW-2)

5.6.2.16 Area No. 23 at the western side of the proposed Town Park near Yat Tung Estate which is currently government land is proposed for private residential use. The existing ground level vary from approx. +11mPD at the western side of the site facing Tung Chung Road North and up to about +30mPD adjacent to the future Town Park. The sloping ground at the east of the site continues to about +50mPD to +75mPD.

5.6.2.17 Major site formation works is expected for development in this area and slope modification works is envisaged at the existing Government Land at the uphill area of the site where graves are present. Rock cut slopes with rock stabilization works and soil cut slopes with soil nails and berms of total height of up to approx. 50m are proposed.

5.6.2.18 Graves identified at the uphill area of the site shall be cleared for the proposed development by LandsD. [redacted]

5.6.2.19 The site formation works (excluding grave removal works) is proposed to be implemented by the future developer after land sale and design of development layout. This has the advantage over site formation works to be carried out by Government on the ground that a more cost-effective site formation works could be design to suit the development layout. Relevant conditions shall be included in the land lease.

5.6.2.20 The proposed site formation plan and section is shown in **Drawing Nos. 219844/GEO/SF002 to SF006**. The location of existing features is also overlay to the plans. Attention is drawn that the drawings for Area No. 23 is for the purpose of showing a feasible option of site formation works assuming that the whole site area is trimmed to +11.0mPD. The actual site formation layout is proposed to be designed and implemented by the private developer.

Site Formation Works at Proposed Service Reservoirs

5.6.2.21 The proposed Fresh Water Service Reservoir (FWSR) is located at the existing Feature Nos. 9SE-B/C40 and 9SE-B/CR41 and its existing ground level varies from approx. +80.0mPD at north-western side of the site to approx. +120.0 mPD at south-eastern side. The proposed Salt Water Service Reservoir (SWSR) is located at an existing Feature Nos. 9SE-B/C42 and 9SE-B/C43 and its ground level varies from approx. +65.0mPD at the north-western side of the site to approx. +70.0 mPD at the south eastern side. A number of other existing features are located northwest to the FWSR and northeast to the proposed SWSR respectively, including 9SE-B/C42, 9SE-B/F3, 9SE-B/F15, 9SE-B/F79, 9SE-B/F12, 9SE-B/F13, 9SE-B/F14, 9SE-B/C35, 9SE-B/C36, 9SE-B/C37, 9SE-B/C39.

5.6.2.22 The site formation level of proposed FWSR and SWSR are at +80.0mPD and +60.0mPD respectively. From existing ground investigation information, the rockhead level is inferred to be higher than the proposed formation level in part of the FWSR and SWSR. The site formation works for both proposed FWSR and SWSR are envisaged to include soil cutting, rock excavation and modifications of existing slopes with slope stabilisation works.

5.6.2.23 At the northern side of the proposed FWSR, the site adjoins the existing FWSR founded on similar level. At the other sides of the proposed FWSR, rock cut slopes with rock stabilization works and soil cut slopes with soil nails and berms of total height of up to approx. 30m are proposed. At the southern side, a retaining wall is proposed where space for cut slopes is limited.

5.6.2.24 For the proposed SWSR and modified access road, rock cut slopes with rock stabilization works and soil cut slopes with soil nails and berms of total height of up to approx. 25m are proposed. A retaining wall is proposed to the south of proposed SWSR where the space for cut slopes between the SWSR and modified access road is limited.

5.6.2.25 The proposed site formation plan and section is shown in **Drawing Nos. 219844/GEO/SF061 to SF067**. The location of existing features is also overlay to the plans.

5.6.3 Management of Construction and Demolition (C&D) Material

5.6.3.1 With the consideration of the latest Government's policy on maximising the use of public fill in new reclamation, public fill material shall be used in the proposed reclamation as much as possible where practicable.

5.6.3.2 In view of the tight control of fill management by the Government in recent years, quantity of fill demand and surplus required for site formation works shall be estimated, taking into consideration the proposed formation levels, the appropriateness of various sources of fill identified, the environmental, economic, land use and timing aspects to meet the final implementation programme. This will require close liaison with PFC of CEDD in the identification of fill sources, disposal sites, and use of public fill through public filling operation.

5.6.3.3 Following the latest government policy, the generation of construction and demolition (C&D) material shall be minimized, and inert material generated including rock shall be reused as far as possible. To achieve this, we shall draw up a Construction and Demolition Material Management Plan (C&DMMP) in accordance with Chapter 4 of the Project Administration Handbook and CEDD TC No. 5/2005 including any subsequent updated versions.

5.6.3.4 It is envisaged that there will be excavated C&D materials generated from the site formation works at the site areas TCV-6, TCV-7, TCW-2 and Service Reservoirs. This would generally consists of inert materials such as soil and rock which could be used as fill materials for reclamation and earth filling.

5.6.3.5 It is preliminarily proposed that the sand fill source will be from Shajiao waters (沙角仑仃水道) subject to liaison between the HKSAR government and the relevant PRC parties; public fill source will be from Fill Banks and other projects which generate substantial C&D materials; rock fill source will be from rock quarries in China or they can be replaced/ supplemented by sorted public fill if the supply matches with the construction programme; rock armour will be from quarry sites either in Hong Kong or China.

5.6.3.6 The C&DMMP is presented in separate report Construction and Demolition Material Management Plan.

5.6.4 Conclusion

5.6.4.1 For the reclamation of TCE and Road P1, various types of seawall, reclamation and ground improvement measures have been considered. Non-dredged seawall with ground improvement works and non-dredged reclamation are proposed for the development. Stability analyses for the proposed sloping and vertical seawall during the construction stage and operation stage have been carried out on selected critical sections to demonstrate the feasibility of the seawall scheme. Calculation of residual settlement is carried out on selected representative geology. It is proposed that band drains shall in general be installed within the marine deposit layer, and partially into soft alluvial clay layer in locations where the soft alluvial clay layer is very thick. It is envisaged that surcharge of 6m to 8m height with a surcharge period of 6 months to 7 months are required.

5.6.4.2 For the land-side site formation works at Area 23 (TCW-2), Area 42 (TCV-6), Area 46 (TCV-7) and the service reservoirs, the rationale for design of site formation works has been set out which includes cut slope, fill slope and retaining wall. Plans and selected critical sections are presented. Slope stability analyses on critical sections and illustrative sections were presented to demonstrate the feasibility of the proposed scheme.

5.6.4.3 Attention is drawn that the analysis on the reclamation and site formation works are based on existing limited ground investigation data. The strata information, soil parameters, final site formation level and construction programme would affect the proposed stabilization works and ground improvement works and shall be reviewed in the detailed design stage when more information are available.

5.7 Air Ventilation Assessment

5.7.1 Overview

5.7.1.1 Air Ventilation Assessment (AVA) had been conducted for Tung Chung East (TCE) and Tung Chung West (TCW) in the following stages which covered:

- Characteristics of site wind data for TCE and TCW;
- Qualitative analysis for the initial land use options of TCE and TCW;
- Quantitative analysis, in form of AVA Initial Study, on the wind performance of Draft RODP under both annual and summer wind conditions; and
- Quantitative analysis, in form of AVA Detailed Study, on the wind performance of Finalized RODP under both annual and summer wind conditions;

5.7.2 Site Wind Availability Study

5.7.2.1 Site wind availability study has been conducted in the wind tunnel laboratory with 1:4000 scale model, covering a full-scale area of around 17 km diameter centred on the proposed development site. Measurements were taken at sixteen elevations above local ground for 16 wind directions (22.5° increments) to determine the characteristic of the local wind availability at the TCE and TCW.

5.7.2.2 Directional deviations caused by the significant topographies and buildings surround each PNTEA were noted in the results of the 1:4000 scale topography study for certain approaching wind directions.

5.7.2.3 Under annual wind condition for both TCE and TCW, winds coming from the north-east quadrant account for 68.5% of all winds. The ENE wind was the annual prevailing wind which have the probability of occurrence of 20.0% under annual wind condition. Under summer wind condition, winds coming from the south-west quadrant account for 52.2% of all winds. The SW wind was the summer prevailing wind which has the probability of occurrence of 17.9% under summer wind condition.

5.7.3 Expert Evaluation

5.7.3.1 The Expert Evaluation has then been conducted to assess the wind performance of two and four development scheme options for TCW and TCE, respectively, under both annual and summer wind conditions. Recommendations, such as connecting to the existing pedestrian spine and provision of localized air path, building setback or terraced podium as reference to the HKPSG, were made to develop the draft RODP.

5.7.4 Initial Study

5.7.4.1 The wind performance of Draft RODP was assessed by using Computational Fluid Dynamics (CFD) techniques, in form of AVA Initial Study, under annual and summer wind conditions. Current AVA Technical Circular No.01/06 forms the foundation of the AVA Initial Study in which the size of CFD model of the development was approximately 8,000m (L) x 8,000m (W) x 2,700m (H). The computational domain covered both TCE and TCW to assess the accumulative impact of these two PNTEAs with sufficient consideration on surrounding buildings and topography.

5.7.4.2 In the AVA Initial Study, N, NNE, NE, ENE, E, ESE, SSW and SW were selected which give total wind frequency of 83.4% over a year under annual wind condition; while ENE, E, ESE, SSE, S, SSW, SW and WSW are selected which gives total wind frequency of 77.4% in summer months.

5.7.4.3 The Velocity Ratio (VR) was employed to assess the ventilation performance of PNTEAs and their surroundings under both annual and summer wind conditions. With reference to the AVA Technical Circular, 233 perimeter test points and 197 overall test points (with aid of another 326 special test points) were selected to assess the ventilation performance of the Developments.

5.7.4.4 Under annual wind condition, the north-eastern area of TCE enjoys the incoming wind easily. However, wind would encounter difficulties in penetrating towards the south-western area of TCE where relatively lower VR was found as highlighted in **Figure 5.7.1**. Besides, with low building density in TCW that would favour wind penetration, the wind environment is relatively better than in TCE as shown in **Figure 5.7.2**.

5.7.4.5 Moreover, the built-up area of existing Tung Chung Town at the upwind side would dominant the wind environment of TCE and incoming wind could hardly penetrate into the central area of TCE under summer wind condition. Hence, zone with lower VR was found at the central and northeast area of TCE area as shown in **Figure 5.7.3**.

5.7.4.6 For the TCW, as the building height in TCW is relatively lower, the building arrangement, such as continuity of air path, would become a predominant factor of the wind performance in TCW. Under summer wind condition, a continuous air path is provided across Site TCV-1 of Proposed Scheme that led to a higher VR along Yu Tung Road as shown in **Figure 5.7.4** while the discontinuous between eastern and western portion of TCV-5a would less likely to allow wind penetration and result in lower VR.

5.7.4.7 Hence, various recommendations, such as slight widening the wind corridor, minimizing the bending angle of wind corridors/ air paths, relocation of some low-rise podia, adjustment of the building layouts, were made to further enhance the wind performance of TCE and TCW during Final RODP formulation.

5.7.5 Detailed Study

5.7.5.1 Upon the finalized RODP, AVA Detailed Study had been conducted in the wind tunnel laboratory with two sets of proximity model at a scale of 1:800 for TCW and TCE individually. There were 222 test points for TCW and 227 test points for TCE for 16 wind directions ranging from 0° (i.e. north) to 337.5° were measured at 2m at full scale, i.e. about 2.5mm at model scale.

5.7.5.2 The wind performance of Finalized RODP was compared to the Draft RODP under both annual and summer wind condition. The site spatial average velocity ratio (SVR) and local spatial average velocity ratio (LVR) were then determined under annual and summer condition for both schemes as below.

TCW				
	Annual		Summer	
	Draft RODP	Final RODP	Draft RODP	Final RODP
SVR	0.20	0.21	0.19	0.19
LVR	0.20	0.20	0.19	0.19

TCE				
	Annual		Summer	
	Draft RODP	Final RODP	Draft RODP	Final RODP
SVR	0.31	0.31	0.30	0.29
LVR	0.29	0.29	0.27	0.27

5.7.5.3 The results showed that Draft RODP and Finalized RODP had difference of less than 5% in term of SVR and LVR. The wind enhancement features adopted in Finalized RODP would have enhanced the local ventilation performance in most of TCW area and few areas in TCE. Few building designs were recommended in some individual land lots for enhancing the wind permeability.

5.7.5.4 For the surrounding areas of TCE and TCW, the wind performance was found to be similar with difference of $\pm$ 0.01 under both annual and summer wind conditions. It is due to the wind environment of the surrounding areas is also affected by the dense existing developments in Tung Chung Town. Therefore, the Finalised RODP would not have major adverse ventilation impact to their surroundings under both annual and summer wind conditions.

5.8 Traffic and Transport Impact Assessment

5.8.1 Introduction

5.8.1.1 This assessment provides a traffic and transport impact assessment of the proposed developments at TCE and TCW under the latest RODP for the existing and planned transport system. A two-tier transport modelling approach is adopted. A strategic transport model is developed to provide quantitative input for highway capacity analysis of the major highway corridors, whereas local transport models are developed to support the local network and junction design. The details are provided in the sections below.

5.8.2 Traffic Modelling and Forecasting Methodology

5.8.2.1 The two-tier transport model comprises of the upper-tier transport model (TM) and local area traffic model (LATM). TM takes into account of demographic, socio-economic and infrastructure assumptions in estimating traffic and transport demand on major traffic corridor and strategic highway at Tung Chung and North Lantau. It also estimates public transport demand on major facilities. LATM incorporates local road and junction characteristics in the forecast. It could provide more refined traffic volumes on local roads as well as the key junction turning movements. The compatibility between the 2 tiers is ensured by the control of the external trip ends, which are essentially the link flows of LL and TM-CLKL obtained from the TM. In other words, the LATM is consistent with the TM in terms of the socio-economic, transport infrastructure, road network, planning data and all relevant transport policy assumptions.

5.8.2.2 The 2011-based Territorial Population and Employment Data Matrices (TPEDM) was adopted in this Study. The planning assumptions in North Lantau, however, were updated with more latest information as provided by PlanD and other relevant authorities. The model has also incorporated various planning assumptions including airport passenger forecast and cargo projection, port throughput forecast, GDP assumptions, car fleet size assumptions, as well as infrastructure assumptions including major highway and railway projects for different design years. Traffic forecast for design years 2021, 2026, 2031 and 2036 was developed with the aids of TM and LATM.

5.8.2.3 Apart from the highway infrastructure and railway project, the infrastructure and internal road network associated with the developments at TCE and TCW have also been incorporated into the transport model for different design years, according to the proposed implementation program.

5.8.2.4 The operational performances of associated key road links and junctions within TCE and TCW and the vicinity were assessed for future design years up to 2036. **Figure 5.8.1** and **Figure 5.8.2** show the

location plan of external road links and junctions for assessment. **Figure 5.8.3** and **Figure 5.8.4** show the internal road links for assessment in TCE and TCW respectively while **Figure 5.8.5** and **Figure 5.8.6** show the corresponding internal junctions for assessment.

5.8.3 Vehicular Strategies

5.8.3.1 Most of the roads connecting with and within the proposed TCE and TCW developments are new roads. The design of the new roads should be able to cater for the newly generated traffic demand of the proposed TCE and TCW developments. Specifically, the following guiding principles on transport and land use planning are set:

- To foster a more sustainable transport system which is highly responsive to the opportunities of the future highway and transport infrastructure and to the traffic constrains of local road network;
- To adopt an integrated approach to land use and transportation which maximizes the efficiency and effectiveness of the new road and transport infrastructure, creating an efficient, sustainable and vibrant development area for people to live, work and play in;
- To encourage the use of public transport including promotion of the use of rail modes or other green modes of transport;
- To integrate with a comprehensive cycling and pedestrian network to minimise the reliance on road-based transport.

5.8.3.2 A new dual-2 carriageway named Road P1 will form the chief access road of TCE development for the connection with external road network. It will serve as the primary east-west connection to NLH through Tung Chung Eastern Interchange to the west and the proposed THI to the east. The arrangement of vehicular access of TCE development is illustrated in **Figure 5.8.7.**

5.8.3.3 TCW development can be divided into the eastern portion and western portion. The eastern portion includes the developments around Yat Tung Estate while the western portion includes those adjacent to the Tung Chung Stream. Regarding the eastern portion of TCW development, the land parcel adjacent to Tung Chung Road North would rely on the widened Tung Chung Road North for vehicular access, while the land parcel at the west of Yat Tung Estate would involve the construction of internal road and the formation of a new left-in-left-out vehicular access on Yu Tung Road. The vehicular stream from both portions would then join at Yu Tung Road and connect to the external road network through NLH. The western portion of TCW development has 3 vehicular accesses. The major access is Yu Tung Road with single-4 lane configuration while the other 2 are local distributors L31 and Shek Mun Kap Road which would eventually join to Yu Tung Road and connect further to NLH via Tung Chung Eastern Interchange. The arrangement of vehicular accesses of TCW development is demonstrated in **Figure 5.8.8.**

5.8.3.4 Private car, light goods vans and motorcycle parking spaces and loading/unloading bays will be provided inside the proposed development. The proposed parking and servicing requirements for the TCE and TCW is based on the standards stipulated in HKPSG.

5.8.4 Pedestrian Strategies

5.8.4.1 In the design of footpath, a three-zone concept is adopted. The through zone is the clear width for pedestrian flow and its width is determined according to the nearby planned zoning. The building frontage zone provides area adjacent to the building frontages. The street furniture and the greening zone provide space for tree planting, lighting and possible cycle parking space. In order to promote the green environment, a 3m width is reserved for large tree planting in the urban area while a narrower 2m width is allowed in rural environment. There is also planning flexibility that the 3m amenity strip can be converted to parking strip / lay-bys / space for noise barrier, etc, to suit local traffic / environmental needs. Cycle track is added between the roadside amenity and the footpath when appropriate. The typical widths of the footpath, cycle track and roadside amenity of different street types in TCE and TCW is summarized in **Table 5.1.1**. The below gives the typical widths for RODP formulation. During the layout plan formulation, the widths at junctions / bus lay-bys shall be locally adjusted as necessary. The overall schematic walkway network in Tung Chung including those proposed in TCE and TCW is shown in **Figure 5.8.9**.

Table 5.1.1 Street Type in TCE and TCW

Type	Footpath[1]	Cycle Track[2]	Roadside Amenity / Parking Strip / Lay-by / Noise Barrier
Tung Chung East (Residential Zone 1)	4.0m (3.5m through zone + 0.5m frontage)	4.0m	3.0m
Tung Chung East (Residential Zone 2)	3.25m (2.75m through zone + 0.5m frontage)	4.0m	3.0m
Tung Chung Wet (Residential Zone 1)	4.0m (3.5m through zone + 0.5m frontage)	4.0m	2.0m (locally widened for lay-by when necessary)
Tung Chung West (Residential Zone 3)	2.5m (2.0m through zone + 0.5m frontage)	4.0m	2.0m (locally widened for lay-by when necessary)
Promenade (in TCE)	6.0m	4.0m	
River Walk (in TCW)	4.0m	4.0m	2.0m
Road P1	4.5m + 3.5m verge for trunk utility	4.0m	3.0m

Remarks:

(1)Footpath refers to the through zone plus the building frontage zone

(2) Cycle track is added between the footpath and the roadside amenity according to the cycle track network design

5.8.5 Cycling Strategies

5.8.5.1 The basic principles considered in formulating the cycling network include "connectivity", "safety", and "sufficient and safe cycle parking provision". It is recommended to generally provide two-way cycle track in the new development area. The design parameters including cycle track width, separation from carriageways, gradients and horizontal radii are referenced to the HKPSG and TPDM requirements. Standard 2-way cycle track is 4m wide. In order to have a balance between cycle track connectivity and valuable land resources, it is proposed that cycle track will only be put on one side of the carriageway. Cycle track is also proposed along the promenade for leisure purpose. The overall cycle track network in Tung Chung including those proposed in TCE and TCE is shown in **Figure 5.8.10**. Sufficient cycle parking space will be provided at residential developments and rail stations according to the HKPSG standards.

5.8.6 Public Transport Provision

5.8.6.1 The projected public transport demand of TCE and TCW indicated that the public transport (rail + bus) share can reach around 80%, which is comparable to that of the existing Tung Chung Town [redacted]

5.8.6.2 In line with the government transport strategy and in view of the expected public transport demand induced by the proposed TCE and TCW developments, there is a potential need for the extension of Tung Chung Line to TCW and additional stations at both TCE and TCW to improve the connectivity between Tung Chung and the urban areas.

5.8.6.3 The proposed Tung Chung East station would be located to the north of NLH and to the south of Ying Hei Road. It is estimated that approximately 55,000 to 65,000 residents from the proposed new town expansion would be benefited by the station. Furthermore, the walking distance between the existing north eastern portion of Caribbean Coast and Tung Chung Station would be shortened by approximately 100m compared with the provision of Tung Chung East station.

5.8.6.4 The proposed Tung Chung West Station would be located to the southwest of the existing Yat Tung Estate. It is estimated that a minimum of 70 thousand residents from the existing Yat Tung Estate, proposed public rental housing at Area 39 as well as the proposed development at Tung Chung West new town expansion. The walking distance from Yat Tung Estate to the nearest rail station would be

reduced by approximately 1km compared with the existing Tung Chung Station. With reference to the current operation [redacted] the travel time from Yat Tung Estate to Tung Chung Station would be 10 mins on North Lantau Bus No. 38, while the walking time from the most north-eastern end of Yat Tung Estate to the proposed Tung Chung West station would be reduced to approximately 8 mins.

5.8.6.5 [redacted]

5.8.6.6 Apart from rail-based public transport provision, road-based public transport plays another important role for carrying passengers between the proposed developments and outer areas. Introduction of PTI is therefore necessary to accommodate for such provisions.

5.8.6.7 In TCE, there are 3 PTIs proposed while one is located at the centre of the development and next to the planned TCE rail station with the other two located next to Road L4 and Road L6. It is expected the residents would rely on rail as the major transport mode. [redacted]

5.8.6.8 In TCW, there are 2 PTIs proposed. One is located at the edge of the development and next to the planned TCW rail station and the other is an on-street bus terminus located along Shek Mun Kap Road. It is expected that majority of the residents would rely on the road-based public transport services, either as the ultimate mode of transport bringing them to their final destinations or just as feeder service. Hence, sufficient road-based public transport facilities would have to be provided to serve the development needs. As PTI next to the planned TCW rail station is located at a commercial site and the development programme is determined by private developers, a fall back PTI option in form of roadside layby along Yu Tung Road is developed to meet the transport need of TCW in the event that the TCW rail station PTI is not yet available. The locations of the proposed PTIs are shown in **Figure 5.8.11.**

5.8.7 Highway Infrastructure Study – Road P1 Tai Ho Section and Tai Ho Interchange

5.8.7.1 In the strategic context, the Road P1 will serve as a primary distributor

parallel to the NLH and connects the districts of Tung Chung, Siu Ho Wan and Sunny Bay. The Road P1 configuration, routing and interchange arrangement is hence strategically related to the planning of the whole North Lantau. In the local context, as identified by the traffic analysis in the TIA report, the Road P1 Tai Ho Section connecting existing Ying Hei Road to the proposed THI will be a major external highway connection for TCE. The Road P1 Tai Ho section has the below key functions:

- To relieve the future traffic over-capacity of Tung Chung East Interchange;
- To divert the air and noise impact of through traffic away from the existing Tung Chung town centre;
- To serve as an alternative access to Tung Chung East in case of traffic accidents in Tung Chung East Interchange and Yi Tung Road.

5.8.7.2 7 options of Road P1 Tai Ho Section have been formulated with due consideration of connectivity and need for reclamation. The reclamation option with provision of additional roundabout for all traffic movements on Road P1 is recommended as the conforming option for further study based on the best available information at this moment. The recommendation is assuming a provision for future Road P1 extension to the Siu Ho Wan direction. This is consistent with the TIA assumption.

5.8.7.3 In the strategic context, the Road P1 will serve as a primary distributor parallel to the NLH and connects the districts of Tung Chung, Siu Ho Wan and Sunny Bay. The Road P1 configuration, routing and interchange arrangement is hence strategically related to the planning of the whole North Lantau. In the local context, as identified by the traffic analysis in the TIA report, the Road P1 Tai Ho Section connecting existing Ying Hei Road to the proposed THI will be a major external highway connection for TCE. [redacted]

5.8.7.4 [redacted]

5.8.7.5 Under the changed planning context, it is reviewed that the THI should make good use of the existing box structure across the Airport Railway Link and TCL. The carriageway is rearranged above the existing structure, and hence will minimise the construction difficulty, reduce

the cost and minimise the risk to railway operation during the construction. Two layouts have been explored. The layout option with 3-lane circulatory carriageway which provided larger reserved capacity for future development in the Siu Ho Wan area whilst also fulfils the traffic needs of proposed development at TCE was selected as recommended option for future study.

5.8.8 Traffic Impact Assessment

5.8.8.1 As mentioned in the above sections, road links and junctions were selected for assessment to study for relevant traffic impact induced by developments at TCE and TCW. In base year, the assessment results indicate that all the assessed external road links and junctions are currently operating at satisfactory level under design capacity.

5.8.8.2 In future, apart from the implementation of developments at TCE and TCW, there will be various infrastructure in vicinity will take place [redacted] The future years' traffic impact has been assessed based on the model forecast. The results indicated the internal road network will operate with ample capacity in the assessed design years. For the external road network, LL is identified to operate slightly over the manageable degree of congestion with a V/C ratio greater than 1.2. The forecast [redacted] indicated that additional strategic road link is required to cater for the traffic demand incurred by North Lantau long term development. In this regard, further study is required to be conducted by relevant authorities in order to investigate the feasibility of potential alignment options, [redacted] The junction Yu Tung Road / Chung Yan Road will fail to operate with existing layout. Nonetheless, with the proposed additional eastbound traffic lane along Yu Tung Road, the potential capacity problem induced by the proposed developments in the Study area will be suitably alleviated.

5.8.9 Proposed Road, Walkway and Cycle Track Network

5.8.9.1 The road networks include existing major strategic trunk road – North Lantau Highway connecting TCE and TCW to the main urban areas of Hong Kong. A section of the future Road P1 connecting TCE and North Lantau Highway at the future Tai Ho Interchange is proposed to serve as an additional transport link. Schematic road network in Tung Chung is shown in **Drawing No. 219844/HY/0001**. Layout of the proposed Road P1 Tai Ho Section is shown in **Drawing No. 219844/HY/2000**. Local road networks in TCE and TCW are shown in **Drawing No. 219844/HY/3000 & 4000** respectively.

5.8.9.2 Walking and cycling are encouraged in the development area. Footpaths and cycle track networks are proposed as shown in **Drawing Nos. 219844/HY/0002 & 0003** respectively.

5.8.10 Findings

5.8.10.1 Based on the traffic analysis, the proposed development at TCE and TCW will have manageable traffic impact on the road network while appropriate improvement measures have been proposed as necessary. The conclusion therefore is that the proposed development is acceptable from the traffic point of view.

5.9 Marine Impact Assessment

Introduction

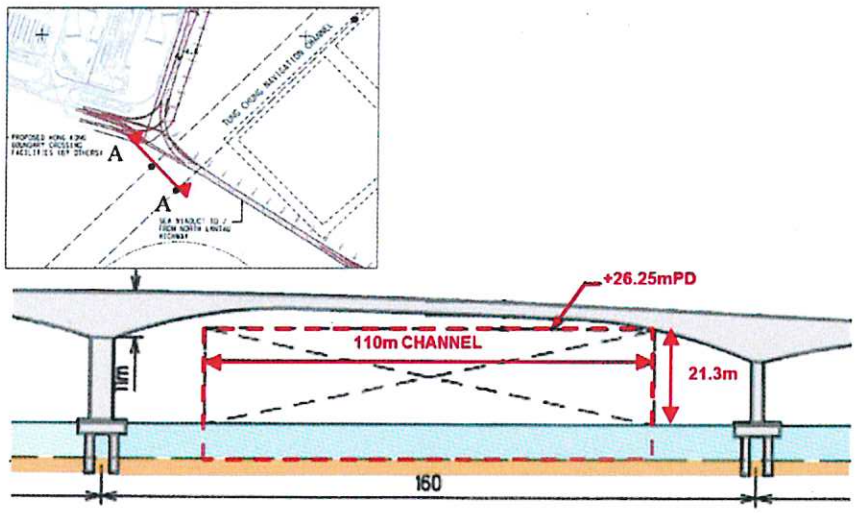
5.9.1 The objectives of the marine impact assessment is to provide an engineering assessment of the marine traffic impacts due to the proposed development during construction and operation stages.

Operation Phase

5.9.2 After completion of the reclamation, the edge of Tung Chung East Reclamation will align with Tung Chung Channel. The Tung Chung Channel will remain largely at 200m after the completion of the Tung Chung East Reclamation, the channel is considered to be sufficiently wide enough for navigation based on the channel width design assessment.

5.9.3 The seawall copeline is offset from the Tung Chung Channel and does not encroach upon the channel. If sloping seawall is adopted, the toe of the seawall might slightly encroach upon the 200m wide channel, depending on the design of the sloping seawall. Nonetheless, the seawall gradients are subject to detailed design, and vertical seawalls or steeper sloping seawalls could be considered at certain locations to avoid encroaching upon the channel.

5.9.4 Entry of high air-draft vessels into the Tung Chung Channel is restricted due to the bridge clearances imposed by the Tuen Mun-Chek Lap Kok Link (TMCLKL) Southern Connection viaduct (21.3m) and Tung Chung Bridge (8m). The 110m-wide navigation channel below the Tuen Mun-Chek Lap Kok Link Southern Connection is shown in **Figure 5.9.1.** The height restrictions will limit the size of pleasure crafts and yachts entering the proposed marina in Tung Chung East Reclamation.



Section A-A

Figure 5.9.1 Navigation Channel below TMCLKL southern Connection viaduct

5.9.5 A marina is proposed at the northern part of Tung Chung East Reclamation. The existing guiding buoys "TC4" and "TC6" are located along the edge of the reclamation, and TC4 is located at the entry/exit point of the proposed Tung Chung Marina. It is recommended to remove both TC4 and TC6 as the boundary of the channel could be delineated by the reclamation edge. Nevertheless, it is recommended to adopt steeper or vertical seawall in the detailed design to maintain 200m width navigation channel during operation stage.

Proposed Tung Chung Marina

5.9.6 The proposed marina is situated at the north of the reclamation site, which occupies a waterspace area of about 2 ha. Preliminarily, the marina can accommodate 95 wet berths for pleasure boats.

5.9.7 The nearest marina to this location is Gold Coast Yacht and Country Club Marina. Based on survey, Pui O Wan and Tai Long Wan at Lantau Island, Lamma Island and South of Hong Kong Island are popular locations at Hong Kong for pleasure boats. The travelling routes of the pleasure boats are assumed via Tung Chung Channel to these locations.

Re-provisioning of Pak Mong Pier

5.9.8 During reclamation, the existing Pak Mong Pier will be disused. A new landing on a vertical seawall in the vicinity of the pier will be constructed to re-provision the pier.

Construction Phase

5.9.9 Marine construction vessels, including derrick barges and pelican barges will be responsible for the major transportations of fill materials. The peak marine construction traffic volume is estimated to be 56 round trips in total.

5.9.10 A works space beyond the proposed seawall copeline will be required for construction vessels undertaking the ground treatment works and construction of the seawall. This will be on or within the gazetted boundary as shown in green on **Figure 5.9.2**, which is 150m from the seawall copeline. During construction, the construction works will deploy anchors to hold the vessels in position. The length of anchor lines depends on water depths, and the proposed 150m will be sufficient for deployment of anchors. This distance of 150m may need to be reduced locally where space is restricted.

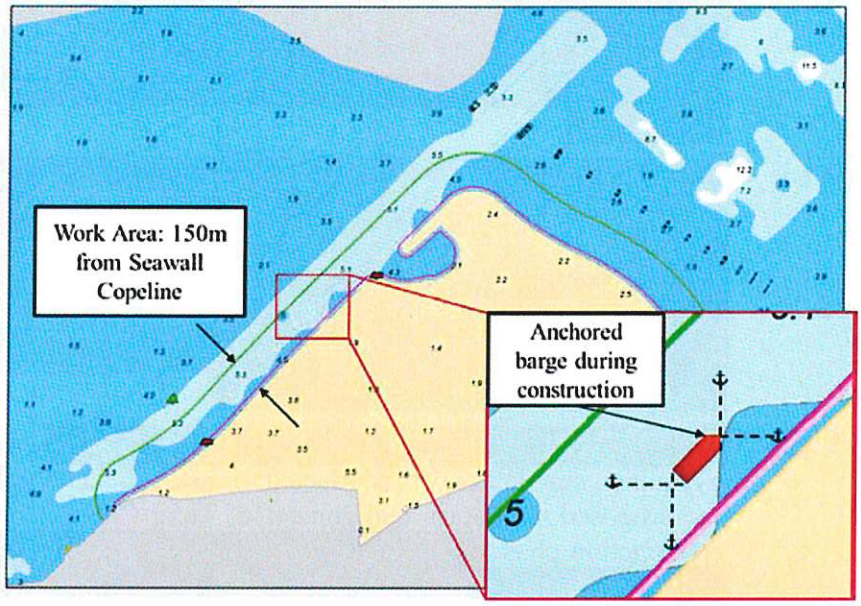


Figure 5.9.2 Reclamation Works Area

5.9.11 During construction, the section of Tung Chung Channel southwest of TM-CLKL is proposed to be re-aligned by about 150m temporarily to the northwest as shown in **Figure 5.9.3.**

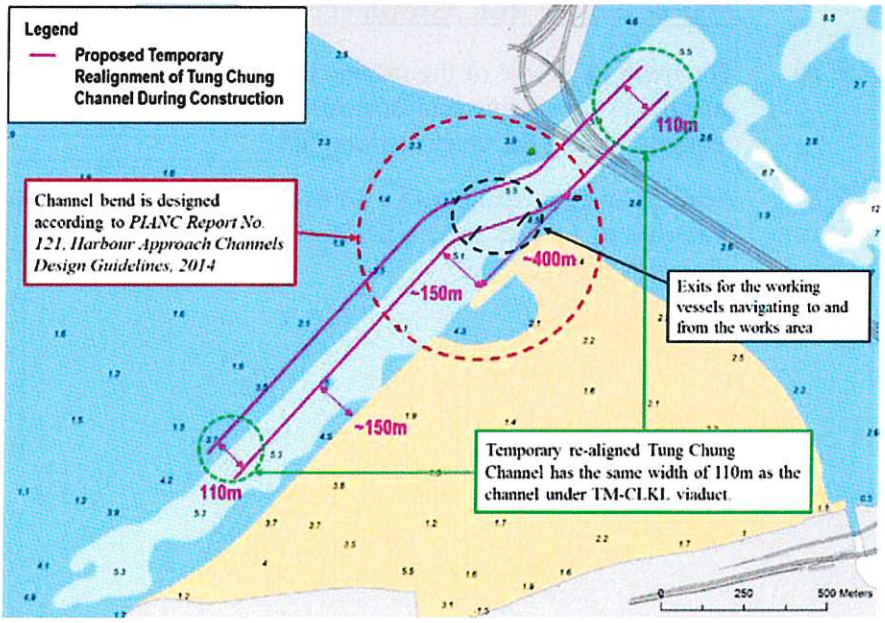


Figure 5.9.3 Proposed Temporary Realignment of Tung Chung Channel

5.9.12 The southeast boundary of the temporary re-aligned channel will be offset 150m from the existing boundary, and the temporary Tung Chung Channel will be 110m wide same as the navigable width under TM-CLKL.

5.9.13 [redacted]

[redacted]

5.9.14 [redacted]

5.9.15 [redacted] a full bridge navigation simulation was conducted to assess the navigation safety of the proposed temporary realignment of Tung Chung Channel during construction phase. [redacted] Nevertheless, further simulation will be required in the next stage of the Study to assess the navigation safety of the construction vessels travelling along the Channel to and out of the construction site and the operation stage for the traffic at the junction of the proposed marina with Tung Chung Channel.

Marine Traffic Risk Assessment

5.9.16 The main objective of the marine traffic risk assessment is to review if the risk is acceptable and determine whether mitigation measures are required during the construction phase.

5.9.17 Arup in-house marine traffic model is used to model the marine traffic pattern and predict the collision risk within the MIA Study Area as shown in **Figure 5.9.4.**

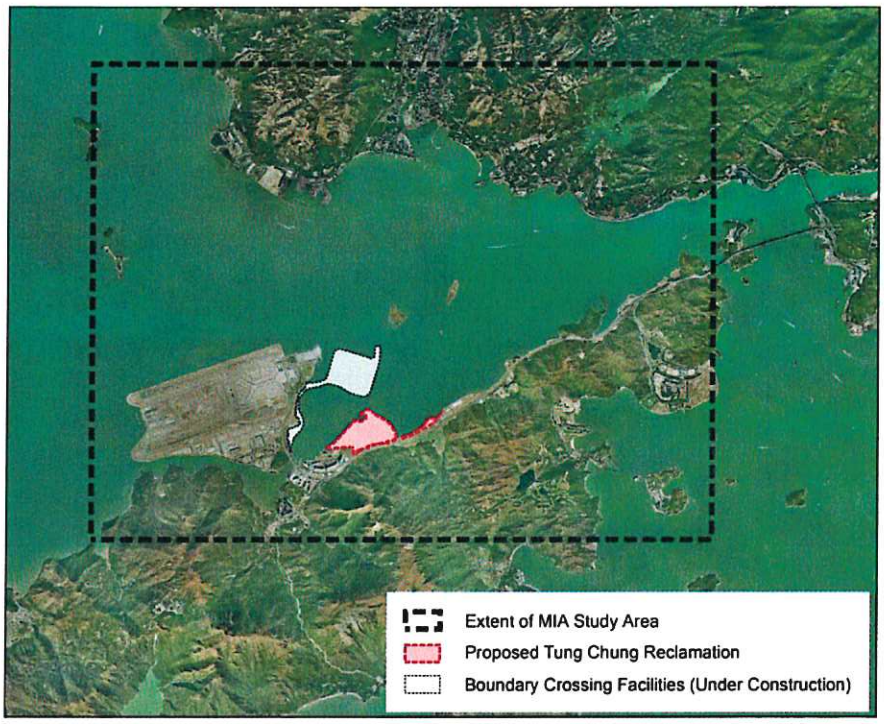


Figure 5.9.4 Extent of MIA Study Area

5.9.18 During construction, vessels will be used to transport fill materials to the site. According to the current construction programme, the peak traffic volume is estimated to be 56 round trips in total. These construction traffic volumes are adopted in the marine traffic risk assessment.

5.9.19 The marine traffic model shows that by considering the increase of background marine volume and the peak traffic volume generated by the construction vessel, the increase in collision event is 2.6 per year.

5.9.20 There are approximately 0.42 million people transit the Study Area per month, which is about 5 million people per year. [redacted] In addition, it is assumed that each construction vessel will make two round trips per day and will be attended by 5 members. The construction vessels are assumed to work 365 days a year.

5.9.21 With the annual average fatality rate and the population listed above, Potential Loss of Life (PLL) of collision of vessels within the Study Area is in the order of $1x10^{-7}$, which falls into the acceptable level[12].

[12] IMO (2007). Guidelines for Formal Safety Assessment (FSA) (MSC 83/INF.2)

5.10 Geotechnical and Natural Terrain Hazard Assessment

5.10.1 Introduction

5.10.1.1 The geotechnical assessment aims to identify all potentially significant ground engineering problems, assess the extent and significance of landslide hazards on natural terrain and man-made slopes associated with the proposed works, recommend options to mitigate the risk and recommend solutions. Recommendations for additional ground investigation required in detailed design stage are also given in this assessment.

5.10.2 Published Geology

5.10.2.1 The following sources of published geological information have been consulted as part of this study:

- The 1:20,000 Hong Kong Geological Map of the area, together with Geological Survey Memoir No. 6 Geology of Lantau District (Langford, et al, 1995)
- Hong Kong Geological Survey Sheet Report No. 6 Geology of Tung Chung and Northshore Lantau Island (Sewell and Kirk, 2002)
- Pre-Quaternary Geology of Hong Kong (Sewell et al, 2000)
- The Quaternary Geology of Hong Kong (Fyfe et al, 2000)
- Hong Kong Geological Survey Sheet Report Number 2 – Geology of Chek Lap Kok
- GEO Technical Guidance note No. 12, 2004 – The Designated Area North of Lantau
- GEO Technical Guidance Note No. 26, 2005 – Supplementary Guidance for Foundation Design in Areas Underlain by Marble and Marble-bearing Rocks.
- GEO Report No. 138: Guidelines for Natural Terrain Hazard Studies GEO Technical Guidance Note No. 36 (TGN 36) Guidelines on Enhanced Approach to Natural Terrain Hazard Studies (2013)

5.10.3 Superficial Geology

Tung Chung West

5.10.3.1 The onshore superficial deposits beneath Tung Chung West typically consist of alluvial deposits throughout the central southern portion of the proposed site, with Quaternary debris flow deposits consisting of deposits of sand, gravel, cobbles, and boulders in a clay/silt/sand matrix are indicated adjacent to the boundaries of the southern portion of the proposed site, which are likely to be interdigitated with the alluvial deposits of silts and sand. Towards the northern portion of the proposed site the superficial deposits are indicated to consist primarily of

Quaternary beach deposits of sand with local areas of marine deposits consisting of marine clay silt and sand in the northern central and adjacent to the northwest boundary. The elevation of the northeastern portion of the proposed site rises towards the northeast from coastal to natural hillslopes, and as a result the superficial deposits vary accordingly. Towards the northeast the superficial deposits are indicated as being beach deposits of sand, adjacent to alluvial deposits of silt, sand and gravels. Moving further towards the northeast boundary debris flow deposits of sand, gravel, cobbles, and boulders in a clay/silt/sand matrix are also expected from the adjacent natural hillslopes (Sewell and Kirk, 2002).

Service Reservoirs

5.10.3.2 The superficial deposits beneath the Service Reservoir typically consist of Quaternary debris flow deposits consisting of deposits of sand, gravel, cobbles, and boulders in a clay/silt/sand matrix are indicated adjacent to the drainage line passing through the area. Where debris flow deposits are not indicated it can be assumed that colluvial deposits are either absent, localised, or of very minimal thickness

Tung Chung East and Road P1

5.10.3.3 The onshore superficial deposits adjacent to the Tung Chung East and Road P1 area typically consist of reclamation fill, underlain by alluvial deposits. In closer proximity to the natural terrain located to the south, colluvial deposits of sand, gravel, cobbles, and boulders in a clay/silt/sand matrix are also expected. In the region of Tai Ho Wan, Quaternary beach deposits have also been identified (Sewell and Kirk, 2002).

5.10.3.4 The superficial deposits in the offshore area surrounding the proposed site typically vary between 10m and 150m in thickness (Sewell and Kirk, 2002), and consist of marine deposits of clay, silt and sand; overlying alluvial deposits of clay, silt, sand, and gravel. It has been noted that thicker superficial deposits, which may include siltstone boulders, often correspond with zones of particularly deep weathering associated with meta-sedimentary rocks and cavities (GEO, 2004).

5.10.4 Solid Geology

Tung Chung West

5.10.4.1 In the area for Tung Chung West, the southern portion of the proposed site Rhyolite and Tuff are indicated as being close to the surface at the boundaries of the site, suggesting their likely presence beneath the debris flow deposits and alluvial deposits. Towards the northern portion of the proposed site feldsparphyric rhyolite is indicated beneath the hillslopes at the northeastern boundary adjacent to medium grained granite (Sewell and Kirk, 2002).

Service Reservoirs

5.10.4.2 In the area of the Service Reservoir, tuff is indicated as being close to the surface, with superficial deposits only being indicated locally. It can be expected that several metres of completely and highly decomposed tuff is present overlying moderately and slightly decomposed tuff.

Tung Chung East and Road P1

5.10.4.3 In the area for Tung Chung East and Road P1, the solid geology underlying the site comprises a series of fault bounded blocks of volcanic rocks of predominantly rhyolite lava and tuff, alongside sedimentary and intrusive rocks of predominantly granite and rhyolite dykes (Sewell and Kirk, 2002). GEO Technical Guidance Note No.12 (TGN12) indicates that the offshore area of the viaduct and link roads fall within the Designated Area of Northern Lantau, which is identified as having potential for complex geological conditions. Published literature indicates that there is potential for the presence of marble within the designated area, and associated depressions in the rock head due to dissolution features. In areas where dissolution of marble has occurred, rockhead has been recorded to depths in excess of 150m. In addition to the above, Sewell and Kirk (2002) note that boreholes sunk in Tung Chung and off shore to the north encountered marble: limestone with cavities, as well as deeply weathered fault zones. HKGS (2002) also note that boreholes have encountered cavity features within the marble which are up to six metres wide.

5.10.5 Structural Geology

5.10.5.1 The structural geology of the area is largely influenced by the North Lantau Fault Zone, which comprises an inferred offshore extension of the Northeast trending Shek Pik Fault, and a number of other inferred north and east-trending faults, as shown in **Figure 5.10.3**. Where exposed on land in an excavation at Yan Tsai, the North Lantau Fault Zone comprises a 100m wide fault zone comprising intensely jointed rock with zones of brecciated rock up to 10m wide and deeply weathered zones up to 20m wide was observed. Similar variations in rockhead level and rockmass quality may be present below the alignment.

5.10.5.2 The NNW trending Tung Chung fault which follows the alignment of the Tung Chung Valley and a NW trending fault demarcating the boundary between the Lantau Volcanic Group and the Lantau Dyke Swarm in the eastern part of the study area. In addition to these, a number of other NE and ENE striking faults have been recorded and inferred within the offshore areas to the north of Tung Chung.

5.10.5.3 In addition to the impact the faults have had on the solid geology of the area, previous interpretations of offshore seismic surveys and ground investigation records for the area (Sewell & Kirk, 2002) have also

indicated the presence of a complex network of fault associated palaeodrainage channels within the offshore superficial deposits in close proximity to TCE.

5.10.5.4 These buried drainage lines may result in rapid changes in the nature of the alluvial deposits within the study area, and consequently the settlement characteristics of any reclamation or building works constructed. Their presence may also increase the rate of groundwater flow and thus increase the potential for dissolution of marble xenoliths within the bedrock, where present, and the formation of cavities and cavity collapse features.

5.10.6 Anticipated Ground Condition

Tung Chung West

5.10.6.1 For Tung Chung West, in general the superficial deposits consist of alluvium and debris flow deposits in the southern portion, with alluvium, local marine deposits in the northern portion and beach deposits and debris flow deposits in the northeastern portion. Boreholes within the proposed TCW development area indicate the superficial deposits consist of approximately 2 metres of debris flow deposits and colluvium in the areas of natural terrain, overlying decomposed tuff. At the margins of the natural terrain areas alluvial deposits are indicated, interdigitated with colluvial deposits with a combined thickness of around 3 metres. In the central portion of the proposed site, alluvial deposits are recorded with thickness of between 7 and 10 m, consisting largely of gravel and cobbles. Beach deposits and marine deposits are recorded in the northern portion of the proposed site with thicknesses of 3 metres each. Towards the northeastern portion of the site, debris flow deposits with thicknesses up to 3 metres are recorded. In the SR area in the natural terrain to the east, existing boreholes have recorded localised colluvial deposits of silt, sand, gravel, cobbles and boulders of up to around 5m in thickness.

5.10.6.2 In general the boreholes in the Tung Chung West area indicate that the solid geology consists of 5 to 30 metres of completely decomposed tuff in the southern portion, with rhyolite in the central portion and granite identified in the northern portion. The rockhead varies from +10mPD to -50mPD, with borehole 29906/16-3 located adjacent to TCW-1 recording rockhead at -87.54mPD. In the SR area boreholes indicate that completely and highly decomposed tuff up to around 15m is present overlying moderately and slightly decomposed tuff.

5.10.6.3 An assessment of all existing GI data in Tung Chung West is included in **Appendix 5.10** and has indicated that several boreholes have recorded geological conditions that could potentially adversely impact on the ground conditions. These boreholes are further highlighted in **Figure 5.10.14**. Borehole 24749/BH2 and trial pit 34749/TP1 located in close proximity to the southern boundary of TCW, borehole

14459/NL36 located immediately adjacent to TCV-3, and boreholes 50987/CAB/D005, 14460/NS12 and 20781/TC2-3 located towards the northeastern portion of TCW all indicate that faulted material has been recorded in the borehole logs. The presence of faulted material may indicated variations in rockhead or deep rockhead in close proximity to these boreholes, and this should be considered during the planning of the site specific ground investigation.

Tung Chung East

5.10.6.4 For Tung Chung East, in general the superficial deposits consist of marine deposits overlying alluvium. In areas of reclaimed land immediately south of the proposed site, near the North Lantau Highway and along the area of Road P1 marine fill has also been encountered with thickness up to around 20m. The depth of superficial deposits varies between around -2mPD and -55mPD, with a thickness of around 5m to 50m.

5.10.6.5 In general, the borehole and geophysical data indicate that the solid geology consists of 5m to 30 metres of completely decomposed granite or rhyolite. The rockhead varies from close to ground level in the local onshore locations, to depths of -60mPD in near shore areas. Localised deep rockhead up to -132mPD located 200m beyond the most western extent of the TCE was encountered in borehole 28034/M6. Localised deep rockhead between -93mPD and -117mPD have been recorded in boreholes 52317/MBH18, MBH19, MBH20, MBH22, MBH23, 52318/BH18, MBH17, MBH21, 52319/MBH24 located nearshore immediately north of Ying Hei Road.

5.10.6.6 An assessment of all existing GI data in Tung Chung East is included in **Appendix 5.10** and has indicated that several boreholes have recorded geological conditions that could potentially adversely impact on the ground conditions. These boreholes are further highlighted in **Figure 5.10.15**. Boreholes 39520/NS20, 14460/NS21 and 40120/D71 located towards the southwestern portion of TCE have faulted material recorded in the borehole logs. Similarly in addition to borehole 28034/M6, boreholes, 28034/M3, 38808/C8, 38825/C31, 38825/C33, 38825/C35, 38825/G56, 38854/B29, 38857/GS2, 40083/D50, 40083/D52, 40083/D56, 40083/D69, 40084/D108, 40120/D76, 40120/D89, 40998/MH9, 41338/MH31, 41338/MH34, 54718/3BP4, and 55355/2BP4 located in close proximity to B1-1 and COM-1 recorded meta-sedimentary rock, which may be an indicator of further complexities in the local geology. Furthermore boreholes 40120/D73,40120/D92, and 52319/BH23 located towards the southwestern boundary of TCE recorded marble, whilst numerous other boreholes located beyond 100m to the northwest also recorded the presence of marble. The locations of faulted material, meta-sedimentary rock and marble may indicated variations in rockhead or deep rockhead in close proximity to these boreholes, and this should be considered during the planning of the site specific ground investigation.

5.10.7 Potential Reclamation Issues

5.10.7.1 The thickness and properties of the compressible materials under the reclamation is the major controlling factor for the reclamation design. Due to lack of geological information regarding the compressible material within the proposed Tung Chung East and Road P1 reclamation extent, considerations should be given in the design of the ground improvement works.

5.10.7.2 Further ground investigation is advised to determine the seabed level and the approximate extent of marine deposit using geophysics including echo sounding survey and marine seismic reflection survey together with vertical boreholes. Further laboratory testing is advised to verify the consolidation parameters for the reclamation design.

5.10.8 Potential Foundation Issues

5.10.8.1 It is noted that the proposed new town expansion area of TCE falls within, and TCW falls partially within the Designated Area of Northshore Lantau, as documented in GEO Technical Guidance Note No. 12 (GEO, 2004). This guidance note clearly discusses and highlights the key geotechnical issues that may arise as a result of the adverse ground conditions discussed in the preceding sections, in particular the potential problems associated with the design and construction of foundations for high rise buildings and other structures. As a result of the location of these expansion areas, further unforeseen ground conditions including metasedimentary rocks, marble, cavities, and faulted material cannot be ruled out. Anomalously deep rockhead, locally in excess of 160 m below ground level, in deeply weathered, mainly meta-sedimentary and intrusive igneous rocks comprising medium grained granite and dykes of rhyolite, metasedimentary rocks and their weathering products: the metasedimentary rock sequences, in addition to sandstone and siltstone, may contain carbonate and carbonate bearing rock, including marble, that have weathered to give rise to cavities, cavity fill deposits and residual soil, all of which contribute to the complex ground conditions, and

5.10.8.2 Superficial deposits, typically between 10 and 150 m thick, that consist mainly of gravel, sand and mud, but also include siltstone and, locally, boulders. These occupy depressions in the subcrop surface, most of which lie directly above or adjacent to metasedimantary rocks and cavity fill deposits. They extend to considerable depth and may be soft, loose and unlithified. Their presence can be used to indicate other complex ground potentially in the vicinity at deeper levels.

5.10.8.3 The deep base of the cavities, compressible nature of the cavity fill deposits and rapid and steeply inclined nature of the rockhead along the cavity walls means that any foundations within such areas often need to

be very deep. These complex geological conditions are further exacerbated due to the effects of faults and buried natural drainage lines in the area, which have caused further deterioration of the rockmass and facilitated groundwater inflow to the weathered marble/limestone.

Piling Options: Driven Piles

5.10.8.4 Driven piles founded in soil well above the top of the complex geology will usually be the most suitable foundation for medium-rise buildings and structures.

5.10.8.5 Considerations should be given to the potential obstruction of identified boulders to the geotechnical works involving percussive or vibratory installation and the potentially excessive vibration arising from the impact or vibratory action on the bouldery constituents. Where possible, geotechnical works using alternative installation methods, such as boring, should be considered. Where percussive or vibratory activity is not avoidable, preboring through the bouldery layer with subsequent backfilling with suitable granular materials can be conducted prior to the percussive or vibratory installation. However, special care shall be taken for ground settlement to the surrounding areas when conducting preboring works.

5.10.8.6 In addition, considerations should be given to the potential risk of excessive grout loss for the geotechnical works involving grouting in areas with abundant presence of the coarse constituents. Where possible, the use of grout for the geotechnical works in the stratum should be minimized. Where the use of grout is not avoidable, close attention should be given to the volume of grout intake during grouting and, for pile installation works, the use of permanent casing in the section with the coarse constituents should be considered to prevent grout loss.

5.10.8.7 For driven piles, these should be of a suitably heavy section to withstand hard driving and with modified or strengthened shoes. The modified or strengthened section should be such as to allow the piles to be driven through and beyond any cover or rock bridging over shallow cavities or thin overhangs, and to prevent the piles deflecting should the marble top surface be inclined.

5.10.8.8 Consideration should be given to the risk from buckling of piles during driving, and reactivation of sinkholes or collapse of cavities during piling or foundation construction. Pile driving and other foundation construction records should be assessed at close intervals and the necessity or otherwise of modifying the design should be considered.

Piling Options: Small Diameter Bored Piles

5.10.8.9 Small diameter machine-bored piles founded in soil well above the top of the complex geology will usually be the most suitable foundation for medium-rise buildings and structures.

5.10.8.10 Considerations should be given to the potential risk of excessive grout

loss for the geotechnical works involving grouting in areas with abundant presence of the coarse constituents. Where possible, the use of grout for the geotechnical works in the stratum should be minimized. Where the use of grout is not avoidable, close attention should be given to the volume of grout intake during grouting and, for pile installation works, the use of permanent casing in the section with the coarse constituents should be considered to prevent grout loss.

Piling Options: Large Diameter Bored Piles

5.10.8.11 When high capacity bored piles or barrettes are proposed, the effect of cavities below each pile or barrette and the surrounding area should be considered in the choice of founding level and allowable bearing capacity. Adequate boreholes should be sunk and, where appropriate, preboring should be carried out to detect the presence of cavities, if any, within the zone significantly stressed by the piles.

5.10.8.12 Considerations should be given to the potential risk of excessive grout loss for the geotechnical works involving grouting in areas with abundant presence of the coarse constituents. Where possible, the use of grout for the geotechnical works in the stratum should be minimized. Where the use of grout is not avoidable, close attention should be given to the volume of grout intake during grouting and, for pile installation works, the use of permanent casing in the section with the coarse constituents should be considered to prevent grout loss.

5.10.8.13 For larger-sized buildings, if complex geological conditions were to be identified during the ground investigation then possible relocation of building block should be considered.

5.10.9 Potential Site Formation Issues

5.10.9.1 Rock excavation is potentially needed in local areas of shallow rockhead. Considerations should be given to the potential presence of loose blocks or instability of the rock mass with adverse daylight joints.

5.10.9.2 Considerations should be given to the potential instability in excavation works due to excessive hydraulic gradient, or piping, at the base of excavation.

5.10.9.3 Local conditions of the jointed rock mass should be assessed through rock joint mapping by competent person during the excavation, with the subsequent application of suitable stabilization measures to locally loosen blocks or potentially unstable rock mass.

5.10.9.4 Such risk due to excessive hydraulic gradient, or piping, at the base of excavation could be alleviated or mitigated through provision of sufficient embedment of the temporary retaining wall or installation of grout curtain below the toe (with certain overlapping length, say 2m) and along the outer perimeter of the temporary retaining wall to sufficient depth (preferably to bedrock with certain minimum

penetration, say 2m). In addition, considerations should be given to the excavation works on the potential ground settlement arising from excessive groundwater drawdown due to de-watering. Where condition allows, field pumping test to the required de-watering level is preferably to be carried out prior to the excavation works, so as to assess the actual performance of the dewatering set-up as well as the works configuration and the groundwater drawdown condition in the vicinity of the de-watering zone. During the de-watering works, groundwater monitoring in vicinity of the de-watering zone should be implemented to ensure no excessive drawdown occurs in the process.

5.10.10 Man-made Slope Hazards

5.10.10.1 A total of two hundred and thirteen (213) man-made features located within 100m of the proposed developments and proposed utilities/drainage have been considered for assessment. A review of the records in the GEO Landslip Preventive Measures Information System (LPMIS) indicates that the majority of these features were formed in the mid-1990's in association with the development of Tung Chung and the North Lantau Highway. As such they would have been subjected to geotechnical reviews and checking at the time of construction and have not typically been studied under the either the LPM or LPMit Programmes.

5.10.10.2 However a detailed desk study assessment has been undertaken to identify any of these man-made features that could potentially affect the proposed development in the event of slope/retaining wall failure and features that may be affected by the development. In practice, this corresponds to all features where the proposed development falls within the shadow angle of the feature or where proposed utilities or drainage pass through or in close proximity to the existing features. Those features identified as having potential to impact on the development in the event of failure or those features that may be affected by the development and are therefore recommended for further assessment during the detailed design stage.

5.10.10.3 The assessment has identified forty-five (45) registered man-made features that have the potential to affect the proposed development in the event of failure or may be affected by the proposed development (including proposed utilities/drainage). As a result, these features are recommended for further study during the detailed design stage. The assessment has also identified nineteen (19) non-registered man-made features that have the potential to affect the proposed development in the event of failure or may be affected by the proposed development (including proposed utilities/drainage). As a result, these features are also recommended for further study during the detailed design stage.

5.10.11 Natural Terrain Hazard Assessment

5.10.11.1 The proposed development sites are located in areas with natural terrain hillslopes adjacent. As a result of this, screening of natural terrain catchments in order to determine their requirement for further natural terrain hazard study has been undertaken.

5.10.11.2 The review of the potential for natural terrain hazards to impact on the study areas have been conducted based on the "In-principle Objection Criteria" and "Alert Criteria" stated in GEO Report No. 138. A total of forty (40) catchments have been identified adjacent to the proposed development (including the proposed FWSR and SHW-WTW). These catchments are located surrounding the southern portion and adjacent to the northeast portion of TCW, to the south of the FWSR, and to the east of the SHW-WTW. Of these catchments a total of twenty-five (25) have been identified as having sloping terrain greater than 15° within 50 metres of the proposed development and therefore will require further study in accordance with the Alert Criteria.

Tung Chung West & Service Reservoir

5.10.11.3 Twelve (12) study catchments overlooking TCW have been identified as having potential to impact on the proposed development, and are therefore recommended for NTHS.

5.10.11.4 Three (3) study catchments overlooking the proposed FWSR (FWSRa, FWSRb, and FWSRc) have been identified as having potential to impact on the proposed development, and are therefore recommended for NTHS. Study catchment FWSRd is identified as a small pocket of natural terrain in close proximity to the eastern proposed Fresh Water Service Reservoir. This catchment has been deemed not to require further study under the current proposed development as no viable travel path exists from the catchment to the proposed Fresh Water Service Reservoir. Indeed, it can be observed that any landslide initiating within this small pocket of natural terrain would flow downslope, into the existing 5m wide channel, and continue down slope away from the proposed eastern FWSR.

5.10.11.5 As a result, the screened in catchments for TCW and the FWSR include TCW01b, TCW01c, TCW01f, TCW02a, TCW03a, TCW03b, TCW03c, TCW03d, TCW03f, TCW03g, TCW03h, TCW03i, TCW04b, TCW04c ,TCW04d, TCW04e, TCW04f, TCW04g, TCW04h, TCW04i, FWSRa, FWSRb and FWSRc. The catchments are indicated in **Figure 5.10.11**. Of all of the catchments that were assessed, none met the In-principle Objection Criteria.

5.10.11.6 In addition to the study of the natural terrain, the adequacy of the existing natural terrain hazard mitigation measures provided under Tung Chung Road Widening Project shall be reviewed to take account of the proposed change in land use in the area beyond Tung Chung Road, as well as other potential implications relating to the release of TGN36 to 38 in 2013.

Tung Chung East, Road P1 & Siu Ho Wan Water Treatment Works

5.10.11.7 Although natural terrain exists to the south of the proposed development at TCE and Road P1, the closest hillsides are located at distances greater than 50 m from the site and with a number of intervening facilities in between the proposed development and the natural terrain, including the North Lantau Expressway, MTR Tung Chung Line and Airport Express Line, as indicated in **Figure 5.10.12**. As a result none of the NTH catchments facing TCE meet the Alert Criteria, and none meet the In-principle Objection Criteria.

5.10.11.8 Two (2) study catchments overlooking the SHW-WTW (SHWa and SHWb) have been identified as having potential to impact on the proposed development, and are therefore recommended for NTHS. The catchments are indicated in **Figure 5.10.13**. Of all of the catchments that were assessed, none met the In-principle Objection Criteria.

5.10.12 Site Investigation

5.10.12.1 The scope and extent of the ground investigation aim to identify the locally complex geological conditions stated in Sections 2 and 3 of this report, that require due attention to be given to the potential problems associated with high-rise buildings and other structures involving deep foundations. The proposed ground investigation for TCW and TCE is shown in **Figure 5.10.34** and **Figure 5.10.35** respectively and will be subject to further review during the design and construction stage.

5.10.12.2 The proposed ground investigation shall follow the guidance given under the GEO Technical Guidance Note No. 12 (TGN 12) in the Designated Area of Northshore Lantau to facilitate the identification of the complex geological conditions:-

(i) During the initial phase of ground investigation, emphasis should be directed to developing a representative geological and hydrogeological model rather than testing. The ground investigation should focus on examining and logging the profile in detail, with emphasis placed on identifying the extent of soft, loose and weakly lithified sediments, metasedimentary rock, including marble, and the depth and local variability of rockhead.

(ii) Commonly used ground investigation techniques (drilling and seismic reflection profiling) have limitations in identifying very localised areas of complex geological conditions within the Designated Area, particularly for the early stages of the site investigation. However, detailed geophysical (gravity) surveying of the reclamation site (EGS, 1997) and offshore (EGS, 1998, 1999a, 1999b) has proved to be a useful technique for identifying locations of deeply weathered zones and its application should be considered as a supplement to, and a basis for planning, drillholes.

(iii) A "logging guide" (in Sewell and Kirk, 2002) has been

developed to assist drilling contractors and consultants in describing complex core materials within the Designated Area, and is accompanied by a detailed description of the geology of Tung Chung New Town, and the adjoining offshore area of Northshore Lantau.

5.10.12.3 A detailed echo sounding survey is proposed be carried out to identify the seabed level for the reclamation design.

5.10.12.4 Vertical drillholes are proposed within the areas of the permanent geotechnical works. Inclined drillholes could be proposed to delineate any faults within the site area for identifying any relatively deep rockhead or steep gradients on rockhead.

5.10.12.5 The meta-sedimentary rocks may provide indications of complex geological conditions so it may be worthwhile to consider adjusting the minimum penetration into meta-sedimentary rocks as well.

5.10.12.6 Cone penetration tests have also been proposed for the reclamation and seawall design for delineating the superficial deposits and collecting continuous sampling data.

5.10.12.7 Standpipes/piezometers should be installed in drillholes for monitoring of the ground water for at least a wet season to confirm the groundwater levels for slope design.

5.10.13 Conclusion

5.10.13.1 Additional GI is required to better ascertain the extent and potential impacts of the majority of the key hazards and constraints identified during the detailed design stage. Once the data is available, appropriate engineering solutions can be determined to overcome them. It is concluded that the proposed developments are geotechnically feasible.

5.11 Green Initiatives

5.11.1 A comprehensive framework of green initiatives has been formulated with consideration of various aspects including urban design and planning, landscape design, transportation and logistics, green energy application, building energy efficiency, water conservation and recycling, waste management and green construction materials. Below is a summary of the Green Initiatives proposed for the Development

5.11.2 Urban Design and Planning

5.11.2.1 Compact development approach is adopted to create a mixed-use area with a concentrated population and job opportunities within easy walking distance of major transportation terminals to promote sustainable and green planning, whereby walking and cycling are also promoted.

5.11.2.2 Wind corridors aligning with the prevailing wind directions will also be reserved to facilitate air ventilation for the development and leeward areas.

5.11.3 Landscape Design

5.11.3.1 The proposal of a town park, conservation of TCV, provision of regional open space, district open space and waterfront promenade, as well as integration of green corridors with major roads in the Development increase the amount of open space and subsequently green coverage.

5.11.3.2 Heritage in the vicinity of the Development, mostly located in Tung Chung Valley, will be carefully preserved. Besides, established wildlife habitats significant landscape features will also be protected.

5.11.4 Transportation and Logistics

5.11.4.1 Footpath and cycle track network will be provided to promote walking and cycling in the development area. The footpath, cycling track and carriageway are well integrated under the Three-zone Concept, i.e. district distributor, local distributor (suburban) and local distributor (rural). Trees will be planted along the footpath/cycling track to provide separation from the carriageway, a barrier from road traffic noise, and shading for the pedestrians and cyclers. This creates a comfortable walking and cycling environment.

5.11.4.2 Public transports including the planned railway Station and public bus services could reduce carbon emissions due to transport. Besides, various options of low carbon transport were assessed. Low carbon vehicles such as electric vehicles will also be promoted.

5.11.5 Green Energy Application

5.11.5.1 Adoption of District cooling system (DCS) can reduce the energy consumption compared with the traditional air conditioning system, save plantroom space and enhance system reliability. The implementation of DCS is technically feasible and commercial marginally viable subject to the uptake rate of DCS. However, separate investigation study is recommended for further development of the DCS proposal under a separate new project when the decision to take forward the proposal is firmed up.

5.11.6 Green Buildings

5.11.6.1 Various renewable energy systems were studied. Photovoltaic system and solar hot water system are possible means to reduce the carbon footprint of the development. The former can be in form of Building Integrated Photovoltaic (BIPV) systems and/or hybrid street lamps on the road. The latter can be installed at buildings with significant hot water demand, such as hotels and/or sports complex.

5.11.6.2 Passive building design including high performance facade, daylighting, green roof, etc. can be considered to reduce energy demand. For building services systems, high performance air-conditioning and ventilation system, energy efficient lighting with automatic control, high efficiency lifts and escalators, etc. are proposed. Cumulative energy saving from 20% to 35 % could be achieved.

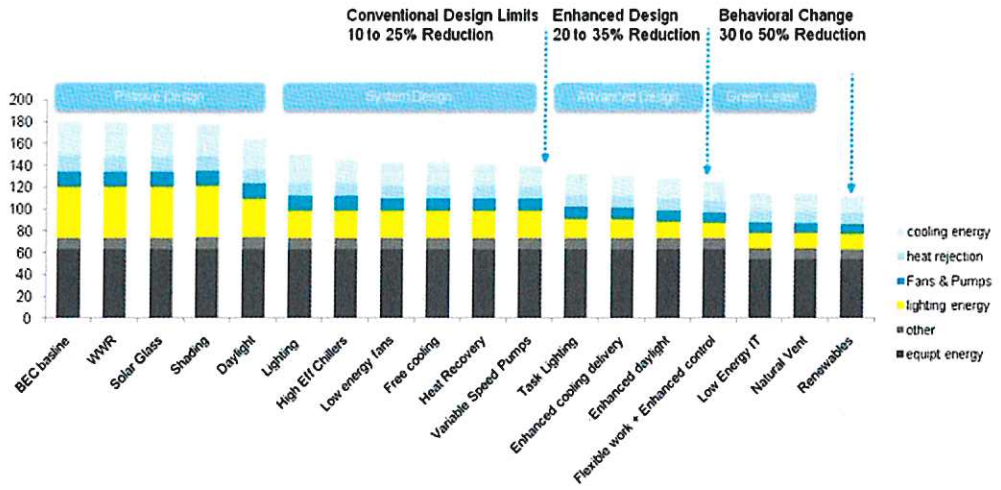


Figure 5.11.1 Potential Savings of Energy Efficient Design Features

5.11.7 Water Conservation and Recycling

5.11.7.1 On site level, rainwater harvesting can be considered to reduce fresh

water demand. On building level, water efficient device can be utilized to save 20% to 30% of water consumption.

5.11.8 Waste Management and Green Materials

5.11.8.1 Waste reduction strategies for both construction stage and operation stage were discussed. For construction, measures like balance cut and fill as well as off-site prefabrication shall be adopted to reduce on-site waste generation. For operation, facilities for waste sorting and recovery shall be reserved for all buildings in the Development.

5.11.8.2 Use of green materials, regional sources materials and materials with recycled content shall be considered to reduce the life cycle impact to the ambient.

5.11.9 Preliminary Carbon Appraisal

5.11.9.1 A preliminary carbon appraisal was carried out for the Development. Two carbon reduction scenarios: Moderate and High were studied. A total amount of 120,170 to 205,233 tonnes CO_2-e can be reduced under these two scenarios respectively as shown in **Table 5.11.1**.

Table 5.11.1 Carbon Emissions Reduction Calculation

	Carbon Emissions, CO2-e (tonnes)		
	Baseline	**Moderate Reduction Scenario**	**High Reduction Scenario**
Building Energy	560,832	443,057	358,932
Fresh Water Consumption	9,288	7,430	6,502
Sewage Discharge	1,876	1,500	1,500
Additional Planted Tree	--	-161	-161
Total	571,996	451,826	366,773
Reduction	--	120,170	205,223
Percentage Reduction	--	21.0%	35.9%

5.12 Socio-economic Impact Assessment

5.12.1 The development of Tung Chung will have individual impacts to the local community and will increase the Tung Chung New Town's future population, making Tung Chung the most concentrated residential area in the Islands District of Hong Kong. Ample area reserved for commercial activities will not only capture the "bridgehead economy" associated with nearby infrastructures for years to come but also create different employment opportunities to ensure local economic vitality.

5.12.2 While the development will potentially disturb the existing population and the social structure within which it exists, the quality of life of both existing and future residents is expected to be improved given the provision of additional community facilities, recreation areas, social welfare facilities and connectivity enhancement. The socio-economic assessment included a review of the impacts to local residents, businesses and economic activities, cultural heritage, agricultural land and graves due to the development.

Impacts to Local Residents

Existing Village Residents

5.12.3 The most affected stakeholders are likely be the villagers residing in the 19 recognized villages in Tung Chung and the 5 non-recognized villages[13]. For the recognised villages within the PNTEA, "V" zones are determined according to their existing village clusters and the flexibility for expansion is provided taking into account their outstanding small house applications and 10-year small house forecast. Nevertheless, the proposed development is expected to cause indirect impacts to their existing living conditions, in particular for villages within and immediately adjoining the PNTEA, i.e. villages fall within Tung Chung Rural Committee (RC) of about 2800 population[14]. Developments at the periphery of these villages would therefore be carefully considered based on its nature and intensity so as to ensure their compatibility with the rural character.

5.12.4 Although the villages fall under Tai O RC and Mui Wo RC do not fall into the PNTEAs and are physically further away from future developments, they are considered indirectly affected by the future developments in the PNTEAs. Therefore, the proposed development might indirectly affected these 650 to 800 population.

5.12.5 As for the 5 non-recognized villages (Sha Tsui Tau, Fui Yiu Ha, Tung Hing, Shek Pink Au and Fong Yuen) identified in the Study Area, the negative impacts arise from the development would inevitably lead to

[13] Village clusters not on the list of recognized villages under the Small House Policy issued by Lands Department

[14] According to HAD's information, there is only an available information of 2,600 population within Tung Chung RC (which also include villages outside the TCW PNTEA). HAD also mentioned there are 100-200 new village population (without indigenous villager status) living in the village and therefore we assumed 2,800 population are directly affected in this assessment.

the need to relocate or compensate. If mitigation measures are managed appropriately, these impacts should be relatively shorter term and minimised as the longer term benefits of new housing, infrastructure and employment take effect. It will be important that the appropriate measures are transparently implemented to minimise the impacts to these people.

Existing New Town Residents

5.12.6 Other indirect social effects to existing residents will be anticipated in Tung Chung District as a whole. The development will influence the community's ability to adapt to changes in the social environment and to accommodate new residents on the aspects of visual quality, air quality, noise level, traffic and commute condition, change in public services and provision of community facilities as well as security and safety. The Finalized Layout Plan has taken into account the compatibility issue with existing residents and strictly observed to relevant environmental standards to minimise nuisance due to new developments in the PNTEAs. With the improvements in connectivity and the provision of a couple of community facilities, the community is expected to be directly benefited from the new development, and is likely to achieve a better social harmony and a higher level of security due to enhanced vibrancy of the new town.

Ample Provision of G/IC Facilities

5.12.7 To address the psychological separation between residents living in Tung Chung East and West due to inconvenient access to open space and facilities of various kinds, G/IC facilities will be provided in the PNTEAs according the Hong Kong Planning Standards and Guidelines. Some G/IC facilities that are strongly proposed by local community are anticipated to be realized with the increase in population brought by the future development, such as a standard 3ha sports ground to be proposed in TCE PNTEA. A Other School Use and a post-secondary institution have also been added to TCE PNTEA to cater for the multi-nationalistic characteristics of Tung Chung [redacted]

Impacts to Businesses and Economic Activities

Provision of a "Major Office Node", a Regional Retail Node and a 1000-room Hotel

5.12.8 Given the public aspirations expressed in PE activities that support commercial development in view of providing more job opportunities for building a self-sustaining community within Tung Chung and taken into account of the opportunities and developments around Tung

Chung, the component of commercial GFA has been adjusted to steer towards office development. An approximately 500,000m^2 of office GFA was therefore planned in the PNTEAs.

5.12.9 The location of regional retail node will mainly be clustered around the proposed TCE Station and provides a supportable regional retail GFA of about 147,545m^2. The estimated GFA shall absorb the remaining regional retail demands at Tung Chung.

5.12.10 To support the hotel demand in the district as well as the long term territorial demand in Hong Kong, a hotel GFA of 50,000 m^2 is proposed in the waterfront area of TCE PNTEA in association with the proposed marina.

Anticipated Employment Opportunities

5.12.11 The proposed commercial developments and the various G/IC provision in the PNTEAs are expected to generate a total of 45,451 job opportunities in Tung Chung. This shall broaden the job provision in the locality in both quantity and quality. The increased variety of employment in Tung Chung would also help alleviate the existing job mismatch issue, in particular to those in the lower socio-economic strata who may not be able to afford the high daily travel expenses for working in another district.

Impacts to Cultural Heritage, Agricultural Land and Graves

Heritage Conservation

5.12.12 There are altogether 1 Declared Monument (Tung Chung Battery) and 2 graded historic buildings (Hau Wong Temple and Entrance Gate, Shek Mun Kap) within the TCW PNTEA. Nevertheless, the proposed development would not encroach onto these cultural heritages and thus cultural heritage impact is not anticipated. All Declared Monuments and Graded Historic Buildings would be preserved at their existing conditions during the consideration of the Finalized Layout Plan.

Agricultural Land

5.12.13 For TCE, no agricultural lands are present and hence there is no impact. As for TCW, the PNTEA under the development schemes are dominated by agricultural land including fallow agricultural land, active agricultural land and orchards under private lots. Land held by private parties under Government Leases are resumed by the Government for public purposes under the statutory provisions under the Lands Resumption Ordinance (Cap 124), Roads (Works, Use and Compensation) Ordinance (Cap 370) or The Railways Ordinance (Cap. 519). For old-schedule agricultural or house lots, as an alternative and in lieu of market values of the resumed lots, it is the established administrative practice for the Government to initially offer ex-gratia

payments to the affected owners as compensation for resuming their land.

Graves

5.12.14 The Burial Ground and identified graves area in TCE PNTEA are located at the southern side of the North Lantau Highway, which is away from the proposed reclamation area and will not be affected by the development. As for TCW PNTEA, some of the graves are within or in close proximity of the proposed development areas under the Finalized Layout Plan.

5.12.15 For the sloping area to the east of the Yat Tung Estate with numerous informal paths, town/cultural park and higher density residential area (Area TCW-2) and modification of Tung Chung Road North are being proposed, which requires the clearance of some of the graves. The area where graves shall be cleared includes the area of roadworks of modification of Tung Chung Road North, Area TCW-2 and the uphill area where slope stabilization works are required. [redacted] Meeting with Lands D has been made regarding the need of grave removal at later stage of the project. The graves within Burial Ground No. 20 will not be affected.

5.12.16 For the Tung Chung Valley area, the graves mainly fall in the proposed green belt area at the western side of the Tung Chung Valley and are unlikely to be affected by the development. Exceptions are isolated graves identified in Proposed Area TCV-4 and TCV-7. The graves at the eastern side of Tung Chung Road just outside the PNTEA will not be affected.

Conclusion

5.12.17 While the development it will potentially create disturbance to the existing population and the social structure within which it exists, these are expected to be offset by the longer term benefits the development will create. These benefits will include improving community access to a better living environment, amenities, work and transport facilities for both the existing and incoming populations. The development will also provide sufficient economic benefits to Hong Kong as a whole, which is important to the creation of a vibrant and sustainable new town in Tung Chung.

5.13 Sustainability Assessment

Introduction

5.13.1 A Sustainability Assessment (SA) was carried for the Tung Chung development under the Recommended ODP. The SA is required because it constitutes major initiatives or programmes that may bring about noticeable or persistent implications on the economic, environmental and social conditions of HK. The SA, which covers cross-sectoral issues, will discuss the sustainability of the Project in broad terms with respect to the Guiding Principles, Sustainability Indicators and Social Checklist under the SA system promulgated by the Government in December 2001.

Scenarios Considered

5.13.2 Two scenarios have been formulated to compare the environmental, social and economic impacts without and with the Project (i.e. Scenario 1 and Scenario 2 respectively). Key features of the scenarios are summarised as follows:

- ***Scenario 1 (without the Project)*** – the appropriate "without scenario" is the situation without the proposed Project, i.e. development of Tung Chung. It describes what would be expected to happen if the proposed development is not built; and
- ***Scenario 2 (with the Project)*** – in this scenario, Tung Chung will be developed in accordance with the RODP while the supporting infrastructure outside Tung Chung will be constructed in accordance with the recommendations of the engineering assessments.

Approach

5.13.3 The SA was conducted based on the eight Guiding Principles established by the Sustainable Development Unit: (1) natural resources, (2) biodiversity, (3) leisure and cultural vibrancy, (4) environmental quality, (5) society and social infrastructure, (6) health and hygiene, (7) economy and (8) mobility.

5.13.4 The SA was carried out with the aid of the CASET Version 4.0 with a view to providing an in-depth analysis of the sustainability implications of the development option(s). These principles are reflected in the indicators of the Computer-aided Sustainability Evaluation Tool (CASET) model, which was used to analyse the sustainability implications due to the development of Tung Chung. The procedure involves defining scenario, indicating variation, characterising scenario, selecting indicators, evaluating indicators and highlighting non-quantifiable issues.

Outcome of CASET Assessment

5.13.5 The sustainability implications of the two scenarios were analysed:

- ***Scenario 1*** - without the development of the Tung Chung and
- ***Scenario 2*** - with development based on the RODP and associated infrastructures.

Assessment of Environmental Impacts

5.13.6 In Scenario 2, there will be deterioration in the condition for the following eight indicators with reference to Scenario 1 (without Tung Chung development):

- ***Carbon dioxide emitted per year*** – There will be an increase in energy use such as electricity due to greater demand from increasing population and economic activity, resulting in higher carbon dioxide emissions from the power generation plant so very small increase in carbon dioxide emitted per year is expected.
- ***Construction waste*** – There would be an increase in construction waste but the increase is expected to be very small as the Project only involves a small portion of slope works, the non-inert construction waste from demolition works is minimal.
- ***Excessive noise*** – It is expected to increase and the change is expected to be small because proper mitigation measures will be proposed to minimize the noise sources from construction activities, proposed road network, sewage pumping station and ventilation buildings.
- ***Freshwater supplied and consumed*** – There will be a slight increase in freshwater supplied and consumed due to newly proposed commercial and touristic activities which would be mitigated by water conservation and recycling measures.
- ***Landfill capacity*** – In the construction stage, a very small quantity of the construction waste from the Tung Chung development may need to be disposed off-site. In the operation stage, there will be an increase in waste generation due to economic, commercial and touristic activities. With proper waste management initiatives, enhanced waste collection and reduction of waste disposed of at landfill can be achieved. A very small deterioration is expected.
- ***River water quality*** – The river water quality is expected to decrease due to site runoff during construction phase and surface runoff during operation phase. The impact on Tung Chung Stream will be small with proper mitigation measures.
- ***Significant landscape features (area)*** – There would be small impacts on the existing landscape features after the implementation of mitigation measures including use of climbing plants and verge

planting and other greening and planting works.

- ***Terrestrial Eco-value*** – There would only be a small deterioration because some mitigation measures and enhancement measures are proposed to be implemented to compensate the loss of habitats and the impacts of species of conservation importance.

- ***Travel Distance*** – There would be small increase in travel distance because in future more residents in Tung Chung will need to commute urban areas for work/ school due to the development of the area.

5.13.7 In Scenario 2, there will be improvement in the condition for the following indicator with reference to Scenario 1 (without Tung Chung development):

- ***Cost-Benefit*** – There would be small improvement in economic return because the development of the Tung Chung could bring substantial economic impact in terms of both value added contribution to GDP and creation of employment opportunities.

- ***Education Expenditure*** – Education facilities have been proposed in the PNTEAs. Government's recurrent expenditure will increase to support the operation of the facilities and the education expenditure will be small.

- ***Fixed capital*** - It is expected to have a small increase in fixed capital due to the construction of buildings, facilities and infrastructure.

- ***Job Creation*** – Slight increase in job opportunities is expected from hotel catering, retail and office work to supporting of G/IC facilities.

- ***Travel speed*** – The proposed Tung Chung West station can reduce the travel speed for residents who currently need to take an extra bus ride to connect to MTR. The proposed MTR stations can also help to reduce the travel speed for visitors going to Tung Chung West.

5.13.8 There would be ***no overall change*** to the current baseline situation for the following parameters:

- ***Criteria air pollutants*** –There are no "proposed industrial sites" within the PNTEAs. Emission reduction measures to be implemented by Hong Kong and Guangdong Governments would gradually reduce the emission.

- ***Energy Consumption per GDP*** – The exact rate of change for both energy consumption and GDP cannot be determined.

- ***Energy Consumption per Capita*** – Although there would be increase in total energy consumption, energy consumption per capita expected to remain the same due to new development with energy efficiency measures proposed.

- ***Freight costs*** - More residents in Tung Chung will need to commute to urban areas for work/ school, resulting a longer travelling distance and therefore higher cost on average by passengers, as well as the maintenance and fuel cost. Nevertheless, the increase in freight demand may induce optimized logistics network for transportation by trucks and road network, which may offset the maintenance and fuel cost.

- ***Income differential*** – There is no evidence to indicate economic and labour enhancement in the area which is able to affect the territorial income differential.

- ***Local freshwater*** – The main source is from Tai Lam Chung Reservoir with a back-up source from Shek Pik Reservoir. The fresh water demand, which is around 50,000m^3/day, is small as compared to the total water demand of Hong Kong met by locally-derived freshwater resources.

- ***Marine Water Quality*** – The marine water quality is expected to remain the same because there are no obvious change of minimum and maximum pollutant concentrations at the concerned WSRs.

- ***Municipal Solid Waste*** – Waste infrastructure will be integrated to reduce the quantity of municipal solid waste requiring final disposal. Also, there are a number of green strategies for the waste management, the quantity of municipal solid waste requiring final disposal per capita remains.

- ***Open space shortfall*** – The proposed developments in the PNTEA will follow the HKPSG standard for 1m^2 local open space and 1m^2 district open space per resident, while taking into account of the existing situation in terms of quantity, location and variety of activities.

- ***Significant landscape features (point)*** – The cultural heritage items and the Old and Valuable Tree (Registration number LCSD Is/I) will be preserved throughout the Project and therefore the number will remain unchanged.

- ***Toxic air pollutants*** – Although there may be a slight increase in the amount of toxic air pollutants from vehicle and vessels exhaust with the induced traffic flow, such impacts are trivial with respect to the monitoring stations in Central and Causeway Bay.

Assessment of Social Impacts

5.13.9 The only parameter that shows a deterioration of the condition is the indictor of "Waste Reduction & Recycling", as an increase in the amount of construction waste and municipal solid waste is unavoidable with the development and increase in population. However, with implementation of waste management strategy, the impact is limited.

5.13.10 The following indicators show an **improvement** of the condition:

- ***Safety Net*** – Since more than 60% (around 30,000 flats) of housing would be of subsidised housing, the new subsidized housing will potentially attract people to move into. Social welfare and housing for the disadvantaged groups would improve.
- ***Self-reliance*** - More residents in Tung Chung can fit in the job openings and fulfill the requirements which can help the unemployed to achieve self-reliance in the area.
- ***Social cohesion*** - The planning principles of future development in the PNTEAs is to introduce a more balanced housing mix on the Tung Chung West and careful planning of community facilities after taking into account of existing distribution. The connectivity between Tung Chung East and Tung Chung West is also improved in the PNTEAs which can promote a perceived fairness and convenient mobility to social facilities.
- ***Leisure and cultural facilities*** - The provision of sports, recreational and cultural facilities follows the requirements of the HKPSG, while taking into account of the existing surplus /deficit of such activities in the Tung Chung New Town. Some recreational facilities that require a higher population threshold can be provided.
- ***Leisure and cultural activities*** - The provision of various sports, leisure and cultural facilities has vitalized the Tung Chung by offering the opportunities for the public to participate in various sports, leisure and cultural activities.
- ***Housing waiting time*** - There will be a provision of an additional 30,952 nos. subsidized housing under the Scenario. This can shorten the queuing time for public housing units in HK as a whole.
- ***Private rental*** - The increase in housing supply in private residential market will help to bring down rental prices of private flats.
- ***Living Space*** – Urban design and provision of housing ratio in Tung Chung will generally have a positive impact on living space.
- ***Adequate Housing*** - There will be a provision of an additional 30,952 nos. of subsidized flats under this Scenario which will shorten the average waiting time for public rental housing.
- ***Education Attainment*** – The provision of a post-secondary institution in the PNTEA [redacted] for local residents
- ***Urban Living Space*** - There is full respect on the natural and cultural heritages in the existing Tung Chung new town by exploring ways to conserve and to revitalize them for public enjoyment. Cultural heritage will be preserved and environmental issues have been considered in the urban design in the PNTEAs.

5.13.11 Nevertheless, despite their potential positive impacts on the Tung Chung, there are few parameters that show **no significant change** to the condition due to the difficulty of assessing its implications on the territorial situation.

- ***Physical/ Mental Health*** - The increase in traffic movement within PNTEAs induced by population growth and increased economic activities is expected. On the positive side, the provision of health clinic in both Tung Chung East and Tung Chung West can have positive impact for the community for enhanced health services and support for physical or mental health condition.
- ***Health of Vulnerable Groups*** - Population growth and increased economic activities induce increase in traffic movement within PNTEAs. On the positive side, the provision of health clinic in both Tung Chung East and Tung Chung West can positively impact on the community with enhanced health services and support for physical or mental health condition.
- ***Archaeological and historical site*** - No major development is proposed in the area containing Grade Historic Buildings and other built heritage resources not listed by AMO in the RODP.
- ***Renewable Energy*** - Photovoltaic system and solar hot water system are the proposed major renewable energy generation initiatives for the Tung Chung Development, while small scale applications of wind turbines are possible for selected area.

5.13.12 Based on the checklist question on the respective target of urban planning and design, there will be overall improvement in terms of the quality of urban living space for the Tung Chung.

Conclusion

5.13.13 Key sustainability issues have been identified and highlighted for the Tung Chung development.

5.13.14 On the positive side, the proposed development is expected to extend Tung Chung into a distinct community which can meet housing, social, economic, environmental and local needs. The development will improve cost-benefit, education expenditure, energy consumption per GDP, fixed capital, job creation and travel speed. The development will also enhance safety net, self-reliance, social cohesion, leisure and cultural facilities, leisure and cultural activities, living space, education attainment and urban living space. Housing waiting time and private rental can be reduced.

5.13.15 The development is expected not to cause any significant change including criteria air pollutants, energy consumption per capita, freight costs, income differential, local freshwater, marine water quality, municipal solid waste, open space shortfall, significant landscape features (point), toxic air pollutants, physical/ mental health, health of

vulnerable groups, archaeological and historical site and renewable energy.

5.13.16 On the negative side, there will be a very slight deterioration of condition with respect to construction waste, amount of freshwater supplied and consumed, landfill capacity, river water quality due to the proposed development. There will be slight deterioration with respect to amount of carbon dioxide emitted per year, excessive noise, marine eco-value, significant landscape features in terms of area, terrestrial eco-value, travel distance and waste reduction & recycling. These changes are considered to be extremely small as compared with the Hong Kong territory-wide values. Some of the negative impact would be occurred only in the construction stage which can be mitigated or minimized through best practices. The impact from the operational stage would be managed and minimized by proposed mitigation measures incorporated in different stages of the Project.

5.13.17 The overall assessment is mainly based on a qualitative approach. Based on the theory of the three pillars of sustainability: society, environment and economy, this project can be considered as positive overall in terms of sustainability since the potential negative environmental impacts can be offset by implementing proper mitigation measures.

5.14 Land Requirement

5.14.1 General

5.14.1.1 Further to the completion of the Stage 3 Public Engagement in October 2014, the RODP has been revised. The planned developments in the latest RODP represent the result of the effort of minimizing the use of private land.

5.14.1.2 Based upon the Preliminary Layout Plan, the land required for the proposed development in Tung Chung has been re-examined, covering both private lots and government land. Examination of the land required includes the status of the land involved, the current usage, the ownership, etc. Private lots to be zoned under CA, CPA, and GB, although not to be resumed, have also been studied. Other major issues that would affect the cost of land acquisition and clearance are also discussed and taken into account in formulating the optimal resumption scheme, e.g. VRT, removal of graves, etc.

5.14.1.3 Other key issues that would have potential impacts on the resumption have also been discussed, including rehousing commitment upon land clearance, timing, adverse zoning/downzoning, road closure, etc. Recommendations on implementation strategies of the resumption have been proposed for relevant parties' consideration.

5.14.2 Land Status and Current Usage

5.14.2.1 The TCE PNTEA is comprised entirely of reclaimed land, located to the east of the existing Tung Chung Town Centre.

5.14.2.2 The TCW PNTEA is located to the west of the existing Tung Chung Town Centre and includes developments around the existing Yat Tung Estate and North Lantau Hospital, and developments at the Tung Chung Valley with existing residential clusters in rural village-type development. Both private lots and government land are covered by the TCW PNTEA. Land search has been conducted to investigate the ownership of the private lots. The private lots are held by either individuals or companies. Furthermore, it is identified that there are a number of companies owning a substantial number of lots in the TCW PNTEA.

5.14.2.3 A number of recognised villages have been identified within the study area, including Pak Mong, Ngau Kwu Long, Ma Wan Chung, Wong Nei Uk, Ma Wan, Shan Ha (Pa Mei), Chek Lap Kok San Tsuen, Common Boundary of 4 villages (Sheung Ling Pei, Ha Ling Pei, Wong Ka Wai, Lung Tseng Tau), Shek Mun Kap, Ngau Au, Lam Che, Nim Yuen, Mok Ka, Shek Lau Po, and San Tau according to the latest information showing the boundaries of recognized villages from LandsD.

5.14.3 Land Requirement

Existing Land

5.14.3.1 For existing land, land resumption is required for the private land lots (if any) within following zones of development for public purpose:

- Area 42 (TCV-6) and Area 46 (TCV-7) in TCW which are proposed for high density subsidized residential development
- Area 23 (TCW-2) for private housing development (instead of market-driven type development for other cases)
- All G/IC, except (i) the IC zones comprising the Hau Wong Temple and the Prajna Dhyana Temple and (ii) the G zone comprising the existing HKPA Tung Chung Outdoor Recreation Camp near Hau Wong Temple
- Portion of undesignated G/IC necessary for proposed Ma Wan Chung car parking facilities and proposed drainage diversion works
- All facilities for utilities / services, e.g. attenuation pond, polder scheme, sewage pumping station, telephone exchange (Subject to further consultation with telecommunication service providers on the planning of future telecommunication infrastructure in Tung Chung at later stage of the project, the site allocated for telephone exchange in TCW might not be necessary.)
- All public roads (private roads within the proposed private residential zones are not included)
- River Park
- Freshwater and Saltwater Service Reservoirs and the associated site formation works

5.14.3.2 Although land resumption is not immediately required for the following because there is no definite development programme or specific uses, land resumption for the following may be required on a need basis:

- All DO, except (i) the hillside to the northeast of the existing Yat Tung Estate and the area to the north of Ma Wan Chung Village and (ii) the open area near Hau Wong Temple, for which land resumption is not required
- All RO comprising the waterfront promenade
- All other undesignated G/IC

5.14.3.3 [redacted]

5.14.3.4 The area of land requirement for TCE, TCW and Road P1 are shown in **Figure 5.14.1 to 5.14.3**. For TCE and Road P1, the majority of the required existing land is located near the existing shoreline adjoining the proposed reclamation area.

5.14.3.5 Land requirement in relation to the development of Tung Chung Line

Extension and the new stations at TCE and TCW and the associated diversion of railway line are not included in this Study. This shall be covered under separate project and gazettal procedure.

Land Formed by Proposed Reclamation

5.14.3.6 Apart from the land requirement for existing land, reclamation is also proposed for TCE and Road P1 at the eastern side of TCE.

5.14.3.7 Plan showing the proposed reclamation area for TCE and Road are shown in **Figure 5.14.1 to Figure 5.14.2**.

Town Planning for Land to be Resumed

5.14.3.8 There are currently no statutory plans under the Town Planning Ordinance for TCE which is comprised entirely of reclaimed land, or the majority of the land to be resumed in TCW, except for the land described below.

5.14.3.9 Land within resumption area located to the north east of Yat Tung Estate falls within the zoning of "Residential (Group A)", "Open Space", and "Road", according to the Approved Tung Chung Town Centre Area Outline Zoning Plan No. S/I-TCTC/20.

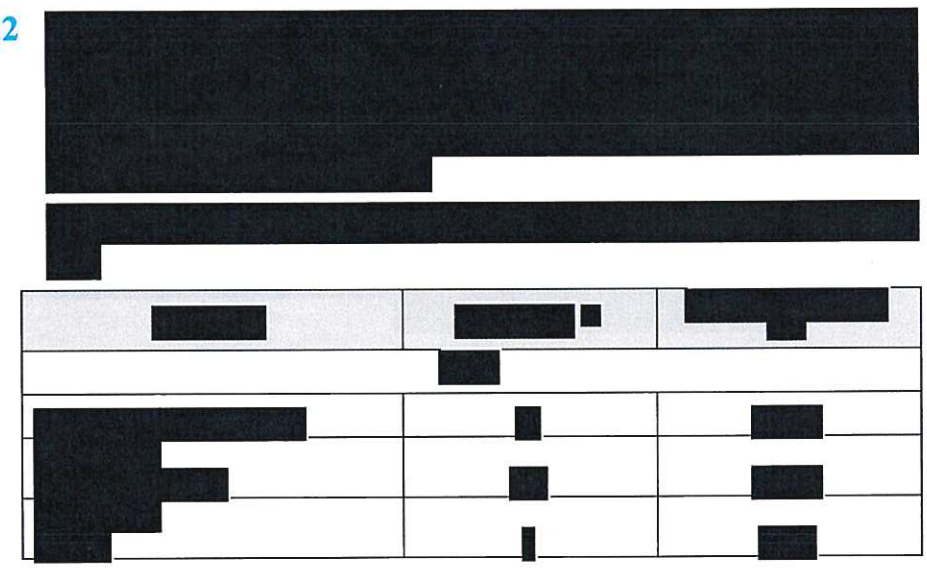
5.14.4 Private Lots to be Resumed

TCE and Road P1

5.14.4.1 No resumption of private lots is required for the proposed development in TCE and Road P1.

TCW

5.14.4.2 [redacted]



[redacted]

[redacted]

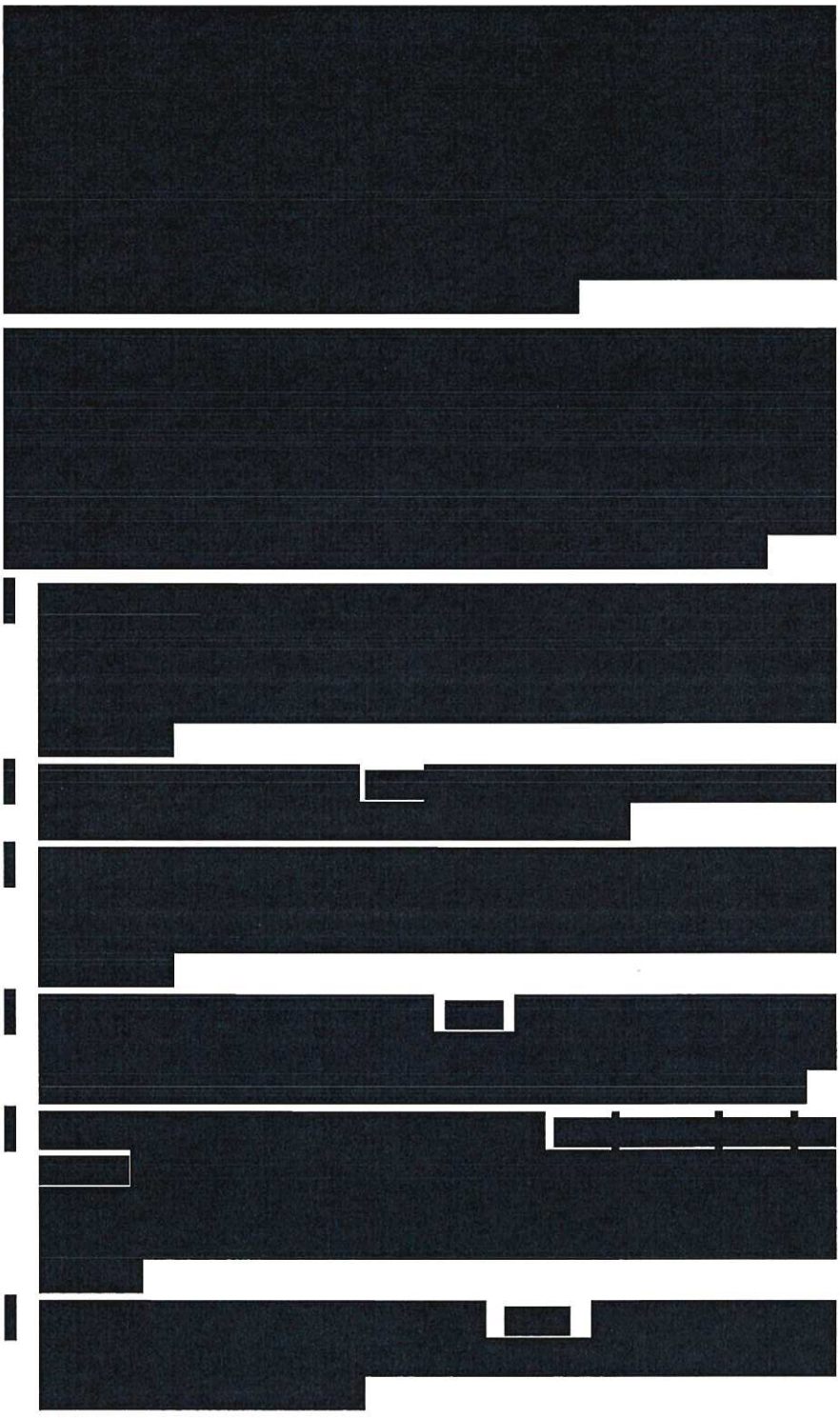
5.14.4.3 [redacted]

5.14.4.4 [redacted]

5.14.4.5 [redacted]

5.14.4.6

5.14.4.7



5.14.4.8 The proposed area to be resumed are away from burial grounds shown in C1000 map.

5.14.4.9 Apart from the proposed development areas as shown in the Preliminary Layout Plan, drainage improvement works for Ma Wan Chung and village sewers within "Village" zone in TCW will also be proposed. However, the extent of land resumption for the drainage and

sewerage works in existing village can only be identified when the detailed design of the drainage and sewerage system area available in the detailed design stage.

5.14.5 Government Land to be Required

TCE and Road P1

5.14.5.1 Reclamation area of approx. 120.5 hectares and 8.6 hectares are required for the TCE PNTEA and the Road P1 respectively, which includes the reclamation for the proposed development area and portion of seawall above the high water mark. The proposed reclamation area is shown in **Figure 5.14.1 and 5.14.2.** Attention is drawn that the seawall configuration is subjected to detailed design and the total area shall be reviewed at later stage of the project as necessary.

5.14.5.2 It has been identified that a total of approximately 8.4 hectares, 2.6 hectares and 1.8 hectares of existing government land would be required for TCE, Road P1 and the adjoining Tai Ho Interchange respectively near the existing shoreline. The area is also shown in **Figure 5.14.1 and 5.14.2.** Only 1 Temporary GLA will be affected as shown in **Figure 5.14.4 and 5.14.5** and the affected area is about 14,028m^2.

5.14.5.3 In additional, proposed utilities works are generally located within government land with allocated land use and hence no land requirement is not yet included in this Technical Paper. The necessity of land requirement shall be reviewed later when the exact alignment are determined in the detailed design stage. The utilities alignment shall be designed such that the existing GLA, GLL, STT are avoided as far as possible.

TCW

5.14.5.4 It has been identified that a total of approximately 13.4 hectares of government land would be required, out of which 8,790m^2 are Lot / Licence Area including the following:

- 1 Permanent GLA
- 3 Temporary GLA
- 15 GLL
- 1 STT
- An Old Schedule Lot (DD 1 TC 125) owned by Secretary For District Administration Incorporated which is assumed not to encumber compensation cost for the purpose of this Technical Paper.

5.14.5.5 As advised by DLO/IS, two proposed STTs are identified within the

resumption boundary which is not yet shown on the C1000 map:

- STT CX2209 at the north-eastern end of Yat Tung Estate
- STT IS 147/3/04 located northeast of Ngau Au and Tung Hing, and adjacent to DD 1 TC Lots 310 & 318

5.14.5.6 Upgrading works is required for existing Chung Mun Road Sewage Pumping Station at GLA-IS 427. The land use and status of this lot will not be affected after the upgrading works.

5.14.5.7 In additional, proposed utilities works are generally located within government land with allocated land use and hence no land requirement is not yet included in this Technical Paper. The necessity of land requirement shall be reviewed later when the exact alignment are determined in the detailed design stage. The utilities alignment shall be designed such that the existing GLA, GLL, STT are avoided as far as possible.

5.14.5.8 The area of government lots to be required for different category of land uses are summarized in below table.

Table 5.14.2 Area of Government Lot/ Licence Area to be required for different land uses

Land Uses	Approx. Area (m^2)
TCE	
Residential (subsidized), District Open Space (DO), Government / Education, Road	14,028
Total (TCE)	**14,028**
TCW	
Government -Attenuation Pond	12
Government- Clinic	15
Government- Sewage Pumping Station	894
Government - Undesignated G/IC	68
Land sale for housing	4,329
Other Use- Polder	721
Other Use- River Park	40
Regional Open Space (RO)	362
Roads	1,325
Residential (subsidized)	2,566
Total (TCW)	**10,333**
Service Reservoir	
Service reservoirs and associated site formation works	12,093
Total (Service Reservoir)	**12,093**

Note:

(1) Where a GLA/TGLA/GLL/STT area is partially required for the proposed development area, it is assumed that only the area of the GLA within the proposed development area is required.

(2) The area is measured from the GLA/TGLA/GLL/STT boundaries shown in the C1000 map from LandsD.

(3) *Area of Old Schedule Lot (DD 1 TC 125) is included in above table.*

5.14.5.9 The total required government land area within the VEB is approx. 377 m^2. Thus, the total required land area (including both private and government land) within VEB is approx. 16,333 m^2 which a large proportion (approx. 12,992 m^2) is located within the VEB of Ma Wan Chung Village.

Service Reservoirs

5.14.5.10 It has been identified that a total of approximately 2.5 hectares of existing government land would be required for the service reservoirs and the associated site formation works near the existing Tung Chung Freshwater Service Reservoir. Only 1 Permanent GLA will be affected as shown in **Figure 5.14.6** and the affected area is about 12,093 m^2.

5.14.5.11 No registered Right of Way, Letter of Approval, No Objection Letter, Easement, or Modification Letter is identified within the area to be resumed.

5.14.6 Private Lots to be zoned under Conservation Area (CA), Costal Protection Area (CPA) and Green Belt (GB)

5.14.6.1 The existing private lots which are proposed to be zoned as CA/CPA/GB will not be resumed by the government.

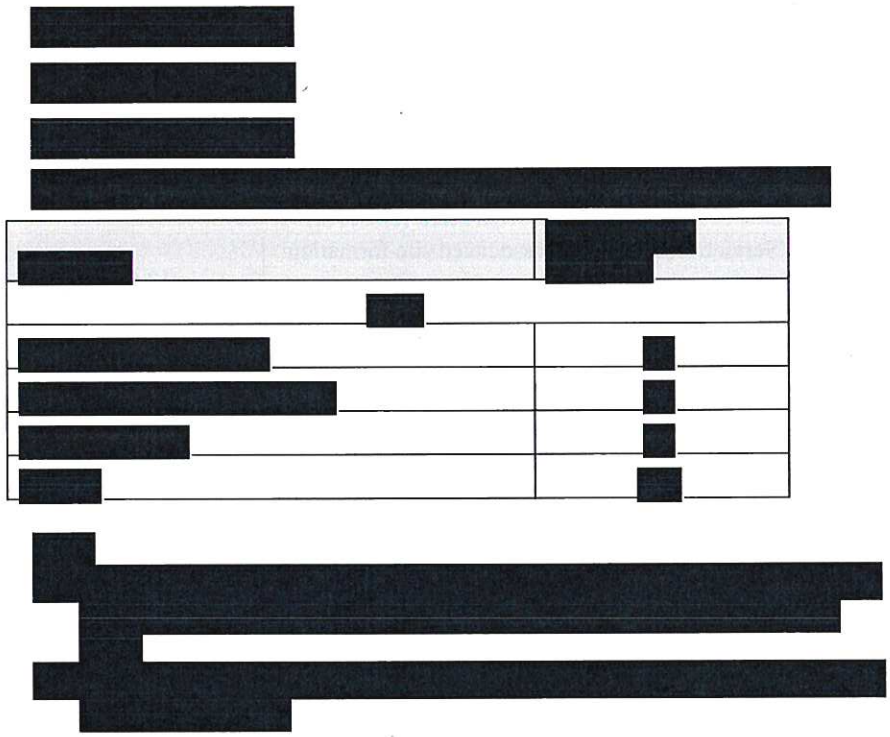
TCE and Road P1

5.14.6.2 No private lots are being zoned as CA/CPA/GB in TCE and Road P1.

TCW

5.14.6.3 Based on the current Finalized Preliminary Layout Plan, the total area of private lots proposed to be zoned under CA/CPA/GB are shown in below table. The location of private lots is shown in **Figure 5.4.7**. The number of affected private lots are as follow:

-



5.14.6.4 Pursuant to the Land Registry records, the majority of the private lots to be zoned under CA/CPA/GB are agricultural lots. Limited numbers of the private lots affected are considered to be in relation to building / residential uses, which includes (i) lots with uses specified as "building", "building (non-industrial)", "house", "house site" or "private residential" according to the Land Registry records (where more than one uses are specified for a lot and at least one of them fall within the above uses, the lot is still included in this category), and (ii) lots with other uses but with Building Licence (BL) pursuant to the Land Registry records. The number of affected private lots in relation to building / residential uses are listed below:

-

- [redacted]
- [redacted]

5.14.7 Other Features to be Cleared

5.14.7.1 Apart from the issues discussed above, there are other features affected by the resumption to be considered, as shown in below table.

Table 5.14.4 Other Features to be Cleared [5]

Uses	Approx. Number/Area
Yee Kun Chungs (Formal Graves)	6 nos.[1]
Huet Chong Grave (first burial grave with no structure above ground)	70 nos. [1] (including 50 unclear grave sites)
Kam Tap (urns)	356 nos. [1]
Kam Tap (urns) with Shelter	1 no. [1]
Fruit Tree	72,036 m^2 [2]
Fish Pond	N/A [3]
Livestock Farm	N/A [3]
Crop	N/A [4]

Note:

[1] [redacted]. *For the other affected areas, the number of grave, kam tap and shrine shall be subject to further investigation conducted by LandsD.*

[2] [redacted]

[3] Based on external site inspection and aerial photos, no such features/structures were identified within the area to be resumed.

[4] Details of crops to be resumed will be subject to further investigation by LandsD and AFCD.

[5] The actual number/area of affected features will be subject to detail site investigation.

5.14.8 Procedures of Land Resumption

5.14.8.1 The institutional framework within which the acquisition of the land that will need to be procured for the Tung Chung Project, in order that land acquisition can be implemented efficiently and within the shortest possible timeframe have been considered. It should be noted that, whilst

the possible land acquisition strategies that could be considered by the Administration have been set out, the way forward will ultimately depend upon land policy, legal and financial issues associated with the implementation of the Tung Chung Project.

5.14.8.2 The primary modes of resumption of respective development zones in TCW under the proposed future use of the land is summaried in below table:

Table 5.14.5 Proposed Resumption Mode

Development Zones	Proposed Primary Resumption Mode(s) under the planned usage of the lots
All public roadworks (private roadworks within the proposed private residential zone are not included)	• The Roads (Works, Use and Compensation) Ordinance (Cap. 370)
Residential Zone TCV-6 and TCV-7 (proposed for high density subsidized residential development)	• The Lands Resumption Ordinance (Cap. 124)
All DO (except the hillside to the northeast of the existing Yat Tung Estate which is proposed as Town Park, the proposed DO north of Ma Wan Chung village, and the open area near Hau Wong Temple)	• The Lands Resumption Ordinance (Cap. 124) • The Railways Ordinance (Cap. 519) for applicable lots in DO-2 and DO-3 in proximity to the proposed Tung Chung West Station adjacent to TCW-1
All RO comprising the waterfront promenade	• The Lands Resumption Ordinance (Cap. 124) • The Foreshore and Sea-bed (Reclamations) Ordinance (Cap.127) • The Railways Ordinance (Cap. 519) for applicable lots in RO-2 in proximity to the proposed Tung Chung West Station
The OU(River Park) Area	• The Lands Resumption Ordinance (Cap. 124)
All facilities for utilities / services, e.g. attenuation pond, sewage pumping station, telephone exchange, including those within private residential zone	• The Lands Resumption Ordinance (Cap. 124) • The Roads (Works, Use and Compensation) Ordinance (Cap. 370) for lots resumed for facilities ancillary to road works • The Water Pollution Control (Sewerage) Regulation (Cap. 358) for lots resumed for sewage pumping stations and ancillary facilities
All G/IC and E, except the IC zone comprising the Hau Wong Temple	• The Lands Resumption Ordinance (Cap. 124) • The Roads (Works, Use and Compensation) Ordinance (Cap. 370) for lots resumed for works ancillary to road works

Remarks:

Where land required for a public purpose is held on possessory title against the Government, Land Acquisition (Possessory) Title Ordinance will be invoked.

5.14.8.3 Key issues that would have potential impacts on the resumption have also been discussed, including rehousing commitment upon land clearance, timing, adverse zoning/downzoning, road closure, etc.

6 Environmental Impact Assessment

6.1 Approach to Environmental Impact Assessment

6.1.1 An Environmental Impact Assessment (EIA) has been carried out to assess the environmental impact from the Tung Chung New Town Extension (TCNTE) Project, including the possible development areas (PDAs) at both Tung Chung East (TCE) and Tung Chung West (TCW). The EIA has been prepared in accordance with the requirements of the Environmental Impact Assessment Ordinance (EIAO) and the EIA Study Brief (ESB-285/2015).

6.1.2 The EIA process provides a means of identifying, assessing and reporting the environmental impacts and benefits of the project. It is an iterative process that has been followed in parallel with the design process to identify the potential environmental effects of various design options, and develop alternatives as well as mitigation measures to be incorporated into the design, construction and operation of the Project. Feedback and advice obtained from the various stakeholder engagement activities have been considered and incorporated into the EIA process where appropriate. Mitigation measures have been proposed to avoid some potential environmental impacts, or to minimise or mitigate to acceptable levels. The impact evaluation and proposed mitigation measures, if any, different environmental aspects are summarised below.

6.1.3 The EIA was approved on 8 April 2016. The Environmental Permit No. EP-519/2016 was issued on 9 August 2016 and a copy can be found at EPD webpage *(http://www.epd.gov.hk/eia/register/permit/latest/ep5192016.htm)*

6.2 Air Quality

Introduction

6.2.1 Potential air quality impacts associated with the construction and operational phases of the project have been assessed in accordance with the criteria and guidelines as stated in the requirements given in Section 3.4.1 and Appendix B of the EIA Study Brief, as well as Section 1 of Annex 4 and Annex 12 of the Technical Memorandum on EIA Process issued under the EIAO (TM-EIAO).

6.2.2 Quantitative assessments using the relevant air models approved by EPD have been conducted for both the construction and operational phase impact assessments. Cumulative air quality impact, project contribution, and changes in air quality levels from existing baseline conditions have been determined.

Construction Phase

6.2.3 The key activities that could potentially result in dust emissions during

construction phase of the project have been identified. These activities include reclamation, site clearance, soil excavation, backfilling, site formation and wind erosion of open sites. In addition, construction dust emissions from concurrent projects have also been identified and included in the cumulative air quality impact assessment where appropriate. The assessment has include representative Air Sensitive Receivers (ASRs) in the vicinity and considered the relevant air pollutants such as Total Suspended Particulates (TSP), Respirable Suspended Particulates (RSP) and Fine Suspended Particulates (FSP).

6.2.4 Assessment results indicate that, with the implementation of the mitigation measures as stipulated in the Air Pollution Control (Construction Dust) Regulation and dust control measures (i.e. watering once per hour on exposed worksites and haul road, and good site practices), the predicted concentrations of TSP, RSP and FSP at representative ASRs would comply with the Air Quality Objectives (AQOs) and TM-EIAO.

6.2.5 A summary of the predicted concentrations for key representative air pollutant after the implementation of mitigation measures is tabulated below:

Table 6.2.1: Summary of construction dust impacts (after implementation of mitigation measures)

Area	TSP Conc. ($\mu g/m^3$)	RSP Conc. ($\mu g/m^3$)		FSP Conc. ($\mu g/m^3$)		AQOs / TM-EIAO Compliance
	Max. 1-hour	10th highest 24-hour	Annual	10th highest 24-hour	Annual	
	(500)	*(100)*	*(50)*	*(75)*	*(35)*	
Existing Tung Chung Town	146 - 404	79 - 97	40 - 50	57 - 61	27 - 30	Yes
TCE	147 - 466	78 - 99	40 - 50	58 - 61	28 - 30	Yes
TCW	143 - 309	78 - 81	39 - 42	57 - 59	27 - 28	Yes

Note: Respective criteria of each pollutant are given in ( ).

6.2.6 The mostly affected receivers would be those in the immediate vicinity of construction sites during the period with heavy construction activities. [redacted] In summary, no adverse air quality impact during construction phase is anticipated when all the proposed mitigation measures are implemented.

Operational Phase

6.2.7 Key existing and planned / committed air pollution sources in the vicinity of the Project during operational phase include the vehicular emission from neighbouring roads, such as North Lantau Highway (NLH), Hong Kong Link Road, Hong Kong Boundary Crossing Facilities, and Tuen Mun - Chek Lap Kok Link, Hong Kong

International Airport, and Organic Waste Treatment Facilities Phase I etc. The assessment has also considered other emission sources that would have certain influence on the background air quality level, including territory wide vehicular emission, power plants, marine traffic emission, as well as regional emission from the Pearl River Delta. Key representative air pollutants include Nitrogen Dioxide (NO_2), RSP and FSP.

6.2.8 During the course of formulating the Recommended Outline Development Plan (RODP), air quality impact on the newly introduced population in the Tung Chung East development area is one of the key concerns given the close proximity to the heavily trafficked NLH. Sufficient buffer distance from NLH has been provided for the air sensitive receivers. For example, a separation distance of at least 180m between NLH and the residential buildings will be provided. Nevertheless, quantitative assessment has been conducted and assessment results indicate that the cumulative air quality impact during operational phase for the assessment year would comply with the AQOs. Hence, the operation of the project will not result in adverse residual air quality impacts and mitigation measures are therefore not required. A summary of the predicted concentrations for key representative air pollutants is given below and the Contours of 19th highest 1-hour and annual NO_2 concentrations, 10th highest 24-hour and annual RSP/FSP concentrations (with Project Scenario) at the worst affected level (i.e. 1.5m above ground) are therefore plotted in **Figures 6.2.1-6.2.6**.

Table 6.2.2: Summary of predicted concentrations for key representative air pollutants

Area	NO_2 Conc. ($\mu g/m^3$)		RSP Conc. ($\mu g/m^3$)		FSP Conc. ($\mu g/m^3$)		AQO Compliance
	19th highest 1-hour	Annual	10th highest 24-hour	Annual	10th highest 24-hour	Annual	
Tung Chung Town	112 - 163	23 - 36	73 - 78	38 - 39	55 - 58	27 - 28	Yes
TCE	141 - 168	28 - 31	76 - 78	39 - 39	57 - 59	27 - 28	Yes
TCW	111 - 131	22 - 28	73 - 77	38 - 39	55 - 58	27 - 27	Yes

6.2.9 Higher pollutant concentrations (e.g. annual NO_2) are generally predicted at existing residential and educational ASRs located adjacent to the NLH, such as One Citygate, Tat Tung Road Park, Ling Liang Church E Wun Secondary School, Ling Liang Church Sau Tak Primary School, Novotel Citygate Hong Kong, and Man Tung Road Park. For planned residential and educational ASRs in TCE, as sufficient setback distance between the NLH has already been considered in the layout design, the predicted pollutant concentrations are generally lower than the existing ASRs. For existing and planned ASRs in TCW, such as Shek Mun Kap, Yat Tung Estate – Kui Yat House and the planned residential developments, which are located further away from the major highways, the predicted pollutant concentrations are lower.

6.2.10 The air quality assessment has also quantified the contributions due to the proposed Project. For the planned ASRs in TCE, the traffic due to the Project would contribute to less than $3\mu g/m^3$ in terms of annual NO_2. For the existing ASRs in the vicinity of TCE, the traffic due to the Project would contribute to less than $2\mu g/m^3$ in terms of annual NO_2.

6.2.11 Similarly, for the planned ASRs in TCW, the traffic due to the Project would contribute to less than 2μg/m3 in terms of annual NO_2. For the existing ASRs in the vicinity of TCW, the traffic due to the Project would contribute to less than 1μg/m3 in terms of annual NO_2.

6.3 Noise Impact

Introduction

6.3.1 Potential noise impacts associated with the construction and operational phases of the project have been assessed in accordance with the criteria and guidelines as stated in the requirements given in Section 3.4.2 and Appendix C of the EIA Study Brief, as well as Annex 5 and Annex 13 of the TM-EIAO.

6.3.2 Impacts from construction airborne and groundborne noise, road traffic noise, fixed noise, aircraft noise, rail airborne and groundborne noise, helicopter noise and marine traffic noise have been quantitatively determined with relevant models and calculations.

6.3.3 In fact, the design of the new town has proactively located certain commercial buildings between residential buildings and NLH and the railway line to provide noise screening. This has helped to avoid traffic noise impacts from NLH and rail noise as much as practicable at the outset.

Construction Airborne Noise

6.3.4 Potential construction airborne noise impacts would be caused by various construction activities including reclamation for the PDA at TCE and Road P1 extension, site clearance and formation activities for TCE and TCW, construction of service reservoirs, revitalization works along the channelized section of Tung Chung Stream, internal roads, superstructure, etc.

6.3.5 Construction noise assessment has concluded that the unmitigated construction noise impacts would exceed the noise criteria at some existing and planned Noise Sensitive Receivers (NSRs). A package of noise mitigation measures such as good site practices, movable noise barriers, full enclosure, quiet plants and working sequence have therefore been proposed to mitigate construction noise impacts. Assessment results indicate that, with the implementation of the above mitigation measures, all NSRs including residential premises and schools during both normal and examination periods would comply with the stipulated noise criterion. For TCE, the construction noise

impacts would be 50 – 74dB(A) and 65dB(A) for planned residential uses and educational institutions respectively. For TCW, the construction noise impacts would be 75dB(A) for planned residential uses. For the existing noise sensitive receivers, the construction noise impacts would be 56 – 75dB(A) and 65dB(A) for residential uses and educational institutions respectively. Similar to the committed noise sensitive receivers, the construction noise impacts would be 65 – 75dB(A) and 65dB(A) for residential uses and educational institutions respectively. Adverse construction airborne noise impact is not anticipated.

Construction Groundborne Noise

6.3.6 The extension of the existing Tung Chung Line to the proposed Tung Chung West Station is expected to be constructed by the use of Tunnel Boring Machine, which would generate groundborne noise. Assessment results suggest that, given the separation distance between the new railway extension and the planned NSRs, the vibration generation by typical TBM operation would cause groundborne noise impacts of 38 – 40dB(A) at planned residential uses, which would not exceed the respective noise criterion. Adverse construction groundborne noise impact is not anticipated.

6.3.7 The proposed railway stations at TCE and TCW and its associated railway system are a Designated Project under Item A.2 of Schedule 2 of TM-EIAO. A separate study would be conducted by the future rail operator to fulfil all the statutory requirements and procedures under the EIAO.

Road Traffic Noise

6.3.8 The road traffic from both existing and planned roads would generate road traffic noise that would have impacts on the planned and existing NSRs. Existing roads that have been included in the assessment include NLH, Ying Hei Road, Yu Tung Road, Tung Chung Road and planned roads under TCNTE including those internal roads inside TCE, TCW and Road P1.

6.3.9 Assessment results suggest that, for the scenario without mitigation measures, the predicted road noise levels at some of the planned noise sensitive receivers including residential uses and educational institutions inside TCE and TCW would exceed the respective noise criteria. The use of noise mitigation measures have therefore been explored, including 1) approximately 270m long noise barriers (height ranges from 5m to 5m with 3m cantilever arm at 45°) along some road sections or boundary walls within development sites; 2) application of approximately 530m long low noise road surfacing materials on some road sections; and 3) suitable treatment on end walls, arranging noise tolerant portions of buildings in internal layout design and architectural fins in some buildings. The abovementioned noise mitigation measures for road traffic noise are illustrated in **Figures 6.3.1 – 6.3.3**. With all the proposed mitigation measures in place, the façade noise levels at all

the planned sensitive receivers would comply with the respective noise criteria. A summary of the predicted road traffic noise impacts is given below.

Table 6.3.1: Summary of predicted road traffic noise impacts

Uses	Predicted Overall $L_{10\ 1hr}$, dB(A)	Criterion, $L_{10\ 1hr}$ dB(A)
TCE		
Residential	27 – 70	70
Educational Institutions	37 – 65	65
TCW		
Residential	45 – 70	70

6.3.10 The noise level from project roads would comply with the respective noise criteria and the project road contribution to overall noise level would not be negligible. Hence, traffic noise impact due to the project is insignificant after implementing the proposed mitigation measures.

Fixed Noise

6.3.11 A number of facilities have been recommended to support the operation of the proposed new town. Some of these facilities are fixed noise sources that would have potential noise impacts on NSRs. These noise sources include planned salt water pumping station / sewage pumping station / pumping station, fire station, Chung Mun Road sewage pumping station, electric substation, public transport interchange. Other than these planned noise sources, fixed noise sources from boatyard maintenance area, sports ground, ventilation shafts for the railway stations at TCE and TCW and planned Third Runway of Hong Kong International Airport would also contribute to noise environment.

6.3.12 In order to ensure that the noise impacts from these fixed noise source would comply with the respective noise criteria, their maximum allowable sound power level have been derived. These sound power levels are 67 – 88dB(A) for salt water pumping station / sewage pumping station / pumping station, 97dB(A) for fire station, 81dB(A) for Chung Mun Road sewage pumping station, 96dB(A) for electric substation, 82 – 91dB(A) for public transport interchange and 103dB(A) for boatyard maintenance area. For sports ground, measured Sound Pressure Level has been made reference to the approved EIA Report for Main Arena of the 2008 Olympic Equestrian Event (AEIAR-097/2006) and the predicted noise levels at NSRs are within respective noise criterion. The detailed design of these plant rooms etc. shall ensure that sufficient sound attenuators are appropriately incorporated into the design such that the maximum allowed sound power can be achieved. Adverse fixed noise impact is therefore not anticipated.

Aircraft Noise

6.3.13 The approved 3RS EIA (AEIAR-185/2014) has predicted the Noise Exposure Forecast (NEF) noise contours for different years. According to its findings, the NEF25 noise contour in Year 2021 will encroach

onto the part of the reclamation boundary of TCE. However, the predicted NEF 25 contours would be shifted away from TCE boundary upon the full commissioning of the 3RS, currently planned for 2023 as stated in the 3RS EIA.

6.3.14 Since the population intake for the portion of TCE that are within the Year 2021 NEF 25 noise contour would be beyond Year 2023, adverse aircraft noise impacts on the planned sensitive receivers are not anticipated and hence mitigation measures are not required. If the operational year of the 3RS would need to be shifted beyond the programme stated in the 3RS EIA or the Project is developed in advance of operation of the 3RS of HKIA, the Project Proponent of this Project shall conduct a review on the dates of population intake so as to ensure that all the NSRs within TCE would not be adversely affected by aircraft noise. Moreover, without implementation of the 3RS project of the HKIA, it is noted that part of the proposed TCE reclamation on the seaward side would fall within the NEF 25 contour based on the current operation of HKIA. In that case, the planning of TCE which envisages a mix of residential and commercial development would need to be reviewed.

6.3.15 For TCW, the development boundary will be away from the predicted NEF 25 contours for all the operation modes for airport including the existing two runway system and the 3RS. Adverse aircraft noise impact is therefore not anticipated.

Rail Noise

6.3.16 The railway stations at TCE and TCW and its associated railway system is a Designated Project under Item A.2 of Schedule 2 of TM-EIAO. A separate study would therefore be conducted by the future rail operator to fulfil all the statutory requirements and procedures under the EIAO.

6.3.17 Nevertheless, the current assessment has considered the cumulative railway noise impacts for the planned NSRs within TCE during different phases of the implementation. According to current planning, the commercial buildings that are strategically located between the Phase 1 residential buildings and Tung Chung Line (TCL) & Airport Express Line (AEL) would be in place prior to the Phases 1 & 2 population intake. Assessment results indicate that noise mitigation measures would be required, in the form of facade with no openable windows and architectural fin. With these mitigation measures in place, the predicted noise impacts at all the NSRs would be in the range of 40 – 60dB(A), which comply with respective statutory noise criteria.

6.3.18 Similarly, the commercial buildings that are strategically located between Phases 3 & 4 residential buildings and TCL & AEL would be in place prior to the Phases 3 & 4 population intake. Assessment results indicate that noise mitigation measures would be required for TCL, in the form of semi-noise enclosures covering part of the TCL track tentatively subject to further review under a separate study to be conducted by future rail operator. With these tentative mitigation

measures in place (see **Figures 6.3.4 – 6.3.5**), the predicted noise impacts at all the NSRs would be in the range of 29 – 58dB(A), which comply with respective statutory noise criteria and hence adverse rail noise impact is not anticipated.

6.3.19 For operational groundborne noise, based on the vibration source term established on site, the predicted groundborne noise impact would be in the range of 34 – 44 dB(A) which comply with respective statutory noise criteria and hence adverse impact is not anticipated.

Helicopter Noise

6.3.20 The helicopters being operated by both Government Flying Services and a commercial company would be using the airspace in the vicinity of Tung Chung East and Tung Chung West. An assessment has been conducted based on the noise source term for helicopters and flying route. According to the assessment results, the predicted helicopter noise level at planned NSRs will be within the statutory noise criterion.

Marine Traffic Noise

6.3.21 Potential marine traffic noise sources that would have impacts on the proposed development include the existing ferry commuting between Tuen Mun, public Pier in Tung Chung, Sha Lo Wan and Tai O, and the proposed marina at TCE. The predicted marine traffic noise impact from those noise sources would be in the range of 39 – 48dB(A) during daytime and evening periods and 39 – 44dB(A) during nighttime period and are below the respective background noise levels at various NSRs and hence adverse marine traffic noise impact is not anticipated.

6.4 Water Quality

Introduction

6.4.1 In accordance with the EIA study brief, the study area for the water quality impact assessment covers the North Western, North Western Supplementary and Western Buffer Water Control Zones (WCZ). Water sensitive receivers (WSRs) such as cooling seawater intakes, Water Supplies Department (WSD) flushing water intakes, bathing beaches, coral communities, fishery sensitive areas, and ecologically sensitive areas that might be affected by the project were identified.

6.4.2 The criteria used for evaluating water quality impacts follow the TM-EIAO and Water Quality Objectives (WQO) for the North Western, North Western Supplementary and Western Buffer WCZs. Other local and international criteria were also adopted where applicable.

6.4.3 Quantitative assessments have been performed for both the construction and operation phases of the Project. The model covers the study area and includes the Pearl River and the Dangan Channel. Concurrent projects for the construction and operational phases were identified and incorporated into the assessment for cumulative impact where appropriate.

Construction Phase

6.4.4 While reclamation in TCW has been removed to avoid water quality impacts as much as practicable, reclamation works at TCE is still required. Potential key sources of water quality impact during the construction phase include land formation works in TCE and Road P1, construction of new seawall, stone column installation. It should be noted that potential construction phase water quality impacts associated with the proposed works have already been substantially reduced by the adoption of non-dredged reclamation methods for land formation and reclamation filling works within a leading seawall of about 200m. Other than reclamation works, the construction work in both TCE and TCW would involve construction site runoff and drainage; sewage effluent from construction workforce.

6.4.5 A quantitative assessment of potential water quality impacts associated with marine construction works has also been conducted, taking into account the critical periods for Suspended Sediment (SS) release. Other activities that could affect water quality during construction are primarily land-based and were assessed qualitatively.

6.4.6 Assessment results show that with the application of about 200m leading edge of partially completed seawall prior to marine filling activities and the implementation of mitigation measures (in the form of silt curtains and silt screens where applicable), there will be no exceedance of the SS criteria at any WSR due to the construction activities. The predicted maximum concentration of suspended solids at the representative WSRs for scenario of Tung Chung project only is summarized in **Table 6.4.1**. However, when taking into account of the SS release from concurrent projects, cumulative exceedance is predicted at few WSRs near the Brothers Islands. For example, the predicted maximum concentration of suspended solids at Marine Parks at the Brothers Islands and Tai Mo To (Dolphin Habitat) is 5.77 mg/L and 2.82 mg/L; at Coral Communities at the Brothers Islands is 7.48 mg/L and 4.38 mg/L for dry and wet seasons respectively. Nevertheless, the exceedance are primarily due to the conservative assumptions for the concurrent projects rather than due to the contributions from the Tung Chung project. Those conservative assumptions are based on the maximum allowable SS release rates of the relevant concurrent project. However, based on the information from the project proponent of CMPs, the actual SS release rates of East Shau Chau CMPs are much lower than the maximum allowable release rates. Therefore, adverse residual water quality impacts due to the project are not anticipated.

Table 6.4.1: Summary of predicted maximum concentration of suspended solids in depth averaged at the representative WSRs (construction phase scenario for Tung Chung project only)

WSR	Modelling Result of Max Suspended Solids (mg/L)		Suspended Solids Criteria (mg/L)		Compliance to Suspended Solids Criteria
	Dry Season	Wet Season	Dry Season	Wet Season	
Tung Chung Estuary	0.37	0.01	9.0	5.6	Yes
Tai Ho Wan Inlet (outside)	0.23	1.11	3.9	2.5	Yes
Marine Parks at the Brothers Islands and Tai Mo To (Dolphin Habitat)	0.01	0.23	3.9	2.5	Yes
Coral Communities at the Brothers Islands	0.00	0.09	3.9	2.5	Yes

6.4.7 A sensitivity scenario has also been conducted to review the situation that the operational year of the 3RS would be shifted beyond the programme stated in the 3RS EIA. Results indicate that, given the separation between the 3RS and the Tung Chung New Town Extension, even under the worst case scenario, the construction of 3RS would not cause significant cumulative impacts on the water sensitive receivers in Tung Chung Bay, and vice versa, the construction activities in Tung Chung would also not cause significant water quality impacts on the sensitive receivers near the 3RS. By comparison of the concurrent scenario and the above sensitivity scenario, exceedance at coral communities at the Brothers Islands (5.43 mg/L and 3.80 mg/L for dry and wet seasons respectively) is due to the conservative SS release assumption in concurrent projects. Non exceedance at Marine Parks of Brothers Islands is due to the hydrodynamics change without the landform of 3RS reclamation.

6.4.8 Other construction activities include bridge works at Tung Chung Stream, construction work of sewage pumping stations, fresh water and salt water services reservoirs, water management facilities and polder scheme, proposed marina and groundwater and runoff for tunnel works. With the implementation of good site practices and the recommended mitigation measures to minimise potential water quality impacts, these construction activities, as well as general construction site drainage and sewage effluent from the construction workforce, are not anticipated to result in significant water quality impacts.

6.4.9 In view of the above assessment findings, it is concluded that no adverse residual water quality impacts are anticipated during the construction phase of the project.

Operational Phase

6.4.10 The potential key sources of water quality impact during the operational phase include changes in hydrodynamics as a result of the reclaimed land in TCE and Road P1 and the increase of sewage amount and increase of pollution load from surface runoff.

6.4.11 For the reclamation in TCE and Road P1, quantitative assessments for 'with project' and 'without project' scenarios were undertaken for the assessment year of Year 2030 which represents the worst case for pollution loading, taking into account other planned and committed concurrent projects in the study area. The findings show that despite minor exceedance in total inorganic nitrogen at some WSRs, these were attributed from the background concentration but not attributed to the Project. The predicted water quality in annual mean of depth averaged at the representative WSRs is summarized in below table. Therefore, implementation of the project would not result in adverse hydrodynamic and water quality changes in the study area.

Table 6.4.2: Summary of predicted water quality in annual mean of depth averaged at the representative WSRs (operational phase 'with project' scenario)

WQO Criteria (Annual mean)	Dissolved Oxygen(mg/L)	Total Inorganic Nitrogen(mg/L)	Unionized Ammonia (mg/L)	Compliance to WQO
WSR	**≥ 4**	**≤ 0.5**	**≤ 0.021**	
Tung Chung Estuary	8.3	0.28	0.004	Yes
Tai Ho Wan Inlet (outside)	7.2	0.35	0.006	Yes

6.4.12 The assessment has also demonstrated that the proposed reclamation works would not cause significant change in the water quality at the water sensitive receivers including the estuary of Tung Chung Stream and inside Tai O Bay.

6.4.13 In order to protect the water quality of Tung Chung Stream, Tai Ho Wan and other neighbouring water body, all the sewage pumping stations serving the TCE and TCW will be designed with appropriate design to avoid the need for emergency discharge. For the surface runoff from TCW, enhancement measures such as provision of stormwater attenuation and treatment ponds, dry weather flow interception at the existing villages have been recommended to protect the water quality in Tung Chung Stream.

6.5 Sewerage and Sewage Treatment Implications

6.5.1 The TCNTE project will generate a large amount of sewage flow which will be taken up by proposed sewers, sewage pumping stations (SPSs) within TCE and TCW developments. Sewage generated by TCNTE will be discharged to the Siu Ho Wan Sewage Treatment Works (SHWSTW) for treatment.

6.5.2 Two SPSs are proposed within the TCE, where the intake population will occur in two stages, namely "interim" from Year 2023 to 2026 and "ultimate" from Year 2027 to 2030. Interim stage will be taken up by one proposed SPS within TCE with twin rising mains delivering flow directly to the Tung Chung Sewage Pumping Station (TCSPS). During ultimate stage, all flow from TCE will be diverted away from TCSPS and toward the other SPSs within TCE with twin rising mains delivering

flow directly to SHWSTW. All rising mains will be concrete encased to avoid risk of pipe bursting.

6.5.3 Three new SPSs are proposed within the TCW and the existing Chung Mun Road Sewage Pumping Station (CMRSPS) would be upgraded. Flow generated by a portion of TCW development will be diverted by sewers toward the upgraded CMRSPS, which will deliver flow by twin rising mains directly to one new SPS nearby the eastern tributary of Tung Chung Stream. Two other new SPSs are proposed nearby the West Tung Chung Stream which will also deliver flow by twin rising mains to the SPS nearby the East Tung Chung Stream. The SPS at East Tung Chung Stream will then deliver flow by twin rising mains directly to the TCSPS. All rising mains will be concrete encased to avoid risk of pipe bursting. **Figures 6.5.1 – 6.5.10** shows the sewerage layout proposed under this study.

6.5.4 Taking into account the ecological sensitivity of the Tung Chung Stream and Tung Chung Bay, several enhanced mitigation measures are proposed at these SPSs in TCE and TCW so as to eliminate the risk of pump failure, rising main failure and power failure during emergency situations. Each SPS will be fitted with a) 100% standby pumping capacity within each SPS, with spare pump up to 50% pumping capacity stockpiled in each SPS for any emergency use; b) twin rising mains; c) dual-feed power supply; d) emergency storage facilities up to 6-hours ADWF capacity; and e) emergency communication mechanism amongst relevant government departments. These measures were considered to be appropriate for TCE and TCW. Considering the respective risks of pump, rising mains and power failure and the adequacy of these mitigation measures, it is considered that emergency discharge is not expected, and thus no adverse impact on water quality or ecology due to emergency discharge is anticipated.

6.5.5 The issues of septicity in rising mains, odour and noise impacts have been studied, and adequate measures are proposed to mitigate these impacts.

6.5.6 In order to cope with the projected sewage flows in the catchment, EPD has arranged with DSD to fit out the TCSPS to its designed maximum handling capacity (3,680 l/s) by 2023; and to fit out the remainder of the treatment units at the SHWSTW to its designed maximum handling capacity (180,000 m3/day) by 2024.

6.6 Waste Management Implications

Introduction

6.6.1 The types of waste that would be generated during the construction and operation phases of the project have been identified. The potential environmental impacts that may result from these waste materials have

been assessed in accordance with Section 3.4.5 and Appendix F of the EIA study brief as well as the criteria and guidelines outlined in Annex 7 and Annex 15 respectively of the TM-EIAO.

Construction Phase

6.6.2 Potential waste management implications from the generation of waste during the construction phase have been evaluated. Strategic mitigation measures, including the opportunity for on-site sorting, reusing construction and demolition (C&D) materials, etc., are devised to minimise the surplus materials to be disposed. Recommendations have been made for implementation by the Contractor during the construction period to minimise waste generation and off-site disposal of. The estimated amount of different types of wastes to be generated during construction phase is summarised in following table.

Table 6.6.1: Estimated quantity of different types of wastes to be generated during construction phase

Activities	Quantity of waste to be generated (m^3)								
	Top soil [1]	Inert soft C&D material [2]	Rock [3]	Artificial hard material [4]	Non-inert C&D material [5]	Vegetation [6]	Chemical waste	General refuse	Floating Refuse
Reclamation	0	0	0	0	0	0	A few hundred litres per month	3,659 tonnes	11.5 m^3 per year
Site clearance	42,800	0	0	300	0	38,000			
Site formation	0	744,800	157,000	0	0	0			
Constuction of new buildings and structures	0	0	0	241,000	60500	0			

Notes:
[1] "Top soil" is assumed to be "inert" C&D materials.
[2] "Inert soft C&D material" includes, but not limited to, excavated soil.
[3] "Rock" includes all grade rock.
[4] "Artificial hard material" includes, but not limited to, broken concrete, asphalt, bitumen and granular materials, etc.
[5] "Non-inert C&D material" includes, but not limited to, bamboo, timber, paper and plastic, etc.
[6] Vegetation is non-inert C&D material.

Operational Phase

6.6.3 The types of waste that would be generated during the operational phase have also been assessed. Recommendations have been made to ensure proper treatment, handling and disposal of these wastes. The following table summarizes estimated quantities of municipal solid waste (MSW) during operational phase.

Table 6.6.2: Estimated quantities of municipal solid waste (MSW) during operational phase (to the nearest $10m^3$)

PDAs	Planned Population	Estimated MSW Generated	Estimated MSW to be Recycled	Estimated MSW Required Disposal
TCE	118,900	250tpd	100tpd	150tpd
TCW	25,500	50tpd	20tpd	30tpd
Total	**144,400**	**300tpd**	**120tpd**	**180tpd**

6.7 Land Contamination

Introduction

6.7.1 The potential land contamination issues associated with the project have been assessed by following the guidelines in Sections 3.1 and 3.2 of Annex 19 of the TM-EIAO as specified in Section 3.4.6 of the EIA study brief. In accordance with the requirement set out in Appendix G of the EIA study brief, a Contamination Assessment Plan (CAP) was prepared for the project and endorsed by EPD in June 2015.

6.7.2 Desktop study and site reconnaissance surveys were conducted to determine the past and present land uses, including potentially contaminative uses, within or in the vicinity of the project area. Other relevant information was also collected from various government departments.

Potential Impact

6.7.3 This land contamination assessment examined the potential contaminative land use within the PDAs and the works areas for the associated infrastructures. The assessment involved desktop review, site surveys and the proposed environmental site investigation (SI).

6.7.4 Since the potentially contaminated sites are located in private land lots, SI is unlikely to be carried out at this stage. In addition, as the sites are still in operation, it is considered not suitable to carry out the SI at this stage as the on-going activities would make the assessment result obsolete.

6.7.5 In view of this, further site visit at these potentially contaminated sites are proposed once future development of these sites are confirmed and that site access is available in order to identify the need for SI for any additional hot spots as a result of the on-going land contaminating activities.

6.7.6 In addition, re-appraisal would be required for the other surveyed sites, other remaining areas of the PDAs and the works areas for the associated infrastructures to address any change in land use that may give rise to potential land contamination issues.

6.7.7 Findings of the further site visit at the potentially contaminated sites and the re-appraisal will be presented in a supplementary CAP. Upon approval of the supplementary CAP and completion of the SI works, a Contamination Assessment Report (CAR) would be prepared to present findings of the SI works. If contamination has been identified, a Remediation Action Plan (RAP) would be prepared to recommend specific remediation measures. Upon completion of the remediation works, if any, a Remediation Report (RR) would also be prepared to demonstrate that the clean-up works are adequate. The CAR, RAP and RR would be submitted to EPD for approval prior to commencement of any construction /development works.

6.8 Ecology

6.8.1 The present Project will involve development in Tung Chung Valley and reclamation, and will cause both terrestrial and marine ecological impacts. Ecological baseline was established by both literature review and field surveys, with the ecological survey programmes covering from 2012 to 2015, to fulfil the EIA SB.

6.8.2 Within the 500m terrestrial ecology assessment area, key terrestrial ecological resources include a number of recognised sites of conservation importance (Country Park, Site of Special Scientific Interests (SSSIs)) and important habitats such as Tai Ho Stream and Wong Lung Hang, but mostly are outside the PDAs. However sections of Tung Chung Stream and some Fung Shui Woods are within the TCW PDA.

6.8.3 TCW-PDA is located to the west of Tung Chung New Town and extending to Tung Chung Valley which contains some habitats of ecological value such as Tung Chung Stream and Fung Shui Woods. The proposed service reservoirs are outside the TCW-PDA but is located close to Country Park and Wong Lung Hang Ecologically Important Stream (EIS).

6.8.4 Approaches for avoiding and minimisation of impacts have been considered. No development or channelization of Tung Chung Stream is proposed and buffer zones of 20-30m are provided for protection. A lot of areas inside Tung Chung Valley have been preserved by non-development zoning on the RODP such as CA, CPA, GB, AGR, especially those with higher ecological values such as Fung Shui Woods, Fong Yuen area.

6.8.5 Most habitats to be lost, such as urbanised/disturbed and orchard, are of low ecological value. The potential impact of loss of woodland is considered as moderate. Small areas of fringe of Fung Shui woods (about 0.2ha) will be inevitable affected due to flood protection works for villages and road widening given the space constraints (**Table 6.8.1**), but the final loss might be further minimised during the later stage of the layout plan refinements. Although the ecological value of orchard was ranked as low, the potential impact loss of this type of habitat was considered minor to moderate due to the large area affected (about 18.11ha). The potential impacts due to loss of the other types of habitats were all considered minor or insignificant. The service reservoirs will not encroach Wong Lung Hang EIS or Lantau North (Extension) Country Park. A summary of the estimated habitat loss is given in the following table.

Table 6.8.1: Summary of estimated habitat loss

Habitat	Estimated Area Sizes (ha)			
	RODP at TCW	RODP at TCE	Road P1 (Tung Chung - Tai Ho Section)	Others elements (service reservoirs and sewer)
Abandoned Agricultural Land (dry)	4.77	\	\	\
Abandoned Agricultural Land (wet)	1.68	\	\	\
Active Agricultural Land (dry)	1.92	\	\	\
Fung Shui Wood	0.20		\	\
Orchard	18.11	\	\	\
Plantation	0.85	\	\	1.09
Secondary Woodland (Mature)	0.76	\	\	0.09
Secondary Woodland (Young)	4.54	\	\	0.33
Shrubland / Grassland	3.19	\	\	2.42
Urbanised / Disturbed	10.79	5.0	About 10 ha mainly works areas in NLH	2.67
Watercourse	0.16 (210m)	\	\	\
Artificial Seawall	\	2.3 km	1.5 km	\
Coastal waters (water column)	\	120.5	8.6	\
Coastal waters (subtidal soft bottom seabed)	\	132	13	\
Coastal waters (temporary marine works area)	\	Approximately 55		\

6.8.6 In order to minimize the potential impact due to habitat loss and site formation, a number of mitigation measures will be implemented. Compensation woodland planting of total area of 11ha will be provided and in advance planting will be explored. Planting list will include tree species targeting to mitigate the loss of Fung Shui Wood and Orchard by ecological functions Plant species of conservation importance will be retained or transplanted as far as possible in public works, and private residential/commercial developments inside TCV-1 before site formation commence. Capture-and-translocation exercise for amphibians of conservation importance including Romer's Tree Frog and Chinese Bullfrog will be implemented in the TCW PDA at areas with sightings, including public works near the eastern branch of Tung Chung Stream and private residential/commercial developments inside TCV-1 and TCV-5 before site formation commences.

6.8.7 Revitalization of the existing channalised section of Tung Chung Stream will be provided with that section together with the riparian zone in Fong Yuen area to be zoned for a future River Park, which will be designed and managed by government. As an enhancement measure,

planting will also be provided on the future polders. Sustainable Urban Drainage System (SUDS) will also be provided as enhancement measure.

6.8.8 Regarding the marine ecological impact, no reclamation or development of intertidal habitats is proposed in Tung Chung Bay, and thus there will be no direct impact on Tung Chung Bay or San Tau Beach SSSI. TCE-PDA is located to the north of Tung Chung New Town over coastal waters. Together with the Road P1, proposed reclamation will cause marine habitat loss, but the area is of low importance to Chinese White Dolphin (CWD). The construction and operation of the Project would still cause certain marine habitat loss. Due to the inclined seawalls, the actual loss of coastal waters habitat (water column and subtidal soft-bottom seabed) will be larger than the sizes on RODP. About 145 ha of seabed will be lost due to the 129.1 ha of reclamation (measured at the High Water Mark level) from both TCE PDA and Road P1. The impact is considered Minor to Moderate. During the construction phase, there will be another 55 ha of temporary marine habitat loss due to the marine works area for an about 6 year duration. The existing artificial seawall of Tung Chung New Town of 2.3km and a section of seawall from Tung Chung New Town to Siu Ho Wan MTR Depot of 1.5 km will be lost during the construction of the TCE PDA and Road P1 (Tung Chung - Tai Ho Section). The potential impact due to loss of seawall is ranked as Insignificant. It should be noted that there will be 3.3km of new seawall in the TCE PDA and 1.8 km in the Road P1 (Tung Chung - Tai Ho Section) after completion of the Project.

6.8.9 The potential disturbance on CWD due to the work-related vessel traffic flow during construction phase is considered Minor to Moderate, while the potential disturbance due to the marina traffic during operational phase is considered as Insignificant.

6.8.10 Assessment of construction phase and operational phase indirect impacts related to water quality has adopted water quality modelling results which have taken into account concurrent projects. The magnitudes of the water quality related impacts range from Insignificant to Minor. Occasional exceedance are mostly caused by either contributions from concurrent projects or the high background level. Mitigation measures for construction phase water quality impacts have been proposed under water quality assessment and during the operational no significant water quality impact phase is anticipated.

6.8.11 Approaches for avoiding and minimisation of impacts have also been considered for marine ecology. As the reclamation in Tung Chung Bay for TCW PDA has been removed, and thus the total marine habitat loss has been much reduced. Non-development zoning on the RODP has been provided along a large section of Tung Chung Bay coastline such CPA as buffer zone and the low disturbance RO/DO. There will be no emergency discharge from any sewage pumping stations, design/measures will be implemented to enhance the safety of the

sewage pumping stations. Eco-shoreline will be provided on the future reclamation seawalls as mitigation for loss of general marine waters habitat, to provide better ecological functions when compared with the traditional artificial seawall. Measures to reduce the construction phase marine traffic, including using larger-sized barges, land transportation, and also reuse of C&D materials, have been recommended as mitigation. Works Vessel Travel Route Plan is also required for the present Project prior to commencement of construction, in which constraints, speed regulations, and good site practices will be taken into account, and will follow all requirements of existing legislation.

6.8.12 For cumulative impacts, most of the concurrent projects would not be relevant to terrestrial ecology due to the distance or nature of the projects. The present Project will only contribute a small proportion of the cumulative marine habitat loss among all concurrent projects in the Western Hong Kong waters. The loss of 145 ha marine habitats from the present Project would be about 8.5 % of the anticipated 1,700 ha cumulative marine habitat loss. For potential cumulative disturbance impacts from works vessels, the overlap of marine traffic with concurrent projects would be small and, with the mitigation measures proposed to reduce marine traffic volume, the potential cumulative impact would be acceptable. It is not expected that other concurrent projects would propose marina in the areas close to the TCE PDA, and therefore it is unlikely there will be cumulative impact from the marina marine traffic during operation phase.

6.8.13 The assessment has indicated that the potential temporary impacts on the proposed The Brothers Marine Park from the present Project during construction phase would not be severe and additional measures have been recommended to protect its functions as CWD habitats, while the potential impacts in operational phase would not be significant. As such, the functions and quality of the proposed The Brothers Marine Park would not be affected by the present Project.

6.8.14 The residual loss on terrestrial ecology would be habitats of low ecological value. Adverse residual terrestrial impact is not anticipated from the present Project. Permanent loss of about 145 ha of marine habitats of low CWD use and low ecological importance would constitute the residual the residual impact for marine ecology, with the implementation of mitigation measures, significant impacts from the present Project on dolphins is not likely, and the residual impact is considered acceptable. The operational phase hydrodynamic modelling works has also taken into account concurrent projects, and the results indicated no significant water quality impact during the operational phase is anticipated. Adverse residual marine impact is not anticipated from the present Project.

6.9 Fisheries

6.9.1 The present Project will involve reclamation and cause fisheries

impacts. Fisheries baseline was established by literature review, and supplemented with field verification surveys conducted in 2013.

6.9.2 The assessment area of the present study covers the waters in North Lantau and sites of fisheries importance identified include fishing ground, important spawning ground between Lung Kwu Chau and the Brothers, embayment along the coast of North Lantau, ARs in Sha Chau and Lung Kwu Chau Marine Park and the proposed The Brothers Marine Park, and Ma Wan Fish Culture Zone (FCZ).

6.9.3 Approaches for avoiding and minimisation of impacts have been considered. During the EIA study, the original reclamation in Tung Chung Bay for TCW PDA has been removed, and thus the total reclamation size, and also fishing ground loss, has been much reduced.

6.9.4 The proposed reclamations are located in areas of low fisheries production. And the number of fishing vessels utilized the reclaimed areas is not high and dominated by small-sized vessels. The reclaimed areas are also away from other sites of fisheries importance. The nearest mariculture site is Ma Wan FCZ, which is about 10 km from the Project Area.

6.9.5 The construction and operation of the Project would cause certain fishing ground loss. During the construction phase, a 200 ha of marine works area will be established, and the marine works area is not available for fishing operations for an about 6 year duration from 2017 to 2023. During the operation phase, there will be inevitable permanent losses of fishing grounds due to the reclamation footprint and the marine waters within the future marina. A total of 149.2 ha fishing ground will be permanently lost. The impact is considered Minor during both construction and operation phases given the loss area is a minor proportion compared with the available fishing ground in Hong Kong waters and the loss area is not of high fisheries production rate. Eco-shoreline design will be provided on the future reclamation seawalls as mitigation on marine ecology. But it is expected that fisheries species in North Lantau will also be benefited by the enhanced ecological functions.

6.9.6 Fishing vessels originally operated in the loss area will need to shift their operation locations. As the number of fishing vessels utilized this area is not high and alternative operation locations/areas are available, the impact is considered Minor during both construction and operation phases.

6.9.7 As fishing vessels in this area are dominated by small fishing vessels which are more flexible in their operations, the potential disturbance on fishing operations due to the work-related vessel traffic flow during construction phase is considered **Minor**, while the potential disturbance due to the marina traffic during operational phase is considered as **Insignificant**. Measures to reduce the marine traffic, including using larger-sized barges, land transportation, and also reuse of C&D materials, and also land transportation of materials, have been

recommended as mitigation for ecology, and could further reduce the potential disturbance impacts on fishing operations.

6.9.8 Assessment of construction phase and operational phase indirect impacts related to water quality has adopted water quality modelling results which have taken into account concurrent projects. The magnitudes of the water quality related impacts range from Insignificant to Minor. Occasional exceedance are mostly caused by either contributions from concurrent projects or the high background level. Mitigation measures for construction phase water quality impacts have been proposed under water quality assessment and during the operational phase no adverse water quality impact phase is anticipated.

6.9.9 For the protection of fisheries resources, there will be no emergency discharge from any sewerage pumping stations in TCE PDA and TCW PDA, and measures will be implemented to enhance the safety of the sewage pumping stations.

6.9.10 For cumulative impacts, the present Project would only be a smaller contributor among all concurrent projects on the cumulative fishing ground loss. The loss of 149.2 ha fishing ground from the present Project would be about 8.2 % of the anticipated 1,800 ha cumulative permanent fishing ground loss, while there will be temporary loss of 1,592 ha fishing grounds due to marine works areas of the present Project and 3RS during construction phase.

6.9.11 For potential cumulative disturbance impacts from works vessels, the overlap of marine traffic with concurrent projects would be small and with the mitigation measures proposed to reduce part of marine traffic volume, the potential cumulative disturbance impact on fishing activities during construction phase would be acceptable. It is not expected that other concurrent projects would propose marina in the areas close to the TCE PDA, and therefore it is unlikely there will be cumulative disturbance impact on fishing activities from the marina marine traffic during operation phase.

6.9.12 Permanent loss of about 149.2ha of fishing ground of low production rate would constitute the residual impact. Due to low to moderate number of fishing vessels and the limited fisheries production affected, the residual impact is considered acceptable. The operational phase hydrodynamic modelling works has also taken into account concurrent projects, and the results indicated no adverse water quality impact during the operational phase is anticipated. Adverse residual fisheries impact and water quality impact are not anticipated from the present Project. Additionally, with the implementation of good site practices and the recommended mitigation measures to minimise potential water quality impacts, construction activities as well as general construction site drainage and sewage effluent from the construction workforce and other concurrent projects, are not anticipated to result in significant water quality impacts.

6.10 Landscape and Visual

Introduction

6.10.1 A landscape and visual impact assessment has been carried out in accordance with Section 3.4.12 and Appendix H of the EIA study brief, and Annexes 10 and 18 of the TM-EIAO. The current relevant planning and development control framework was reviewed. Since the majority of the proposed PDA is not covered by the approved Tung Chung Town Centre Area Outline Zoning Plan (OZP) No. S/I-TCTC/20, only very limited area in the OZP will be changed. The proposed Tung Chung New Town Extension and associated works follows the planning intentions in principle, and there is no conflict with the relevant planning and development control framework.

6.10.2 The main sources of impacts on existing landscape and visually sensitive receivers were identified. These include reclamation of land for formation of TCE and Road P1 and construction of a marina at TCE, development at TCE and TCW including high-rise building construction and small-scale structures such as sewage pumping stations and stormwater attenuation and treatment ponds; construction of two service reservoirs; de-channelization of a section of Tung Chung Stream for environmental enhancement; and construction of a cycle track network and cycle park. It should be noted that impacts have already been avoided or minimised as part of the project design. For example, non-dredged land reclamation method is proposed for TCE; CPA and CA are proposed along Tung Chung Stream, and areas of Fung Shui Woods are zoned as "GB" or "CA" as much as possible to preserve the existing landscape resources.

6.10.3 Within the landscape and visual impact assessment study area, a total of 15 major Landscape Resources (LR) (see **Figures 6.10.1 – 6.10.4**), 13 major landscape character areas (LCAs) (see **Figures 6.10.5 – 6.10.8**) and 45 representative Visual Sensitive Receivers (VSRs) (see **Figures 6.10.9 – 6.10.11**) were identified and may be affected by the development. In addition, a broad-brush tree and vegetation survey was carried out to determine, in broad terms, the potential impacts on existing trees.

Broad Brush and Vegetation Survey Result

6.10.4 Vegetation types identified within the assessment area included secondary woodland, Fung Shui Woods, plantation, shrubland and grassland, agricultural lands (active agricultural land, and abandoned agricultural land regenerated into grassland or freshwater marshes), urbanized/disturbed/wasteland, watercourse, mangroves, reedbed, rocky shore, mudflat, seawall, and coastal waters. A total of 496 plant species were recorded, 335 of which are native species. Ten plant species considered of conservation importance were recorded during the ecological field survey: *Aquilaria sinensis, Pavetta hongkongensis, Cibotium barometz, Gmelina chinensis, Diospyros vaccinioides, Ligustrum punctifolium, Uvaria calamistrata, Rhododendron simsii,*

Corydalis racemosa, Zostera japonica and *Halophila ovalis*. Regarding the layout of the RODP, most of the affected protected species are located at TCW within the LR of agricultural land near Tung Chung Bay area. However, the broad brush survey suggests that about 78% of protected vegetation within the assessment area can be preserved.

6.10.5 In addition, the broad brush tree survey suggests that about 30% of the trees within the boundary of RODP could be preserved. Regarding the development layout of TCW-PDA, most of the tree preservation are within the LR of Secondary Woodland, Plantation, Shrubslands and Grasslands. Those LRs are outside the comprehensive development boundary, and well preserved as green buffer for the future residents. Almost 70% of trees within the RODP boundary are affected, which are within the LR Agricultural Land. A large scale of Agricultural land at TCW-PDA will be affected by sites designated for residential areas and landscape area with stormwater attenuation and treatment ponds. Moreover, the Fung Shui Woods will be zoned as "GB" or "CA" or "OU", a negligible extent of Fung Shui Woods (0.20ha) will be affected by the RODP of TCW for consideration of flood risk control and road safety, for example the Fung Shui Woods near Shek Mun Kap, Sheung Ling Pei and Ngau Au. Trees and vegetation located at the Mangrove and Reedbed areas will not be affected by the RODP of TCW as the area will be zoned as CPA.

6.10.6 A detailed Tree Felling Application process will be carried out at a later detailed design stage, to finalize the proposed treatment to trees (to be felled, transplanted or retained) and allocate compensatory planting locations such as available open space, parks and streetscape in compliance with DEVB TCW 10/2013 Tree Preservation. In addition, for private developments with a lease containing tree preservation clause, compliance should be made to Practice Note Issue No. 7/2007. No registered Old and Valuable Trees (OVT) were recorded throughout the tree survey process. Nevertheless, seven (7) numbers of Potentially Registrable OVTs have been identified at Tung Chung Valley. These Potentially Registrable OVTs would be affected by construction works unavoidably, and should be preserved with due efforts.

Construction Phase

6.10.7 Based on the impact assessment findings, mitigation measures covering all relevant landscape and visual aspects are proposed to be implemented during construction. These include optimising construction works areas and providing temporary landscape on temporary construction; providing screen hoarding; minimising topographical changes; preserving Potentially Registrable OVTs, and rare and protected vegetation; transplanting affected trees; adopting non-dredge method for reclamation, protecting natural rivers and streams; preserving natural coastlines; providing natural rock material/ planting for artificial seawall; landscaping on slope; landscape treatment on channelized watercourses; and light control.

6.10.8 After implementing the recommended mitigation measures, all LRs and LCAs are either anticipated to experience residual impacts of moderate to slight significance, or they are anticipated to be unaffected by the proposed development, with the exception of the following:

Landscape Resources

- The coastal waters are anticipated to experience impacts of substantial significance as an area of 124 ha in TCE will be transformed from a natural LR to an artificial development by reclamation
- The agricultural land in TCW is anticipated to experience impacts of substantial significance as a lot of farmland and orchards will be developed into residential development
- The secondary woodland near Ma Wan Hill in TCW is anticipated to experience impacts of substantial significance as this natural LR will be transformed into residential development.
- Landscape Character Areas
- Inshore water landscape is anticipated to experience a residual impact of substantial significance due to visible marine construction activity and the loss of 124 ha of this LCA.
- Miscellaneous rural fringe landscape, which comprises mostly farmland in Tung Chung Valley, is anticipated to experience a residual impact of substantial significance as it will be changed into residential development with a built and artificial character.
- A medium extent of coastal upland and hillside landscape in Ma Wan Hill area is anticipated to experience a residual impact of substantial significance as it will be changed into residential development.

6.10.9 With implementation of the mitigation measures, most VSRs are either anticipated to experience residual impacts of slight/moderate or slight significance, with some of the VSRs anticipated to experience insignificant impacts by the proposed development of TCE and TCW during construction phase, except the following VSRs:

- Visitors of Tung Chung North Waterfront Area in the existing reclamation land of TCE, and future recreational/occupational users of Topside Development at HKBCF island are anticipated to experience a large magnitude of visual change due to a close view of the reclamation works of TCE, and it would result in an impact of substantial significance. The adverse residual impacts during construction would be reduced to moderate/substantial level since the substantial loss of open sea view cannot be mitigated effectively.

- Residents of Yat Tung Estate, villages near Yuen Tan Temple, villages near Shek Lau Po and residents near Wong Ka Wai are anticipated to experience a large magnitude of visual change, and combined with their high sensitivity, it would result in an impact of substantial significance. With effective mitigation measures, the residual impact would be reduced to moderate level during the construction stage.
- Hikers/visitors of Scenic Hill facing east, visitors of Planned Open Space at Ma Wan Hill, hikers along 360 Rescue Trail and Passengers/ drivers of Ngong Ping 360 Cable Car are anticipated to experience a large magnitude of visual change with their medium sensitivity, resulting in an impact of substantial significance for their direct view to the development. With effective mitigation measures, the residual impact would be reduced to moderate level during the construction stage.
- Hikers/visitors of Scenic Hill facing west and visitors of Tung Chung Stream are anticipated to experience an intermediate magnitude of visual change with their medium sensitivity, resulting in an impact of moderate significance. The residual impacts during the construction stage would remain as moderate even with the implementation of mitigation measures for their direct and close view to the development.

Operation Phase

6.10.10 Based on the impact assessment findings, mitigation measures covering all relevant landscape and visual aspects are proposed to be implemented during the operation phase. These include compensatory tree planting, woodland restoration, screen planting, roadside planting, aesthetic design of built development; maximising greening on structures, noise barrier design; landscape treatment for polders & stormwater attenuation and treatment ponds, landscaping on slopes, landscape treatment on channelized watercourses, and light control. The mitigation measures for TCE and TCW are illustrated in **Figures 6.10.12 – 6.10.17**.

6.10.11 The residual landscape impacts on LRs and LCAs after the implementation of mitigation measures during the operation phase were assessed. All LRs and LCAs are anticipated to either experience residual impacts of moderate to insubstantial significance, or be unaffected by the proposed development. The residual impacts on coastal waters in TCE would remain moderate throughout the operation phase due to the permanent loss of approx. 124ha of coastal waters. Nevertheless, there remains a much larger area of coastal waters of North Lantau that will be unaffected by the development and that will be available in the operation phase as an on-going landscape resource. Apart from that, the residual impacts on miscellaneous rural fringe landscape in TCE would be substantial in the operation phase due to the

permanent character change from naturalistic and rural to artificial, but could be reduced to moderate eventually with relevant mitigation measures.

6.10.12 The overall visual character in Tung Chung area would be significantly changed by the proposed development after the construction, all the recommended mitigation measures would not be able to alleviate the fundamental change in character. While, in terms of effectiveness of mitigation measures, it is considered that for visual amenity purpose, improving the appearance of new urban infrastructures together with landscape planting or screening measures, and lighting control would help to alleviate the adverse visual impacts from the new urban development and enhance the compatibility with the existing Tung Chung Town Centre. With implementation of the recommended mitigation measures, most VSRs are either anticipated to experience residual impacts of slight/moderate or slight significance by the proposed development of TCE and TCW at Operation Day 1, except that visitors of Tung Chung North Waterfront Area in the existing reclamation land of TCE, and future recreational/occupational users of Topside Development at HKBCF island are anticipated to experience residual impacts of moderate significance. It is considered that the residual adverse visual impacts would be slight/moderate to insignificant by Year 10 of the operation phase when the mitigation measures have matured and taken effect.

6.10.13 In accordance with the criteria and guidelines for evaluating and assessing impacts as stated in Annex 10 and 18 of the TM-EIAO, it is considered that the overall residual landscape and visual impacts of the proposed development are acceptable with mitigation during the construction and operation phases.

6.11 Cultural Heritage

Introduction

6.11.1 As required under Section 3.4.10 of the EIA study brief, a cultural heritage impact assessment has been conducted. This includes a marine archaeological investigation (MAI), an archaeological impact assessment and a built heritage impact assessment, to evaluate the impacts on known or potential cultural heritage resources in the study area. The cultural heritage impact assessment follows the requirements of Annexes 10 and 19 of the TM-EIAO, while the requirements for the MAI are also set out in Appendix K of the EIA study brief.

Terrestrial Archaeology

6.11.2 An Archaeological Impact Assessment (AIA) has been conducted for both the TCE and TCW developments. Since TCE is on reclaimed land, there are no potential for terrestrial archaeology. For TCW, the baseline conditions have been established by first reviewing literature information relating to the geological characteristics of Tung Chung

Bay, historical aerial photos, Sites of Archaeological Interest etc. There are 4 Sites of Archaeological Interest within the boundary of TCW, including the Fu Tei Wan Kiln (relocated to Tung Chung), Ma Wan Chung, Sha Tsui Tau and Tung Chung Game Board Carving.

6.11.3 A proposal for Terrestrial Archaeological Survey was prepared and submitted to AMO in November 2013. A total of 22 test pits and 61 auger holes was proposed at or near to the development areas within TCW in the survey. The survey proposal was subsequently approved by Antiquities and Monuments Office (AMO) and the survey was conducted in 13 January to 24 May 2014. The survey results were there analyzed together with the literature information to form the baseline conditions.

6.11.4 According to the latest design, Fu Tei Wan Kiln (relocated to Tung Chung) and Tung Chung Game Board Carving Sites of Archaeological Interest would be avoided. For the rest of the development areas within TCW, the archaeological potential has been evaluated based on the baseline conditions established, and hence the impacts and mitigation measures are assessed and recommended accordingly. Rescue excavations/ survey-cum-rescue excavations/ further surveys/ watching briefs have been recommended as the mitigation measures for particular development clusters (see **Figure 6.11.1**). The archaeologist to be appointed by the respective project proponent or respective developer shall apply for a licence to conduct the rescue excavations/ survey-cum-rescue excavations/ further surveys/ watching briefs under the Antiquities and Monuments Ordinance (Cap.53). An archaeological action plan detailing the scope and methodology of the archaeological work shall be submitted to the AMO for agreement prior to applying for a licence. The project proponent or respective developer shall implement the archaeological mitigation measures in prior agreement with the AMO before the commencement of any proposed works.

6.11.5 Pursuant to the Antiquities and Monuments Ordinance, the construction contractor should inform the AMO immediately in case of discovery of antiquities or supposed antiquities in the course of soil excavation works in construction stage.

Marine Archaeology

6.11.6 A MAI has been conducted for both the TCE and TCW developments. Since TCW is on existing land, there are no potential for marine archaeology. For TCE, the baseline conditions have been established by first reviewing historical information relating to Tung Chung. Previous MAIs for other projects in the vicinity of Tung Chung have also been reviewed. The geophysical surveys in those previous MAIs have covered all the seabed area of TCE where boat access was possible. According to those survey results, there are no archaeological remains in the areas surveyed. For those areas where a combination of rocky and shallow shoreline had prevented survey boat access, a proposal for diver survey had been proposed. The Marine Diver Survey

Proposal had been submitted to AMO in September 2012 and the Licence to Excavate and Search for Antiquities was granted by AMO in October 2012. The survey was subsequently conducted in November 2012 and no marine archaeological resources were identified during the diver survey. Adverse impacts on marine archaeology are therefore not anticipated and mitigation measures are not required.

Built Heritage

6.11.7 The literature review conducted for the AIA had also collated relevant information on Declared Monuments and Graded Historical Buildings. A field survey was also conducted for built heritage to identify other built heritage resources. Results indicate that there is one Declared Monument within the boundary of TCW (ie the Tung Chung Battery). Besides, there are 2 Graded Historic Buildings including Hau Wong Temple and Entrance Gate at Shek Mun Kap and number of other resources including shrines, village houses, ancestral halls, stone bridges, temples etc within the boundary of TCW.

6.11.8 According to the latest RODP, all these identified built heritage resources within TCW are located within land lot with proposed landuses of District Open Space (DO), Village Development Area (V), Institution and Community (IC), Coastal Protection Area (CPA), Conservation Area (CA), Agricultural (AGR) and Green Belt (GB) in which large scale development is not proposed. Adverse impacts on these built heritage is not anticipated and thus no further action or mitigation is required.

7 Implementation Strategy and Development Programme

7.1 Implementation Strategy

7.1.1 Different implementation mechanisms previously adopted in new town development in Hong Kong including Conventional New Town Approach (CNTA), Enhanced Conventional New Town Approach and Private Sector Participation (PSP) Approach have been reviewed for the decision of the preferred implementation mechanism for the development of the Tung Chung new town extension.

7.1.2 Having considered the difference in nature of the Tung Chung East and Tung Chung West development, the implementation mechanism is considered separately as summarized below.

Tung Chung East

7.1.3 The majority of the development in TCE are on newly reclaimed land. No resumption of private land is involved for the proposed works at TCE. Large scale reclamation works and the associated infrastructure works are required for the development. For comprehensive and well-coordinated implementation, it is proposed that Conventional New Town Approach to be adopted for TCE where the government will carry out reclamation works and provide infrastructure in TCE before allocating land for various purposes, including disposal of the land planned for private developments in the market.

Tung Chung West

7.1.4 The development in TCW is on existing land on the western side of the existing Tung Chung New Town and along the Tung Chung Valley. The proposed development involves both government land and private land. To minimize land resumption and allow possible early availability of land for development, it is proposed that the Private Sector Participation (PSP) Approach to be adopted.

7.1.5 For public housing, infrastructure and government / institute / community facilities in TCW, the government will be responsible for the construction and delivery with a view to achieving comprehensive planning and timely provision of these facilities. The government will resume and clear the private land planned for public works projects, public housing, carry out site formation works and provide infrastructures before allocating land for various purposes.

7.1.6 

7.2 Implementation Agent of Development Proposal

7.2.1 Based on the implementation mechanism set out in Section 7.1, the agent for different types of works have been identified. Some of the works are entrusted to non-government agent and private sectors and are discussed in details in the following sub-sections. A summary of category of works to be taken up by various sectors is shown in below table.

Table 7.2.1 Summary of the Implementation Agents

Implementation Agent	Items
Government	• All public housing, essential infrastructure and community facilities, and the associated site formation / reclamation works in TCE, TCW and Road P1, except Public transport interchange (PTI) within commercial developments
Non-government agent	• Tung Chung Line Extension including the TCE and TCW Railway Stations and associated works, e.g. Footbridges, Ventilation Building and railway operator facilities • Marina in TCE • Post-secondary institution • Private utilities works, e.g. electricity, town gas, telecommunication
Private Developers	• Private residential / commercial development in TCE and TCW • Site formation work for private residential / commercial development in existing land in TCW • PTI within private lot

7.2.2 The implementation, management and maintenance agent of various works have been identified for coordinated implementation of development. The agent includes various government bureaux/departments, non-government agents and private sectors. Details of the works / management / maintenance responsibilities will be further elaborated and reviewed in the detailed design study. The summary table of proposed policy bureau, works agent, management and maintenance agent are shown in **Appendix 7.2.** The figures for demarcation of responsible agents are also included in the same Appendix.

7.3 Development Programme

7.3.1 In Tung Chung East, the overall phasing for population intake will be implemented in 4 phases to support the population intake from 2023.

The sequencing of reclamation works, infrastructure such as road, freshwater and saltwater supply, drainage, sewerage, utilities works and housing development will follow the 4 phases of population intake respectively in general while particular government facilities such as fire station, district police station and saltwater pumping station will be provided in early phase of the population intake to serve the need of the development area.

7.3.2 In Tung Chung West, the overall phasing will be implemented in 2 phases to support the population intake from 2023 to 2030. Phase 1 covers the areas from "Area 42" subsidized housing development and "Area 91" private housing development to the areas around Ma Wan Chung which aims for a population intake by 2023/2024. Phase 2 covers the remaining sections of the development which aims for a population intake by 2030. The sequencing of site formation works, infrastructure such as road, freshwater and saltwater supply, drainage, sewerage, utilities works and housing development will follow the 2 phases of population intake respectively.

7.3.3 Construction Contract Package Arrangements

7.3.3.1 The construction contract packages to be carried out under CEDD are shown in the table below.

Table 7.3.1 Construction Contract Packages

Contract No.	Construction Contract Packages
Contract 1	Reclamation Works for Tung Chung East and Road P1 including Construction of Box Culvert
Contract 2	Construction of Freshwater and Saltwater Service Reservoirs including Site Formation Works
Contract 3	TCE Infrastructure Works, Construction of Roads, Cycle Tracks and Utilities in Tung Chung East and Road P1
Contract 4	Improvement Works for Existing Section of Road P1
Contract 5	Site Formation Works for Area 23, Tung Chung Road North Widening Works and Ma Wan Chung Improvement Works (Car Park Facilities, Drainage Diversion and Coastal Access)
Contract 6	Site Formation Works in Area 42, TCW Infrastructure, Construction of Roads, Cycle Tracks and Utilities including Polder Scheme, Attenuation Ponds and River Park in Tung Chung West, Phase 1 and Ma Wan Chung Streetscape Improvement Works
Contract 7	Site Formation Works in Area 46, TCW Infrastructure, Construction of Roads, Cycle Tracks and Utilities including Polder Scheme, Attenuation Ponds and River Park in Tung Chung West, Phase 2
Contract 8	TCW Village Sewerage

Contract 1

7.3.3.2 The construction works under Contract 1 includes the reclamation works for Tung Chung East and Road P1 including extension of the box

culvert in TCE.

7.3.3.3 The reclamation works is assumed to be non-dredged and comprises of ground improvements works for seawall using stone column, seawall construction, sand blankets, geotextiles, marine band drains, reclamation filling and surcharging.

7.3.3.4 The existing box culvert outlets will require temporarily diversion during the TCE and Road P1 reclamation works. Hence it is necessary that the box culvert construction should be included in this reclamation works contract. The extension of the box culvert will also be carried out in phases in line with the reclamation works.

Contract 2

7.3.3.5 The construction works under Contract 2 includes the site formation and construction for the freshwater and saltwater service reservoirs. This will include all associated freshwater and saltwater pipe laying works.

7.3.3.6 The associated Natural Terrain Hazard Assessment and mitigation measures related to the proposed works are also included under Contract 2.

7.3.3.7 A possible alternative location at Siu Ho Wan is identified for the Fresh Water Service Reservoir. The location of the Fresh Water Service Reservoir will be investigated in the detailed design stage.

Contract 3

7.3.3.8 The construction works under Contract 3 includes the infrastructure works in TCE, construction of roads, cycle tracks and utilities in TCE and Road P1.

7.3.3.9 The infrastructure works under TCE and TCW have been separated into different construction contract packages primarily due to the location difference and also since the infrastructure works are independent.

7.3.3.10 The TCE infrastructure works contract is planned to be delivered in phases in order to match the reclamation phasing schedule.

7.3.3.11 The infrastructure works under this contract includes:-

- Salt Water Pumping Station;
- Sewage Pumping Stations (TCE West SPS & TCE East SPS);
- Roadworks which includes proposed roads, cycle tracks, footpaths and amenity in TCE and Road P1; and
- Utilities which includes proposed sewerage, drainage, freshwater and saltwater pipelines in TCE and Road P1.

Contract 4

7.3.3.12 Improvement works for the existing section of Road P1 is required and is included in Contract 4. The scope of Contract 4 includes provision of

noise mitigation measures and two footbridges and local improvement works at Ying Hei Road for upgrading it as a primary distributor.

Contract 5

7.3.3.13 The construction works under Contract 5 includes the possible site formation works for Area 23, Tung Chung Road North Widening works and Ma Wan Chung Improvement Works which includes construction of the car park, drainage diversion and construction of the coastal access.

7.3.3.14 In response to the request from the public in Stage 3 Public Engagement and LanDAC, the improvement for Ma Wan Chung shall be carried out as early as possible to satisfy the strong public demand.

Contract 6

7.3.3.15 The construction works under Contract 6 includes the infrastructure works in TCW, site formation works in Area 42, construction of roads, cycle tracks and utilities including polder schemes and attenuation ponds with pumping stations and the Ma Wan Chung streetscape improvement works.

7.3.3.16 The infrastructure works under this contract for Phase 1 TCW works includes:-

- Site Formation Works in Area 42;
- Sewage Pumping Stations (TCV North SPS and TCV East SPS);
- Upgrading of Chung Mun Road Sewage Pumping Station;
- De-channelization of the channelized section of Tung Chung Stream;
- Attenuation Ponds with pumping stations;
- Polder schemes;
- River Park Development;
- Roadworks which includes proposed roads, bridges, cycle tracks, footpaths and amenity in TCW;
- Utilities which includes proposed sewerage, drainage, freshwater and saltwater pipelines in TCW; and
- Natural Terrain Hazard Assessment and mitigation measures related to proposed works, if necessary.

Contract 7

7.3.3.17 The construction works under Contract 7 includes the infrastructure works in TCW, site formation works in Area 46, construction of roads, cycle tracks and utilities including polder schemes and attenuation ponds with pumping stations.

7.3.3.18 The infrastructure works under this contract for Phase 2 TCW works

includes:-

- Site Formation Works in Area 46;
- Sewage Pumping Station (TCV West SPS);
- Upgrading of Chung Mun Road Sewage Pumping Station;
- De-channelization of the channelized section of Tung Chung Stream;
- Attenuation Ponds with pumping stations;
- Polder schemes;
- River Park Development;
- Roadworks which includes proposed roads, bridges, cycle tracks, footpaths and amenity in TCW;
- Utilities which includes proposed sewerage, drainage, freshwater and saltwater pipelines in TCW; and
- Natural Terrain Hazard Assessment and mitigation measures related to proposed works, if necessary.

Contract 8

7.3.3.19 The construction works under Contract 8 includes the sewerage works in the TCW village.

7.3.3.20 The possibility of advancing the village sewerage works in Ma Wan Chung and Wong Nai Uk shall be explored in the detailed design stage.

8 Key issues to be Followed up in Detailed Design Stage

8.1.1 While the technical feasibility has been established and the preliminary design has been carried out in the current feasibility stage of the study, detailed design development shall be carried out in the upcoming detailed design stage as per the latest government policy, planning assumptions, status of the interfacing projects, views from the public, available information and design guidelines. The key issues identified in current stage to be followed up in detailed design stage are summarized in this section. Attention is drawn that continuous liaison with all relevant government bureaux / departments are essential in the detailed design stage.

Highway Structures, Traffic and Highway Engineering

8.1.2 The currently proposed option of Road P1 Tai Ho Section and Tai Ho Interchange (THI) have been formulated with due consideration of connectivity of TCE development and interfacing projects. [redacted] The geometric design of THI and Road P1 shall be reviewed.

8.1.3 The proposed waterfront promenade in Ma Wan Chung is proposed in vicinity to the Tung Chung Battery, a monument declared under the Antiquities and Monuments Ordinance (Cap. 53). The design of this waterfront promenade shall be carefully considered to avoid any potential adverse impact on the Tung Chung Battery and the natural shoreline, e.g. the size of footing / pile cap of the elevated structure should be minimized in the detailed design.

8.1.4 For the design of viaducts across Tung Chung Stream, the potential impact on the ecologically sensitive Tung Chung Stream during the construction and operation stage shall be minimized where no support (temporary and permanent) shall be located within the Tung Chung Stream.

8.1.5 Panel design of the proposed noise barriers shall be carefully considered and take into consideration of the development at adjacent sites. Design guidance from various departments including HyD, EPD, FSD and ArchSD shall be followed as appropriate.

8.1.6 Review of the use of new Low Noise Road Surfacing Material to minimize the necessary extent of noise barrier as far as possible shall be carried out once the effectiveness of this new surfacing material is confirmed by a separate on-going study according to EP condition.

8.1.7 The following issues in Tung Chung area shall also be further reviewed and studied once updated information and details of interfacing projects

are available.

- The use and management & maintenance arrangements for the left over portion of the cul-de-sac north of Area 56.
- The road access arrangement for Area 48a to cater for level difference between Area 48a and adjacent Tung Chung Road North.
- The proposed rezoning at Tung Chung Area 6. Public parking for PCs / coaches / buses / GVs shall be provided under Area. 6.
- The existing temporary public transport terminus at Tung Chung Town Lot 11 will be vacated. The use of this vacated land to address the traffic issues in Tung Chung.

Storm Drainage Design

8.1.8 The possibility of counting WSD's intake risers (collecting water to the reservoir) at the upstream of Tung Chung Stream as part of the drainage scheme shall be investigated which may possibly reduce the amount of the catchment water in the Tung Chung Stream for drainage impact assessment and affect the required minimum site formation level and the extent and height of polder to be proposed.

8.1.9 The drainage model for drainage impact assessment in current study is based on the government topographic map. In the detailed design stage, more detailed topographic survey is required to be carried out for the detailed drainage model. The required minimum site formation level and the extent and height of polder to be proposed shall be reviewed based on the detailed drainage model result.

8.1.10 The effect of climate change is not taken into account in current study and shall be considered in the detailed design. With the consideration of climate change, it is envisaged that the required minimum site formation level for drainage control will be higher, in particular the area near Tung Chung Bay. The drainage control could possibly be carried out by further increasing the proposed site formation level within the development parcel, or constructing polders along the Coastal Protection Area and shall be studied in the detail design stage. Agreement with DSD shall be made with regards to the seawater level for design.

8.1.11 As the concept of the river park proposed in Tung Chung Stream is new in Hong Kong, close liaison shall be made with DSD and EPD on the design approach, detailed design and maintenance arrangement of the proposed river park.

Sewerage Design

8.1.12 Further discussion and agreement on details of resilient sewerage system shall be made with DSD and EPD, e.g. arrangement and

capacity of emergency storage facilities for sewage pumping stations.

8.1.13 Two proposed twin sewer rising main from TCE East SPS are proposed to connect SHWSTW under current study. [redacted]

8.1.14 Sewerage connection points for 8 existing village areas in TCW is proposed as part of the sewerage system and improvement to the existing villages. Close liaison of the connection details shall be carried out with DSD and the village representatives.

8.1.15 It is understood that the development parameters of interfacing projects are continuously updated as per the latest project development. Continuous liaison with key interfacing projects shall be made, [redacted]

Waterwork

8.1.16 Two possible locations of FWSR have been considered feasibility and proposed under the current study. The location of FWSR shall be determined taking into account the latest status of other developments in North Lantau and WSD's overall water supply approach in North Lantau. Close liaison with WSD will be required.

8.1.17 A SWSR located adjacent to the planned SWSR by WSD has been proposed under this Study. The possibility of the integration of these two proposed SWSRs shall be considered in detailed design stage with regard to the development programmes and liaison with WSD.

8.1.18 Upon the completion of the proposed salt water supply system, the flushing water supply in existing Tung Chung Town will be switched over from fresh water supply to sea water supply. The details of arrangement of the switch over shall be considered in the detailed design stage with close liaison with WSD.

8.1.19 It is understood that the development parameters of interfacing projects are continuously updated as per the latest project development. Continuous liaison with key interfacing projects shall be [redacted]

Site Formation, Geotechnical

8.1.20 Site formation works in Area TCW-2 is identified to consist of substantial scale of slope cutting. A large number of graves / urns are required to be removed which is envisaged to take approx. 3 years according to the preliminary estimate by LandsD. Follow-up on programme of grave clearance shall be made as it may affect the overall implementation programme of Area TCW-2. Thus, the extent of the site

formation works shall be further reviewed once more site investigation is available in detailed design stage for the identification of the extent of the grave clearance.

8.1.21 The existing site formation level in general areas of TCW are proposed with consideration of the minimum required site formation level from the drainage impact assessment. The site formation shall be reviewed after revised drainage impact assessment based on detailed topography survey to be carried during detailed design stage.

Reclamation and Seawall

8.1.22 Residual settlement of 500mm within 50 years after handover is proposed under the current study, which is commonly adopted in the reclamation projects in Hong Kong with the consideration of necessary effort of the ground improvement and construction programme. HA has raised their request for relatively smaller residual settlement criteria to be adopted for the housing site so as to minimize their future maintenance works. The criteria for handover of site shall be further discussed with HA in the detailed design stage.

8.1.23 The water depth in the proposed TCE reclamation area is relatively shallow. Constructability assessment of proposed reclamation method under shallow water condition shall be carried out in detailed design stage. In particular, the operational feasibility of different marine vessels to be adopted under the proposed reclamation method shall be studied.

8.1.24 Depending on the type of ground improvement works proposed for non-dredged seawall, site trials may be required for some type of the ground improvement with less/no track record in Hong Kong where both the technical feasibility and environmental impact during construction is concerned. Discussion with relevant government departments including EPD and CEDD/Port Works shall be carried out on the necessity and arrangement of site trials.

8.1.25 The effect of wave overtopping and sea level rise due to climate change may need to be considered in the seawall and reclamation design subject to the latest government policy.

8.1.26 Liaison with relevant parties shall be made regarding the details of eco-shoreline design as proposed in some local area of the reclamation in TCE and Road P1. Implementation plan of the eco-shoreline shall be developed for EPD's consideration according to the EP condition before the implementation.

Marine Impact Assessment

8.1.27 Under the current study, it is identified that temporary re-alignment of Tung Chung Channel during construction of TCE reclamation is required to facilitate the proposed reclamation works. Further study and

development of details of the re-alignment shall be carried out with the consideration of the proposed reclamation method in detailed design stage. Liaison with MD and relevant marine stakeholders shall be made.

8.1.28 Navigation simulation and junction design shall be carried out for the proposed marina in TCE.

Environmental

8.1.29 The Environmental Permit (EP) conditions shall be incorporated in the detailed design where a number of essential submissions shall be prepared and submitted in different timeframe during the detailed design and construction stage. The key submission items are summarized in Table 8.1 below.

Table 8.1 Timeframe for submission items under EP conditions.

Submission Items	Timeframe
Works Vessel Travel Route Plan	No later than 3 months before the commencement of the reclamation related marine works at TCE
Dolphin Watching Plan	
Silt Curtain Deployment Plan	
Spill Response Plan	
Eco-shoreline Implementation Plan	No later than 3 months before the commencement of construction of the eco-shoreline at TCE
Plan on Provision of Buffer Zones	No later than 3 months before the commencement of construction works at Tung Chung Valley
River Park Plan	
Habitat Enhancement and Translocation Plan for Amphibian Species of Conservation Importance	
Detailed Preservation and/or Translocation Plan for Plant Species of Conservation Importance	
Detailed Compensatory Woodland Planting Plan	
Plan for Review of Use of New Low Noise Road Surfacing Material(s)	No later than 3 months before the commencement of construction of roadworks

Submission Items	Timeframe
Waste Management Plan	No later than 3 months before the commencement of construction of the Project

Civil Engineering and Development Department and Planning Department

Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung - Feasibility Study

Final Final Report for the Whole Feasibility Study

219844-REP-155-01

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This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 219844

Ove Arup & Partners Hong Kong Ltd
Level 5 Festival Walk
80 Tat Chee Avenue
Kowloon Tong
Kowloon
Hong Kong
www.arup.com

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Drawings

Preliminary Design Drawing List

Drawing No.			Title
Stormwater Drainage Infrastructure			
Preliminary Engineering Layout and Design			
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219844/	DR/	1002	Existing, Planned and Proposed Drainage Network (Sheet 2 of 9)
219844/	DR/	1003	Existing, Planned and Proposed Drainage Network (Sheet 3 of 9)
219844/	DR/	1004	Existing, Planned and Proposed Drainage Network (Sheet 4 of 9)
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219844/	DR/	1011	Sub-catchments Areas of Proposed Drainage Network (Sheet 1 of 3)
219844/	DR/	1012	Sub-catchments Areas of Proposed Drainage Network (Sheet 2 of 3)
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219844/	GEO/	RN003	Reclmation in TCE and Road P1
219844/	GEO/	RN021	Reclamation in TCE and Road P1 - Typical Section of Sloping Seawall
219844/	GEO/	RN022	Reclamation in TCE and Road P1 - Typical Section of Vertical Seawall
219844/	GEO/	SF001	Site Formation Layout Plan
219844/	GEO/	SF002	TCW-2 Site Formation - Plan (Sheet 1 of 2)
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219844/	GEO/	SF061	Service Reservoir Site Formation - Plan (Sheet 1 of 2)
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219844/	GEO/	SF063	Service Reservoir Site Formation - Section (Sheet 1 of 5)
219844/	GEO/	SF064	Service Reservoir Site Formation - Section (Sheet 2 of 5)
219844/	GEO/	SF065	Service Reservoir Site Formation - Section (Sheet 3 of 5)
219844/	GEO/	SF066	Service Reservoir Site Formation - Section (Sheet 4 of 5)
219844/	GEO/	SF067	Service Reservoir Site Formation - Section (Sheet 5 of 5)
Highway Infrastructure			
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219844/	HY/	0001	Schematic Road Network in Tung Chung
219844/	HY/	0002	Schematic Walkway Network in Tung Chung
219844/	HY/	0003	Schematic Cycle Track Network in Tung Chung
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219844/	HY/	2000	Road P1 Tai Ho Section General Layout - Key Plan
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219844/	HY/	3000	Tung Chung East Internal Road General Layout - Key Plan
Tung Chung West Internal Road			
219844/	HY/	4000	Tung Chung West Internal Road General Layout - Key Plan

Preliminary Design Drawing List

Drawing No.			Title
Sewerage Infrastructure			
Preliminary Engineering Layout and Design			
219844/	SW/	1000	Existing, Planning and Proposed Sewerage Network Overall Plan
219844/	SW/	1001	Existing, Planning and Proposed Sewerage Network (Sheet 1 of 9)
219844/	SW/	1002	Existing, Planning and Proposed Sewerage Network (Sheet 2 of 9)
219844/	SW/	1003	Existing, Planning and Proposed Sewerage Network (Sheet 3 of 9)
219844/	SW/	1004	Existing, Planning and Proposed Sewerage Network (Sheet 4 of 9)
219844/	SW/	1005	Existing, Planning and Proposed Sewerage Network (Sheet 5 of 9)
219844/	SW/	1006	Existing, Planning and Proposed Sewerage Network (Sheet 6 of 9)
219844/	SW/	1007	Existing, Planning and Proposed Sewerage Network (Sheet 7 of 9)
219844/	SW/	1008	Existing, Planning and Proposed Sewerage Network (Sheet 8 of 9)
219844/	SW/	1009	Existing, Planning and Proposed Sewerage Network (Sheet 9 of 9)
219844/	SW/	1010	Proposed Sewerage Network Manhole Details
Utilities			
Power Supply			
219844/	UT/	1000	Existing Planned and Proposed Power Supply Network Overall Plan
Gas Supply			
219844/	UT/	2000	Existing, Planned and Proposed Gas Supply Network Overall Plan
Telecom			
219844/	UT/	3001	Existing and Planned Telecom Cable - PCCW Cables
219844/	UT/	3002	Existing and Planned Telecom Cable - HGC Cables
219844/	UT/	3003	Existing and Planned Telecom Cable - HKBN Cables
219844/	UT/	3004	Existing and Planned Telecom Cable - NWT Cables
219844/	UT/	3005	Existing and Planned Telecom Cable - Cable TV Cables
Waterworks Infrastructure			
Preliminary Engineering Layout and Design			
219844/	WS/	1000	Existing, Planned and Proposed Fresh Water Supply Network Overall Plan
219844/	WS/	1001	Existing, Planned and Proposed Fresh Water Supply (Sheet 1 of 9)
219844/	WS/	1002	Existing, Planned and Proposed Fresh Water Supply (Sheet 2 of 9)
219844/	WS/	1003	Existing, Planned and Proposed Fresh Water Supply (Sheet 3 of 9)
219844/	WS/	1004	Existing, Planned and Proposed Fresh Water Supply (Sheet 4 of 9)
219844/	WS/	1005	Existing, Planned and Proposed Fresh Water Supply (Sheet 5 of 9)
219844/	WS/	1006	Existing, Planned and Proposed Fresh Water Supply (Sheet 6 of 9)
219844/	WS/	1007	Existing, Planned and Proposed Fresh Water Supply (Sheet 7 of 9)
219844/	WS/	1008	Existing, Planned and Proposed Fresh Water Supply (Sheet 8 of 9)
219844/	WS/	1009	Existing, Planned and Proposed Fresh Water Supply (Sheet 9 of 9)
219844/	WS/	2000	Existing, Planned and Proposed Flushing Water Supply Network Overall Plan
219844/	WS/	2001	Existing, Planned and Proposed Flushing Water Supply Network (Sheet 1 of 9)
219844/	WS/	2002	Existing, Planned and Proposed Flushing Water Supply Network (Sheet 2 of 9)
219844/	WS/	2003	Existing, Planned and Proposed Flushing Water Supply Network (Sheet 3 of 9)
219844/	WS/	2004	Existing, Planned and Proposed Flushing Water Supply Network (Sheet 4 of 9)
219844/	WS/	2005	Existing, Planned and Proposed Flushing Water Supply Network (Sheet 5 of 9)
219844/	WS/	2006	Existing, Planned and Proposed Flushing Water Supply Network (Sheet 6 of 9)
219844/	WS/	2007	Existing, Planned and Proposed Flushing Water Supply Network (Sheet 7 of 9)
219844/	WS/	2008	Existing, Planned and Proposed Flushing Water Supply Network (Sheet 8 of 9)
219844/	WS/	2009	Existing, Planned and Proposed Flushing Water Supply Network (Sheet 9 of 9)

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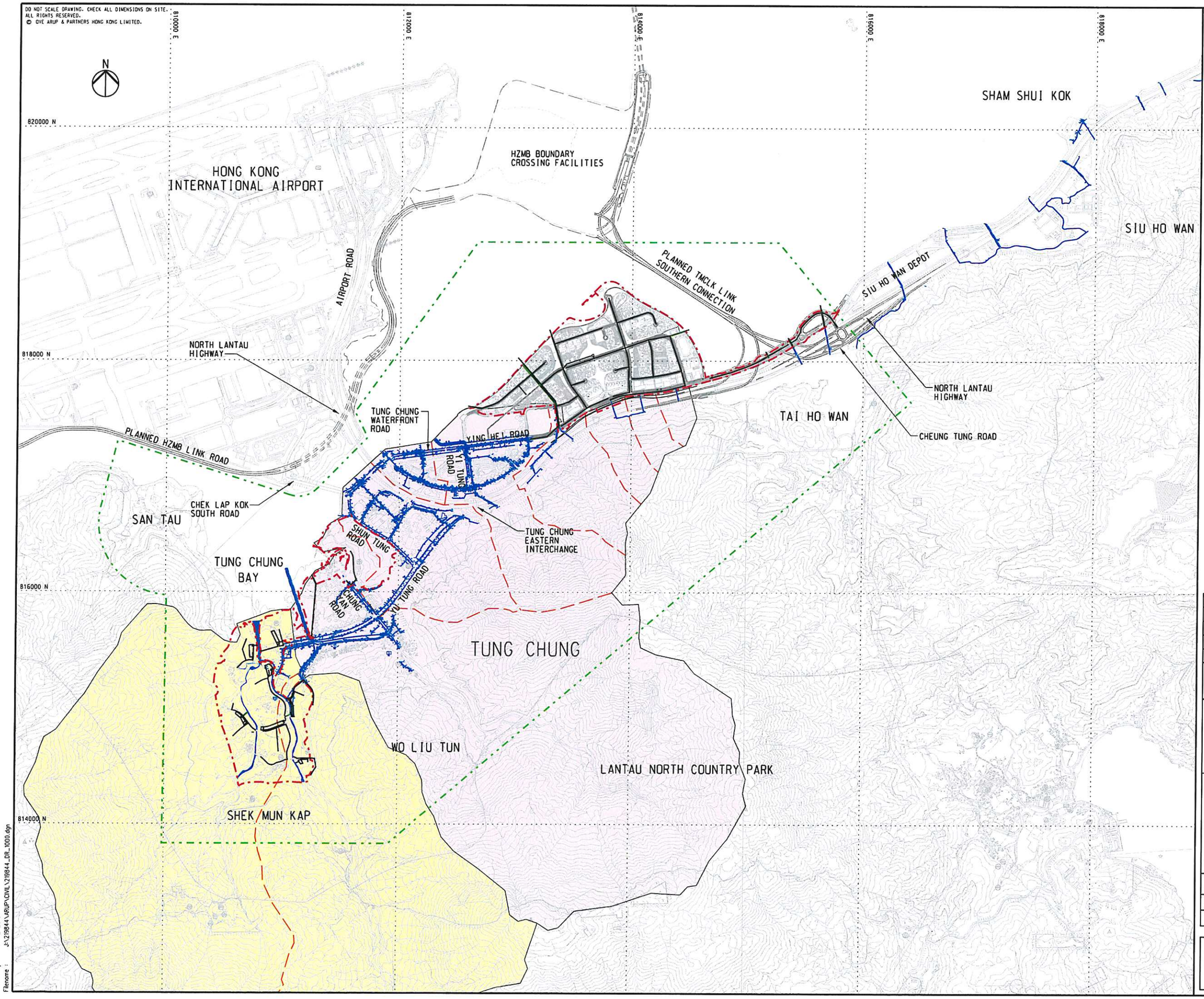

LEGEND

- STUDY AREA
- NEW TOWN EXPANSION AREA
- EXISTING DRAINAGE
- PROPOSED DRAINAGE
- EAST TUNG CHUNG CATCHMENT
- WEST TUNG CHUNG CATCHMENT
- SUB-CATCHMENTS DELINEATION

Rev	Description	By	Date
B	DRAFT TP19B	MCB	01/16
A	DRAFT TP19B	MCB	07/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED DRAINAGE NETWORK OVERALL PLAN

Drawing no.		Rev.
219844/DR/1000		B
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N

817000 E
817500 E
818000 E
818500 E
820000 N
819500 N
819000 N

SHAM SHUI KOK

EXISTING OUTFALL
1 CELL 1500 x 1500 BC
IL +0.95

NORTH LANTAU
REFUSE TRANSFER
STATION

MTR (AEL)

SHAM SHUI KOK
132kV SUBSTATION

EXISTING OUTFALL
3 CELLS 2500 x 2000 BC
IL +0.95

SHAM SHUI KOK DRIVE

PLANNED ORGANIC
WASTE TREATMENT
FACILITIES

EXISTING OUTFALL
1 CELL 2000 x 2000 BC
IL +1.53

NORTH LANTAU HIGHWAY

SIU HO WAN
WATER TREATMENT
WORKS

EXISTING OUTFALL
3 CELLS 3500 x 3000 BC
IL +0.29

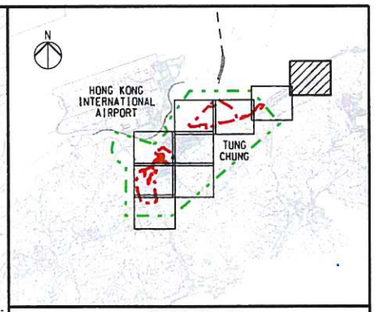
FOR CONTINUATION
SEE DRG 219844/DR/1002
MATCH LINE

MTR (AEL)

CHEUNG TUNG ROAD

SIU HO WAN
SEWAGE TREATMENT
WORKS

SIU HO WAN



KEY PLAN

LEGEND

- STUDY AREA
- NEW TOWN EXPANSION AREA
- EXISTING DRAINAGE
- EXISTING BOX CULVERT/CHANNEL
- EXISTING DRAINAGE RESERVE
- REGIONAL ATTENUATION / TREATMENT POND WITH PUMPING STATION
- PROPOSED STORM DRAIN
- EXISTING NATURAL STREAM
- PROPOSED LEVEE PROTECTION BY ELEVATED ROADWAY (POLDER SCHEME)
- PROPOSED LEVEE PROTECTION BY EARTH BUND (POLDER SCHEME)
- PROPOSED DRAINAGE RESERVE

Rev	Description	By	Date
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A	DRAFT TP19B	MCB	07/15

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Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND
PROPOSED DRAINAGE NETWORK

(SHEET 1 OF 9)

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N

815500 E
816000 E
816500 E
819000 N
818500 N
818000 N

EXISTING OUTFALL
3 CELLS 2800 x 2800 BC
IL +0.50

EXISTING OUTFALL
2 CELLS 2800 x 2800 BC
IL +0.60

SIU HO WAN DEPOT

MTR (AEL)

NORTH LANTAU HIGHWAY

MATCH LINE
FOR CONTINUATION
SEE DRG 219844/DR/1001

PROPOSED
OUTFALL

EXISTING OUTFALL
2 CELLS 2000x2000 BC
IL +0.03

PROPOSED P1
ROADWAY

MATCH LINE
FOR CONTINUATION
SEE DRG 219844/DR/1003

PROPOSED
OUTFALL

EXISTING OUTFALL
2 CELLS 2000x2000 BC
IL +0.16

SWE12
SWE13
SWE14
SWE16

MTR (AEL)

TAI HO GAS OFF TAKE
AND PIGGING STATION

CHEUNG TUNG ROAD

TAI HO WAN

PLANNED TMCLK LINK
SOUTHERN CONNECTION

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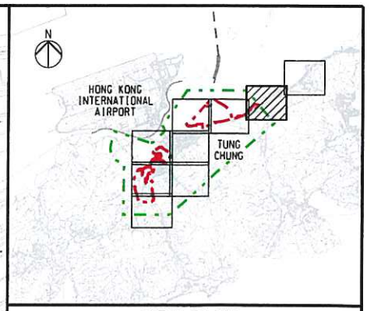

KEY PLAN

NOTES

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 219844/DR/1001.

Rev	Description	By	Date
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A	DRAFT TP19B	MCB	07/15

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Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
EXISTING, PLANNED AND
PROPOSED DRAINAGE NETWORK

(SHEET 2 OF 9)

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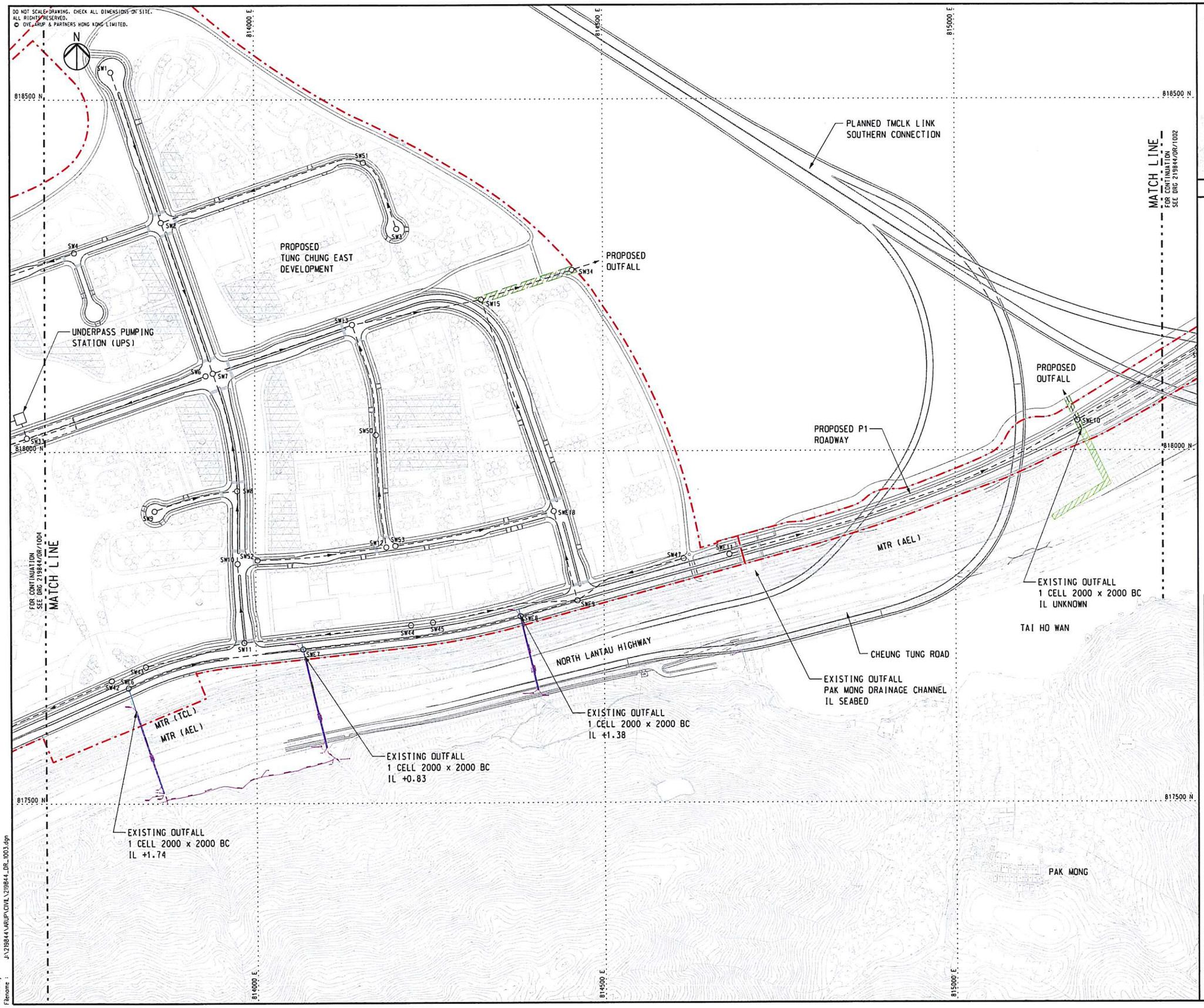

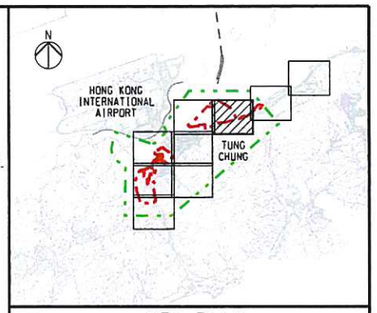

KEY PLAN

NOTES

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Rev	Description	By	Date
B	DRAFT TP19B	MCB	02/16
A	DRAFT TP19B	MCB	07/15

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Project title

Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED DRAINAGE NETWORK

(SHEET 3 OF 9)

Drawing no.			Rev.
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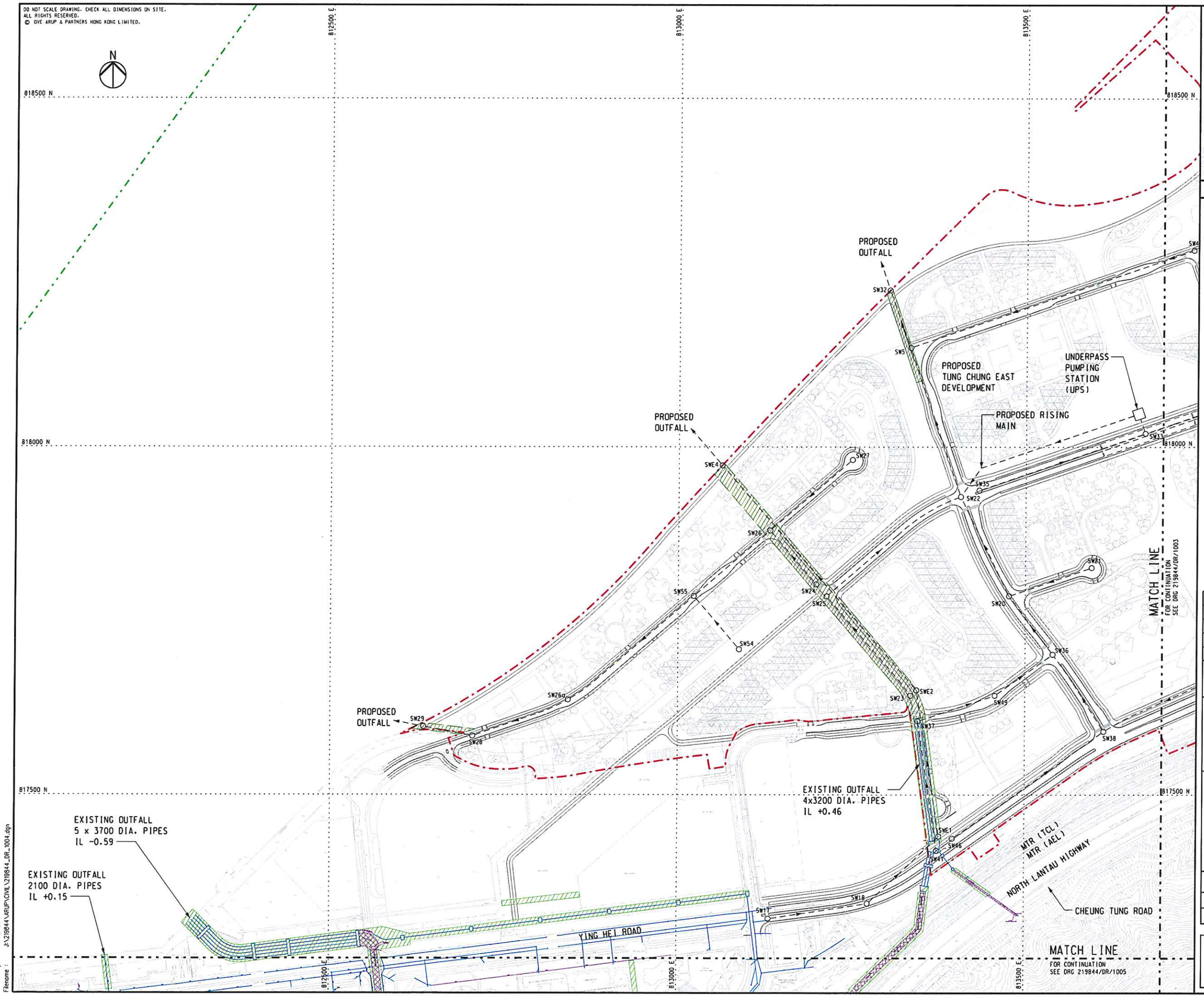

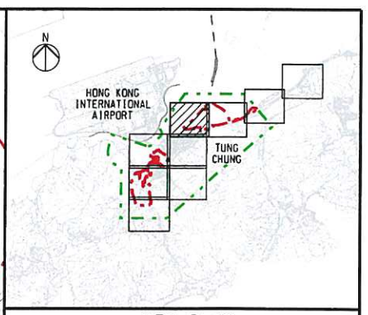

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Rev	Description	By	Date
B	DRAFT TP19B	MCB	02/16
A	DRAFT TP19B	MCB	07/15

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Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED DRAINAGE NETWORK

(SHEET 4 OF 9)

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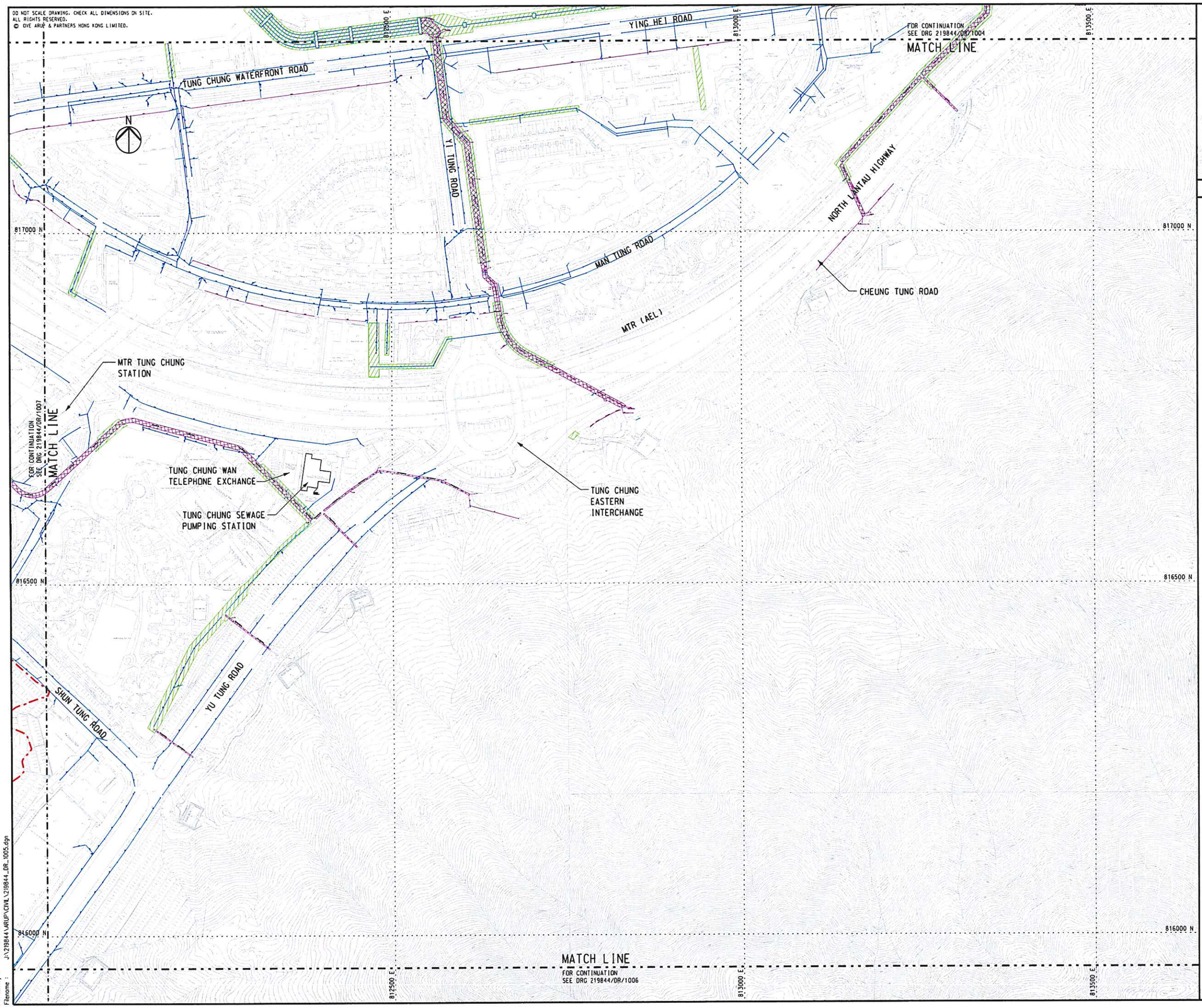

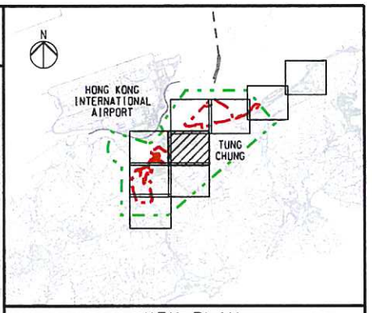

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Rev	Description	By	Date
B	DRAFT TP19B	MCB	02/16
A	DRAFT TP19B	MCB	07/15

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Project title

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in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED DRAINAGE NETWORK

(SHEET 5 OF 9)

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812500 E

813000 E

813500 E

FOR CONTINUATION
SEE DRG 219844/DR/1005
MATCH LINE

N

SHAN HA

815500 N

815500 N

FOR CONTINUATION
SEE DRG 219844/DR/1008
MATCH LINE

WONG LUNG HANG ROAD

815000 N

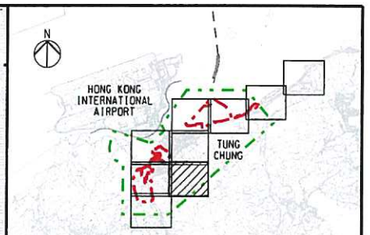
815000 N

LANTAU NORTH COUNTRY PARK

812500 E

813000 E

813500 E



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1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 219844/DR/1001.

Rev	Description	By	Date
B	DRAFT TP19B	MCB	02/16
A	DRAFT TP19B	MCB	07/15

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in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND
PROPOSED DRAINAGE NETWORK

(SHEET 6 OF 9)

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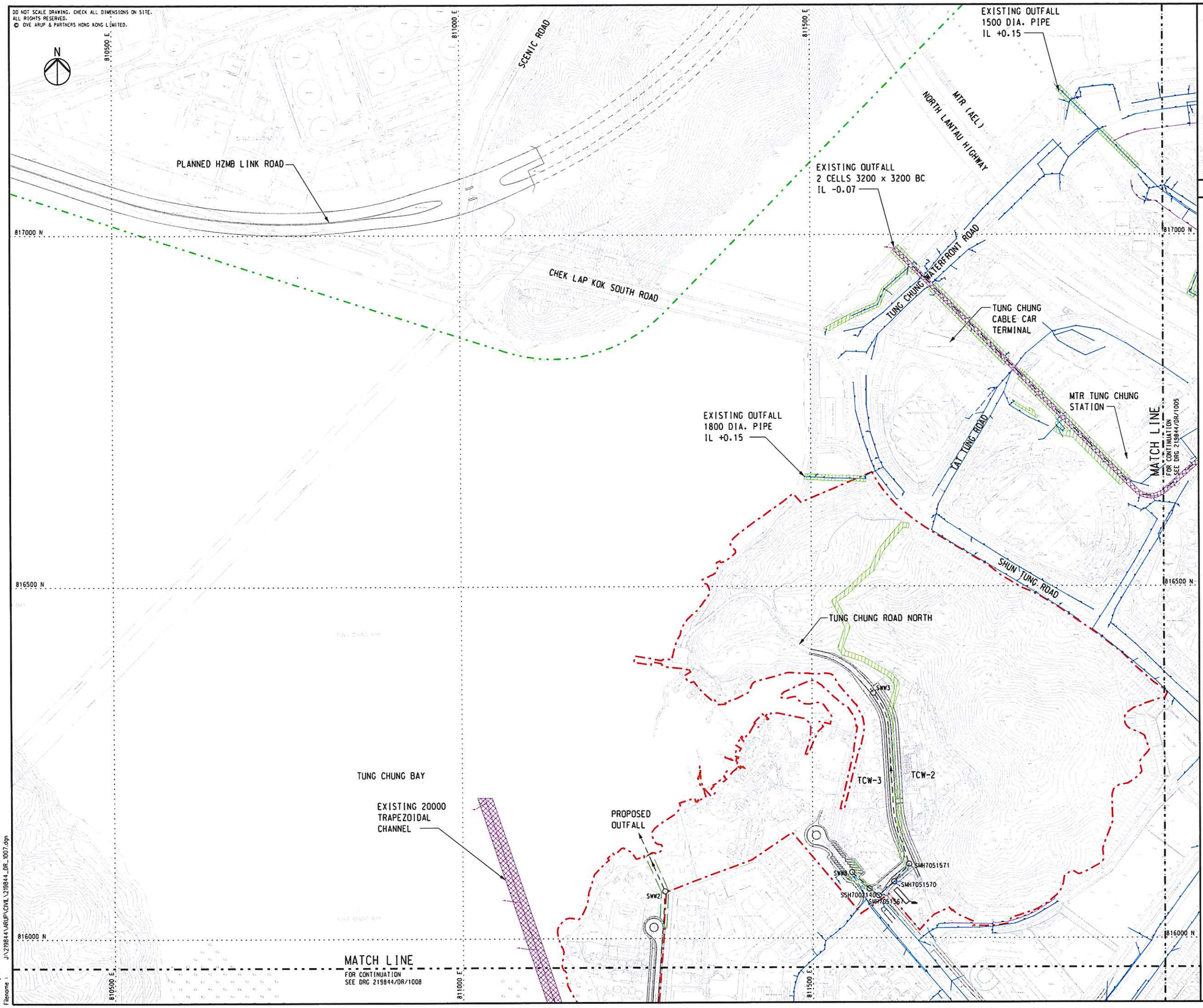

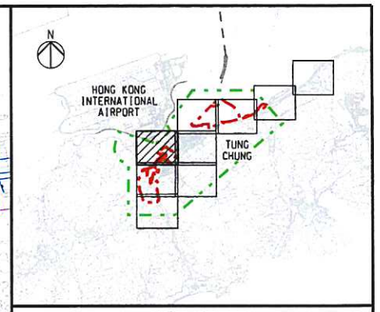

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Rev	Description	By	Date
B	DRAFT TP19B	MCB	02/16
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on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND
PROPOSED DRAINAGE NETWORK

(SHEET 7 OF 9)

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SEE DRG 219844/DR/1007

MATCH LINE

810500 E | 811000 E | 811500 E

N

TUNG CHUNG BAY

TCW-1

EXISTING 20000
TRAPEZOIDAL
CHANNEL

EXISTING OUTFALL
4 CELLS 4500 x 3800 BC
IL +2.06

CHUNG YAN ROAD

YU TUNG ROAD

TUNG CHUNG ROAD

EXISTING 12000
TRAPEZOIDAL CHANNEL

TUNG CHUNG STREAM

SWR1 | SWR2 | SWR3 | SWR4 | SWR24 | SWR25 | SWR26 | SWR27 | SWR28 | SWR29 | SWR31 | SWR32 | SWR39 | SWR40 | SWR41 | SWR42 | SWR50

SWW1 | SWW4 | SWW5 | SWW6 | SWW9 | SWW14 | SWW22

COM-1 | COM-2 | COM-3

A | B | C | D | G

TCV-1 | TCV-2 | TCV-3 | TCV-4 | TCV-5 | TCV-6 | TCV-8

ERR1

CHUNG MIN ROAD

EXISTING 10000
RECTANGULAR
CHANNEL

TUNG CHUNG FRESH WATER
SERVICE RESERVOIR

815500 N

NGAU AU

WEST STREAM

WRR1 | WRR2 | WRR5 | WRR6

LAM CHE

SWR7 | SWR8 | SWR9 | SWR10 | SWR12 | SWR14 | SWR15 | SWR16 | SWR17 | SWR22 | SWR23 | SWR30 | SWR33 | SWR34 | SWR35 | SWR36

EXISTING 8000
TRAPEZOIDAL
CHANNEL

SHEK LAU PO

815000 N

NIM YUEN

EAST
STREAM

SWR5 LOW FLOW CULVERT
CROSSING WITH
BACKWATER VALVE

MOK KA

SWR11 | SWR13

MATCH LINE
FOR CONTINUATION
SEE DRG 219844/DR/1009

MATCH LINE
FOR CONTINUATION
SEE DRG 219844/DR/1006

SECTION 1
N.T.S.

5m 5m
1 1 1 1

SECTION 2
N.T.S.

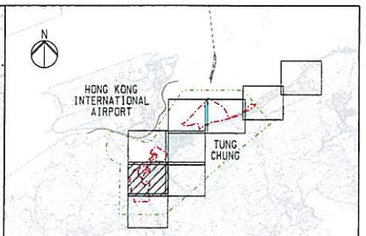
1m 4m 4m 1m
1.73 1.73

SECTION 4
N.T.S.

BUFFER ZONE | VARIES | BUFFER ZONE
2½

SECTION 3
N.T.S.

6m 6m
1.73 1.73
0.3m
1.2m



KEY PLAN

NOTES

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 219844/DR/1001.

Rev	Description	By	Date
B	DRAFT TP19B	MCB	02/16
A	DRAFT TP19B	MCB	07/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND
PROPOSED DRAINAGE NETWORK

(SHEET 8 OF 9)

Drawing no.			Rev.
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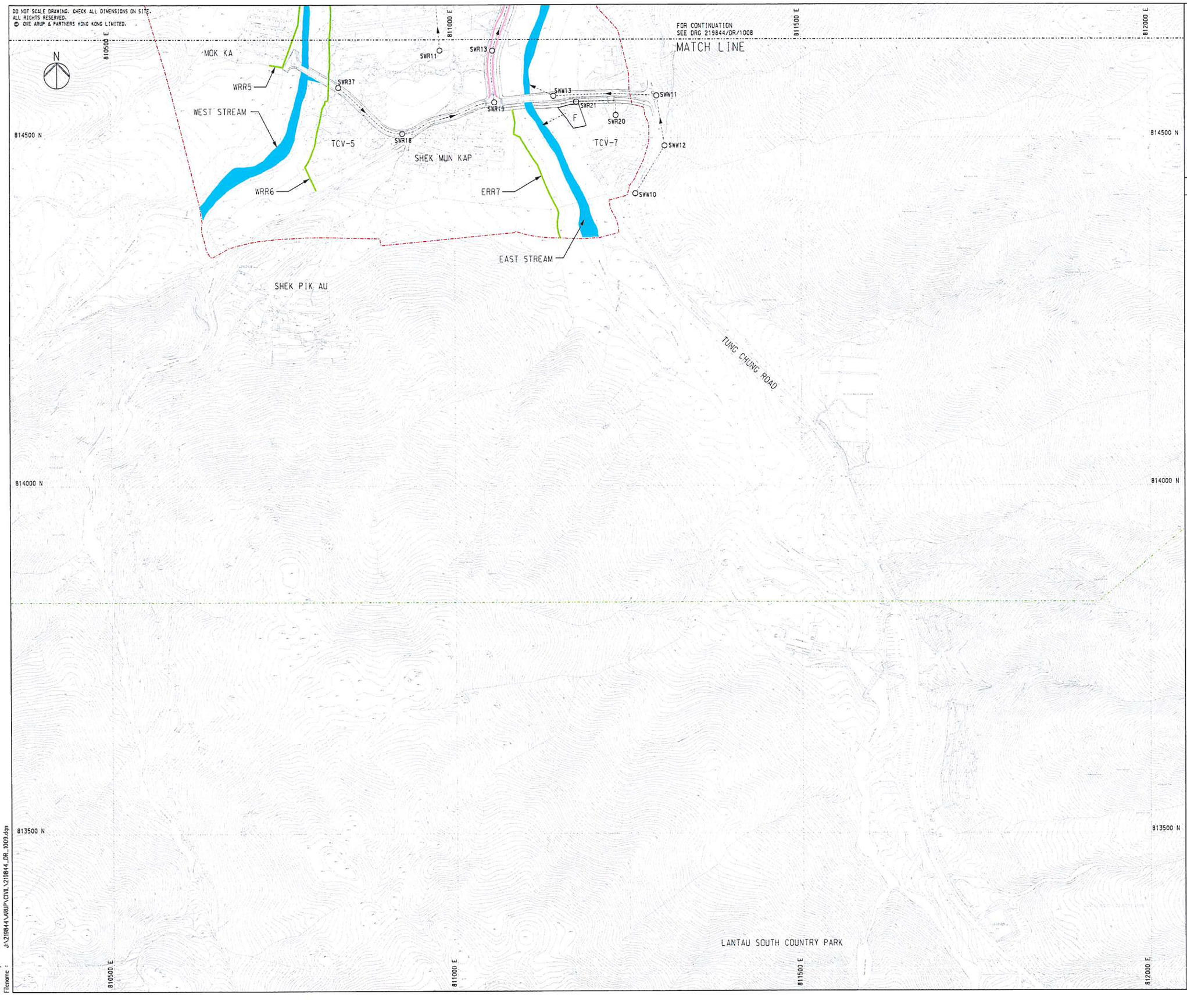

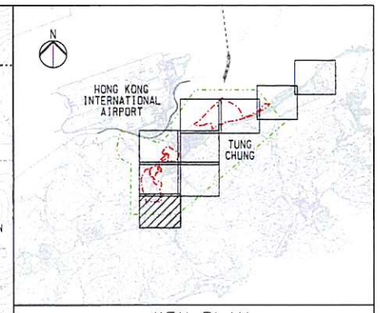

KEY PLAN

NOTES

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Rev	Description	By	Date
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Project title

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Planning and Engineering Study
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Drawing title

EXISTING, PLANNED AND
PROPOSED DRAINAGE NETWORK

(SHEET 9 OF 9)

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TUNG CHUNG EAST DRAINAGE MANHOLE SCHEDULES

UP_MAN NO.	DN_MAN NO.	LEN(m)	Cond_width (mm)	Cond_height (mm)	UP_GL (mPD)	DN_GL (mPD)	UP_INV (mPD)	DN_INV (mPD)	Gradient (%)	SHAPE
TCE_Existing_Network										
SWE12	SWE14	619.8	900	900	14.70	14.50	13.20	4.00	1.48%	CIRC
SWE16	SWE14	53.3	2000	2000	6.50	14.50	0.16	0.00	0.30%	RECT
SWE13	SWE10	202.1	600	600	6.00	6.00	4.80	4.10	0.35%	CIRC
SWE11	SWE10	551.1	825	825	9.00	6.00	7.00	4.00	0.54%	CIRC
SWE6	SWE7	260.9	4500	4000	6.00	6.00	0.90	0.00	0.35%	RECT
SWE7	SWE8	314.4	5000	4000	6.00	6.00	0.00	-1.21	0.38%	RECT
SWE8	SWE9	101.9	5000	4000	6.00	8.00	-1.21	-1.60	0.38%	RECT
SWE9	SWE18	104.2	5000	4000	6.00	5.50	-1.60	-2.00	0.38%	RECT
SWE18	SW15	362.8	5500	4000	5.50	5.50	-2.00	-3.00	0.28%	RECT
SW17	SW18	137.3	600	600	5.50	5.50	3.83	2.84	0.72%	CIRC
SW18	SWE1	117.8	825	825	5.50	5.50	2.84	2.00	0.72%	CIRC
SWE1	SWE2	185.0	3200	3200	5.50	5.50	0.63	0.47	0.09%	CIRC
SWE1	SWE2	186.9	3200	3200	5.50	5.50	0.63	0.47	0.09%	CIRC
SWE1	SWE2	190.5	3200	3200	5.50	5.50	0.63	0.47	0.09%	CIRC
SWE1	SWE2	191.7	3200	3200	5.50	5.50	0.63	0.47	0.09%	CIRC
SWE2	SWE4	466.9	3300	2600	5.50	6.00	0.47	0.00	0.10%	RECT
SWE2	SWE4	470.4	3300	2600	5.50	6.00	0.47	0.00	0.10%	RECT
SWE2	SWE4	465.7	3300	2600	5.50	6.00	0.47	0.00	0.10%	RECT
SWE2	SWE4	466.0	3300	2600	5.50	6.00	0.47	0.00	0.10%	RECT
TCE_Network										
SW27	SW26	146.9	900	900	6.00	6.00	4.20	3.45	0.51%	CIRC
SW24	SW26	100.5	525	525	5.50	6.00	4.08	3.45	0.62%	CIRC
SW26	SW55	145.9	2000	2000	6.00	6.00	3.45	2.70	0.51%	CIRC
SW54	SW55	101.4	1800	1800	5.50	6.00	2.80	2.70	0.10%	CIRC
SW55	SW26a	201.9	2200	2200	6.00	5.50	2.70	1.61	0.54%	CIRC
SW26a	SW28	175.0	2700	2500	5.50	5.50	1.58	0.65	0.53%	RECT
SW28	SW29	121.9	3000	2700	5.50	5.50	0.65	0.00	0.53%	RECT
SW3	SW51	107.4	2200	2200	6.00	6.00	3.00	2.37	0.59%	CIRC
SW51	SW2	281.8	3000	2500	6.00	5.50	2.37	0.71	0.59%	RECT
SW1	SW2	216.6	2200	2200	5.50	5.50	3.30	1.50	0.83%	CIRC
SW52	SW12	189.5	1600	1600	5.75	5.50	3.35	1.95	0.74%	CIRC
SW12	SW50	167.9	2700	2500	5.50	5.50	1.95	0.71	0.74%	RECT
SW50	SW13	163.8	2700	2500	5.50	5.50	0.71	-0.50	0.74%	RECT
SW2	SW7	218.2	3500	3000	5.50	5.50	0.71	-0.57	0.59%	RECT
SW44	SW11	232.1	1800	1800	6.00	6.00	3.30	1.86	0.62%	CIRC
SW43	SW11	195.2	1800	1800	6.00	6.00	3.80	1.86	0.99%	CIRC
SW11	SW10	105.1	2200	2200	6.00	5.75	1.86	1.21	0.62%	CIRC
SW10	SW8	99.6	2200	2200	5.75	5.50	1.21	0.59	0.62%	CIRC
SW9	SW8	120.9	2200	2200	5.50	5.50	2.30	1.00	1.08%	CIRC
SW8	SW7	186.6	3200	2700	5.50	5.50	0.59	-0.57	0.62%	RECT
SW7	SW13	205.8	4000	3500	5.50	5.50	-0.57	-1.85	0.62%	RECT
SW13	SW15	174.8	4000	3500	5.50	5.50	-2.00	-2.93	0.53%	RECT
SW15	SW34	122.8	6000	4000	5.50	6.00	-2.93	-3.20	0.22%	RECT
SW53	SWE18	240.3	1600	1600	5.50	5.50	3.10	1.00	0.87%	CIRC
SW45	SWE9	223.9	1800	1800	6.00	6.00	3.30	1.10	0.98%	CIRC
SW47	SWE9	151.1	1800	1800	6.00	6.00	3.30	1.80	0.99%	CIRC
SW6	SW33	271.9	525	525	5.50	-2.50	4.00	-4.00	2.94%	CIRC
SW35	SW33	254.5	525	525	5.50	-2.50	2.00	-4.00	2.36%	CIRC
SW42	SW38	191.0	1500	1500	5.50	5.50	3.30	2.80	0.26%	CIRC
SW46	SW38	272.0	1800	1800	5.50	5.50	3.50	2.80	0.26%	CIRC
SW38	SW36	128.8	1800	1800	6.00	5.50	2.80	2.48	0.26%	CIRC
SW41	SW37	188.9	1050	1050	5.50	5.50	3.20	2.65	0.29%	CIRC
SW37	SW49	101.0	2200	2200	5.50	5.50	2.65	2.51	0.14%	CIRC
SW49	SW36	114.3	2200	2200	5.50	5.50	2.51	2.36	0.14%	CIRC
SW36	SW20	97.8	2400	2400	5.50	5.50	2.36	2.23	0.14%	CIRC
SW21	SW20	123.4	1500	1500	5.50	5.50	2.80	2.23	0.47%	CIRC
SW20	SW22	175.5	2400	2400	5.50	6.00	2.23	1.78	0.26%	CIRC
SW22	SW5	214.8	2800	2500	5.50	5.50	1.78	1.23	0.26%	RECT
SW4	SW5	436.4	2000	2000	5.50	5.50	3.00	1.23	0.41%	CIRC
SW5	SW32	88.6	3000	2500	5.50	5.50	1.23	1.00	0.26%	RECT
SW23	SW25	200.3	900	900	5.50	5.50	3.60	2.77	0.41%	CIRC
SW25	SW22	241.4	1200	1200	5.50	5.50	2.77	1.78	0.41%	CIRC
SW22	UPS	279.2	TWIN 600		5.50	-2.50	3.50	-4.50	-2.87%	CIRC
SW33	UPS	18.7	1050	1050	-2.50	-2.50	-4.00	-4.50	2.67%	CIRC

TUNG CHUNG WEST DRAINAGE MANHOLE SCHEDULES

UP_MAN NO.	DN_MAN NO.	LEN(m)	Cond_width (mm)	Cond_height (mm)	UP_GL (mPD)	DN_GL (mPD)	UP_INV (mPD)	DN_INV (mPD)	Gradient (%)	SHAPE
SWW1	SWW2	465	1350	1350	8.30	3.50	5.95	3.20	0.59%	CIRC
SWW3	SMH7051571	233	1200	1200	13.50	9.25	11.20	7.00	1.80%	CIRC
SMH7051571	SMH7051570	25	1500	1500	9.25	7.90	5.10	5.05	0.20%	CIRC
SMH7051570	SMH7051567	29	1500	1500	7.90	7.84	5.05	4.85	0.69%	CIRC
SMH7051567	SMH7002140	32	2100	2100	7.84	7.52	3.05	2.89	0.50%	CIRC
SMH7002140	SWW8	17	4500	2250	7.52	7.00	2.87	2.82	0.29%	RECT
SWW22	SWW14	133	1200	1200	21.00	15.40	19.80	14.20	4.21%	CIRC
SWW14	SWW9	142	1200	1200	15.40	12.68	14.20	11.48	1.92%	CIRC
SWW9	SWW4	79	1800	1800	12.68	12.00	9.88	9.20	0.86%	CIRC
SWW4	SWW5	116	1800	1800	12.00	12.00	9.20	8.62	0.50%	CIRC
SWW5	SWW6	39	1800	1800	12.00	10.30	8.62	8.60	0.05%	CIRC
SWW10	SWW12	87	1200	1200	33.00	32.50	31.80	31.30	0.57%	CIRC
SWW12	SWW11	60	1200	1200	32.50	32.00	31.30	30.80	0.83%	CIRC
SWW11	SWW13	128	1050	1050	32.00	24.00	29.95	21.95	6.25%	CIRC
SWR1	SWR2	75.1	1350	1350	6.00	6.00	3.65	3.10	0.73%	CIRC
SWR2	SWR3	94.4	1350	1350	6.00	6.00	3.10	2.45	0.69%	CIRC
SWR3	SWR4	42.5	1350	1350	6.00	6.00	2.45	2.00	1.06%	CIRC
SWR7	SWR8	57.7	3200	2800	10.00	10.00	5.90	5.70	0.35%	RECT
SWR8	SWR9	82.5	3200	2800	10.00	10.00	5.70	5.45	0.30%	RECT
SWR9	SWR10	56.6	3200	2800	10.00	12.50	5.45	5.20	0.44%	RECT
SWR5	SWR6	150.2	1800	1800	15.00	12.50	12.20	9.70	1.66%	CIRC
SWR6	SWR10	48.4	2500	2000	12.50	12.50	9.50	8.80	1.45%	RECT
SWR11	SWR12	190	1650	1650	18.00	16.50	15.35	13.50	0.97%	CIRC
SWR13	SWR14	104.6	1350	1350	19.00	17.50	17.00	15.00	1.91%	CIRC
SWR14	SWR15	100.6	1350	1350	17.50	16.00	15.00	13.50	1.49%	CIRC
SWR15	SWR12	99.7	2300	1800	16.00	16.50	13.50	12.70	0.80%	RECT
SWR12	SWR16	82.7	2300	1800	16.50	17.00	12.70	12.30	0.48%	RECT
SWR16	SWR17	18.7	2300	1800	17.00	17.00	12.30	12.00	1.61%	RECT
SWR18	SWR19	141.9	1050	1050	31.00	24.00	21.50	20.50	0.71%	CIRC
SWR19	SWR13	96.7	1200	1200	24.00	19.00	20.50	17.00	3.62%	CIRC
SWR20	SWR21	83	900	900	31.00	24.00	26.00	22.10	4.70%	CIRC
SWR22	SWR23	150.3	1500	1500	12.00	9.00	9.50	6.06	2.29%	CIRC
SWR23	SWR24	115.5	1500	1500	9.00	6.00	6.06	3.80	1.95%	CIRC
SWR24	SWR25	34.3	1800	1800	6.00	6.00	2.60	2.34	0.76%	CIRC
SWR26	SWR24	123.9	1800	1800	6.00	6.00	3.60	2.60	0.81%	CIRC
SWR31	SWR39	44.6	900	900	8.50	8.50	6.60	4.71	4.24%	CIRC
SWR27	SWR28	119.8	1800	1800	3.50	3.50	1.30	0.30	0.84%	CIRC
SWR28	SWR29	33.1	1800	1800	3.50	4.50	0.30	0.10	0.60%	CIRC
SWR25	SWR32	18.4	1800	1800	6.00	6.00	2.34	2.20	0.76%	CIRC
SWR33	SWR34	100.8	1200	1200	11.50	12.00	9.50	8.40	1.09%	CIRC
SWR34	SWR35	91.9	1350	1350	12.00	12.00	8.40	7.90	0.54%	CIRC
SWR35	SWR36	38.6	1350	1350	12.00	12.00	7.90	7.50	1.04%	CIRC
SWR37	SWR18	135.1	1050	1050	24.00	31.00	21.95	21.50	0.33%	CIRC
SWR39	SWR29	97	900	900	8.50	4.50	4.71	2.60	2.18%	CIRC
SWR29	SWR40	36.7	1800	1800	4.50	4.50	0.10	0.00	0.27%	CIRC
SWR10	SWR30	9.8	3200	2800	12.50	12.50	5.20	5.10	1.02%	RECT
SWR41	SWR6	73.7	1800	1800	14.50	12.50	11.70	9.70	2.71%	CIRC
SWR42	SWR3	73.2	1050	1050	6.00	6.00	3.95	3.20	1.02%	CIRC
SWR4	SWR50	50.8	1350	1350	6.00	6.00	2.00	1.75	0.50%	CIRC

TUNG CHUNG WEST EARTH BUND SCHEDULES (POLDER SCHEME)

BUND ID	LENGTH (m)	MAX. HEIGHT (m)
WRR1	250	1.5
WRR2	680	1.8
WRR5	265	1.0
WRR6	390	1.0
ERR1	213	1.5
ERR7	200	1.0

Rev	Description	By	Date
B	DRAFT TP19B	MCB	02/16
A	DRAFT TP19B	MCB	07/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

PLANNED DRAINAGE NETWORK
MANHOLE DETAILS

Drawing no.			Rev.
219844/DR/1010			B
Drawn: MAN	Date: 04/2015	Checked: HS	Approved: KKY
Scale: N.T.S.		Status: PRELIMINARY	

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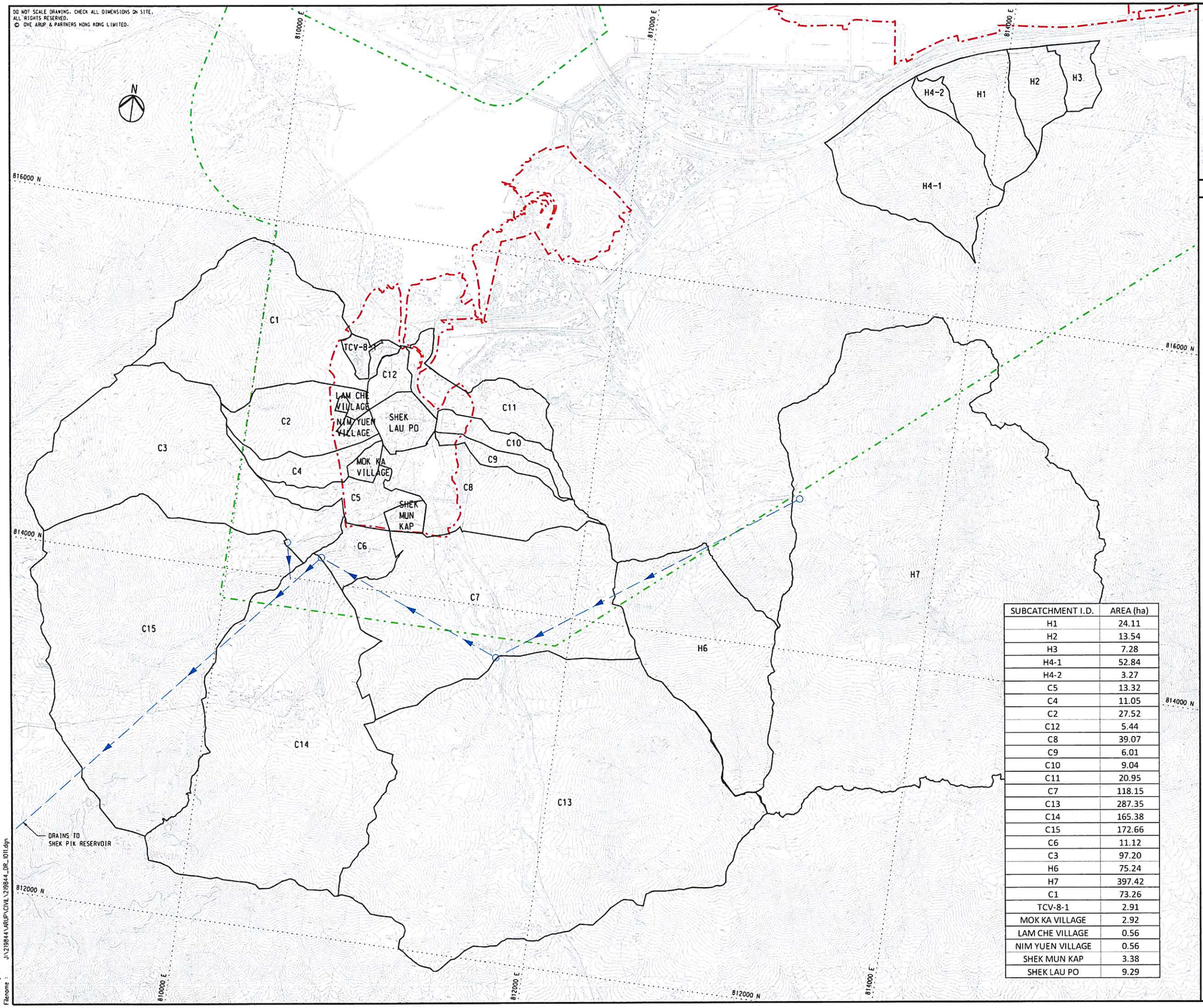

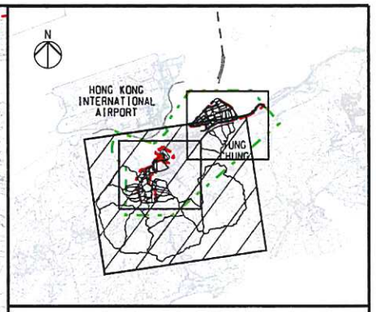

KEY PLAN

LEGEND

- STUDY AREA
- NEW TOWN EXPANSION AREA
- SUB-CATCHMENT BOUNDARY
- WSD INTAKE RISER (APPROXIMATE LOCATION)
- WSD CATCHWATER TUNNEL (APPROXIMATE LOCATION)

SUBCATCHMENT I.D.	AREA (ha)
H1	24.11
H2	13.54
H3	7.28
H4-1	52.84
H4-2	3.27
C5	13.32
C4	11.05
C2	27.52
C12	5.44
C8	39.07
C9	6.01
C10	9.04
C11	20.95
C7	118.15
C13	287.35
C14	165.38
C15	172.66
C6	11.12
C3	97.20
H6	75.24
H7	397.42
C1	73.26
TCV-8-1	2.91
MOK KA VILLAGE	2.92
LAM CHE VILLAGE	0.56
NIM YUEN VILLAGE	0.56
SHEK MUN KAP	3.38
SHEK LAU PO	9.29

Rev	Description	By	Date
A	DRAFT TP19B	MCB	02/16

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SUB-CATCHMENTS AREA OF
PROPOSED DRAINAGE NETWORK

(SHEET 1 OF 3)

Drawing no.	Rev.
219844/DR/1011	A

Drawn	Date	Checked	Approved
MAN	09/2012	HS	KKY

Scale: 1:10000 @ A1, 1:20000 @ A3

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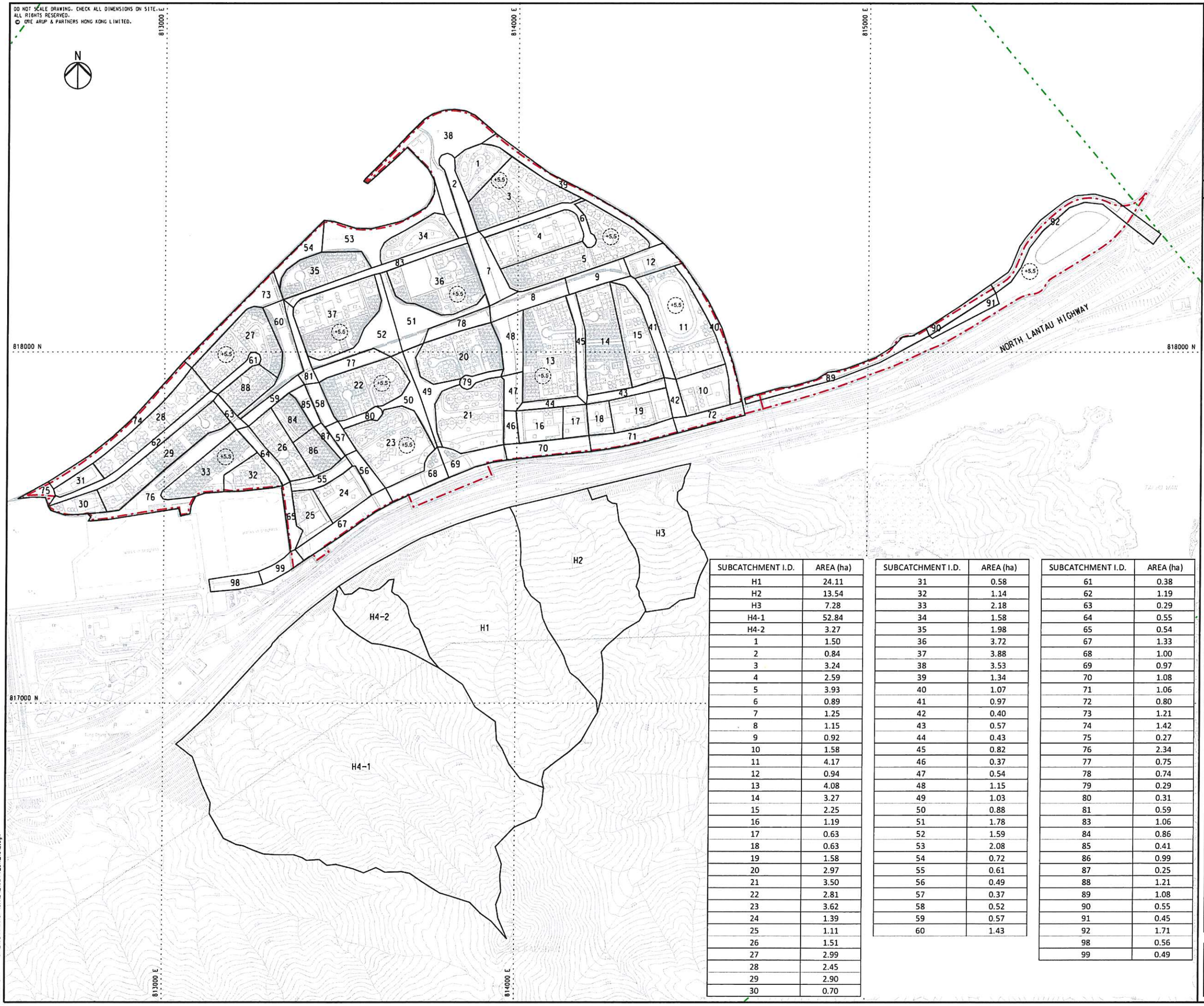

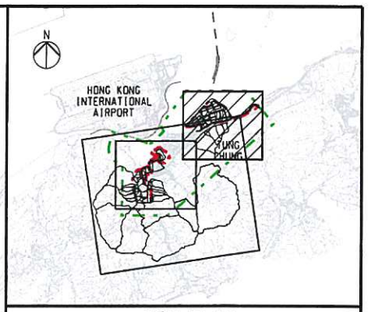

KEY PLAN

NOTES

1. WHERE PROPOSED LEVELS ARE NOT SHOWN, EXISTING GROUND LEVELS SHALL REMAIN.

LEGEND

- STUDY AREA
- NEW TOWN EXPANSION AREA
- (+5.5) PROPOSED LEVEL (mPD)
- SUB-CATCHMENT BOUNDARY

SUBCATCHMENT I.D.	AREA (ha)
H1	24.11
H2	13.54
H3	7.28
H4-1	52.84
H4-2	3.27
1	1.50
2	0.84
3	3.24
4	2.59
5	3.93
6	0.89
7	1.25
8	1.15
9	0.92
10	1.58
11	4.17
12	0.94
13	4.08
14	3.27
15	2.25
16	1.19
17	0.63
18	0.63
19	1.58
20	2.97
21	3.50
22	2.81
23	3.62
24	1.39
25	1.11
26	1.51
27	2.99
28	2.45
29	2.90
30	0.70

SUBCATCHMENT I.D.	AREA (ha)
31	0.58
32	1.14
33	2.18
34	1.58
35	1.98
36	3.72
37	3.88
38	3.53
39	1.34
40	1.07
41	0.97
42	0.40
43	0.57
44	0.43
45	0.82
46	0.37
47	0.54
48	1.15
49	1.03
50	0.88
51	1.78
52	1.59
53	2.08
54	0.72
55	0.61
56	0.49
57	0.37
58	0.52
59	0.57
60	1.43

SUBCATCHMENT I.D.	AREA (ha)
61	0.38
62	1.19
63	0.29
64	0.55
65	0.54
67	1.33
68	1.00
69	0.97
70	1.08
71	1.06
72	0.80
73	1.21
74	1.42
75	0.27
76	2.34
77	0.75
78	0.74
79	0.29
80	0.31
81	0.59
83	1.06
84	0.86
85	0.41
86	0.99
87	0.25
88	1.21
89	1.08
90	0.55
91	0.45
92	1.71
98	0.56
99	0.49

Rev	Description	By	Date
A	DRAFT TP19B	MCB	02/16

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title

SUB-CATCHMENTS AREA OF PROPOSED DRAINAGE NETWORK

(SHEET 2 OF 3)

Drawing no.			Rev.
219844/DR/1012			A
Drawn	Date	Checked	Approved
MAN	09/2012	HS	KKY
Scale	1:5000 @ A1 1:10000 @ A3	Status	PRELIMINARY

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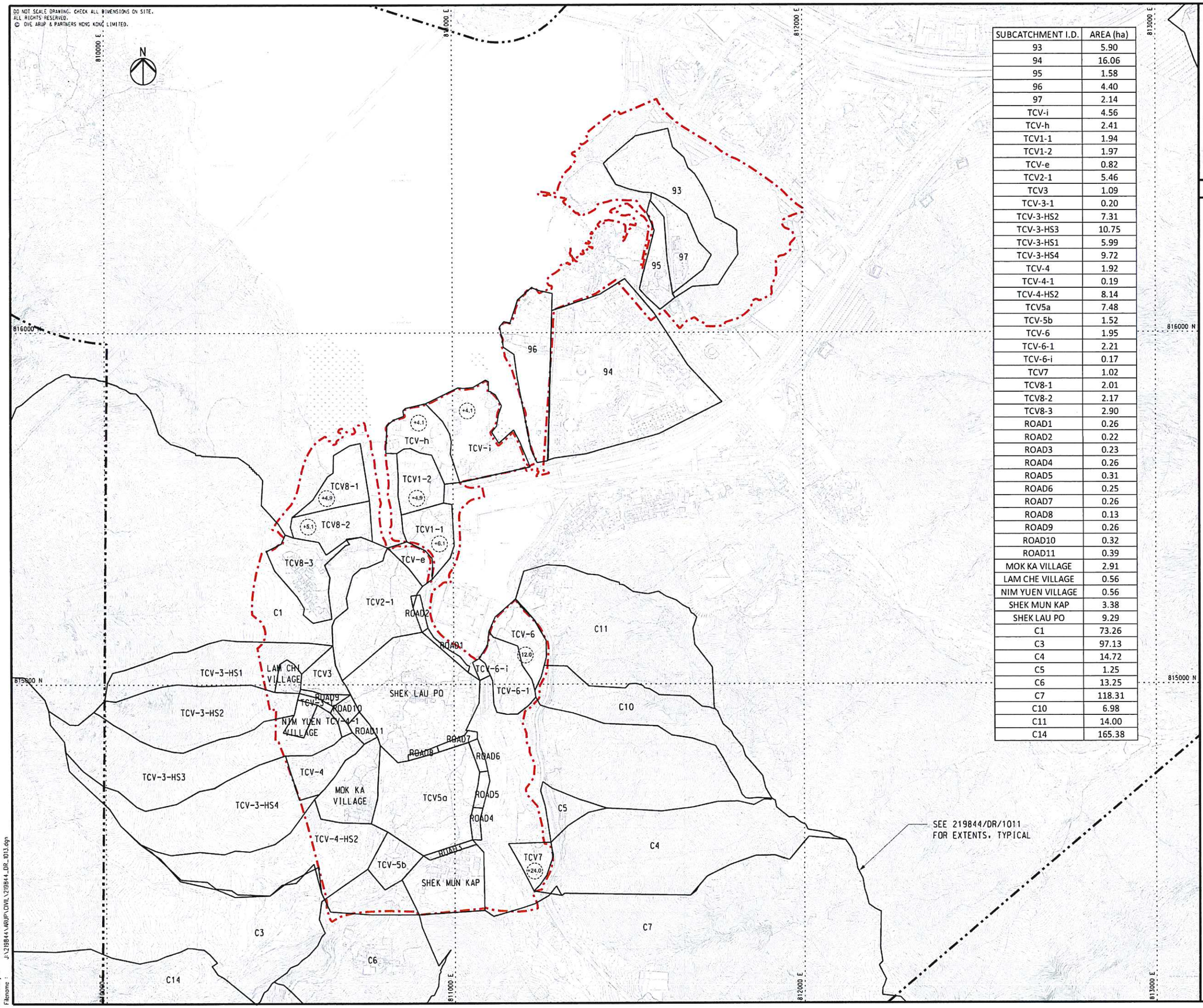
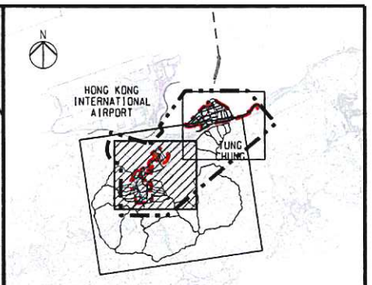


SUBCATCHMENT I.D.	AREA (ha)
93	5.90
94	16.06
95	1.58
96	4.40
97	2.14
TCV-i	4.56
TCV-h	2.41
TCV1-1	1.94
TCV1-2	1.97
TCV-e	0.82
TCV2-1	5.46
TCV3	1.09
TCV-3-1	0.20
TCV-3-HS2	7.31
TCV-3-HS3	10.75
TCV-3-HS1	5.99
TCV-3-HS4	9.72
TCV-4	1.92
TCV-4-1	0.19
TCV-4-HS2	8.14
TCV5a	7.48
TCV-5b	1.52
TCV-6	1.95
TCV-6-1	2.21
TCV-6-i	0.17
TCV7	1.02
TCV8-1	2.01
TCV8-2	2.17
TCV8-3	2.90
ROAD1	0.26
ROAD2	0.22
ROAD3	0.23
ROAD4	0.26
ROAD5	0.31
ROAD6	0.25
ROAD7	0.26
ROAD8	0.13
ROAD9	0.26
ROAD10	0.32
ROAD11	0.39
MOK KA VILLAGE	2.91
LAM CHE VILLAGE	0.56
NIM YUEN VILLAGE	0.56
SHEK MUN KAP	3.38
SHEK LAU PO	9.29
C1	73.26
C3	97.13
C4	14.72
C5	1.25
C6	13.25
C7	118.31
C10	6.98
C11	14.00
C14	165.38



KEY PLAN

NOTES

1. WHERE PROPOSED LEVELS ARE NOT SHOWN, EXISTING GROUND LEVELS SHALL REMAIN.

LEGEND

- STUDY AREA
- NEW TOWN EXPANSION AREA
- (+5.5) PROPOSED LEVEL (mPD)
- SUB-CATCHMENT BOUNDARY

Rev	Description	By	Date
A	DRAFT TP19B	MCB	02/16

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SUB-CATCHMENTS AREA OF
PROPOSED DRAINAGE NETWORK

(SHEET 3 OF 3)

Drawing no.	Rev.
219844/DR/1013	A

Drawn	Date	Checked	Approved
MAN	09/2012	HS	KKY

Scale 1:2500 @ A1
1:5000 @ A3

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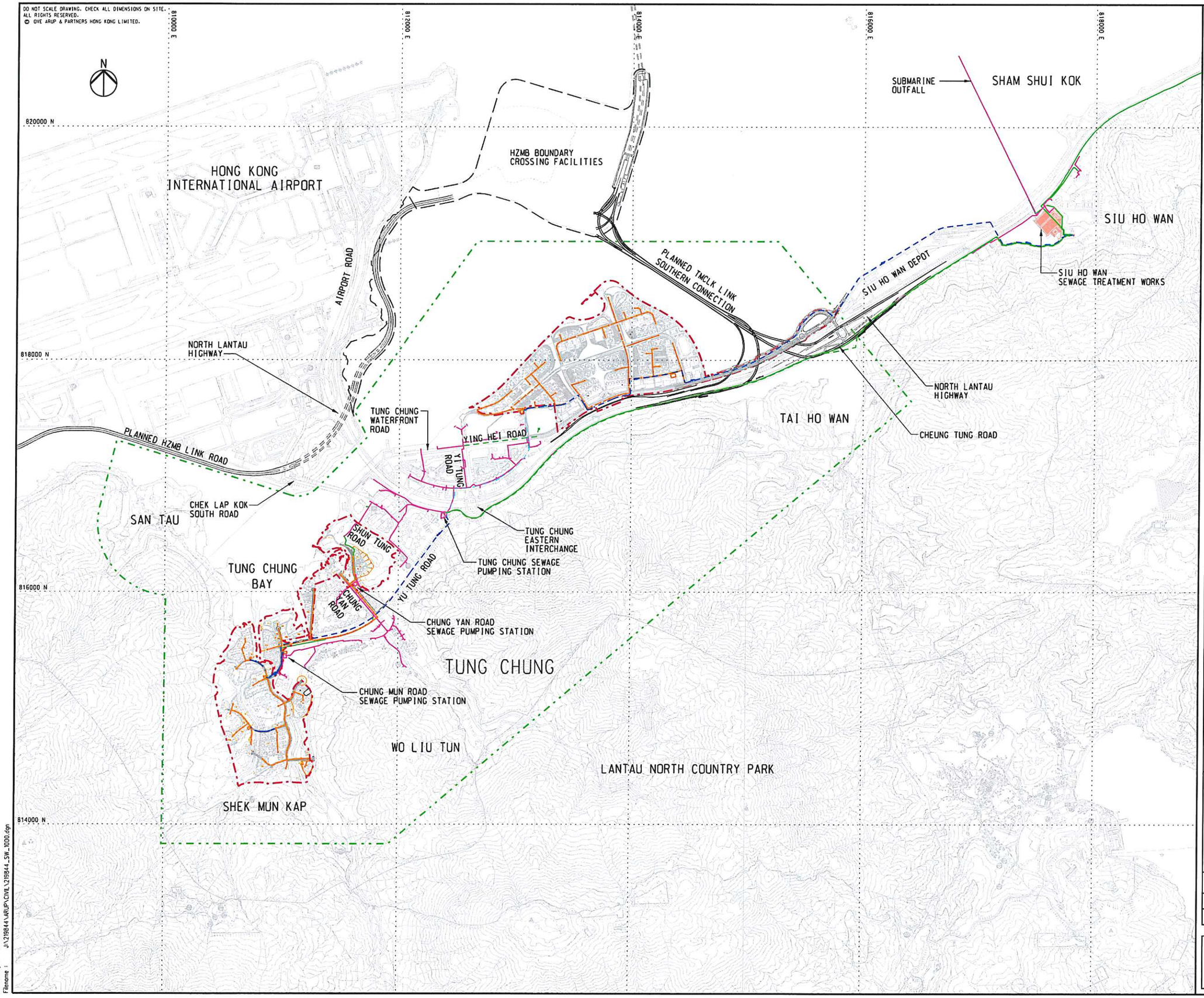

LEGEND

- STUDY AREA
- NEW TOWN EXPANSION AREA
- EXISTING GRAVITY SEWER
- EXISTING RISING MAIN
- PLANNED GRAVITY SEWER
- PLANNED RISING MAIN (BY OTHERS)
- PROPOSED GRAVITY SEWER
- ULTIMATE STAGE PROPOSED TWIN RISING MAIN
- INTERIM STAGE PROPOSED TWIN RISING MAIN

Rev	Description	By	Date
G	FINAL TP19C	LFM	03/16
F	DRAFT TP19C	LFM	06/15
E	REVISED FINAL TP11BG	LFM	10/14
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LEM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED SEWERAGE NETWORK OVERALL PLAN

Drawing no.			Rev.
219844/SW/1000			G
Drawn: MAN	Date: 09/2012	Checked: HS	Approved: KKY
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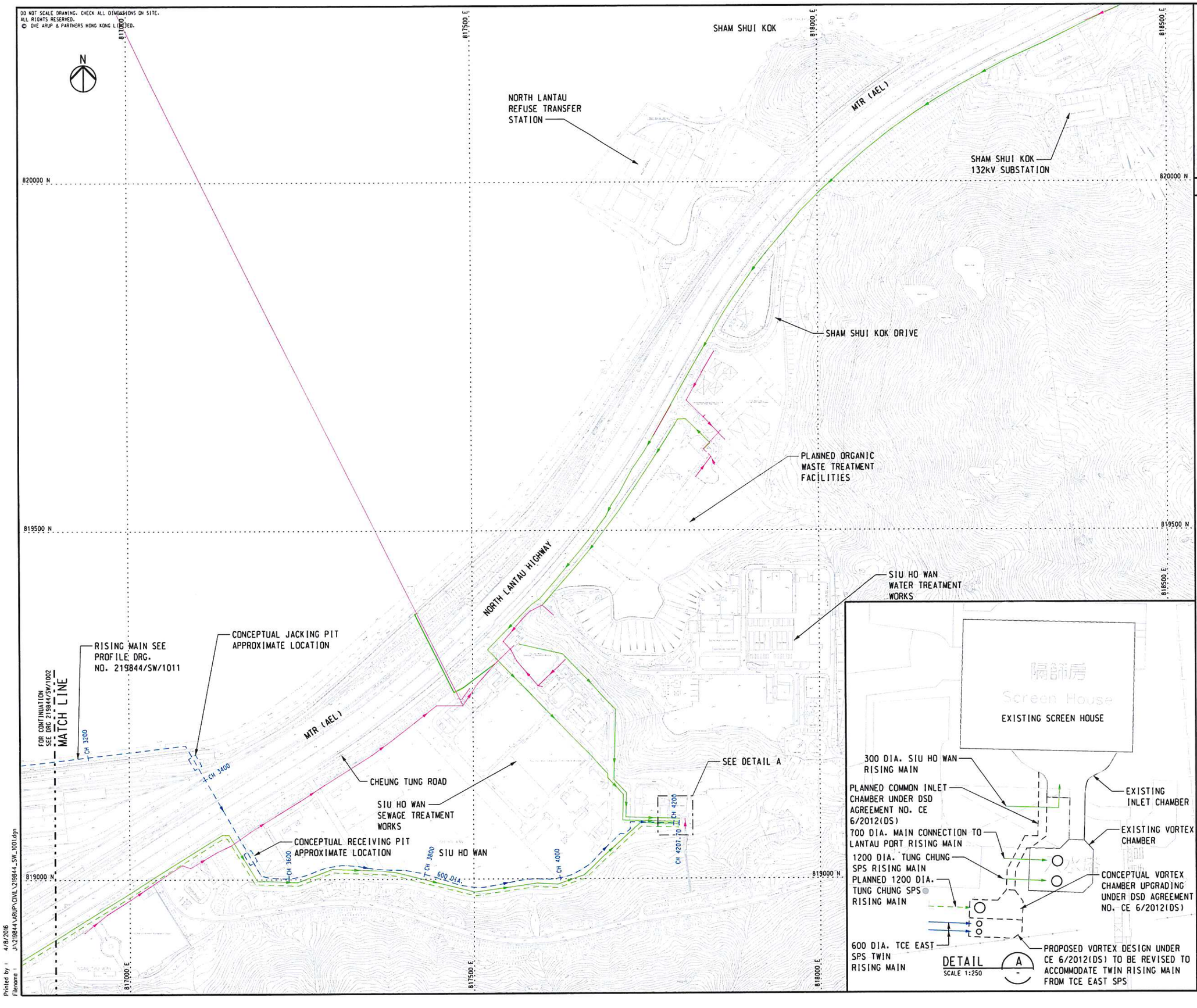

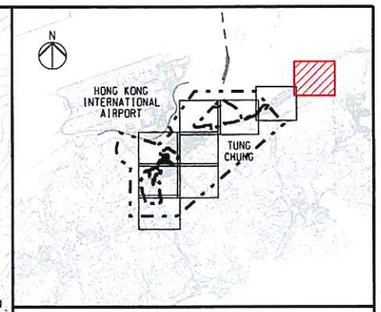

KEY PLAN

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1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 219844/SW/1000.

Rev	Description	By	Date
G	FINAL TP19C	LFM	03/16
F	DRAFT TP19C	LFM	06/15
E	REVISED FINAL TP11BG	LFM	10/14
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED SEWERAGE NETWORK

(SHEET 1 OF 9)

Drawing no.			Rev.
219844/SW/1001			G
Drawn: MAN	Date: 09/2012	Checked: HS	Approved: KKY
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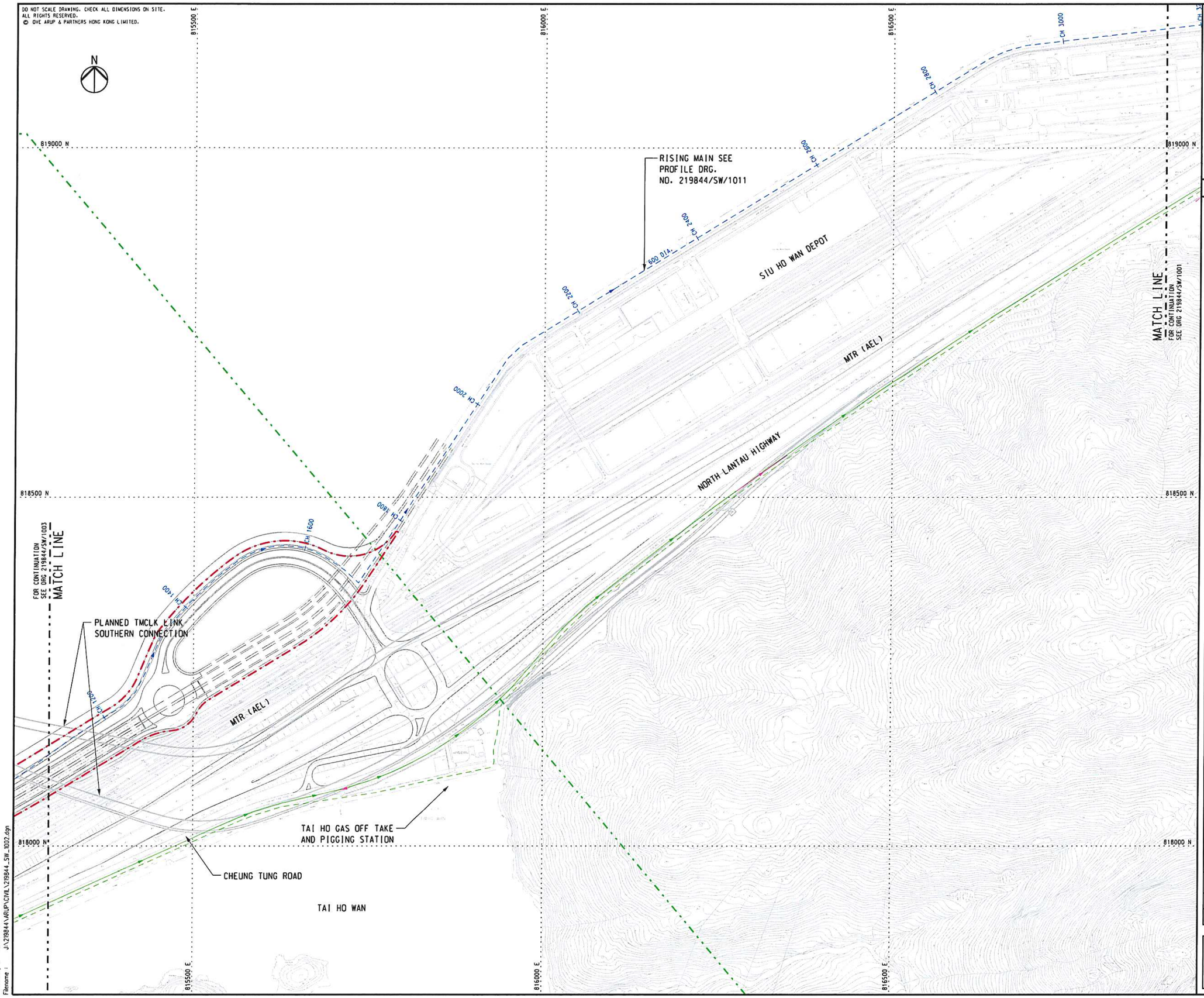

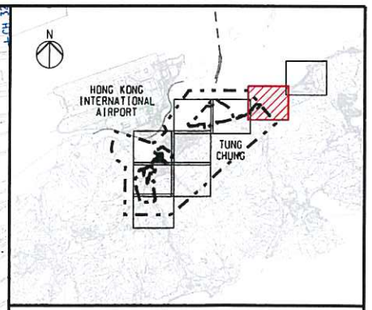

KEY PLAN

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Rev	Description	By	Date
G	FINAL TP19C	LFM	03/16
F	DRAFT 19C	LFM	06/15
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D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED SEWERAGE NETWORK

(SHEET 2 OF 9)

Drawing no.			Rev.
219844/SW/1002			G
Drawn	Date	Checked	Approved
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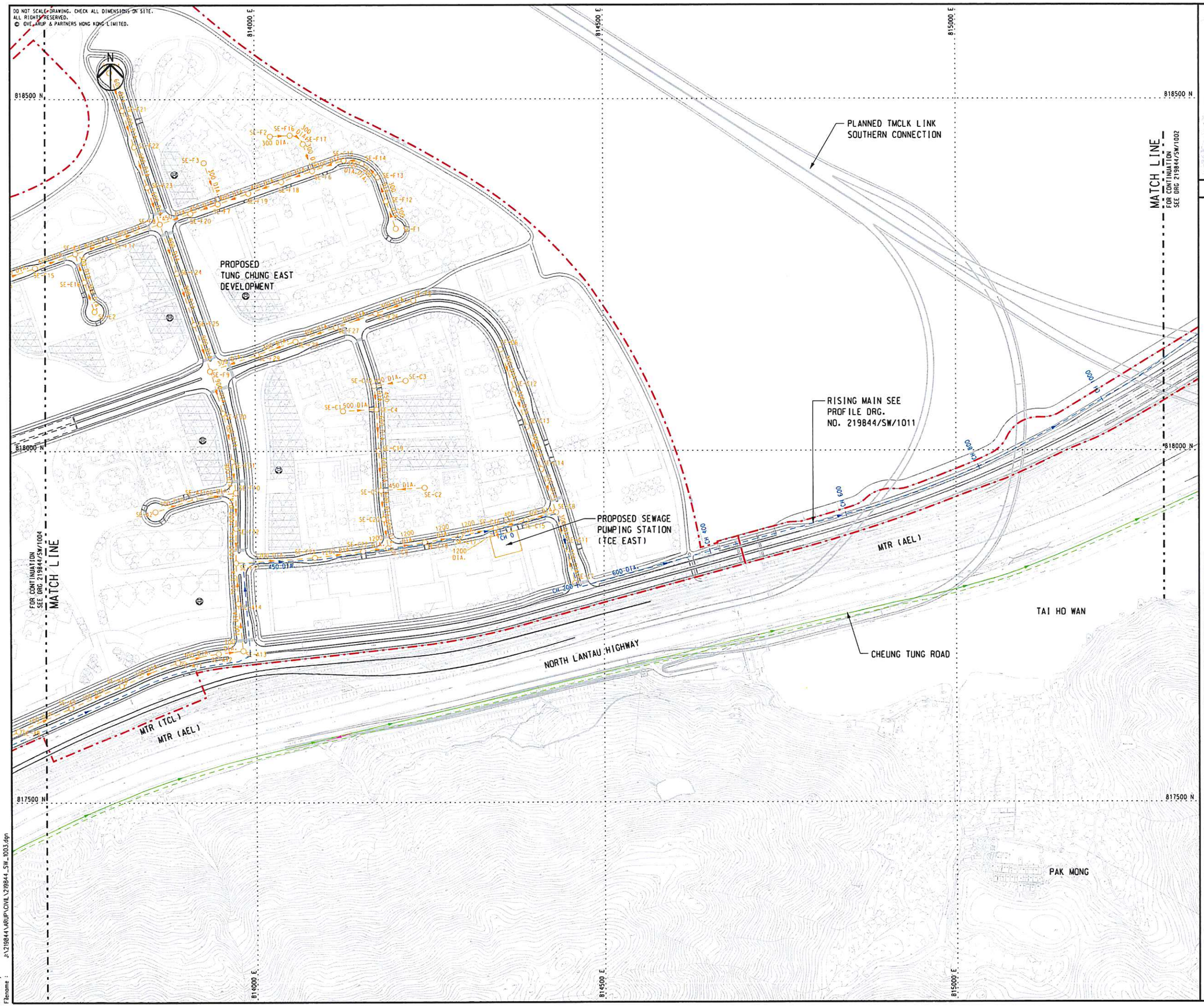

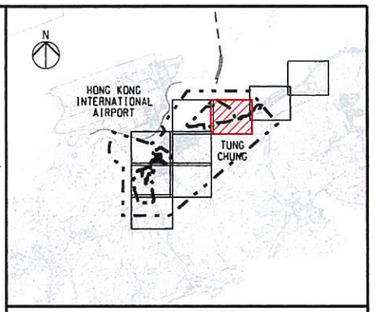

KEY PLAN

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Rev	Description	By	Date
G	FINAL TP19C	LFM	03/16
F	DRAFT TP19C	LFM	06/15
E	REVISED FINAL TP11BG	LFM	10/14
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title
EXISTING, PLANNED AND PROPOSED SEWERAGE NETWORK

(SHEET 3 OF 9)

Drawing no.		Rev.
219844/SW/1003		G
Drawn: MAN	Date: 09/2012	Checked: HS	Approved: KKY
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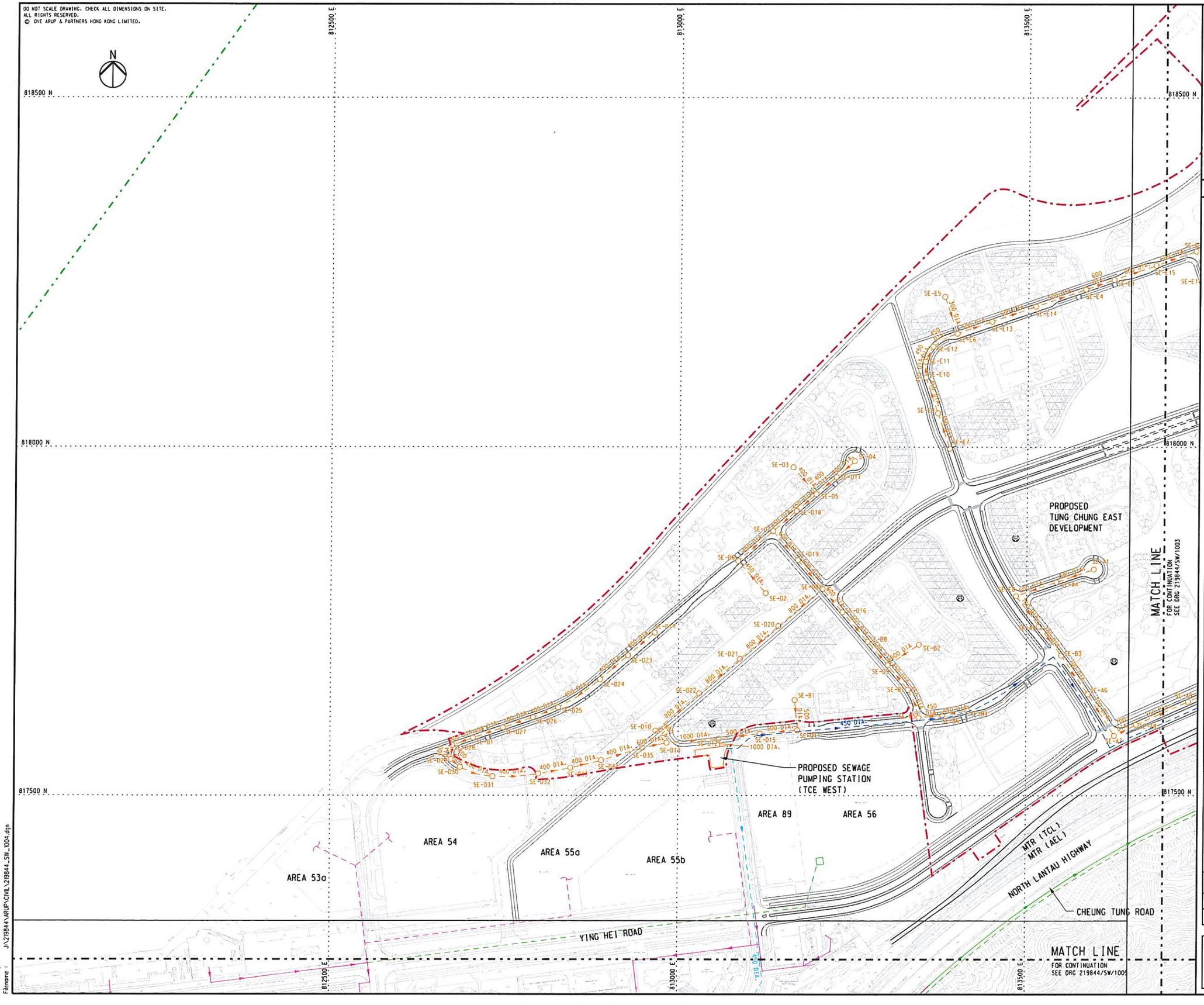

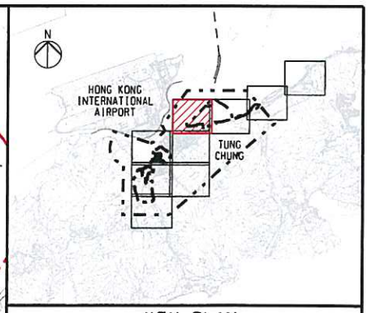

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Rev	Description	By	Date
G	FINAL TP19C	LFM	03/16
F	DRAFT TP19C	LFM	06/15
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C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED SEWERAGE NETWORK

(SHEET 4 OF 9)

Drawing no.			Rev.
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Drawn	Date	Checked	Approved
MAN	09/2012	HS	KKY
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812500 E
813000 E
813500 E
817000 N
816500 N
816000 N

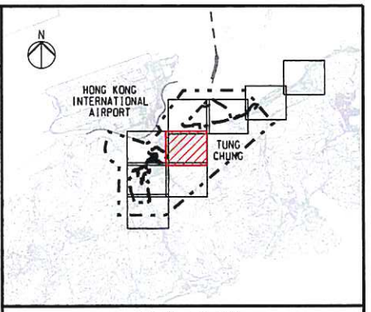
YING HEI ROAD
TUNG CHUNG WATERFRONT ROAD
Y1 TUNG ROAD
MAN TUNG ROAD
NORTH LANTAU HIGHWAY
CHEUNG TUNG ROAD
MTR (AEL)
450 DIA.

FOR CONTINUATION
SEE DRG 219844/SW/1004
MATCH LINE

FOR CONTINUATION
SEE DRG 219844/SW/1007
MATCH LINE

MTR TUNG CHUNG STATION
TUNG CHUNG WAN TELEPHONE EXCHANGE
TUNG CHUNG SEWAGE PUMPING STATION
TUNG CHUNG EASTERN INTERCHANGE
SEE DETAIL B
SHUN TUNG ROAD
YU TUNG ROAD

MATCH LINE
FOR CONTINUATION
SEE DRG 219844/SW/1006



KEY PLAN

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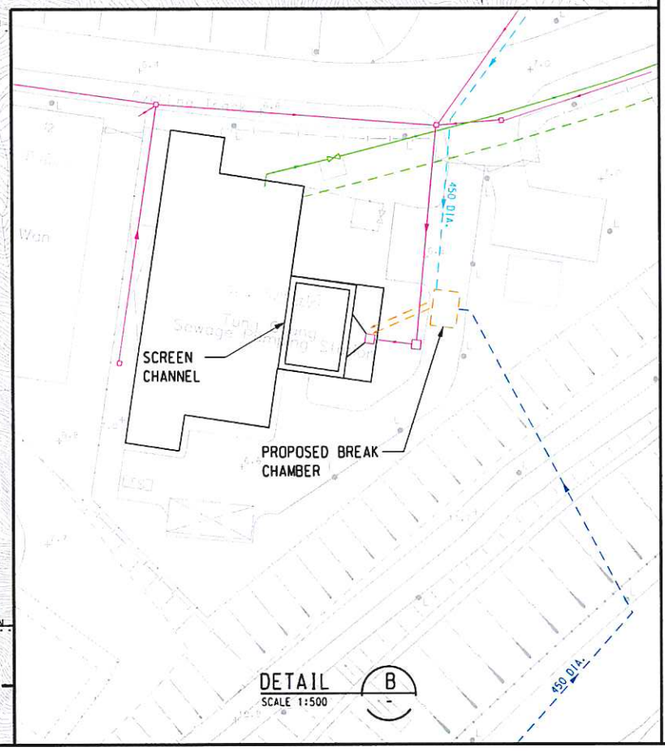

DETAIL B
SCALE 1:500

Rev	Description	By	Date
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F	DRAFT TP19C	LFM	06/15
E	REVISED FINAL TP11BG	LFM	10/14
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
EXISTING, PLANNED AND PROPOSED SEWERAGE NETWORK

(SHEET 5 OF 9)

Drawing no.			Rev.
219844/SW/1005			G
Drawn: MAN	Date: 09/2012	Checked: HS	Approved: KKY
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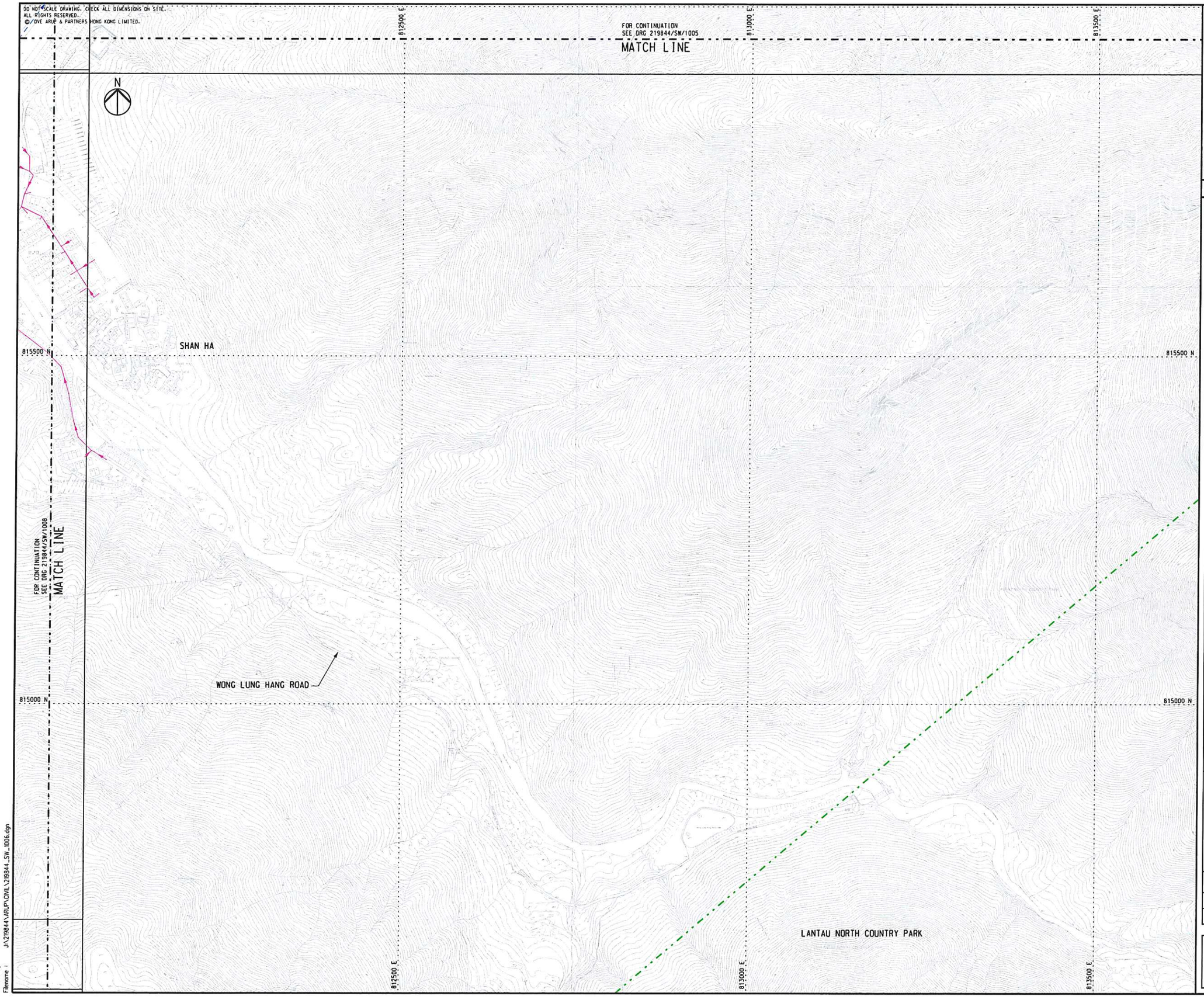

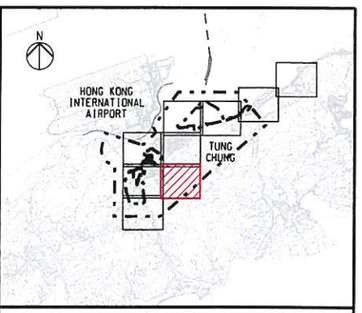

KEY PLAN

NOTES

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Rev	Description	By	Date
G	FINAL TP19C	LFM	03/16
F	DRAFT TP19C	LFM	06/15
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C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND
PROPOSED SEWERAGE NETWORK

(SHEET 6 OF 9)

Drawing no.			Rev.
219844/SW/1006			G
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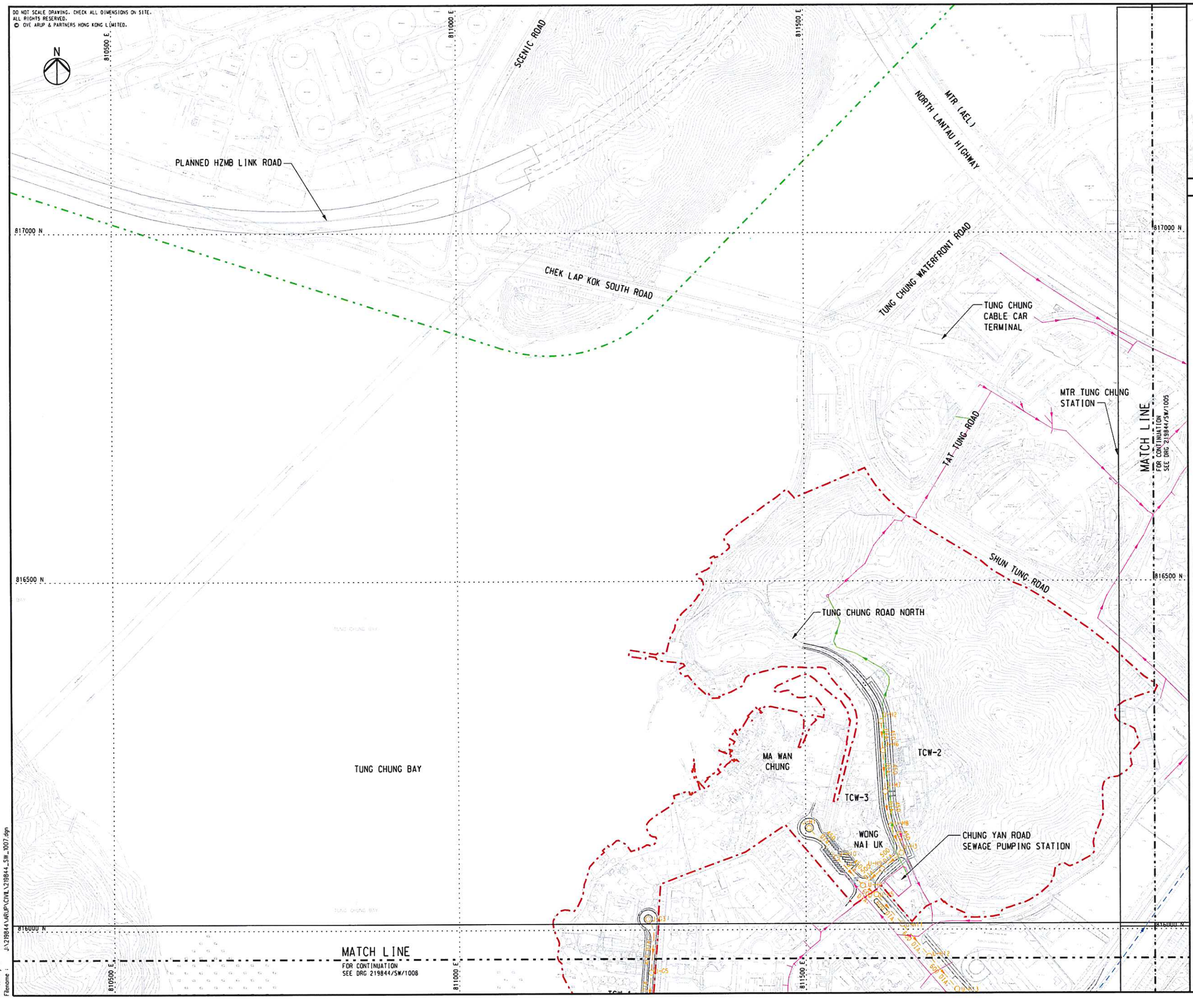

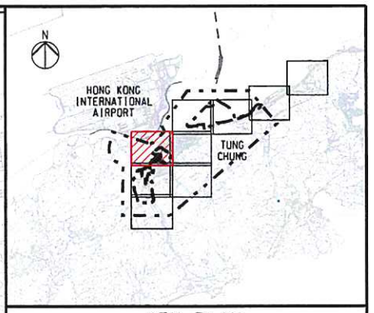

KEY PLAN

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Rev	Description	By	Date
G	FINAL TP19C	LFM	03/16
F	DRAFT TP19C	LFM	06/15
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C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED SEWERAGE NETWORK

(SHEET 7 OF 9)

Drawing no.			Rev.
219844/SW/1007			G
Drawn	Date	Checked	Approved
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FOR CONTINUATION
SEE DRG 219844/SW/1007
MATCH LINE

N

810500 E

811000 E

811500 E

815500 N

815000 N

TUNG CHUNG BAY

SHA TSUI TAU

NGAU AU

LAM CHE

NIM YUEN

MOK KA

SHEK LAU PO

LUNG TSENG TAU

WONG KA WAI

HA LING PEI

SHEUNG LING PEI

FUI YIU HA

TUNG CHUNG STREAM

TCV-1

TCV-2

TCV-3

TCV-4

TCV-5

TCV-6

TCV-8

COM-1

COM-2

COM-3

PROPOSED SEWAGE PUMPING STATION (TCV NORTH)

PROPOSED SEWAGE PUMPING STATION (TCV EAST)

PROPOSED SEWAGE PUMPING STATION (TCV WEST)

EXISTING 10000 RECTANGULAR CHANNEL

SEE DETAIL C

UPGRADED CHUNG MUN ROAD SEWAGE PUMPING STATION

CHUNG MUN ROAD SEWAGE PUMPING STATION

CHUNG MUN ROAD

TUNG CHUNG ROAD

YU TUNG ROAD

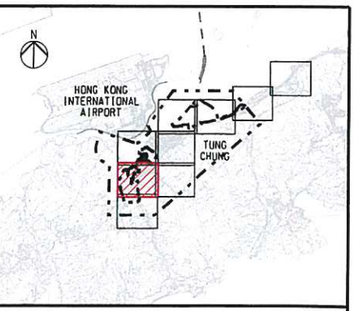
CHUNG YAN ROAD

TUNG CHUNG FRESH WATER SERVICE RESERVOIR

TCW-1

MATCH LINE
FOR CONTINUATION
SEE DRG 219844/SW/1006

MATCH LINE
FOR CONTINUATION
SEE DRG 219844/SW/1009



KEY PLAN

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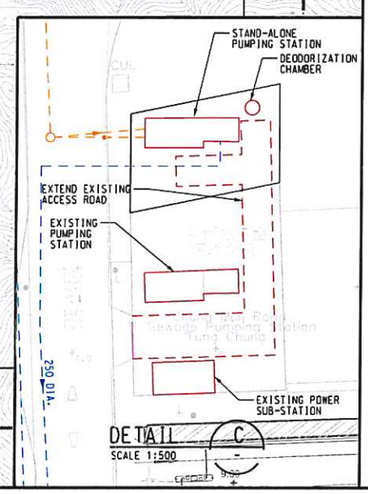

Rev	Description	By	Date
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F	DRAFT TP19C	LFM	06/15
E	REVISED FINAL TP11BG	LFM	10/14
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C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED SEWERAGE NETWORK

(SHEET 8 OF 9)

Drawing no.			Rev.
219844/SW/1008			G
Drawn	Date	Checked	Approved
MAN	09/2012	HS	KKY
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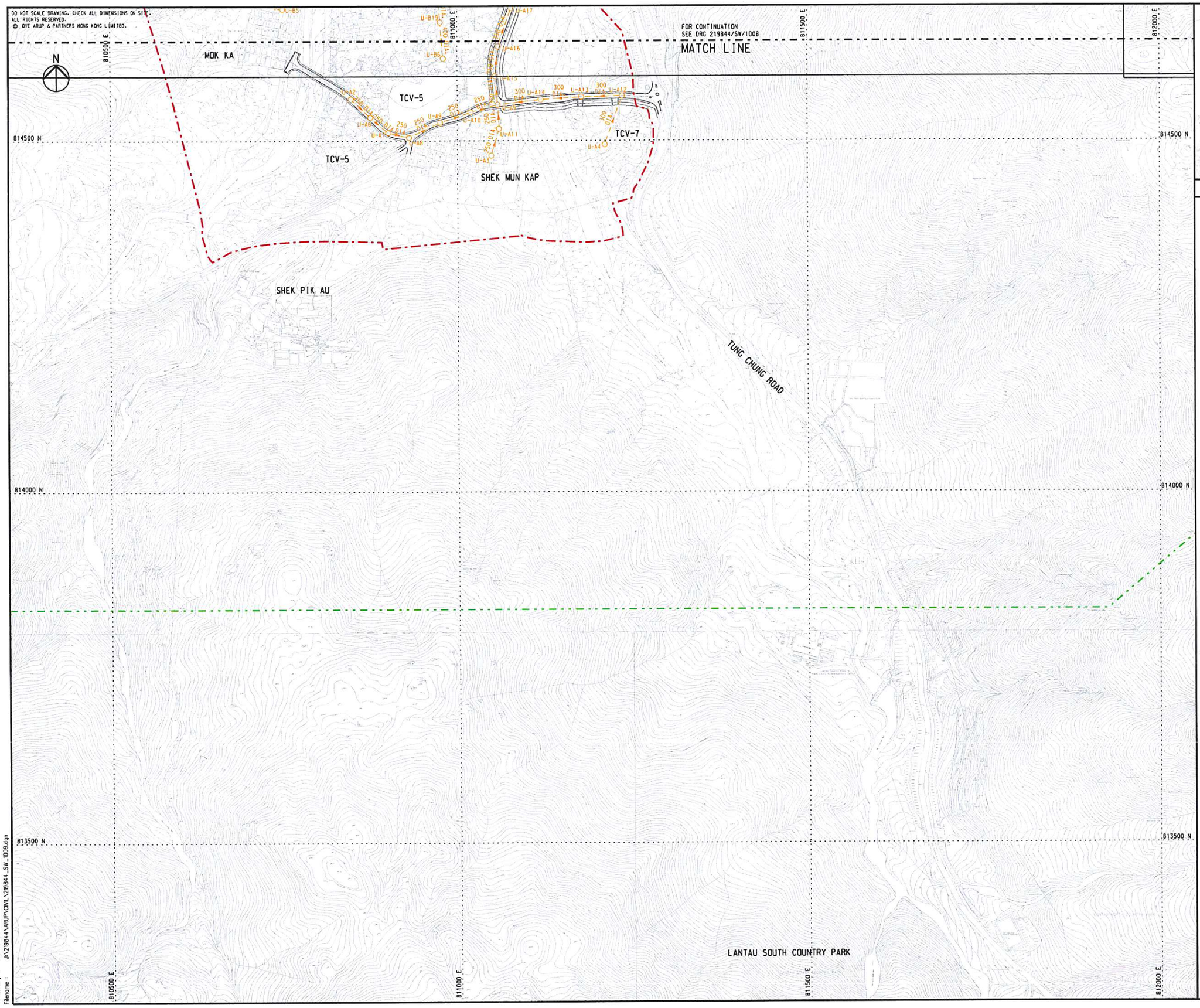

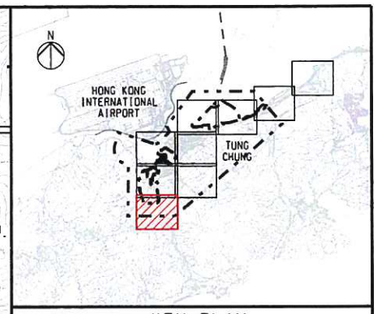

KEY PLAN

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Rev	Description	By	Date
G	FINAL TP19C	LFM	03/16
F	DRAFT TP19C	LFM	06/15
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C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

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Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING AND PLANNED
SEWERAGE NETWORK
(SHEET 9 OF 9)

Drawing no.			Rev.
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Drawn: MAN	Date: 09/2012	Checked: HS	Approved: KKY
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TUNG CHUNG EAST SEWERAGE MANHOLE SCHEDULES

Manhole		Pipe Parameter						
UP_MAN No.	DN_MAN No.	DIA (D) (mm)	LEN (m)	UP_GL (mPD)	DN_GL (mPD)	UP_INV (mPD)	DN_INV (mPD)	Gradient (S), 1 in XX
Sewers Discharges to Proposed TCE West SPS								
SE- D14	SE- D23	400	51	5.80	5.75	3.90	3.65	200
SE- D23	SE- D24	400	50	5.75	5.70	3.65	3.40	200
SE- D24	SE- D25	400	50	5.70	5.65	3.40	3.15	200
SE- D25	SE- D26	400	50	5.65	5.60	3.15	2.90	200
SE- D26	SE- D27	400	50	5.60	5.55	2.90	2.65	200
SE- D27	SE- D1	400	50	5.55	5.50	2.65	2.40	200
SE- D1	SE- D28	400	36	5.50	5.50	2.40	2.22	200
SE- D28	SE- D29	400	20	5.50	5.50	2.22	2.12	200
SE- D29	SE- D30	400	18	5.50	5.50	2.12	2.03	200
SE- D30	SE- D31	400	30	5.50	5.50	2.03	1.88	200
SE- D31	SE- D32	400	50	5.50	5.50	1.88	1.63	200
SE- D32	SE- D33	400	55	5.50	5.50	1.63	1.35	200
SE- D33	SE- D34	400	55	5.50	5.50	1.35	1.08	200
SE- D34	SE- D35	400	55	5.50	5.50	1.08	0.80	200
SE- D35	SE- D13	600	58	5.50	5.50	0.80	0.51	200
SE- D2	SE- D6	450	61	5.50	5.90	3.05	2.81	250
SE- D6	SE- D7	450	66	5.90	6.00	2.81	2.54	250
SE- D3	SE- D5	400	51	5.50	5.90	3.60	3.35	200
SE- D4	SE- D17	400	35	5.80	5.85	3.90	3.73	200
SE- D17	SE- D5	400	38	5.85	5.90	3.73	3.54	200
SE- D5	SE- D18	450	41	5.90	5.95	3.35	3.14	200
SE- D18	SE- D7	450	40	5.95	6.00	3.14	2.94	200
SE- D7	SE- D19	600	55	6.00	5.90	2.54	2.32	250
SE- D19	SE- D8	600	51	5.90	5.80	2.32	2.12	250
SE- B4	SE- B6	450	44	5.70	5.60	3.75	3.53	200
SE- B6	SE- B5	450	50	5.60	5.50	3.53	3.28	200
SE- B5	SE- B7	450	41	5.50	5.60	3.28	3.08	200
SE- B7	SE- D9	450	50	5.60	5.70	3.08	2.83	200
SE- B2	SE- D9	600	54	5.50	5.70	3.40	3.13	200
SE- D9	SE- B8	600	50	5.70	5.73	2.83	2.57	200
SE- B8	SE- D16	600	50	5.73	5.76	2.57	2.32	200
SE- D16	SE- D8	600	48	5.76	5.80	2.32	2.08	200
SE- D8	SE- D20	800	79	5.80	5.80	2.08	1.82	300
SE- D20	SE- D21	800	80	5.80	5.70	1.82	1.55	300
SE- D21	SE- D22	800	79	5.70	5.60	1.55	1.29	300
SE- D22	SE- D10	800	77	5.60	5.50	1.29	1.03	300
SE- D10	SE- D13	800	27	5.50	5.50	1.03	0.94	300
SE- B1	SE- D11	500	43	5.50	5.50	3.00	2.78	200
SE- D11	SE- D15	500	54	5.50	5.50	2.78	2.57	250
SE- D15	SE- D12	500	59	5.50	5.50	2.57	2.33	250
SE- D13	SE- D12	1000	75	5.50	5.50	0.51	0.29	350
SE- D12	TCE West SPS	1000	15	5.50	5.50	0.29	0.25	350

From TCE West SPS to TC SPS (Interim Stage)				
TCE West SPS	TC SPS	450	1320	Twin Rising Mains

From TCE West SPS to TCE East SPS (Ultimate Stage)				
TCE West SPS	TCE East SPS	450	1488	Twin Rising Mains

Sewers Discharge to proposed TCE East SPS								
SE- F1	SE- F12	300	39	6.00	5.95	4.20	3.94	150
SE- F12	SE- F13	300	39	5.95	5.90	3.94	3.68	150
SE- F13	SE- F14	300	24	5.90	5.86	3.68	3.52	150
SE- F14	SE- F15	300	31	5.86	5.83	3.52	3.31	150
SE- F15	SE- F6	300	50	5.83	5.80	3.31	2.98	150
SE- F2	SE- F16	300	33	5.50	5.60	3.70	3.48	150
SE- F16	SE- F17	300	17	5.60	5.65	3.48	3.37	150
SE- F17	SE- F6	300	43	5.65	5.80	3.37	3.08	150
SE- F6	SE- F18	400	47	5.80	5.70	2.98	2.75	200
SE- F18	SE- F19	400	50	5.70	5.60	2.75	2.49	200
SE- F19	SE- F7	400	46	5.60	5.50	2.49	2.26	200
SE- F3	SE- F7	300	62	5.50	5.50	3.70	3.29	150
SE- F7	SE- F20	450	42	5.50	5.50	2.26	2.10	250
SE- F20	SE- F8	450	46	5.50	5.50	2.10	1.91	250
SE- F4	SE- F21	600	57	5.50	5.50	3.40	3.17	250
SE- F21	SE- F22	600	57	5.50	5.50	3.17	2.94	250
SE- F22	SE- F23	600	57	5.50	5.50	2.94	2.72	250
SE- F23	SE- F8	600	56	5.50	5.50	2.72	2.49	250
SE- E7	SE- E9	450	54	5.50	5.55	3.55	3.33	250
SE- E9	SE- E10	450	55	5.55	5.60	3.33	3.11	250
SE- E10	SE- E11	450	25	5.60	5.63	3.11	3.01	250
SE- E11	SE- E12	450	27	5.63	5.66	3.01	2.91	250
SE- E12	SE- E6	450	33	5.66	5.70	2.91	2.77	250
SE- E5	SE- E6	300	56	5.50	5.70	3.70	3.33	150
SE- E6	SE- E13	500	65	5.70	5.80	2.77	2.56	300
SE- E13	SE- E14	500	65	5.80	5.90	2.56	2.34	300
SE- E14	SE- E4	500	65	5.90	6.00	2.34	2.12	300
SE- E4	SE- E1	600	43	6.00	6.00	2.12	1.98	300
SE- E1	SE- E15	600	63	6.00	5.95	1.98	1.77	300
SE- E15	SE- E3	600	62	5.95	5.90	1.77	1.56	300
SE- E2	SE- E16	300	43	5.50	5.70	3.70	3.27	100
SE- E16	SE- E3	300	44	5.70	5.90	3.27	2.83	100
SE- E3	SE- E17	800	68	5.90	5.60	1.56	1.34	300
SE- E17	SE- F8	800	63	5.60	5.50	1.34	1.13	300
SE- F8	SE- F24	900	74	5.50	5.57	1.13	0.88	300
SE- F24	SE- F25	900	74	5.57	5.64	0.88	0.64	300
SE- F25	SE- F9	900	73	5.64	5.70	0.64	0.39	300
SE- F5	SE- F26	300	61	6.00	5.90	4.20	3.59	100
SE- F26	SE- F27	300	61	5.90	5.85	3.59	2.98	100
SE- F27	SE- F28	300	61	5.85	5.80	2.98	2.37	100
SE- F28	SE- F29	300	61	5.80	5.75	2.37	1.76	100
SE- F29	SE- F9	300	61	5.75	5.70	1.76	1.15	100
SE- F9	SE- F30	900	58	5.70	5.77	0.39	0.20	300
SE- F30	SE- F31	900	61	5.77	5.84	0.20	0.00	300
SE- F31	SE- F10	900	58	5.84	5.90	0.00	0.20	300

Sewers Discharge to proposed TCE East SPS								
SE- A2	SE- A3	700	59	5.50	5.70	3.30	3.00	200
SE- A3	SE- F10	700	59	5.70	5.90	3.00	2.71	200
SE- F10	SE- F32	1000	50	5.90	5.92	-0.20	-0.36	300
SE- F32	SE- F11	1000	50	5.92	5.93	-0.36	-0.53	300
SE- A1	SE- A4	600	56	5.50	5.70	3.40	3.12	200
SE- A4	SE- E8	600	62	5.70	6.00	3.12	2.81	200
SE- E8	SE- A5	700	53	6.00	5.85	2.81	2.59	250
SE- A5	SE- B3	700	52	5.85	5.70	2.59	2.38	250
SE- B3	SE- A6	700	68	5.70	5.85	2.38	2.16	300
SE- A6	SE- A7	700	72	5.85	6.00	2.16	1.92	300
SE- A7	SE- A8	700	50	6.00	5.60	1.92	1.75	300
SE- A8	SE- A9	700	60	5.60	5.75	1.75	1.55	300
SE- A9	SE- A10	700	63	5.75	5.80	1.55	1.34	300
SE- A10	SE- A11	700	70	5.80	5.70	1.34	1.11	300
SE- A11	SE- A12	700	70	5.70	5.65	1.11	0.88	300
SE- A12	SE- A13	700	65	5.65	6.00	0.88	0.66	300
SE- A13	SE- A14	700	64	6.00	5.80	0.66	0.45	300
SE- A14	SE- F11	700	64	5.80	5.93	0.45	0.24	300
SE- F11	SE- C21	1200	90	5.93	5.95	-0.53	-0.83	300
SE- C21	SE- C22	1200	93	5.95	6.00	-0.83	-1.14	300
SE- C22	SE- C9	1200	31	6.00	6.00	-1.14	-1.24	300
SE- C1	SE- C4	500	49	5.50	6.00	3.50	3.26	200
SE- C3	SE- C10	450	46	5.50	6.00	3.55	3.32	200
SE- C10	SE- C4	450	32	6.00	6.00	3.32	3.16	200
SE- C4	SE- C19	600	59	6.00	6.00	3.16	2.86	200
SE- C19	SE- C5	600	57	6.00	6.00	2.86	2.58	200
SE- C2	SE- C5	450	63	5.50	6.00	3.55	3.24	200
SE- C5	SE- C20	600	40	6.00	6.00	2.58	2.38	200
SE- C20	SE- C9	600	42	6.00	6.00	2.38	2.17	200
SE- C9	SE- C18	1200	37	6.00	6.00	-1.24	-1.36	300
SE- C18	SE- C17	1200	50	6.00	6.00	-1.36	-1.53	300
SE- C17	SE- C16	1200	50	6.00	6.00	-1.53	-1.70	300
SE- C6	SE- C12	300	61	6.00	6.00	4.20	3.79	150
SE- C12	SE- C13	300	62	6.00	6.00	3.79	3.38	150
SE- C13	SE- C14	300	61	6.00	6.00	3.38	2.97	150
SE- C14	SE- C8	300	61	6.00	6.00	2.97	2.57	150
SE- C7	SE- C11	300	55	6.00	6.00	4.20	3.83	150
SE- C11	SE- C8	300	50	6.00	6.00	3.83	3.50	150
SE- C8	SE- C15	400	46	6.00	6.00	2.57	2.33	200
SE- C15	SE- C16	400	51	6.00	6.00	2.33	2.08	200
SE- C16	TCE East SPS	1200	50	6.00	5.50	-1.70	-1.86	300

From TCE East SPS to SHW STW (Ultimate Stage)				
TCE East SPS	SHW STW	600	3730	Twin Rising Mains

TUNG CHUNG WEST SEWERAGE MANHOLE SCHEDULES

Manhole		Pipe Parameter						
UP_MAN No.	DN_MAN No.	DIA (D) (mm)	LEN (m)	UP_GL (mPD)	DN_GL (mPD)	UP_INV (mPD)	DN_INV (mPD)	Gradient (S), 1 in XX
Sewers discharges to the proposed TCV East SPS								
U- A2	U- A6	250	38	24.00	24.00	22.25	21.87	100
U- A6	U- A7	250	40	24.00	24.00	21.87	21.47	100
U- A7	U- A8	250	24	24.00	24.00	21.47	21.22	100
U- A8	U- A9	250	40	24.00	24.00	21.22	20.82	100
U- A9	U- A10	250	53	24.00	24.00	20.82	20.29	100
U- A10	U- A5	250	40	24.00	24.00	20.29	19.89	100
U- A3	U- A11	250	40	24.00	24.00	22.25	21.85	100
U- A11	U- A5	250	35	24.00	24.00	21.85	21.51	100
U- A4	U- A12	400	78	25.00	25.00	23.60	23.08	150
U- A12	U- A13	400	59	25.00	25.00	23.08	22.68	150
U- A13	U- A14	400	58	25.00	23.00	22.68	22.11	100
U- A14	U- A5	400	63	23.00	24.00	22.11	21.47	100
U- A5	U- A15	350	45	24.00	23.00	19.89	19.44	100
U- A15	U- A16	350	40	23.00	22.00	19.44	19.03	100
U- A16	U- A17	350	57	22.00	20.00	19.03	17.89	50
U- A17	U- A18	350	41	20.00	19.00	17.89	17.07	50
U- A18	U- A19	350	47	19.00	17.50	17.07	16.12	50
U- A19	U- A20	350	41	17.50	16.50	16.12	15.09	40
U- A20	U- C1	350	43	16.50	15.50	15.09	14.01	40
U- B1a	U- B1c	300	32	10.50	10.50	8.70	8.49	150
U- B1b	U- B1c	300	52	10.50	10.50	8.70	8.35	150
U- B1c	U- B9	300	67	10.50	11.00	8.35	7.91	150
U- B9	U- B3	300	35	11.00	12.00	7.91	7.68	150
U- B3	U- B11	300	36	12.00	12.50	7.68	7.44	150
U- B11	U- B12	300	38	12.50	13.00	7.44	7.18	150
U- B12	U- B13	300	30	13.00	13.50	7.18	6.98	150
U- B13	U- B8	300	47	13.50	14.00	6.98	6.67	150
U- B4	U- B14	250	46	29.00	23.00	23.75	21.45	20
U- B14	U- B4a	250	37	23.00	16.00	16.45	14.62	20
U- B4a	U- B15	250	35	16.00	15.00	14.62	13.22	25
U- B15	U- B8	250	35	15.00	14.00	13.22	11.84	25
U- B8	U- B23	300	27	14.00	14.00	6.67	6.49	150
U- B5	U- B16	250	36	20.50	18.00	17.75	16.30	25
U- B16	U- B17	250	36	18.00	16.00	14.80	13.36	25
U- B17	U- B18	250	42	16.00	14.00	11.86	10.19	25
U- B18	U- B23	250	29	14.00	14.00	10.19	9.03	25
U- B23	TCV- West SPS	450	15	14.00	11.00	6.49	6.41	200
TCV- West SPS	U- B7	200	240	Twin Rising Mains				

Sewers discharges to the proposed TCV East SPS								
U- B6	U- B19	400	52	16.00	16.00	14.10	13.84	200
U- B19	U- B20	400	52	16.00	16.00	13.84	13.58	200
U- B20	U- B21	400	68	16.00	16.00	13.58	13.24	200
U- B21	U- B7	400	37	16.00	16.00	13.24	13.06	200
U- B7	U- B22	450	50	16.00	15.75	13.06	12.86	250
U- B22	U- C1	450	43	15.75	15.50	12.86	12.69	250
U- C1	U- C4	600	50	15.50	15.00	10.19	9.99	250
U- C4	U- C5	600	50	15.00	14.00	9.99	9.79	250
U- C5	U- C6	600	45	14.00	13.00	9.79	9.61	250
U- C6	U- C3	600	42	13.00	10.00	9.61	8.41	35
U- C2	U- C3	300	55	11.80	10.00	10.00	8.62	40
U- F1	U- F2	600	40	13.00	13.00	11.40	11.27	300
U- F2	U- F3	600	42	13.00	13.00	11.27	11.13	300
U- F3	U- F4	600	42	13.00	13.00	11.13	10.99	300
U- F4	U- F5	600	43.3	13.00	13.00	10.99	10.84	300
U- F5	U- F6	600	44.2	13.00	12.50	10.84	10.70	300
U- F6	U- C3	600	49.8	12.50	11.50	10.70	10.20	100
U- C3	U- C7	700	33.3	11.50	9.95	7.91	7.80	300
U- C7	U- C8	700	46.7	9.95	9.90	7.80	7.64	300
U- C8	U- C9	700	39.5	9.90	9.85	7.64	7.51	300
U- C9	U- C10	700	46	9.85	9.80	7.51	7.36	300
U- C10	U- C11	700	53.4	9.80	9.70	7.36	7.18	300
U- C11	U- C12	700	50.2	9.70	9.60	7.18	7.01	300
U- D3	U- D11	300	44.9	6.50	7.50	4.70	4.40	150
U- D11	U- D4	600	50.1	7.50	8.50	4.40	4.07	150
U- D4	U- C12	800	41.9	8.50	9.50	4.07	3.79	150
U- C12	U- D10	900	26.2	9.50	9.50	3.79	3.70	300
U- J1	U- J2	400	40	6.00	6.00	4.60	4.40	200
U- J2	U- J3	400	55	6.00	6.00	4.40	4.13	200
U- J3	U- D5	400	37	6.00	6.00	4.13	3.94	200
U- D5	U- D1	400	66.3	6.00	8.00	3.94	3.61	200
U- D12	U- D1	400	98	9.00	8.00	7.10	6.61	200
U- D1	U- D6	400	40	8.00	6.50	3.61	3.41	200
U- D6	TCV- North SPS	400	20	6.50	7.50	3.41	3.31	200
TCV- North SPS	U- D9	200	169	Twin Rising Mains				
U- D9	U- D10	400	41.9	9.00	9.50	7.10	6.89	200
U- D10	TCV- East SPS	1200	18.4	9.50	6.50	3.70	3.61	200

Sewers								
U- G1	U- G17	300	62	6.00	7.20	4.20	3.79	150
U- G17	U- G4	300	63	7.20	8.50	3.79	3.36	150
U- G2	U- G15	400	49	4.50	6.00	2.60	2.35	200
U- G15	U- G16	400	49	6.00	7.00	2.35	2.11	200
U- G16	U- G4	400	54	7.00	8.50	2.11	1.84	200
U- G3	U- G5	450	59	5.50	6.00	3.55	3.31	250
U- G5	U- G6	450	61	6.00	6.25	3.31	3.07	250
U- G6	U- G7	450	60	6.25	6.50	3.07	2.83	250
U- G7	U- G8	450	58	6.50	6.75	2.83	2.60	250
U- G8	U- G9	450	60	6.75	7.00	2.60	2.36	250
U- G9	U- G10	450	57	7.00	7.25	2.36	2.13	250
U- G10	U- G11	450	61	7.25	7.50	2.13	1.89	250
U- H1	U- H10	450	46	6.00	7.00	4.55	4.37	250
U- H10	U- H4	450	54	7.00	8.00	4.37	4.15	250
U- H2	U- H6	450	55	12.00	11.50	8.55	8.33	250
U- H6	U- H7	450	46	11.50	11.00	8.33	8.15	250
U- H7	U- H8	450	45	11.00	10.50	8.15	7.97	250
U- H8	U- H3	450	44	10.50	9.80	7.97	7.79	250
U- H3	U- H9	500	37	9.80	9.00	6.29	6.17	300
U- H9	U- H4	500	36	9.00	8.00	6.17	6.05	300
U- H4	U- H5	600	22	8.00	8.00	4.15	4.08	300
U- H5	U- H11	600	60	8.00	8.30	4.08	3.88	300
U- H11	U- H12	600	60	8.30	9.00	3.88	3.68	300
U- H12	U- H13	600	62	9.00	9.20	3.68	3.47	300
U- H13	U- H14	600	63	9.20	9.80	3.47	3.26	300
U- H14	U- H15	600	55	9.80	11.80	3.26	3.08	300
U- H15	U- H16	600	54	11.80	13.60	3.08	2.90	300
U- H16	U- H17	600	60	13.60	12.50	2.90	2.70	300
U- H17	U- H18	600	56	12.50	12.00	2.70	2.51	300
U- H18	U- H19	600	56	12.00	11.60	2.51	2.33	300
U- H19	U- H20	600	61	11.60	10.50	2.33	2.13	300
U- H20	U- H21	600	56	10.50	9.85	2.13	1.94	300
U- H21	U- H22	600	59	9.85	9.43	1.94	1.74	300
U- H22	U- H23	600	58	9.43	8.70	1.74	1.55	300
U- H23	U- H24	600	57	8.70	8.97	1.55	1.36	300
U- H24	U- H25	600	50	8.97	8.60	1.36	1.20	300
U- H25	U- H26	600	56	8.60	9.30	1.20	1.01	300
U- H26	U- G11	600	52	9.30	8.30	1.01	0.84	300
U- G11	U- G12	600	63	8.30	7.75	0.84	0.63	300
U- G12	U- G13	600	63	7.75	8.00	0.63	0.42	300
U- G13	U- G14	600	63	8.00	8.25	0.42	0.21	300
U- G14	U- G4	600	62	8.25	8.50	0.21	0.00	300
U- G4	U- G18	600	54	8.50	8.00	0.00	-0.18	300
U- G18	Upgraded CMRSPS	600	16	8.00	8.10	-0.18	-0.23	300
Upgraded CMRSPS	TCV- East SPS	250	328	Twin Rising Mains				

Sewers discharges From TCV East SPS to SHWSTW via Tung Chung SPS (Ultimate stage)				
TCV- East SPS	TC SPS	450	2218	Twin Rising Mains

B	FINAL TP19C	LEM	03/16
A	DRAFT TP19C	LEM	06/15
Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

PROPOSED SEWERAGE NETWORK
MANHOLE DETAILS

Drawing no.			Rev.
219844/SW/1010			B
Drawn	Date	Checked	Approved
MAN	03/2015	HS	KKY
Scale		Status	
N.T.S.		PRELIMINARY	

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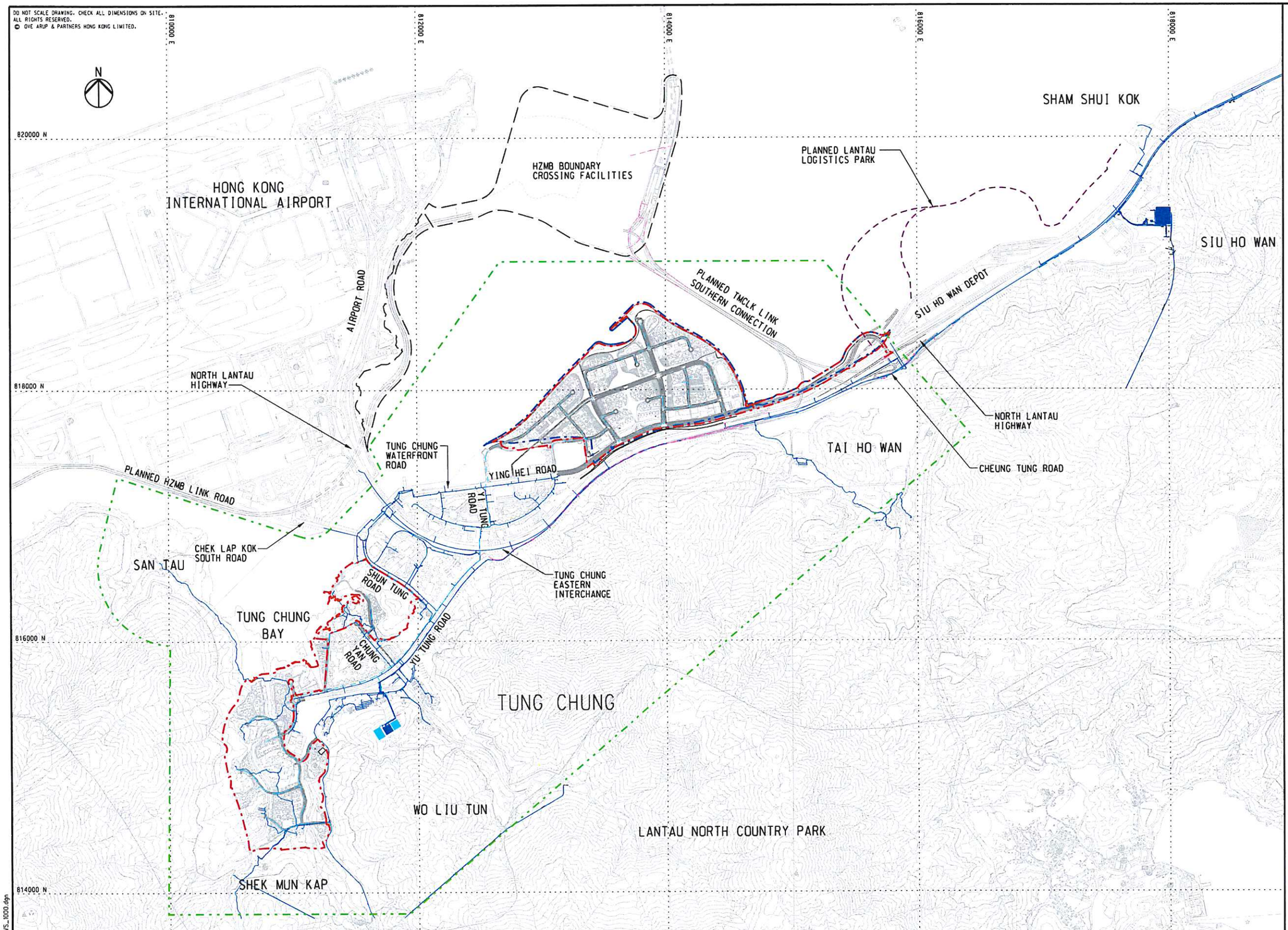

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING FRESH WATER MAIN
- PROPOSED FRESH WATER MAIN
- PLANNED FRESH WATER MAIN

Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED FRESH WATER SUPPLY NETWORK OVERALL PLAN

Drawing no.			Rev.
219844/WS/1000			E
Drawn: RY	Date: 09/2012	Checked: KKY	Approved: DML
Scale: 1:15000 @ A1, 1:30000 @ A3		Status: PRELIMINARY	

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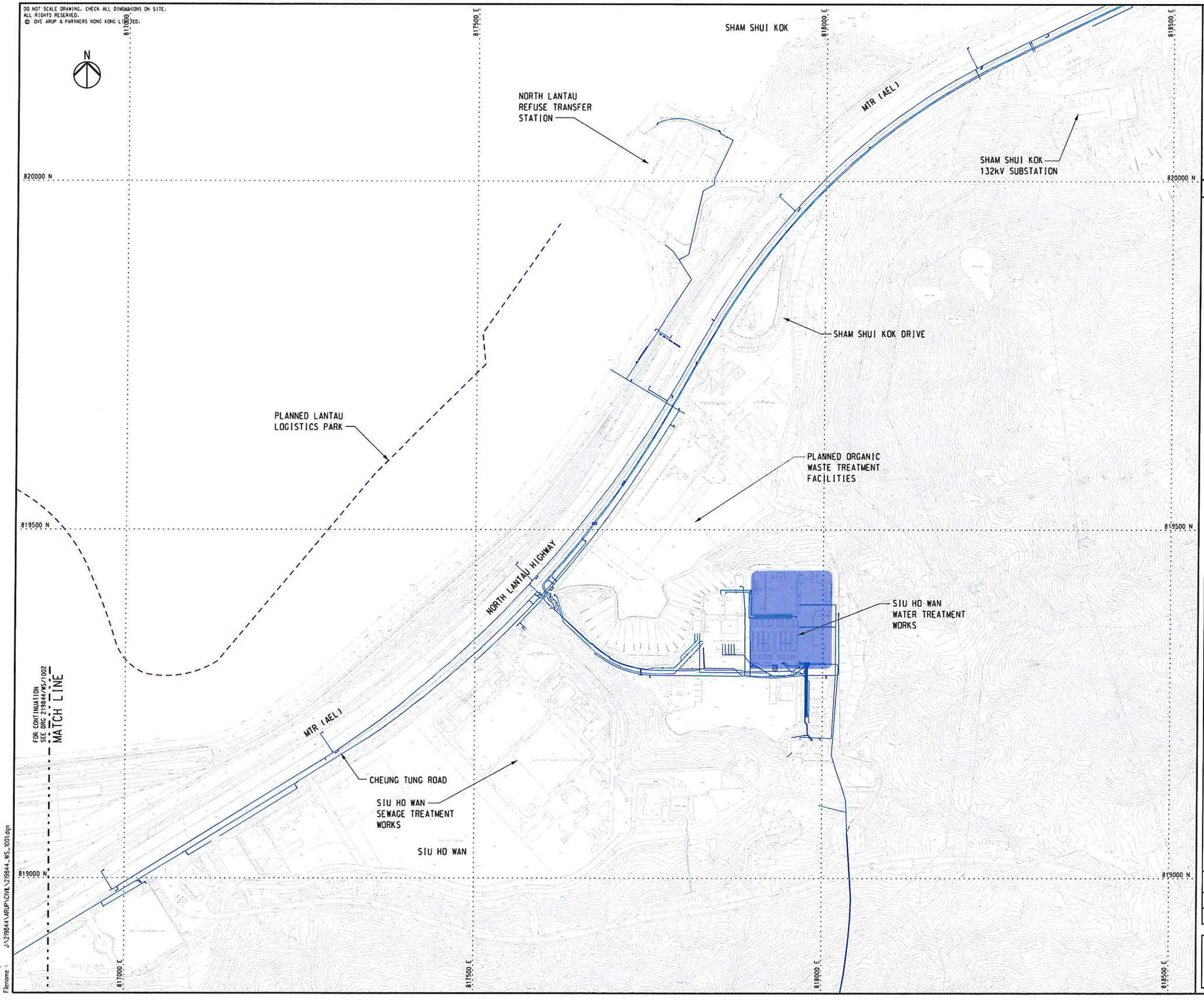

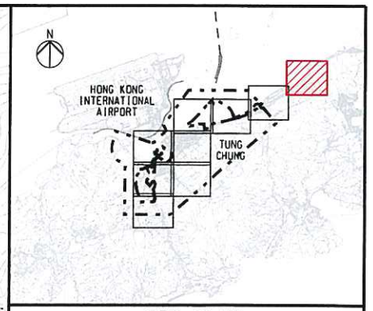

KEY PLAN

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING FRESH WATER MAIN
- PROPOSED FRESH WATER MAIN
- PLANNED FRESH WATER MAIN

Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND
PROPOSED FRESH WATER
SUPPLY NETWORK
(SHEET 1 OF 9)

Drawing no.	Rev.
219844/WS/1001	E

Drawn	Date	Checked	Approved
MAN	09/2012	KKY	DWL

Scale	Status
1:2500 @ A1 1:5000 @ A3	PRELIMINARY

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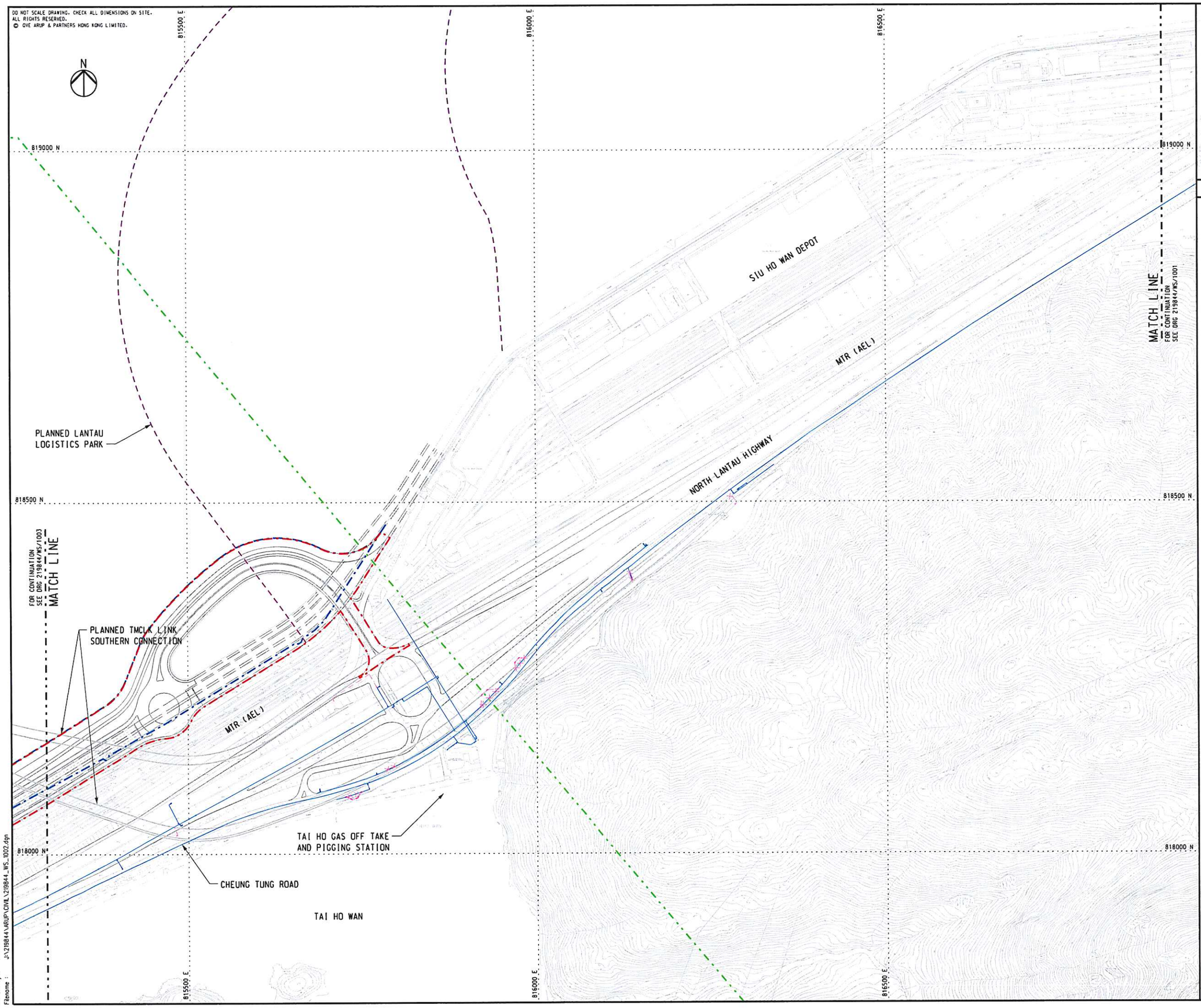

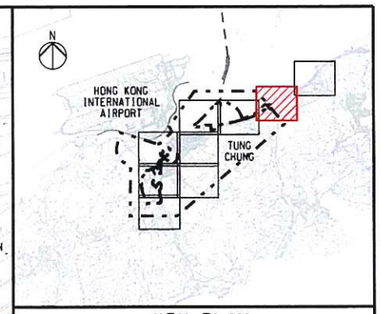

KEY PLAN

NOTES

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 219844/WS/1001.

Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED FRESH WATER SUPPLY NETWORK (SHEET 2 OF 9)

Drawing no.	Rev.
219844/WS/1002	E

Drawn	Date	Checked	Approved
MAN	09/2012	KKY	DML
Scale	1:2500 @ A1 1:5000 @ A3	Status	PRELIMINARY

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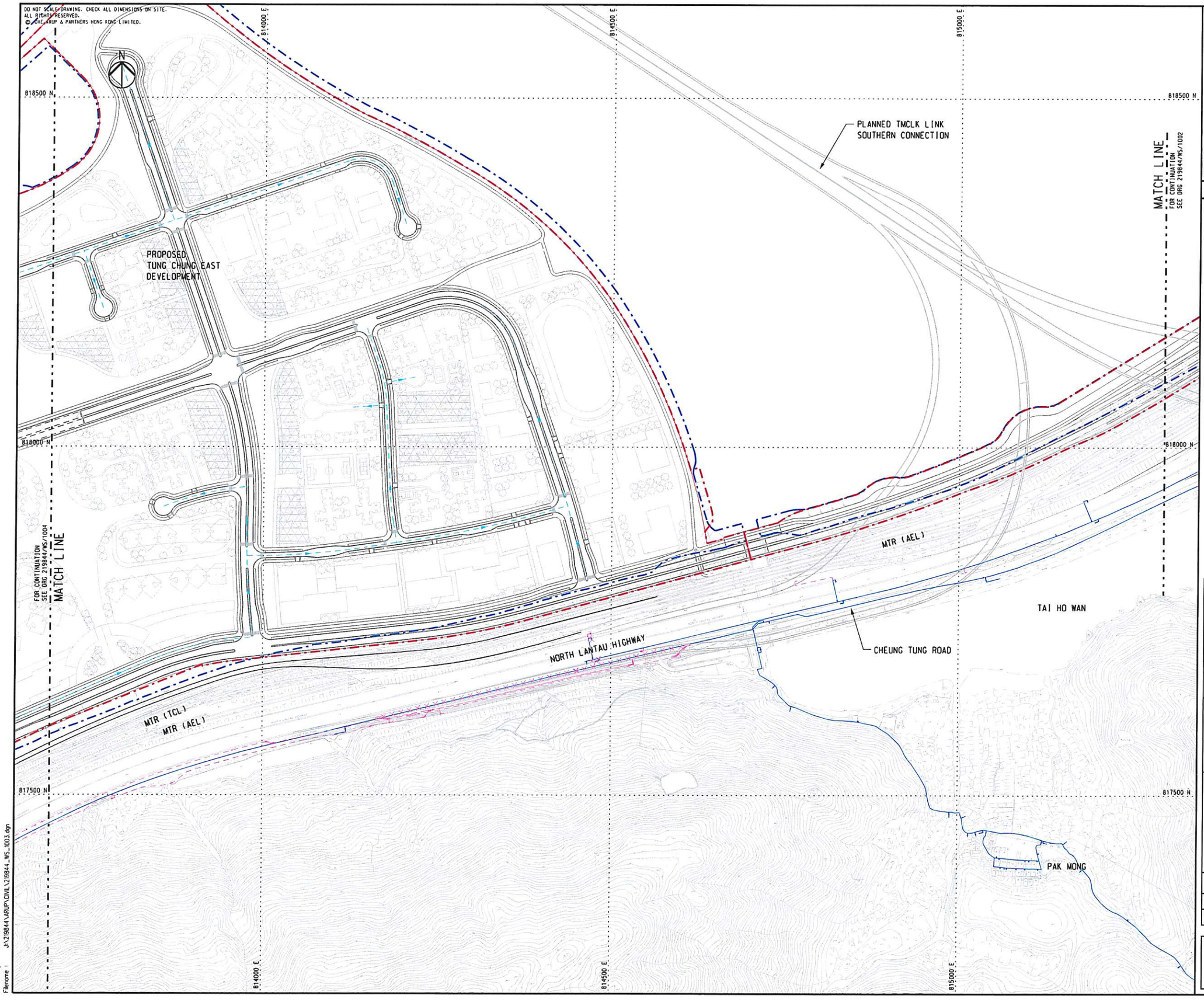

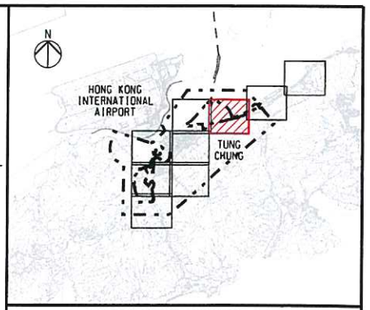

KEY PLAN

NOTES

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 219844/WS/1001.

Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED FRESH WATER SUPPLY NETWORK (SHEET 3 OF 9)

Drawing no.	Rev.
219844/WS/1003	E

Drawn	Date	Checked	Approved
MAN	09/2012	KKY	DML

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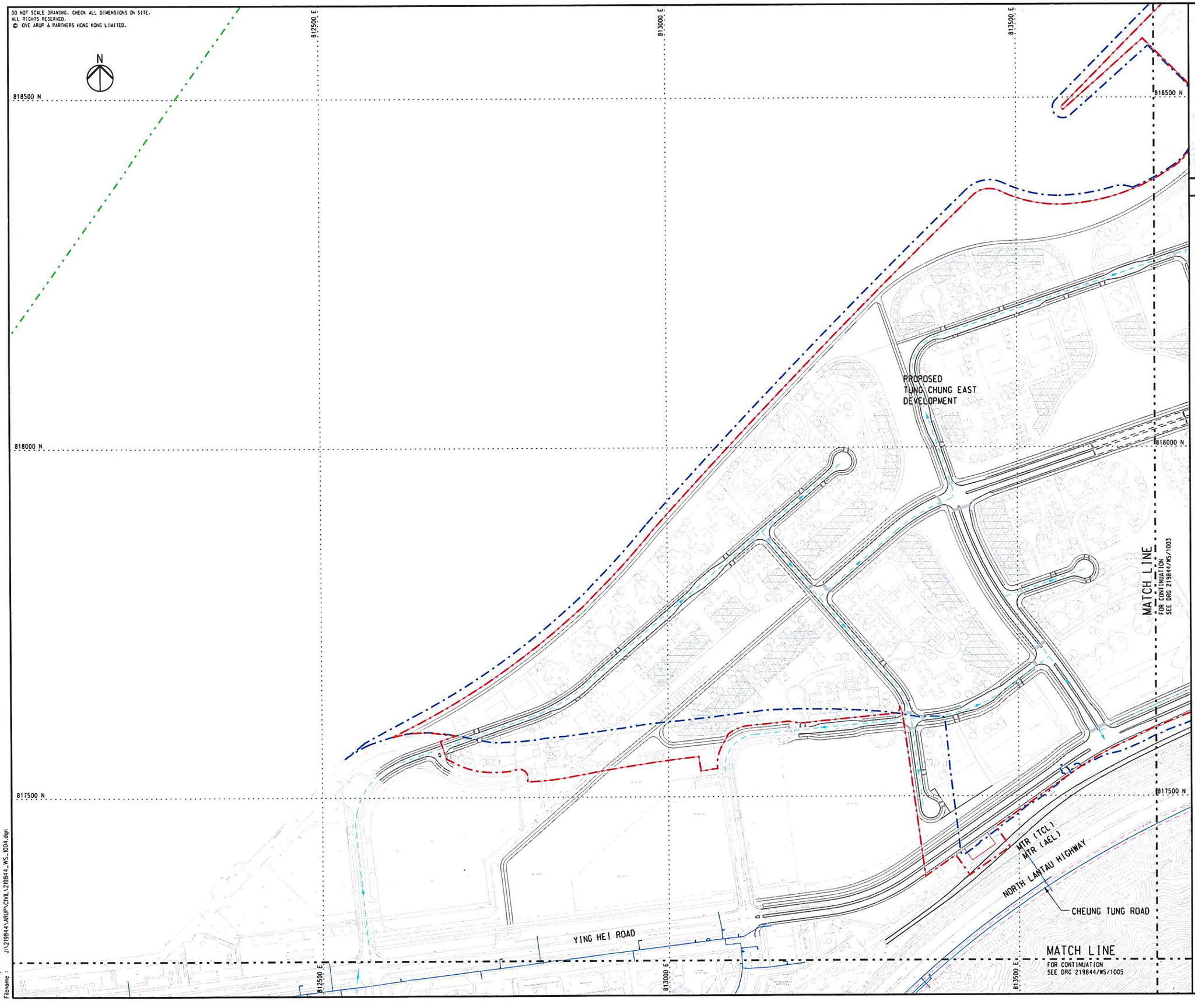

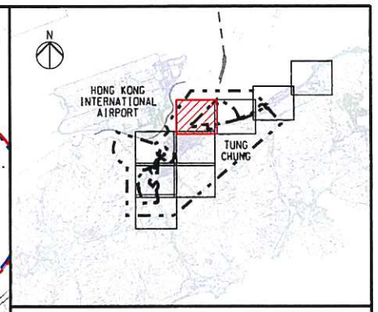

KEY PLAN

NOTES

1. FOR GENERAL NOTES AND LEGEND. REFER TO DRAWING NO. 219844/WS/1001.

Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND
PROPOSED FRESH WATER
SUPPLY NETWORK
(SHEET 4 OF 9)

Drawing no.			Rev.
219844/WS/1004			E
Drawn	Date	Checked	Approved
MAN	09/2012	KKY	DML
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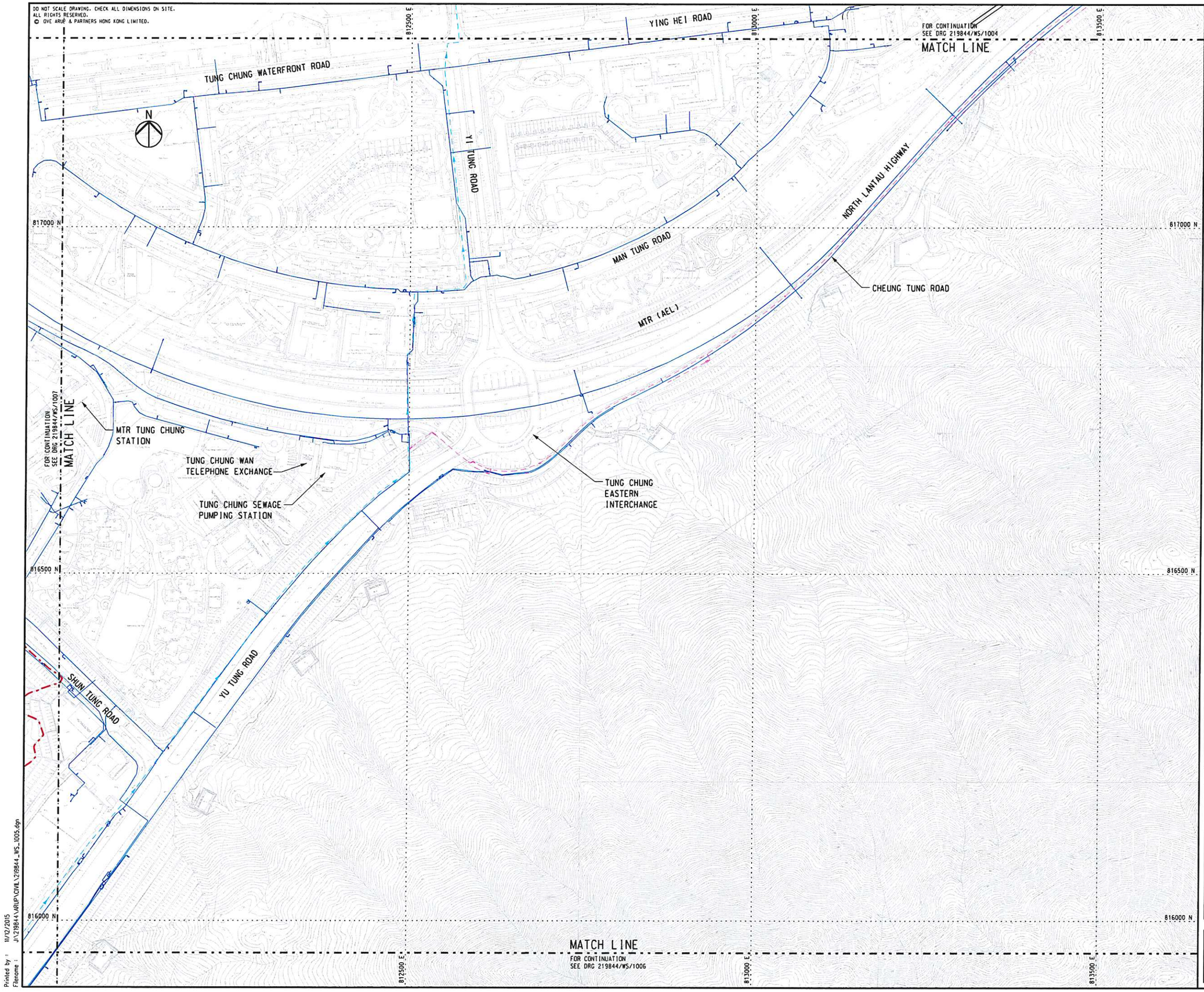

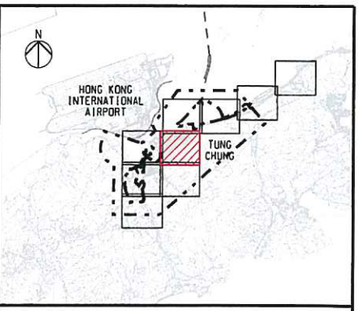

KEY PLAN

NOTES

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Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED FRESH WATER SUPPLY NETWORK (SHEET 5 OF 9)

Drawing no.	Rev.
219844/WS/1005	E

Drawn	Date	Checked	Approved
MAN	09/2012	KKY	DML

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812500 E

813000 E

813500 E

FOR CONTINUATION
SEE DRG 219844/WS/1005

MATCH LINE

N

SHAN HA

815500 N

815500 N

812000 E

FOR CONTINUATION
SEE DRG 219844/WS/1008

MATCH LINE

WONG LUNG HANG ROAD

815000 N

815000 N

LANTAU NORTH COUNTRY PARK

812500 E

813000 E

813500 E

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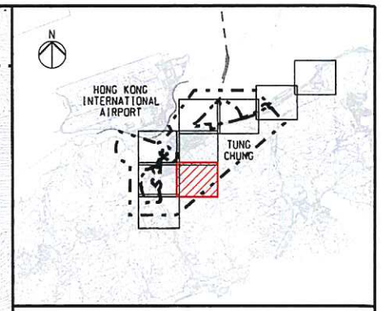
Filename : J:\219844\ARUP\CIVIL\219844_WS_1006.dgn



KEY PLAN

NOTES

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Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

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Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND
PROPOSED FRESH WATER
SUPPLY NETWORK
(SHEET 6 OF 9)

Drawing no.			Rev.
219844/WS/1006			E
Drawn	Date	Checked	Approved
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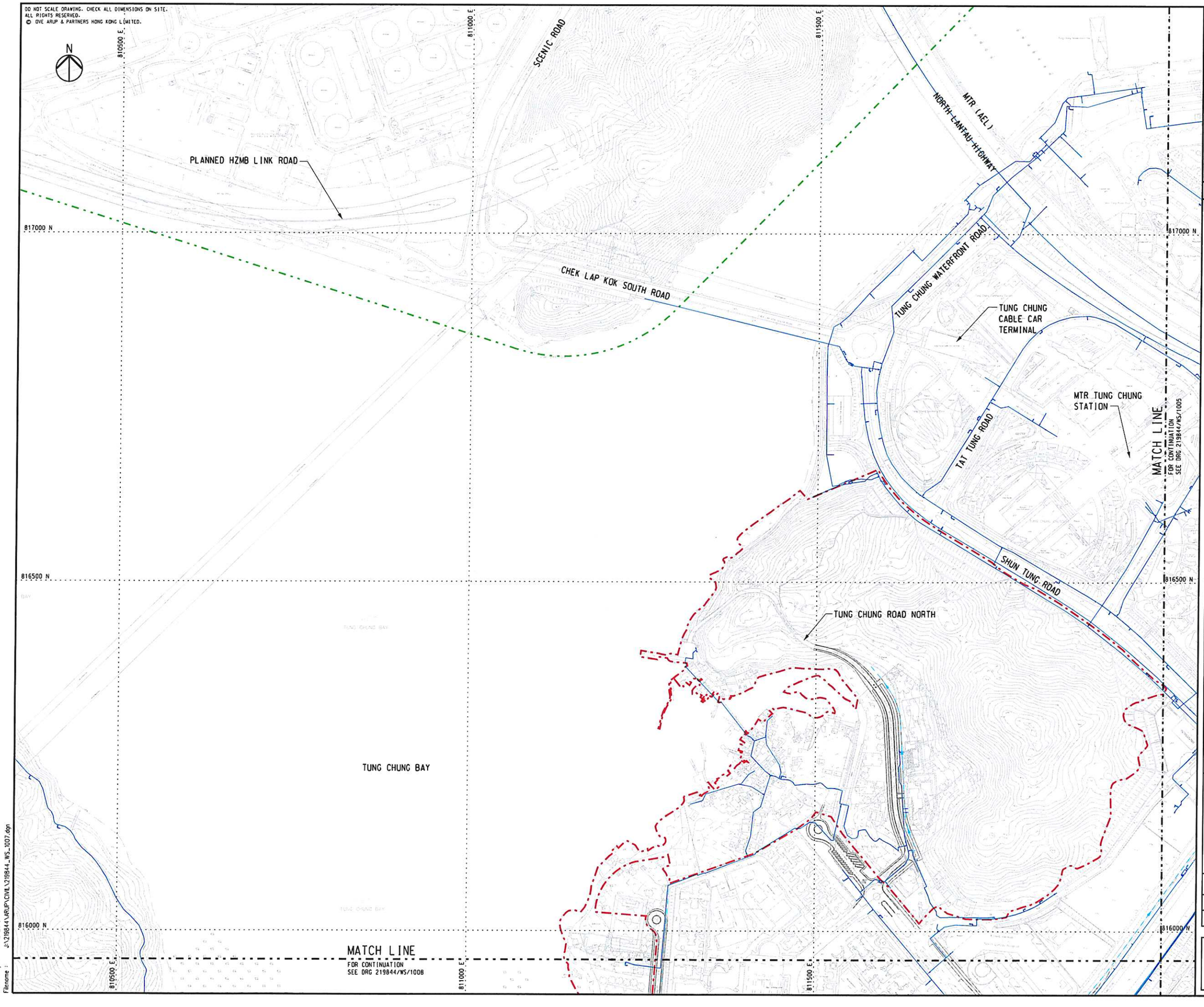

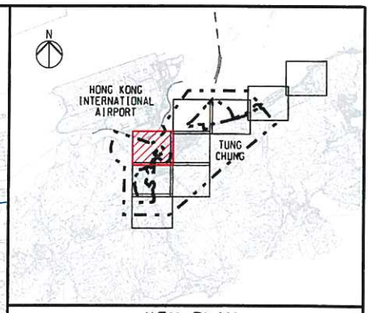

KEY PLAN

NOTES

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 219844/WS/1001.

Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED FRESH WATER SUPPLY NETWORK (SHEET 7 OF 9)

Drawing no.	Rev.
219844/WS/1007	E

Drawn	Date	Checked	Approved
MAN	09/2012	KKY	DML

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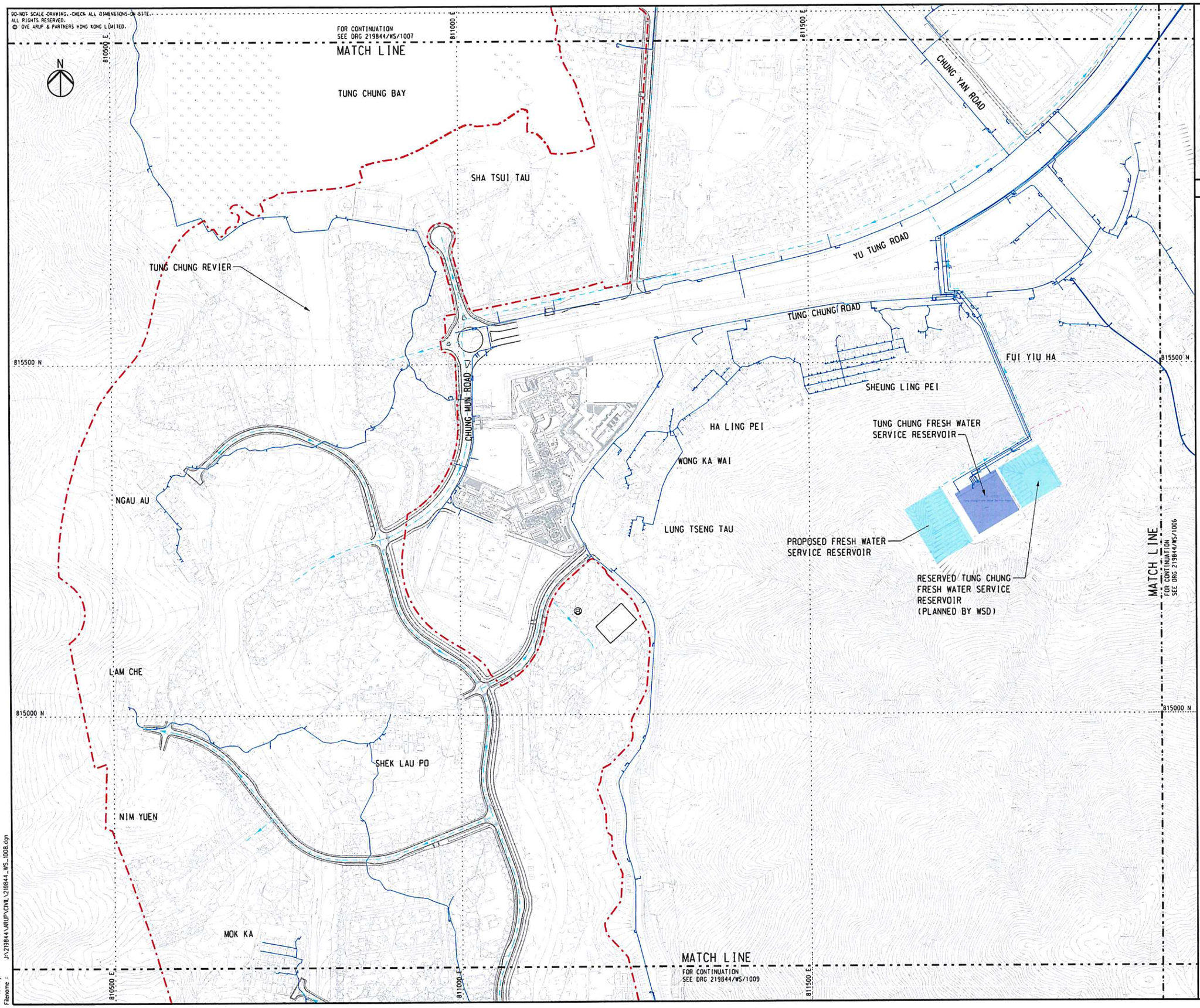

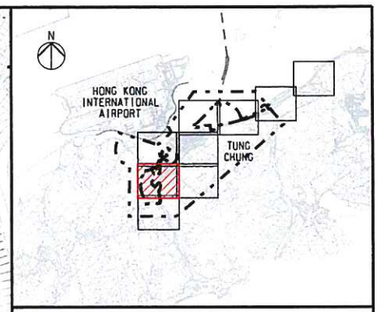

KEY PLAN

NOTES

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Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
EXISTING, PLANNED AND
PROPOSED FRESH WATER
SUPPLY NETWORK
(SHEET 8 OF 9)

Drawing no.			Rev.
219844/WS/1008			E
Drawn: MAN	Date: 09/2012	Checked: KKY	Approved: DML
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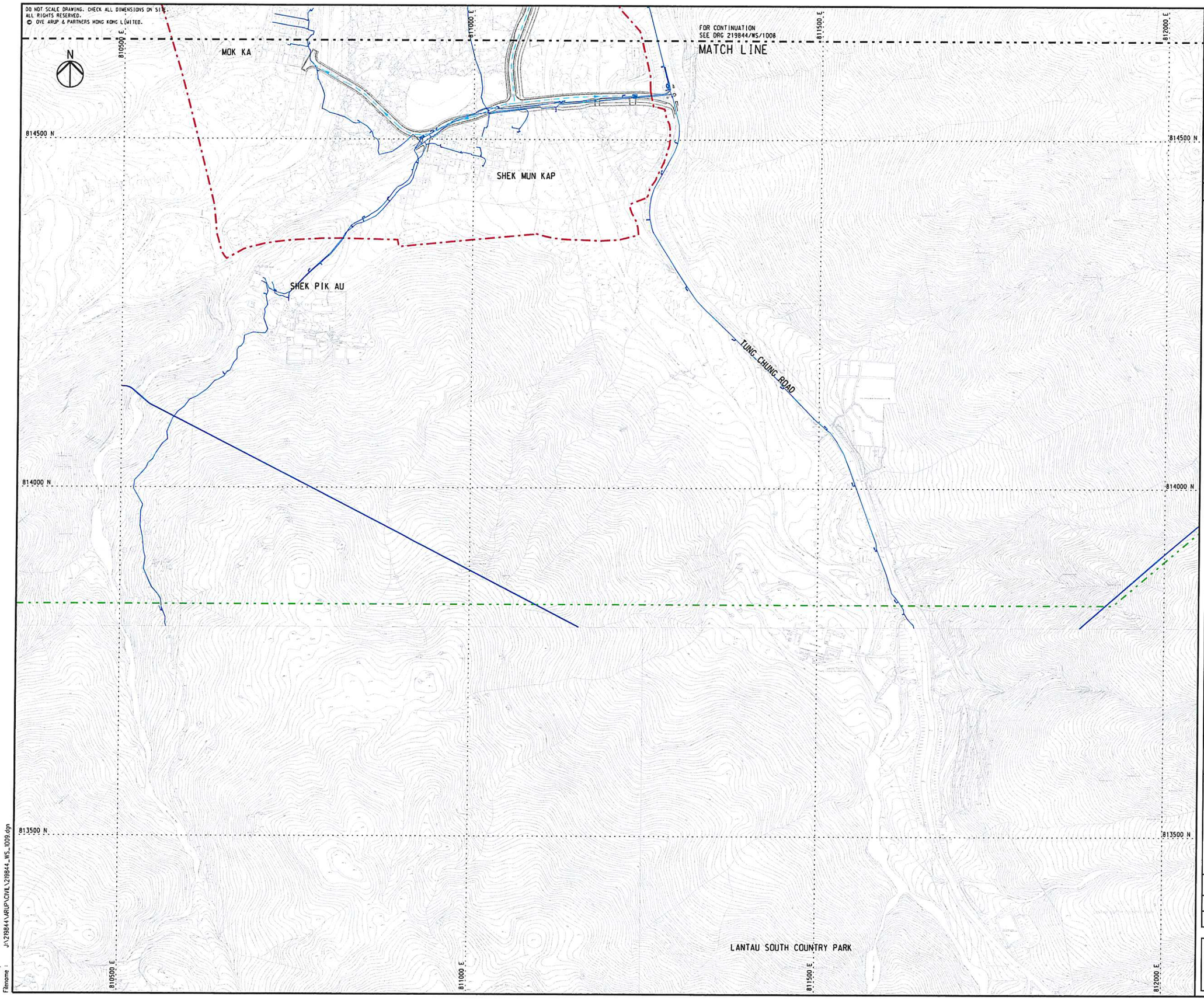

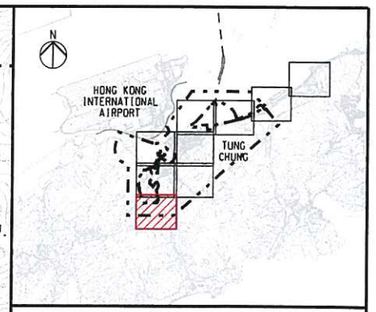

KEY PLAN

NOTES

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 219844/WS/1001.

Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED FRESH WATER SUPPLY NETWORK (SHEET 9 OF 9)

Drawing no.	Rev.
219844/WS/1009	E

Drawn	Date	Checked	Approved
MAN	09/2012	KKY	DML

Scale	Status
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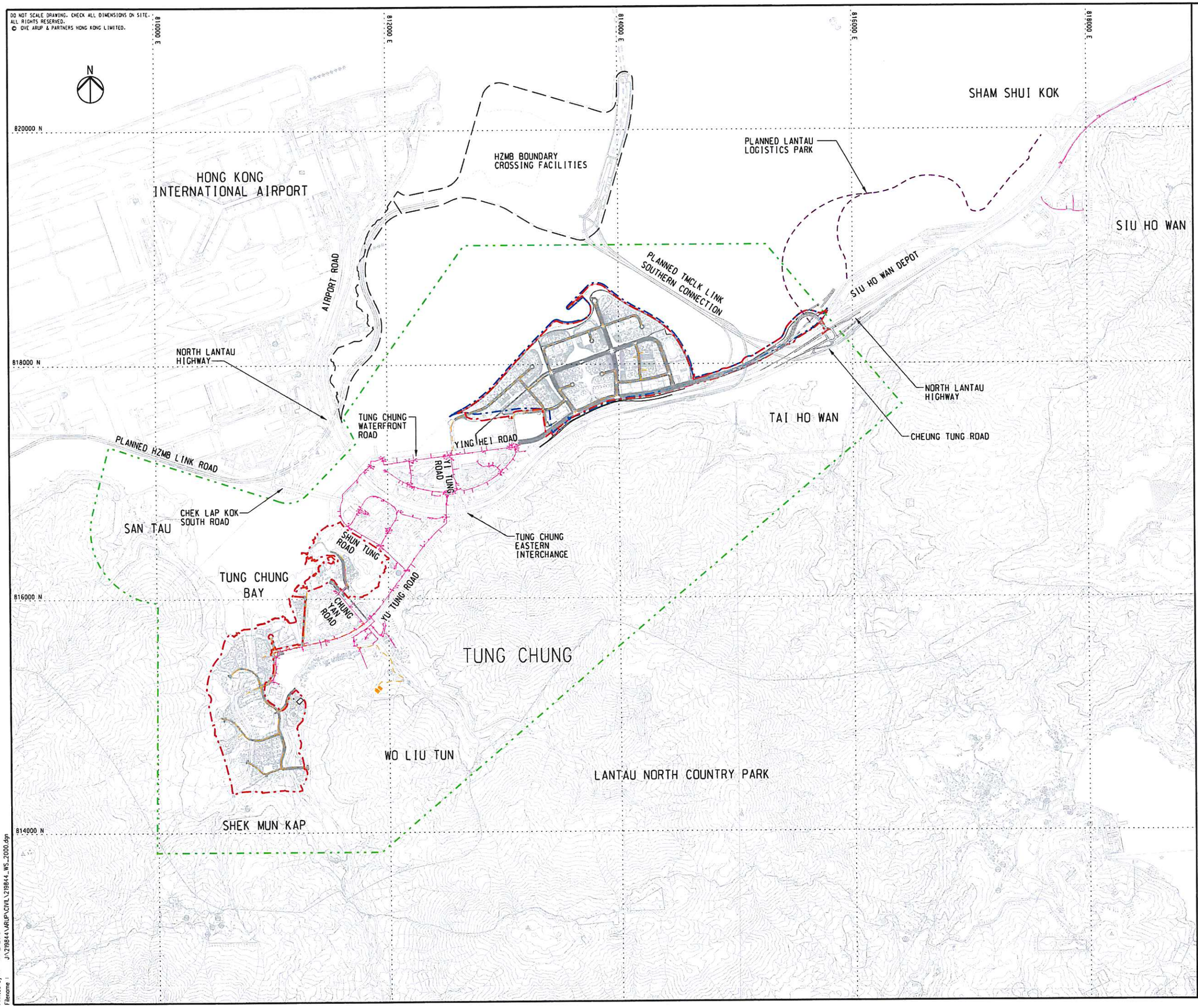

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING FLUSHING WATER MAIN
- PROPOSED FLUSHING WATER MAIN

Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED FLUSHING WATER SUPPLY NETWORK OVERALL PLAN

Drawing no.	Rev.
219844/WS/2000	E

Drawn	Date	Checked	Approved
RY	09/2012	KKY	DML

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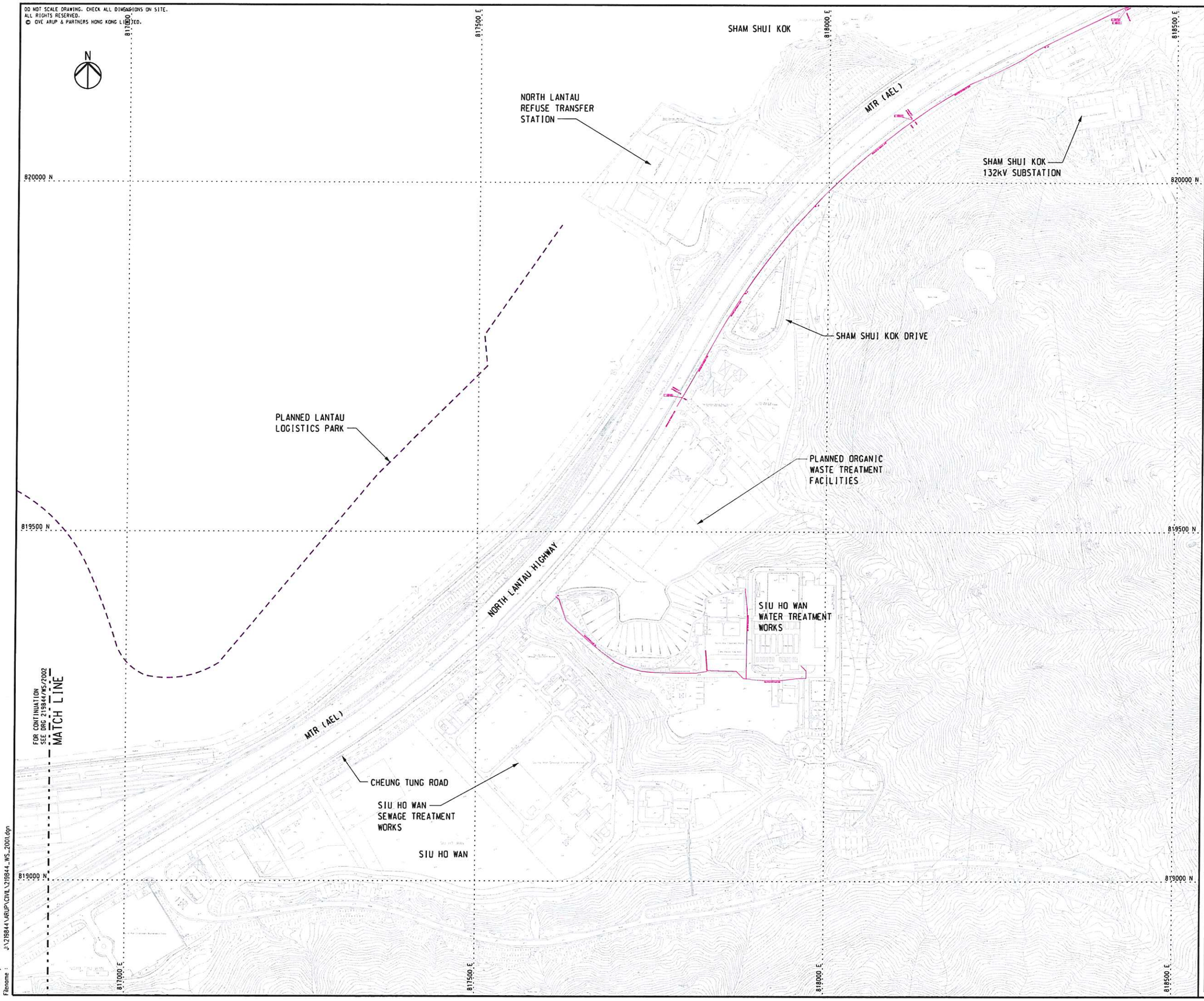

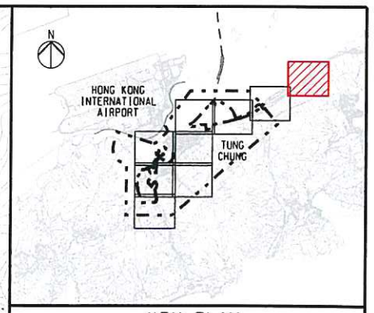

KEY PLAN

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING FLUSHING WATER MAIN
- PROPOSED FLUSHING WATER MAIN

Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND
PROPOSED FLUSHING WATER
SUPPLY NETWORK
(SHEET 1 OF 9)

Drawing no.			Rev.
219844/WS/2001			E
Drawn: MAN	Date: 09/2012	Checked: KKY	Approved: DML
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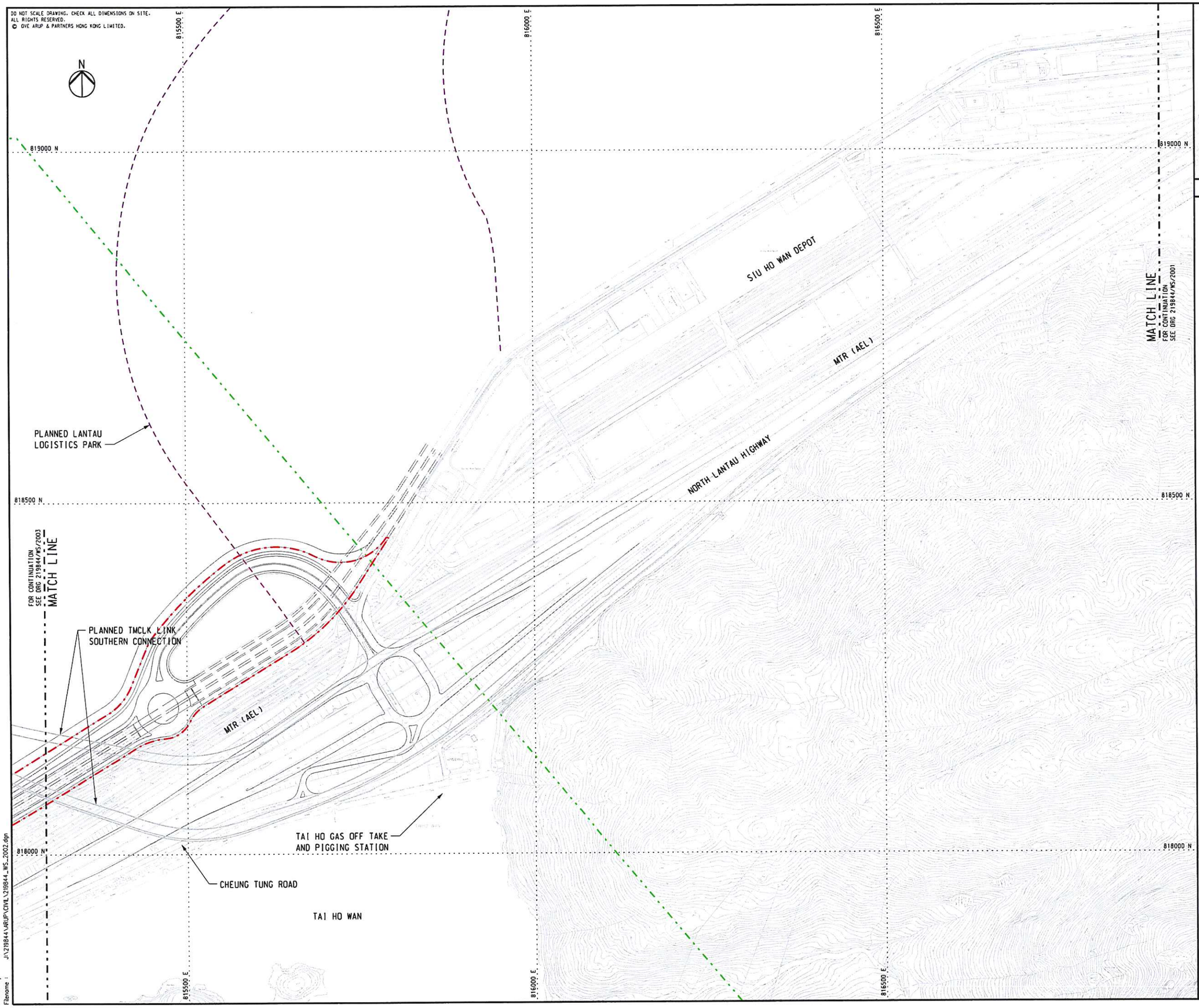

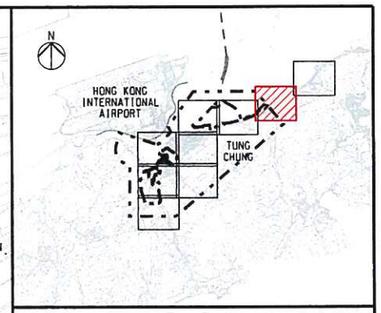

KEY PLAN

NOTES

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 219844/WS/2001.

Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED FLUSHING WATER SUPPLY NETWORK (SHEET 2 OF 9)

Drawing no.		Rev.
219844/WS/2002		E
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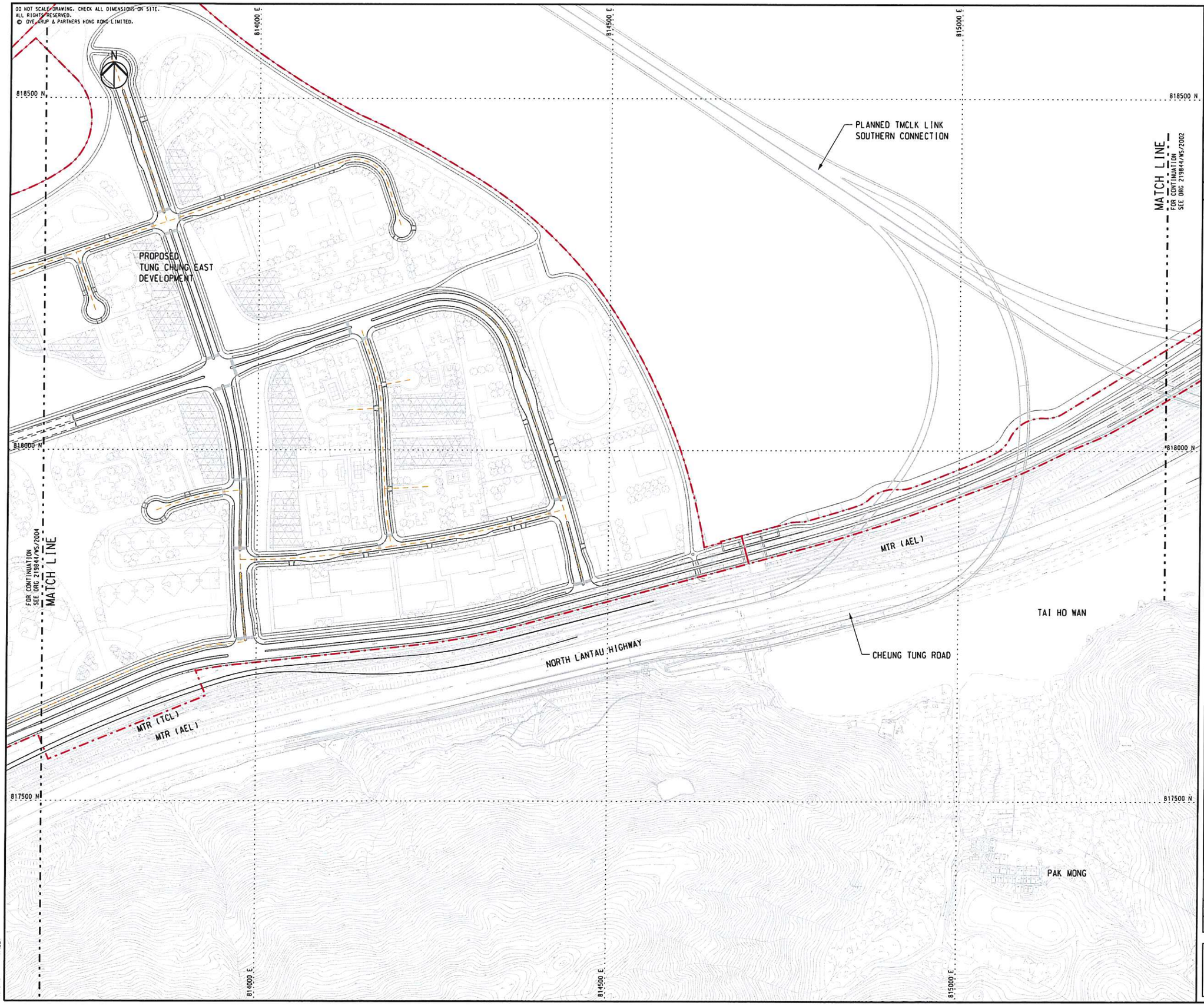

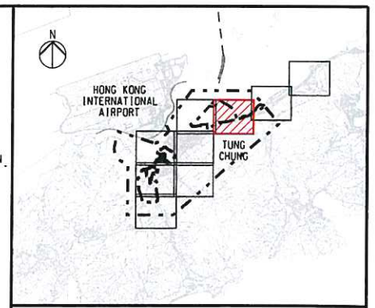

KEY PLAN

NOTES

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Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED FLUSHING WATER SUPPLY NETWORK (SHEET 3 OF 9)

Drawing no.			Rev.
219844/WS/2003			E
Drawn: MAN	Date: 09/2012	Checked: HS	Approved: KKY
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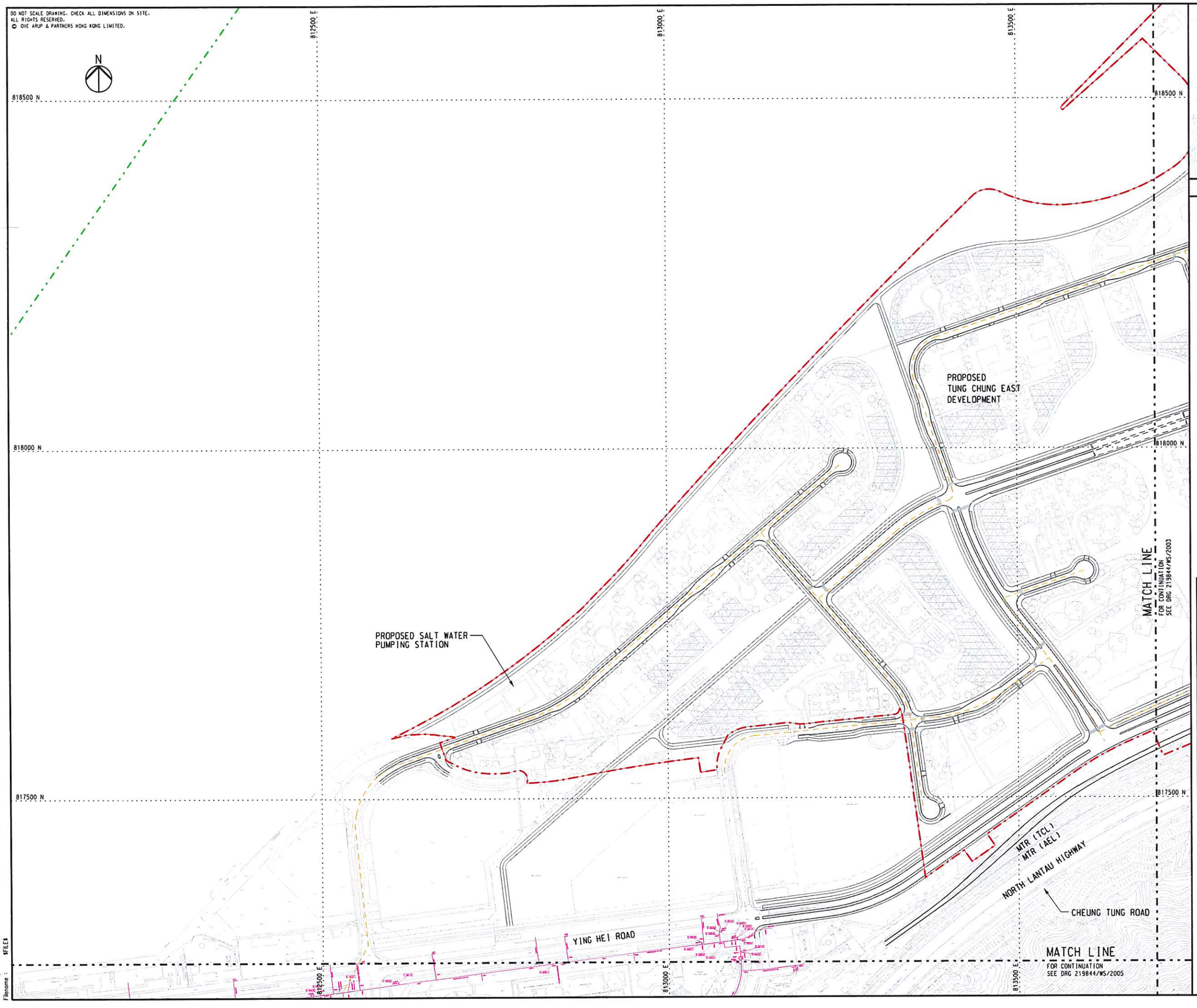

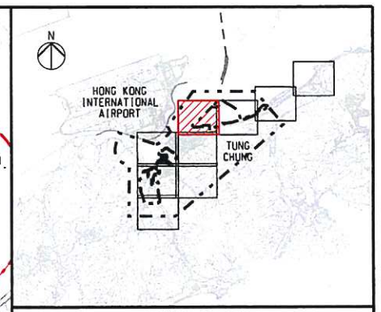

KEY PLAN

NOTES

1. FOR GENERAL NOTES AND LEGEND. REFER TO DRAWING NO. 219844/WS/2001.

Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED FLUSHING WATER SUPPLY NETWORK (SHEET 4 OF 9)

Drawing no.			Rev.
219844/WS/2004			E
Drawn	Date	Checked	Approved
MAN	09/2012	HS	KKY
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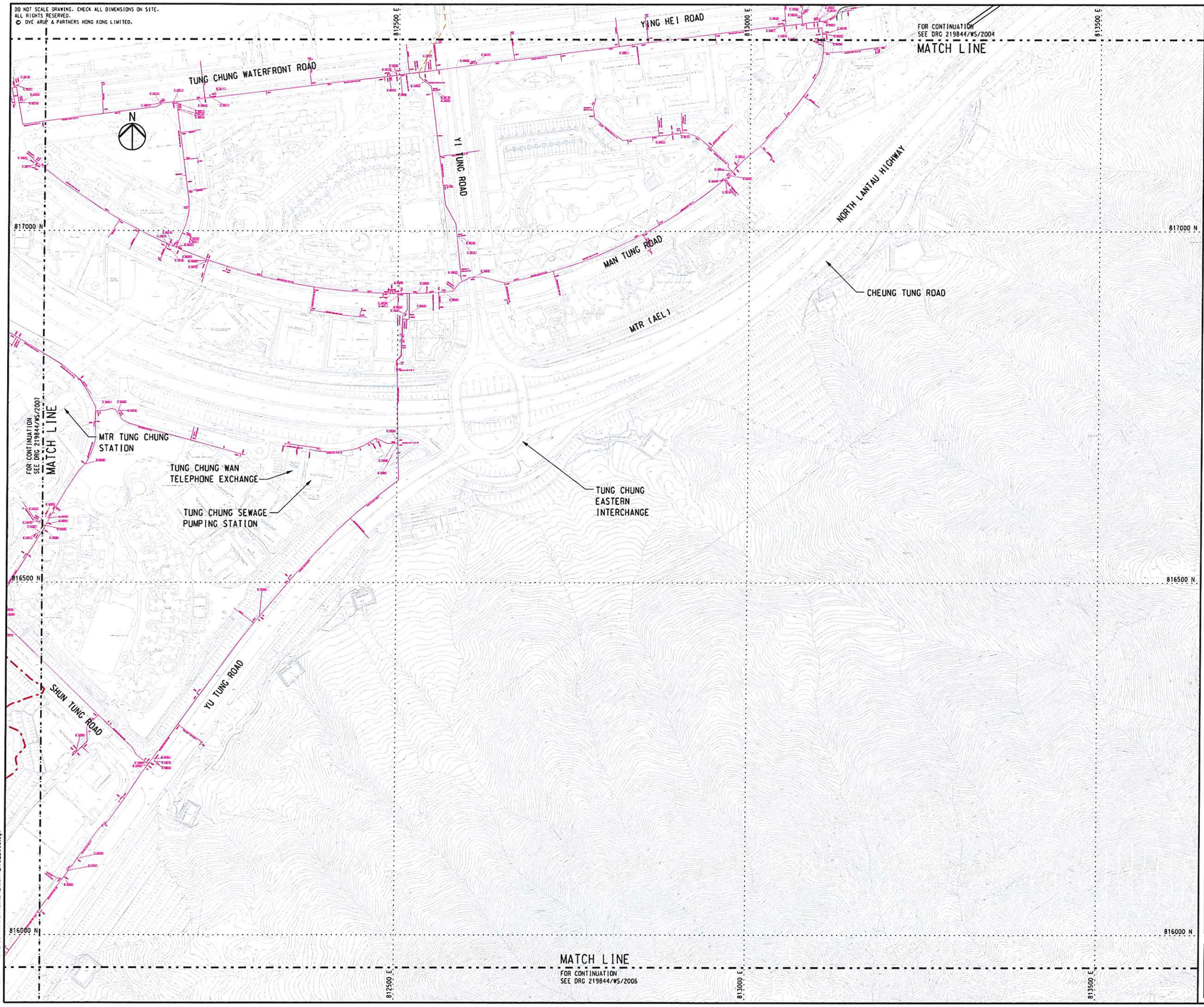

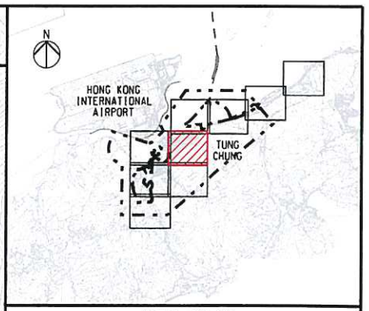

KEY PLAN

NOTES

1. FOR GENERAL NOTES AND LEGEND, REFER TO DRAWING NO. 219844/WS/2001.

Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

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Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED FLUSHING WATER SUPPLY NETWORK (SHEET 5 OF 9)

Drawing no.		Rev.
219844/WS/2005		E
Drawn: MAN	Date: 09/2012	Checked: KKY	Approved: DML
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812500 E | 813000 E | 813500 E

FOR CONTINUATION
SEE DRG 219844/WS/2005
MATCH LINE

N

815500 N

SHAN HA

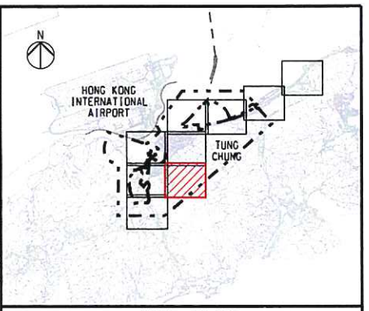
FOR CONTINUATION
SEE DRG 219844/WS/2008
MATCH LINE

WONG LUNG HANG ROAD

815000 N

LANTAU NORTH COUNTRY PARK

812500 E | 813000 E | 813500 E



KEY PLAN

NOTES

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Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

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Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND
PROPOSED FLUSHING WATER
SUPPLY NETWORK
(SHEET 6 OF 9)

Drawing no.			Rev.
219844/WS/2006			E
Drawn	Date	Checked	Approved
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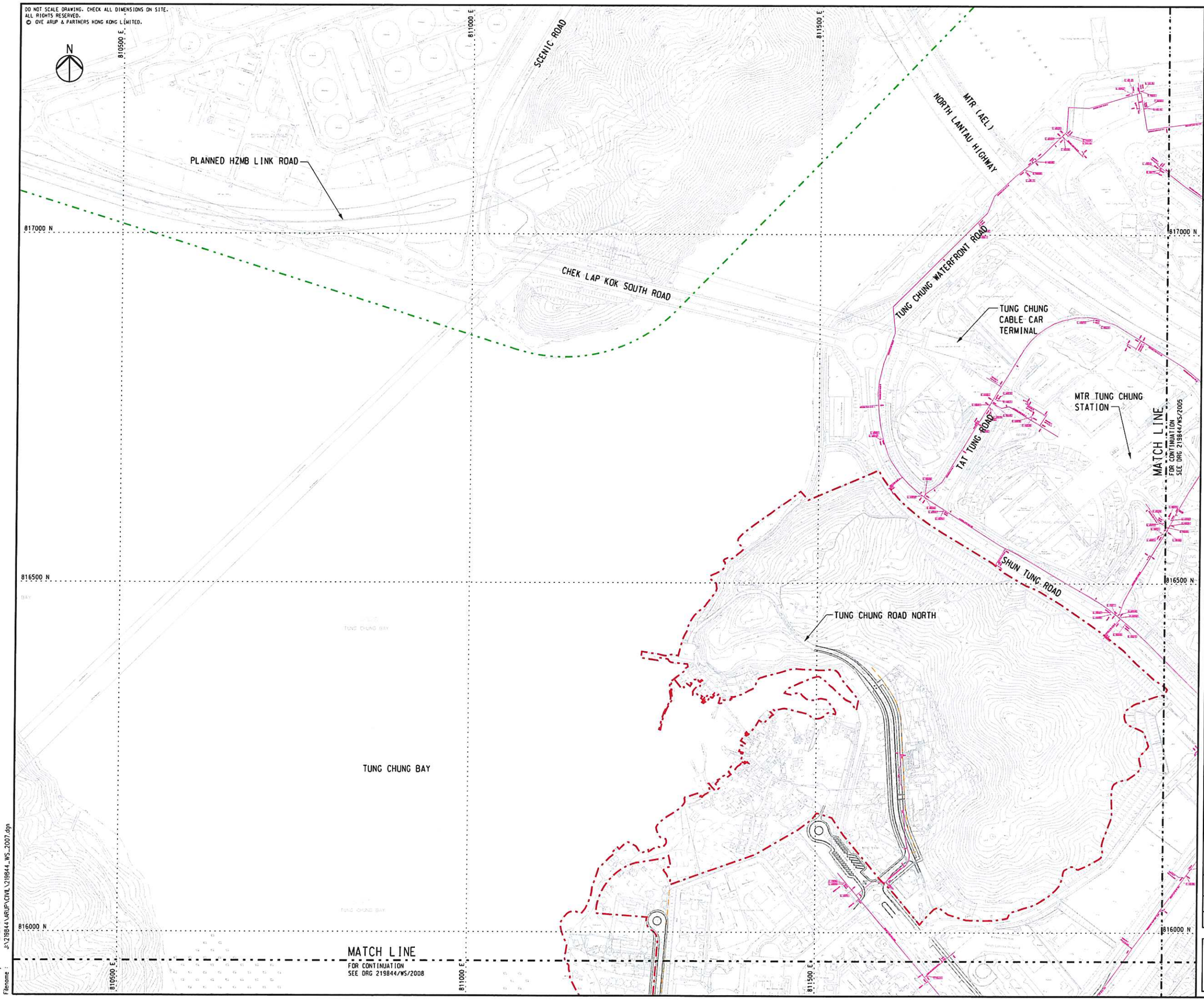

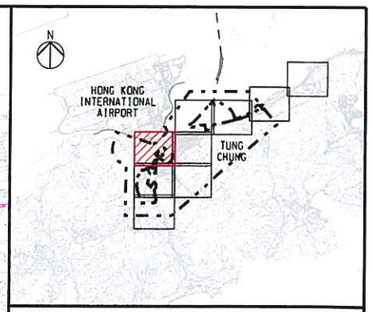

KEY PLAN

NOTES

1. FOR GENERAL NOTES AND LEGEND. REFER TO DRAWING NO. 219844/WS/2001.

Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED FLUSHING WATER SUPPLY NETWORK (SHEET 7 OF 9)

Drawing no.	Rev.
219844/WS/2007	E

Drawn	Date	Checked	Approved
MAN	09/2012	KKY	DWL

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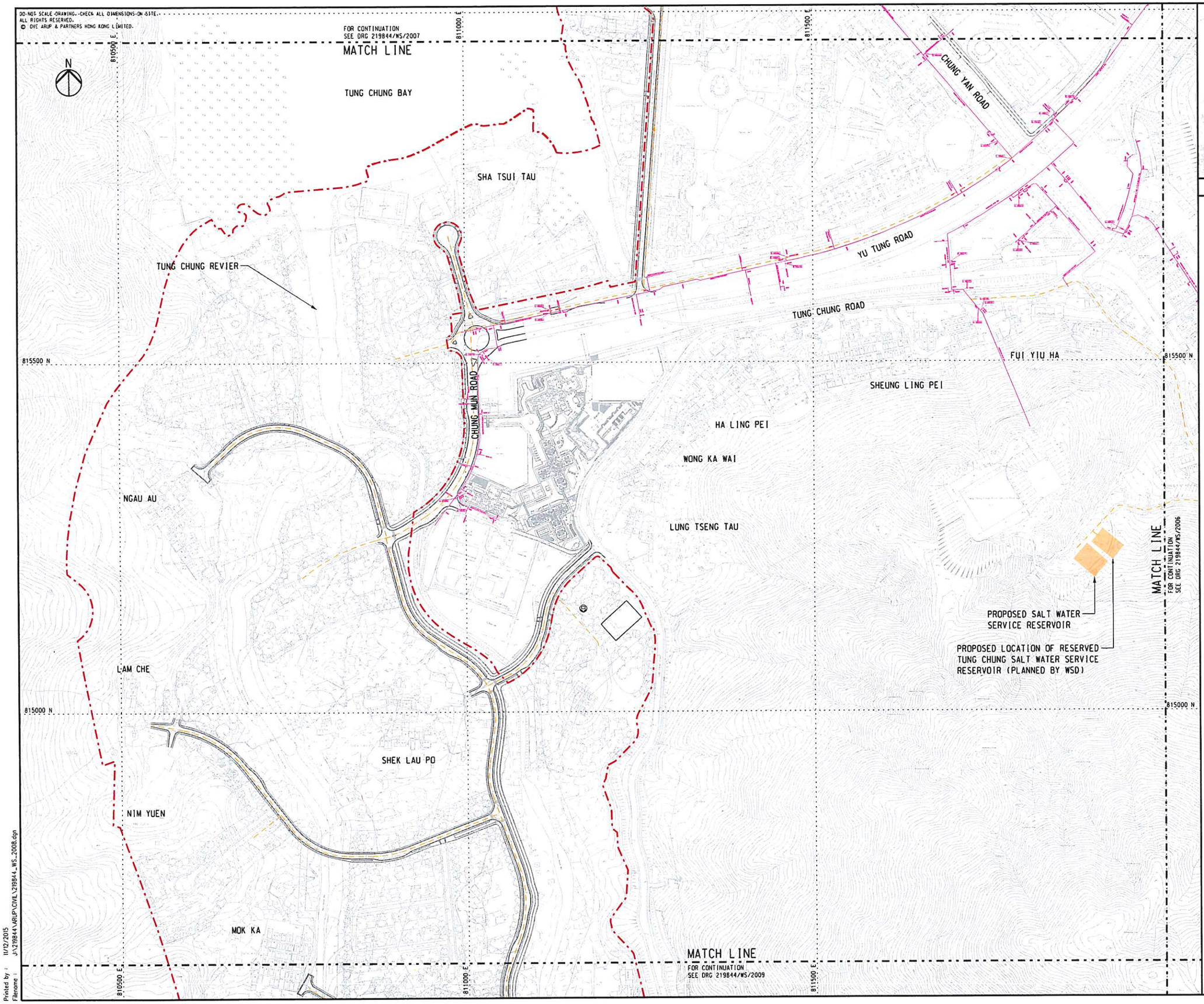

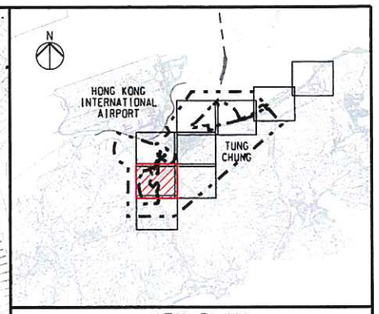

KEY PLAN

NOTES

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Rev	Description	By	Date
F	FINAL TP19	LFM	11/15
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

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Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND
PROPOSED FLUSHING WATER
SUPPLY NETWORK
(SHEET 8 OF 9)

Drawing no.			Rev.
219844/WS/2008			E
Drawn: MAN	Date: 09/2012	Checked: KKY	Approved: DWL
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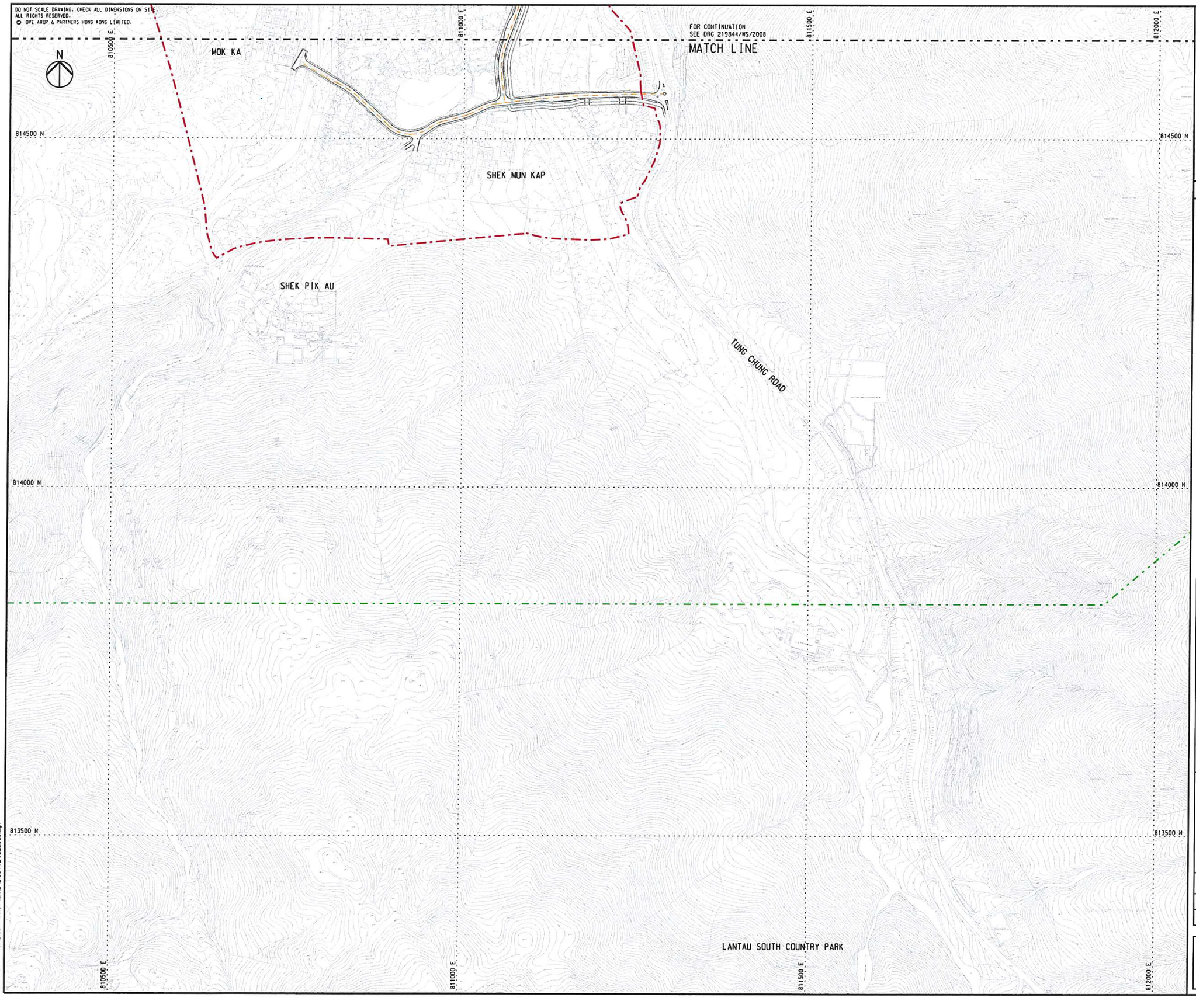

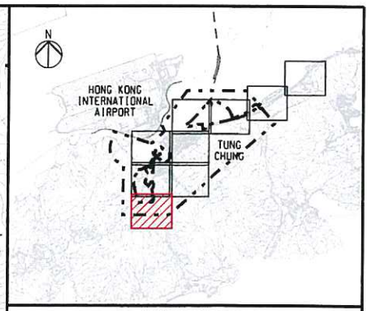

KEY PLAN

NOTES

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Rev	Description	By	Date
E	DRAFT TP19	LFM	03/15
D	FINAL TP11BG	LFM	06/14
C	DRAFT TP11BG	LFM	03/14
B	FINAL TP7BG	LFM	03/13
A	DRAFT TP7BG	LFM	09/12

Consultant

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Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING, PLANNED AND PROPOSED FLUSHING WATER SUPPLY NETWORK (SHEET 9 OF 9)

Drawing no.	Rev.
219844/WS/2009	E

Drawn	Date	Checked	Approved
MAN	09/2012	KKY	DML

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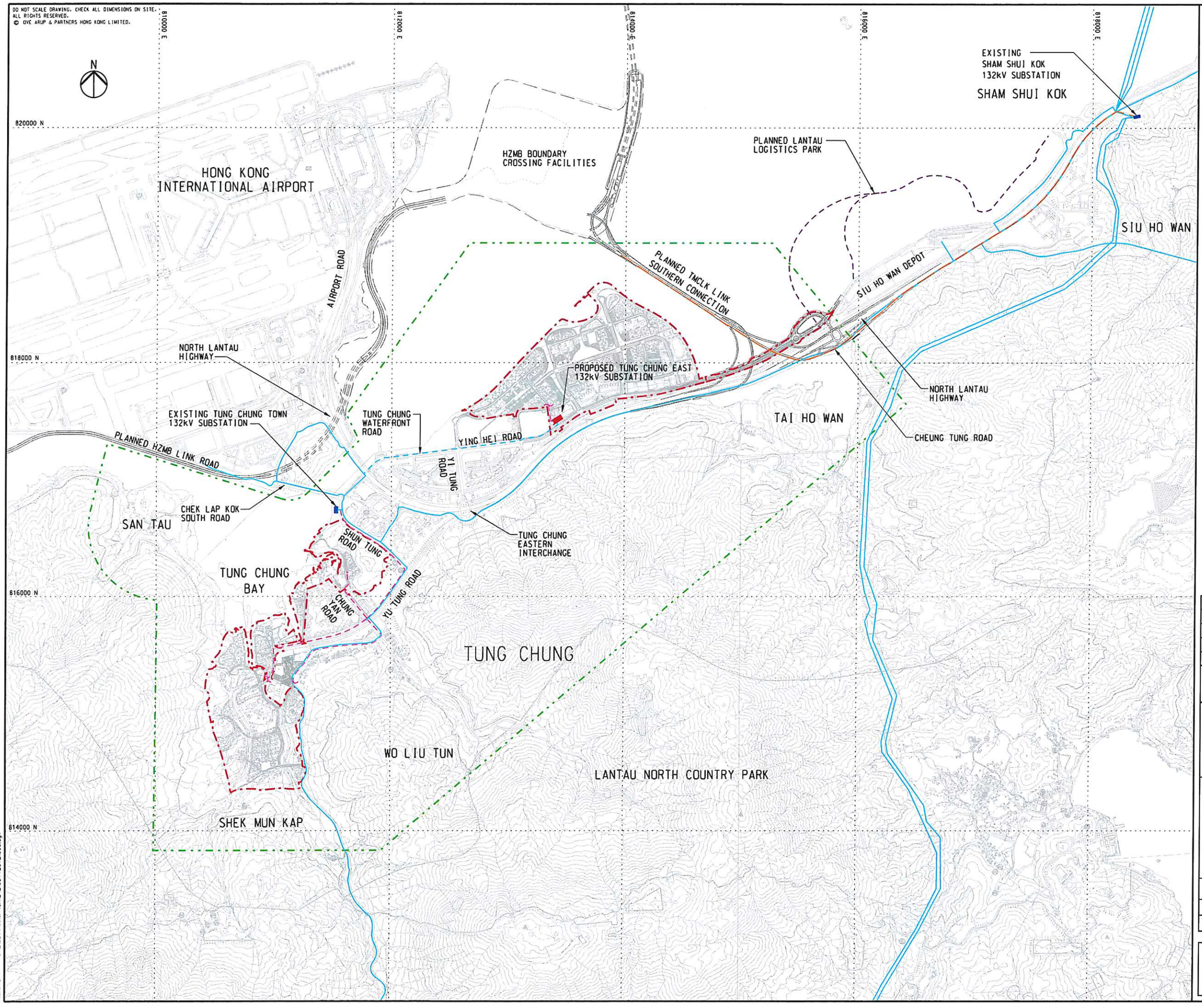

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- PLANNED 132kV POWER LINES (BY OTHERS)
- EXISTING 132kV POWER LINES
- PROPOSED 132kV POWER LINES
- INDICATIVE FUTURE 11kV POWER LINKS TO DEVELOPMENT

Rev	Description	By	Date
A	DRAFT TP23B	LFM	11/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING PLANNED AND
PROPOSED POWER SUPPLY
NETWORK
OVERALL PLAN

Drawing no.			Rev.
219844/UT/1000			A
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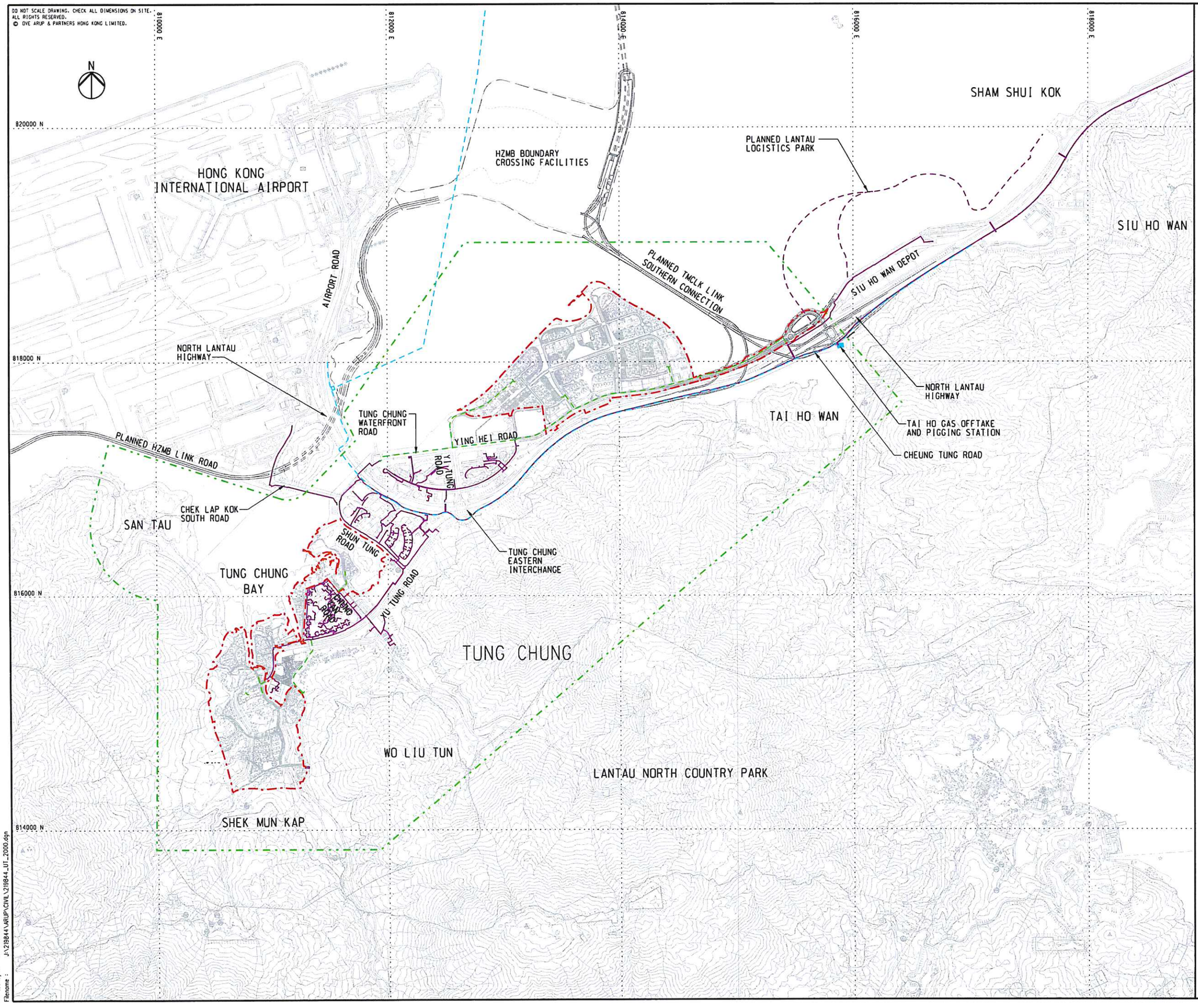

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING GAS MAINS
- PLANNED GAS MAINS (BY OTHERS)
- PROPOSED GAS MAINS

Rev	Description	By	Date
A	DRAFT TP23B	LFM	11/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXTISTING, PLANNED AND
PROPOSED GAS SUPPLY
NETWORK
OVERALL PLAN

Drawing no.			Rev.
219844/UT/2000			A
Drawn: MAN	Date: 09/2012	Checked: KKY	Approved: DML
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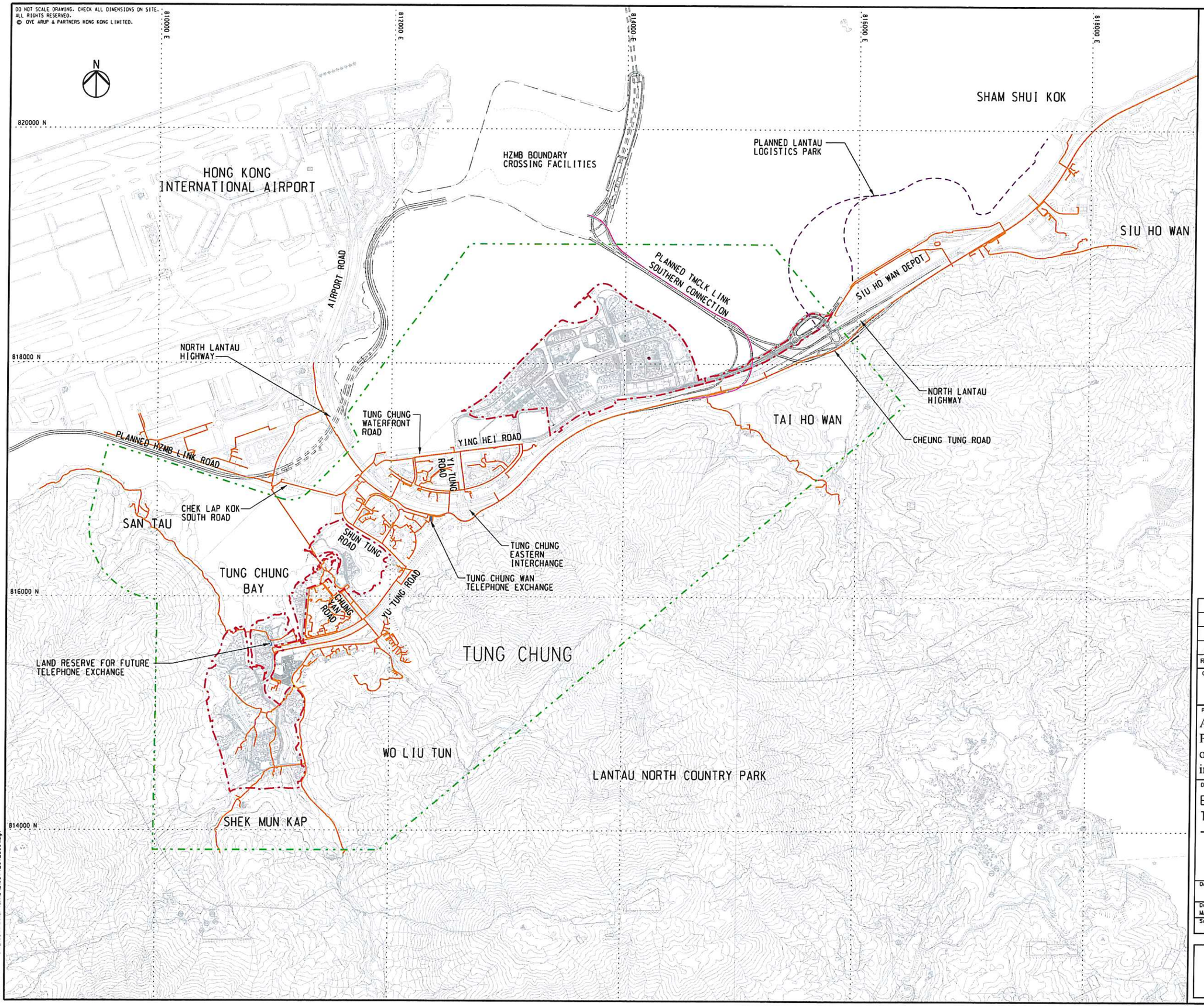

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING PCCW CABLES
- PLANNED PCCW CABLES (BY OTHERS)

Rev	Description	By	Date
A	DRAFT TP23B	LFM	11/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING AND PLANNED
TELECOM CABLE
- PCCW CABLES

Drawing no.			Rev.
219844/UT/3001			A
Drawn: MAN	Date: 09/2012	Checked: KKY	Approved: DML
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814000 E
816000 E
818000 E
820000 N
818000 N
816000 N
814000 N

HONG KONG INTERNATIONAL AIRPORT
HZMB BOUNDARY CROSSING FACILITIES
PLANNED LANTAU LOGISTICS PARK
SHAM SHUI KOK
SIU HO WAN
AIRPORT ROAD
PLANNED TMCLK LINK SOUTHERN CONNECTION
SIU HO WAN DEPOT
NORTH LANTAU HIGHWAY
TUNG CHUNG WATERFRONT ROAD
YING HEI ROAD
YI TUNG ROAD
TAI HO WAN
CHEUNG TUNG ROAD
PLANNED HZMB LINK ROAD
CHEK LAP KOK SOUTH ROAD
SAN TAU
SHUN TUNG ROAD
TUNG CHUNG EASTERN INTERCHANGE
TUNG CHUNG BAY
CHUNG YAN ROAD
YU TUNG ROAD
TUNG CHUNG WAN TELEPHONE EXCHANGE
TUNG CHUNG
LAND RESERVE FOR FUTURE TELEPHONE EXCHANGE
WO LIU TUN
LANTAU NORTH COUNTRY PARK
SHEK MUN KAP

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING HGC CABLES
- PLANNED HGC CABLES (BY OTHERS)

Rev	Description	By	Date
A	DRAFT TP23B	LFM	11/15

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
EXISTING AND PLANNED
TELECOM CABLE
- HGC CABLES

Drawing no.			Rev.
219844/UT/3002			A
Drawn: MAN	Date: 09/2012	Checked: KKY	Approved: DML
Scale: 1:15000 @ A1, 1:30000 @ A3		Status: PRELIMINARY	

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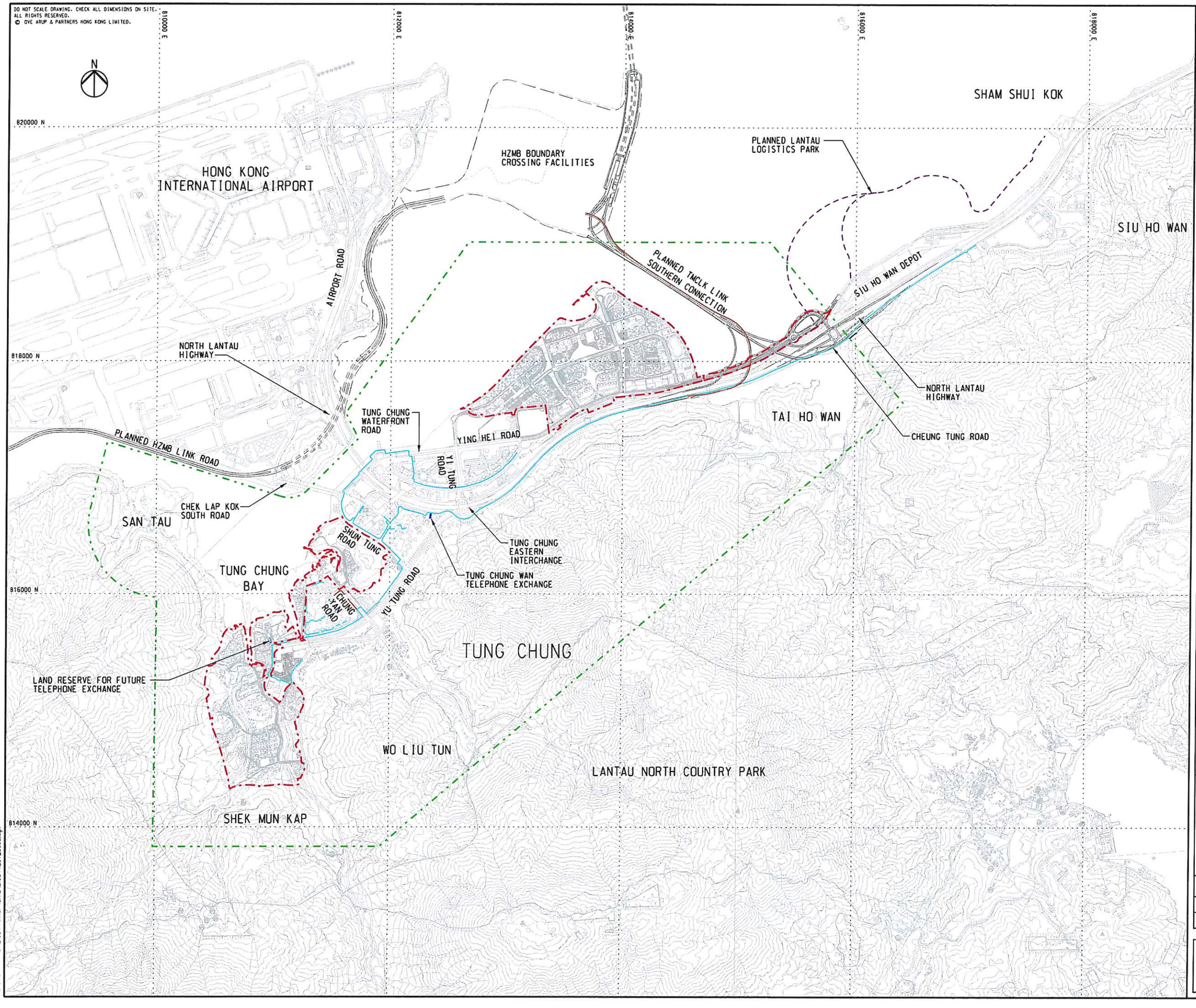

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING HKBN CABLES
- PLANNED HKBN CABLES (BY OTHERS)

Rev	Description	By	Date
A	DRAFT TP23B	LFM	11/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING AND PLANNED
TELECOM CABLE
- HKBN CABLES

Drawing no.	Rev.
219844/UT/3003	A

Drawn	Date	Checked	Approved
MAN	09/2012	KKY	DML

Scale	Status
1:15000 @ A1 1:30000 @ A3	PRELIMINARY

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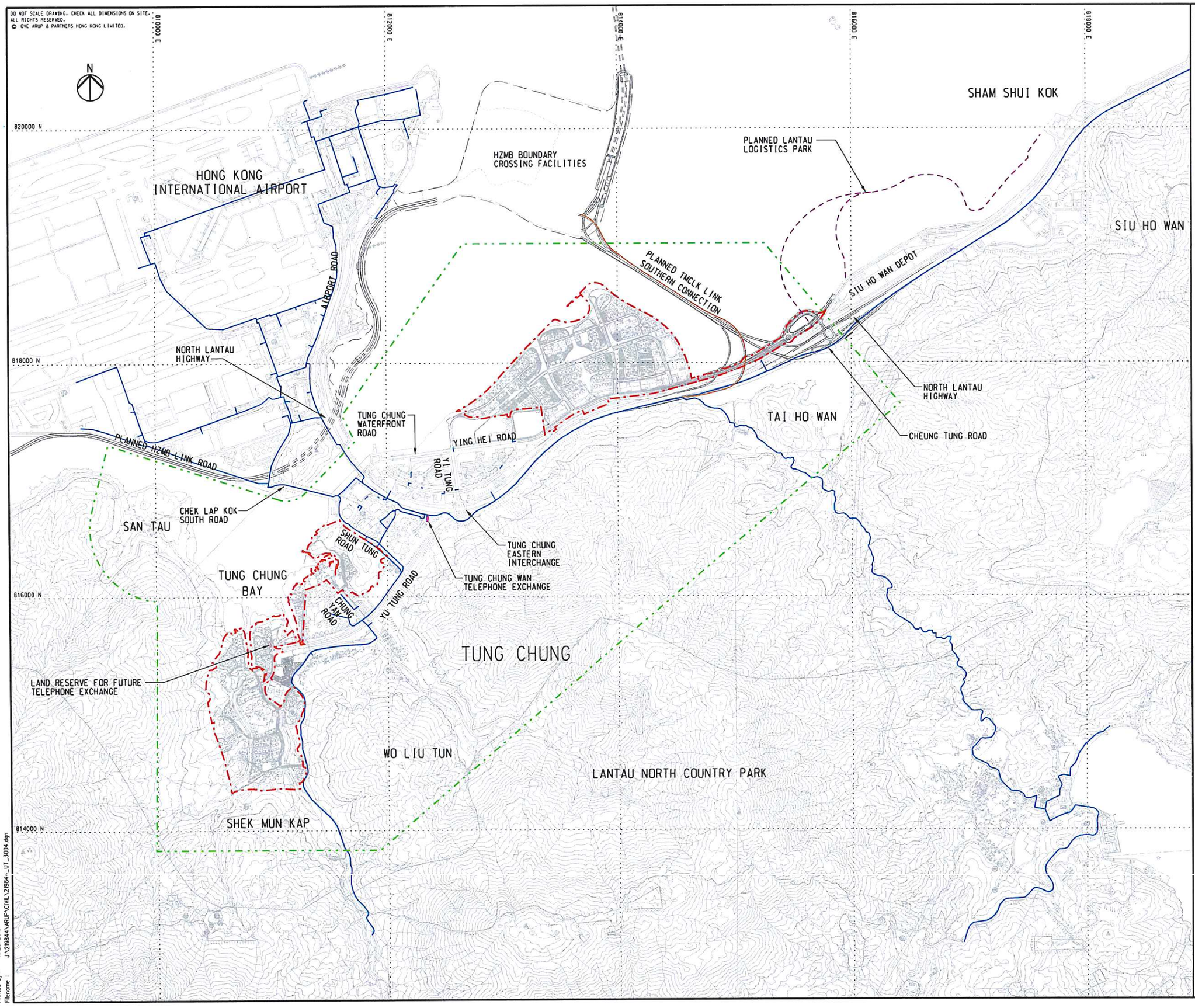

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING NWT CABLES
- PLANNED NWT CABLES (BY OTHERS)

Rev	Description	By	Date
A	DRAFT TP23B	LFM	11/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING AND PLANNED
TELECOM CABLE
- NWT CABLES

Drawing no.			Rev.
219844/UT/3004			A
Drawn: MAN	Date: 09/2012	Checked: KKY	Approved: DML
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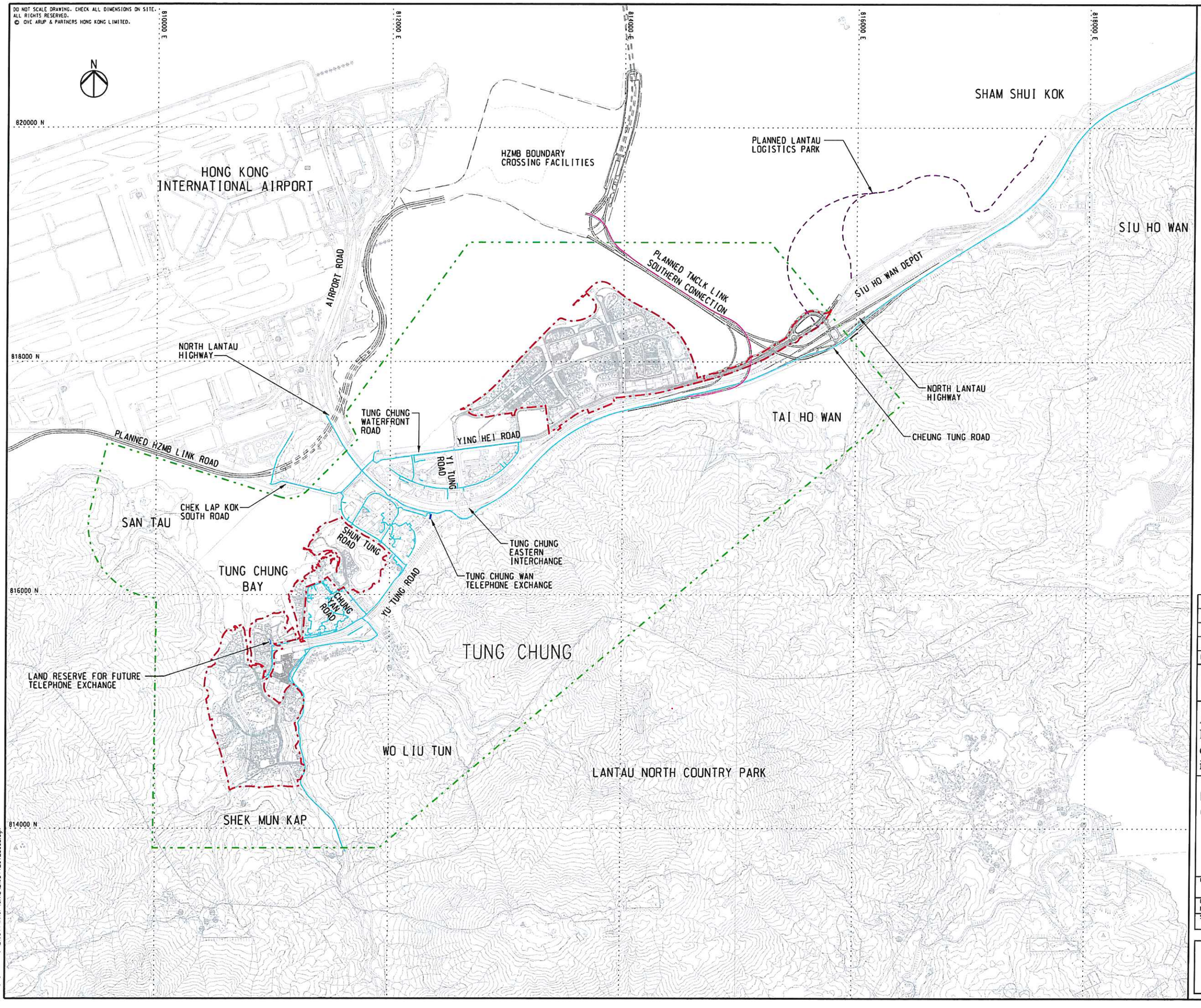

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING CABLE TV CABLES
- PLANNED CABLE TV CABLES (BY OTHERS)

Rev	Description	By	Date
A	DRAFT TP23B	LFM	11/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

EXISTING AND PLANNED
CABLE TV CABLES

Drawing no.			Rev.
219844/UT/3005			A
Drawn: MAN	Date: 09/2012	Checked: KKY	Approved: DML
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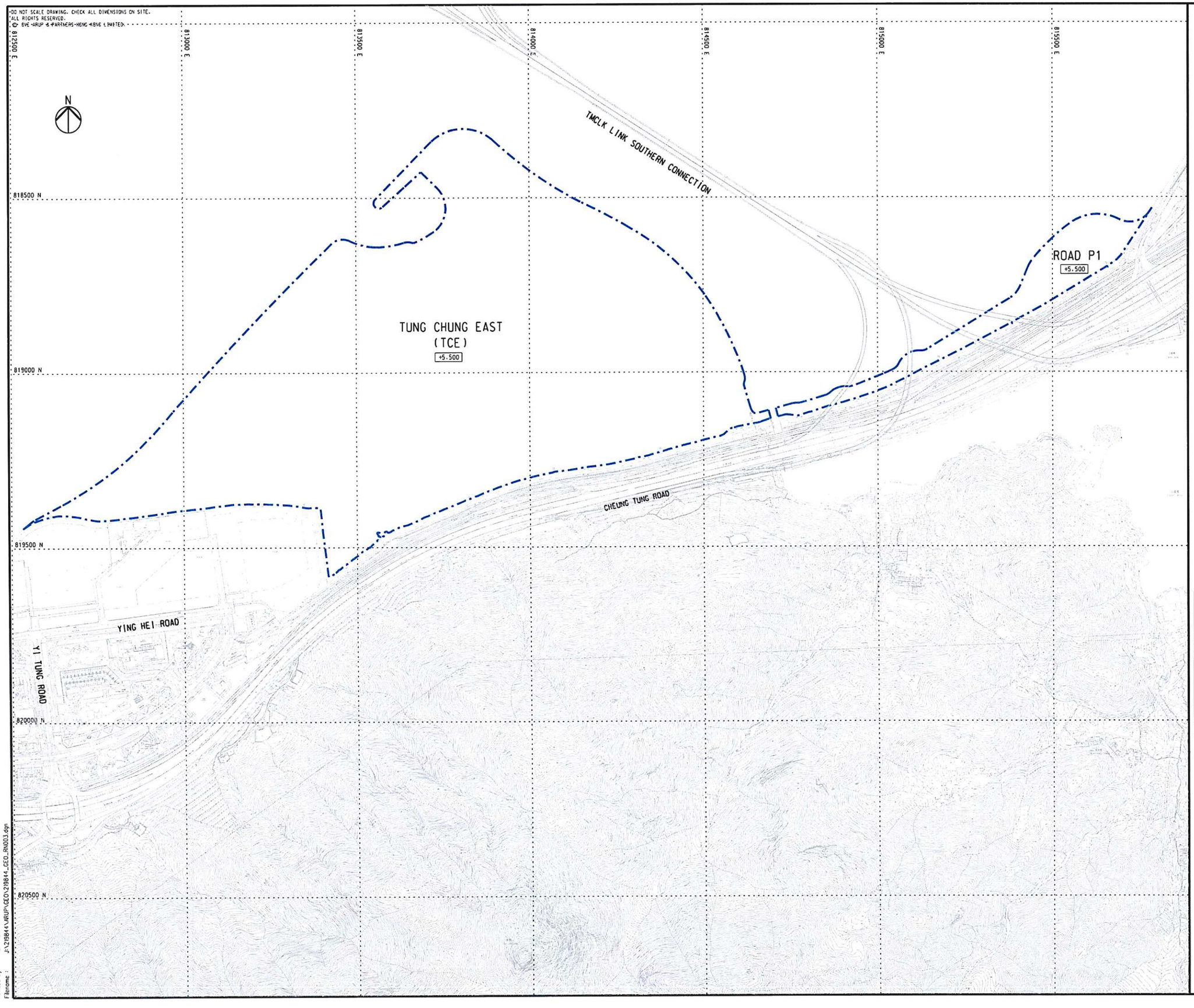

NOTES

1. THE RECLAMATION BOUNDARY SHOWN ON THIS DRAWING REFERS TO THE AREA BOUNDED BY THE HIGH WATER MARK (HWM) OF THE PROPOSED RECLAMATION AND THE HWM OF THE EXISTING SHORELINE.
2. THE PORTION OF SEAWALL BELOW THE HWM IS NOT SHOWN ON THE DRAWING AND IS SUBJECTED TO DETAILED DESIGN.

LEGEND

PROPOSED RECLAMATION BOUNDARY

+5.500 PROPOSED RECLAMATION LEVEL

Rev	Description	By	Date
A	FIRST ISSUE	KL	12/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

RECLAMATION IN TCE AND
ROAD P1

Drawing no.			Rev.
219844/GEO/RN003			A
Drawn: RL	Date: 12/2015	Checked: KKY	Approved: DML
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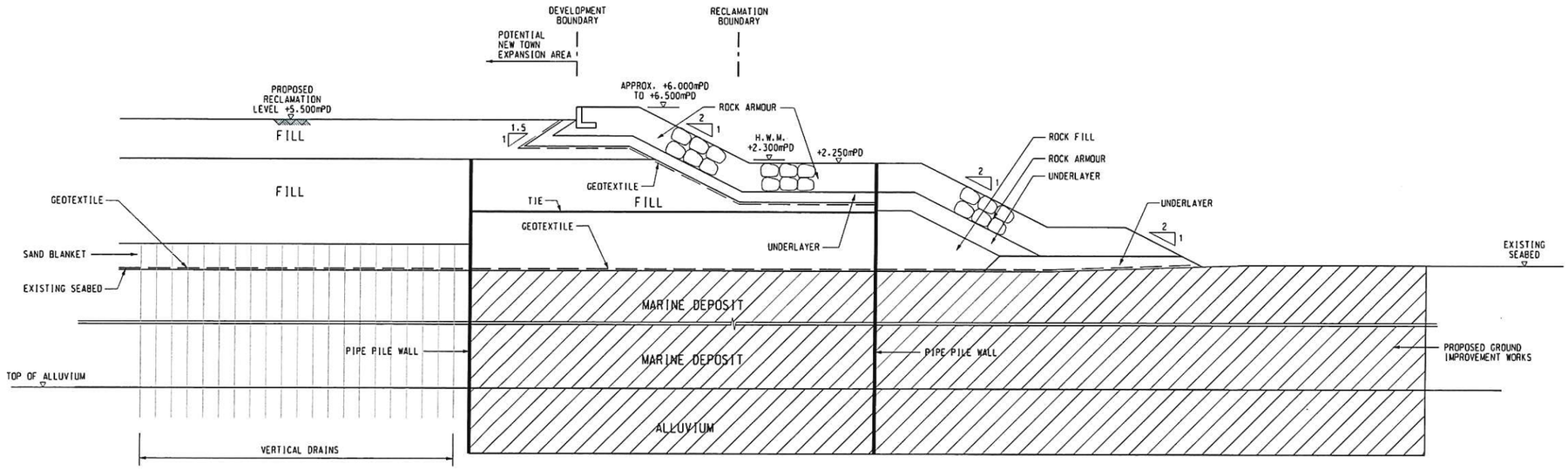
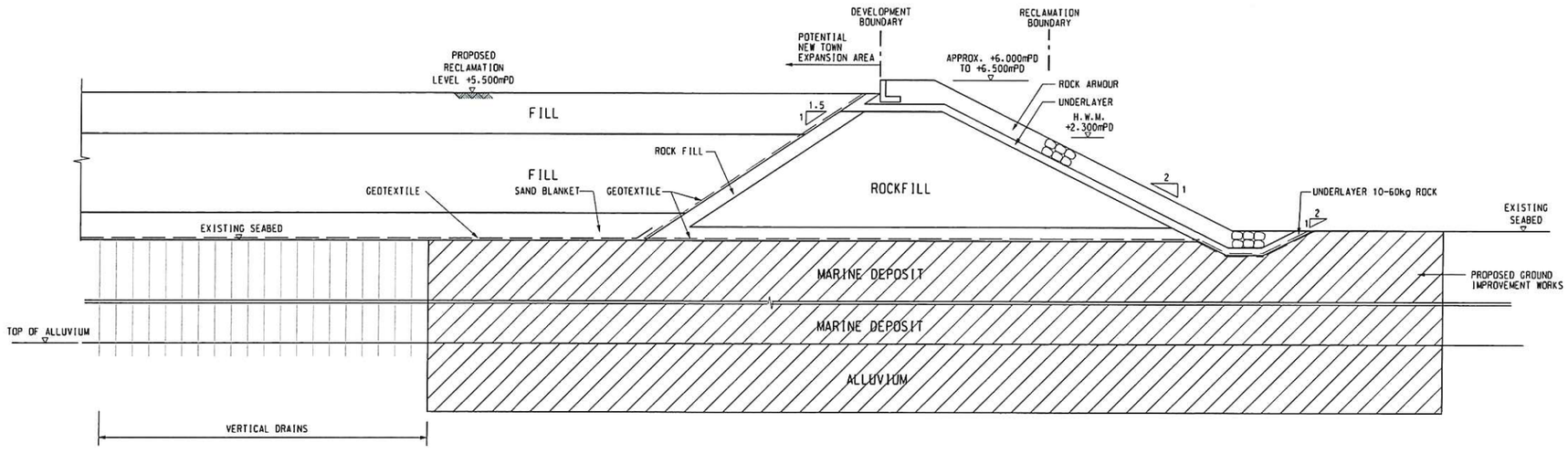


TYPICAL SECTION OF SLOPING SEAWALL - PIPE PILE WALL SCHEME WITH GROUND IMPROVEMENT
N.T.S.



TYPICAL SECTION OF SLOPING SEAWALL - ROCKFILL CORE SCHEME WITH GROUND IMPROVEMENT
N.T.S.

Rev	Description	By	Date
A	FIRST ISSUE	KL	05/15

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
RECLAMATION IN TCE AND ROAD
P1 - TYPICAL SECTION OF
SLOPING SEAWALL

Drawing no.	Rev.
219844/GEO/RN021	-

Drawn	Date	Checked	Approved
RL	05/2015	KKY	DML

Scale: N.T.S.
Status: PRELIMINARY

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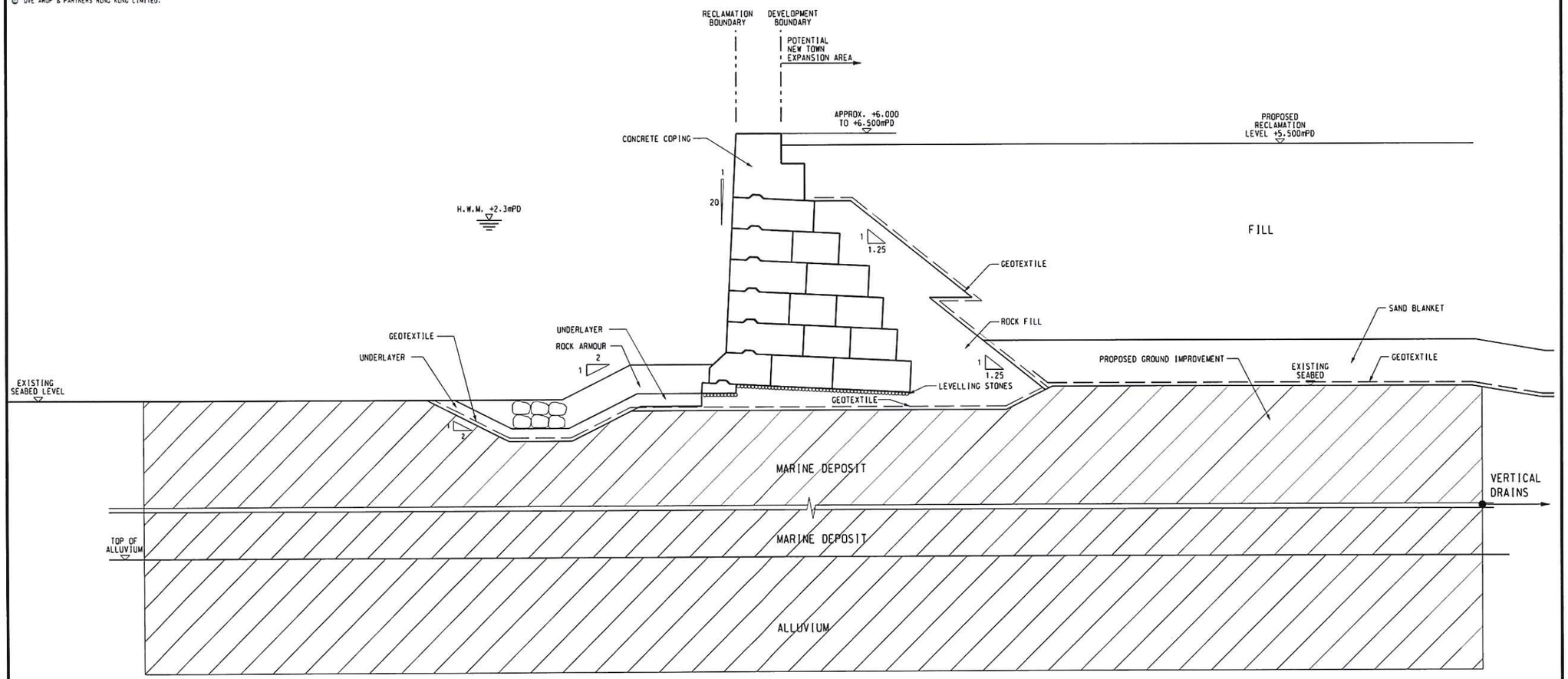

TYPICAL SECTION OF VERTICAL SEAWALL - CONCRETE BLOCK SCHEME WITH GROUND IMPROVEMENT

N.T.S.

Rev	Description	By	Date
A	FIRST ISSUE	KL	05/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

RECLAMATION IN TCE AND ROAD
P1 - TYPICAL SECTION OF
VERTICAL SEAWALL

Drawing no.	Rev.
219844/GEO/RN022	-

Drawn	Date	Checked	Approved
RL	05/2015	KKY	DML

Scale	Status
N.T.S.	PRELIMINARY

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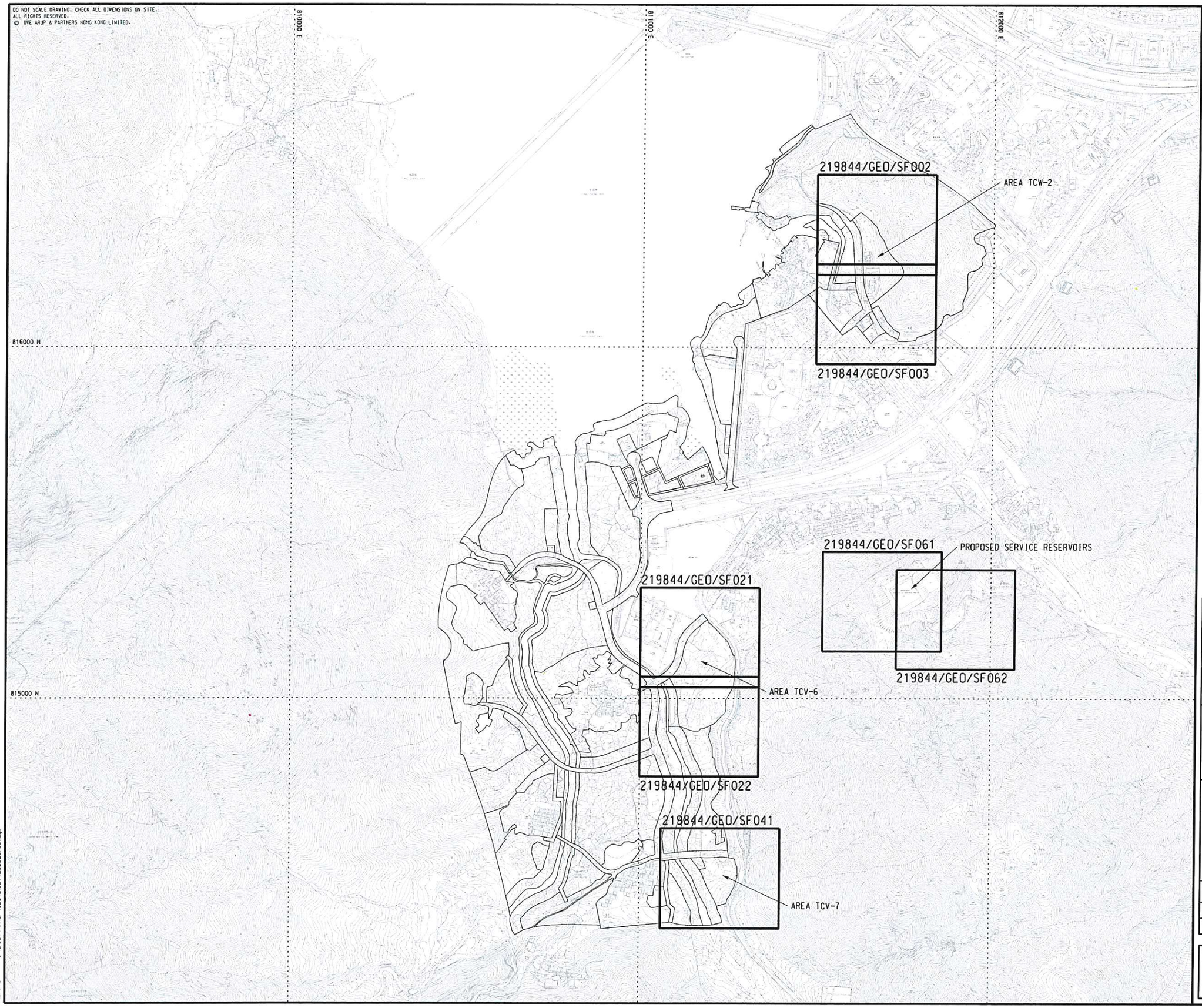

Rev	Description	By	Date
B	SECOND ISSUE	KL	07/15
A	FIRST ISSUE	BW	03/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SITE FORMATION
LAYOUT PLAN

Drawing no.			Rev.
219844/GEO/SF001			B
Drawn: RiL	Date: 02/2015	Checked: KKY	Approved: DML
Scale: 1:5000 @ A1 1:10000 @ A3		Status: PRELIMINARY	

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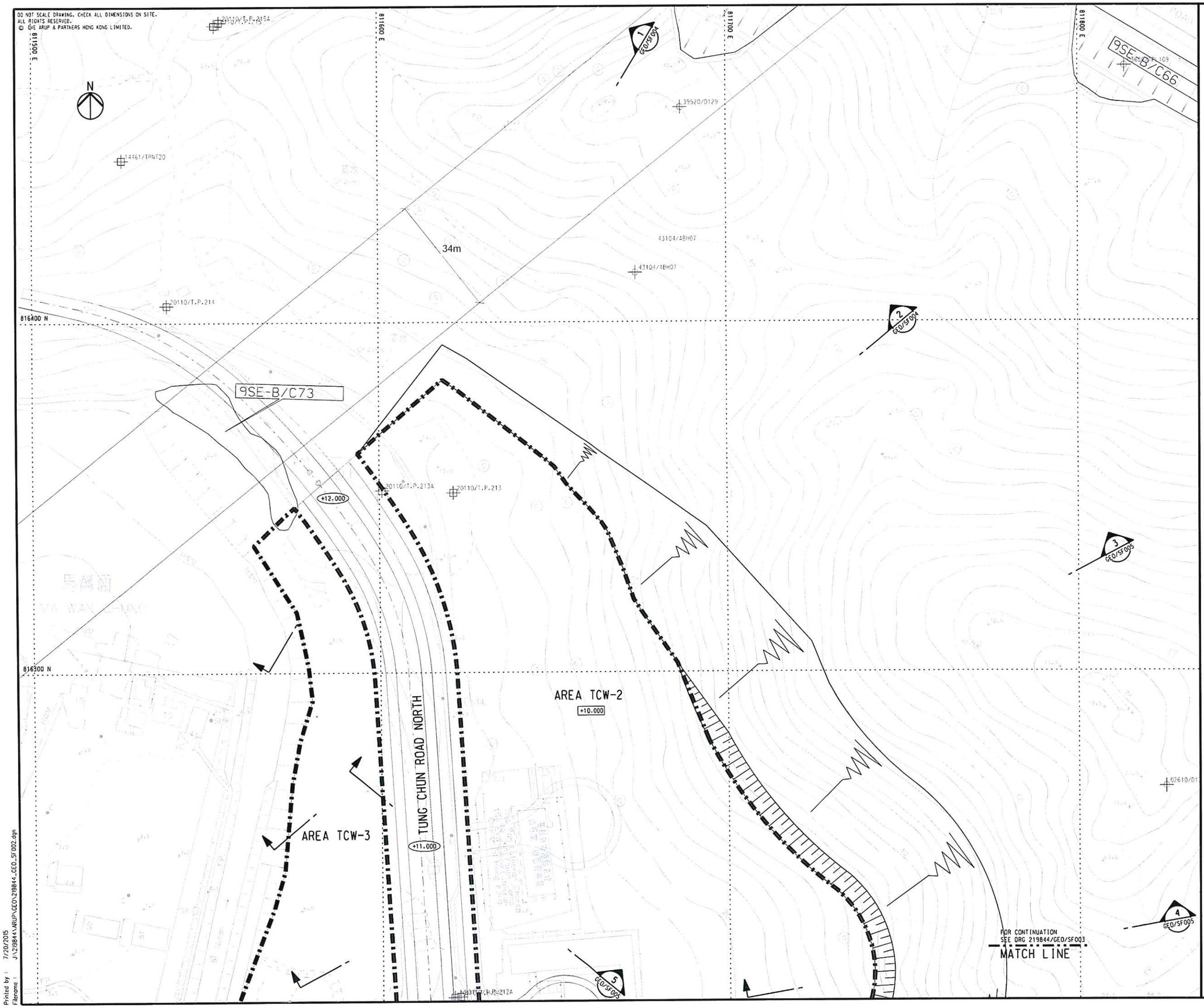

NOTE

1. THE PROPOSED SITE FORMATION WORKS ARE SCHEMATIC ONLY AND SHALL BE SUBJECT TO FURTHER DESIGN IN LATER STAGE OF PROJECT.

LEGEND

+10.000	PROPOSED SITE FORMATION LEVEL
+11.000	PROPOSED ROAD LEVEL
	PROPOSED CUT SLOPE
	PROPOSED ROCK CUT SLOPE
41338/MH38	EXISTING BOREHOLE
39353/TP16	EXISTING TRIAL PIT
9SE-B/C19	EXISTING REGISTERED FEATURE

Rev	Description	By	Date
B	SECOND ISSUE	BW	07/15
A	FIRST ISSUE	BW	03/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

TCW-2
SITE FORMATION - PLAN
(SHEET 1 OF 2)

Drawing no.	Rev.
219844/GEO/SF002	B

Drawn	Date	Checked	Approved
AC	02/2015	KKY	DML

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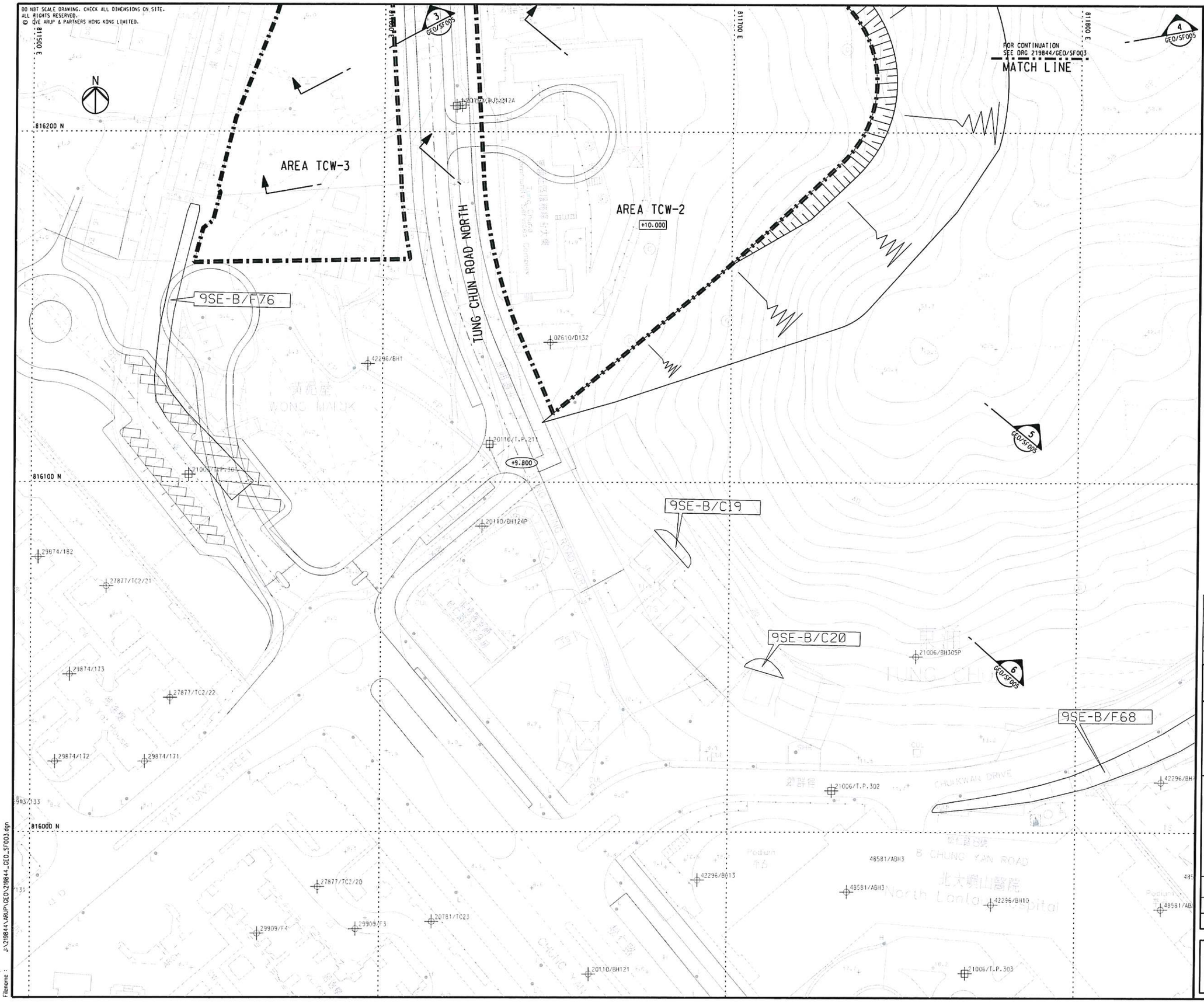

NOTE

1. FOR NOTES AND LEGEND, REFER TO DRAWING NO. 219844/GEO/SF002.

Rev	Description	By	Date
B	SECOND ISSUE	BW	07/15
A	FIRST ISSUE	BW	03/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

TCW-2
SITE FORMATION - PLAN
(SHEET 2 OF 2)

Drawing no.	219844/GEO/SF003	Rev.	B
Drawn AC	Date 02/2015	Checked KKY	Approved DML
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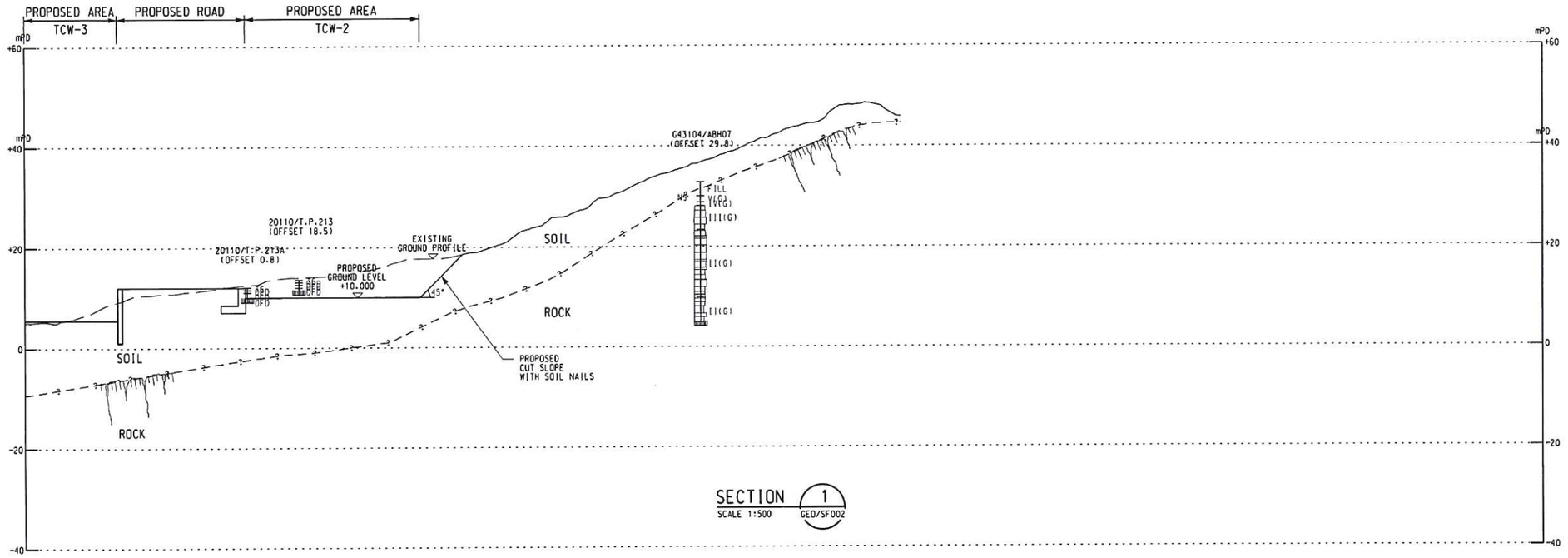
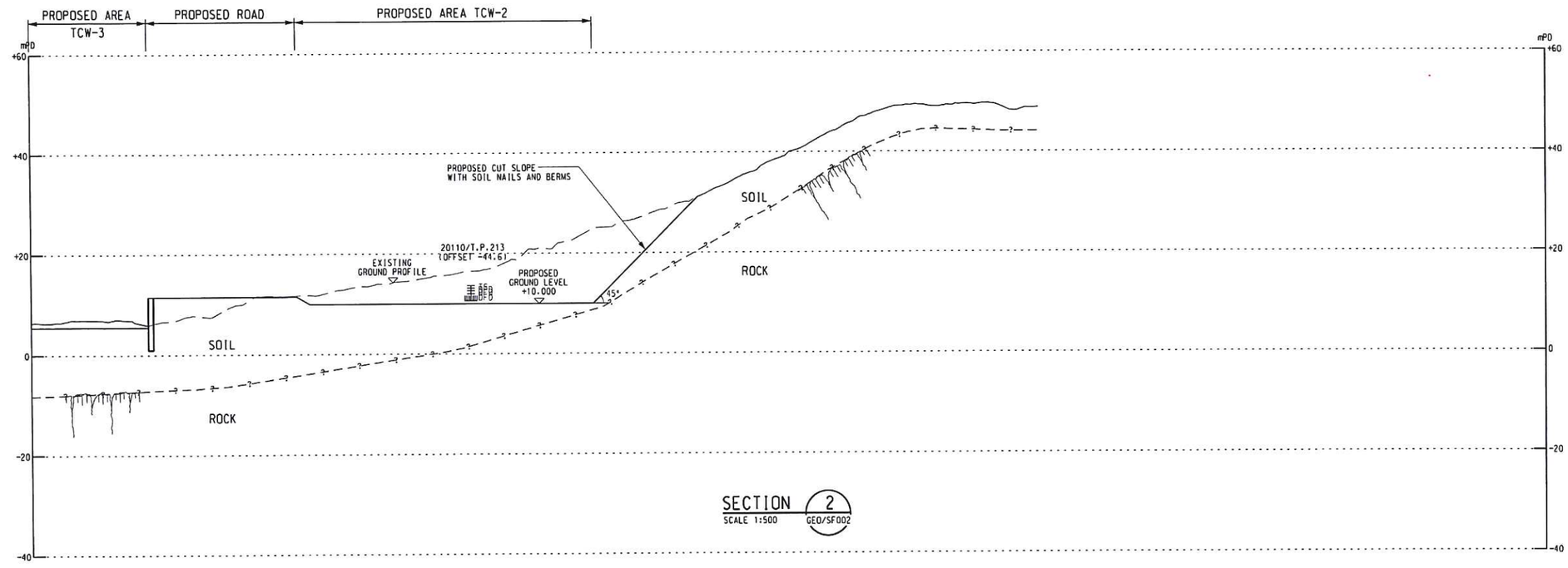


SECTION 1
SCALE 1:500 GEO/SF002



SECTION 2
SCALE 1:500 GEO/SF002

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Rev	Description	By	Date
B	SECOND ISSUE	BW	07/15
A	FIRST ISSUE	BW	03/15

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
TCW-2
SITE FORMATION - SECTION
SECTION (1 OF 3)

Drawing no. 219844/GEO/SF004 Rev. B

Drawn	Date	Checked	Approved
AC	02/2015	KKY	OML

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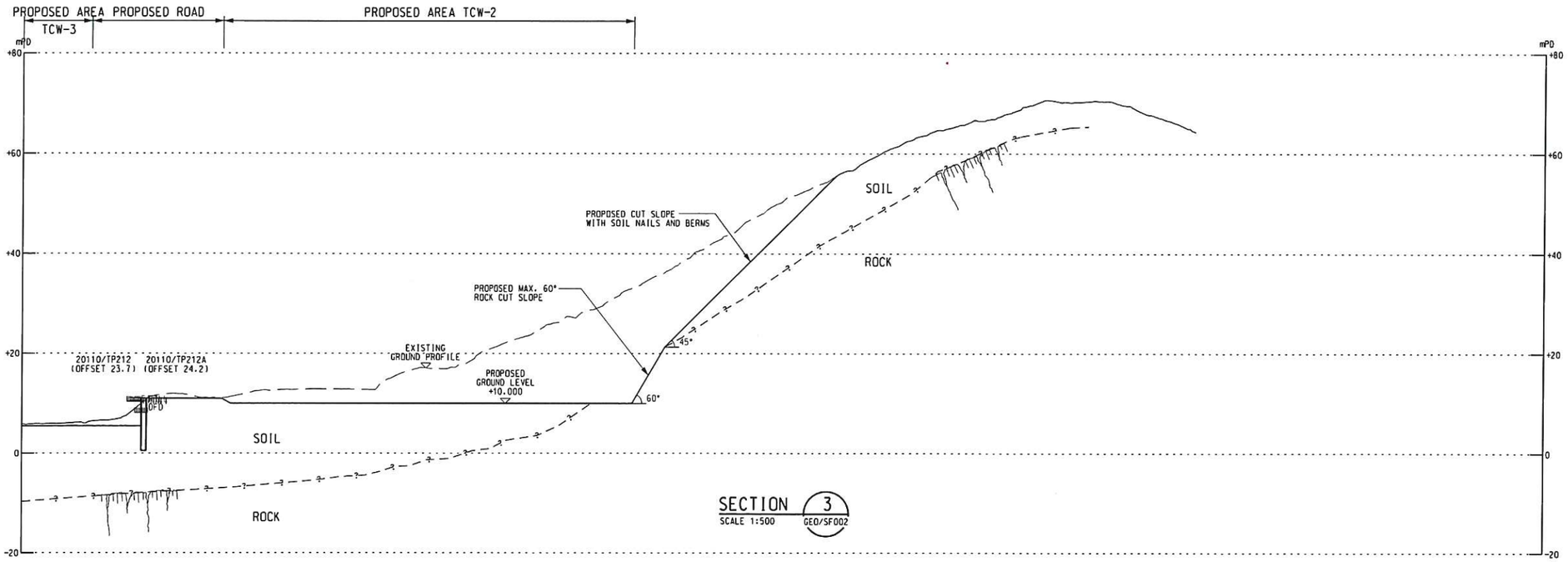
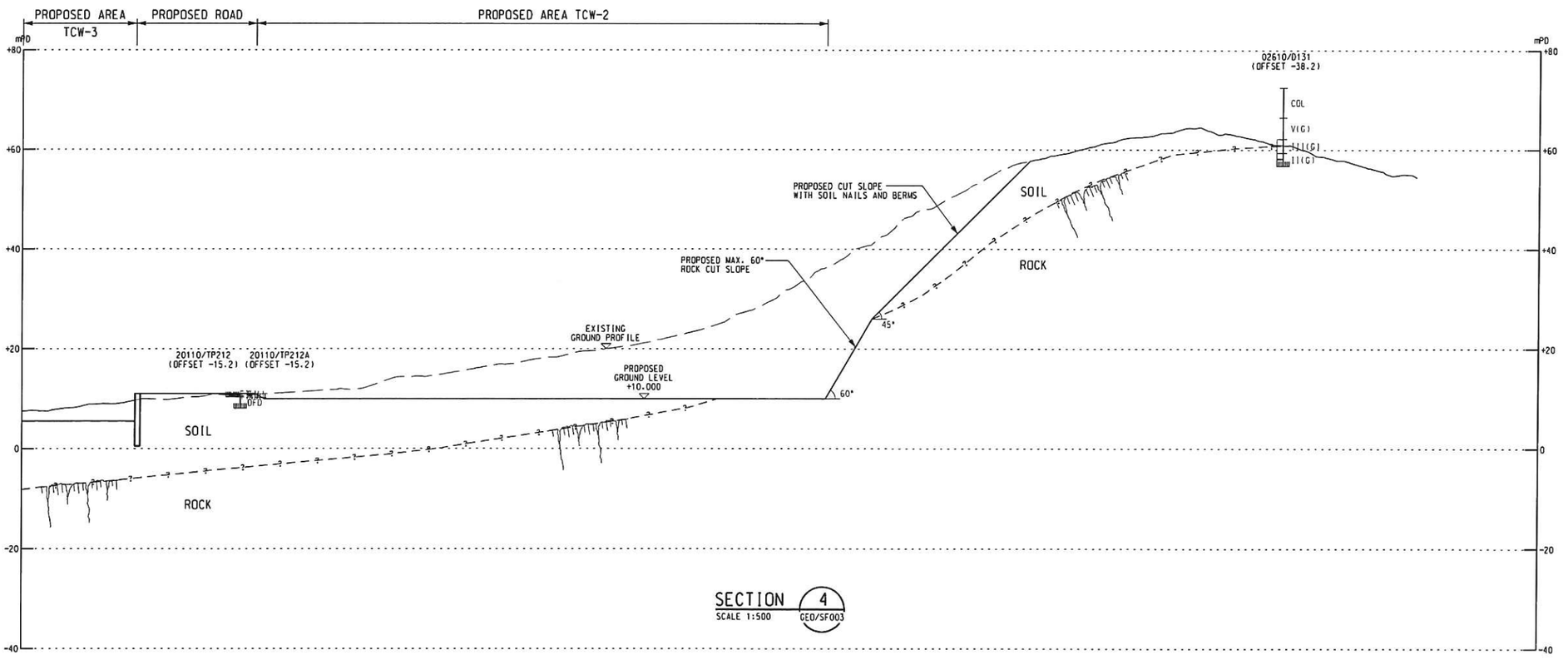


SECTION 3
SCALE 1:500 GEO/SF002



SECTION 4
SCALE 1:500 GEO/SF003

NOTE

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Rev	Description	By	Date
B	SECOND ISSUE	BW	07/15
A	FIRST ISSUE	BW	03/15

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
TCW-2
SITE FORMATION - SECTION
SECTION (2 OF 3)

Drawing no.			Rev.
219844/GEO/SF005			B
Drawn	Date	Checked	Approved
AC	02/2015	KKY	DML
Scale	1:500 @ A1 1:1000 @ A3	Status	PRELIMINARY

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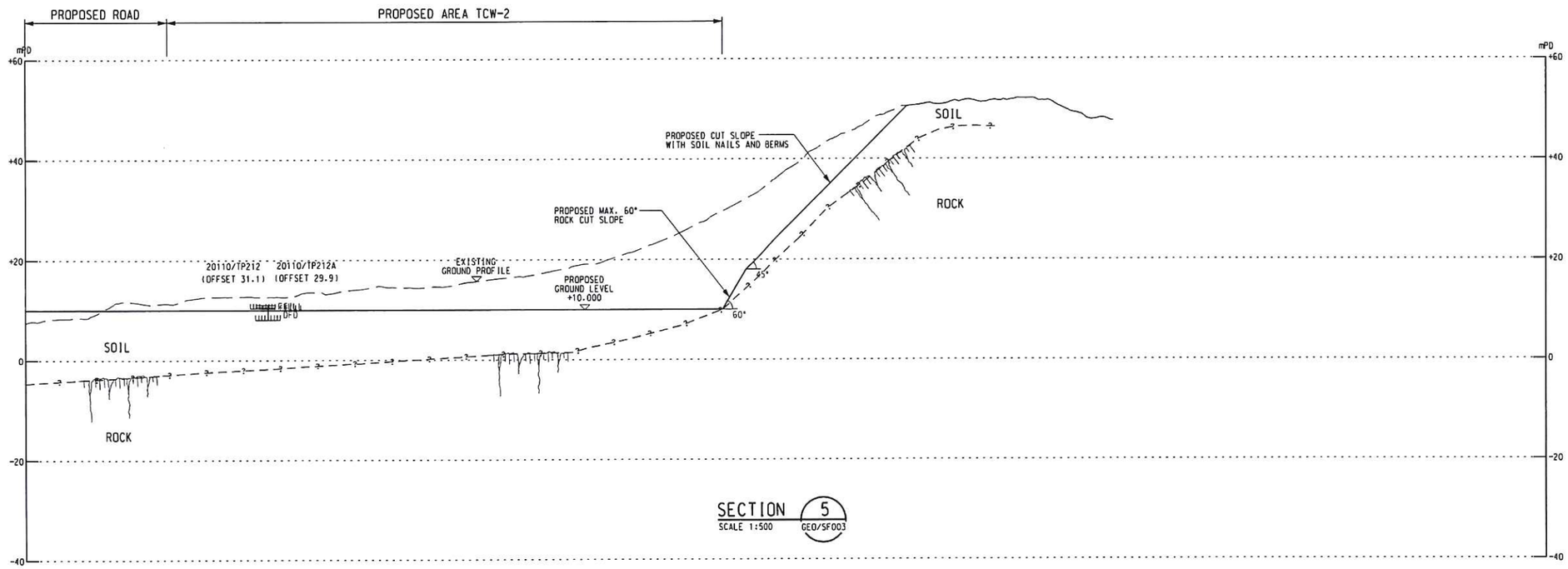
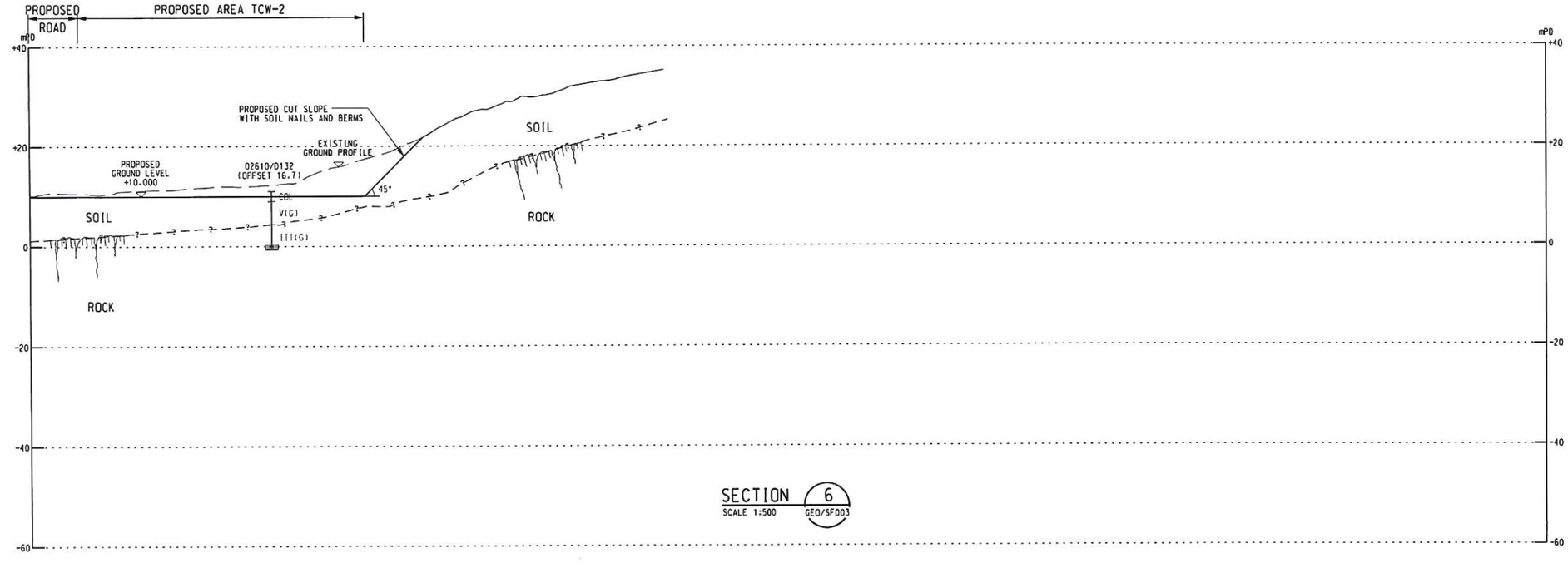


SECTION 5
SCALE 1:500 GEO/SF003



SECTION 6
SCALE 1:500 GEO/SF003

NOTE

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Rev	Description	By	Date
B	SECOND ISSUE	BW	07/15
A	FIRST ISSUE	BW	03/15

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
TCW-2
SITE FORMATION - SECTION
SECTION (3 OF 3)

Drawing no.			Rev.
219844/GEO/SF006			B
Drawn: AC	Date: 02/2015	Checked: KKY	Approved: DML
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NOTE

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LEGEND

+10.000	PROPOSED SITE FORMATION LEVEL
	PROPOSED CUT SLOPE
	PROPOSED ROCK CUT SLOPE

Rev	Description	By	Date
A	FIRST ISSUE	KL	12/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SITE FORMATION
LAYOUT PLAN
(SHEET 1 OF 2)

Drawing no.			Rev.
219844/GEO/SF011			A
Drawn	Date	Checked	Approved
RiL	12/2015	KKY	DML
Scale	1:2500 @ A1 1:5000 @ A3	Status	PRELIMINARY

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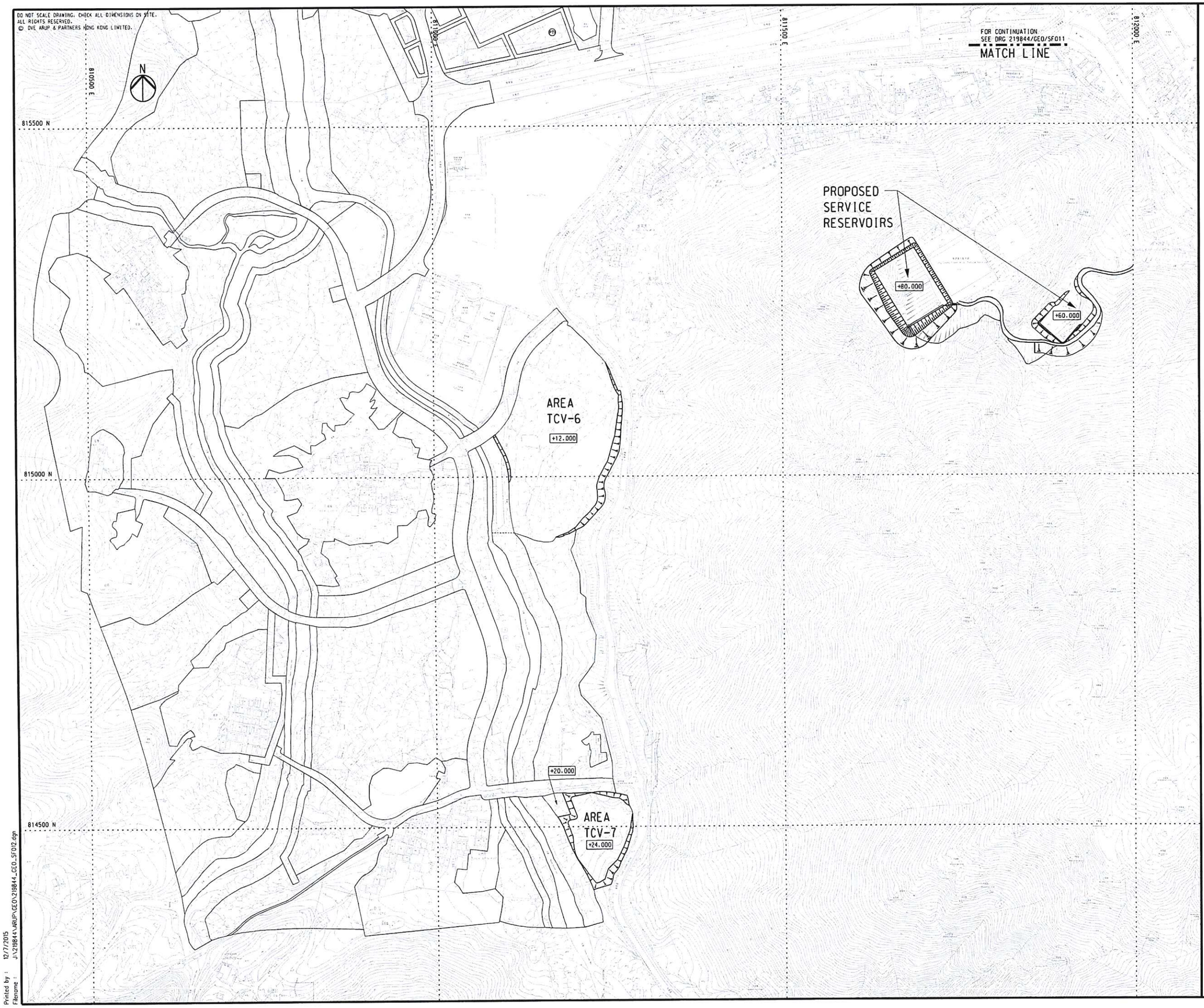

NOTE

1. FOR NOTES AND LEGEND, REFER TO DRAWING NO. 219844/GEO/SF011.

Rev	Description	By	Date
A	FIRST ISSUE	KL	12/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SITE FORMATION
LAYOUT PLAN
(SHEET 2 OF 2)

Drawing no.			Rev.
219844/GEO/SF012			A
Drawn: RiL	Date: 12/2015	Checked: KKY	Approved: DML
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811100 E | 811200 E | 811300 E

815300 N | 815200 N | 815100 N

N

33557/BH11 | 21006/T.P.316 | 34224/TP2 | 33557/BH9 | 33557/BH10 | 33557/BH8 | 21006/BH322P | 33557/BH7 | 14459/NL29 | 33557/BH5 | 33557/BH4 | BH2

34224/TP1

5 GEO/SF024

+11.300

33586/NL11/TP8

1 GEO/SF023

PROPOSED ROAD L30

TUNG CHUNG ROAD

AREA TCV-6
+12.000

34224/BH7 | 34224/BH16 | 34224/BH17 | 34224/BH8 | 34224/BH9 | 34224/BH14 | 34224/BH10 | 34224/BH15 | 34224/BH11 | 34224/BH12 | 34224/BH13

37183/TP1 | 37183/BH1 | 2 GEO/SF023 | 9SE-B/C33 | 33391/TP1 | 51532/DHA2 | 51532/TPA1 | 51532/DHA1 | 3 GEO/SF023 | 37183/BH2 | 33709/TP1

FOR CONTINUATION
SEE DRG 219844/GEO/SF022
MATCH LINE

+12.000

NOTE

1. THE PROPOSED SITE FORMATION WORKS ARE SCHEMATIC ONLY AND SHALL BE SUBJECT TO FURTHER DESIGN IN LATER STAGE OF PROJECT.

LEGEND

- SITE BOUNDARY
- +12.000 — PROPOSED SITE FORMATION LEVEL
- +11.300 — PROPOSED ROAD LEVEL
- PROPOSED FILL SLOPE
- PROPOSED CUT SLOPE
- 41338/MH38 — EXISTING BOREHOLE
- 39353/TP16 — EXISTING TRIAL PIT
- 9SE-B/C19 — EXISTING REGISTERED FEATURE

Rev	Description	By	Date
A	FIRST ISSUE	BW	03/15

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
TCV-6
SITE FORMATION - PLAN
(SHEET 1 OF 2)

Drawing no.			Rev.
219844/GEO/SF021			A
Drawn: AC	Date: 02/2015	Checked: KKY	Approved: DML
Scale: 1:500 @ A1, 1:1000 @ A3		Status: PRELIMINARY	

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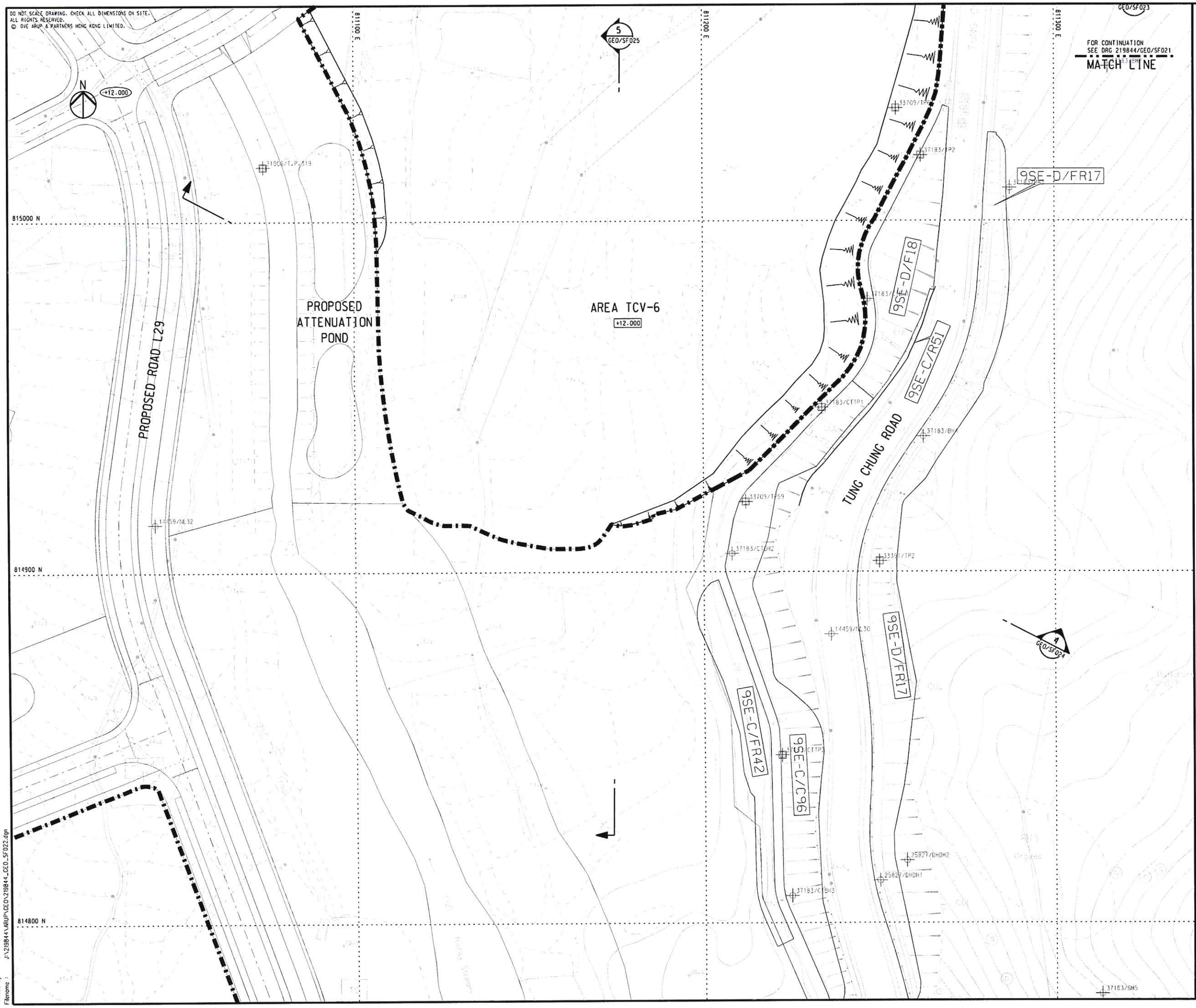

NOTE

1. FOR NOTES AND LEGEND, REFER TO DRAWING NO. 219844/GEO/SF021.

Rev	Description	By	Date
A	FIRST ISSUE	BW	03/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

TCV-6
SITE FORMATION - PLAN
(SHEET 2 OF 2)

Drawing no.			Rev.
219844/GEO/SF022			A
Drawn	Date	Checked	Approved
AC	02/2015	KKY	DML
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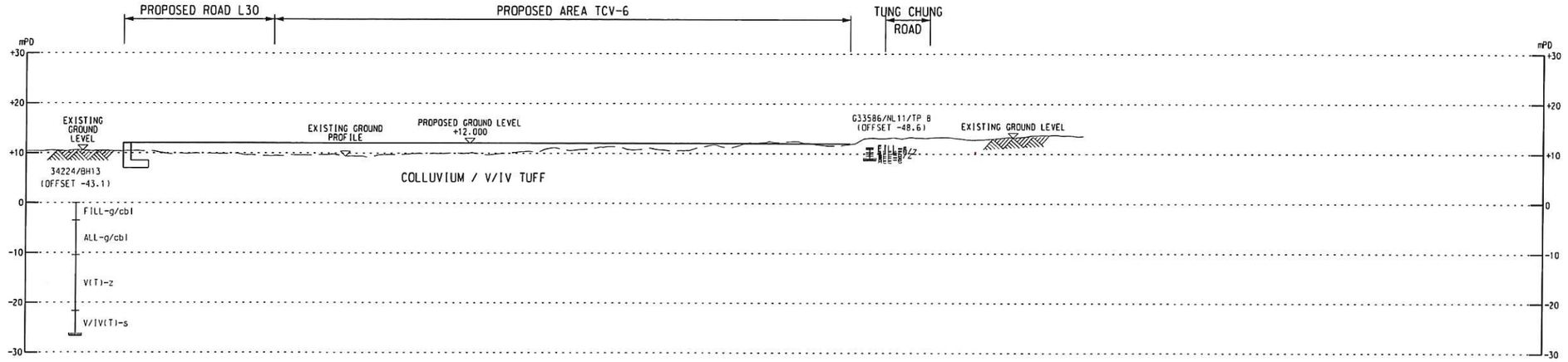

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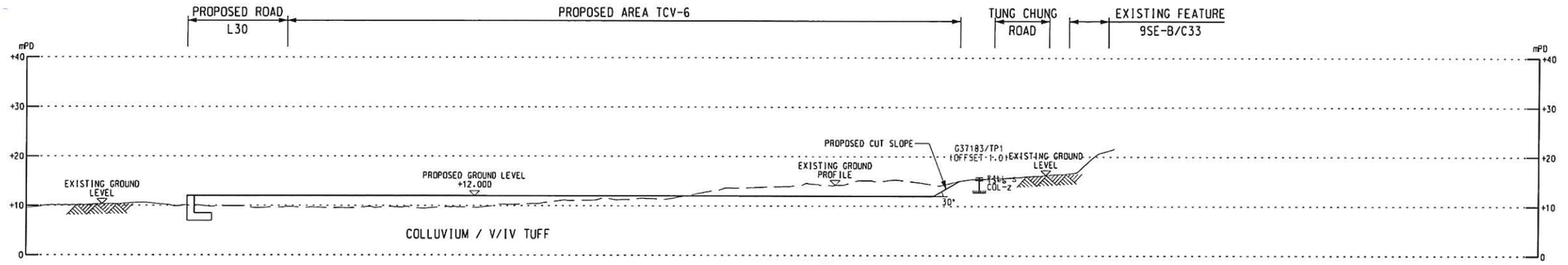

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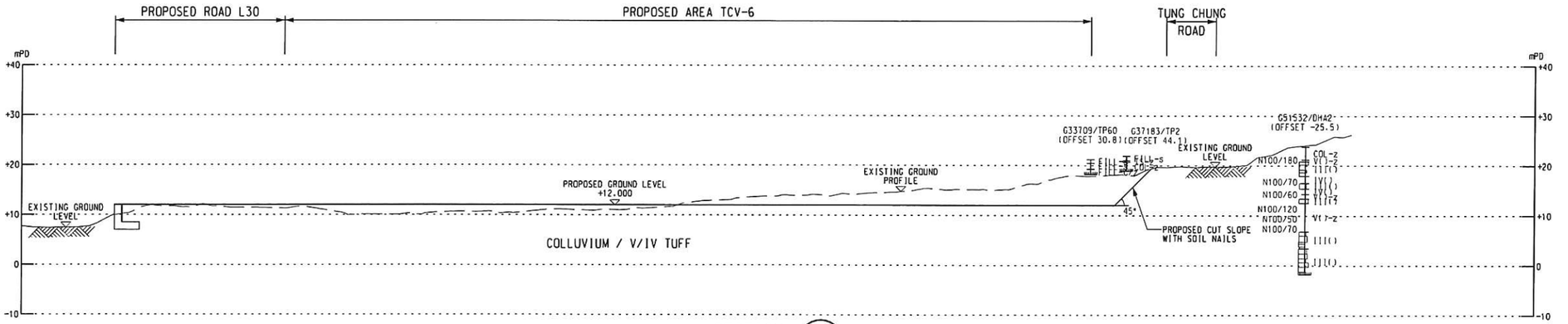

SECTION 3
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NOTE

1. THE PROPOSED SITE FORMATION WORKS ARE SCHEMATIC ONLY AND SHALL BE SUBJECT TO FURTHER DESIGN IN LATER STAGE OF PROJECT.

Rev	Description	By	Date
A	FIRST ISSUE	BL	03/15

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
TCV-6
SITE FORMATION - SECTION
SECTION (1 OF 2)

Drawing no.	Rev.
219844/GEO/SF023	A

Drawn	Date	Checked	Approved
AC	02/2015	KKY	DML

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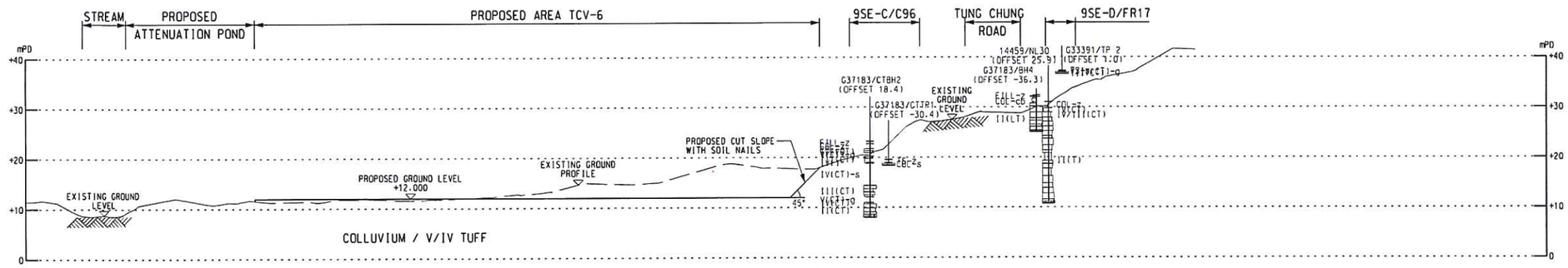

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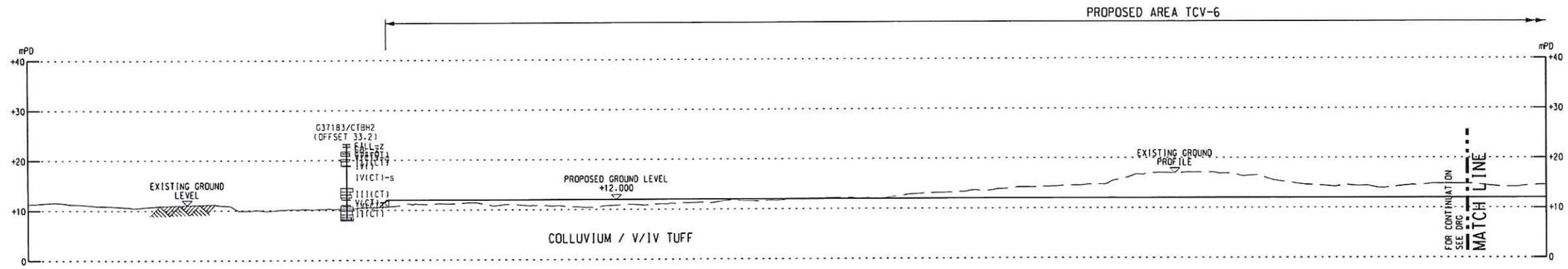

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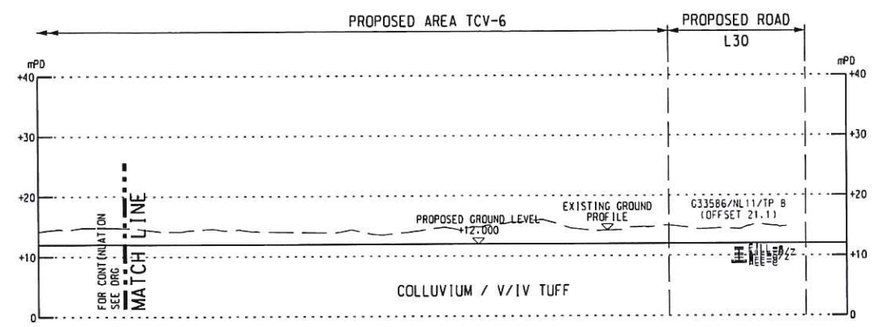

SECTION 5
SCALE 1:500 GEO/SF022

NOTE

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Rev	Description	By	Date
A	FIRST ISSUE	BL	03/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

TCV-6
SITE FORMATION - SECTION
SECTION (2 OF 2)

Drawing no.			Rev.
219844/GEO/SF024			A
Drawn: AC	Date: 02/2015	Checked: KKY	Approved: DML
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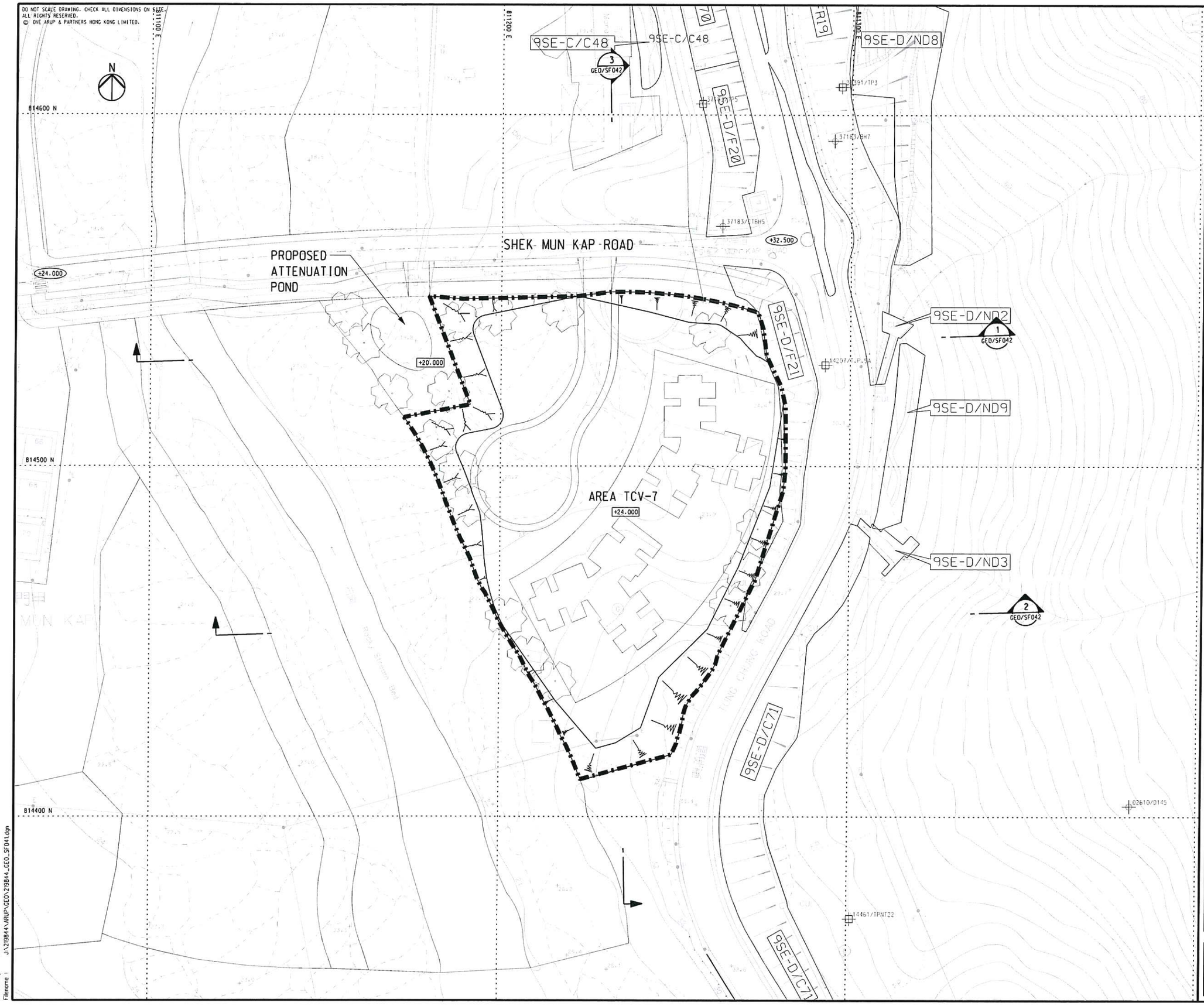

NOTE

1. THE PROPOSED SITE FORMATION WORKS ARE SCHEMATIC ONLY AND SHALL BE SUBJECT TO FURTHER DESIGN IN LATER STAGE OF PROJECT.

LEGEND

	SITE BOUNDARY
+12.000	PROPOSED SITE FORMATION LEVEL
+32.500	PROPOSED ROAD LEVEL
	PROPOSED FILL SLOPE
	PROPOSED CUT SLOPE
41338/MH38	EXISTING BOREHOLE
39353/TP16	EXISTING TRIAL PIT
9SE-B/C19	EXISTING REGISTERED FEATURE

Rev	Description	By	Date
B	SECOND ISSUE	KL	11/15
A	FIRST ISSUE	BW	03/15

Consultant

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Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

TCV-7
SITE FORMATION - PLAN

Drawing no.			Rev.
219844/GEO/SF041			B
Drawn AC	Date 02/2015	Checked KKY	Approved DML
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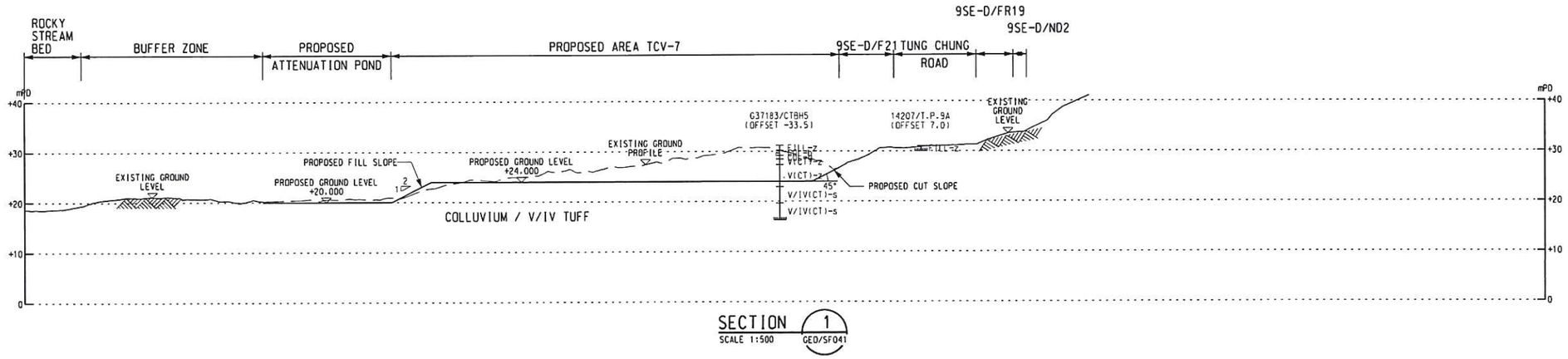

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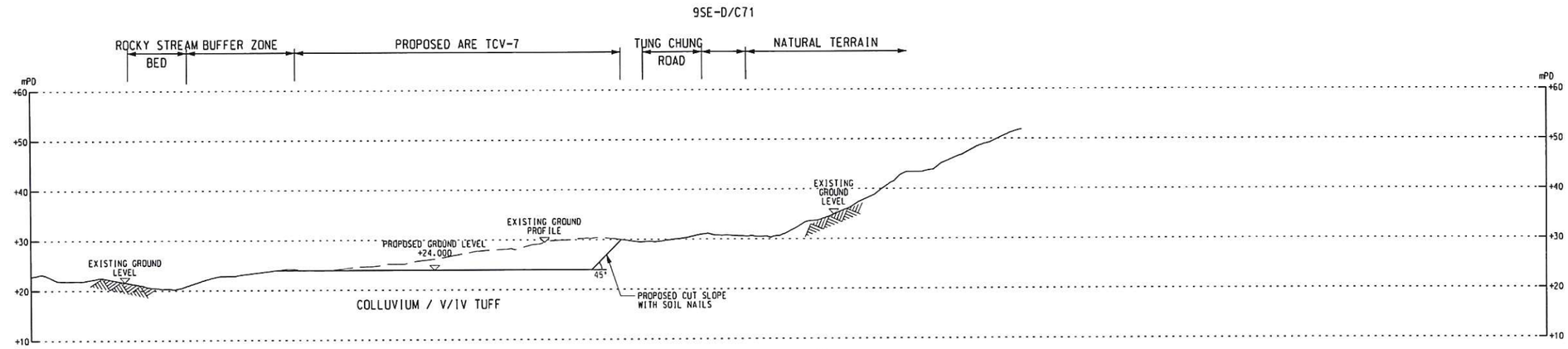

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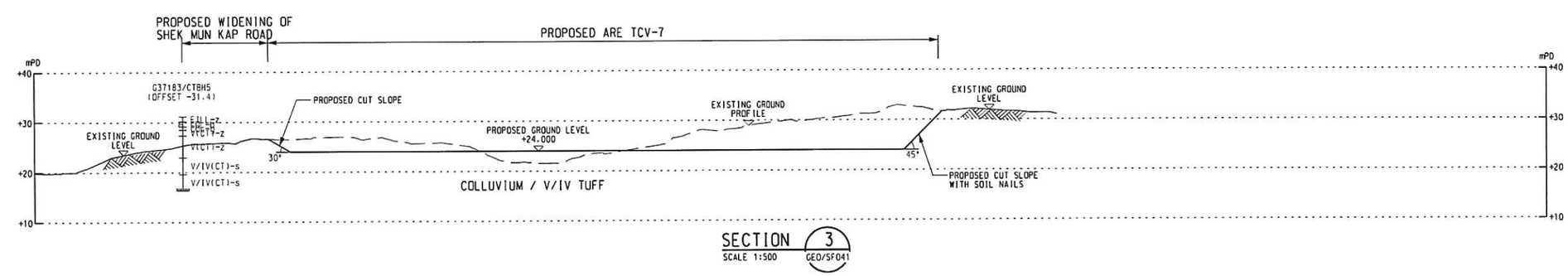

SECTION 3
SCALE 1:500 GEO/SF041

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Rev	Description	By	Date
B	SECOND ISSUE	RL	11/15
A	FIRST ISSUE	BL	03/15

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title
TCV-7
SITE FORMATION - SECTION

Drawing no.		Rev.
219844/GEO/SF042		B
Drawn: RiL	Date: 02/2015	Checked: KKY	Approved: DML
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811600 E
811700 E
811800 E
815400 N
815300 N
815200 N

9SE-B/C39
9SE-B/C36
9SE-B/C37
9SE-B/C35
9SE-B/F13
9SE-B/F12
9SE-B/C38
9SE-B/F15
9SE-B/C40
9SE-B/CR41
9SE-B/C42
9SE-B/F3
9SE-B/F14
9SE-B/C4

EXISTING CUT SLOPE TO BE MODIFIED

PROPOSED FRESHWATER SERVICE RESERVOIR (FWSR)

EXISTING FRESH WATER SERVICE RESERVOIR (FWSR)

RESERVED FRESH WATER SERVICES RESERVOIR (FWSR) (UNDER SEPARATE PROJECT)

+80.00

EXISTING RETAINING WALL TO BE MODIFIED

EXISTING CUT SLOPE

EXISTING CUT SLOPE TO BE MODIFIED

+77.00

FOR CONTINUATION SEE DRG. 219844/GEO/SF062
MATCH LINE

EXISTING CUT SLOPE

17578/DH91818/016
30614/91818/TP6
30614/91818/TP7
30614/91818/TP2
17578/DH91818/007
16277/91818/006
17578/DH91818/010
17578/DH91818/030
17578/DH91818/032
17578/DH91818/009
17578/DH91818/031
17578/DH91818/029
17578/DH91818/028
17578/DH91818/027
17578/DH91818/012
17578/DH91818/005
17578/DH91818/014
17578/DH91818/015
16277/91818/01

5 GEO/SF063
1 GEO/SF063
2 GEO/SF063
3 GEO/SF063
4 GEO/SF063
6 GEO/SF063

NOTE

1. THE PROPOSED SITE FORMATION WORKS ARE SCHEMATIC ONLY AND SHALL BE SUBJECT TO FURTHER DESIGN IN LATER STAGE OF PROJECT.

LEGEND

- +80.000 — PROPOSED SITE FORMATION LEVEL
- PROPOSED FILL SLOPE
- PROPOSED CUT SLOPE
- PROPOSED ROCK CUT SLOPE
- 41538/MH38 — EXISTING BOREHOLE
- 39353/TP16 — EXISTING TRIAL PIT
- 9SE-B/C19 — EXISTING REGISTERED FEATURE

Rev	Description	By	Date
C	THIRD ISSUE	KL	11/15
B	SECOND ISSUE	KL	07/15
A	FIRST ISSUE	BL	03/15

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
SERVICE RESERVOIR
SITE FORMATION - PLAN
(SHEET 1 OF 2)

Drawing no. 219844/GEO/SF061 Rev. C

Drawn	Date	Checked	Approved
AC	02/2015	KKY	DML

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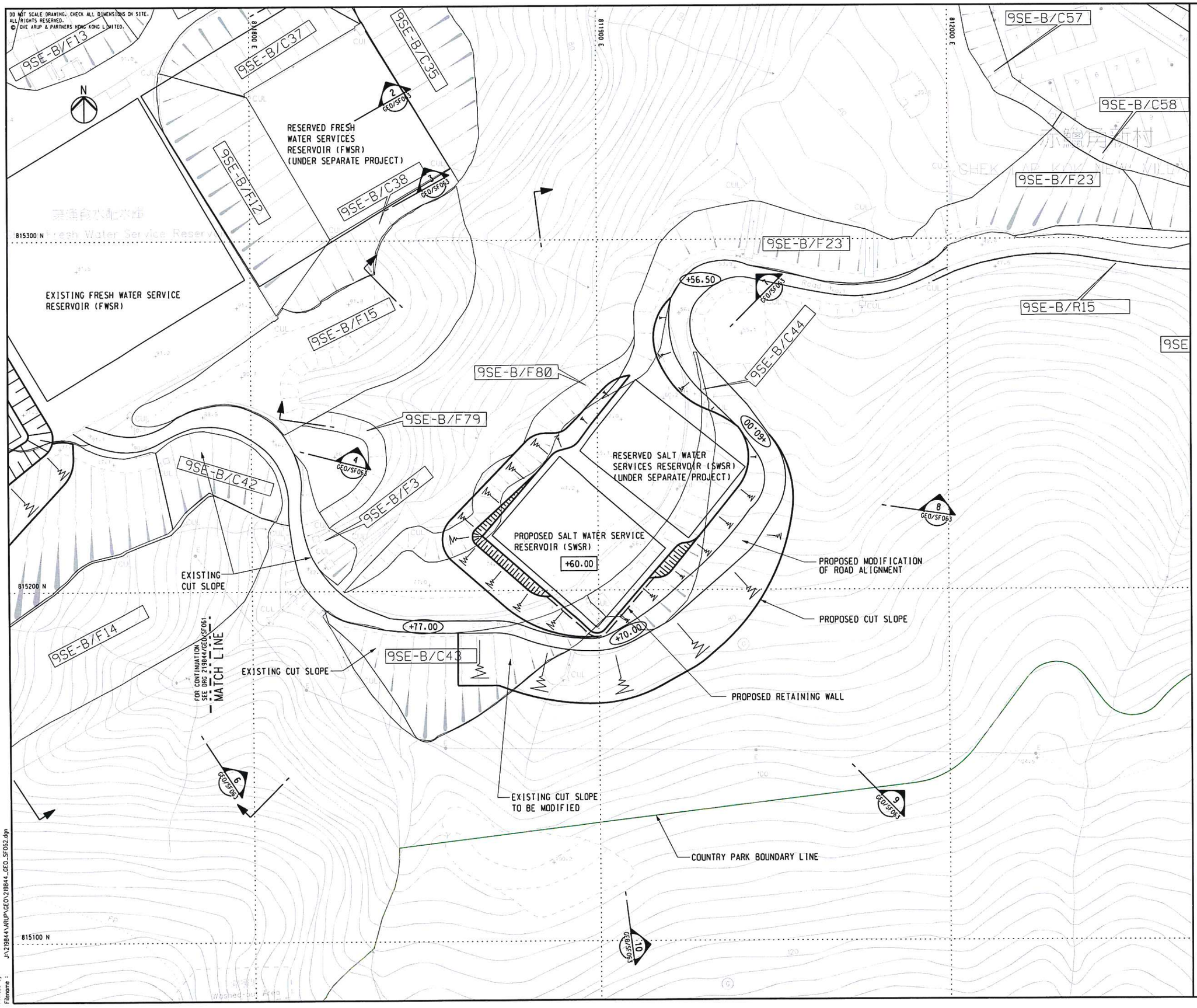

NOTE

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Rev	Description	By	Date
A	FIRST ISSUE	BL	03/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SERVICE RESERVOIR
SITE FORMATION - PLAN
(SHEET 2 OF 2)

Drawing no.		Rev.
219844/GEO/SF062		A
Drawn: AC	Date: 02/2015	Checked: KKY	Approved: DML
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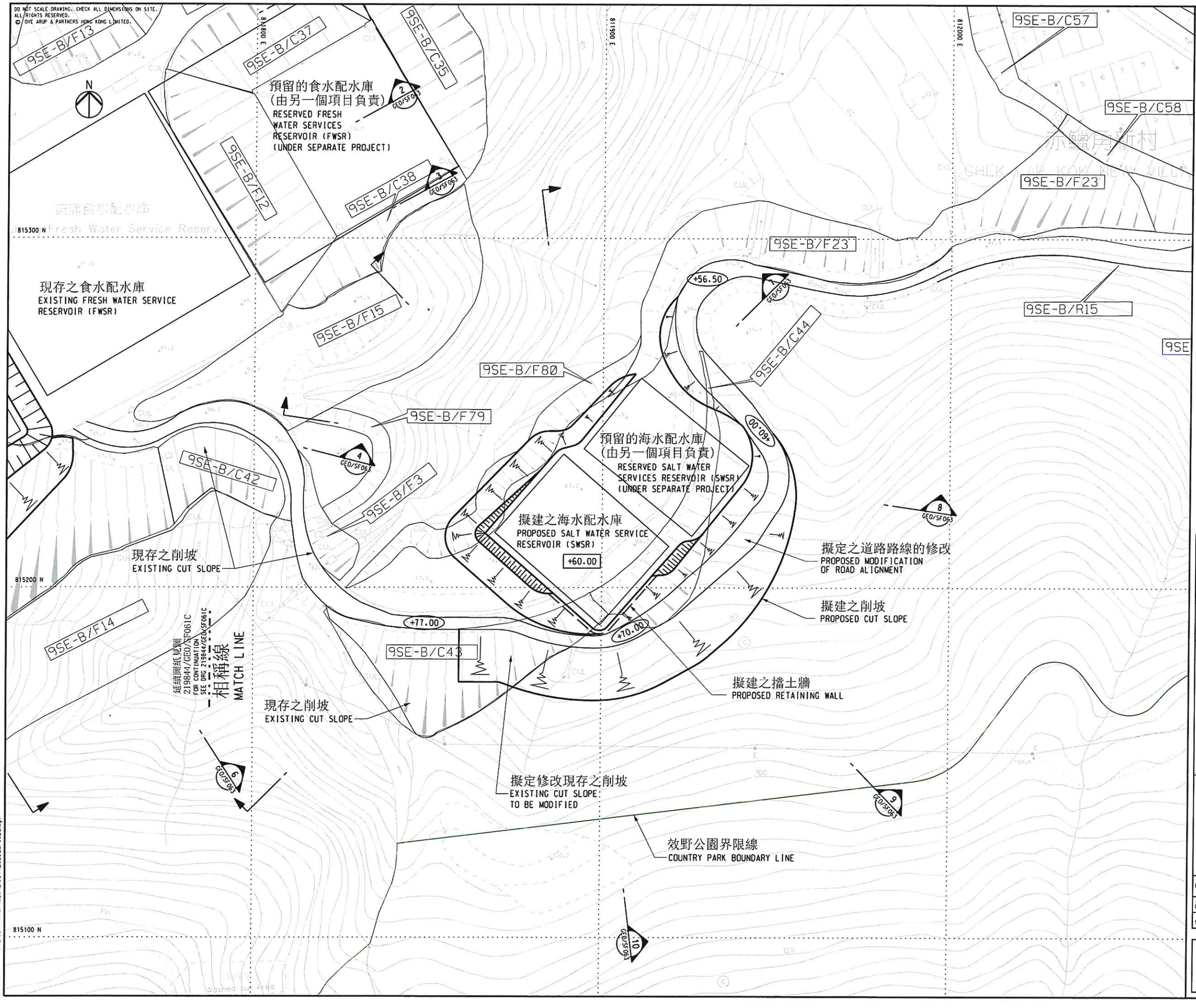

說明

NOTE

1. 圖中顯示擬定之場地平整工程為初步設計，並以項目後階段進一步設計為準。
1. THE PROPOSED SITE FORMATION WORKS ARE SCHEMATIC ONLY AND SHALL BE SUBJECT TO FURTHER DESIGN IN LATER STAGE OF PROJECT.

Rev.	Description	By	Date
A	FIRST ISSUE	BL	03/15

Consultant: ARUP

Project title
顧問研究合約編號 CE32/2011 (CE)
東涌餘下發展計劃的規劃及工程研究 — 可行性研究
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title
配水庫的場地平整工程 - 平面圖
第2頁 (共2頁)
SERVICE RESERVOIR
SITE FORMATION - PLAN
(SHEET 2 OF 2)

Drawing no. 219844/GEO/SF062C			Rev. A
Drawn AC	Date 02/2015	Checked HS	Approved KKY
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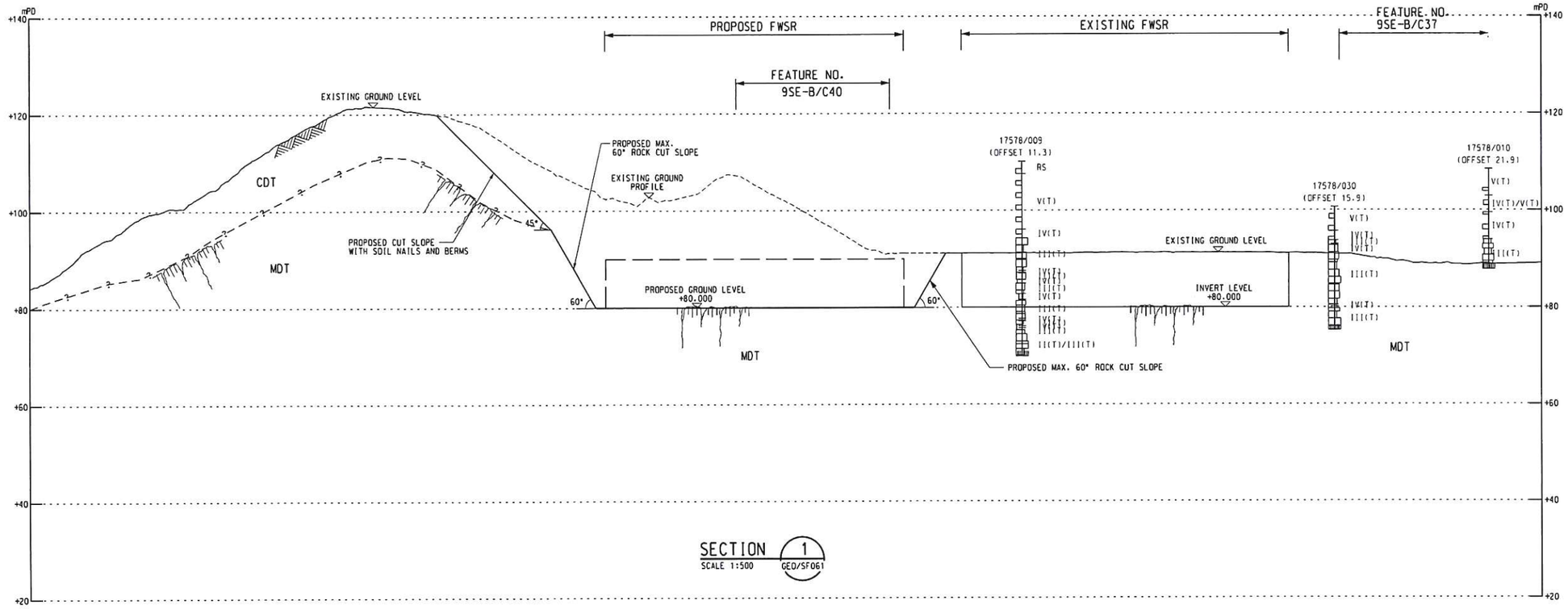

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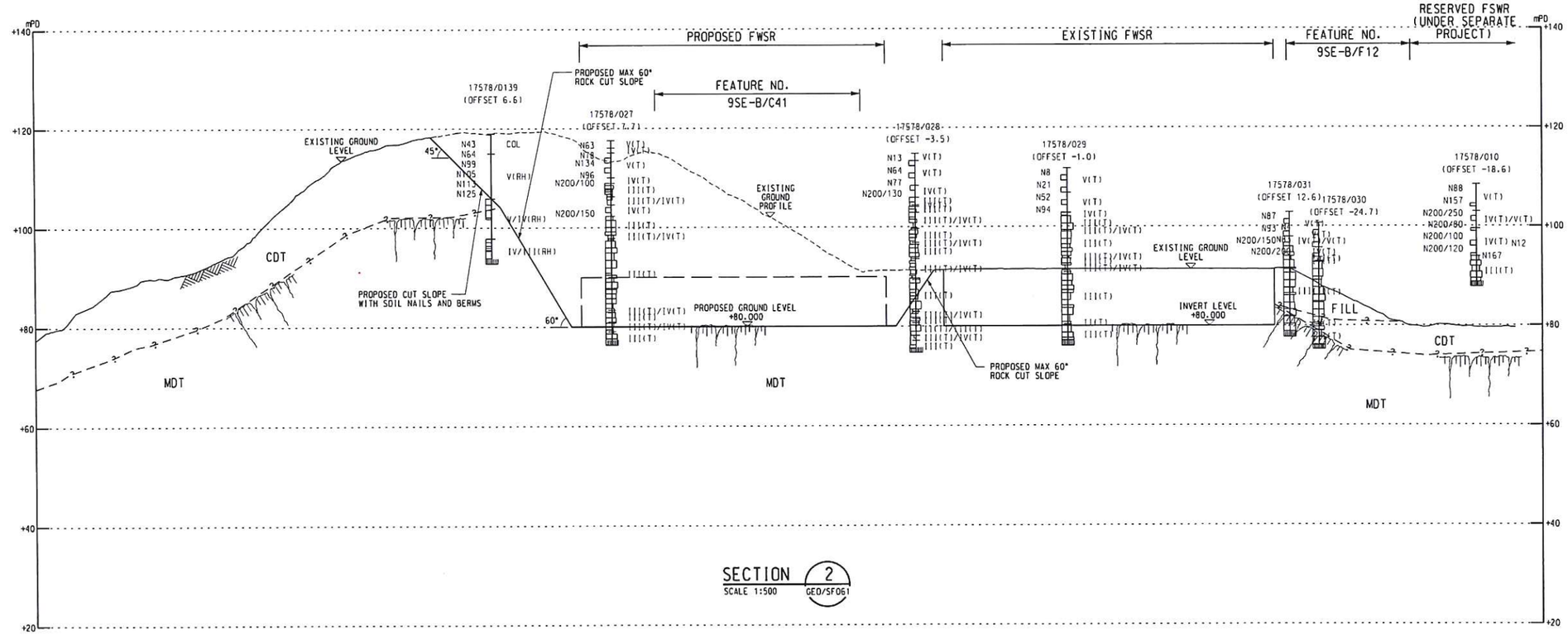

SECTION 2
SCALE 1:500 GEO/SF061

NOTE

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Rev	Description	By	Date
C	THIRD ISSUE	KL	11/15
B	SECOND ISSUE	KL	07/15
A	FIRST ISSUE	BL	03/15

Consultant

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Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SERVICE RESERVOIR
SITE FORMATION - SECTION
SECTION (1 OF 5)

Drawing no.		Rev.
219844/GEO/SF063		C
Drawn: AC	Date: 02/2015	Checked: KKY	Approved: DML
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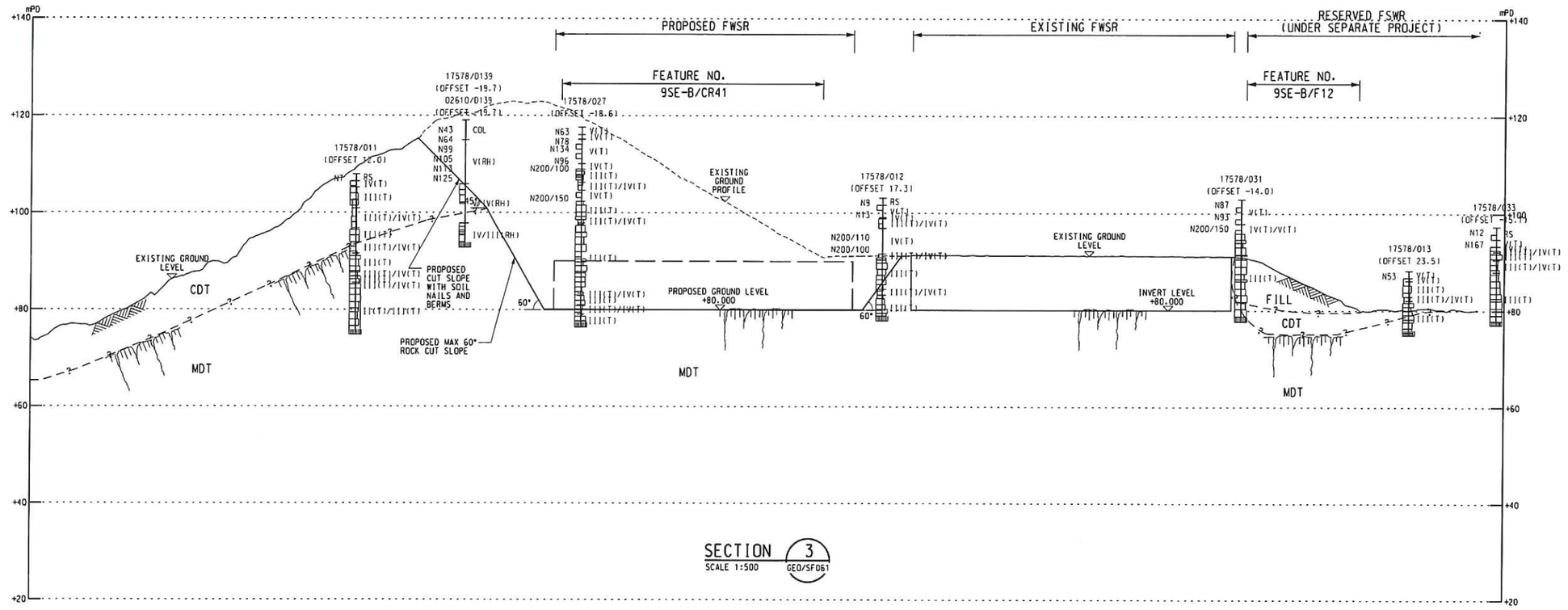

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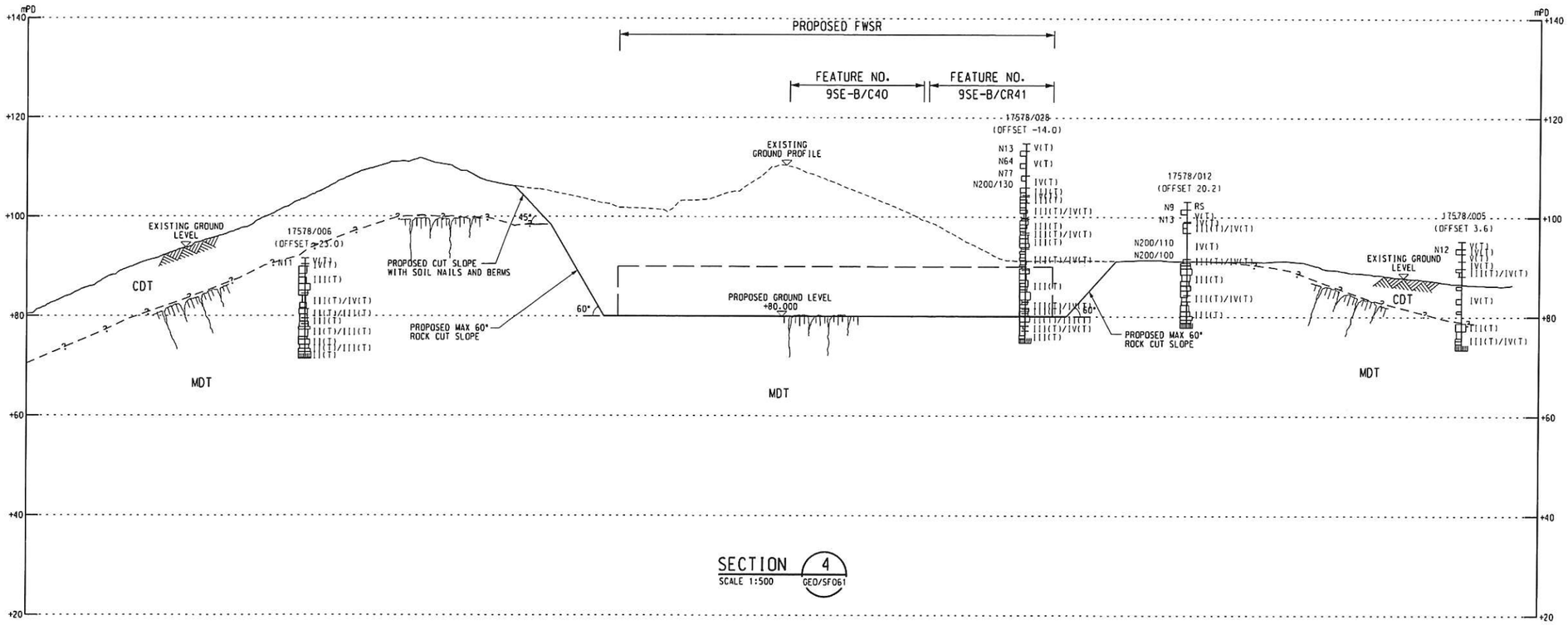

SECTION 4
SCALE 1:500 GEO/SF061

NOTE

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Rev	Description	By	Date
C	THIRD ISSUE	KL	11/15
B	SECOND ISSUE	KL	07/15
A	FIRST ISSUE	BL	03/15

Consultant

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Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SERVICE RESERVOIR
SITE FORMATION - SECTION
SECTION (2 OF 5)

Drawing no.	Rev.
219844/GEO/SF064	C

Drawn	Date	Checked	Approved
AC	02/2015	KKY	DML

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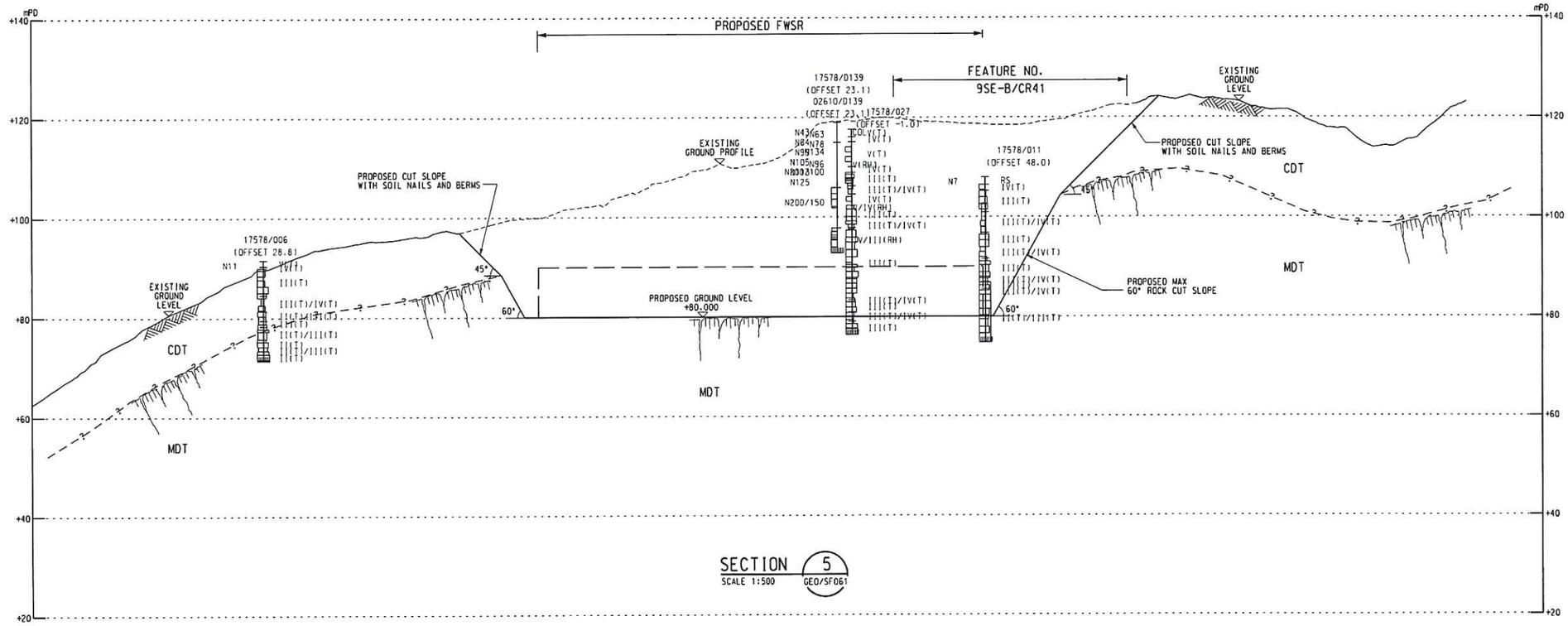

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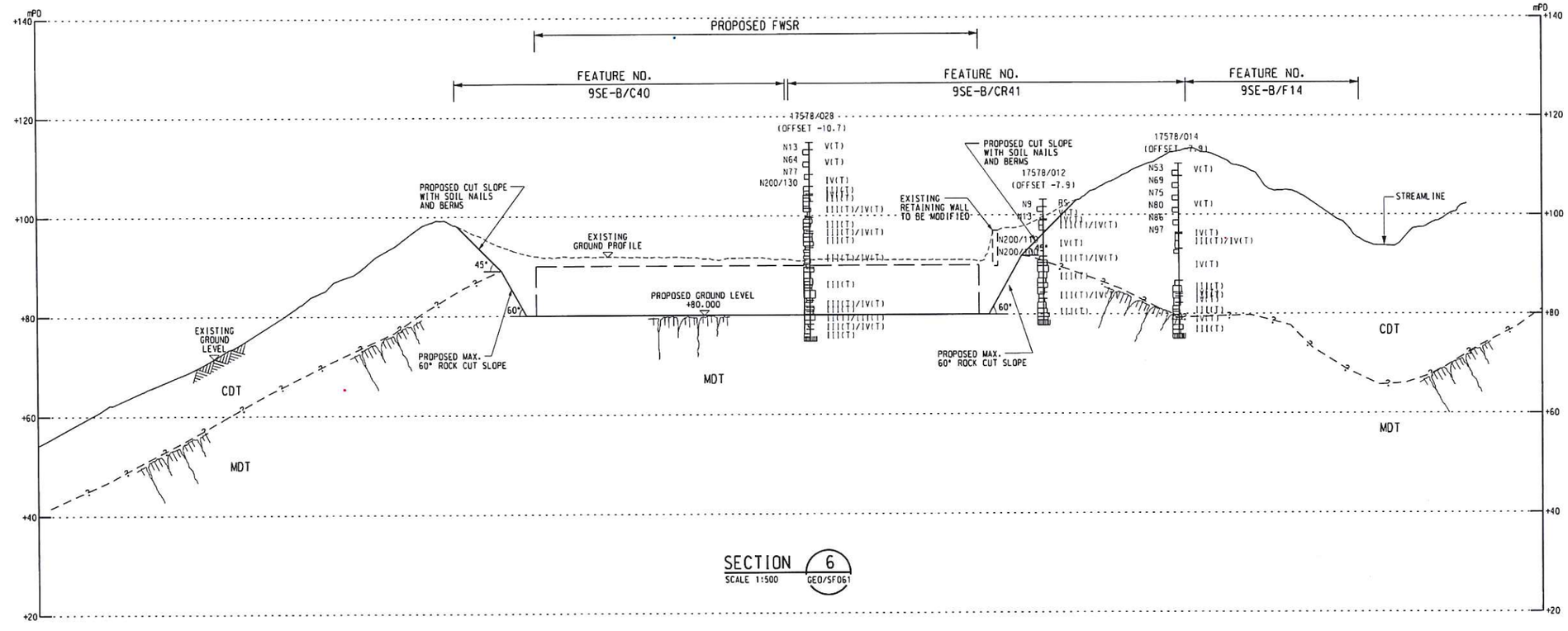

SECTION 6
SCALE 1:500 GEO/SF061

NOTE

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Rev	Description	By	Date
C	THIRD ISSUE	KL	11/15
B	SECOND ISSUE	KL	07/15
A	FIRST ISSUE	BL	03/15

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Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SERVICE RESERVOIR
SITE FORMATION - SECTION
SECTION (3 OF 5)

Drawing no.	Rev.
219844/GEO/SF065	C

Drawn	Date	Checked	Approved
AC	02/2015	KKY	DML

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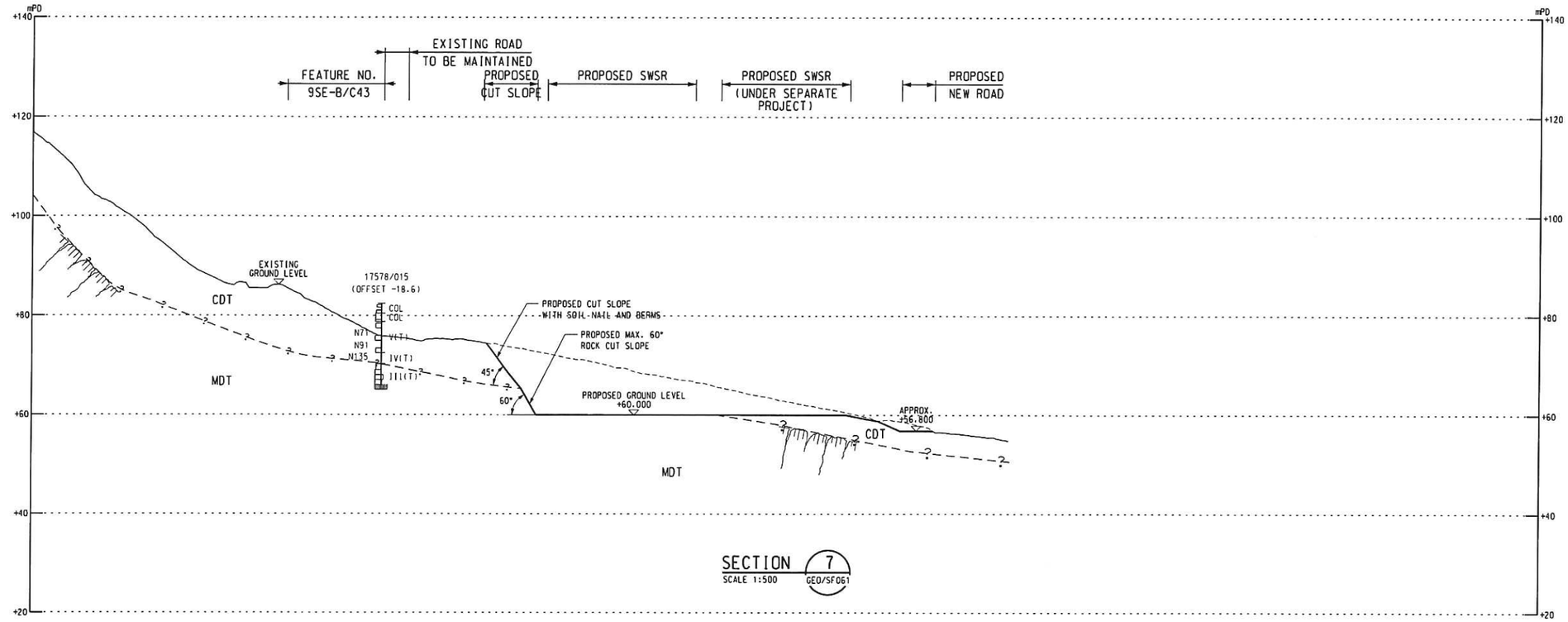

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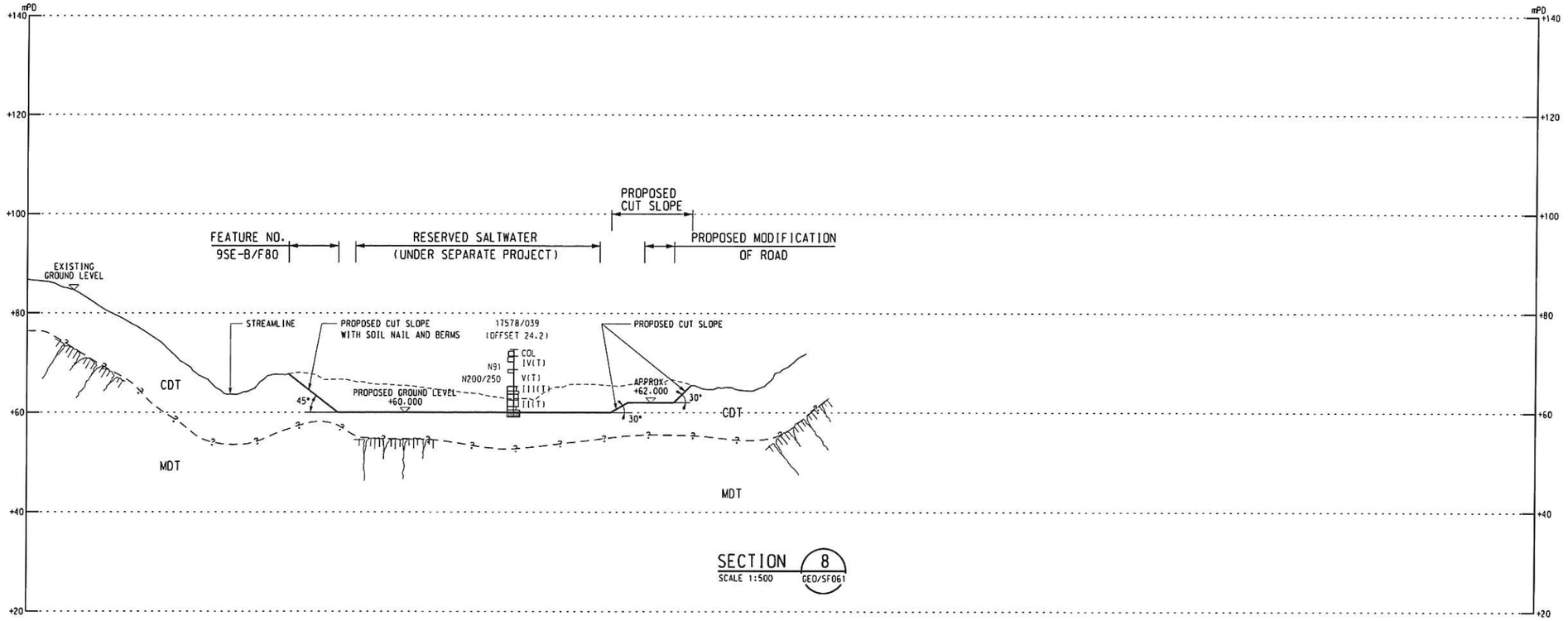
SCALE 1:500 GEO/SF061



SECTION 8
SCALE 1:500 GEO/SF061

NOTE

1. THE PROPOSED SITE FORMATION WORKS ARE SCHEMATIC ONLY AND SHALL BE SUBJECT TO FURTHER DESIGN IN LATER STAGE OF PROJECT.

Rev	Description	By	Date
B	SECOND ISSUE	KL	07/15
A	FIRST ISSUE	BL	03/15

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
SERVICE RESERVOIR
SITE FORMATION - SECTION
SECTION (4 OF 5)

Drawing no.			Rev.
219844/GEO/SF066			B
Drawn: AC	Date: 02/2015	Checked: KKY	Approved: DML
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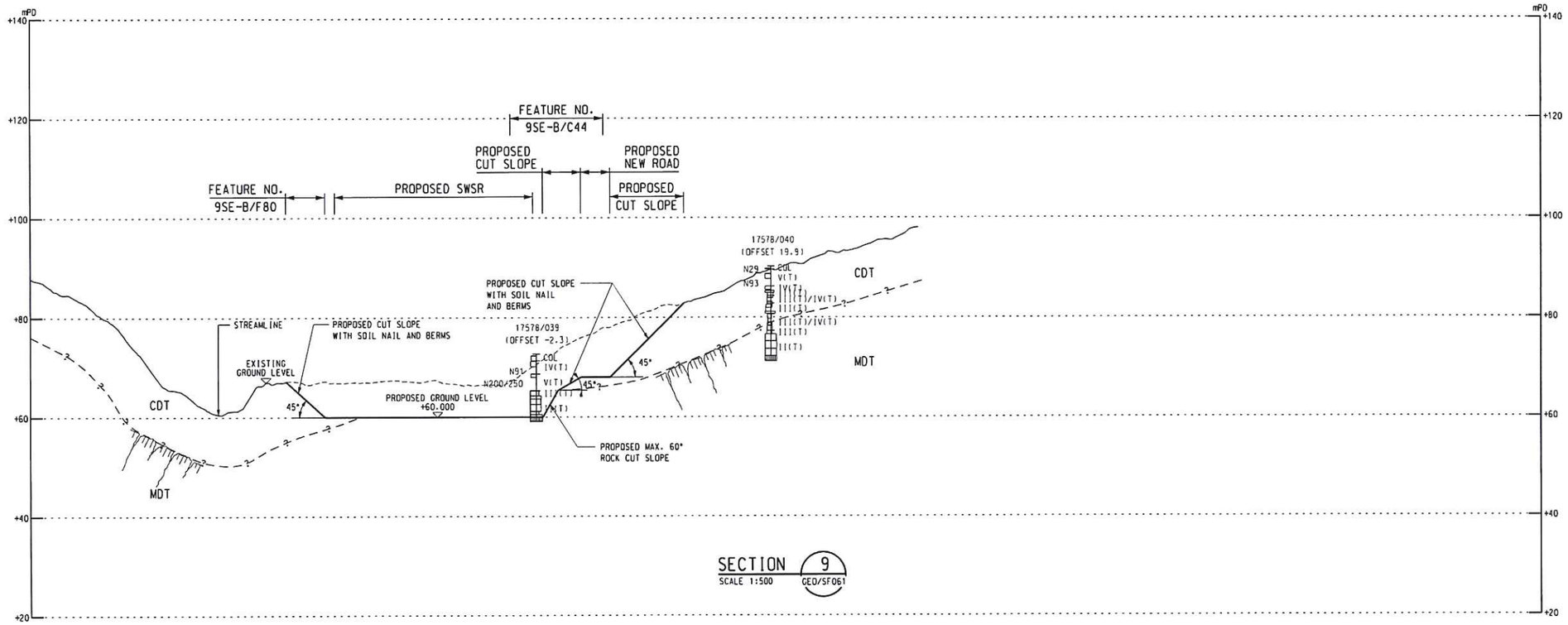
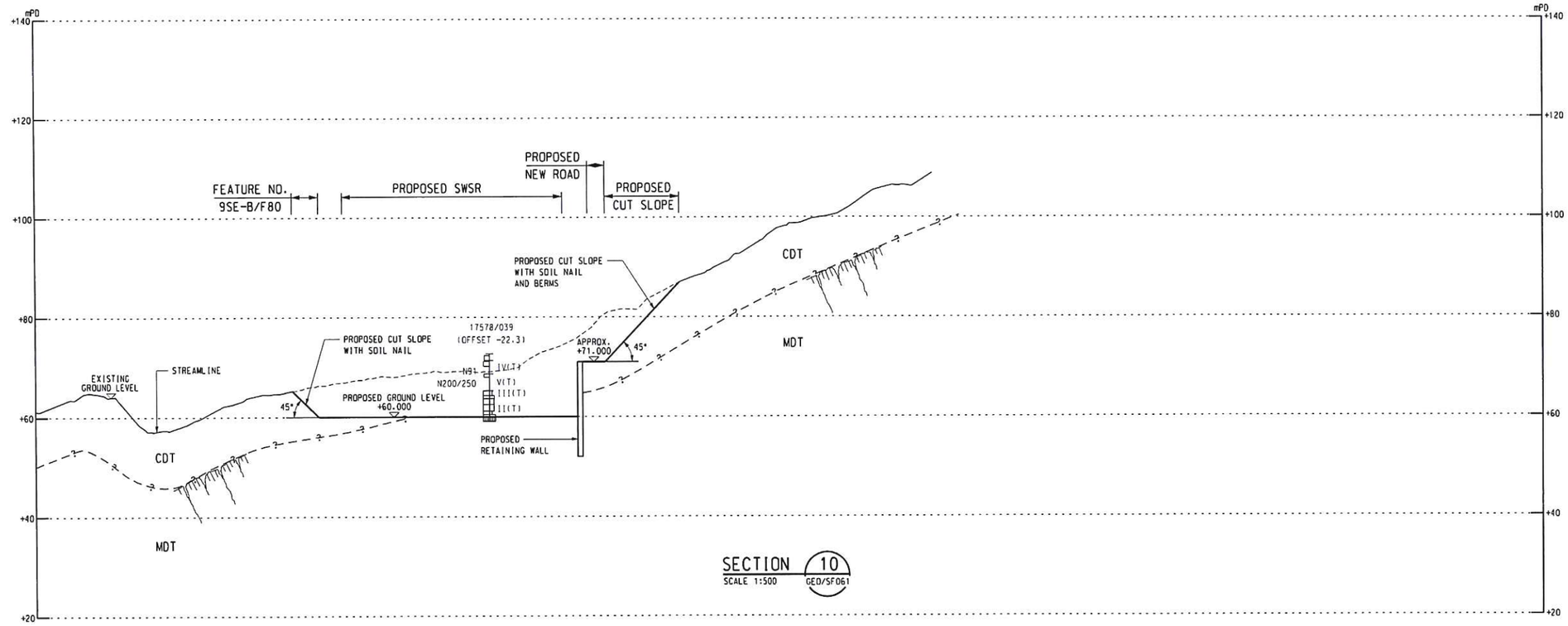


SECTION 9
SCALE 1:500 GEO/SF061



SECTION 10
SCALE 1:500 GEO/SF061

NOTE

1. THE PROPOSED SITE FORMATION WORKS ARE SCHEMATIC ONLY AND SHALL BE SUBJECT TO FURTHER DESIGN IN LATER STAGE OF PROJECT.

Rev	Description	By	Date
B	SECOND ISSUE	KL	07/15
A	FIRST ISSUE	BL	03/15

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
SERVICE RESERVOIR
SITE FORMATION - SECTION
SECTION (5 OF 5)

Drawing no.			Rev.
219844/GEO/SF067			B
Drawn: AC	Date: 02/2015	Checked: KKY	Approved: DML
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HONG KONG INTERNATIONAL AIRPORT

CHEK LAP KOK

SAN TAU

TUNG CHUNG BAY

TUNG CHUNG

TAI HO WAN

SHEK MUN KAP

禾寮墩
WO LIU TUN

北大嶼郊野公園
LANTAU NORTH COUNTRY PARK

PLANNED TMCLK LINK SOUTHERN CONNECTION

SIU HO WAN DEPOT

PLANNED HZMB LINK ROAD

CHEK LAP KOK SOUTH ROAD

TUNG CHUNG WATERFRONT ROAD

YING HEI ROAD

TAI TUNG ROAD

SHUN TUNG ROAD

CHUNG YAN ROAD

YU TUNG ROAD

818000 N

816000 N

814000 N

812000 E

814000 E

816000 E

N

NOTES

1. MAJOR ROAD REFERS TO TRUNK ROAD, PRIMARY DISTRIBUTOR, DISTRICT DISTRIBUTIR OR RURAL ROAD.
2. SECONDARY ROAD REFERS TO LOCAL DISTRIBUTOR, FEEDER ROAD OR BELOW.

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING MAJOR ROAD
- EXISTING SECONDARY ROAD
- PLANNED MAJOR ROAD (BY OTHERS)
- PLANNED SECONDARY ROAD (BY OTHERS)
- PROPOSED MAJOR ROAD
- PROPOSED SECONDARY ROAD
- PROPOSED ROAD P1 TAI HO SECTION & TAI HO INTERCHANGE

Rev	Description	By	Date
A	DRAFT TP23B	LFM	11/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SCHEMATIC ROAD NETWORK
IN TUNG CHUNG

Drawing no.			Rev.
219844/HY/0001			A
Drawn	Date	Checked	Approved
MAN	05/2014	KKY	DML
Scale	1:10000 @ A1 1:20000 @ A3	Status	PRELIMINARY

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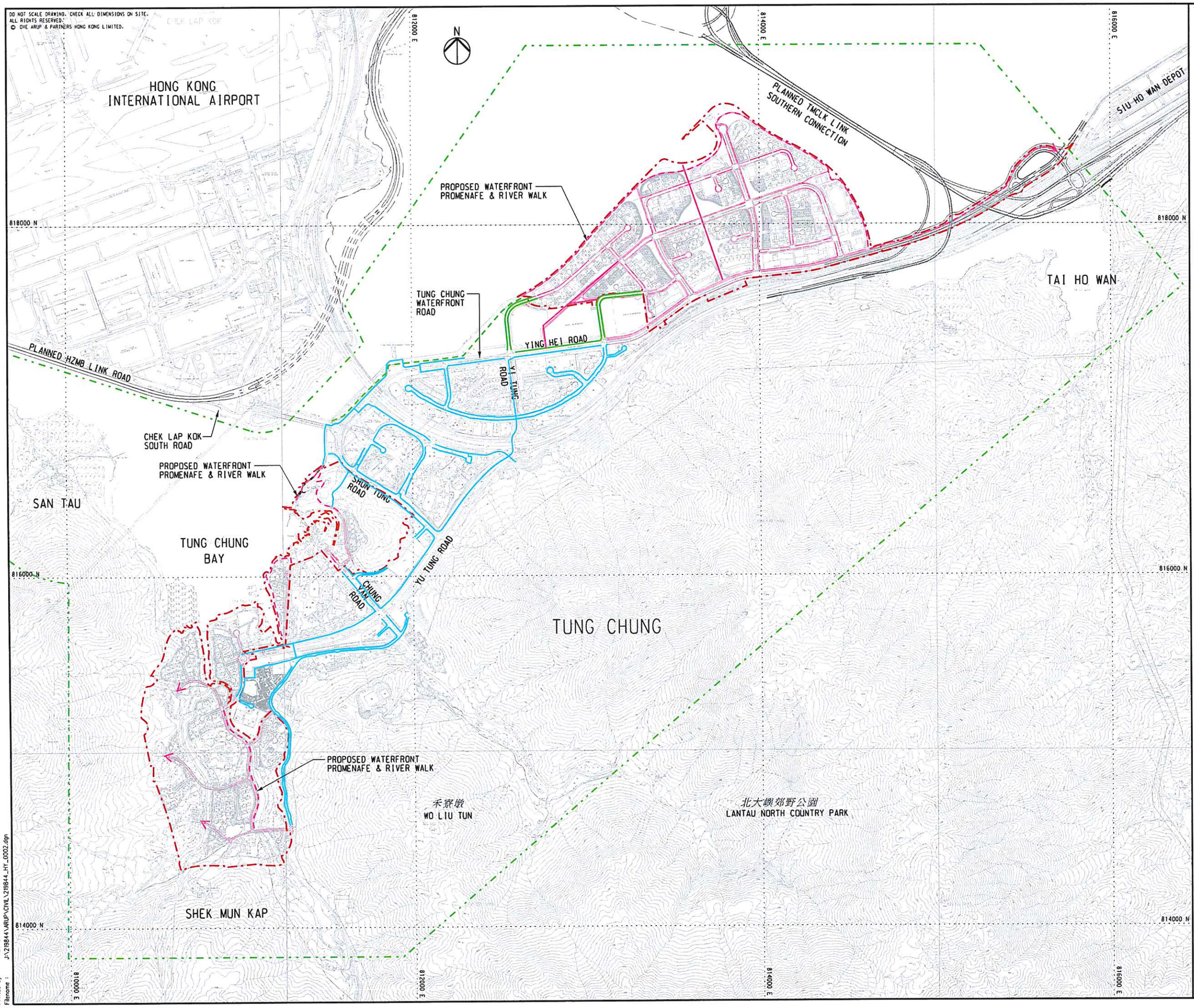

NOTES

1. MAJOR ROAD REFERS TO TRUNK ROAD, PRIMARY DISTRIBUTOR, DISTRICT DISTRIBUTIR OR RURAL ROAD.
2. SECONDARY ROAD REFERS TO LOCAL DISTRIBUTOR, FEEDER ROAD OR BELOW.

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING WALKWAY
- PLANNED WALKWAY (BY OTHERS)
- PLANNED WATERFRONT PROMENADE (BY OTHERS)
- PROPOSED WALKWAY
- PROPOSED WATERFRONT PROMENADE & RIVER WALK

Rev	Description	By	Date
A	DRAFT TP23B	LFM	11/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SCHEMATIC WALKWAY NETWORK
IN TUNG CHUNG

Drawing no.			Rev.
219844/HY/0002			A
Drawn	Date	Checked	Approved
MAN	05/2014	KKY	DML
Scale	1:10000 @ A1 1:20000 @ A3	Status	PRELIMINARY

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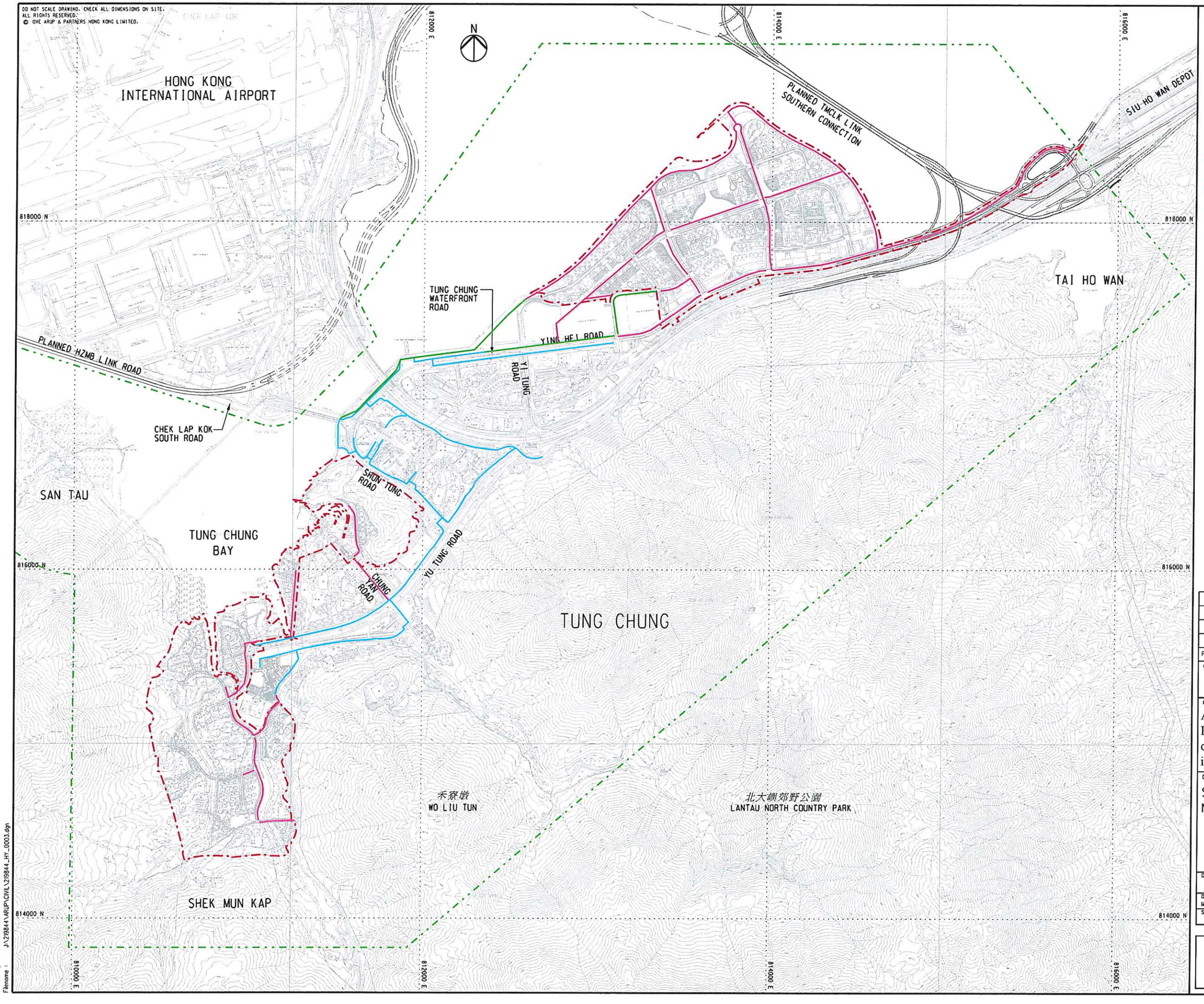

NOTES

1. MAJOR ROAD REFERS TO TRUNK ROAD, PRIMARY DISTRIBUTOR, DISTRICT DISTRIBUTIR OR RURAL ROAD.
2. SECONDARY ROAD REFERS TO LOCAL DISTRIBUTOR, FEEDER ROAD OR BELOW.

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING CYCLE TRACK
- PLANNED CYCLE TRACK (BY OTHERS)
- PROPOSED CYCLE TRACK

Rev	Description	By	Date
A	DRAFT TP23B	LFM	11/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SCHEMATIC CYCLE TRACK
NETWORK IN TUNG CHUNG

Drawing no.	Rev.
219844/HY/0003	A

Drawn	Date	Checked	Approved
MAN	05/2014	KKY	DML

Scale: 1:10000 @ A1, 1:20000 @ A3
Status: PRELIMINARY

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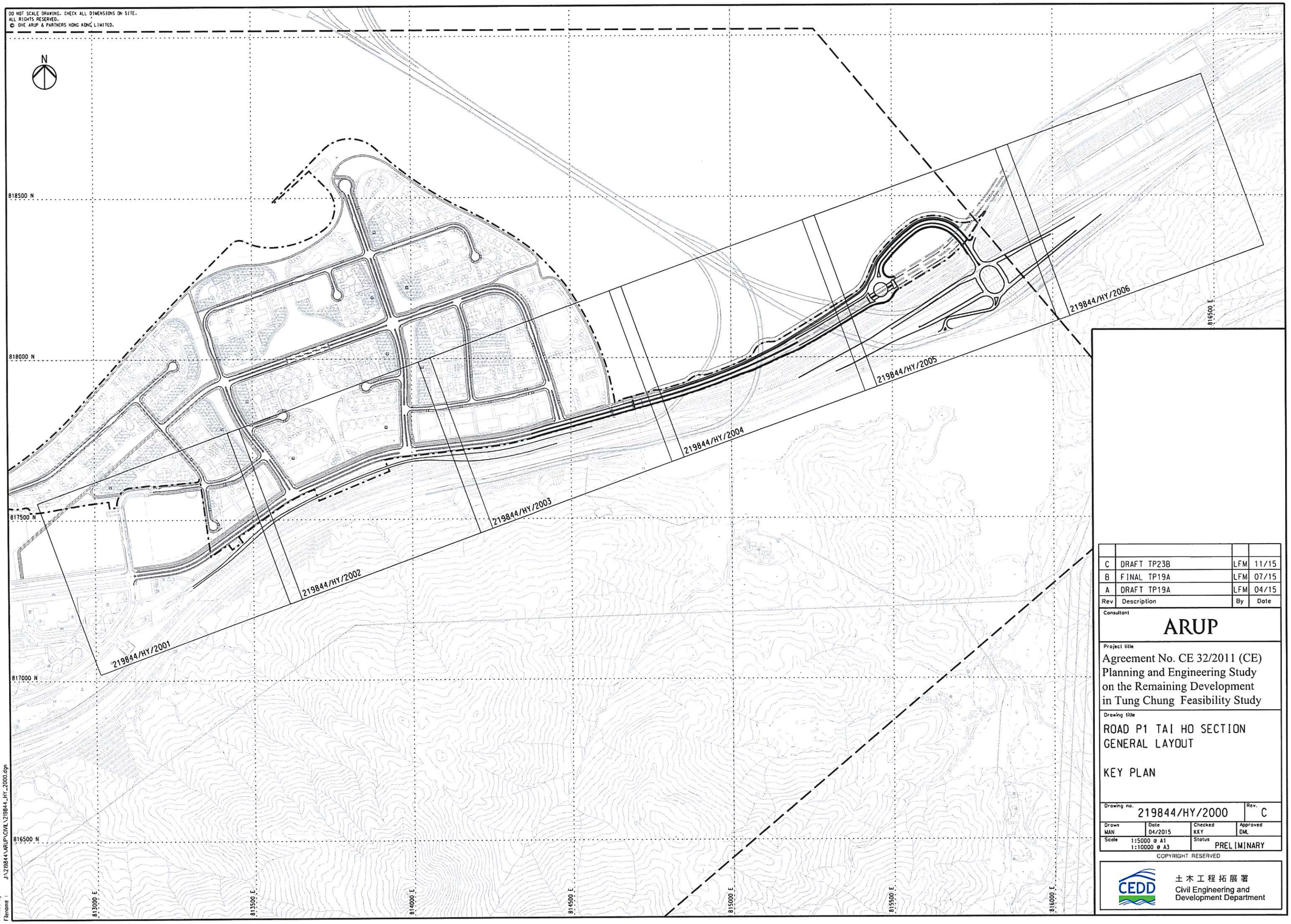

Rev	Description	By	Date
C	DRAFT TP23B	LFM	11/15
B	FINAL TP19A	LFM	07/15
A	DRAFT TP19A	LFM	04/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

ROAD P1 TAI HO SECTION
GENERAL LAYOUT

KEY PLAN

Drawing no.			Rev.
219844/HY/2000			C
Drawn: MAN	Date: 04/2015	Checked: KKY	Approved: DML
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N

819000 N
818500 N
818000 N
817500 N
817000 N

812000 E
812500 E
813000 E
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219844/HY/3001
219844/HY/3002
219844/HY/3003
219844/HY/3004
219844/HY/3005
219844/HY/3006
219844/HY/3007
219844/HY/3008

Rev	Description	By	Date
C	DRAFT TP23B	LFM	11/15
B	FINAL TP19A	LFM	07/15
A	DRAFT TP19A	LFM	04/15

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
TUNG CHUNG EAST INTERNAL ROAD
GENERAL LAYOUT

KEY PLAN

Drawing no. 219844/HY/3000 Rev. C

Drawn	Date	Checked	Approved
MAN	04/2015	KKY	DML

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Status PRELIMINARY

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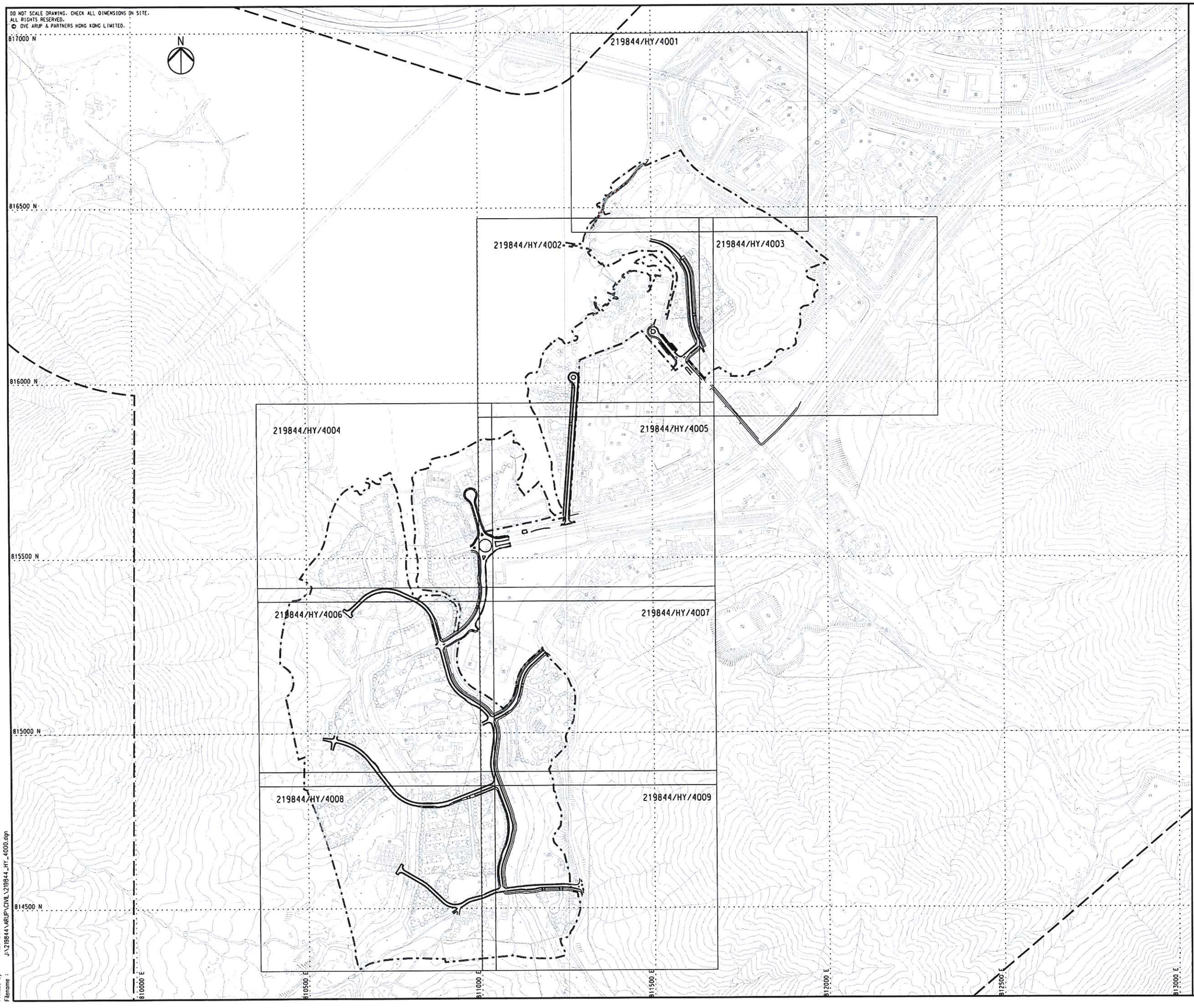

Rev	Description	By	Date
C	DRAFT TP23B	LFM	11/15
B	FINAL TP19A	LFM	07/15
A	DRAFT TP19A	LFM	04/15

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

TUNG CHUNG WEST INTERNAL ROAD
GENERAL LAYOUT

KEY PLAN

Drawing no.			Rev.
219844/HY/4000			C
Drawn	Date	Checked	Approved
MAN	04/2015	KKY	DML
Scale	1:5000 @ A1 1:10000 @ A3	Status	PRELIMINARY

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Figures

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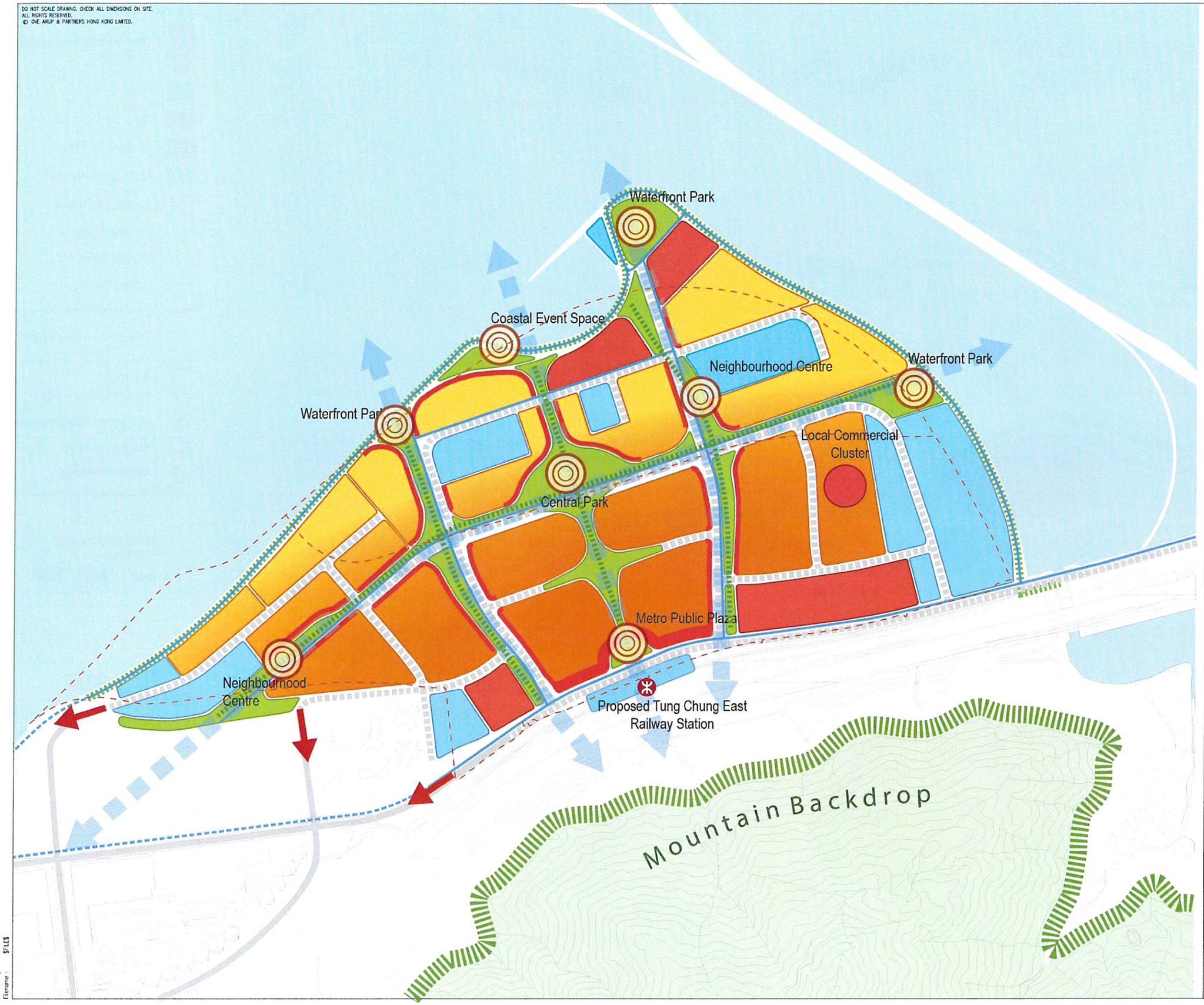

Legend

- Residential Development Intensity (high – low)
- G/IC
- Commercial Area
- Open Space Network
- Proposed Road
- Existing Road
- Proposed Cycling Route
- Existing Cycling Route
- Key Pedestrian Route
- Major Breezeway/ View Corridor
- Key Vehicular Linkage with Existing Centre
- Activity Node
- Railway Station
- PNTEA Boundary

N

0 50 100 150 200 250

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

Urban Design Concept

Drawing no.			Rev.
Figure 4.3.1			
Drawn CR/JH	Date Nov 2015	Checked	Approved
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Lantau North (Extension) Country Park

Mountain Backdrop

Nim Yuen

Lam Che

Ngau Au

Mok Ka

Lo Hon Monastery

Shek Lau Po

Shek Mun Kap

Shek Mun Kap Entrance Gate

Tung Chung Bay

Hau Wong Temple

Sha Tsui Tau

Area 39 Public Rental Housing Site

Waterfront Promenade

Proposed TCW Railway Station

Tung Chung Fort

Tung Chung Battery

Fu Tei Wan Kiln

Ma Wan Chung

Yat Tung Estate

Tung Chung Game Board Carving

Wong Nai Uk

Town Park

Yat Tung Road

Mountain Backdrop

Lantau North (Extension) Country Park

Tung Chung Centre District

Legend

- Residential Development Intensity (high – low)
- G/IC
- OU
- Commercial Area
- Open Space Network
- Existing Open Space
- Proposed Road
- Existing Road
- Cycling Route
- Key Pedestrian Route
- Breezeway/ View Corridor
- Conservation Corridor/ Riverpark
- Key Vehicular Linkage
- Village-type Development
- Activity Node
- Cultural Heritage
- Site of Archaeological Interest
- PNTEA Boundary

TUNG CHUNG WEST
1:7,500 on A3

N 0 50 100 150 200 250

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
Urban Design Concept

Drawing no.			Rev.
Figure 4.3.2			
Drawn: CR/JH	Date: Nov 2015	Checked	Approved
Scale: 1:7,500		Status	

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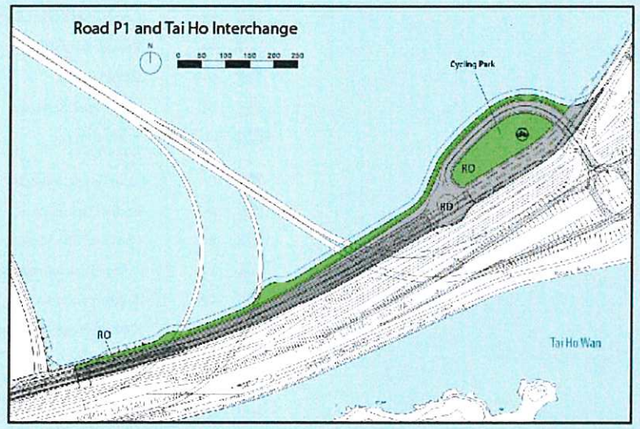

Boatyard and Maintenance Area
Other School Use
Police Married Quarters
Post Secondary Institution
Salt Water Pumping Station
Sewage Pumping Station
Refuse Collection Point
Substation
Proposed TCE Railway Station
Sewage Pumping Station
Tai Ho Wan
North Lantau (Extension) Country Park
Tung Chung Centre District

Legend

	RS	Special Residential (PR 5-6.5)
	R1	Residential 1 (PR 6.5)
	R2	Residential 2 (PR 5)
	R3	Residential 3 (PR 2.5-3.5)
	G	Government
	E	Educational
	OU	Other Specified Uses
	CDA	Comprehensive Development area
	C	Commercial (PR 3-9.5)
	DO	District Open Space
	RO	Regional Open Space
	RD	Proposed Road
	NBA	Non-Building Area
		Local Commercial Podium
		Maximum Building Height (mPD)
		Maximum Building Height (Storeys)
		District Police Station
		Fire Station
		Secondary School
		Primary School
		General Clinic / Health Centre
		Sports Grounds
		Sports Centre
		Public Transport Interchange
		Public Toilets
		Petrol Filling Station
		Social Welfare Facility
		Kindergarten
		Cycle Parking Area

N 0 50 100 150 200 250

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
Revised Recommended Outline Development Plan

Drawing no.		Rev.
Figure 4.3.3		
Drawn: CR/JH	Date: Oct 2015	Checked / Approved
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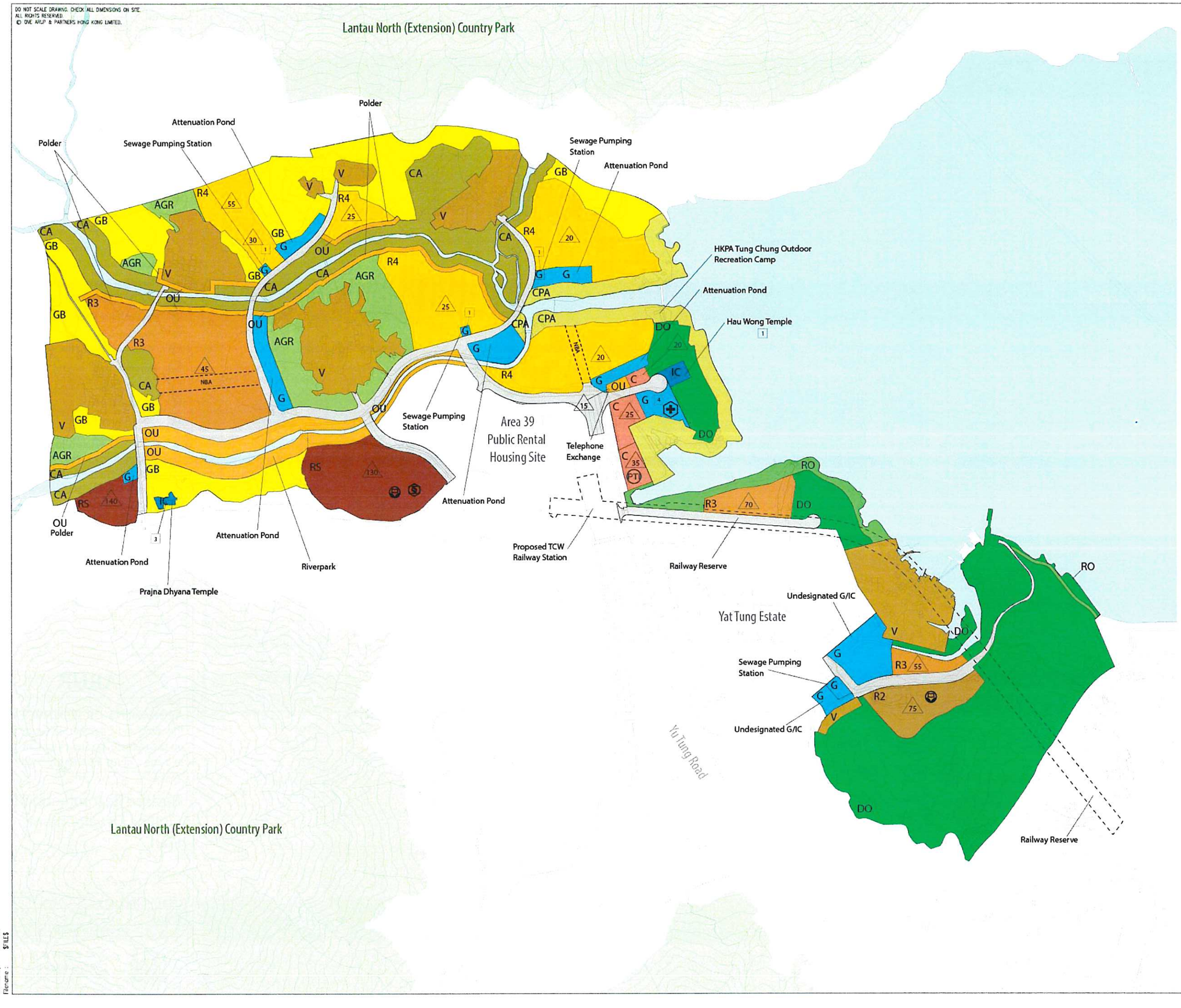

Legend

RS	Residential Special (PR 5-6)
R2	Residential 2 (PR 4)
R3	Residential 3 (PR 1.5-3.5)
R4	Residential 4 (PR 1)
G	Government
OU	Other Specified Uses
IC	Institution and Community
C	Commercial (PR 2-3)
DO	District Open Space
RO	Regional Open Space
V	Village Development Area
CA	Conservation Area
CPA	Coastal Protection Area
AGR	Agriculture
GB	Green Belt
RD	Proposed Road
NBA	Non-Building Area
15	Maximum Building Height (mPD)
1	Maximum Building Height (Storeys)
	General Clinic / Health Centre
	Sports Centre
PT	Public Transport Interchange
	Social Welfare Facility
	Kindergarten

TUNG CHUNG WEST
1:7,500 on A3

N 0 50 100 150 200 250

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
Revised Recommended Outline Development Plan

Drawing no.		Rev.
Figure 4.3.4		
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Legend

N

0 50 100 150 200 250

Rev	Description	By	Date

Consultant

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Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

Site Number Plan

Drawing no.			Rev.
Figure 4.3.5			
Drawn: CR/JH	Date: Oct 2015	Checked	Approved
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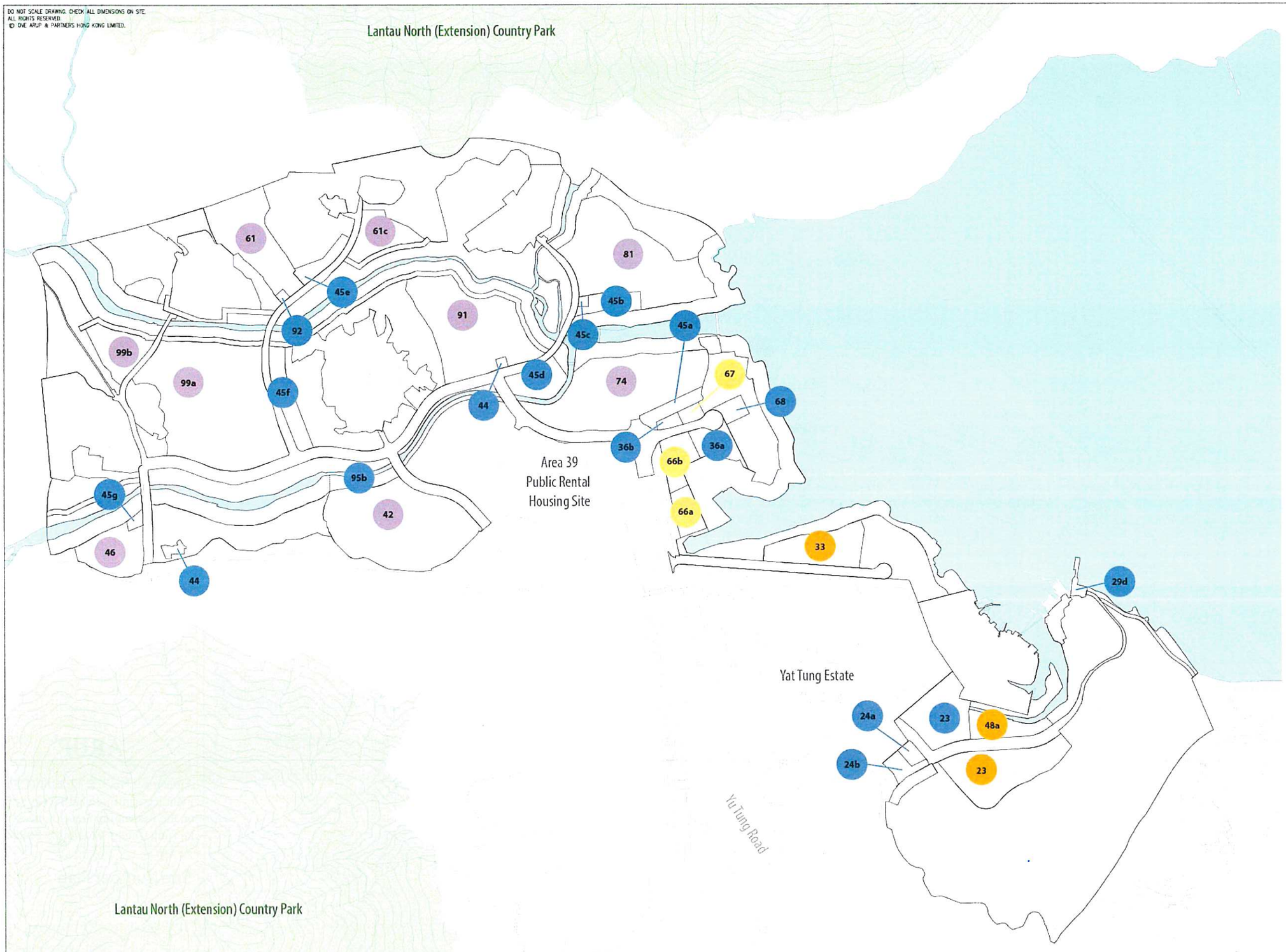

Legend

TUNG CHUNG WEST
1:7,500 on A3

N 0 50 100 150 200 250

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
Site Number Plan

Drawing no.			Rev.
Figure 4.3.6			
Drawn: CR/JH	Date: Oct 2015	Checked	Approved
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Legend

- Regional Commercial Program
- Local Commercial Program
- Commercial Route

N

0 50 100 150 200 250

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

Commercial Program

Drawing no.			Rev.
Figure 4.3.7			
Drawn: CR/JH	Date: Oct 2015	Checked	Approved
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Lantau North (Extension) Country Park

Commercial Cluster close to Metro Station

Area 39
Public Rental Housing Site

Yat Tung Estate

Yu Tung Road

Lantau North (Extension) Country Park

Legend

Local Commercial Program

TUNG CHUNG WEST
1:7,500 on A3

N 0 50 100 150 200 250

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

Drawing no.			Rev.
Figure 4.3.8			
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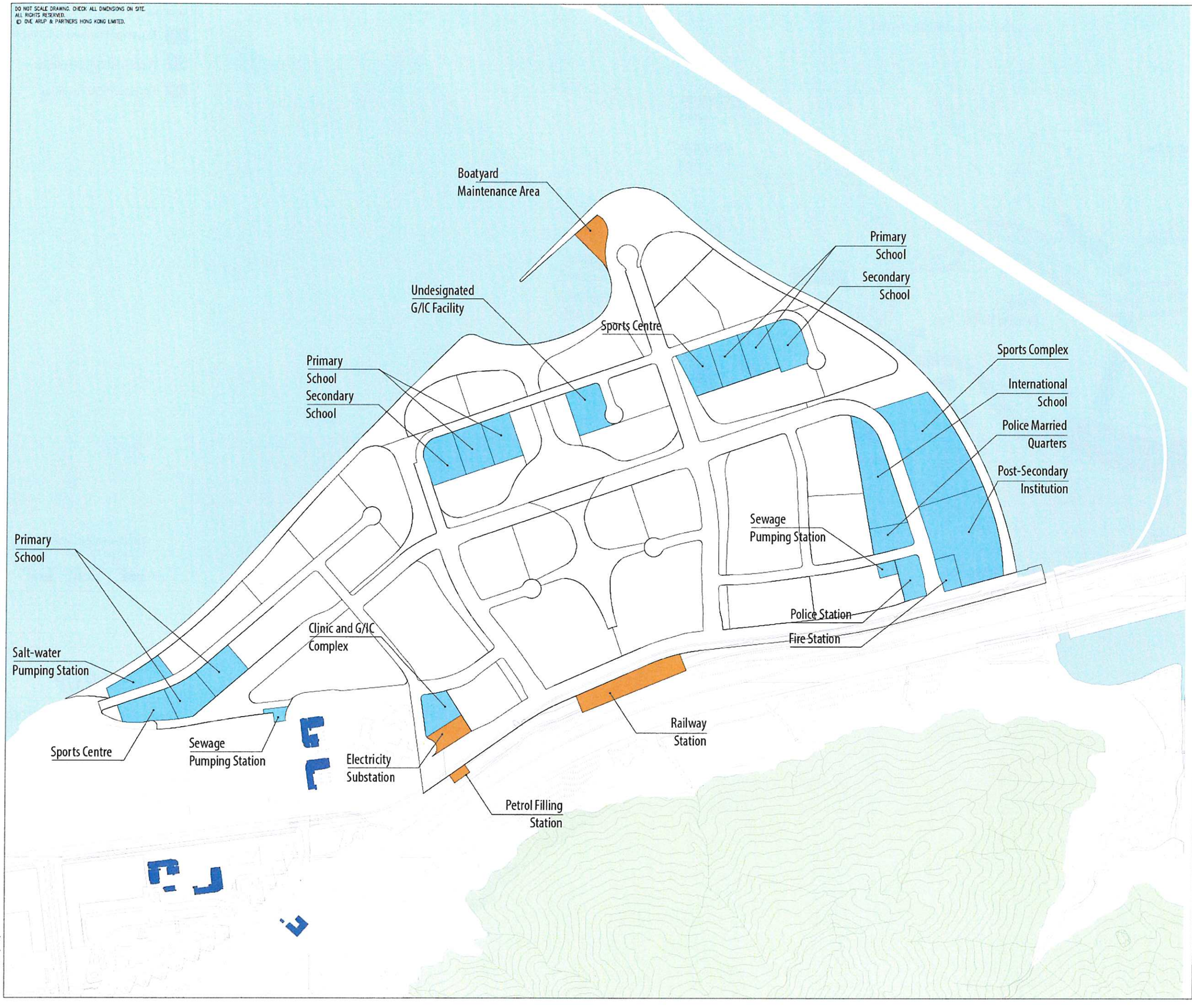

Legend

- Existing/ Planned G/IC Facilities
- Proposed G/IC Facilities
- OU Facility

N

0 50 100 150 200 250

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

G/IC and Utility Facilities

Drawing no.			Rev.
Figure 4.4.1			
Drawn: CR/JH	Date: Oct 2015	Checked	Approved
Scale: 1:7,500		Status	

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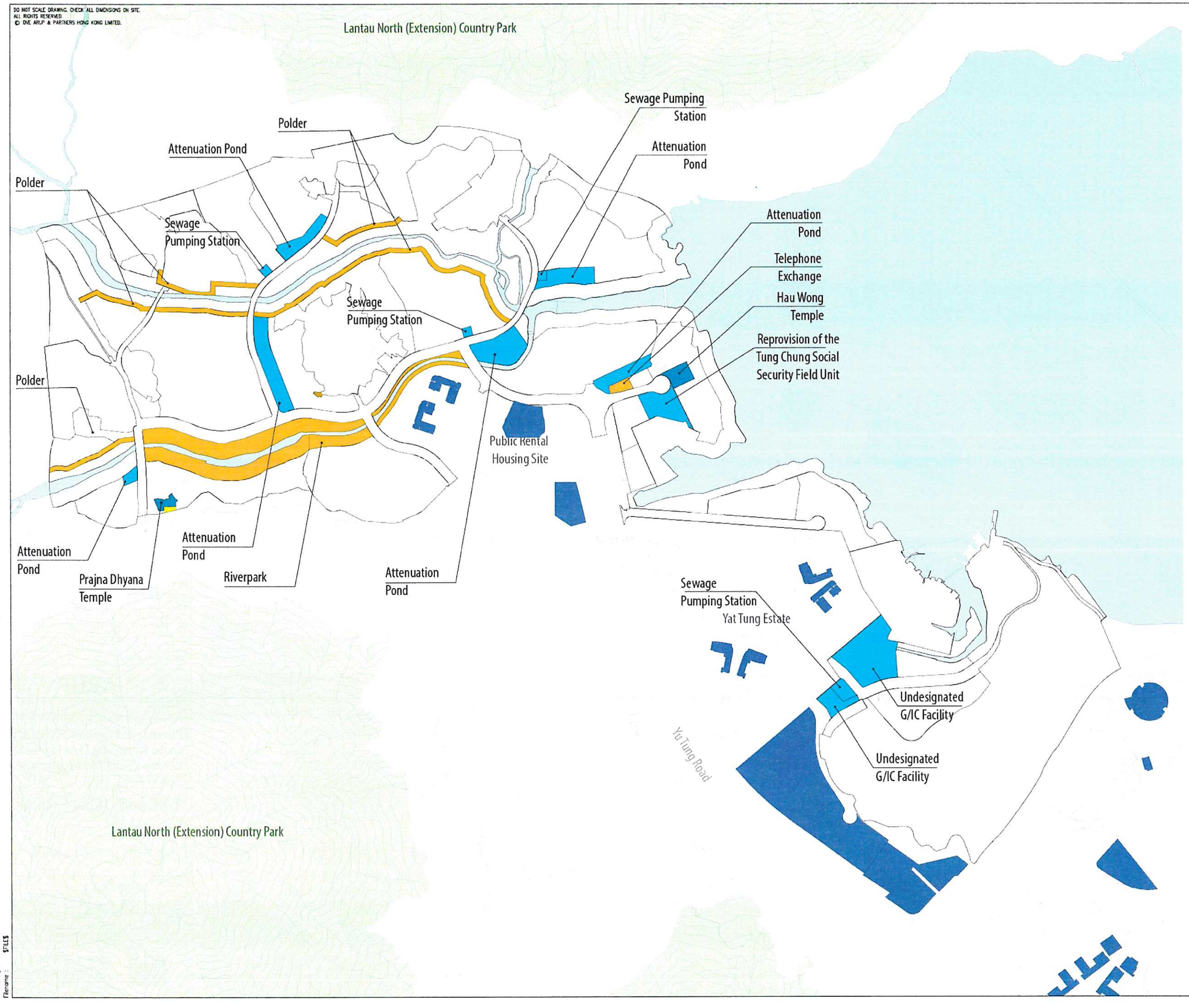

Legend

- Existing/ Planned G/IC Facilities
- Proposed G/IC Facilities
- Proposed OU Facilities

TUNG CHUNG WEST
1:7,500 on A3

N 0 50 100 150 200 250

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

G/IC and Utility Facilities

Drawing no.			Rev.
Figure 4.4.2			
Drawn: CR/JH	Date: Oct 2015	Checked	Approved
Scale: 1:7,500		Status	

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Legend

- Study Site
- Existing G/IC Facilities
- New Proposed G/IC Facilities
- New Proposed OU Facilities
- Planned G/IC Facilities
- Existing Open Space
- Existing Open Space Facilities
- Planned Open Space
- New Proposed Open Space

TUNG CHUNG

N 0 100 200 300 500 600m

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

G/IC Facilities

Drawing no.		Rev.
Figure 4.4.3		
Drawn: CR/JH	Date: Nov 2015	Checked / Approved
Scale: not to scale	Status	

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Legend

- Regional Open Space (proposed)
- Regional Open Space (planned)
- District Open Space (proposed)
- District Open Space (existing)
- Metro Core Public Plaza
- Planned/ Existing LO
- Vegetated Mountain Backdrop

N

0 50 100 150 200 250

Rev	Description	By	Date

Consultant

ARUP

Project title: TCE - Open Space Network
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title:

Open Space Network

Drawing no.			Rev.
Figure 4.4.4			
Drawn: CR/JH	Date: Oct 2015	Checked	Approved
Scale: 1:7,500		Status	

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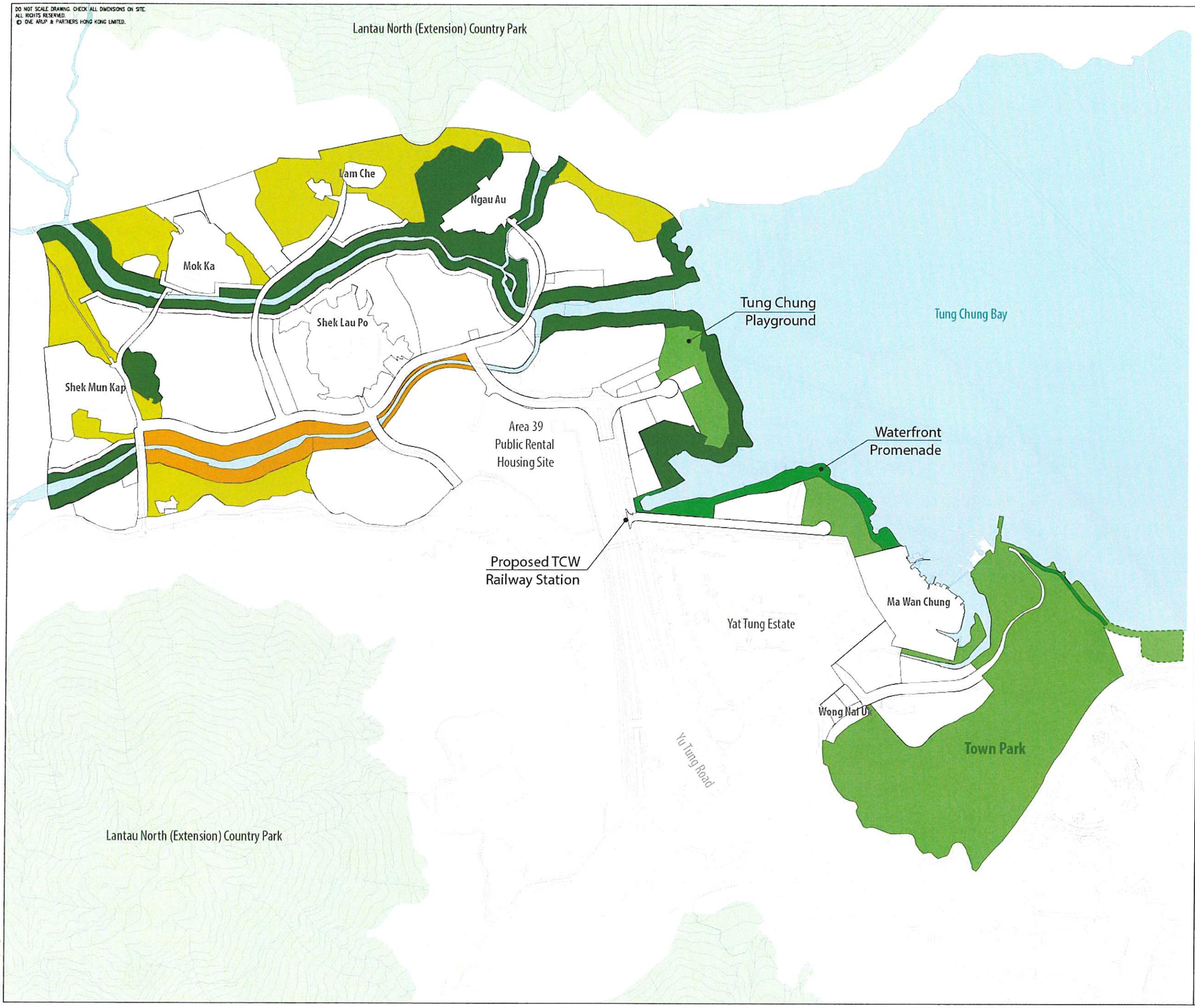

Legend

- Regional Open Space
- District Open Space (proposed)
- District Open Space (existing)
- Green Belt
- Conservation Area and Coastal Protection Area
- River Park
- Vegetated Mountain Backdrop

TUNG CHUNG WEST
1:7,500 on A3

N 0 50 100 150 200 250

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
Open Space Network

Drawing no.		Rev.
Figure 4.4.5		
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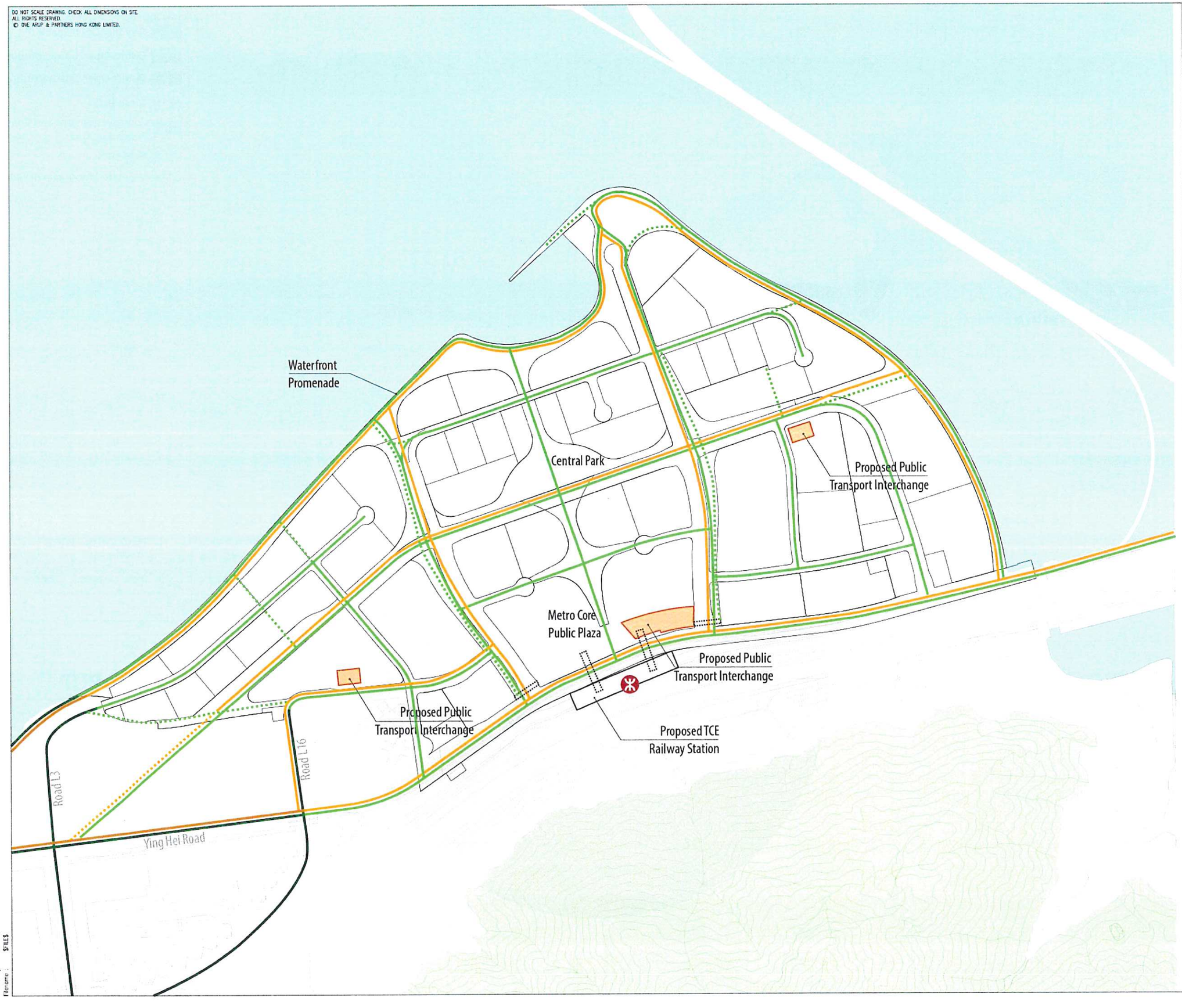

Legend

- Proposed Key Pedestrian Route
- Proposed Secondary Pedestrian Route
- Existing/ Planned Pedestrian Route
- Proposed Cycling Route
- Possible Cycling Route
- Existing/ Planned Cycling Route
- Railway Station
- 500m radius from Railway Station
- Public Transport Interchange
- Proposed Footbridge

N

0 50 100 150 200 250

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

Pedestrian and Cycling Network

Drawing no		Rev.
Figure 4.4.6		
Drawn: CR/JH	Date: Nov 2015	Checked / Approved
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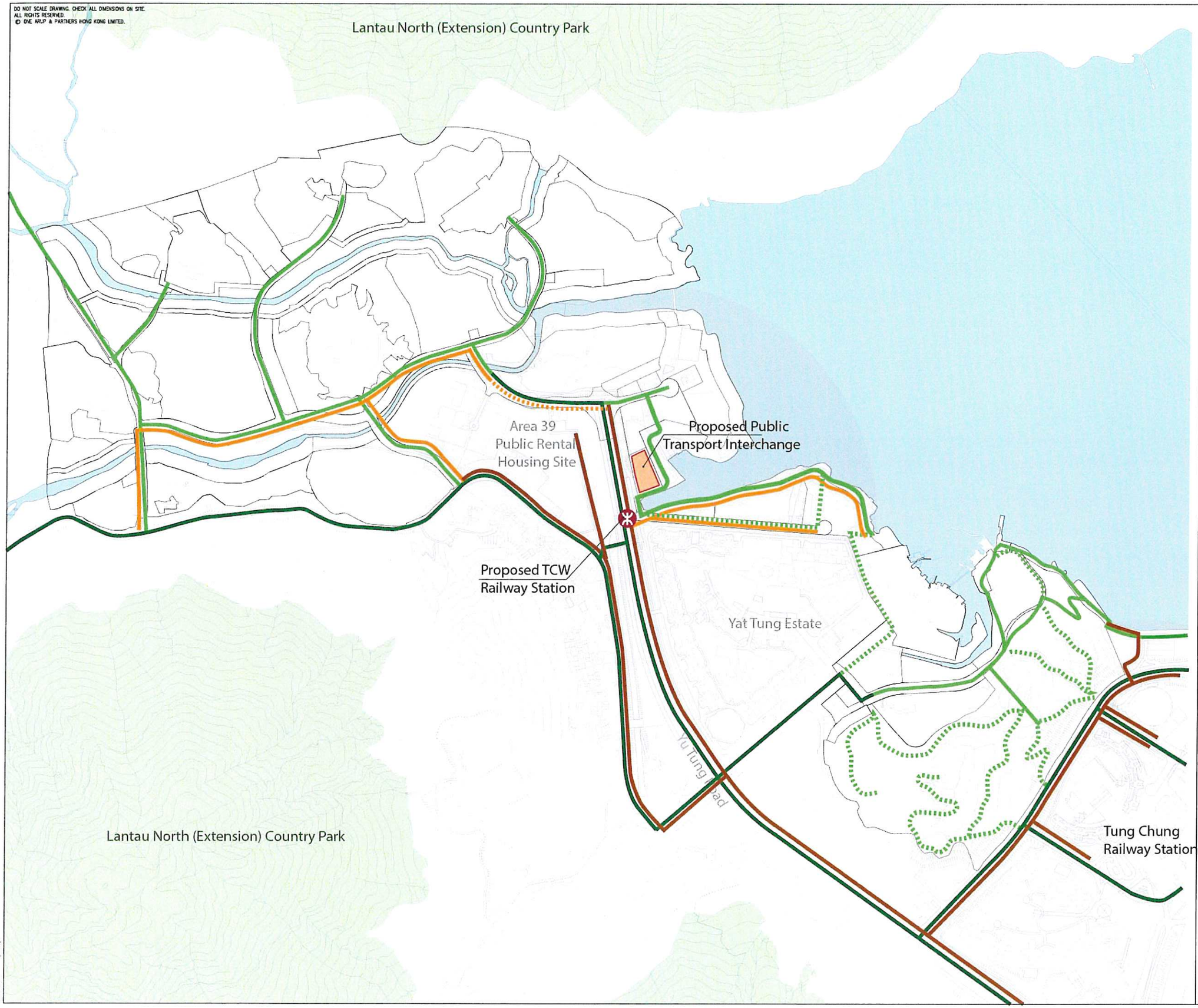

Legend

- Proposed Key Pedestrian Route
- Proposed Secondary Pedestrian Route
- Existing/ Planned Pedestrian Route
- Proposed Cycling Route
- Possible Cycling Route
- Existing/ Planned Cycling Route
- Railway Station
- 500m radius from Railway Station
- Public Transport Interchange

TUNG CHUNG WEST
1:7,500 on A3

N 0 50 100 150 200 250

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

Pedestrian and Cycling Network

Drawing no.		Rev.
Figure 4.4.7		
Drawn: CR/JH	Date: Nov 2015	Checked / Approved
Scale: 1:7,500	Status	

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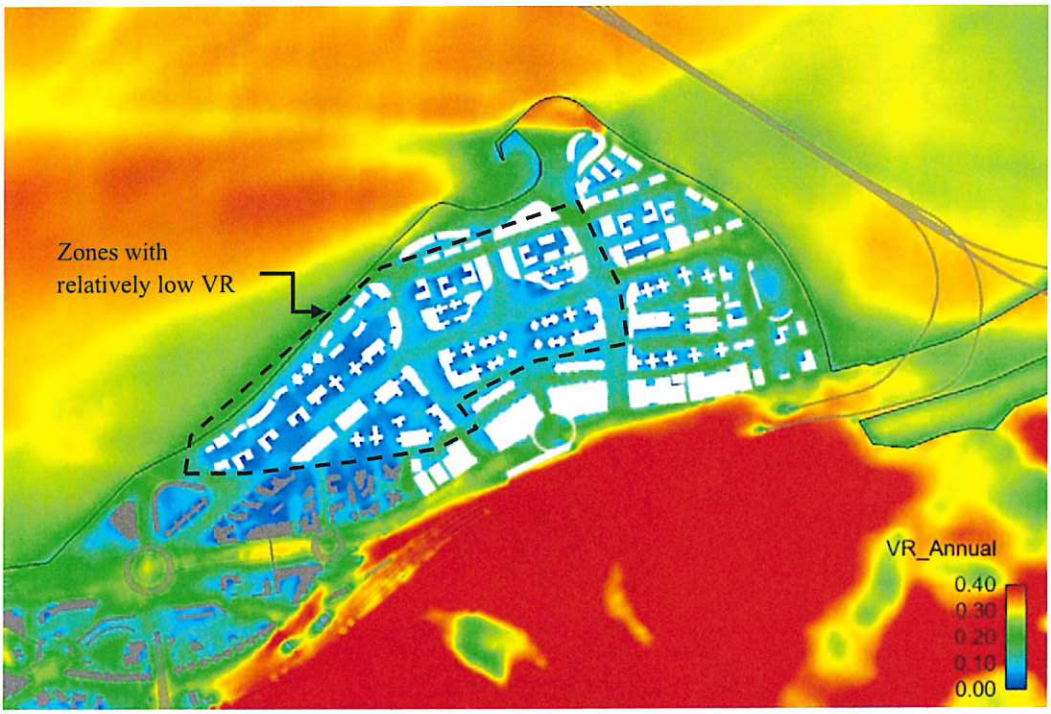


Figure 5.7. 1 Contour plot of annual weight VR in TCE under Proposed Scheme

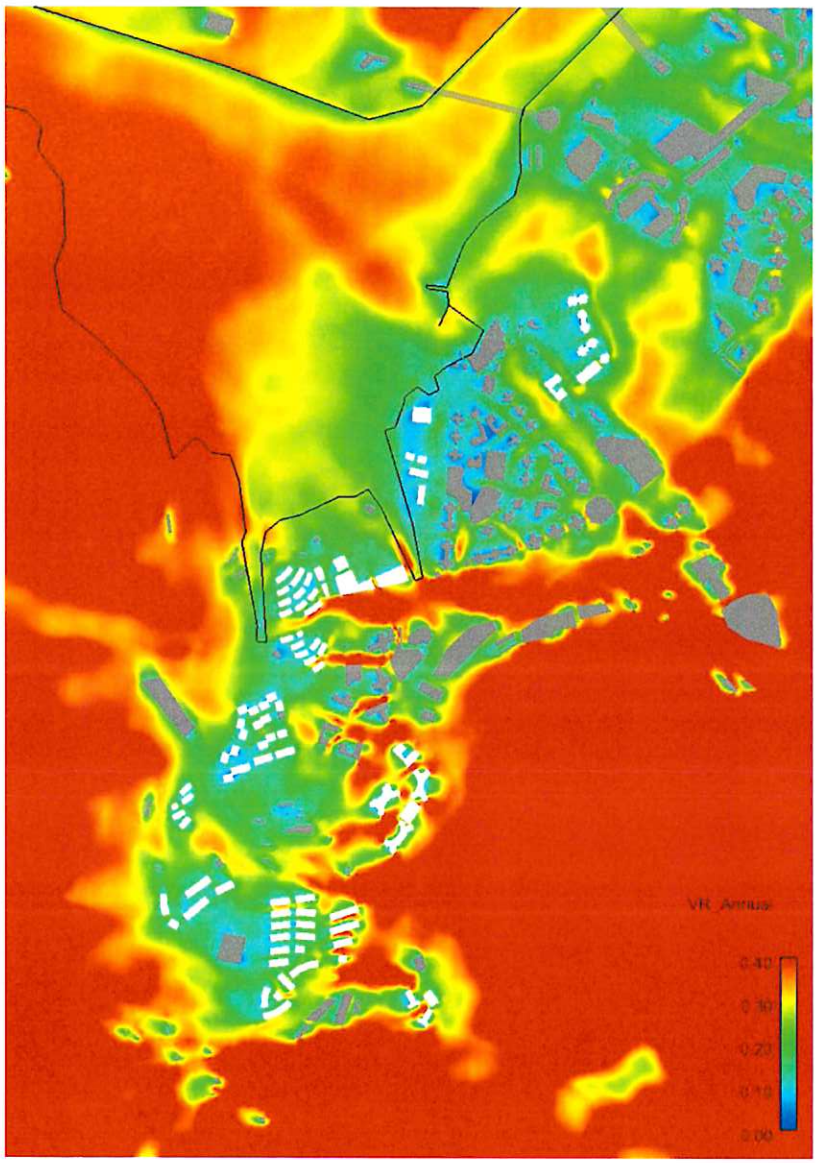


Figure 5.7. 2 Contour plot of annual weight VR in TCW under Proposed Scheme

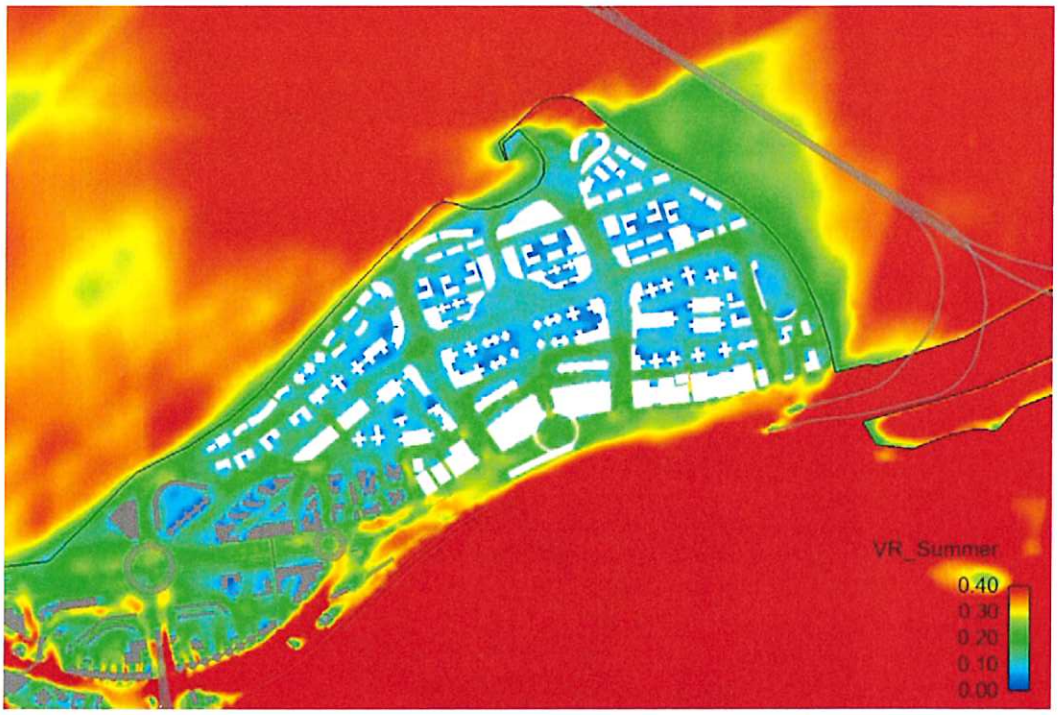


Figure 5.7. 3 Contour plot of summer weight VR in TCE under Proposed Scheme

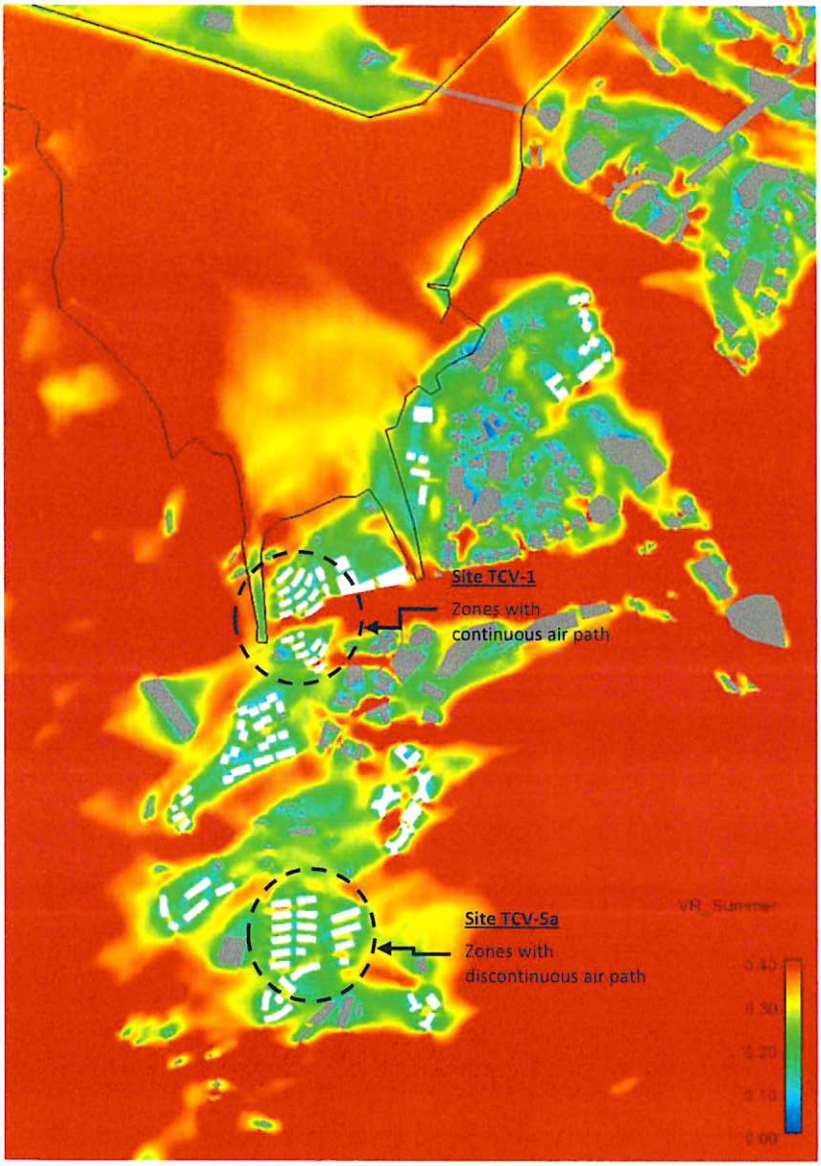
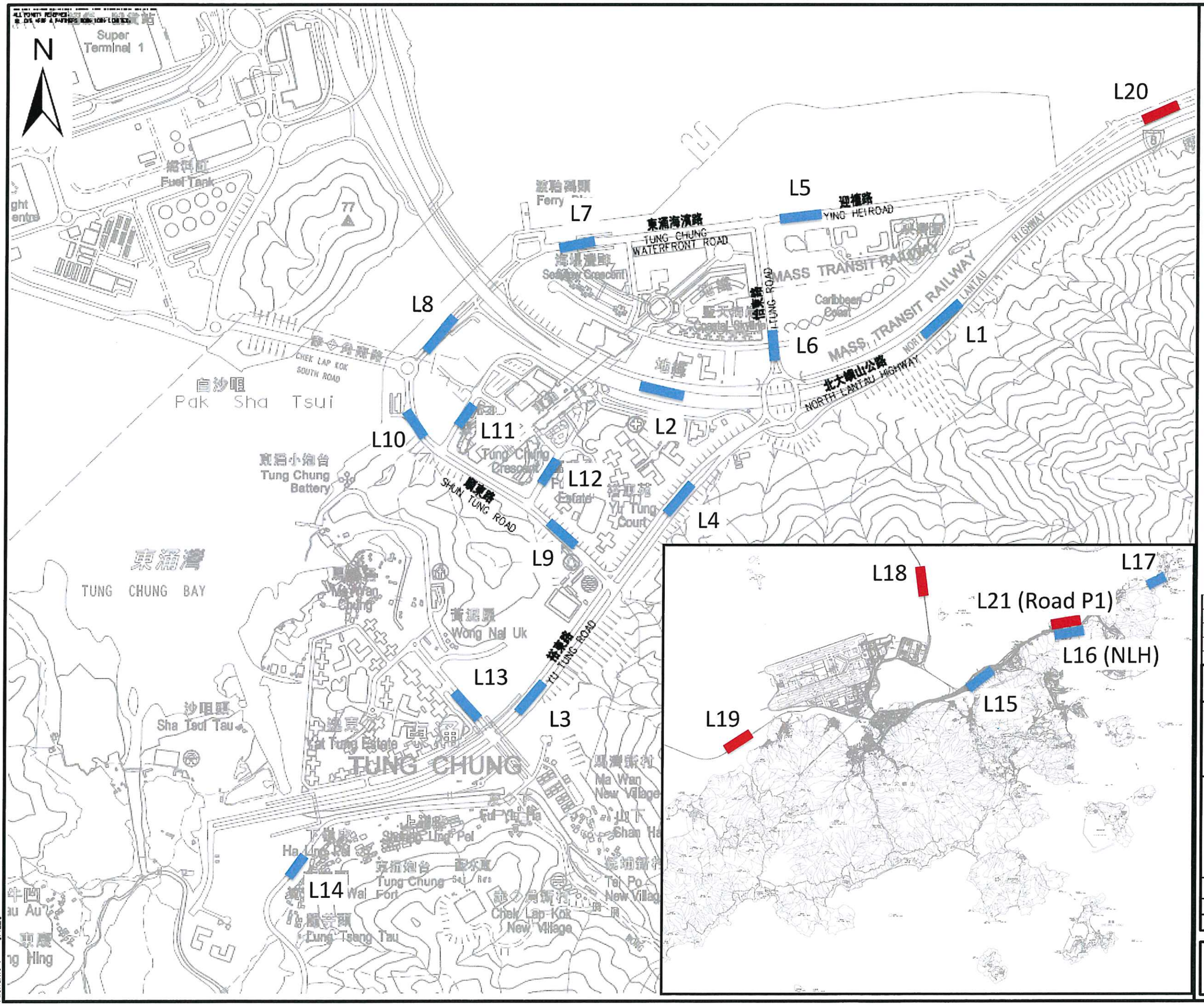


Figure 5.7. 4 Contour plot of annual weight VR in TCW under Proposed Scheme



Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

Location of External Road Links for Assessment

Drawing no.	Figure 5.8.1		Rev.
Drawn	Date	Checked	Approved
Scale		Status	

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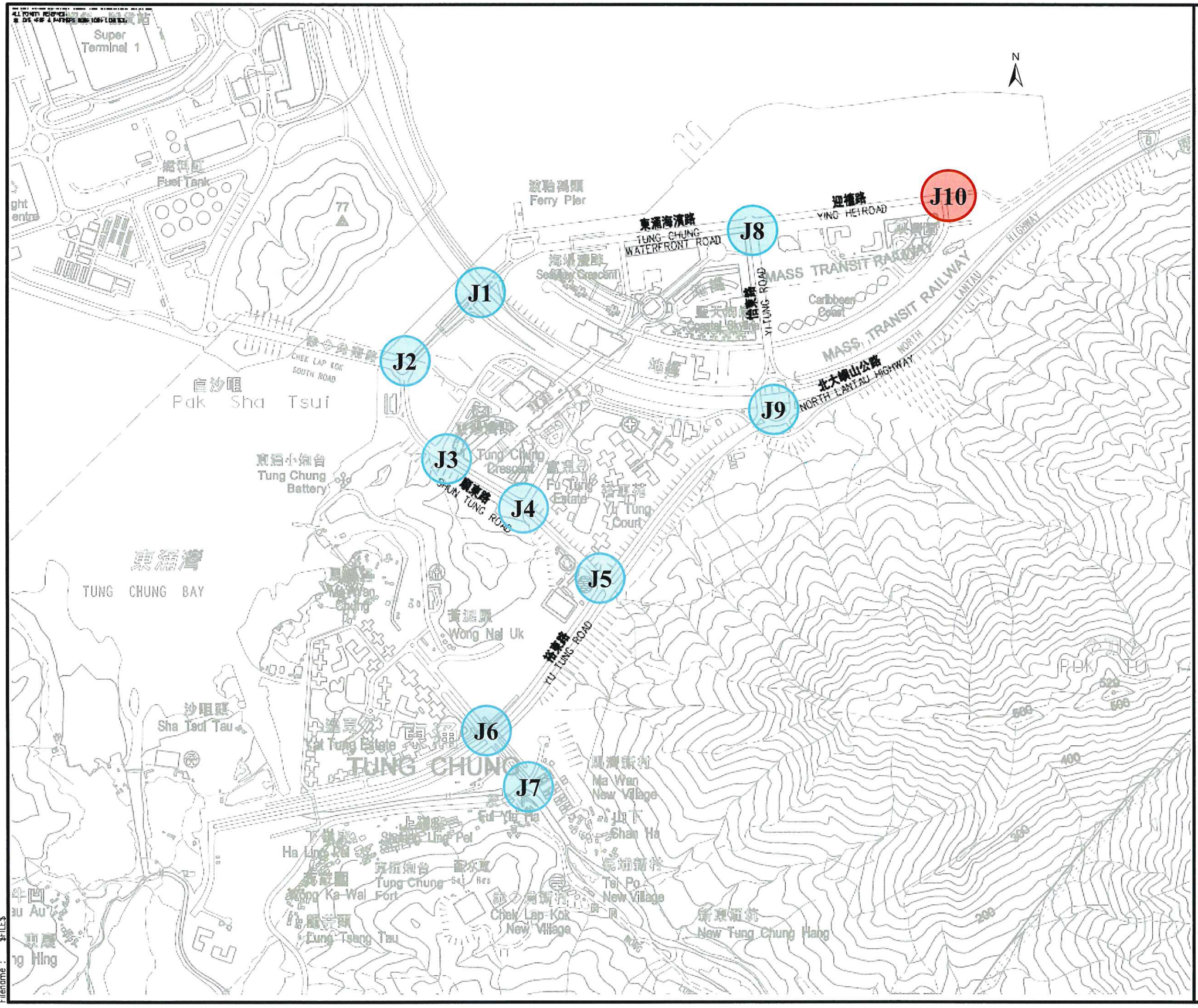

Legend:

- J1 — Existing Junctions for Assessment
- J1 — Future Junctions for Assessment

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

Location of External Road Junctions for Assessment

Drawing no. Figure 5.8.2 | Rev.

Drawn | Date | Checked | Approved

Scale | Status

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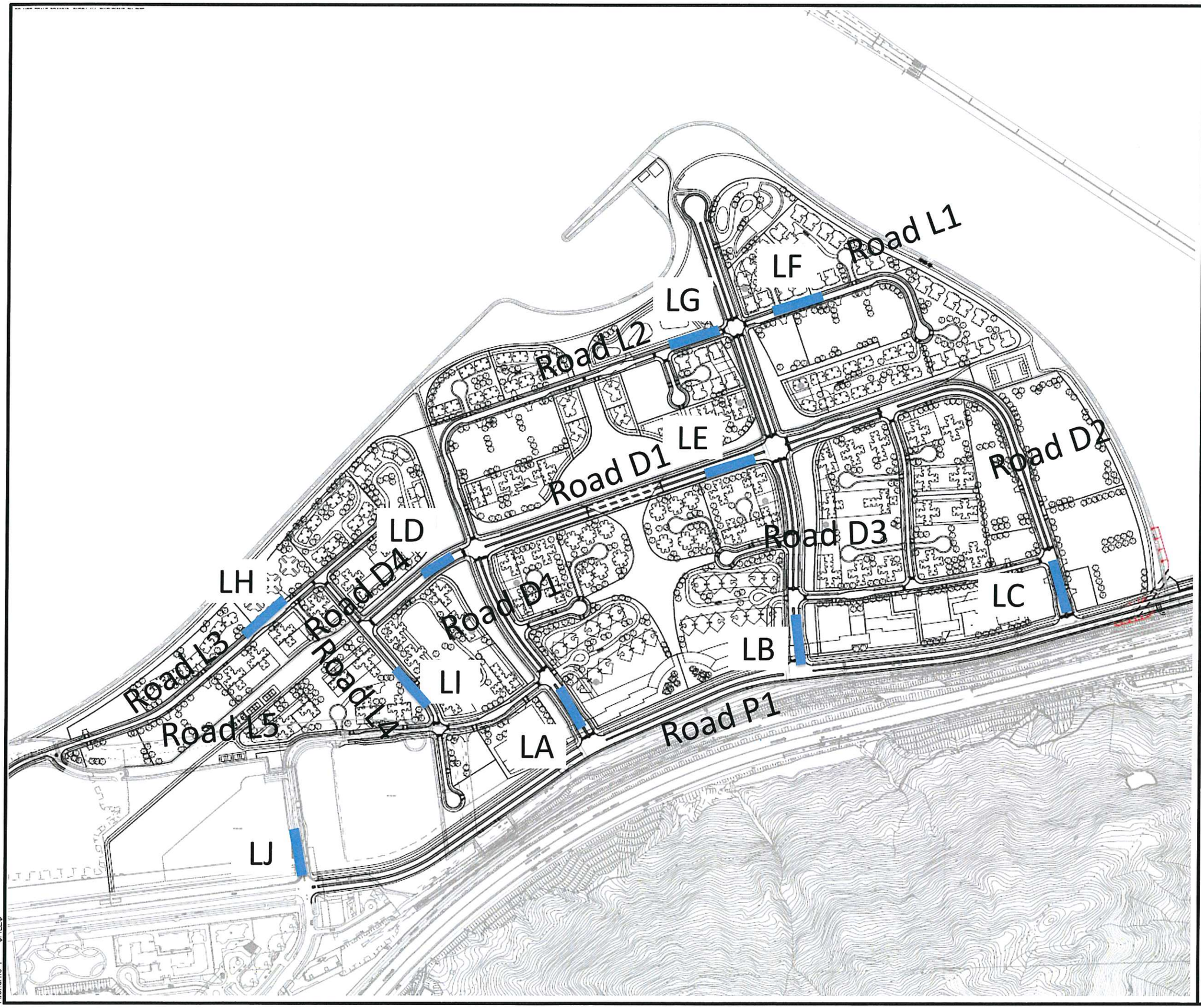

Legend:

Road Links for Assessment

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

Location of Internal Road Links for Assessment (TCE)

Drawing no.	Figure 5.8.3		Rev.
Drawn	Date	Checked	Approved
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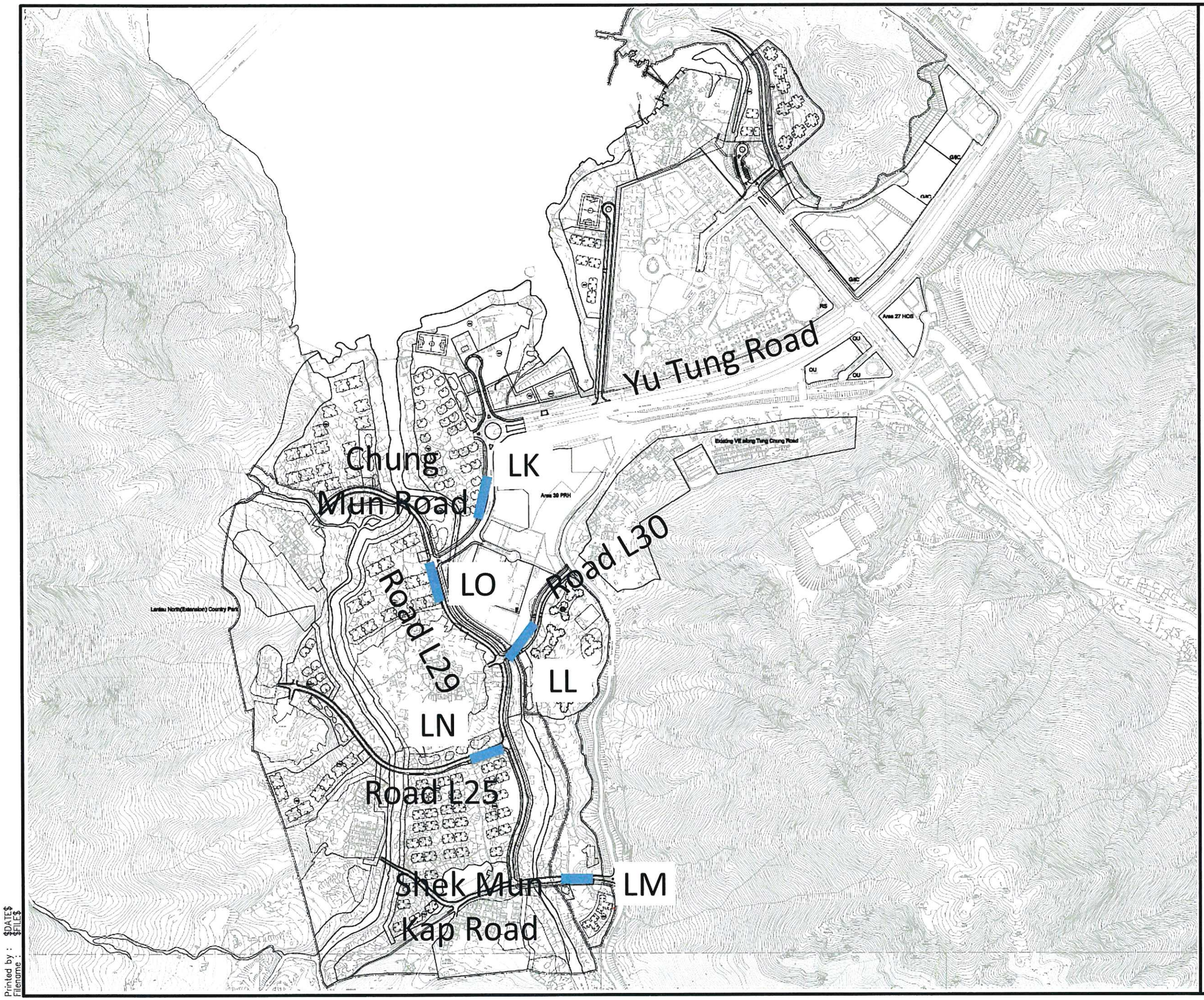

Legend:

Road Links for Assessment

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

Location of Internal Road Links for Assessment (TCW)

Drawing no. Figure 5.8.4 | Rev.

Drawn	Date	Checked	Approved
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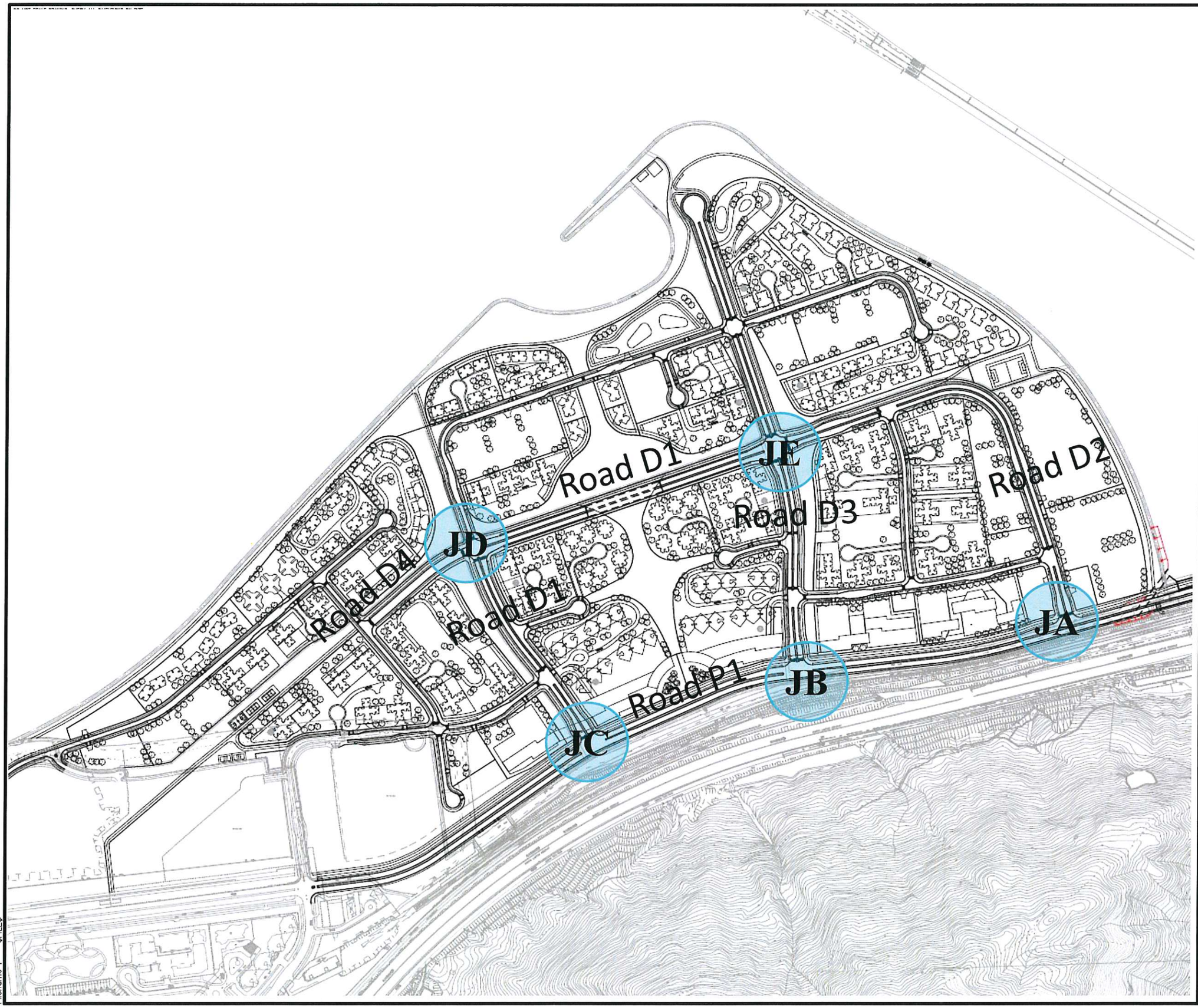

Legend:

J1 Junctions for Assessment

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

Location of Internal Road Junctions for Assessment (TCE)

Drawing no.			Rev.
Figure 5.8.5			
Drawn	Date	Checked	Approved
Scale		Status	

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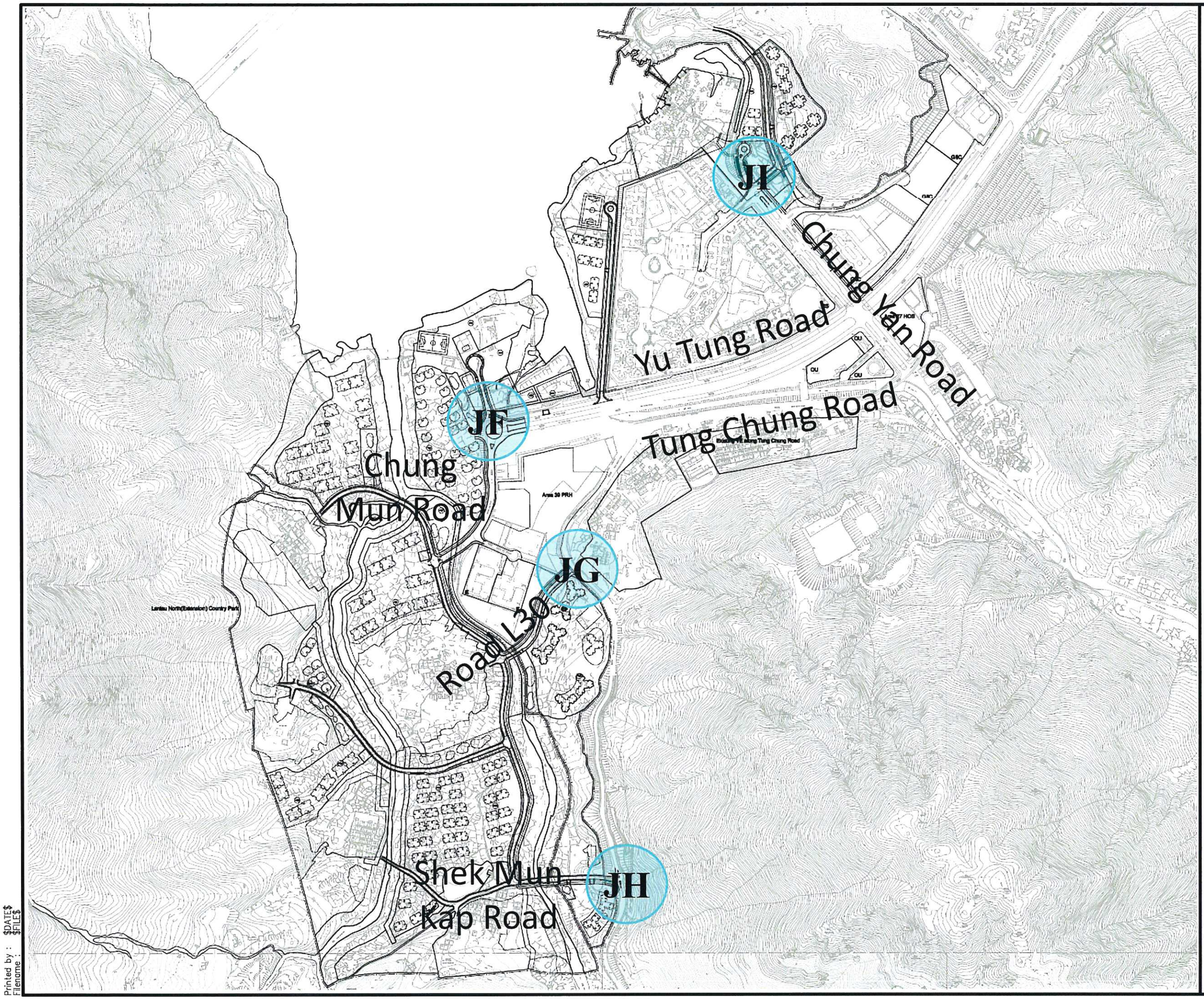

Legend:

J1 Junctions for Assessment

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

Location of Internal Road Junctions for Assessment (TCW)

Drawing no.		Rev.
Figure 5.8.6		
Drawn	Date / Checked / Approved	
Scale	Status	

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LEGEND

- VEHICULAR ACCESS
- ACCESS TO LOCAL ROADS
- DISTRICT DISTRIBUTOR (DUAL-2)
- DISTRICT DISTRIBUTOR (SINGLE-4)
- PRIMARY DISTRIBUTOR (DUAL-2)

修訂 Rev.	內容摘要 Description	設計 By	日期 Date

工程顧問 Consultant

ARUP

工程名稱 Project title

顧問研究合約編號 CE32/2011(CE)
東涌餘下發展計劃的規劃及
工程研究 — 可行性研究

**Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study**

圖紙名稱 Drawing title

VEHICULAR ACCESS OF
TCE DEVELOPMENT

圖紙編號 Drawing no.			修訂 Rev.
FIGURE 5.8.7			—
繪圖 Drawn CHPH	日期 Date 02/2014	核核 Checked KKY	批准人 Approved DML
比例 Scale 1:6000 @ A3		階段 Status PRELIMINARY	

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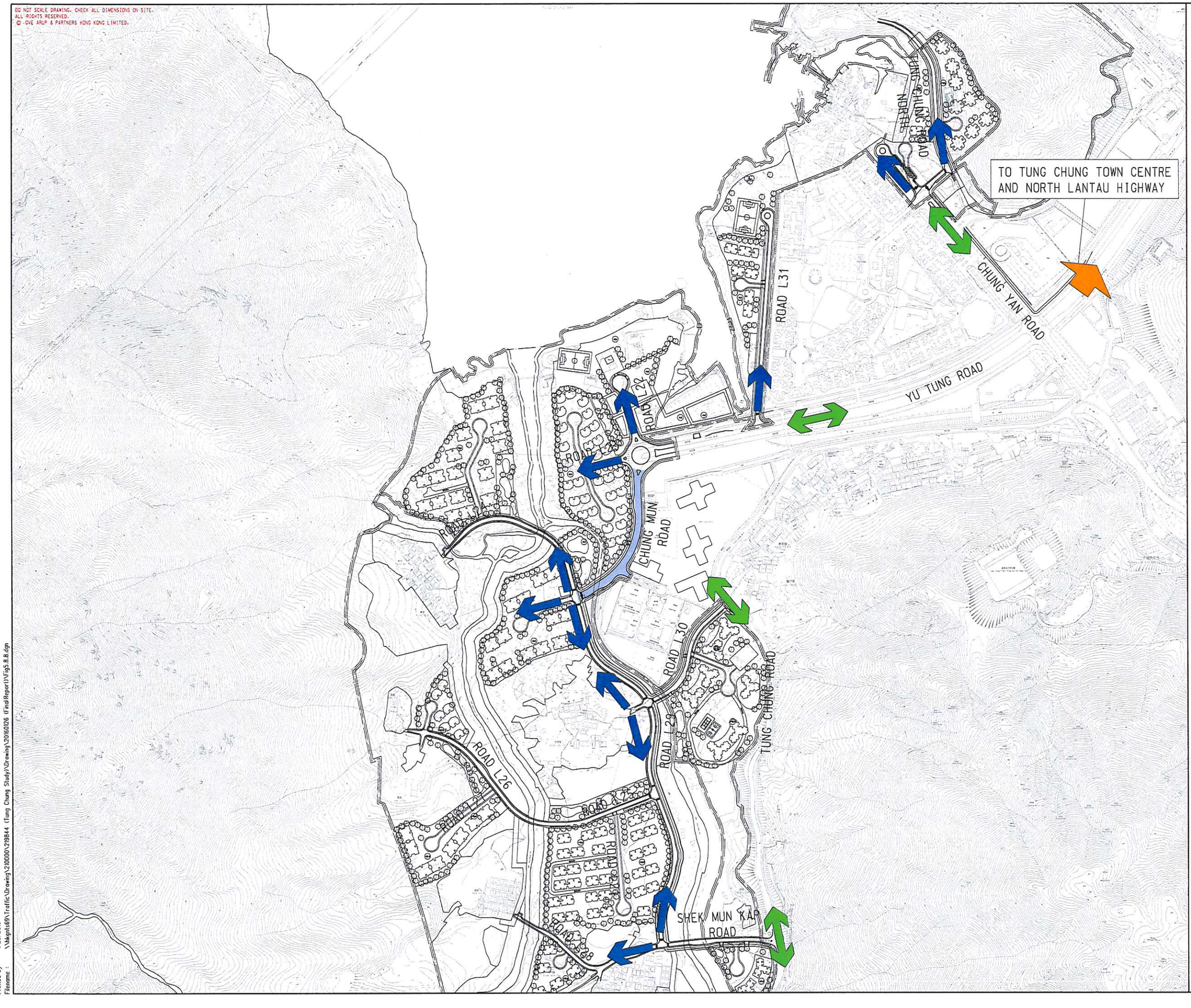

LEGEND

- VEHICULAR ACCESS
- ACCESS TO LOCAL ROADS
- DISTRICT DISTRIBUTOR (SINGLE-4)

修訂 Rev.	內容摘要 Description	設計 By	日期 Date

工程顧問 Consultant

ARUP

工程名稱 Project title

顧問研究合約編號 CE32/2011 (CE)
東涌餘下發展計劃的規劃及
工程研究 — 可行性研究

**Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study**

圖紙名稱 Drawing title

VEHICULAR ACCESS OF
TCW DEVELOPMENT

圖紙編號 Drawing no.			修訂 Rev.
FIGURE 5.8.8			—
繪圖 Drawn CHPH	日期 Date 02/2014	核對 Checked KKY	批准人 Approved DWL
比例 Scale 1:7000 @ A3		階段 Status PRELIMINARY	

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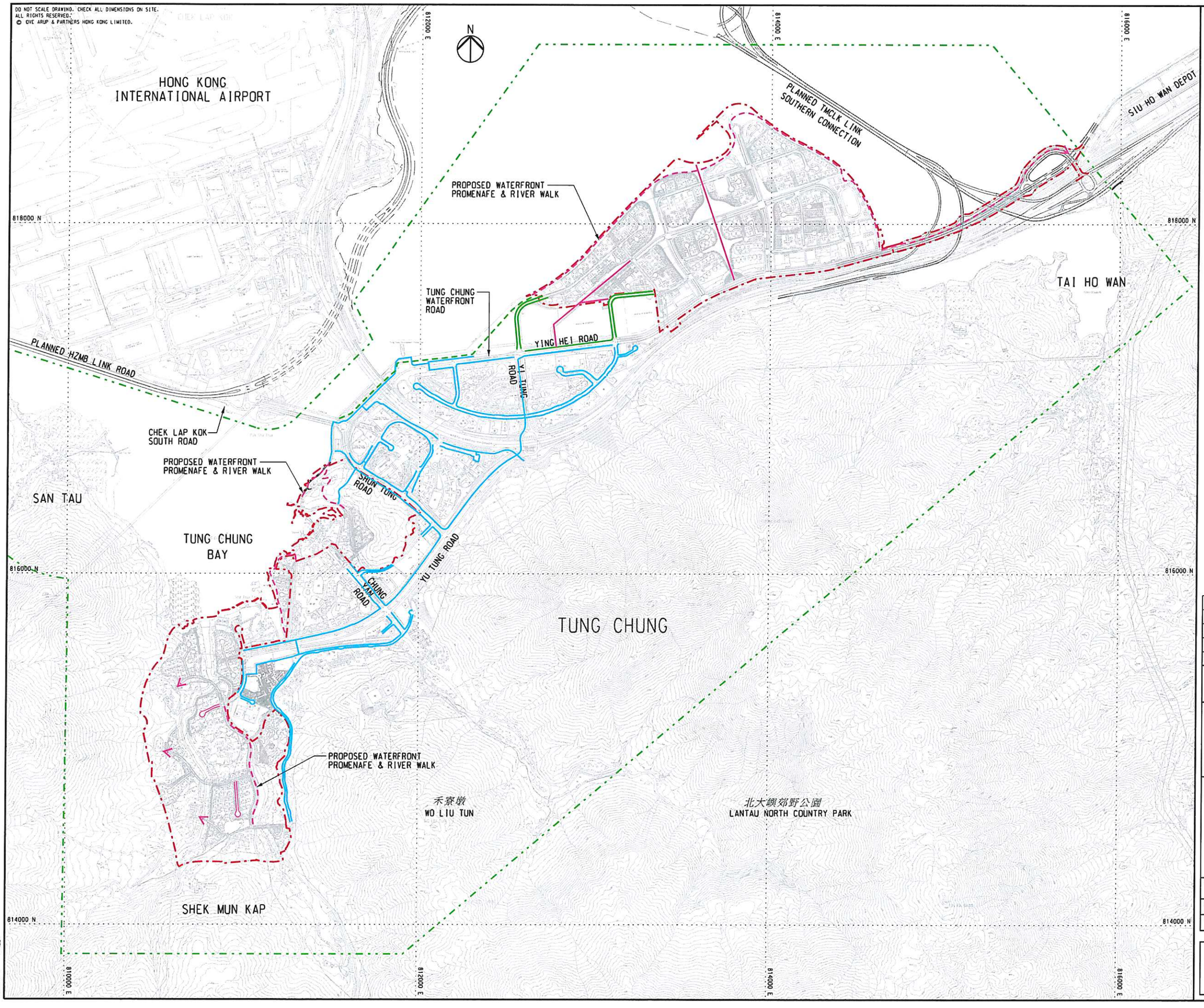

NOTES

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2. SECONDARY ROAD REFERS TO LOCAL DISTRIBUTOR, FEEDER ROAD OR BELOW.

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING WALKWAY
- PLANNED WALKWAY (BY OTHERS)
- PLANNED WATERFRONT PROMENADE (BY OTHERS)
- PROPOSED WALKWAY
- PROPOSED WATERFRONT PROMENADE & RIVER WALK

Rev	Description	By	Date
C	FINAL TP19A	LFM	07/15
B	DRAFT TP19A	LFM	04/15
A	FINAL TP11A	LFM	05/14

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SCHEMATIC WALKWAY NETWORK
IN TUNG CHUNG

Drawing no.	Rev.
5.8.9	C

Drawn	Date	Checked	Approved
MAN	05/2014	KKY	DML

Scale	Status
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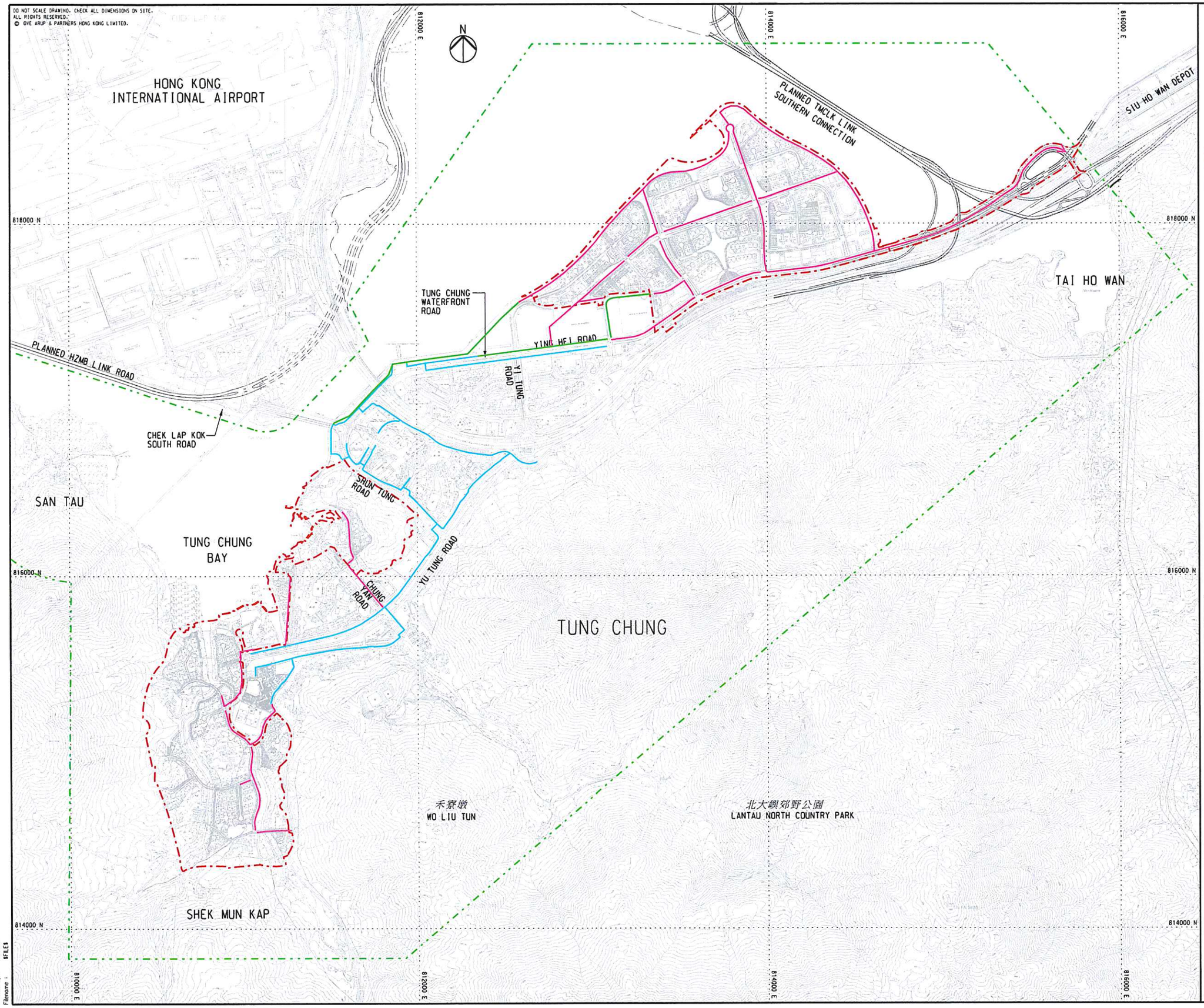

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2. SECONDARY ROAD REFERS TO LOCAL DISTRIBUTOR, FEEDER ROAD OR BELOW.

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA
- EXISTING CYCLE TRACK
- PLANNED CYCLE TRACK (BY OTHERS)
- PROPOSED CYCLE TRACK

Rev	Description	By	Date
C	FINAL TP19A	LFM	07/15
B	DRAFT TP19A	LFM	04/15
A	FINAL TP11A	LFM	05/14

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

SCHEMATIC CYCLE TRACK
NETWORK IN TUNG CHUNG

Drawing no.			Rev.
5. 8. 10			C
Drawn: MAN	Date: 05/2014	Checked: KKY	Approved: DML
Scale: 1:20000 @A3		Status: PRELIMINARY	

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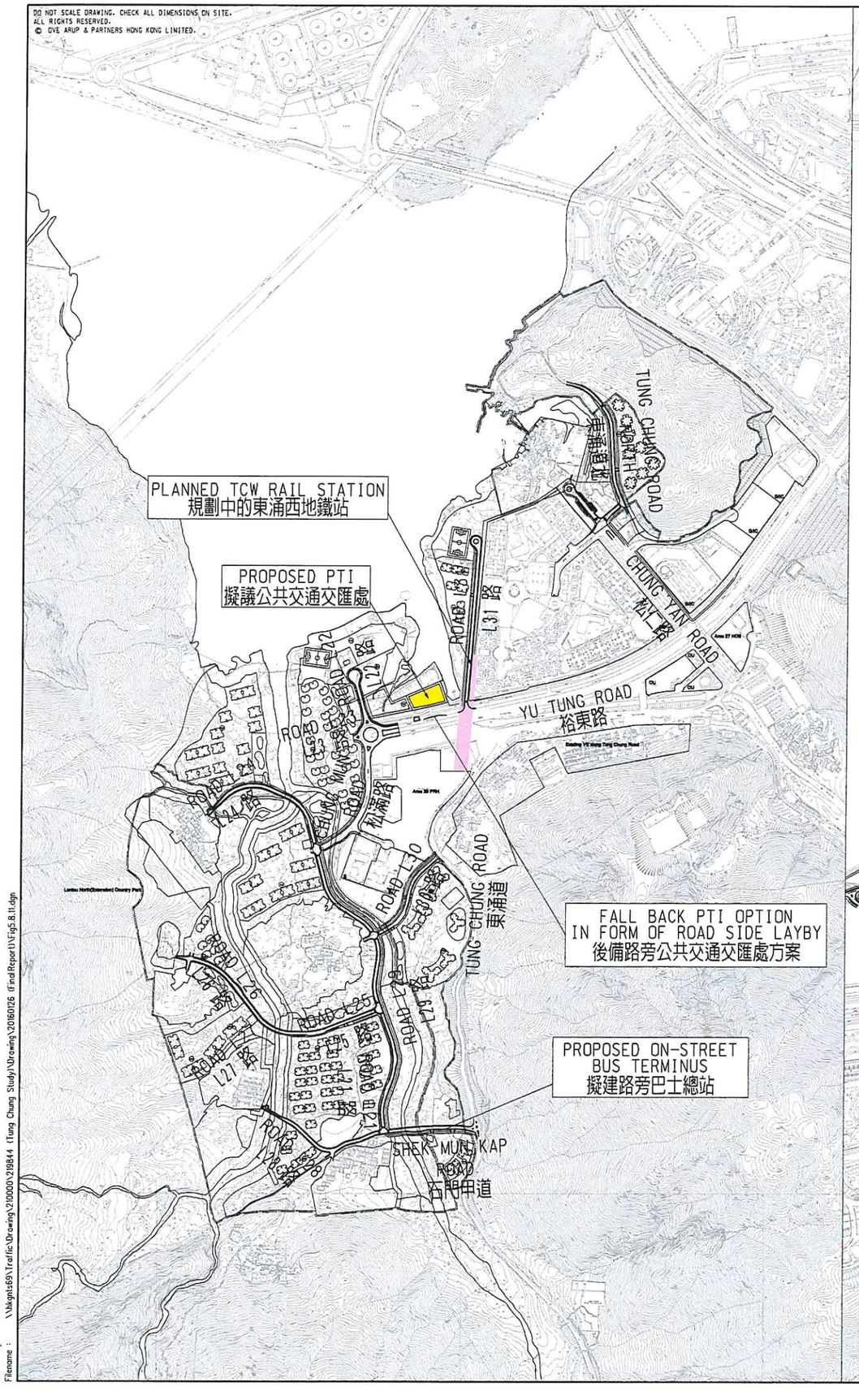

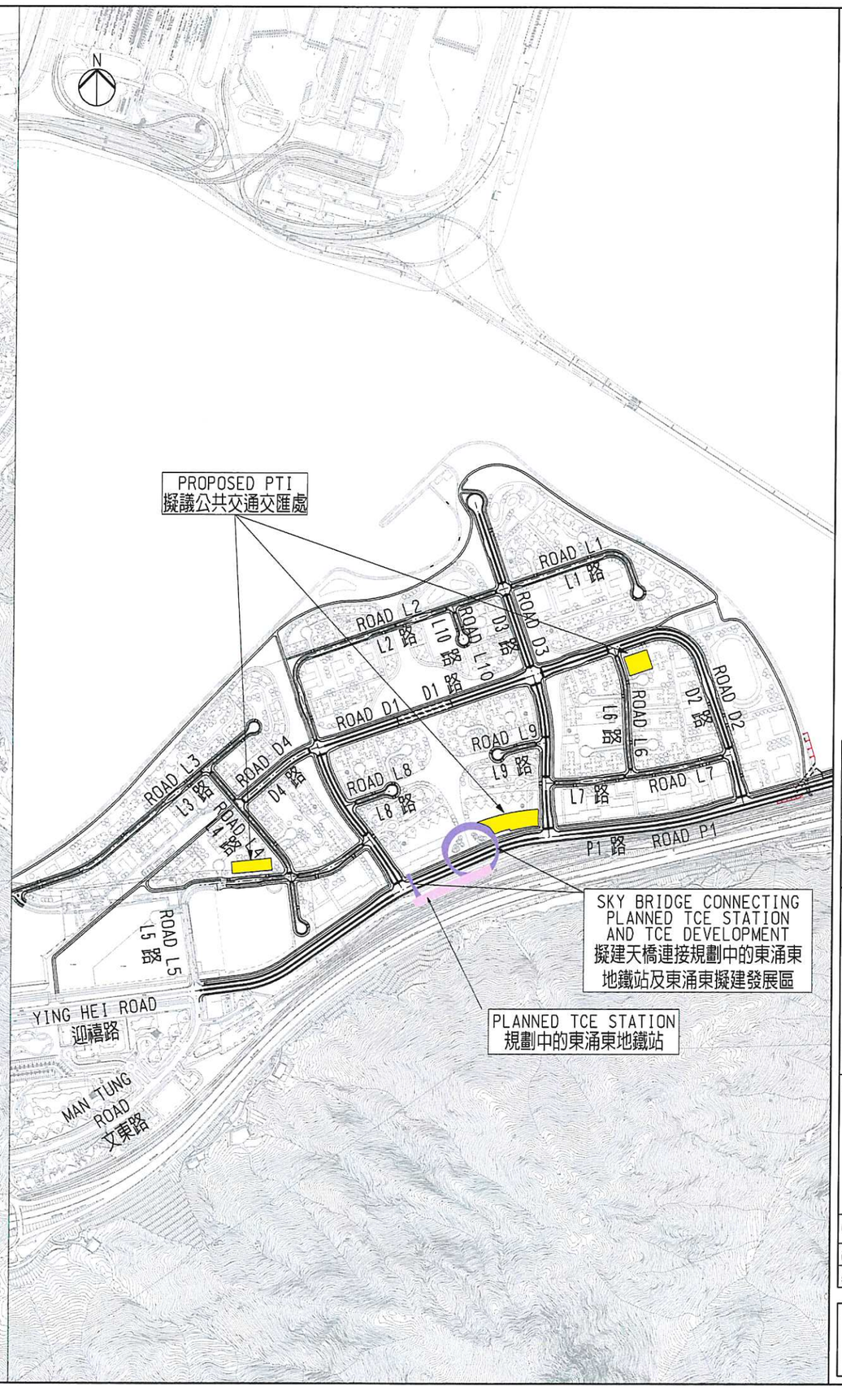

LEGEND

修訂 Rev.	內容摘要 Description	核對 By	日期 Date

工程顧問 Consultant

ARUP

工程名稱 Project title

顧問研究合約編號 CE32/2011 (CE)
東涌餘下發展計劃的規劃及
工程研究 — 可行性研究

**Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study**

圖紙名稱 Drawing title

LOCATION OF PROPOSED PUBLIC TRANSPORT INTERCHANGE
擬建公共交通交匯處位置

圖紙編號 Drawing no.			修訂 Rev.
FIGURE 5.8.11			—
繪圖 Drawn WTL	日期 Date 01/2016	核核 Checked KKY	批准人 Approved DML
比例 Scale 1:12000 @ A3		階段 Status PRELIMINARY	

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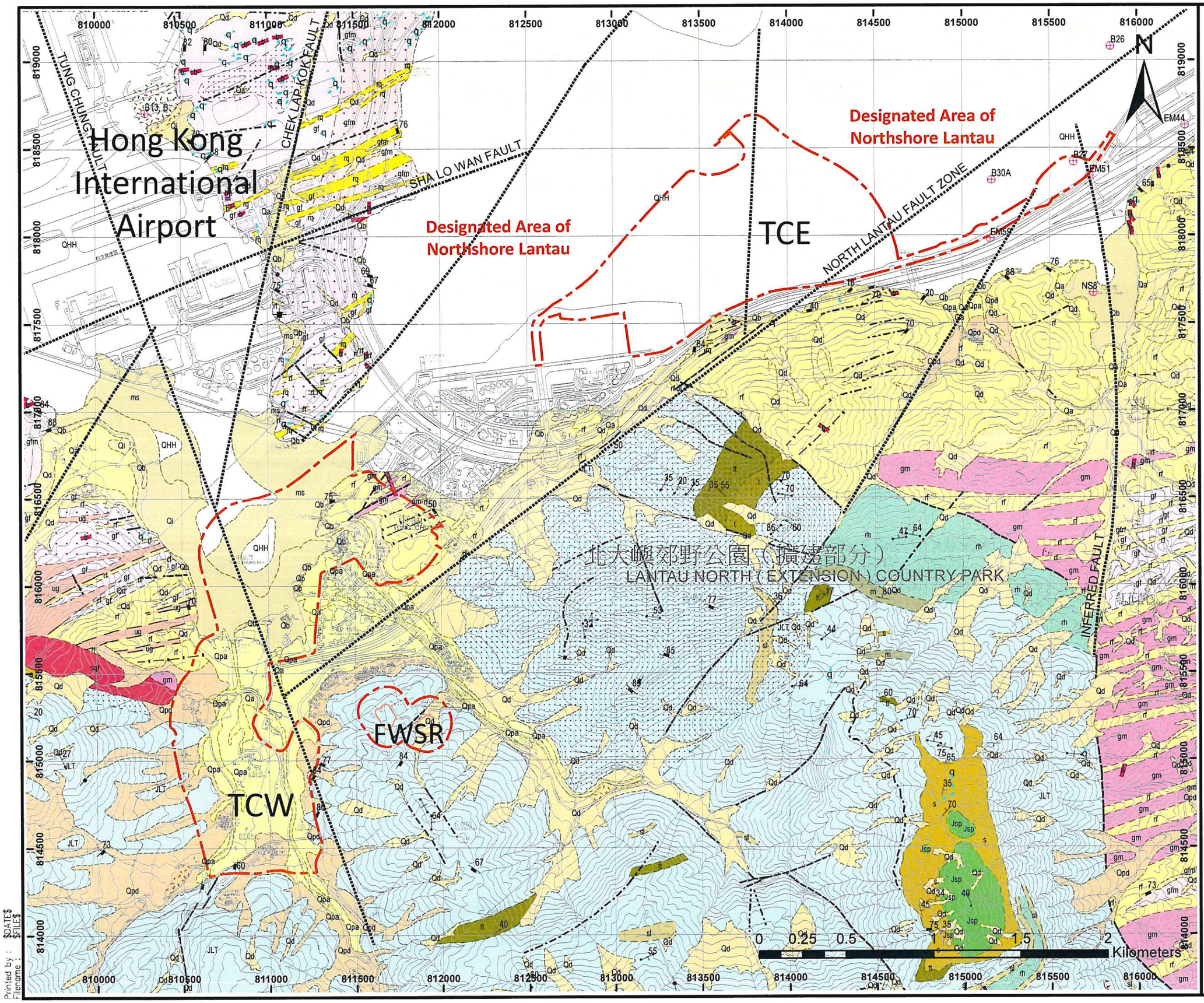

Legend

- TCW and TCE Boundaries
- Fill
- ms Marine Sand - Holocene
- Qa Alluvial Clay/Silt - Quaternary
- Qb Beach Sand Deposits - Quaternary
- Qd Debris Flow Deposits - Quaternary
- QHH Marine Clay/Silt Deposits - Holocene
- Qi Estuarine Clay-Sand Deposits - Holocene
- Qpa Terraced Alluvial Dpeosits - Pleistocene
- Qpd Debris Flow Deposits - Pleistocene
- ap Aplite (Minor Intrusion) - Jurassic/Tertiary
- b Basalt (Minor Intrusion) - Jurassic-Cretaceous/Tertiary
- gf Granite (Major Intrusive - fine grained) - - Jurassic - Cretaceous
- gfm Granite (Major Intrusive - fine-med grained) - - Jurassic - Cretaceous
- gm Granite (Major Intrusive - medium grained) - Jurassic - Cretaceous
- JLT Rhyolite lava and tuff - Jurassic
- Jsp Lapilli-bearing crystal tuff - Jurassic
- m Sedimentary and volcanic rocks (clay/siltstone) - Upper Jurassic
- p Pegmatite (Minor Intrusion) - Jurassic-Cretaceous
- rf Feldsparphyric rhyolite (Minor Intrusion) - Jurassic-Cretaceous
- rh Rhyolite lava
- rq Quartzphyric rhyolite (Minor Intrusive) - Jurassic-Cretaceous
- s Sandstone - Jurassic/Permean
- sl Siltstone - Jurassic
- sqf Quartz Syenite (Major Intrusive - fine grained) - Jurassic-Cretaceous
- t Undifferentiated tuff and tuffite, Crystal tuff - Jurassic
- tt Undifferentiated tuff and tuffite
- ug Microgranite

Geology Detail

- Superficial / superficial
- Superficial / soild
- Superficial / dyke
- Solid / solid, observed
- Solid / solid, inferred
- Dyke / dyke, observed
- Dyke / dyke, inferred
- Dyke to dyke contact
- Boundary of overprint
- Fault; solid / solid, observed
- Fault; solid / solid, inferred
- Photolineament
- Mineral Vein
- Metamorphosed
- Megacrystic

C	Inclusion of inferred offshore faults	JC	04/2015
B	Revised Layout	JC	03/2015
A	FIRST ISSUE	JC	03/2014
Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title
Geological Map (Extracted from HKGS 1:20,000 Geological Map)

Drawing no.	Figure 5.10.1	Rev.	C
Drawn JC	Date Apr 2015	Checked KKY	Approved DML
Scale 1:20,000 (A3)		Status PRELIMINARY	

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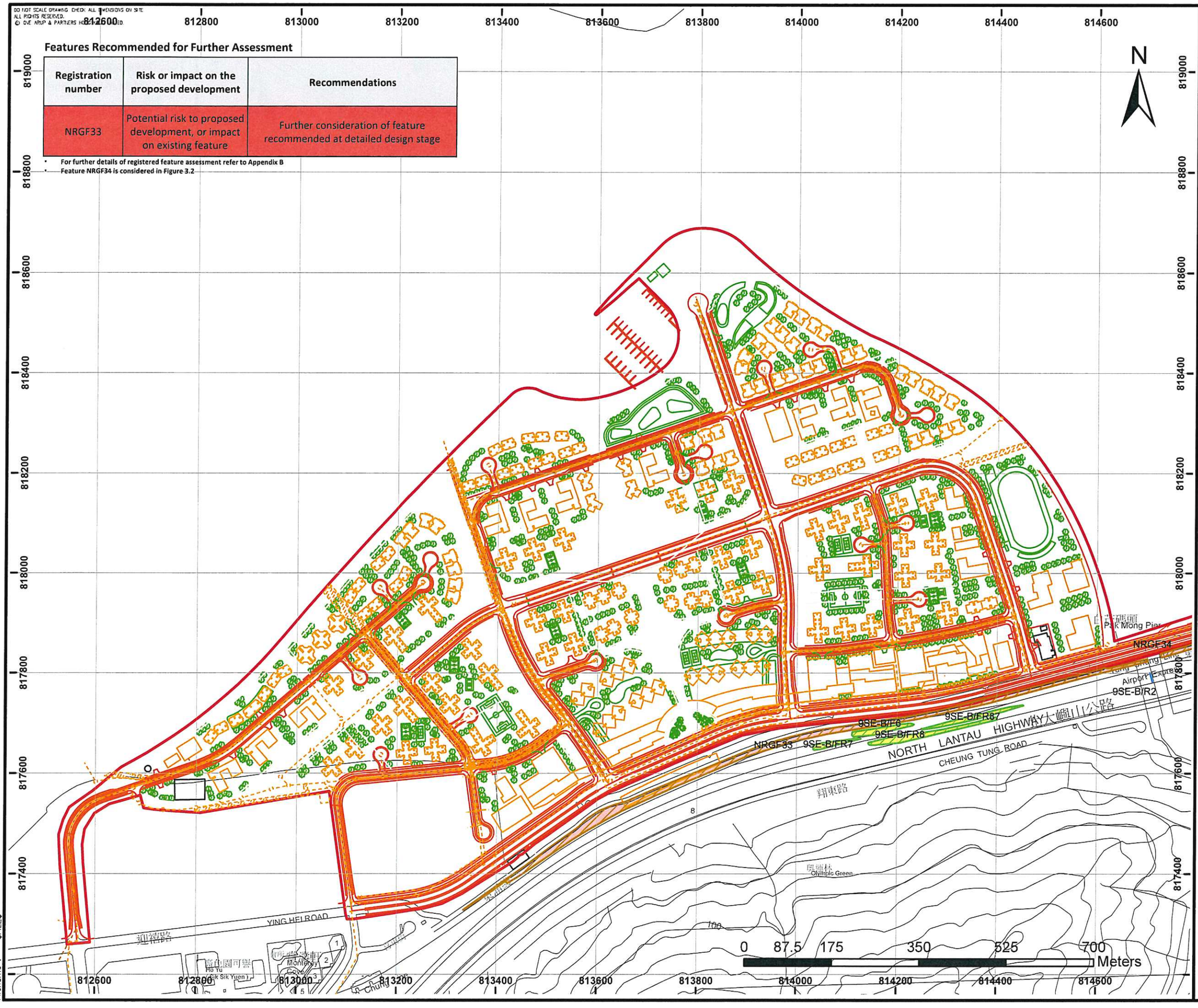
Features Recommended for Further Assessment

Registration number	Risk or impact on the proposed development	Recommendations
NRGF33	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage

- For further details of registered feature assessment refer to Appendix B
- Feature NRGF34 is considered in Figure 3.2



Legend

- TCE Boundary

TCE Development

- Residential or Other Building
- Road
- Recreational or Landscaped Area
- Proposed Utilities / Drainage

Registered Geotechnical Features

- Cut Slope
- Fill Slope
- Retaining Wall
- Defence Measures to NT

Feature Assessment

- No Further Assessment Required
- Further Assessment Required

Note.
For further details of geotechnical feature assessment, refer to **Appendix 9.1**

Rev	Description	By	Date
D	With Non-Registered Fetures	JC	09/2015
C	With Proposed Utilities	JC	06/2015
B	Revised legend and line work	JC	11/2014
A	FIRST ISSUE	JC	03/2014

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title
Geotechnical Feature Assessment Tung Chung East

Drawing no.	Rev.
Figure 5.10.2	D

Drawn	Date	Checked	Approved
JC	Sep 2015	KL	JL

Scale: 1:7,000 (A3) | Status: Issue

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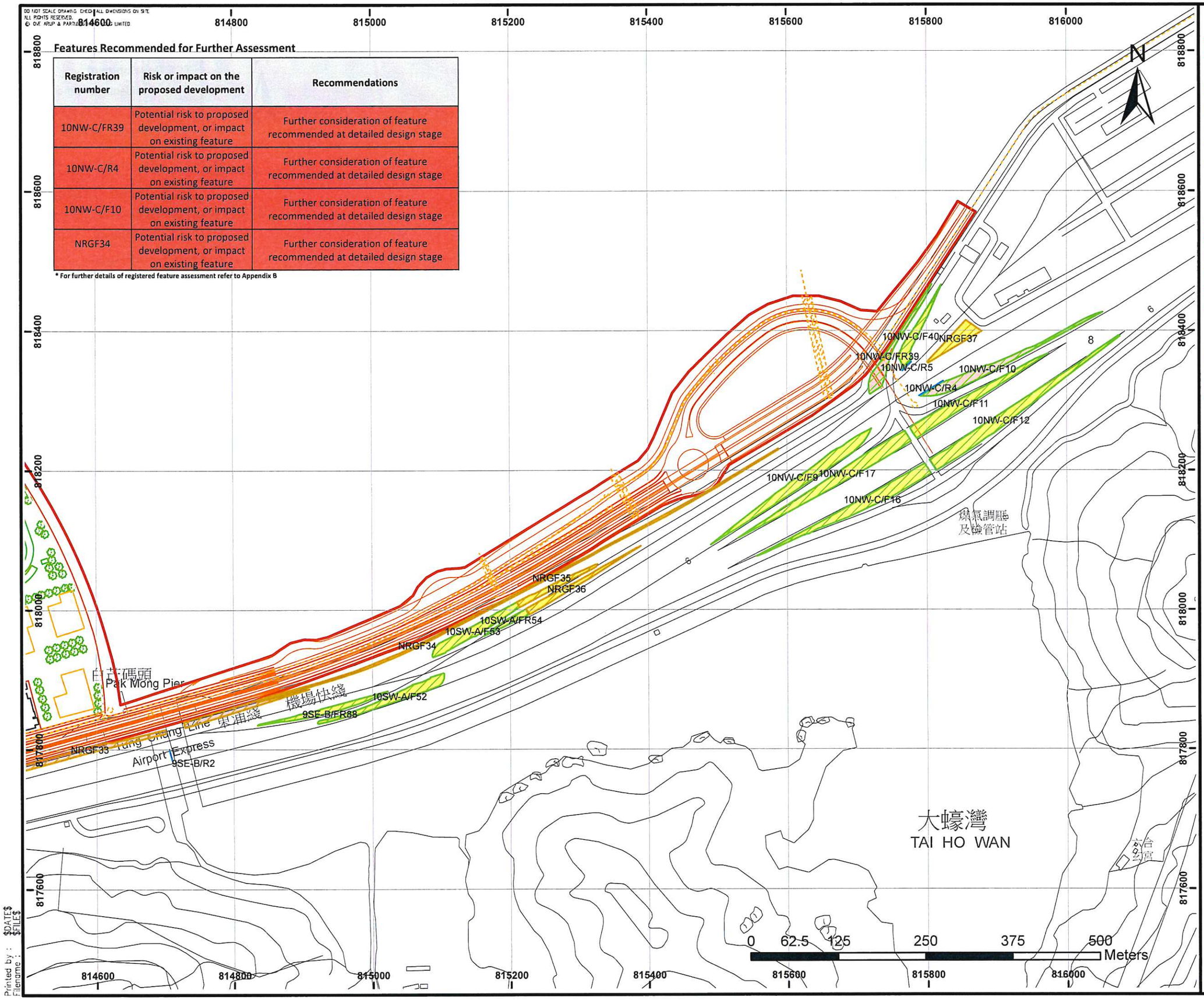
Features Recommended for Further Assessment

Registration number	Risk or impact on the proposed development	Recommendations
10NW-C/FR39	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
10NW-C/R4	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
10NW-C/F10	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF34	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage

* For further details of registered feature assessment refer to Appendix B



Legend

- TCE Boundary

TCE Development

- Residential or Other Building
- Road
- Recreational or Landscaped Area
- Proposed Utilities / Drainage

Registered Geotechnical Features

- Cut Slope
- Fill Slope
- Retaining Wall
- Defence Measures to NT

Feature Assessment

- No Further Assessment Required
- Further Assessment Required

Note.
For further details of geotechnical feature assessment, refer to **Appendix 9.1**

Rev	Description	By	Date
D	With Non-Registered Fetures	JC	09/2015
C	With Proposed Utilities	JC	06/2015
B	Revised legend and line work	JC	11/2014
A	FIRST ISSUE	JC	03/2014

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title
Geotechnical Feature Assessment
Tung Chung East Road P1

Drawing no. Figure 5.10.3 | Rev. D

Drawn	Date	Checked	Approved
JC	Sep 2015	KL	JL

Scale 1:5,000 (A3) | Status Issue

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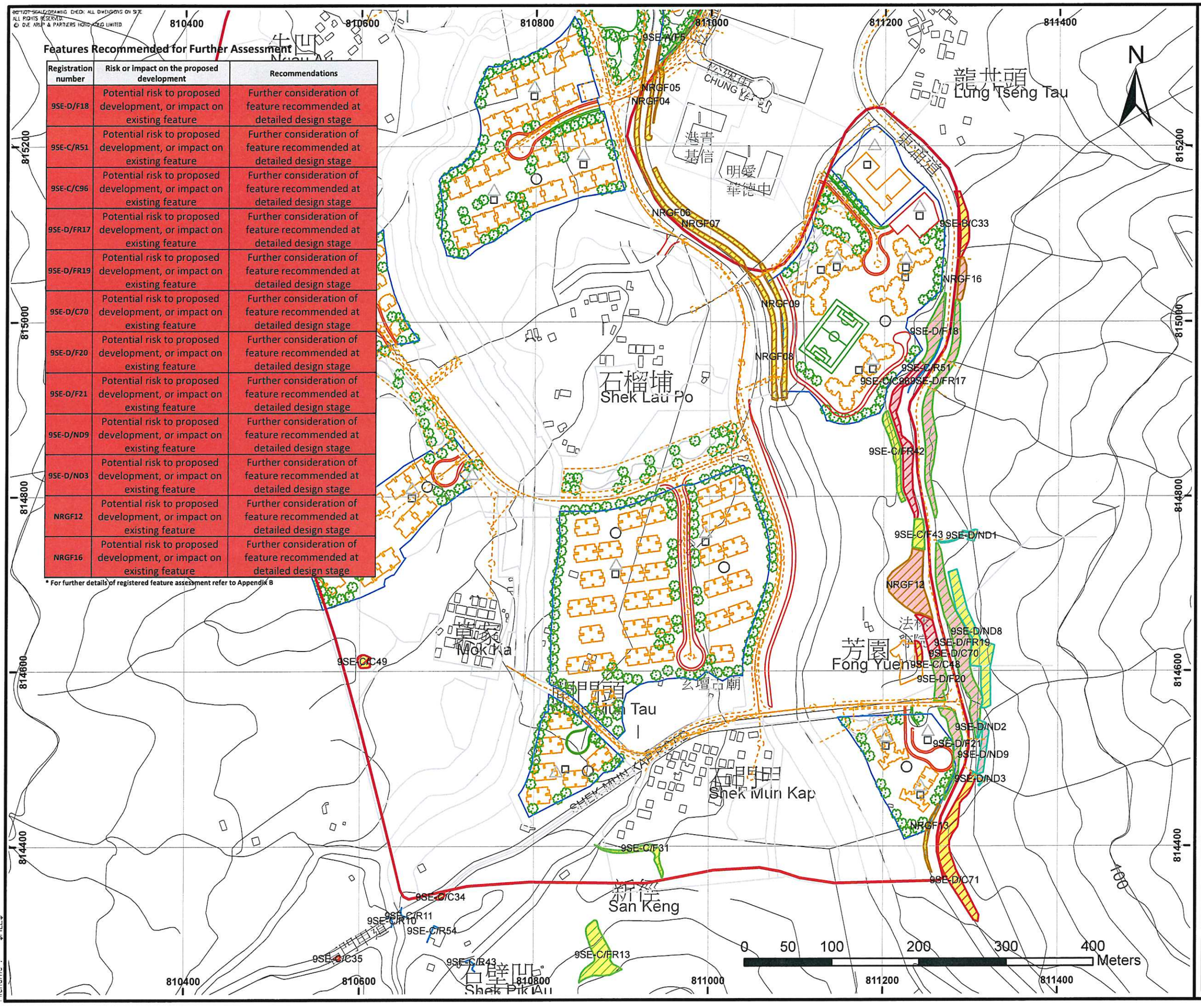

Features Recommended for Further Assessment

Registration number	Risk or impact on the proposed development	Recommendations
9SE-D/F18	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-C/R51	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-C/C96	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-D/FR17	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-D/FR19	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-D/C70	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-D/F20	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-D/F21	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-D/ND9	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-D/ND3	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF12	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF16	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage

* For further details of registered feature assessment refer to Appendix B

Legend

- TCW Study Boundary

TCW Development

- Development Area
- Residential or Other Building
- Road
- Recreational or Landscaped Area
- Proposed Utilities / Drainage

Registered Geotechnical Features

- Cut Slope
- Fill Slope
- Retaining Wall
- Defence Measures to NT

Feature Assessment

- No Further Assessment Required
- Further Assessment Required

Note.
For further details of geotechnical feature assessment, refer to **Appendix 9.1**

Rev	Description	By	Date
D	With Non-Registered Fetures	JC	09/2015
C	With Proposed Utilities	JC	06/2015
B	Revised legend and line work	JC	11/2014
A	FIRST ISSUE	JC	03/2014

Consultant
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Project title
Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title
Geotechnical Feature Assessment Tung Chung West (1 of 3)

Drawing no.	Figure 5.10.4	Rev.	D
Drawn JC	Date Sep 2015	Checked KL	Approved JL
Scale 1:4,000 (A3)		Status Issue	

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Features Recommended for Further Assessment

Registration number	Risk or impact on the proposed development	Recommendations
9SE-A/F5	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/C105	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/C106	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/FR82	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF14	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF15	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage

* For further details of registered feature assessment refer to Appendix B

Note. Features in the Ma Wan Chung area are considered in Figure 3.5

Legend

- TCW Study Boundary

TCW Development

- Development Area
- Residential or Other Building
- Road
- Recreational or Landscaped Area
- Proposed Utilities / Drainage

Registered Geotechnical Features

- Cut Slope
- Fill Slope
- Retaining Wall
- Defence Measures to NT

Feature Assessment

- No Further Assessment Required
- Further Assessment Required

Note.
For further details of geotechnical feature assessment, refer to **Appendix 9.1**

Rev	Description	By	Date
D	With Non-Registered Fetures	JC	09/2015
C	With Proposed Utilities	JC	06/2015
B	Revised legend and line work	JC	11/2014
A	FIRST ISSUE	JC	03/2014

Consultant: ARUP

Project title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title: Geotechnical Feature Assessment Tung Chung West (2 of 3)

Drawing no.			Rev.
Figure 5.10.5			D
Drawn: JC	Date: Sep 2015	Checked: KL	Approved: JL
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Features Recommended for Further Assessment

Registration number	Risk or impact on the proposed development	Recommendations
9SE-B/C73	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF18	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF19	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF20	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF21	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF22	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF23	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage

* For further details of registered feature assessment refer to Appendix B

Legend

- TCW Study Boundary

TCW Development

- Development Area
- Residential or Other Building
- Road
- Recreational or Landscaped Area
- Proposed Utilities / Drainage

Registered Geotechnical Features

- Cut Slope
- Fill Slope
- Retaining Wall
- Defence Measures to NT

Feature Assessment

- No Further Assessment Required
- Further Assessment Required

Note.
For further details of geotechnical feature assessment, refer to **Appendix 9.1**

Rev	Description	By	Date
D	With Non-Registered Fetures	JC	09/2015
C	With Proposed Utilities	JC	06/2015
B	Revised legend and line work	JC	11/2014
A	FIRST ISSUE	JC	03/2014

Consultant: ARUP

Project title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title: Geotechnical Feature Assessment Tung Chung West (3 of 3)

Drawing no.: Figure 5.10.6 | Rev.: D

Drawn: JC | Date: Sep 2015 | Checked: KL | Approved: JL

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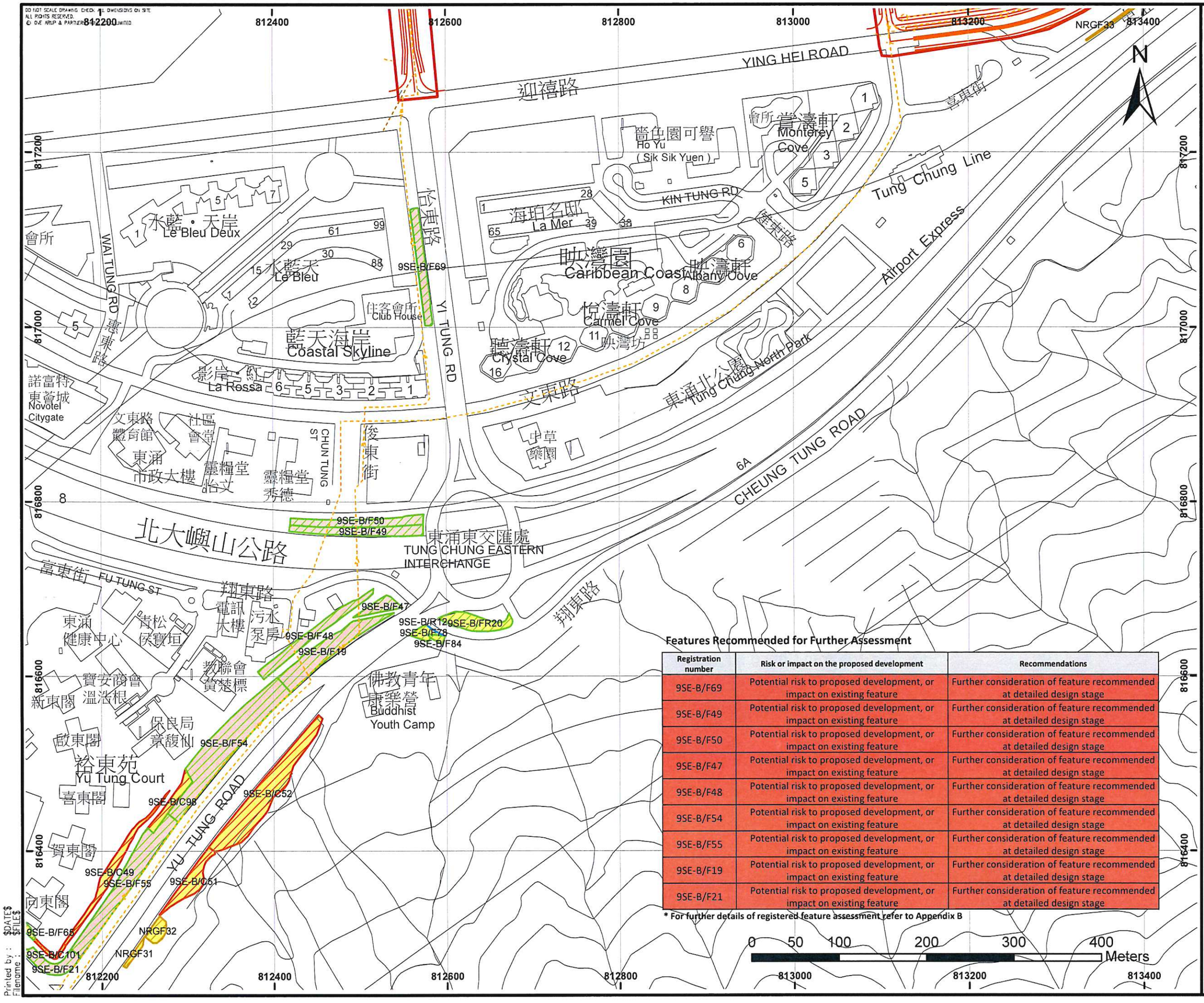

Features Recommended for Further Assessment

Registration number	Risk or impact on the proposed development	Recommendations
9SE-B/F69	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/F49	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/F50	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/F47	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/F48	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/F54	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/F55	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/F19	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/F21	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage

* For further details of registered feature assessment refer to Appendix B

Legend

- TCW Study Boundary

TCW Development

- Development Area
- Residential or Other Building
- Road
- Recreational or Landscaped Area
- Proposed Utilities / Drainage

Registered Geotechnical Features

- Cut Slope
- Fill Slope
- Retaining Wall
- Defence Measures to NT

Feature Assessment

- No Further Assessment Required
- Further Assessment Required

Note.
For further details of geotechnical feature assessment, refer to **Appendix 9.1**

D	With Non-Registered Fetures	JC	09/2015
C	With Proposed Utilities	JC	06/2015
B	Revised legend and line work	JC	11/2014
A	FIRST ISSUE	JC	03/2014
Rev	Description	By	Date

Consultant
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Project title
Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title
Geotechnical Feature Assessment Utilities and Drainage

Drawing no.			Rev.
Figure 5.10.7			D
Drawn: JC	Date: Sep 2015	Checked: KL	Approved: JL
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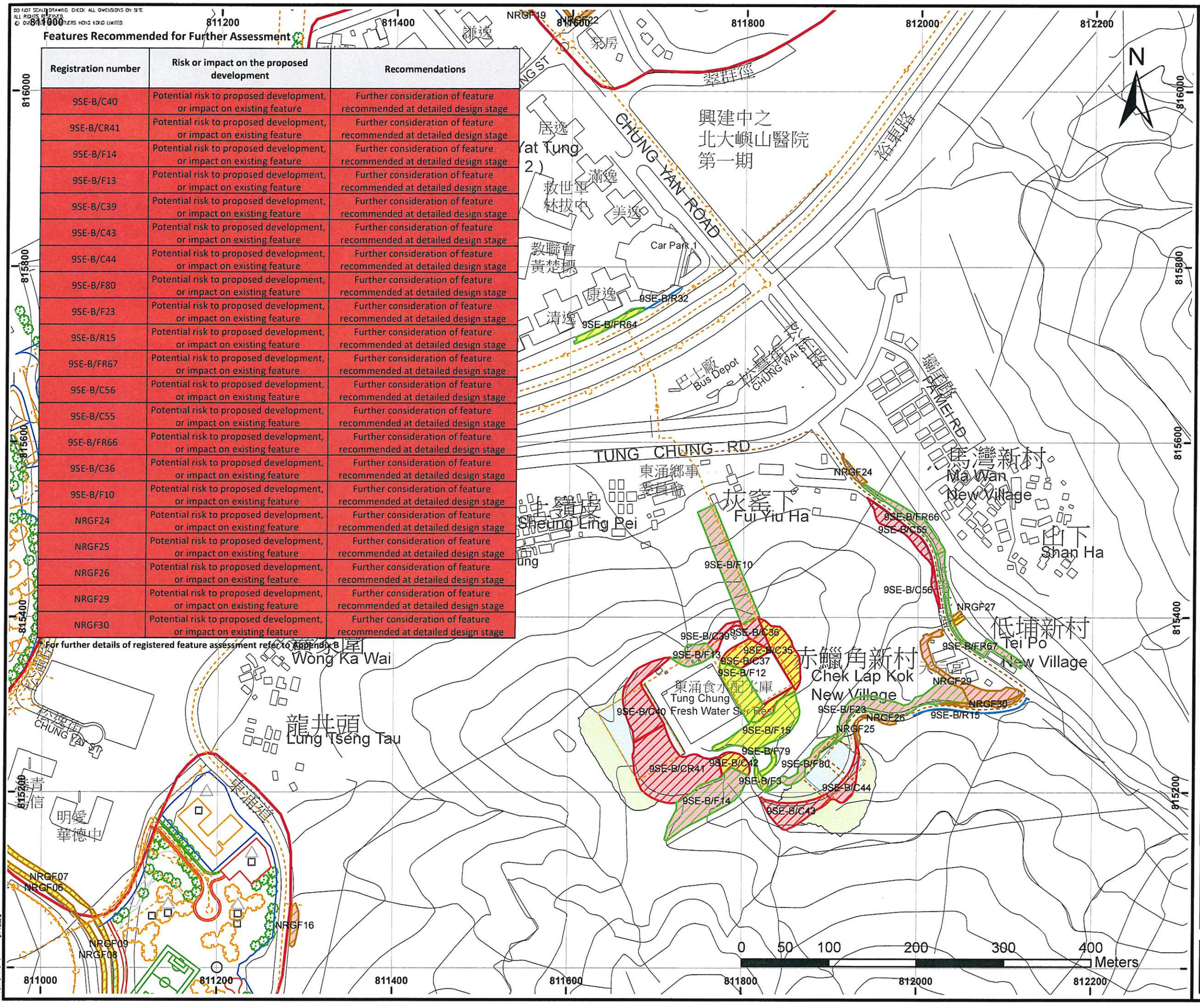
Features Recommended for Further Assessment

Registration number	Risk or impact on the proposed development	Recommendations
9SE-B/C40	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/CR41	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/F14	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/F13	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/C39	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/C43	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/C44	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/F80	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/F23	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/R15	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/FR67	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/C56	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/C55	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/FR66	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/C36	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
9SE-B/F10	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF24	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF25	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF26	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF29	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF30	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage

For further details of registered feature assessment refer to Appendix B



Legend

- TCW Study Boundary

TCW / TCE Development

- Development Area
- Residential or Other Building
- Road
- Recreational or Landscaped Area
- Proposed Utilities / Drainage

Fresh Water Service Reservoir

- Proposed FWSR Location
- Terrain Requiring Modification

Registered Geotechnical Features

- Cut Slope
- Fill Slope
- Retaining Wall
- Defence Measures to NT

Feature Assessment

- No Further Assessment Required
- Further Assessment Required

Note.
For further details of geotechnical feature assessment, refer to **Appendix 9.1**

Rev	Description	By	Date
D	With Non-Registered Fetures	JC	09/2015
C	With Proposed Utilities	JC	06/2015
B	Revised legend and line work	JC	11/2014
A	FIRST ISSUE	JC	03/2014

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Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title
Geotechnical Feature Assessment
Tung Chung West - Fresh Water Service Reservoir

Drawing no.			Rev.
Figure 5.10.8			D
Drawn: JC	Date: Sep 2015	Checked: KL	Approved: JL
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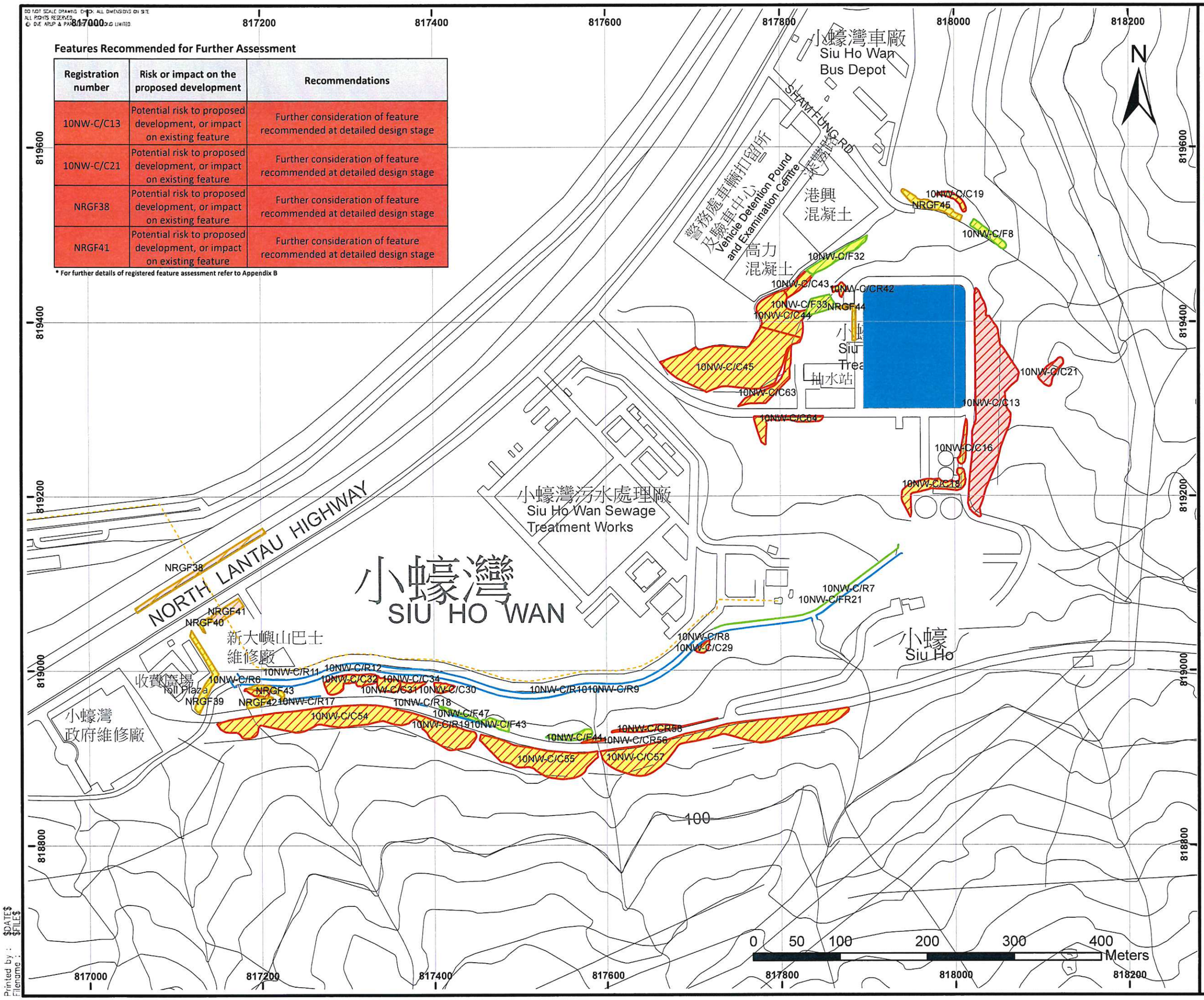
Features Recommended for Further Assessment

Registration number	Risk or impact on the proposed development	Recommendations
10NW-C/C13	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
10NW-C/C21	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF38	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage
NRGF41	Potential risk to proposed development, or impact on existing feature	Further consideration of feature recommended at detailed design stage

* For further details of registered feature assessment refer to Appendix B



Legend

- Water Treatment Facility
- Proposed Utilities / Drainage

Registered Geotechnical Features

- Cut Slope
- Fill Slope
- Retaining Wall
- Defence Measures to NT

Feature Assessment

- No Further Assessment Required
- Further Assessment Required

Note.
For further details of geotechnical feature assessment, refer to **Appendix 9.1**

Rev	Description	By	Date
D	With Non-Registered Fetures	JC	09/2015
C	With Proposed Utilities	JC	06/2015
B	Revised legend and line work	JC	11/2014
A	FIRST ISSUE	JC	03/2014

Consultant
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Project title
Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title
Geotechnical Feature Assessment Sui Ho Wan Water Treatment Facility

Drawing no.	Rev.
Figure 5.10.9	D

Drawn	Date	Checked	Approved
JC	Sep 2015	KL	JL

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810000 812000 814000 816000

9SE-B/C71
9SE-B/C75

9SE-A/C12

10SW-A/C130
10SW-A/CR131
10SW-A/CR151

9SE-C/C69

9SE-C/CR29
9SE-C/C33
9SE-C/CR3

Legend

Study Area
Study_Area

Man-made Feature Study Status

- No Study
- Advisory Letter
- DH Order
- Stage 2 Study
- Stage 2 Study Completed
- Stage 3 Study Under Schedule
- Stage 3 Terminated
- Statge 2 Study Suspended
- Upgrading Works

Rev.	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
AFFECTED MAN-MADE FEATURES WITHIN STUDY AREA AND THEIR STUDY STATUS

Drawing no. Figure 5.10.10 Rev.

Drawn	Date	Checked	Approved
Scale		Status	

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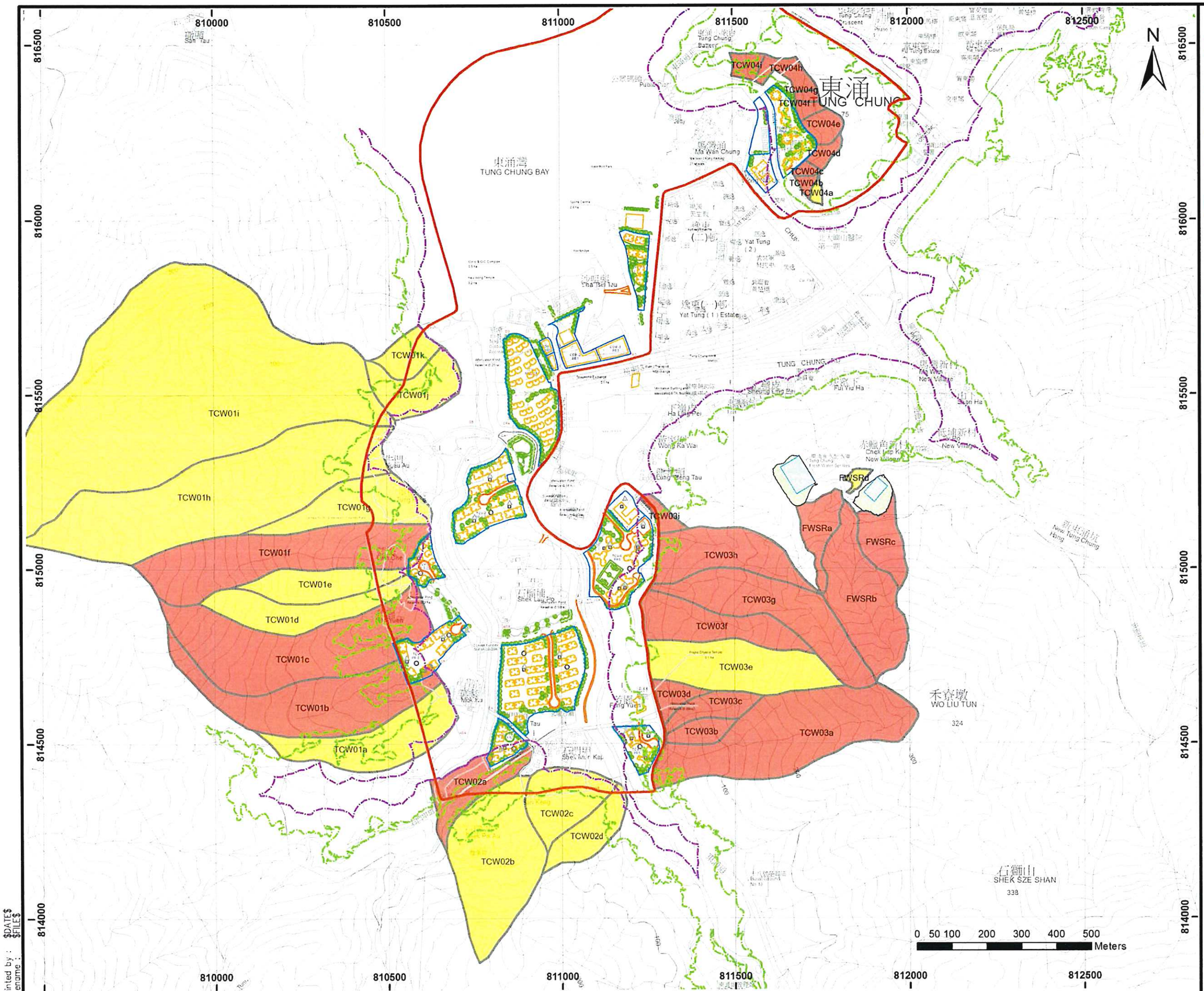

Legend

- TCW Boundary

TCW Development

- Development Area
- Residential or Other Building
- Road
- Recreational or Landscaped Area

Fresh Water Service Reservoir

- Proposed FWSR Location
- Terrain Requiring Modification

Terrain Angle Assessment

- 15 Dergee Terrain Boundary
- 50m Buffer of 15 Dergee Boundary

Catchment Requiring NTHS

- No
- Yes

Rev	Description	By	Date
C	Revised legend and line work	JC	11/2014
B	Revised NTH Screening and Layout	JC	05/2014
A	FIRST ISSUE	JC	03/2014

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

NTHS Screening - TCW

Drawing no.			Rev.
Figure 5.10.11			C
Drawn: JC	Date: Nov 2014	Checked: KL	Approved: JL
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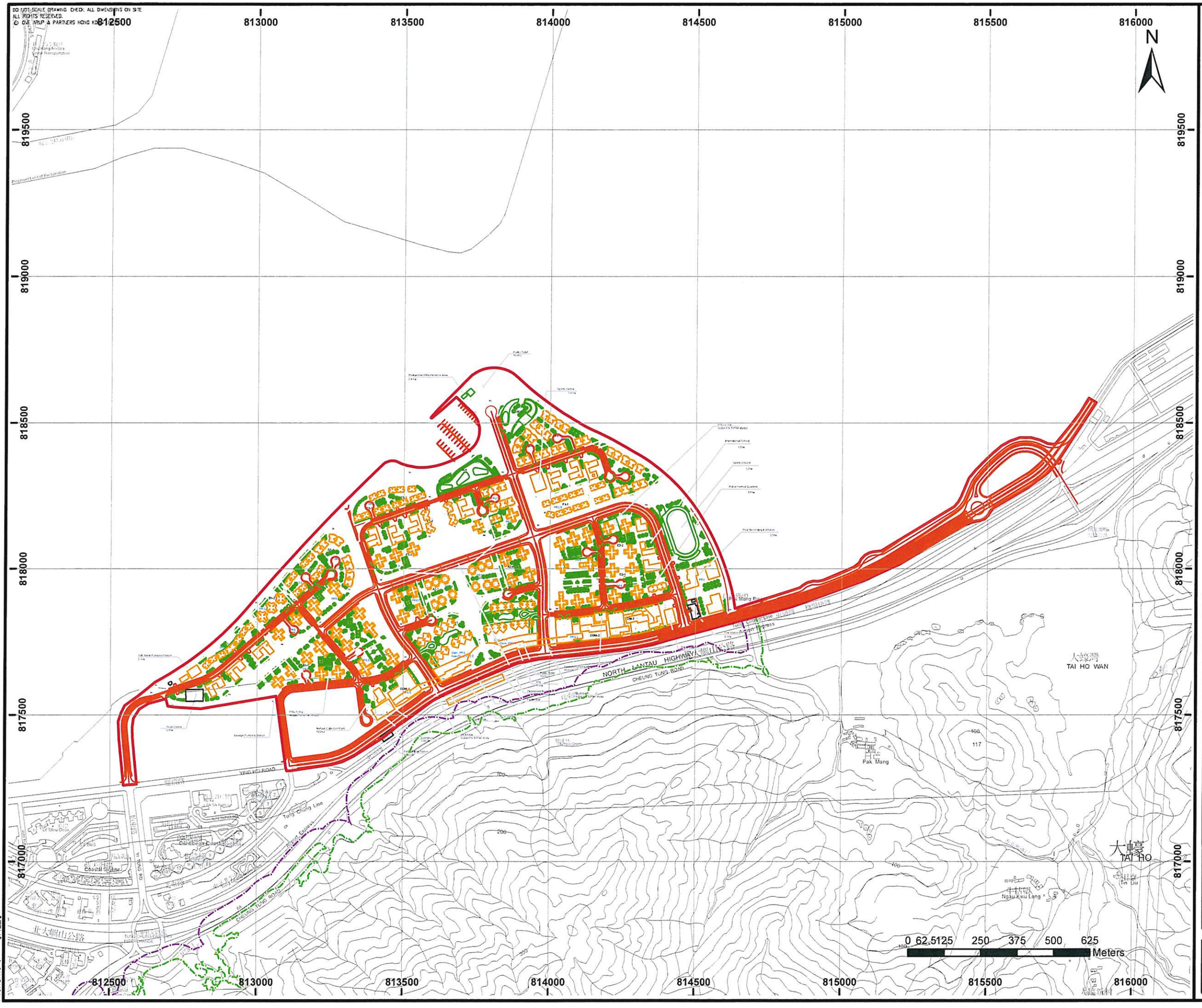

Legend

- TCE Boundary

TCE Development

- Residential or Other Building
- Road
- Recreational or Landscaped Area

Terrain Angle Assessment

- 15 Dergee Terrain Boundary
- 50m Buffer of 15 Dergee Boundary

Rev	Description	By	Date
C	Revised legend and line work and layout	JC	03/2015
B	Revised Layout	JC	05/2014
A	FIRST ISSUE	JC	03/2014

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

NTHS Screening - TCE

Drawing no.	Rev.
Figure 5.10.12	C

Drawn	Date	Checked	Approved
JC	Mar 2015	KL	JL

Scale: 1:12,000 (A3) | Status: Issue

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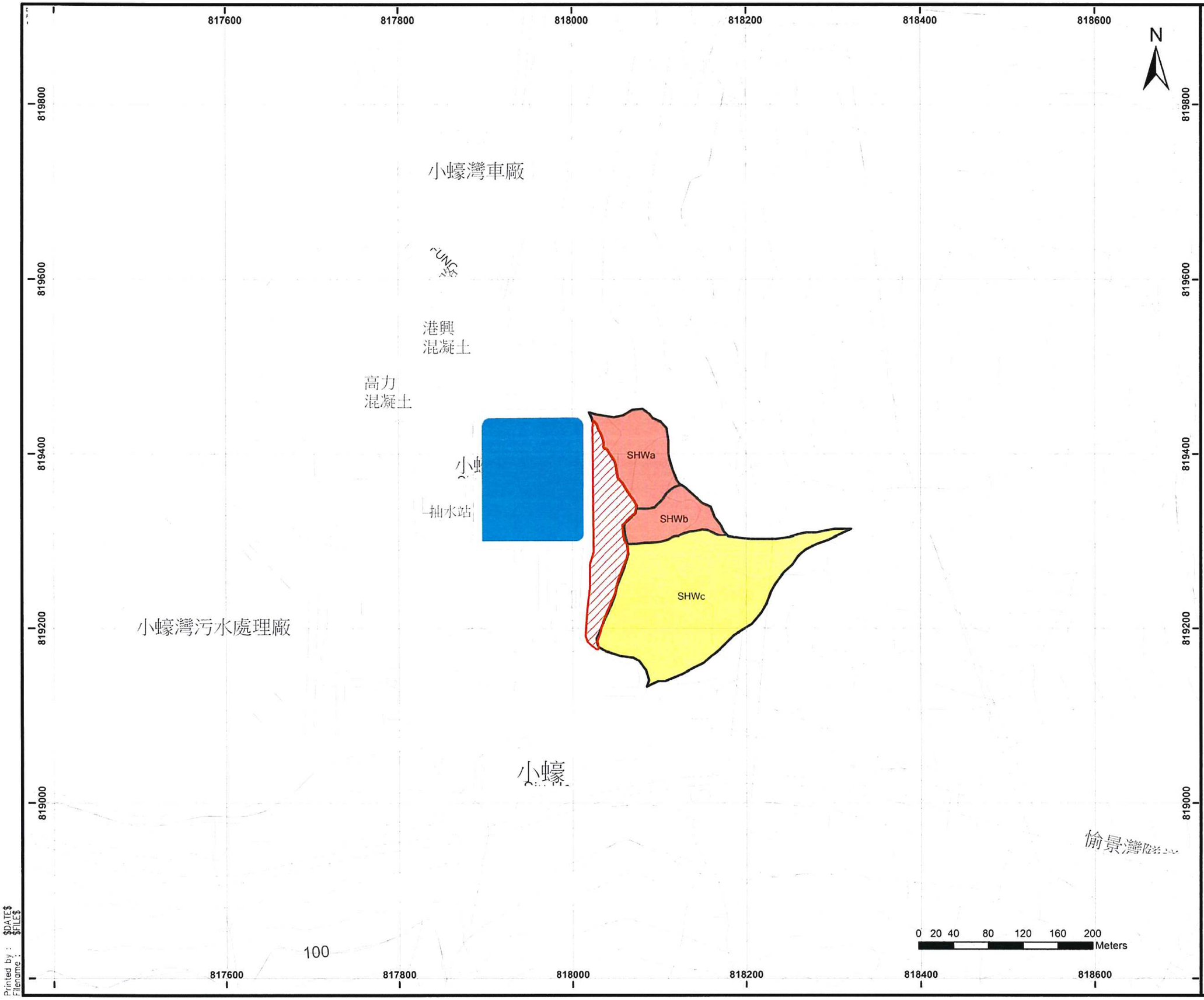

Legend

- Water Treatment Facility

Registered Geotechnical Features

- Cut Slope

Catchment Requiring NTHS

- No
- Yes

Rev	Description	By	Date
A	FIRST ISSUE	JC	06/2015

Consultant: ARUP

Project title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title: **NTHS Screening – SHW WTF**

Drawing no.	Rev.
Figure 5.10.13	A

Drawn	Date	Checked	Approved
JC	June 2015	KL	JL

Scale: 1:4,000 (A3) | Status: Issue

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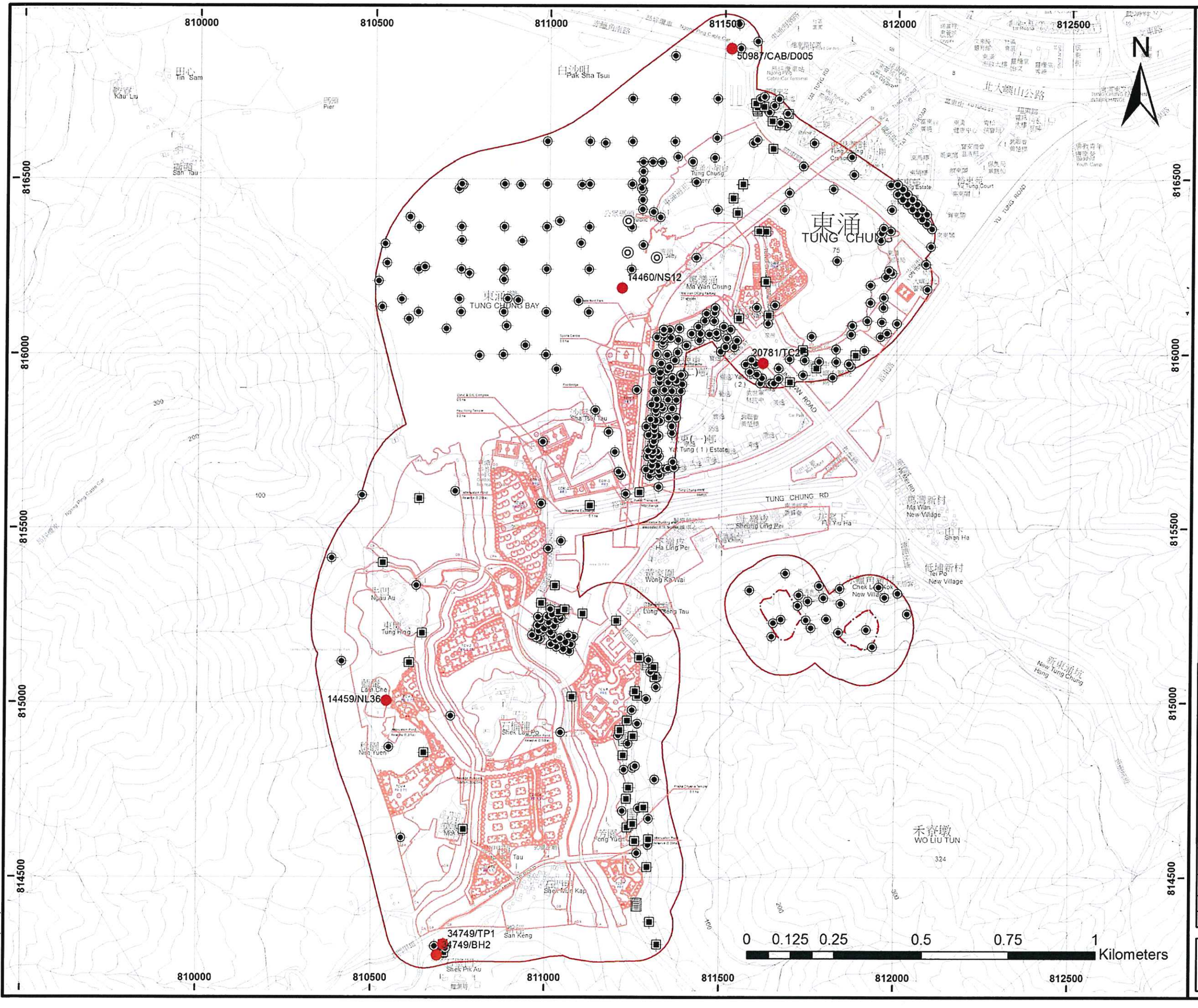

Legend

- TCW Proposed Development
- TCW 100m Buffer

Existing GI

- Boreholes
- Trial Pits
- vibrocore
- Borehole Encountering Faulted Rock

Note.
For further details of existing GI assessment, refer to **Appendix 9.3**

Rev	Description	By	Date
B	Revised GI	JC	11/2014
A	FIRST ISSUE	JC	03/2014

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title
Existing Ground Investigation Assessment

Drawing no.	Rev.
Figure 5.10.14	B

Drawn	Date	Checked	Approved
JC	Nov 2014	KL	JL

Scale: 1:10,000 (A3) Status: Issue

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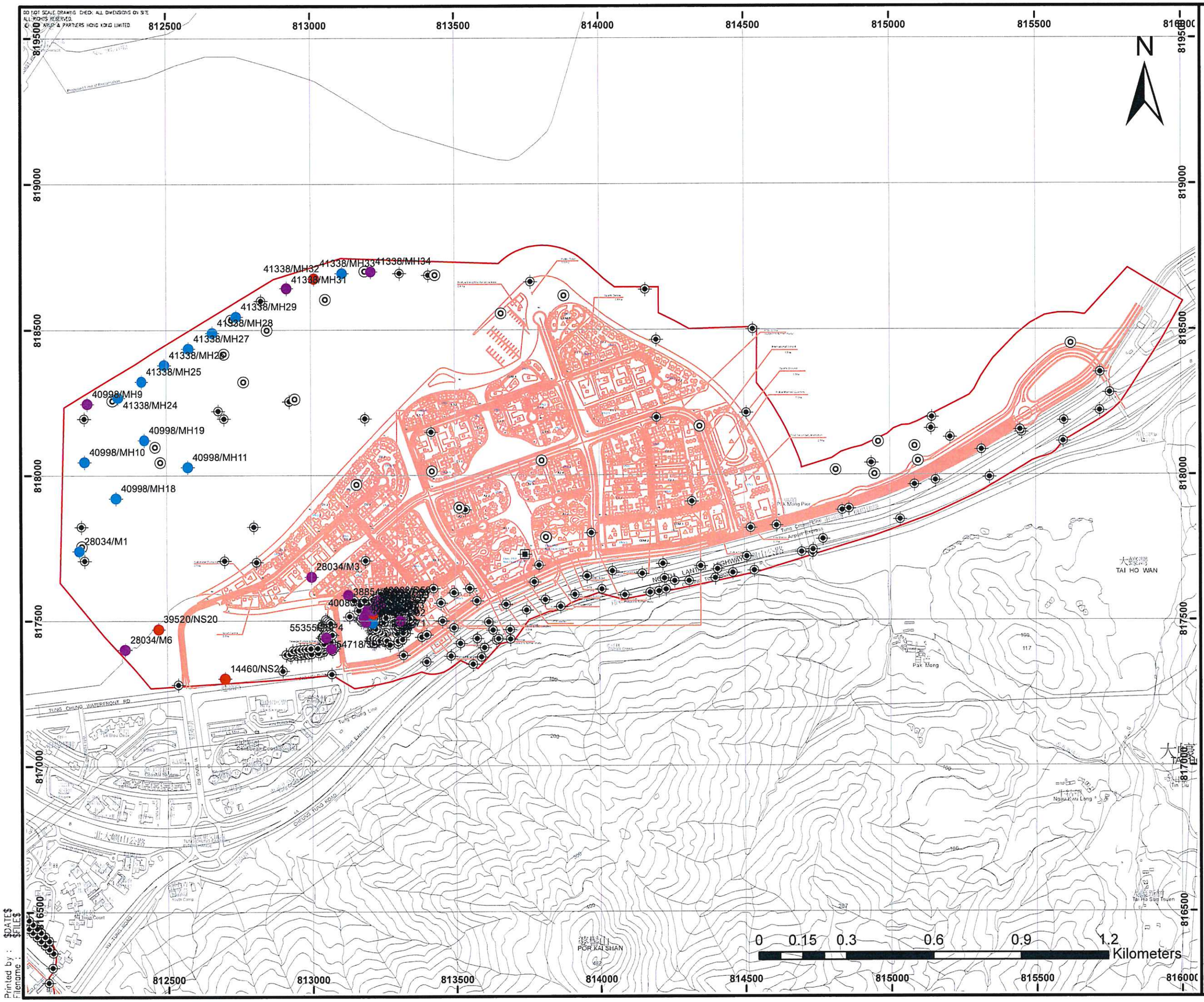

Legend

- TCE Proposed Development
- TCE 100m Buffer (adjusted for GI)

Existing GI

- Boreholes
- Trial Pits
- vibrocore
- Borehole Encountering Meta-sedimentary rock
- Borehole Encountering Faulted Rock
- Borehole Encountering Marble

Note.
For further details of existing GI assessment, refer to **Appendix 9.3**

Rev	Description	By	Date
C	Revised Layout	JC	03/2015
B	Revised Layout	JC	05/2014
A	FIRST ISSUE	JC	03/2014

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
Existing Ground Investigation
Assessment

Drawing no. Figure 5.10.15 | Rev. C

Drawn	Date	Checked	Approved
JC	Mar 2015	KL	JL

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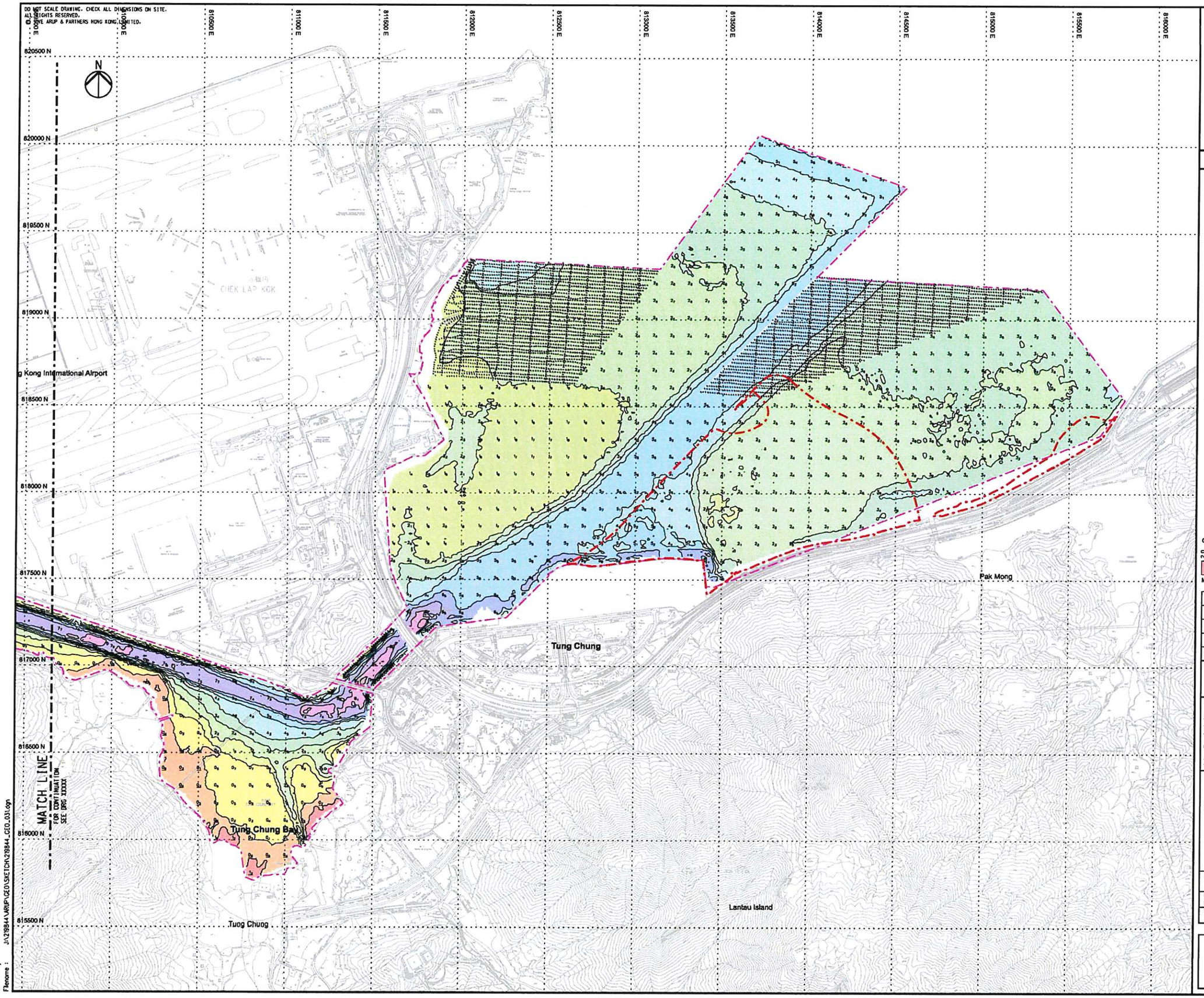

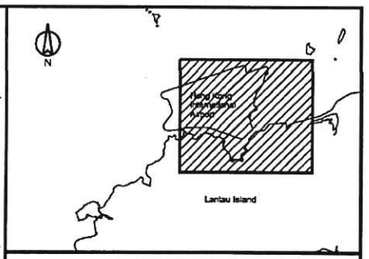

Key Plan

Notes

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(2) CED Contract Number GE/2003/18 – Works Oder Number GE/2003/18.41 – Hong Kong Section of the Hong Kong-Zhuhai-Macao Bridge and Connection with the North Lantau Highway – Investigation – Additional Marine Geophysical Surveys For Revised Alignment Option TH – Final Report, November 2004.

Legend

- Existing Geophysical Survey (HZMB)
- Proposed Reclamation Boundary
- $\frac{1_1}{-2.0}\ \frac{4_2}{}$ Sounding value in metres above/below HK Principal Datum
- Masked Zone (TMCLKL)
- Masked Zone (HZMB)

Geophysical Survey (HZMB)

2.0 1.0 0.0 1.0 2.0 3.0 4.0 5.0 6.0 7.0 8.0 9.0 10.0 11.0

Metres below HK Principal Datum

Rev	Description	By	Date
C	ISSUE FOR TP11BG & TP17BG	KL	07/14
B	SECOND ISSUE	KL	03/14
A	FIRST ISSUE	KL	05/13

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

INFERRED SEABED LEVEL FROM ECHO SOUNDING SURVEY

Drawing no. Figure 5.10.16 Rev. C

Drawn	Date	Checked	Approved
MYC	05/2013	KKY	DML

Scale 1:10000 @ A1, 1:20000 @ A3

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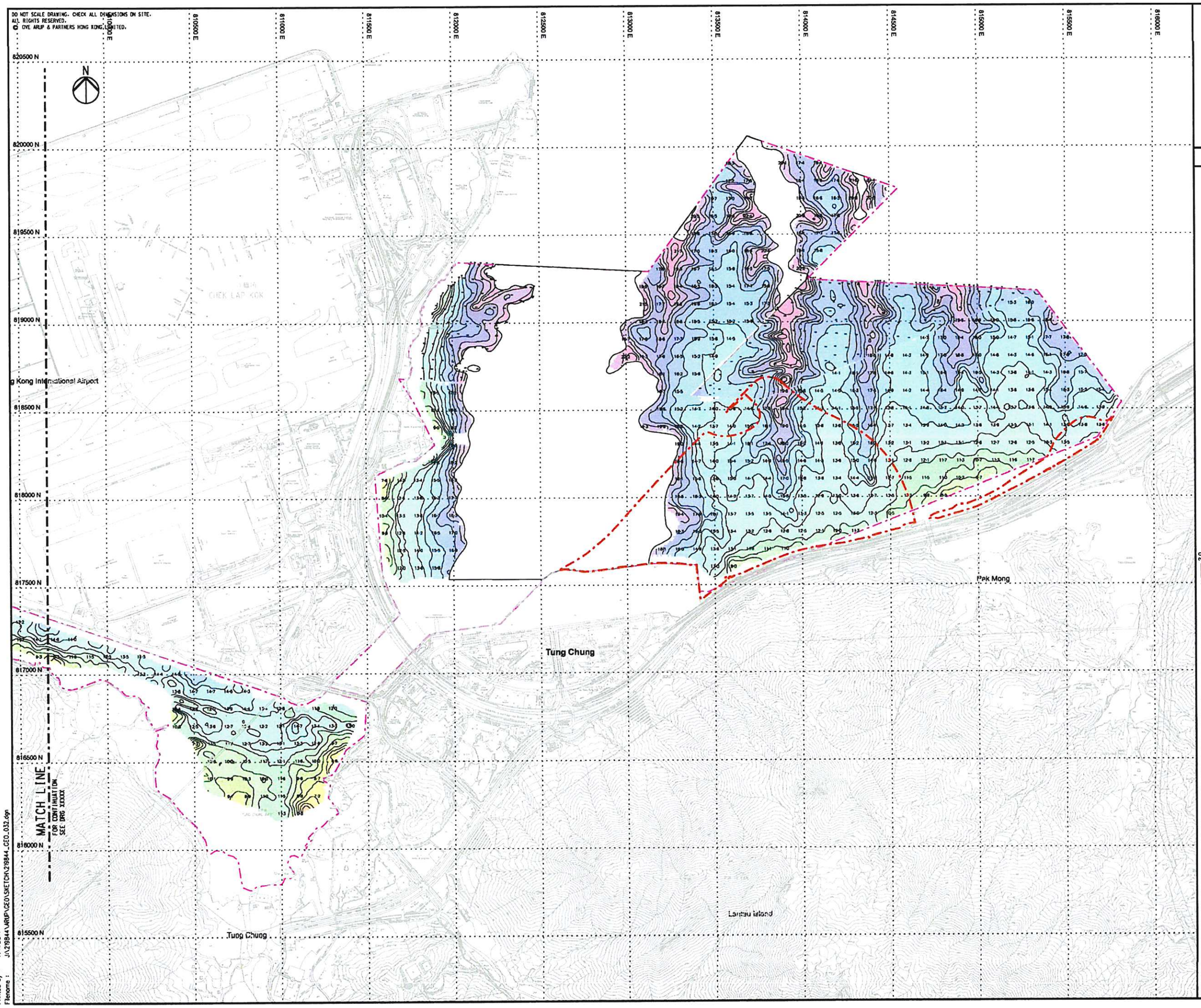

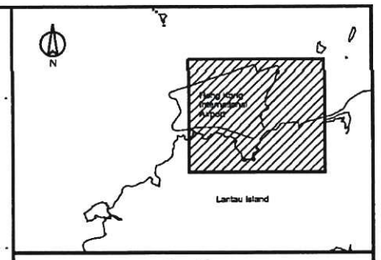

Key Plan

Notes

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(2) CED Contract Number GE/2003/18 – Works Oder Number GE/2003/18.41 – Hong Kong Section of the Hong Kong-Zhuhai-Macao Bridge and Connection with the North Lantau Highway – Investigation – Additional Marine Geophysical Surveys For Revised Alignment Option TH – Final Report, November 2004.

Legend

- Existing Geophysical Survey (HZMB)
- Proposed Reclamation Boundary
- $\frac{1_1}{-2.0}\ \frac{4_2}{}$ Sounding value in metres above/below HK Principal Datum
- Masked Zone (TMCLKL)
- Masked Zone (HZMB)

Geophysical Survey (HZMB)

2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0 25.0

Metres below HK Principal Datum

Rev	Description	By	Date
C	ISSUE FOR TP11BG & TP17BG	KL	07/14
B	SECOND ISSUE	KL	03/14
A	FIRST ISSUE	KL	05/13

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

INFERRED BASE OF MARINE DEPOSITS FROM MARINE SEISMIC REFLECTION SURVEY

Drawing no.		Rev.
Figure 5.10.17		C
Drawn: MYC	Date: 05/2013	Checked: KKY / Approved: DML
Scale: 1:10000 @ A1, 1:20000 @ A3		Status: PRELIMINARY

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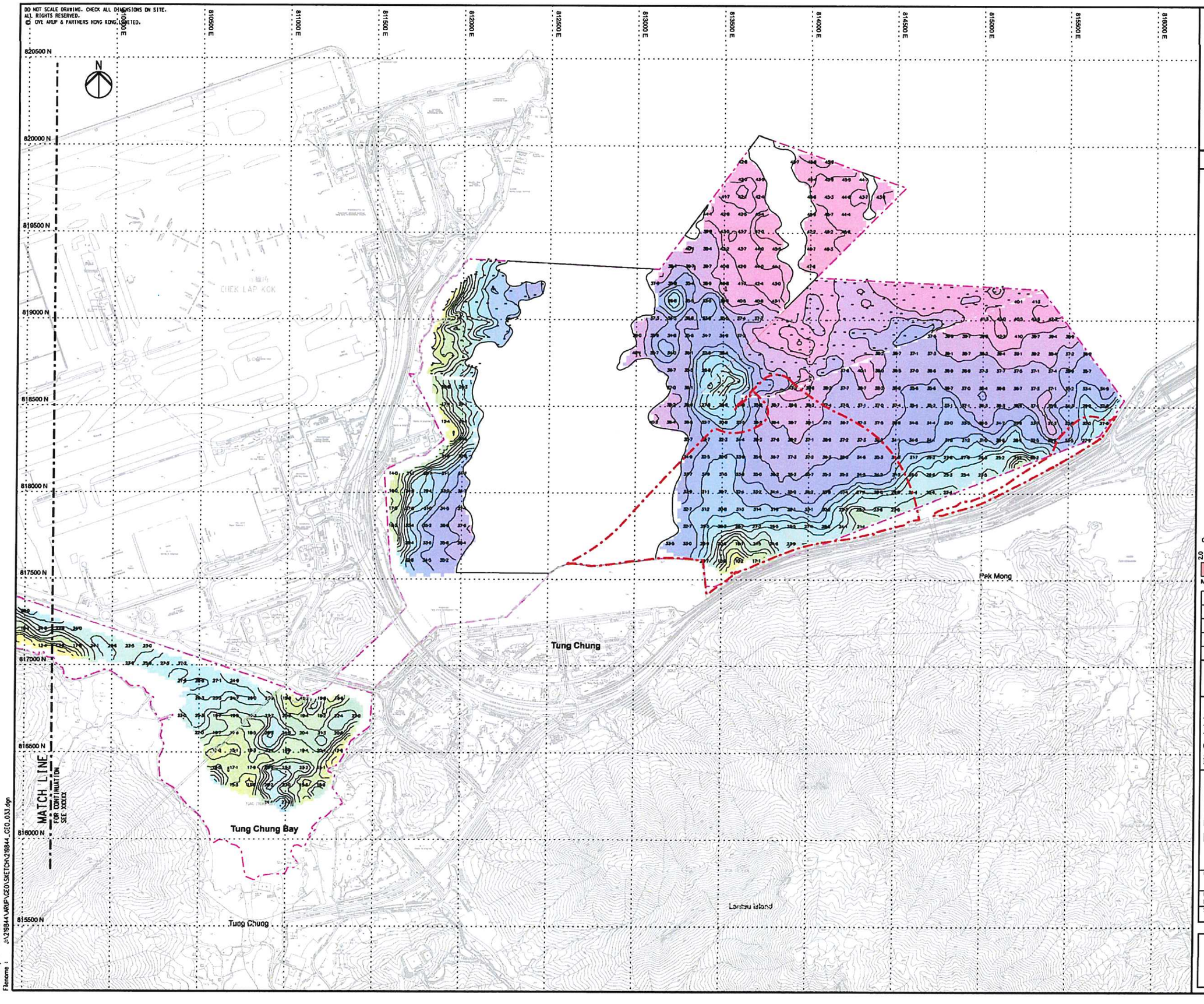

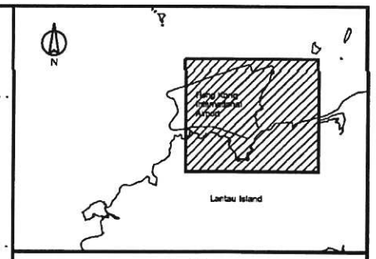

Key Plan

Notes

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(2) CED Contract Number GE/2003/18 – Works Oder Number GE/2003/18.41 – Hong Kong Section of the Hong Kong-Zhuhai-Macao Bridge and Connection with the North Lantau Highway – Investigation – Additional Marine Geophysical Surveys For Revised Alignment Option TH – Final Report, November 2004.

Legend

- Existing Geophysical Survey (HZMB)
- Proposed Reclamation Boundary
- $\frac{1_1}{-2.0}\ \frac{4_2}{}$ Sounding value in metres above/below HK Principal Datum
- Masked Zone (TMCLKL)
- Masked Zone (HZMB)

Geophysical Survey (HZMB)

2.0 4.0 6.0 8.0 10.0 12.0 14.0 16.0 18.0 20.0 22.0 24.0 26.0 28.0 30.0 32.0 34.0 36.0 38.0 40.0 42.0 44.0 46.0 50.0

Metres below HK Principal Datum

Rev	Description	By	Date
C	ISSUE FOR TP11BG & TP17BG	KL	07/14
B	SECOND ISSUE	KL	03/14
A	FIRST ISSUE	RL	05/13

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

INFERRED TOP OF ROCK IN ANY STATE OF DECOMPOSITION FROM MARINE SEISMIC REFLECTION SURVEY

Drawing no.		Rev.
Figure 5.10.18		C
Drawn: MYC	Date: 05/2013	Checked: KKY / Approved: DML
Scale: 1:1000 @ A1, 1:2000 @ A3	Status: PRELIMINARY	

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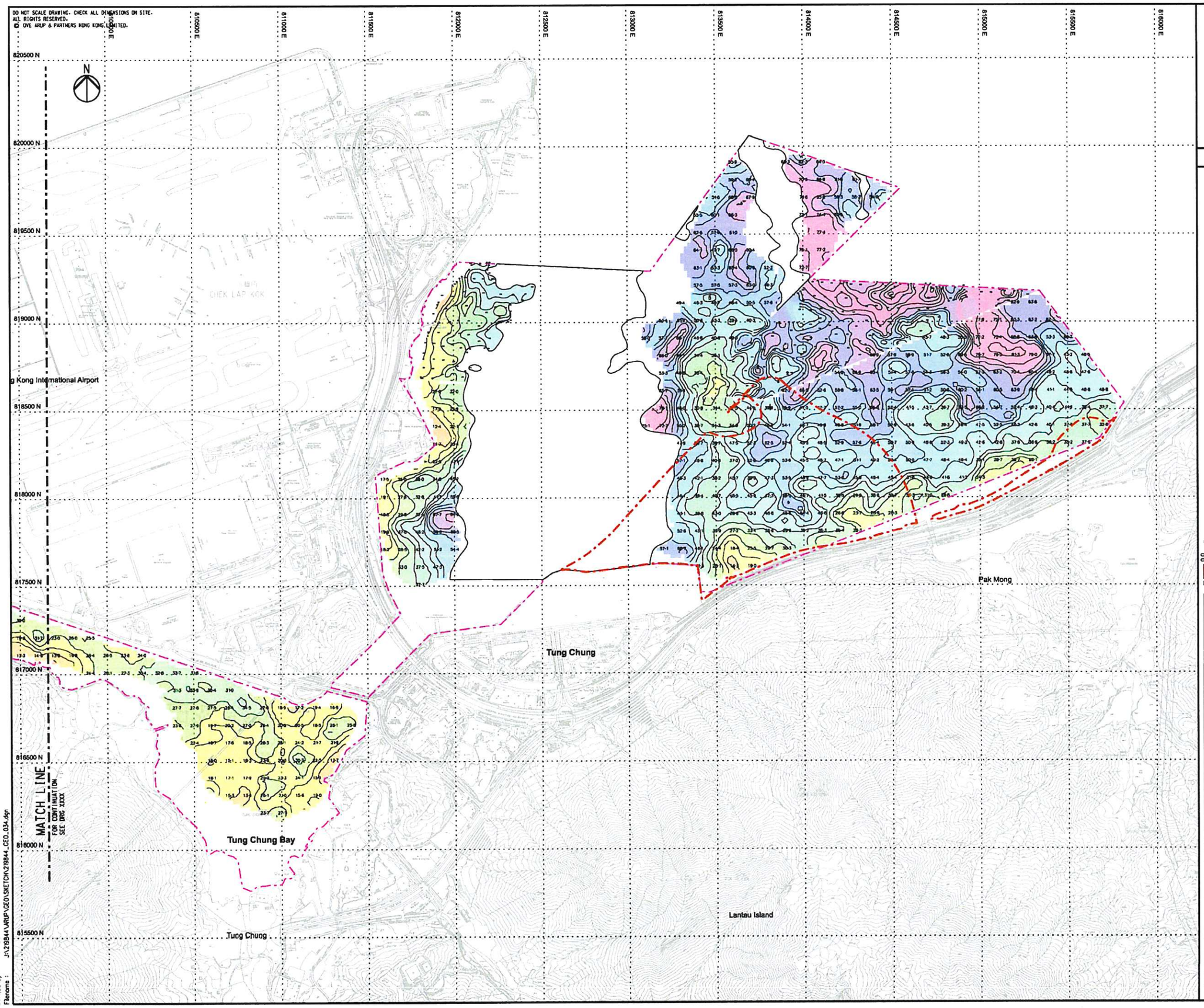

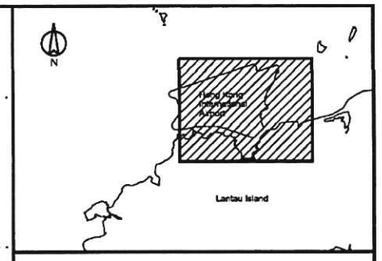

Key Plan

Notes

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(2) CED Contract Number GE/2003/18 – Works Oder Number GE/2003/18.41 – Hong Kong Section of the Hong Kong-Zhuhai-Macao Bridge and Connection with the North Lantau Highway – Investigation – Additional Marine Geophysical Surveys For Revised Alignment Option TH – Final Report, November 2004.

Legend

- Existing Geophysical Survey (HZMB)
- PROPOSED RECLAMATION BOUNDARY
- $\frac{1_1}{-2.0}\ \frac{4_2}{}$ Sounding value in metres above/below HK Principal Datum
- Masked Zone (TMCLKL)
- Masked Zone (HZMB)

Geophysical Survey (HZMB)

0.0 5.0 10.0 15.0 20.0 25.0 30.0 35.0 40.0 45.0 50.0 55.0 60.0 65.0 70.0 75.0 80.0 85.0

Metres below HK Principal Datum

Rev	Description	By	Date
C	ISSUE FOR TP11BG & TP17BG	KL	07/14
B	SECOND ISSUE	KL	03/14
A	FIRST ISSUE	RL	05/13

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title

INFERRED TOP OF GRADE III ROCK FROM MARINE SEISMIC REFLECTION SURVEY

Drawing no.			Rev.
	Figure 5.10.19		C
Drawn: MYC	Date: 05/2013	Checked: KKY	Approved: DML
Scale: 1:10000 @ A1, 1:20000 @ A3		Status: PRELIMINARY	

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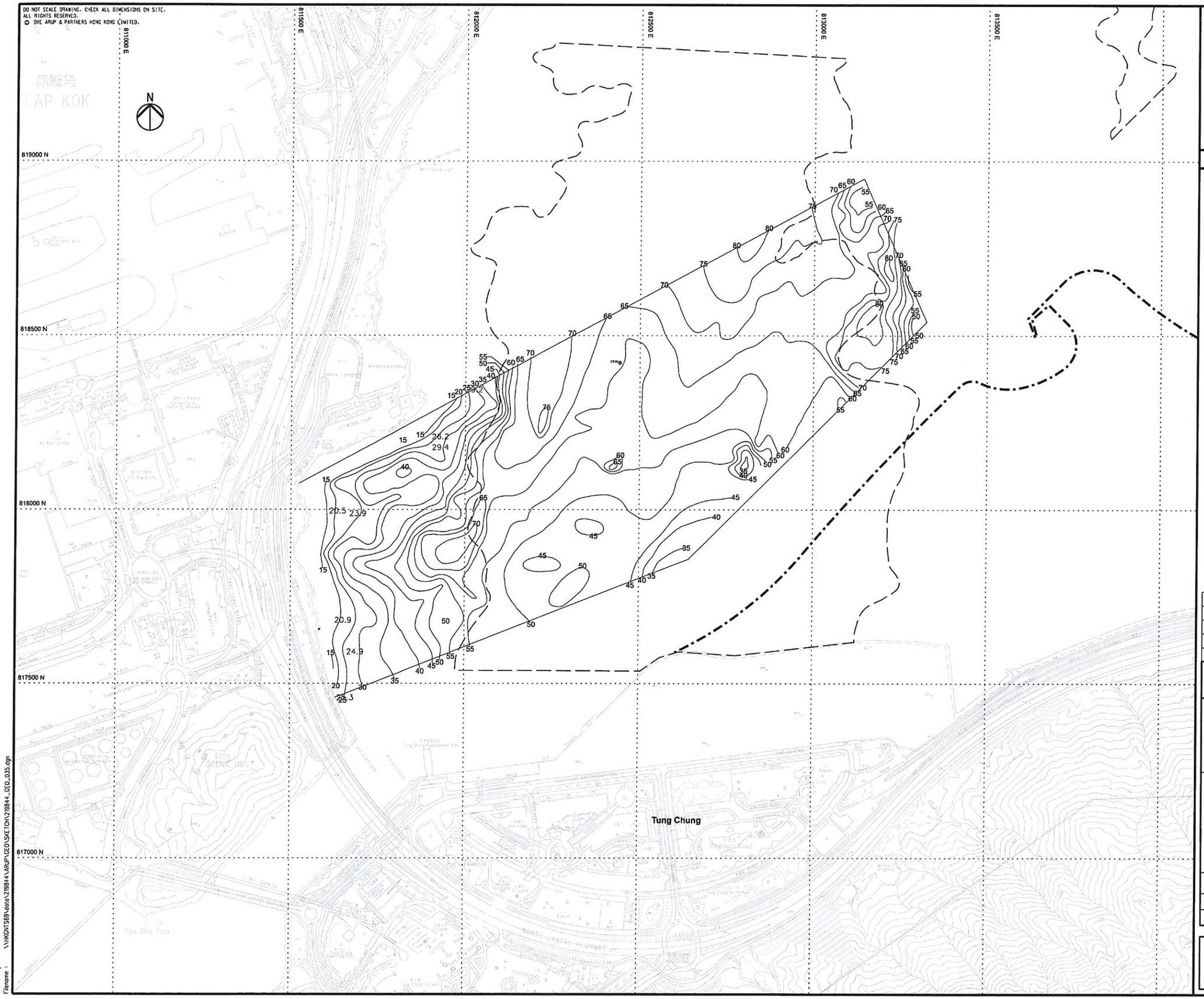

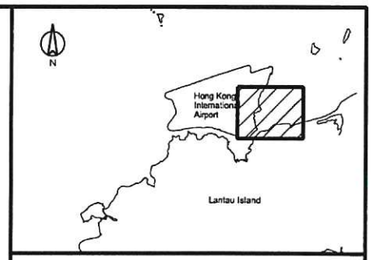

Key Plan

Legend

- Contour at 5 Metre Interval
- PROPOSED RECLAMATION BOUNDARY
- Masked Zone

Rev	Description	By	Date
B	SECOND ISSUE	KL	03/14
A	FIRST ISSUE	RL	05/13

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

INFERRED TOP OF GRADE III ROCK NEAR TCE FROM MARINE GRAVLTY SURVEY

Drawing no.			Rev.
Figure 5.10.20			B
Drawn: MYC	Date: 05/2013	Checked: KKY	Approved: DML
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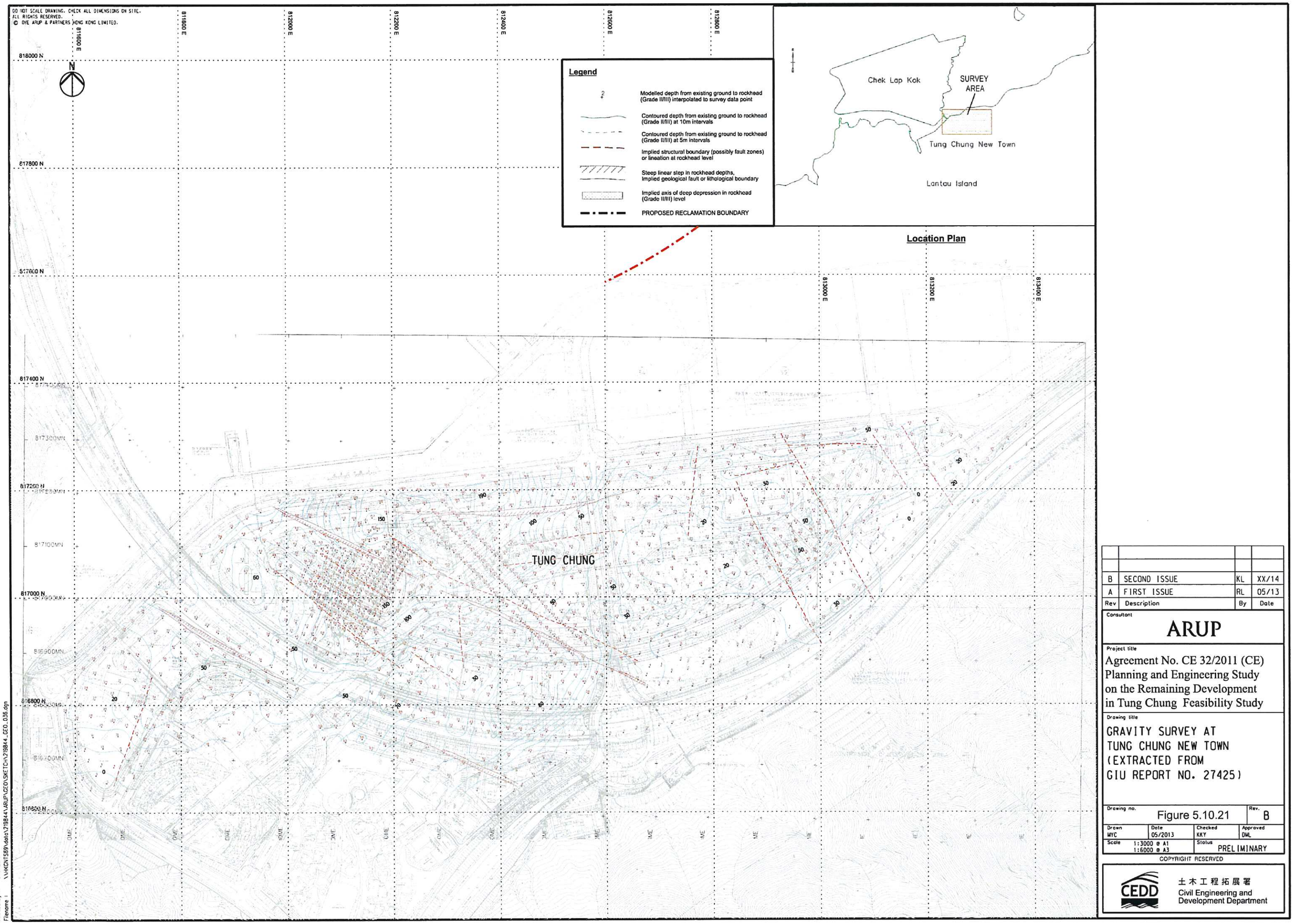

Rev	Description	By	Date
B	SECOND ISSUE	KL	XX/14
A	FIRST ISSUE	RL	05/13

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

GRAVITY SURVEY AT
TUNG CHUNG NEW TOWN
(EXTRACTED FROM
GIU REPORT NO. 27425)

Drawing no.	Rev.
Figure 5.10.21	B

Drawn	Date	Checked	Approved
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1:6000 @ A3

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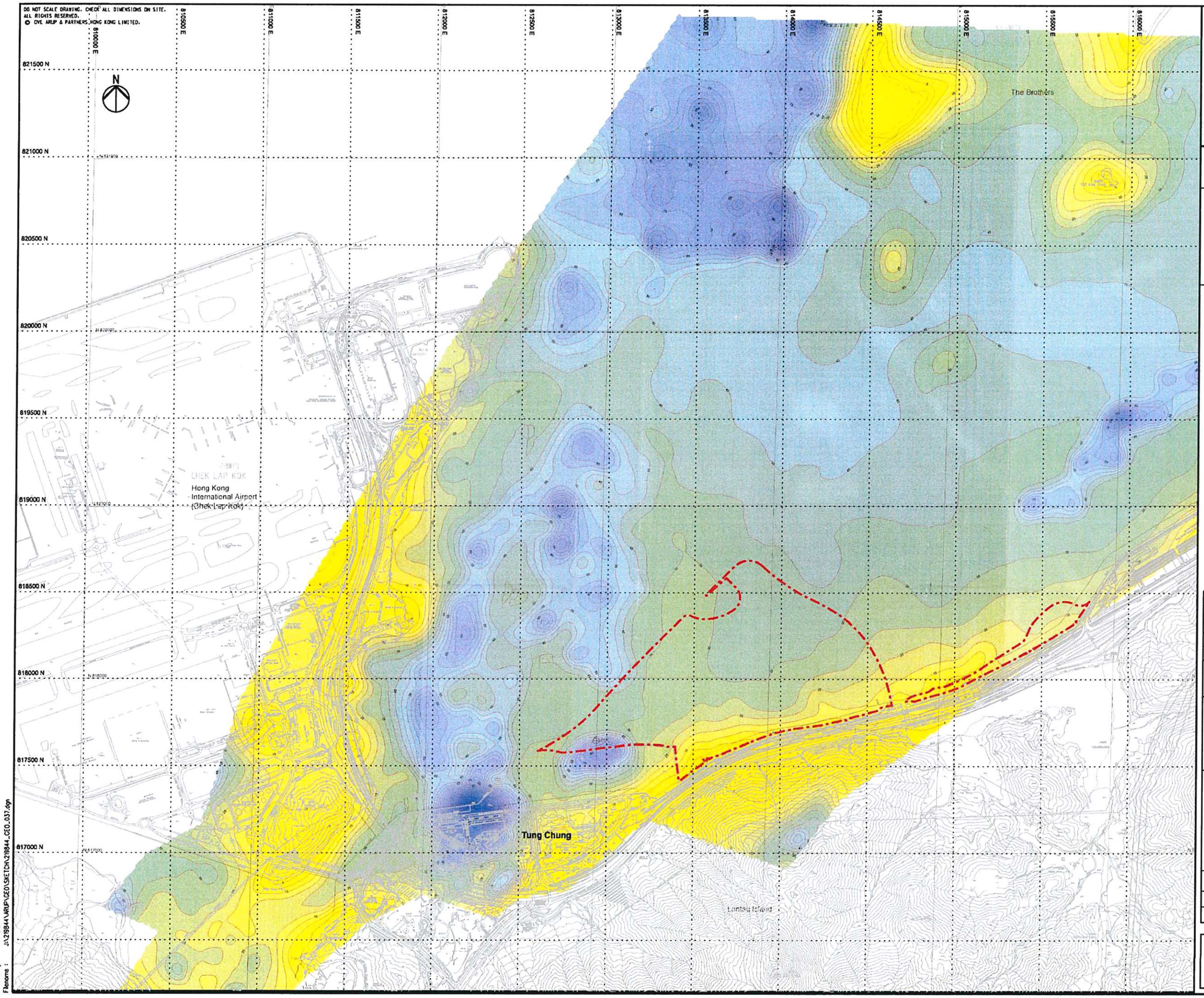

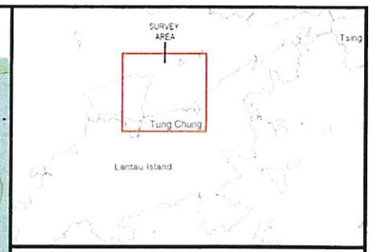

Location Plan

Legend

Contour at 5m intervals average depth from existing ground to rockhead (Top of grade III or lower)

PROPOSED RECLAMATION BOUNDARY

Rev	Description	By	Date
C	ISSUE FOR TP11BG & TP17BG	KL	07/14
B	SECOND ISSUE	KL	03/14
A	FIRST ISSUE	RL	05/13

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

OFFSHORE GRAVITY SURVEY AT
TUNG CHUNG NEW TOWN
(EXTRACTED FROM
GIU REPORT NO. 28792)

Drawing no. Figure 5.10.22 Rev. C

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MYC	05/2013	KKY	DML

Scale 1:10000 @ A1, 1:20000 @ A3

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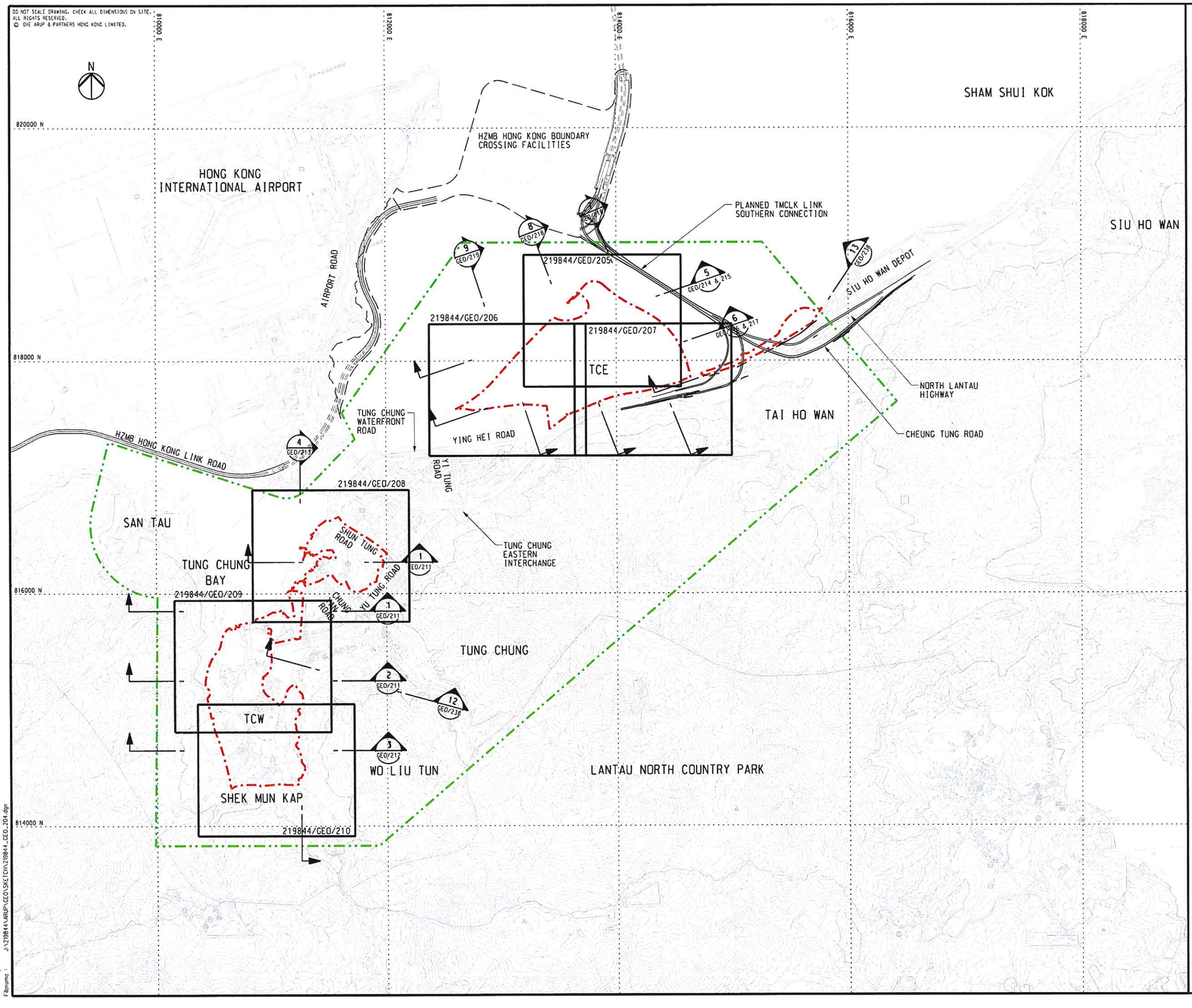

LEGEND

- STUDY AREA
- POTENTIAL NEW TOWN EXPANSION AREA

Rev	Description	By	Date
A	FIRST ISSUE	KL	02/14

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

GEOLOGICAL SECTION

- KEYPLAN

Drawing no.	Rev.
Figure 5.10.23	A

Drawn	Date	Checked	Approved
RiL	02/2014	KKY	DML

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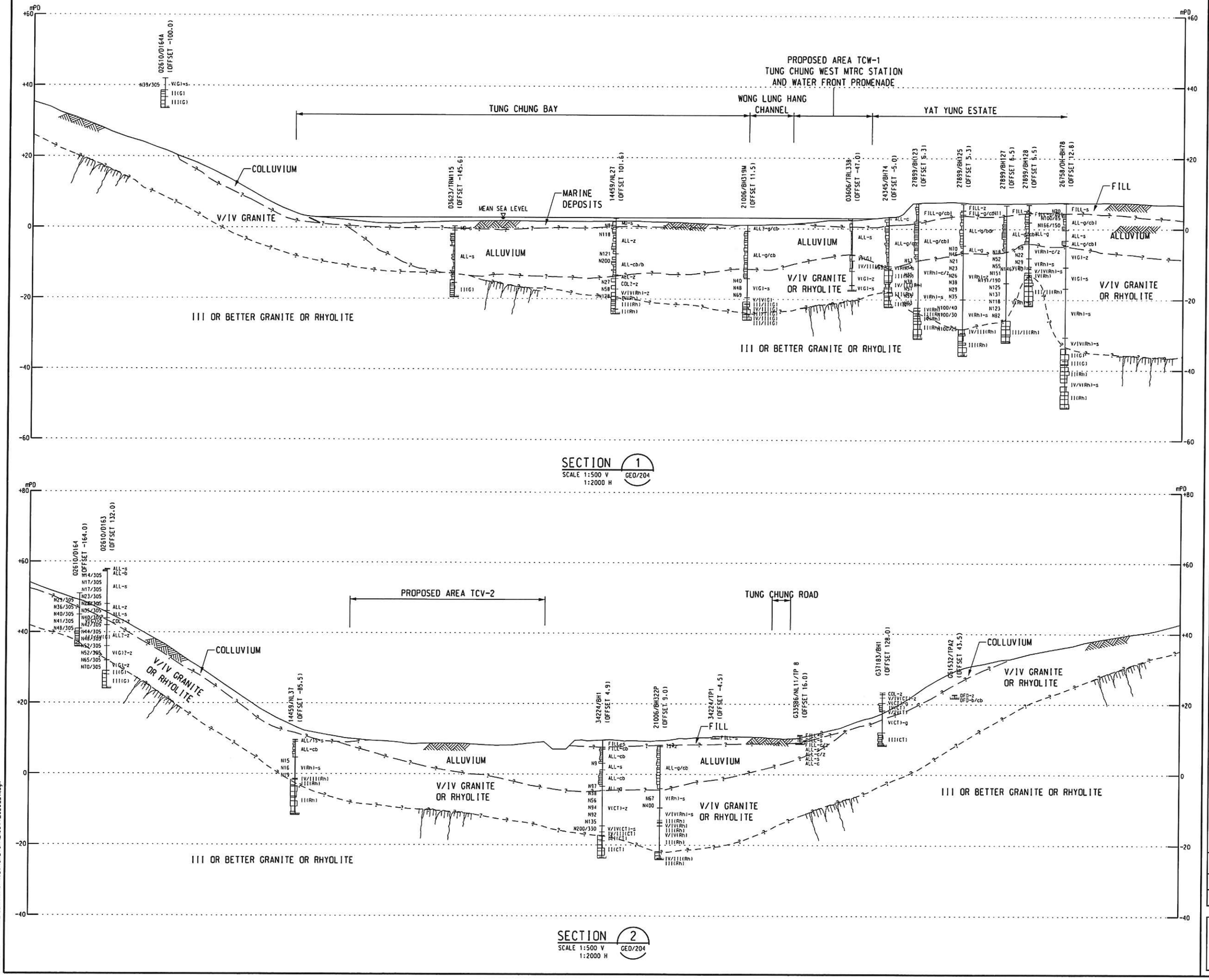

SECTION 1
SCALE 1:500 V
1:2000 H
GEO/204

SECTION 2
SCALE 1:500 V
1:2000 H
GEO/204

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
GEOLOGICAL SECTIONS
(SHEET 1)

Drawing no.		Rev.
Figure 5.10.24		-
Drawn: RiL	Date: 03/2014	Checked: KKY	Approved: DML
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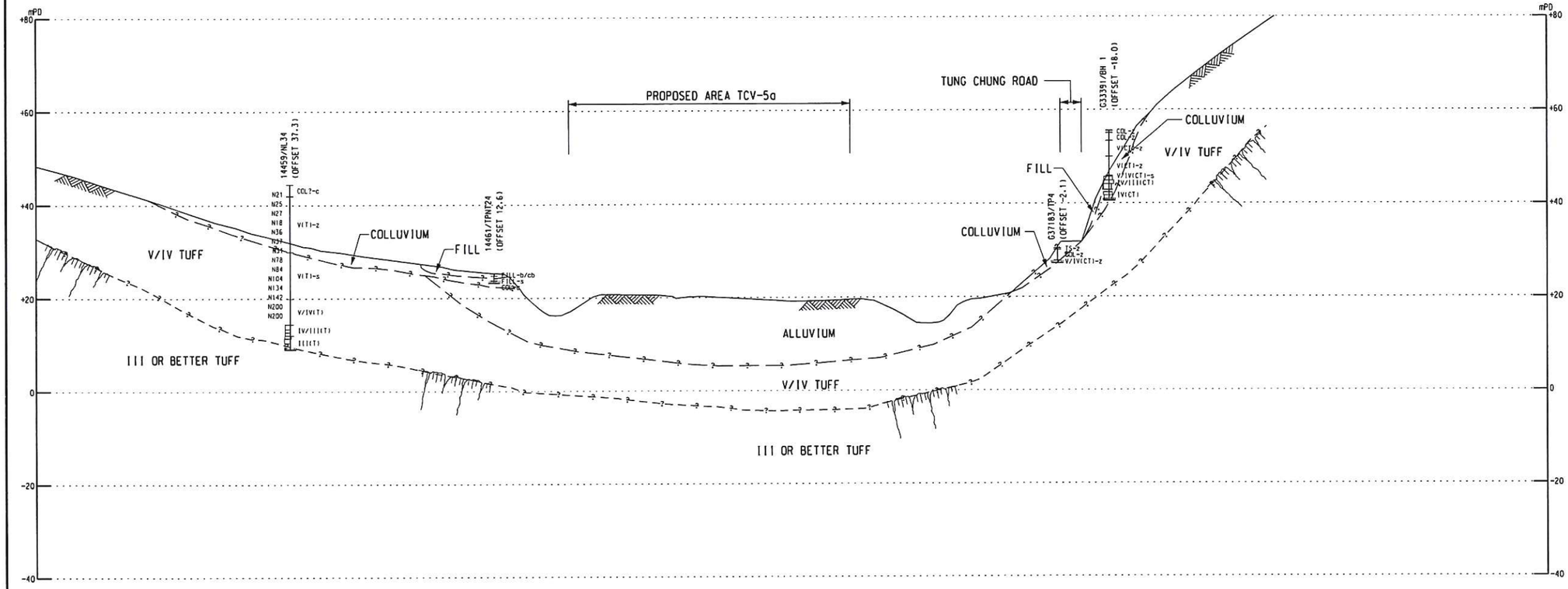

SECTION 3
SCALE 1:500 V
1:2000 H
GEO/205

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
GEOLOGICAL SECTIONS
(SHEET 2)

Drawing no.	Rev.
Figure 5.10.25	–

Drawn	Date	Checked	Approved
RiL	03/2014	KKY	DML

Scale 1:500 V 1:2000 H @ A1
1:1000V 1:4000 H @ A3
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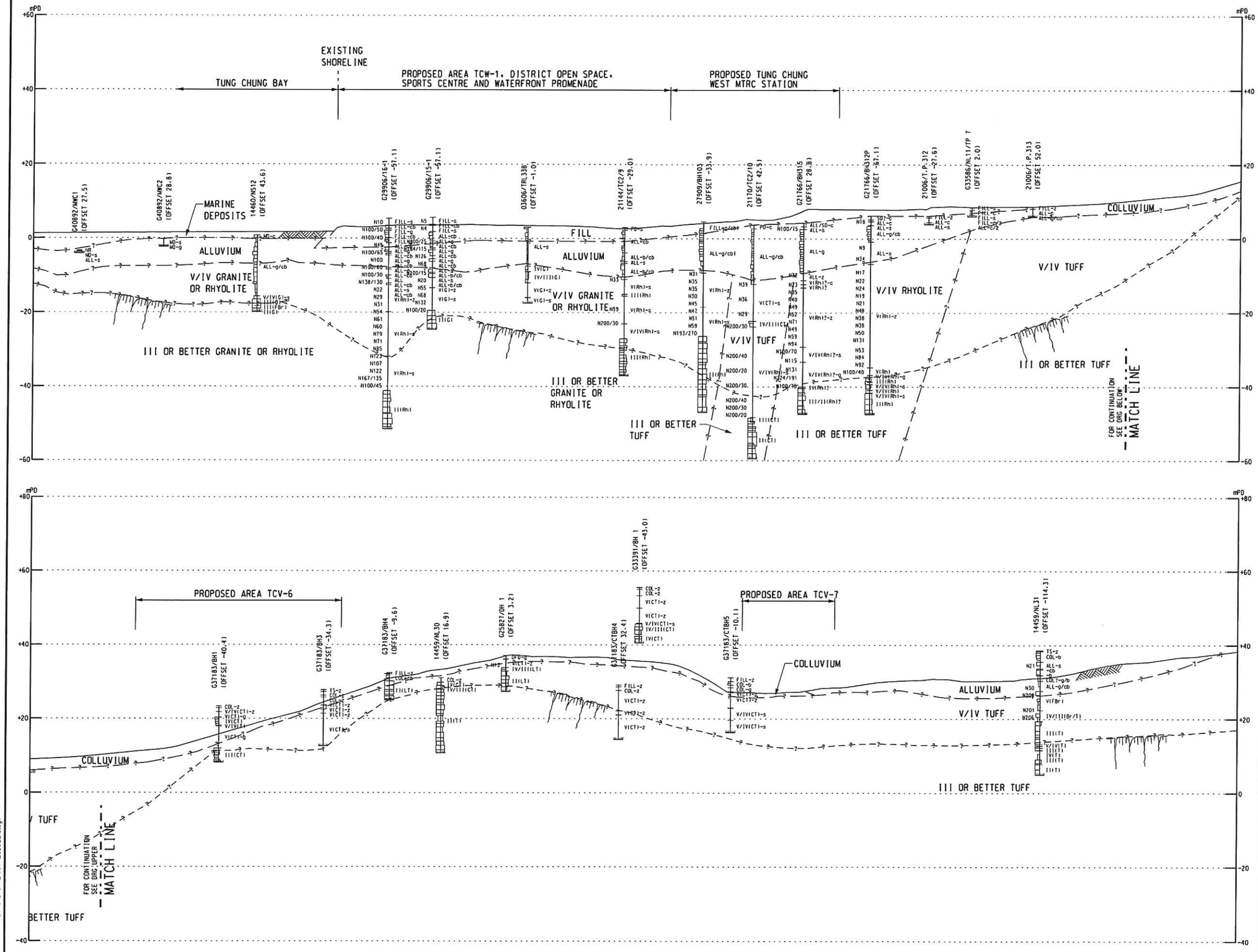

SECTION 4
SCALE 1:500 V
1:2000 H
GEO/204

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
GEOLOGICAL SECTIONS
(SHEET 3)

Drawing no.	Rev.
Figure 5.10.26	-

Drawn	Date	Checked	Approved
RiL	03/2014	KKY	DML

Scale 1:500 V 1:2000 H @ A1
1:1000V 1:4000 H @ A3
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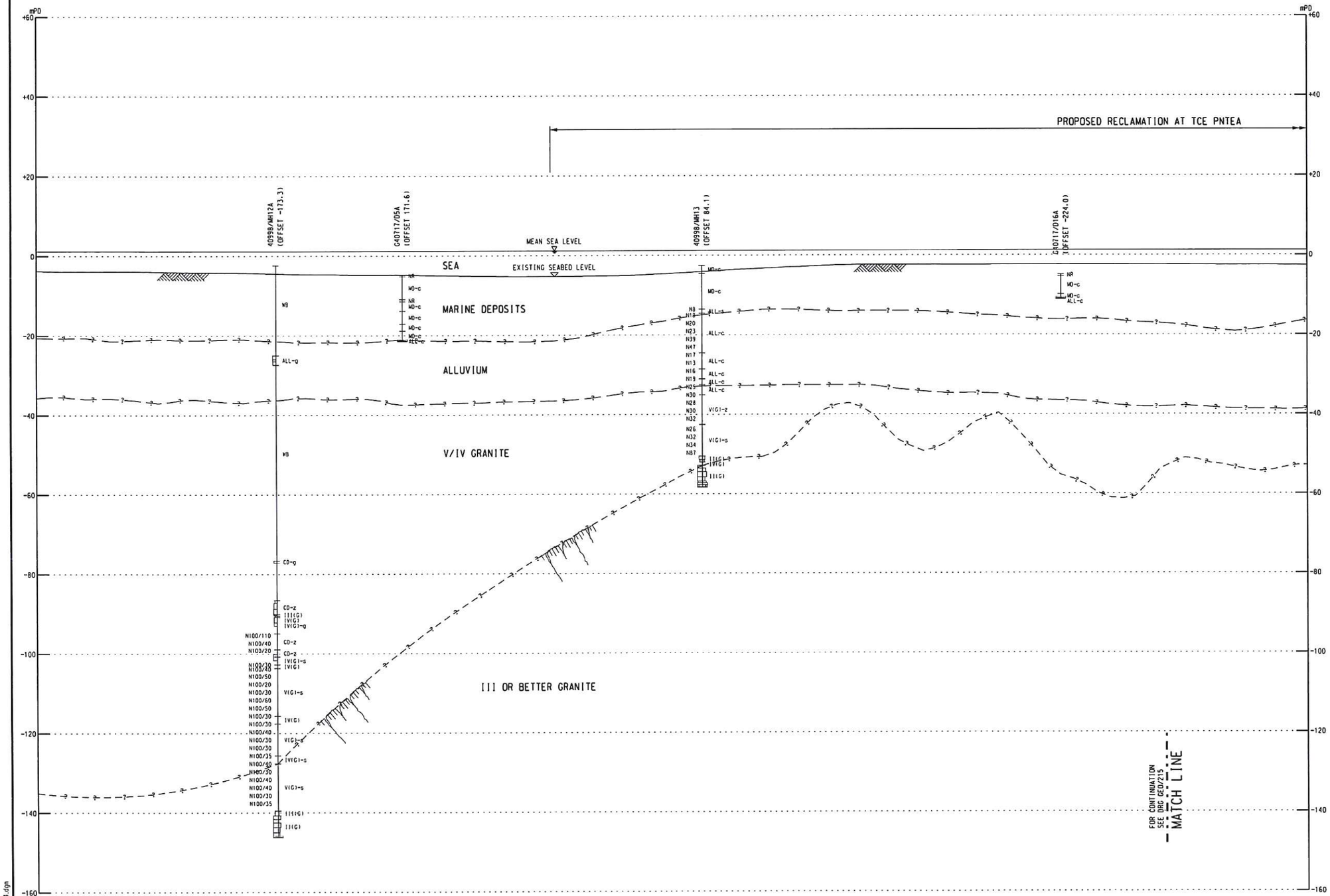

SECTION 5
SCALE 1:500 V 1:2000 H
GEO/204

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
GEOLOGICAL SECTIONS
(SHEET 4)

Drawing no.	Rev.
Figure 5.10.27	-

Drawn	Date	Checked	Approved
RiL	03/2014	KKY	DML

Scale 1:500 V 1:2000 H @ A1
1:1000V 1:4000 H @ A3
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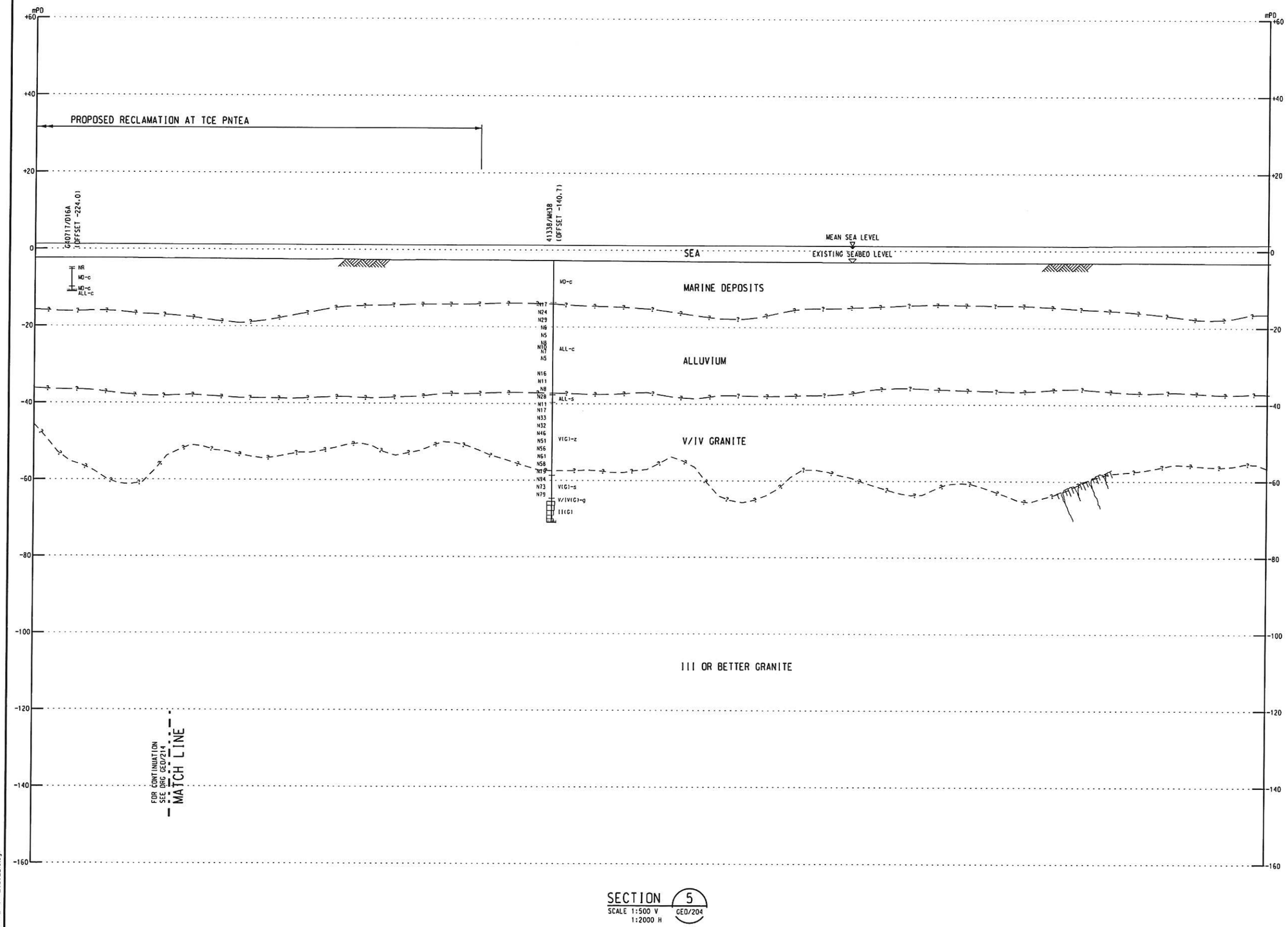

SECTION 5
SCALE 1:500 V
1:2000 H
GEO/204

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
GEOLOGICAL SECTIONS
(SHEET 5)

Drawing no.	Rev.
Figure 5.10.28	-

Drawn	Date	Checked	Approved
RiL	03/2014	KKY	DML

Scale 1:500 V 1:2000 H @ A1
1:1000V 1:4000 H @ A3
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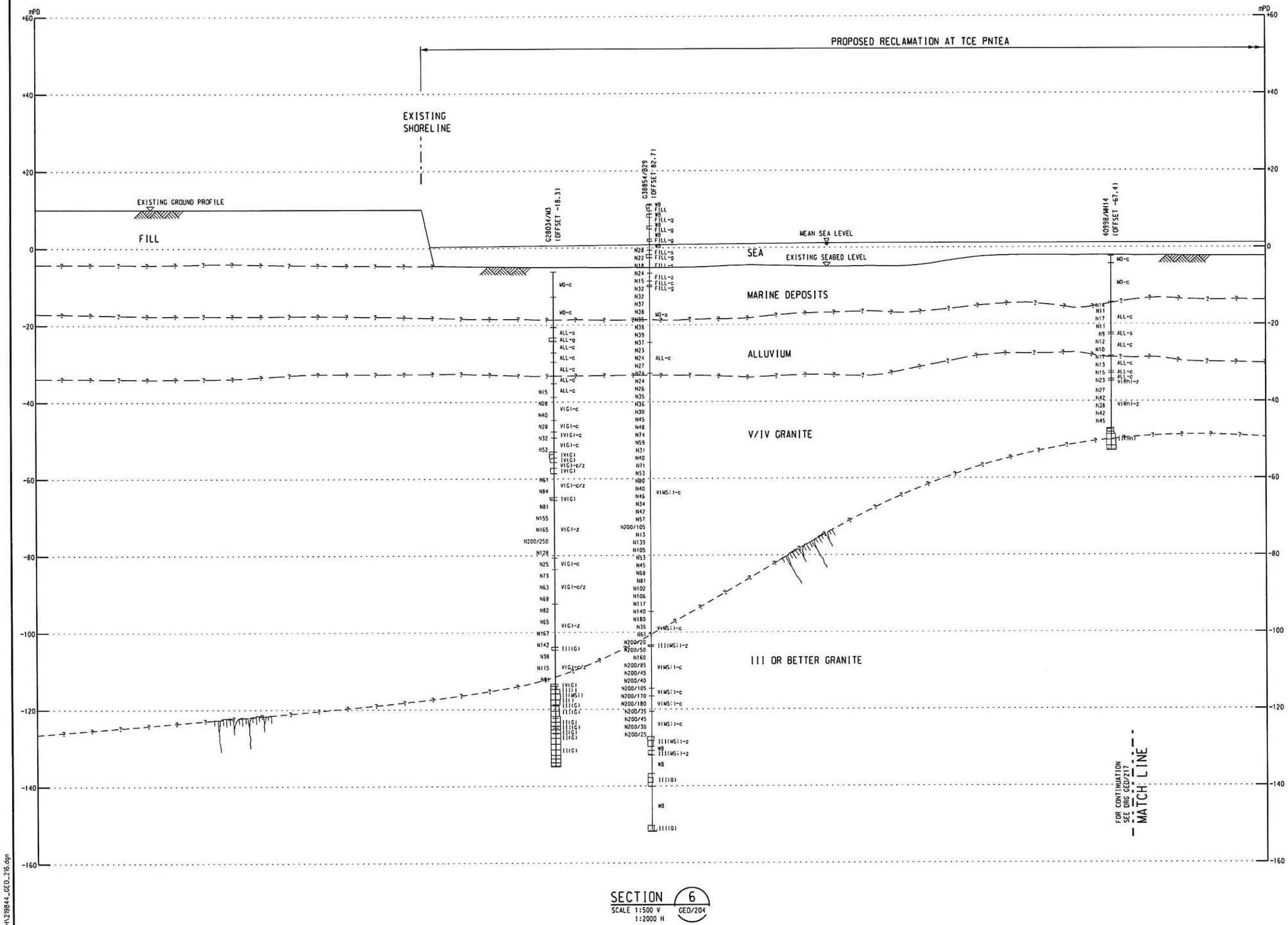

SECTION 6
SCALE 1:500 V 1:2000 H
GEO/204

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
GEOLOGICAL SECTIONS
(SHEET 6)

Drawing no.	Rev.
Figure 5.10.29	-

Drawn	Date	Checked	Approved
RIL	03/2014	KKY	DML

Scale 1:500 V 1:2000 H @ A1
1:1000V 1:4000 H @ A3
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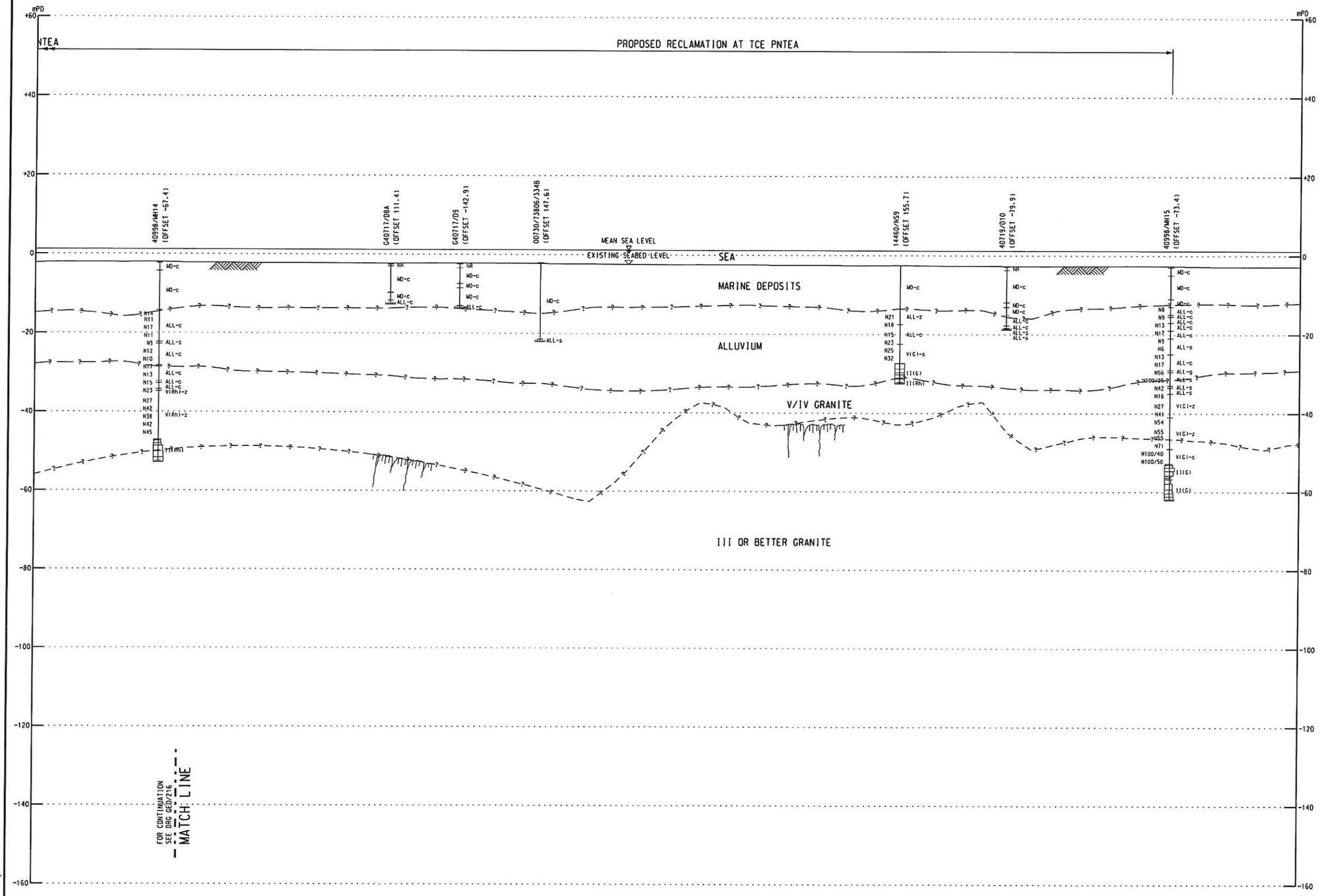

SECTION 6
SCALE 1:500 V 1:2000 H
GEO/204

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
GEOLOGICAL SECTIONS
(SHEET 7)

Drawing no.	Rev.
Figure 5.10.30	-

Drawn	Date	Checked	Approved
RiL	03/2014	KKY	DML

Scale 1:500 V 1:2000 H @ A1
1:1000V 1:4000 H @ A3
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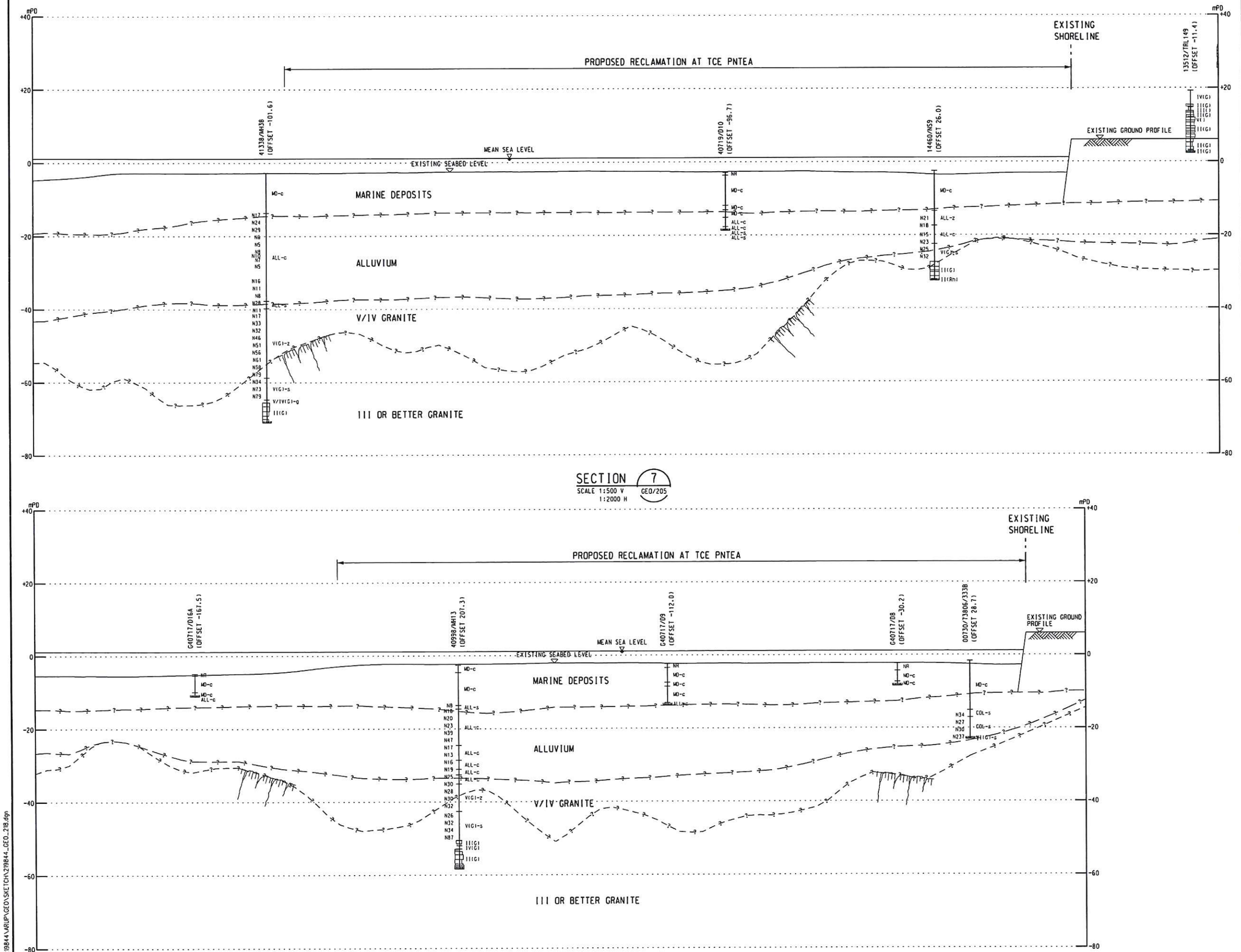

SECTION 7
SCALE 1:500 V 1:2000 H
GEO/205

SECTION 8
SCALE 1:500 V 1:2000 H
GEO/204

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
GEOLOGICAL SECTIONS
(SHEET 8)

Drawing no.	Rev.
Figure 5.10.31	-

Drawn	Date	Checked	Approved
RiL	03/2014	KKY	DML

Scale 1:500 V 1:2000 H @ A1
1:1000V 1:4000 H @ A3
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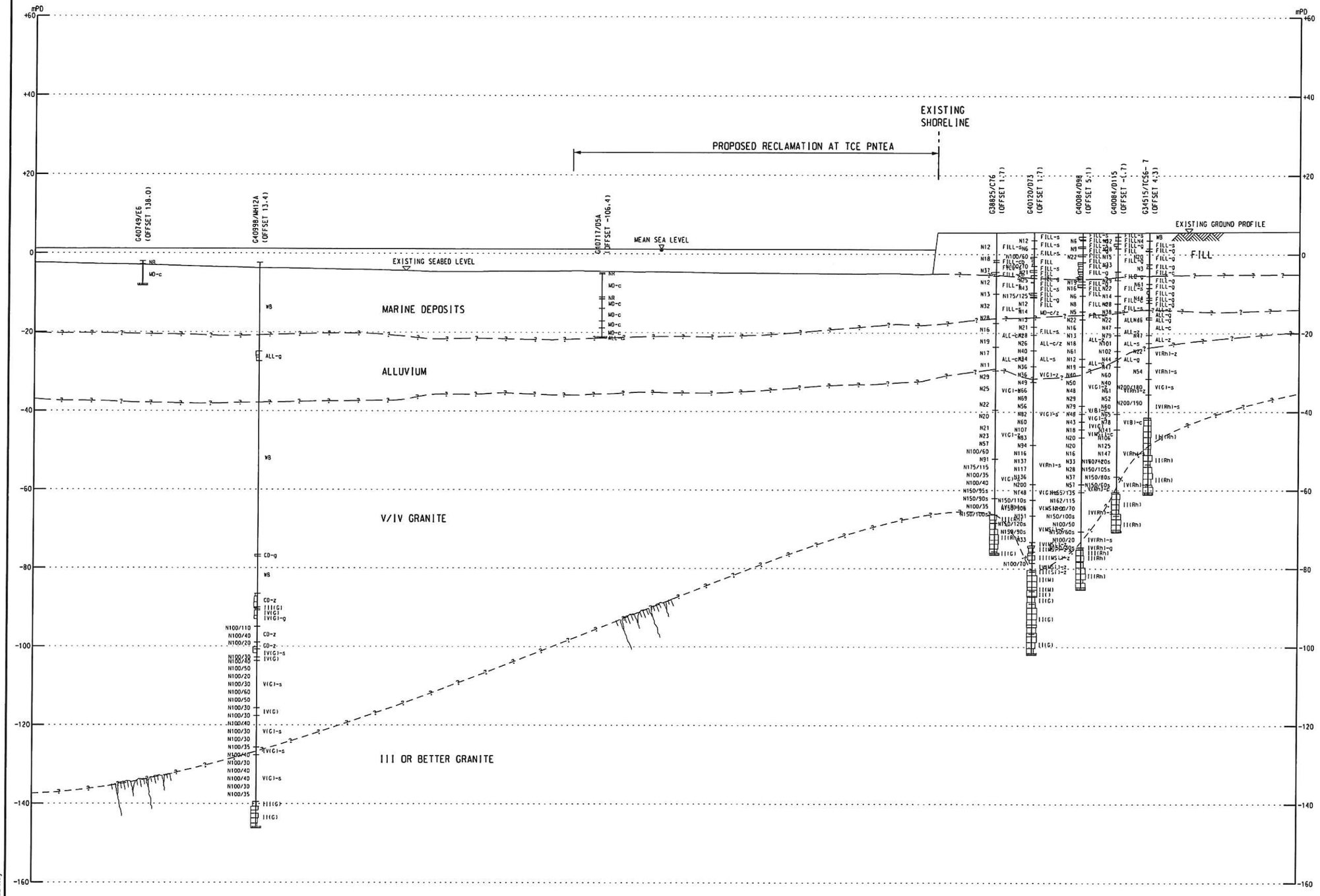

SECTION 9
SCALE 1:500 V 1:2000 H
GEO/204

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
GEOLOGICAL SECTIONS
(SHEET 9)

Drawing no.	Rev.
Figure 5.10.32	–

Drawn	Date	Checked	Approved
RiL	03/2014	KKY	DML

Scale 1:500 V 1:2000 H @ A1
1:1000V 1:4000 H @ A3
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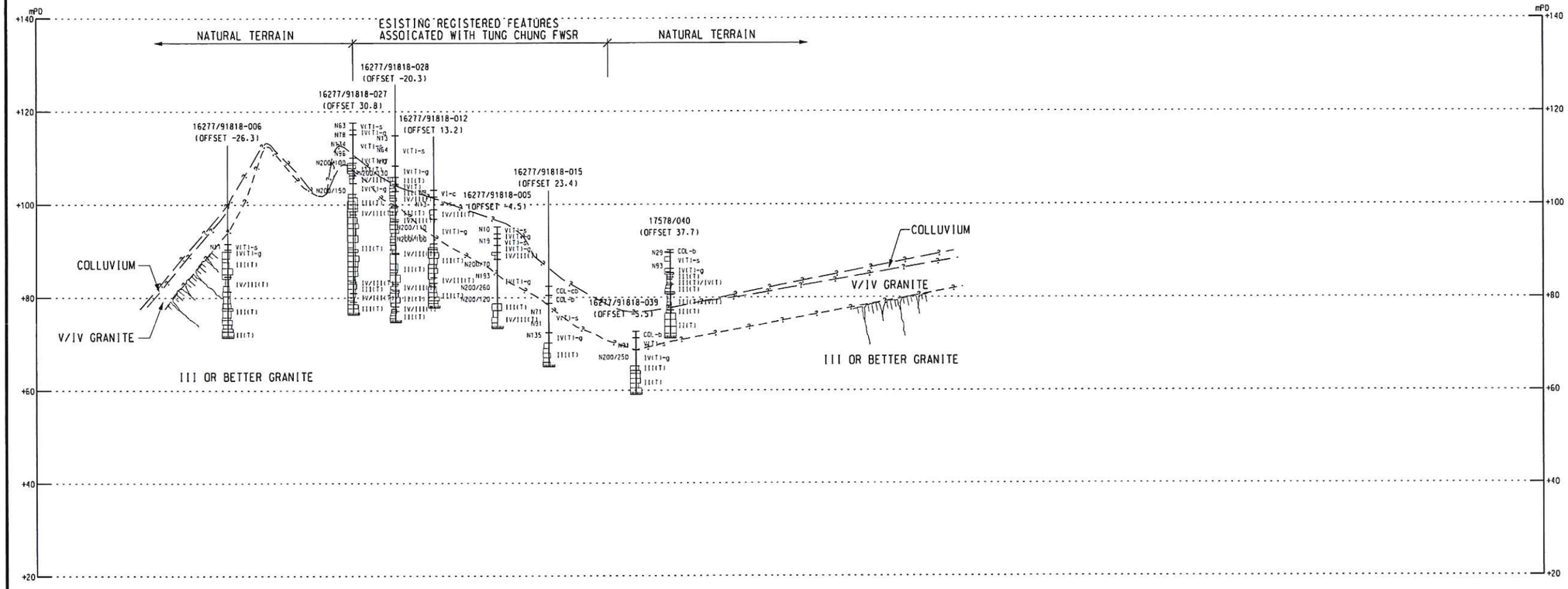
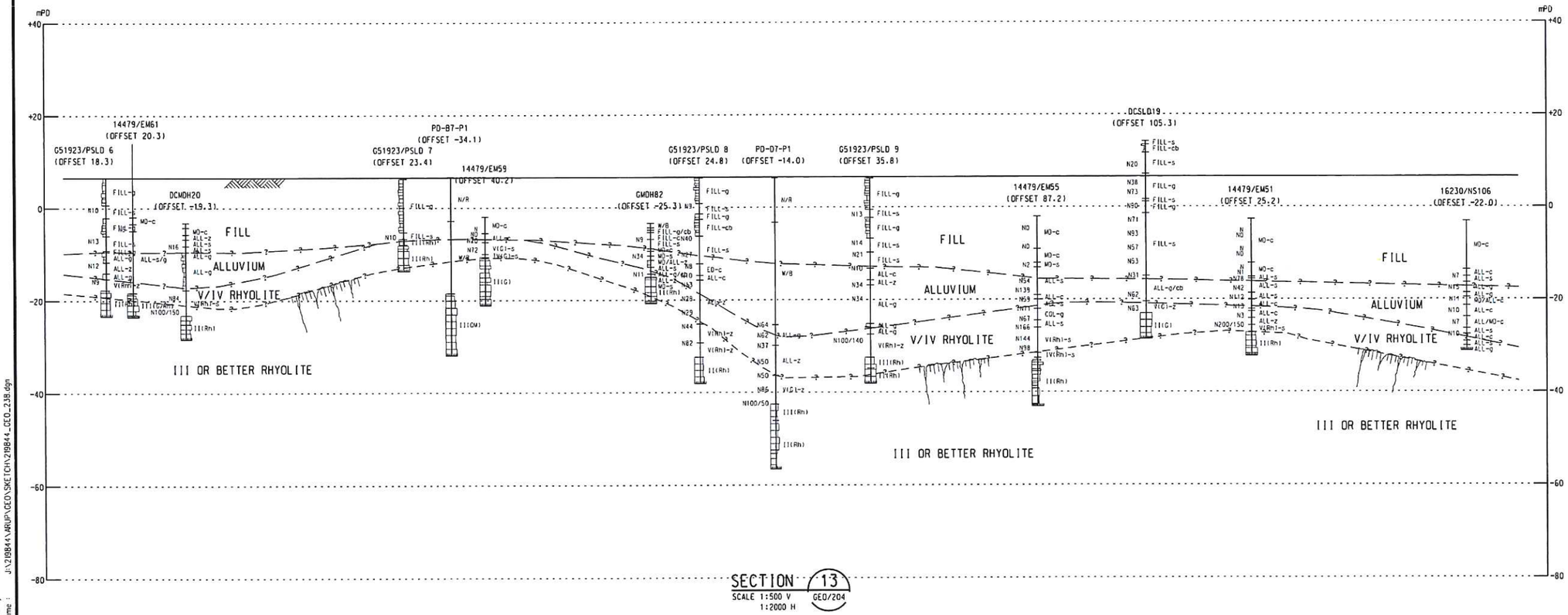


SECTION 12
SCALE 1:500 V
1:2000 H
GEO/204



SECTION 13
SCALE 1:500 V
1:2000 H
GEO/204

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
GEOLOGICAL SECTIONS
(Sheet 10)

Drawing no.		Rev.
Figure 5.10.33		-
Drawn: RiL	Date: 03/2014	Checked: KKY	Approved: DML
Scale: 1:500 V 1:2000 H @ A1 1:1000V 1:4000 H @ A3	Status: PRELIMINARY		

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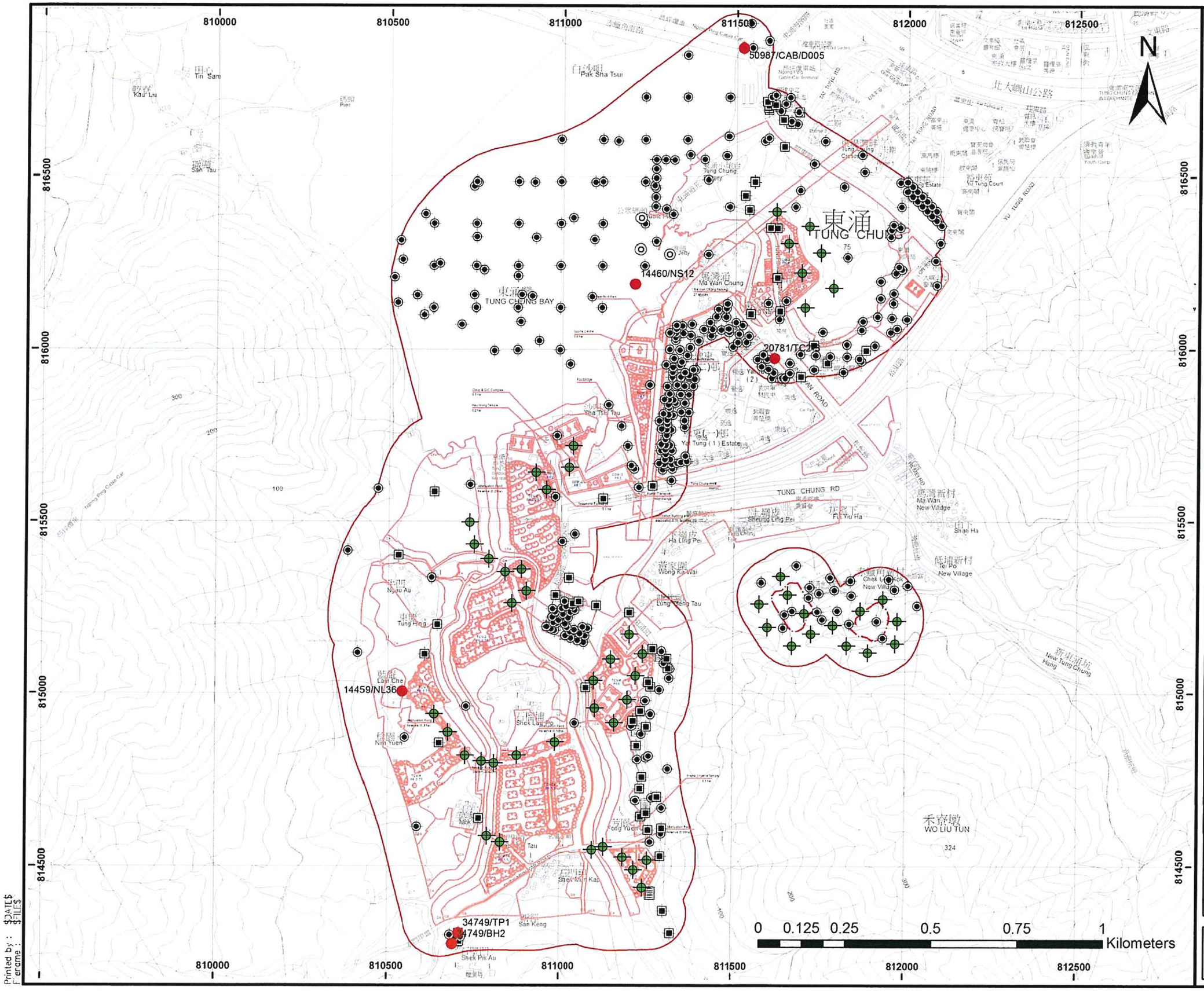

Legend

- TCW Proposed Development
- TCW 100m Buffer

Existing GI

- Boreholes
- Trial Pits
- vibrocore
- Borehole Encountering Faulted Rock

Proposed GI

- Land Boreholes (Total 55 nos.)

Rev	Description	By	Date
B	Revised GI	JC	11/2014
A	FIRST ISSUE	JC	03/2014

Consultant: **ARUP**

Project title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title: Proposed Ground Investigation (TCW)

Drawing no.	Rev.
Figure 5.10.34	B

Drawn	Date	Checked	Approved
JC	Nov 2014	KL	JL

Scale: 1:10,000 (A3) | Status: Issue

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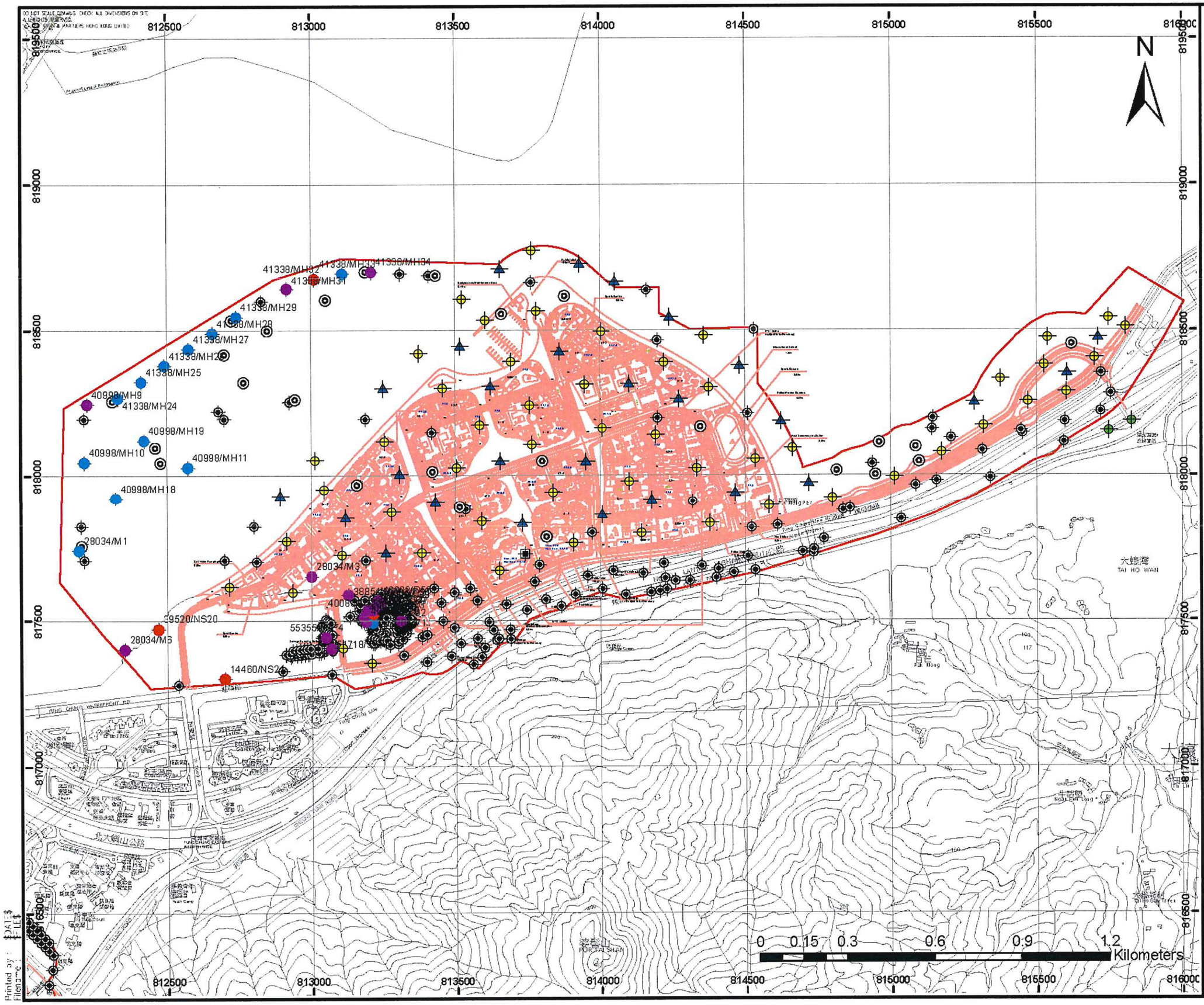
Filename : $FILE$



Legend

- TCE Proposed Development
- TCE 100m Buffer (adjusted for GI)

Existing GI

- Boreholes
- Trial Pits
- vibrocore
- Borehole Encountering Meta-sedimentary rock
- Borehole Encountering Faulted Rock
- Borehole Encountering Marble

Proposed GI

- Land Boreholes (Total 2 nos.)
- Marine Boreholes (Total 52 nos.)
- Cone Penetration Test (Total 27 nos.)

C	Revised Layout	JC	03/2015
B	Revised Layout	JC	05/2014
A	FIRST ISSUE	JC	03/2014
Rev	Description	By	Date

Consultant: ARUP

Project title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title: Proposed Ground Investigation (TCE)

Drawing no. Figure 5.10.35			Rev. C
Drawn JC	Date Mar 2015	Checked KL	Approved JL
Scale 1:12,000 (A3)		Status Issue	

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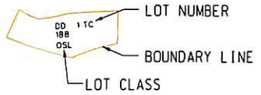
File name : {LF$}

LEGEND

- RECOMMENDED OUTLINE DEVELOPMENT PLAN (RODP)
- PROPOSED RECLAMATION BOUNDARY
- POTENTIAL NEW TOWN EXPANSION AREA
- PROPOSED RECLAMATION AREA
- EXISTING LAND REQUIRED FOR PROPOSED DEVELOPMENT



LOT CLASS

OSL	OLD SCHEDULE LOT
ONG	OLD NEW GRANT LOT
NNG	NEW GRANT LOT
GLA	PERMANENT GOVT. LAND ALLOCATION
TGLA	TEMPORARY GOVT. LAND ALLOCATION
GLL	GOVT. LICENCED LAND
STT	SHORT TERM TENANCY
MTRL	MASS TRANSIT RAILWAY LOT
PMTR	MASS TRANSIT RAILWAY PROTECTION BOUNDARY
RMTR	MASS TRANSIT RAILWAY RESERVES

812500 E
813000 E
813500 E
814000 E
814500 E
818000 N
817500 N
8185000 N
N
TMCLK LINK SOUTHERN CONNECTION
CHEUNG TUNG ROAD
YING HEI ROAD
YI TUNG ROAD
BUR22L

Figure 5.14.1

Job Title: AGREEMENT NO. CE 32/2011 (CE) PLANNING AND ENGINEERING STUDY ON THE REMAINING DEVELOPMENT IN TUNG CHUNG FEASIBILITY STUDY	Drawing Title: LAND REQUIREMENT FOR TCE (FINALIZED PRELIMINARY LAYOUT PLAN)	**ARUP**
		Scale 1:30000@A1 1:60000@A3
		Drn. KL Date 05/16 Chd. HYJL Passed KKY
Drawing Status: PRELIMINARY	Job No. 219844	Drawing No. 219844/GEO/T035 Rev. C

LEGEND

- RECOMMENDED OUTLINE DEVELOPMENT PLAN (RODP)
- PROPOSED RECLAMATION BOUNDARY
- POTENTIAL NEW TOWN EXPANSION AREA
- PROPOSED RECLAMATION AREA
- EXISTING LAND REQUIRED FOR PROPOSED DEVELOPMENT



LOT CLASS

OSL	OLD SCHEDULE LOT
ONG	OLD NEW GRANT LOT
NNG	NEW GRANT LOT
GLA	PERMANENT GOVT. LAND ALLOCATION
TGLA	TEMPORARY GOVT. LAND ALLOCATION
GLL	GOVT. LICENCED LAND
STT	SHORT TERM TENANCY
MTRL	MASS TRANSIT RAILWAY LOT
PMTR	MASS TRANSIT RAILWAY PROTECTION BOUNDARY
RMTR	MASS TRANSIT RAILWAY RESERVES

Figure 5.14.2

Job Title: AGREEMENT NO. CE 32/2011 (CE) PLANNING AND ENGINEERING STUDY ON THE REMAINING DEVELOPMENT IN TUNG CHUNG FEASIBILITY STUDY	Drawing Title: LAND REQUIREMENT FOR PROPOSED ROAD P1 (FINALIZED PRELIMINARY LAYOUT PLAN)	ARUP
		Scale 1:30000@A1 1:60000@A3
		Drn. KL Date 06/16 Chd. HYJL Passed KKY
	Drawing Status: PRELIMINARY	Job No. 219844 Drawing No. 219844/GEO/T036 Rev. G

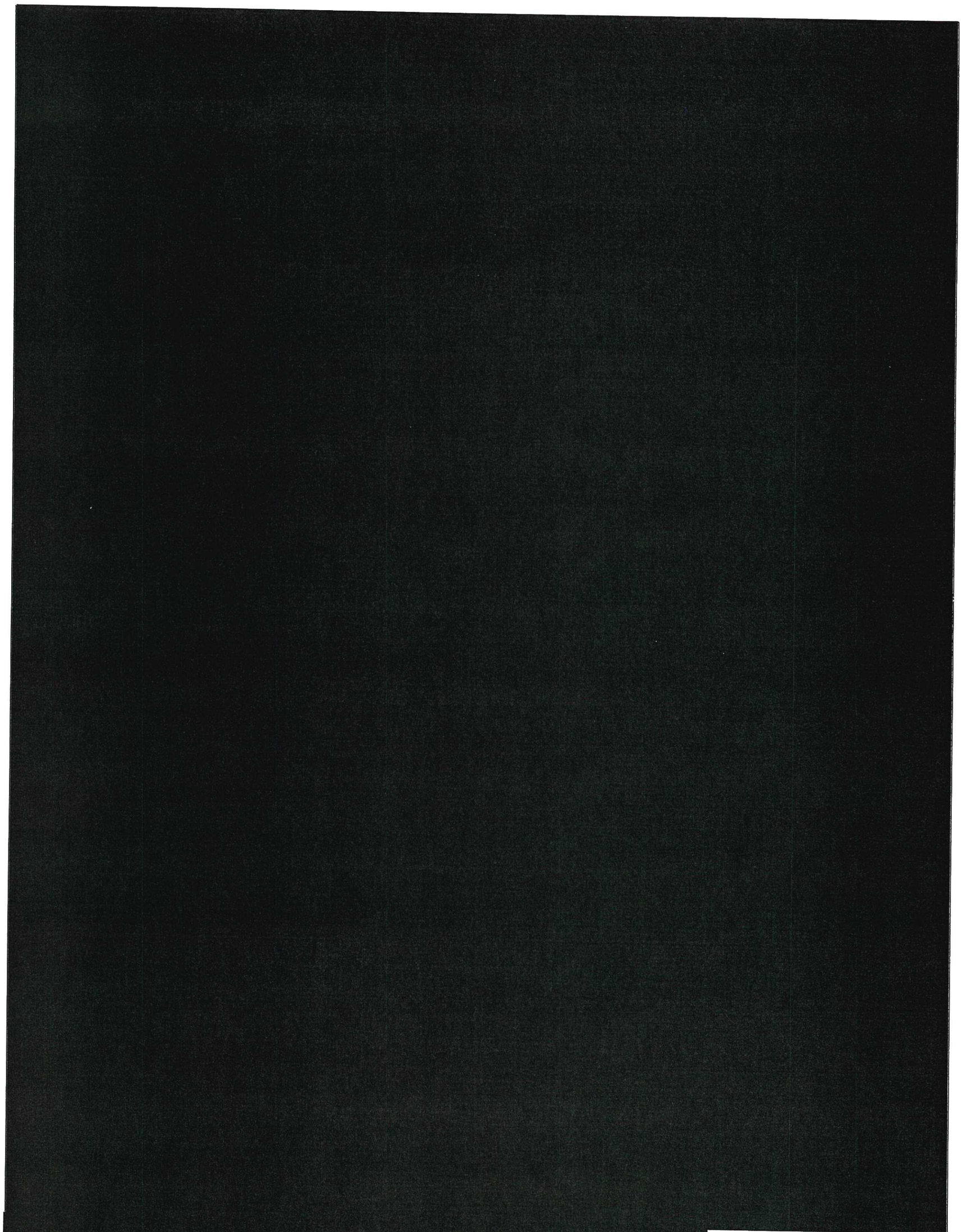
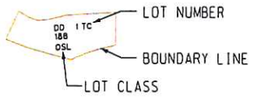


Figure 5.14.3

Job Title AGREEMENT NO. CE 32/2011 (CE) PLANNING AND ENGINEERING STUDY ON THE REMAINING DEVELOPMENT IN TUNG CHUNG FEASIBILITY STUDY	Drawing Title LAND REQUIREMENT FOR TCW (FINALIZED PRELIMINARY LAYOUT PLAN)	ARUP	
		Scale 1:30000@A1 1:60000@A3	
		Drn. RL Date 06/16 Chd. HYJL Passed KKY	
	Drawing Status PRELIMINARY	Job No. 219844	Drawing No. 219844/GEO/T037 Rev. H

LEGEND

- RECOMMENDED OUTLINE DEVELOPMENT PLAN (RODP)
- PROPOSED RECLAMATION BOUNDARY
- POTENTIAL NEW TOWN EXPANSION AREA
- GLA/TGLA/GLL/STT



LOT CLASS

OSL	OLD SCHEDULE LOT
ONG	OLD NEW GRANT LOT
NNG	NEW GRANT LOT
GLA	PERMANENT GOVT. LAND ALLOCATION
TGLA	TEMPORARY GOVT. LAND ALLOCATION
GLL	GOVT. LICENCED LAND
STT	SHORT TERM TENANCY
MTRL	MASS TRANSIT RAILWAY LOT
PMTR	MASS TRANSIT RAILWAY PROTECTION BOUNDARY
RMTR	MASS TRANSIT RAILWAY RESERVES

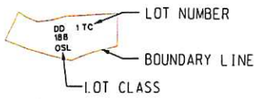
812500 E
813000 E
813500 E
814000 E
814500 E
818000 N
817500 N
8185000 N
N
TMCLK LINK SOUTHERN CONNECTION
CHEUNG TUNG ROAD
YING HEI ROAD
YI TUNG ROAD
BUR22L
LINE
ATION
844/GEO/T031

Figure 5.14.4

Job Title: AGREEMENT NO. CE 32/2011 (CE) PLANNING AND ENGINEERING STUDY ON THE REMAINING DEVELOPMENT IN TUNG CHUNG FEASIBILITY STUDY	Drawing Title: LAND STATUS IN TCE (FINALIZED PRELIMINARY LAYOUT PLAN)	ARUP
		Scale 1:30000@A1 1:60000@A3
		Drn. KL Date 12/15 Chd. HYJL Passed KKY
	Drawing Status: PRELIMINARY	Job No. 219844 / Drawing No. 219844/GEO/T007 / Rev. H

LEGEND

- RECOMMENDED OUTLINE DEVELOPMENT PLAN (RODP)
- PROPOSED RECLAMATION BOUNDARY
- POTENTIAL NEW TOWN EXPANSION AREA
- GLA/TGLA/GLL/STT



LOT NUMBER
BOUNDARY LINE
LOT CLASS

LOT CLASS

OSL	OLD SCHEDULE LOT
ONG	OLD NEW GRANT LOT
NNG	NEW GRANT LOT
GLA	PERMANENT GOVT. LAND ALLOCATION
TGLA	TEMPORARY GOVT. LAND ALLOCATION
GLL	GOVT. LICENCED LAND
STT	SHORT TERM TENANCY
MTRL	MASS TRANSIT RAILWAY LOT
PMTR	MASS TRANSIT RAILWAY PROTECTION BOUNDARY
RMTR	MASS TRANSIT RAILWAY RESERVES

814500 E
815000 E
815500 E
816000 E
8185000 N
818000 N
817500 N

TMCLK LINK SOUTHERN CONNECTION

PROPOSED ROAD P1

MTRC
SIU HO WAN
DEPOT

N

TAI HO WAN

CHEUNG TUNG ROAD

FOR CONTINUATION
SEE DRG 219844/GEO/T002

MATCH LINE

Figure 5.14.5

Job Title: AGREEMENT NO. CE 32/2011 (CE) PLANNING AND ENGINEERING STUDY ON THE REMAINING DEVELOPMENT IN TUNG CHUNG FEASIBILITY STUDY	Drawing Title: LAND STATUS IN PROPOSED ROAD P1 (FINALIZED PRELIMINARY LAYOUT PLAN)	ARUP
		Scale 1:3000@A1 1:6000@A3
		Drn. KL Date 12/15 Chd. HYJL Passed KKY
	Drawing Status: PRELIMINARY	Job No. 219844 / Drawing No. 219844/GEO/T031 / Rev. F

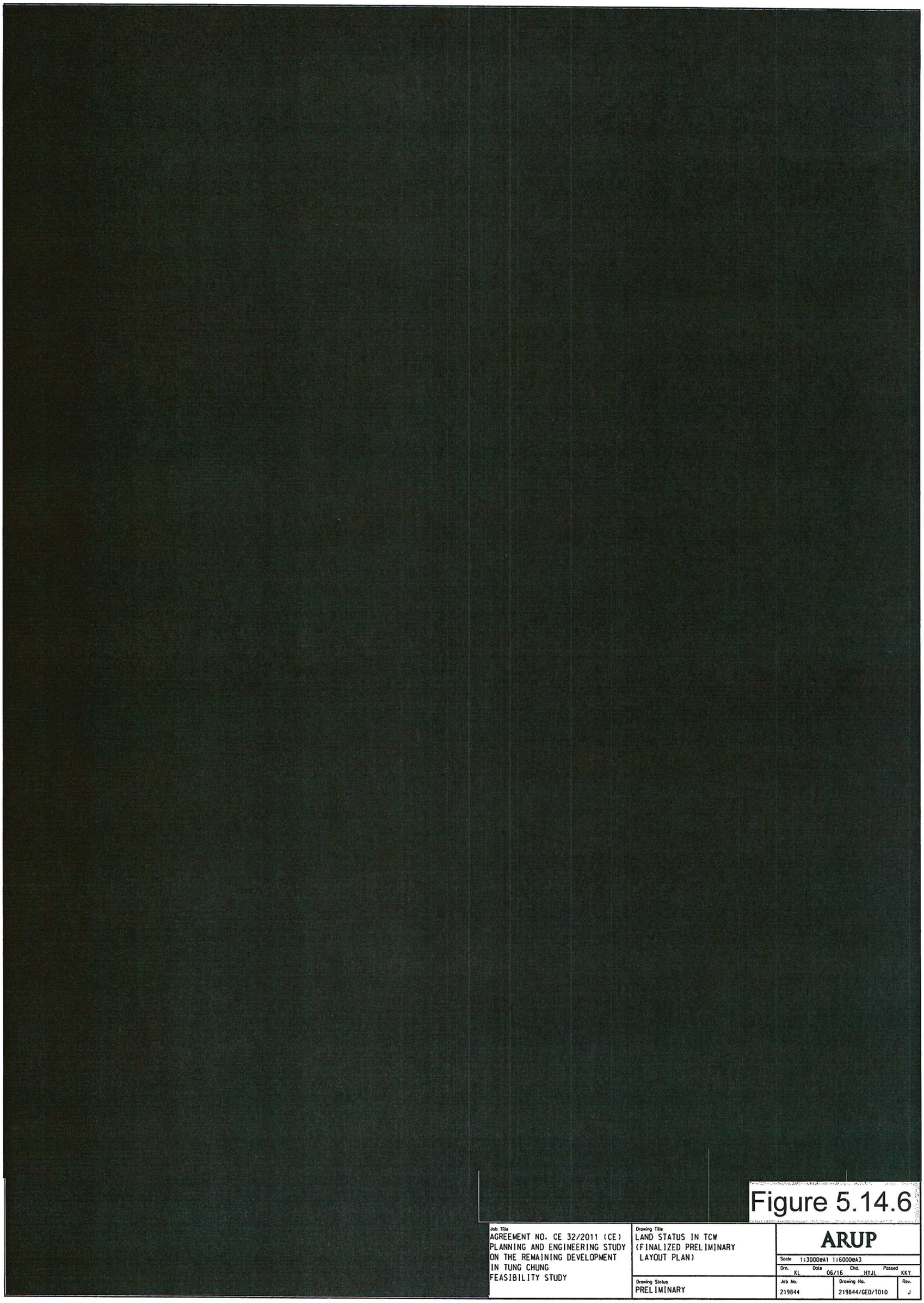


Figure 5.14.6

Job Title AGREEMENT NO. CE 32/2011 (CE) PLANNING AND ENGINEERING STUDY ON THE REMAINING DEVELOPMENT IN TUNG CHUNG FEASIBILITY STUDY	Drawing Title LAND STATUS IN TCW (FINALIZED PRELIMINARY LAYOUT PLAN)	ARUP Scale 1:3000@A1 1:6000@A3 Drn. KL Date 06/16 Chd. HYJL Passed KKY	
	Drawing Status PRELIMINARY	Job No. 219844	Drawing No. 219844/GEO/T010 Rev. J

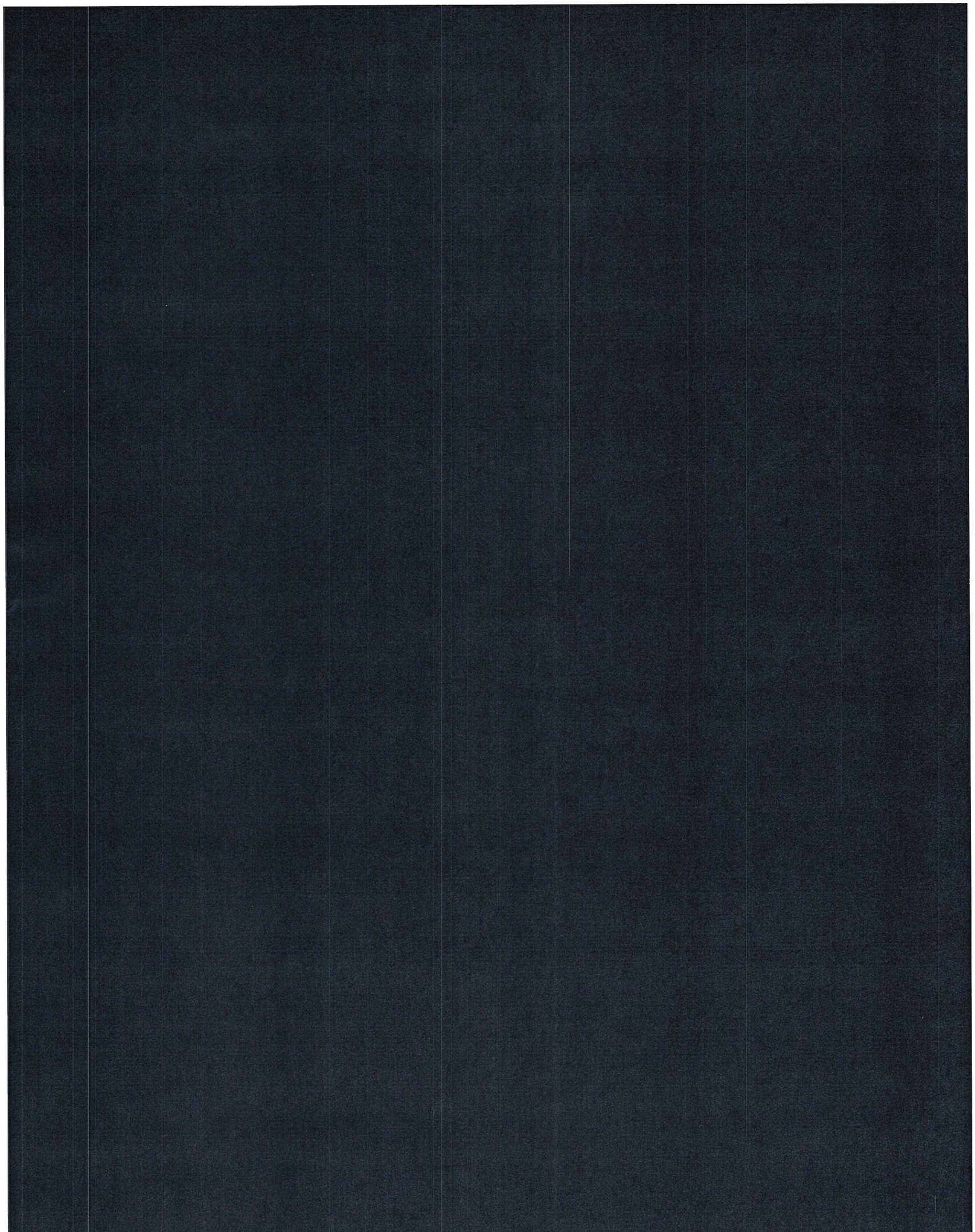


Figure 5.14.7

Job Title AGREEMENT NO. CE 32/2011 (CE) PLANNING AND ENGINEERING STUDY ON THE REMAINING DEVELOPMENT IN TUNG CHUNG FEASIBILITY STUDY	Drawing Title LAND PROPOSED FOR CA/CPA/GB IN TCW (FINALIZED PRELIMINARY LAYOUT PLAN) Drawing Status PRELIMINARY	ARUP Scale 1:3000@A1 1:6000@A3 Drn. RL Date 12/15 Chd. HYJL Passed KKY Job No. 219844 Drawing No. 219844/GED/T039 Rev. F

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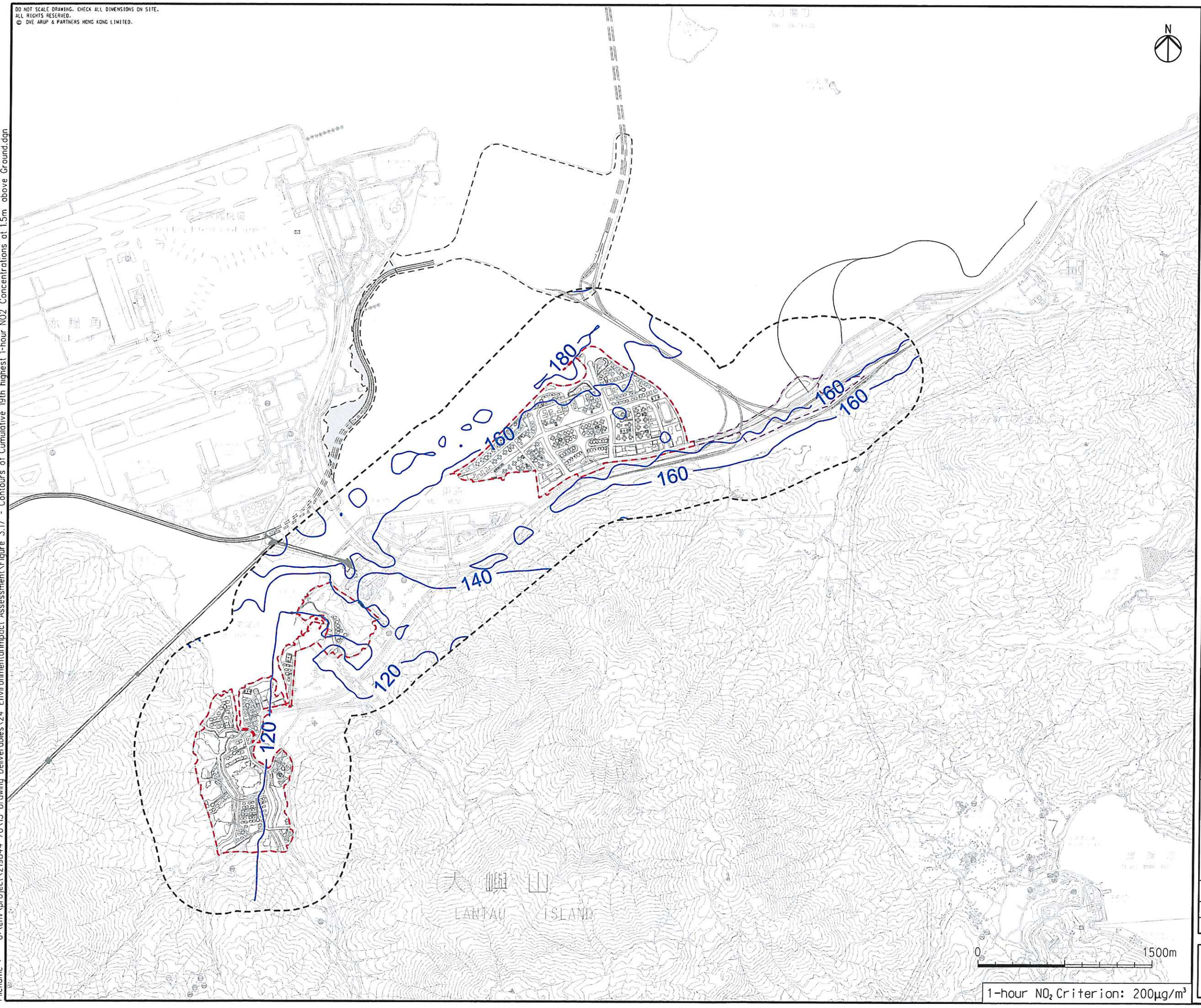

LEGEND

- POSSIBLE DEVELOPMENT AREA
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- 500M ASSESSMENT AREA
- —70— NO_2 CONTOUR, $\mu g/m^3$

1-hour NO_2 Criterion: 200$\mu g/m^3$

Rev	Description	By	Date
D	FOURTH ISSUE	GL	09/15
C	THIRD ISSUE	GL	08/15
B	SECOND ISSUE	GL	06/15
A	FIRST ISSUE	GL	05/15

Consultant
ARUP

Project title
Tung Chung
New Town Extension

Drawing title
Contours of Cumulative 19th highest 1-hour NO_2 Concentrations at 1.5m above Ground

Drawing no.			Rev.
Figure 6.2.1			D
Drawn: GL	Date: 09/15	Checked: LK	Approved: FC
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Printed by : 10/30/2015
Filename : G:\env\project\219844-70\13 Drawing Deliverables\24 Environmental Impact Assessment\Figure 3.17 - Contours of Cumulative 19th highest 1-hour NO2 Concentrations at 1.5m above Ground.dgn

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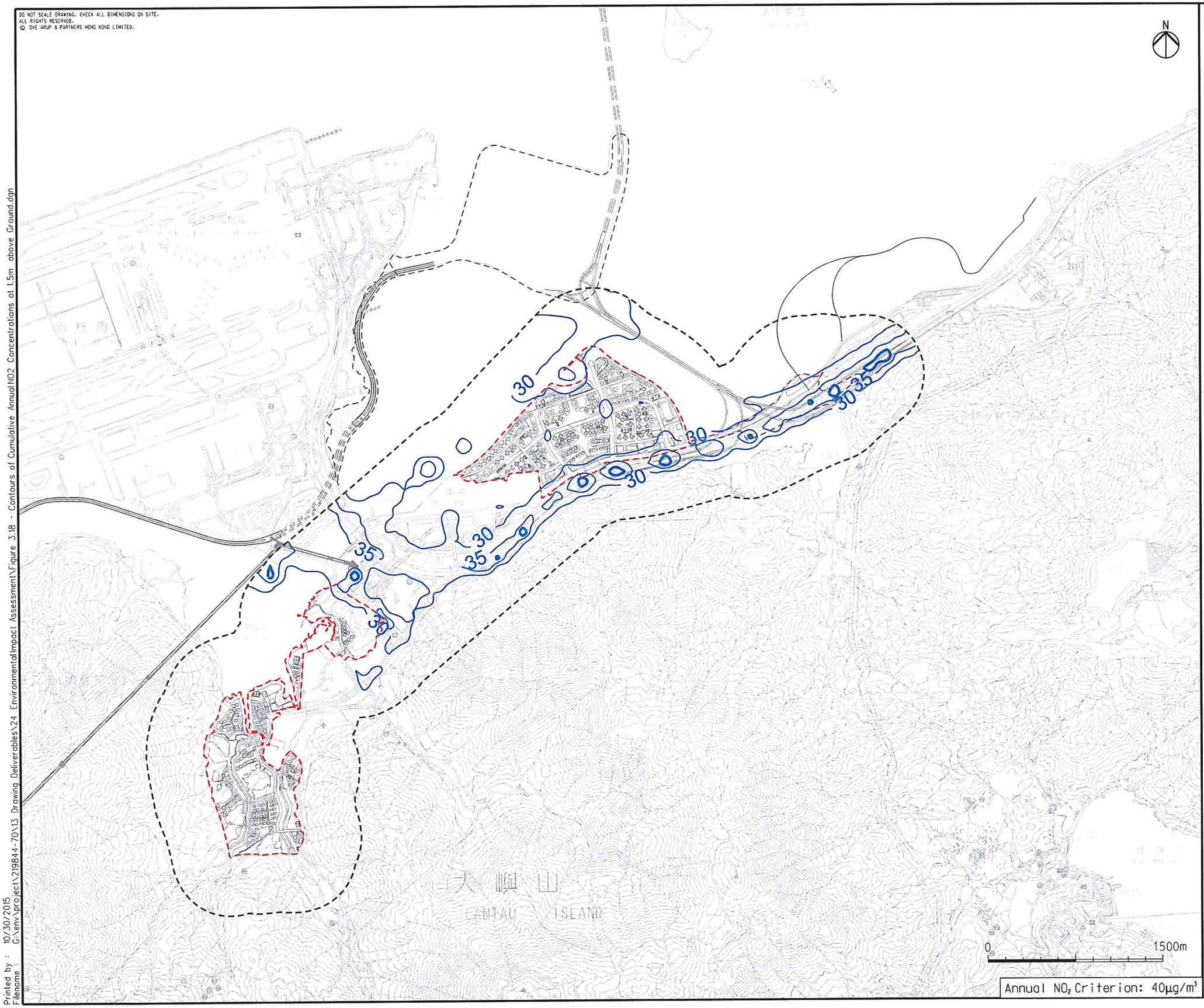

LEGEND

- POSSIBLE DEVELOPMENT AREA
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- 500M ASSESSMENT AREA
- —70— NO_2 CONTOUR. $\mu g/m^3$

Annual NO_2 Criterion: 40$\mu g/m^3$

Rev	Description	By	Date
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A	FIRST ISSUE	GL	05/15

Consultant

ARUP

Project title

Tung Chung
New Town Extension

Drawing title

Contours of Cumulative Annual NO_2 Concentrations at 1.5m above Ground

Drawing no.	Rev.
Figure 6.2.2	D

Drawn	Date	Checked	Approved
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Printed by : 10/30/2015
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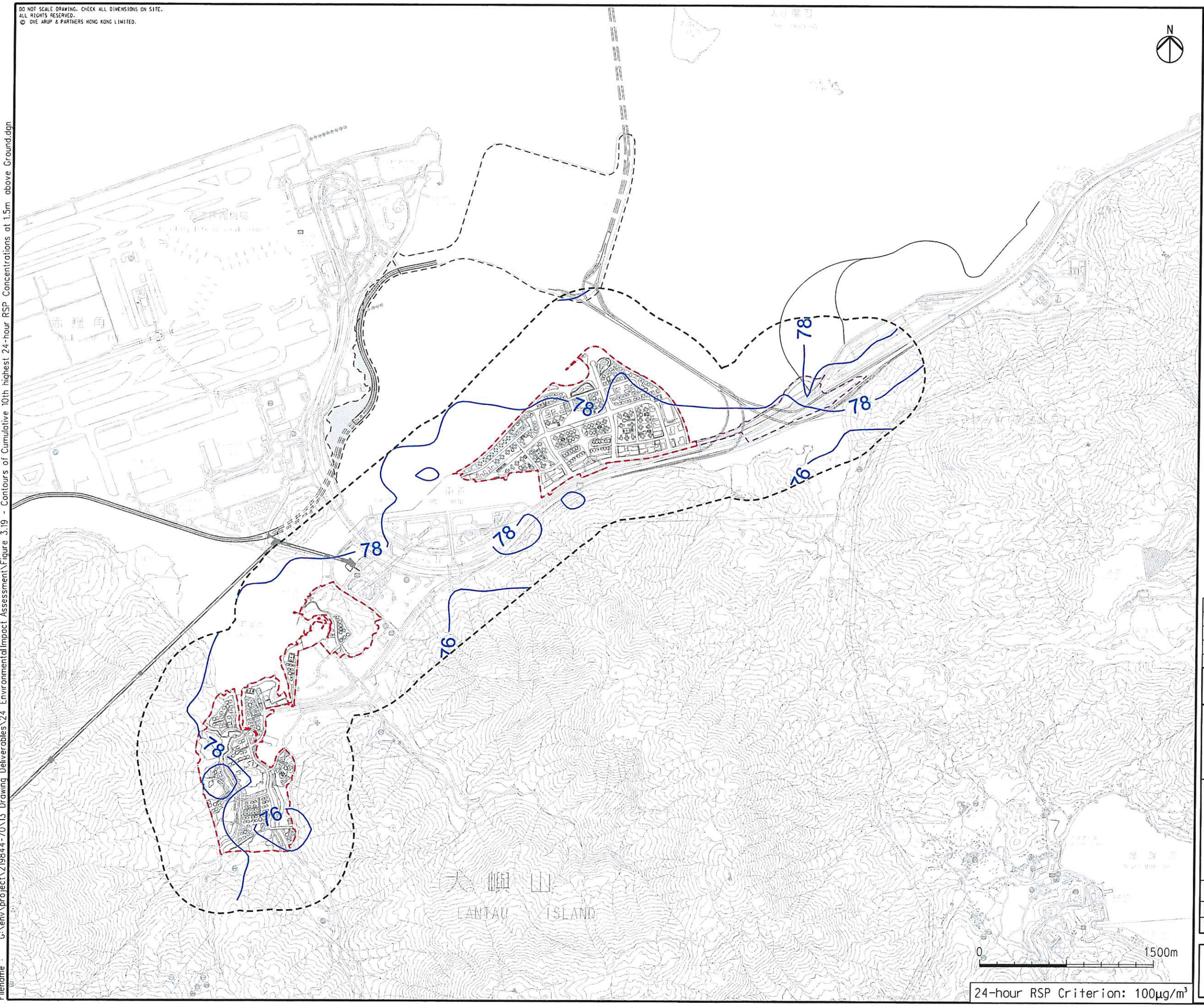

LEGEND

- POSSIBLE DEVELOPMENT AREA
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- 500M ASSESSMENT AREA
- —70— RSP CONTOUR, μg/m³

Rev	Description	By	Date
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Consultant
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Project title
Tung Chung
New Town Extension

Drawing title
Contours of Cumulative 10th highest 24-hour RSP Concentrations at 1.5m above Ground

Drawing no.	Rev.
Figure 6.2.3	D

Drawn	Date	Checked	Approved
GL	09/15	LK	FC

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Filename : G:\env\project\219844-70\13 Drawing Deliverables\24 Environmental Impact Assessment\Figure 3.19 - Contours of Cumulative 10th highest 24-hour RSP Concentrations at 1.5m above Ground.dgn

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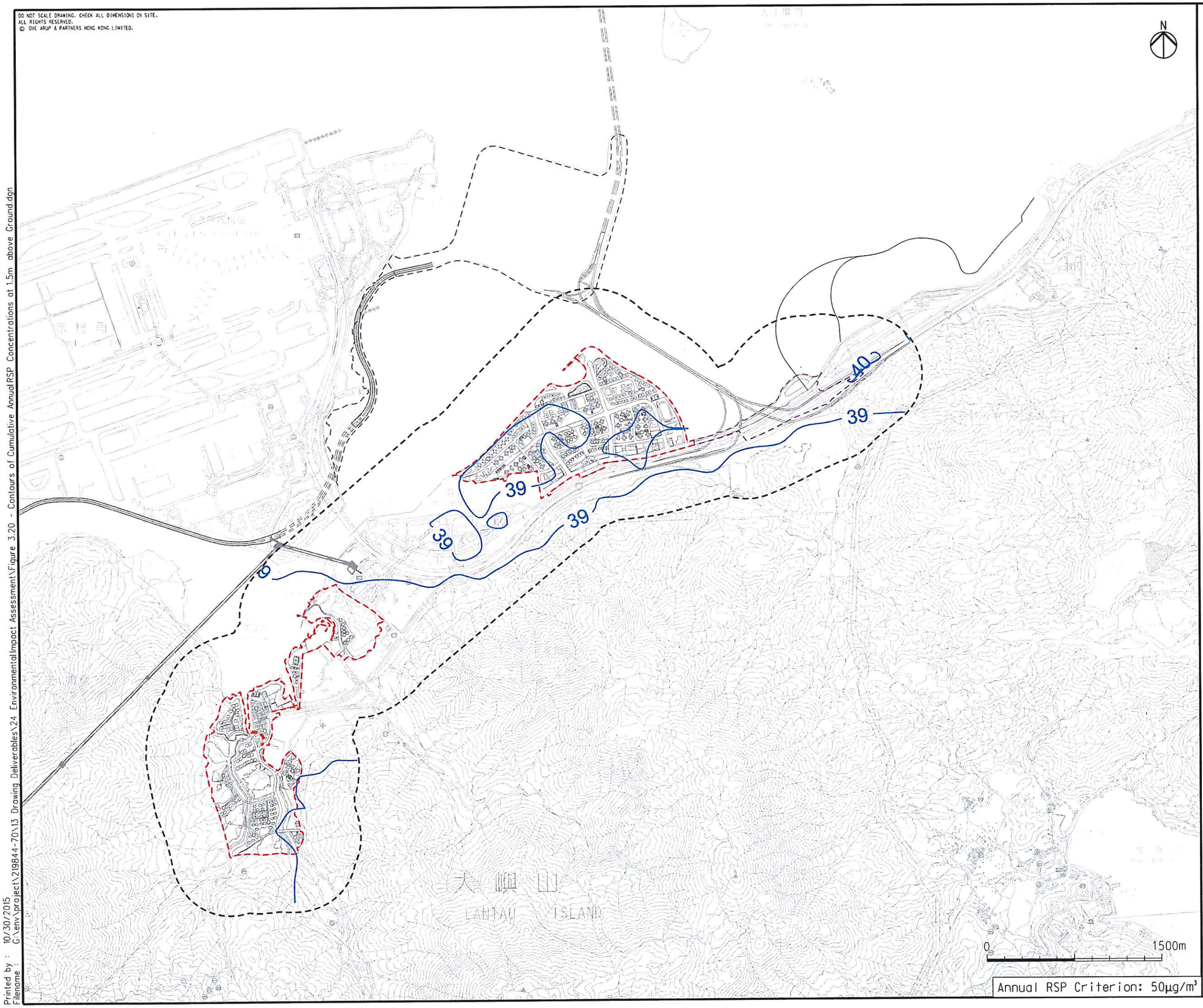

LEGEND

- POSSIBLE DEVELOPMENT AREA
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- 500M ASSESSMENT AREA
- —70— RSP CONTOUR, µg/m³

Annual RSP Criterion: 50µg/m³

Rev	Description	By	Date
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Consultant
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Project title
Tung Chung
New Town Extension

Drawing title
Contours of Cumulative Annual RSP Concentrations at 1.5m above Ground

Drawing no.	Rev.
Figure 6.2.4	D

Drawn	Date	Checked	Approved
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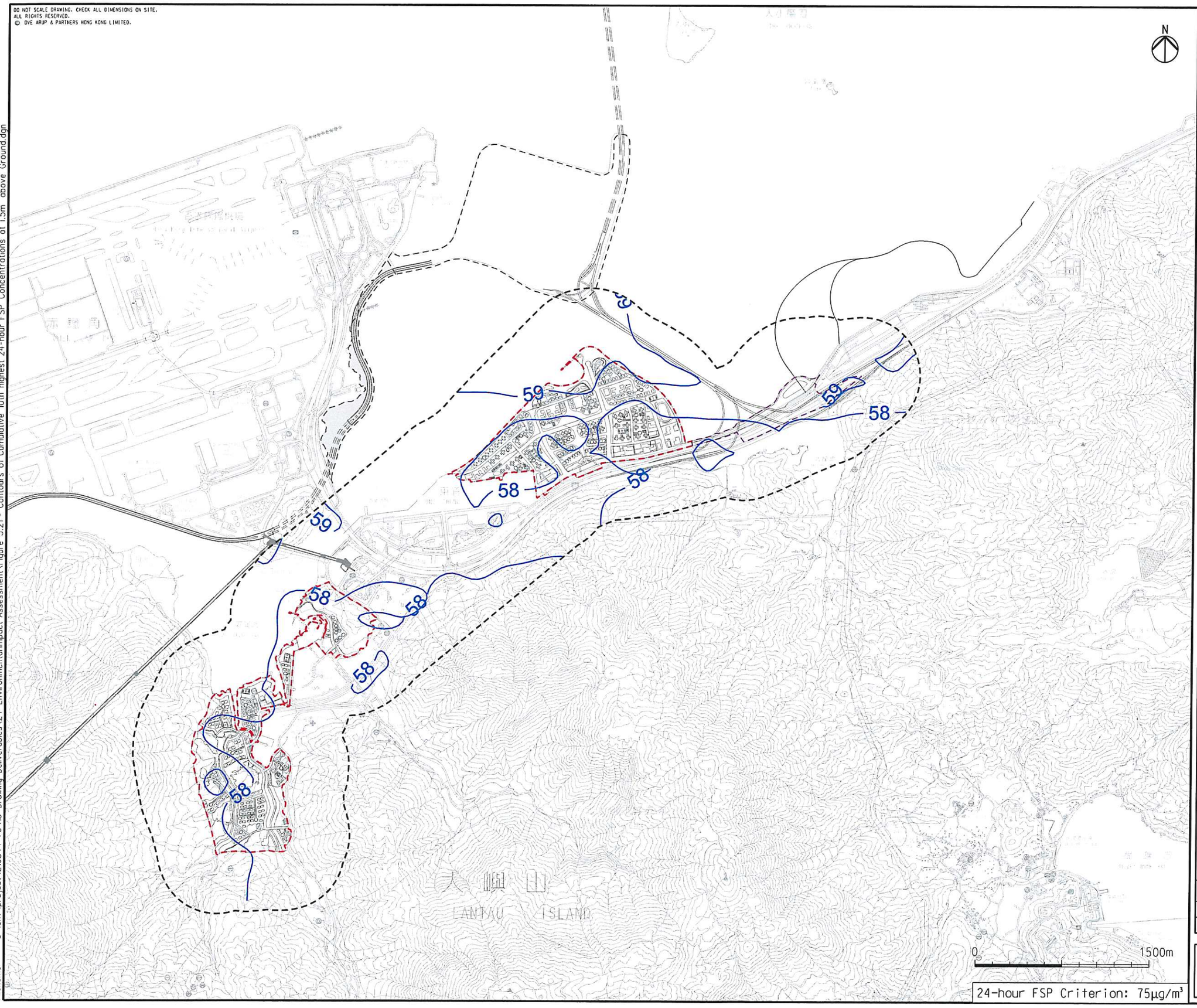

LEGEND

- POSSIBLE DEVELOPMENT AREA
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- 500M ASSESSMENT AREA
- —70— FSP CONTOUR, µg/m³

Rev	Description	By	Date
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C	THIRD ISSUE	GL	08/15
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A	FIRST ISSUE	GL	05/15

Consultant

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Project title

Tung Chung
New Town Extension

Drawing title

Contours of Cumulative 10th highest 24-hour FSP Concentrations at 1.5m above Ground

Drawing no.	Rev.
Figure 6.2.5	D

Drawn	Date	Checked	Approved
GL	09/15	LK	FC

Scale	Status
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Filename : G:\env\project\219844-70\13 Drawing Deliverables\24 Environmental Impact Assessment\Figure 3.21 - Contours of Cumulative 10th highest 24-hour FSP Concentrations at 1.5m above Ground.dgn

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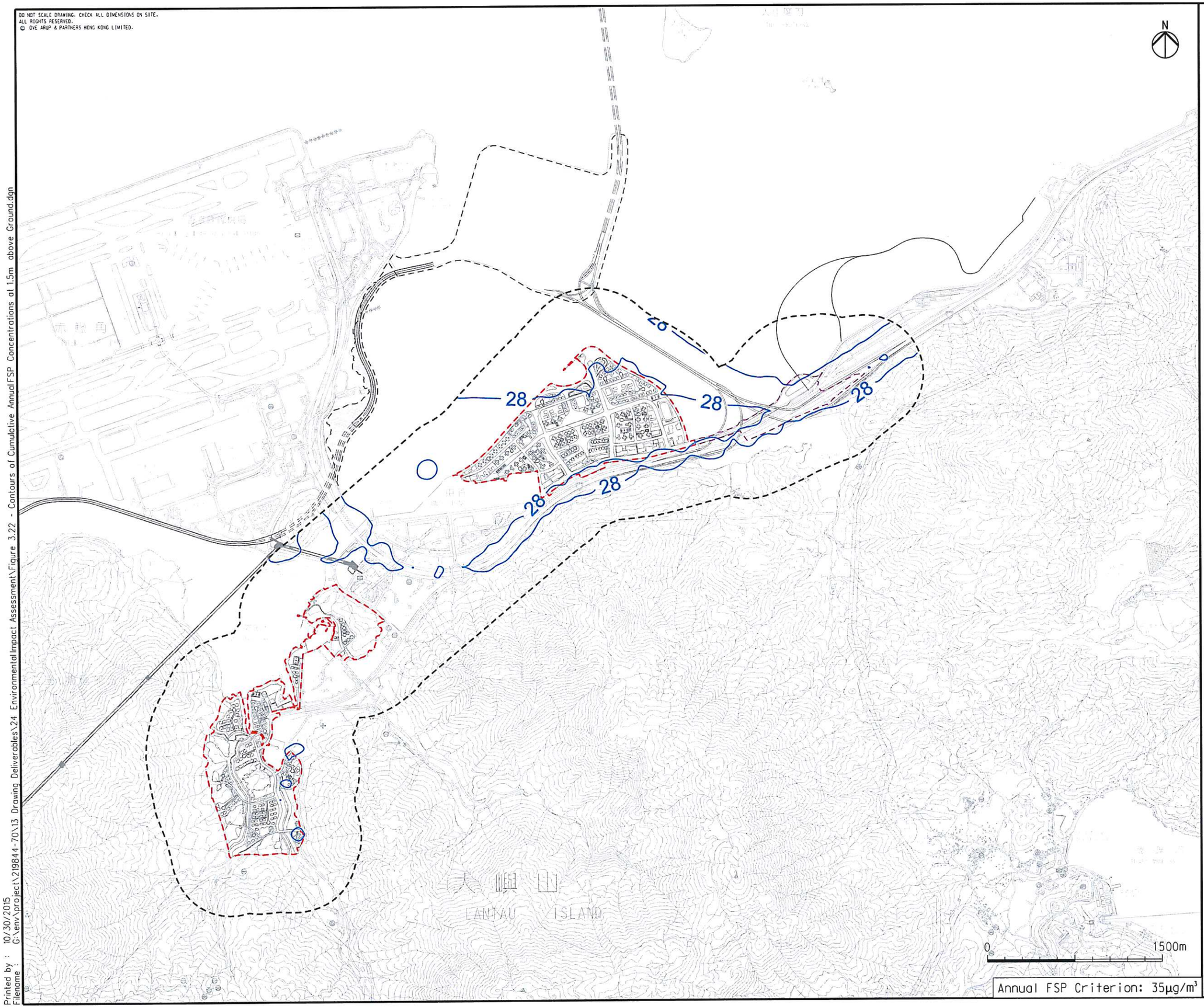

LEGEND

- POSSIBLE DEVELOPMENT AREA
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- 500M ASSESSMENT AREA
- —70— FSP CONTOUR, µg/m³

Annual FSP Criterion: 35µg/m³

Rev	Description	By	Date
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B	SECOND ISSUE	GL	06/15
A	FIRST ISSUE	GL	05/15

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Project title

Tung Chung
New Town Extension

Drawing title

Contours of Cumulative Annual FSP Concentrations at 1.5m above Ground

Drawing no.			Rev.
Figure 6.2.6			D
Drawn	Date	Checked	Approved
GL	09/15	LK	FC
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PROPOSED EXPANSION OF
HONG KONG INTERNATIONAL AIRPORT
(BY OTHERS)

HONG KONG
INTERNATIONAL AIRPORT

HK BOUNDARY CROSSING
FACILITIES OF HZMB
(BY OTHERS)

TMCLK LINK
(BY OTHERS)

NORTH LANTAU HIGHWAY

TAI HO WAN

PROPOSED LANTAU LOGISTICS PARK
(BY OTHERS)
(REF. REVISED CONCEPT PLAN
FOR LANTAU)

HK LINK ROAD OF HZMB
(BY OTHERS)

Figure 4.14e-1

TUNG CHUNG
EAST STATION
(BY OTHERS)

Figure 4.14e-2

SAN TAU

TUNG CHUNG
WEST STATION
(BY OTHERS)

POR KAI SHAN

POR TO YAN

LANTAU NORTH COUNTRY PARK

0 500 1000m

LEGEND

- POSSIBLE DEVELOPMENT AREA
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- WORKS AREA FOR SERVICE RESERVOIR

Rev	Description	By	Date
A	FIRST ISSUE	GL	09/15

Consultant
ARUP

Project title
Tung Chung
New Town Extension

Drawing title
Mitigation Measures for
Road Traffic Noise
(Sheet 1 of 3)

Drawing no.	Rev.
Figure 6.3.1	A

Drawn	Date	Checked	Approved
GL	09/15	LK	FC

Scale	Status
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Filename : G:\env\project\219844-70\13 Drawing Deliverables\24 Environmental Impact Assessment\Figure 4.14e - Mitigation Measures for Road Traffic Noise.dgn

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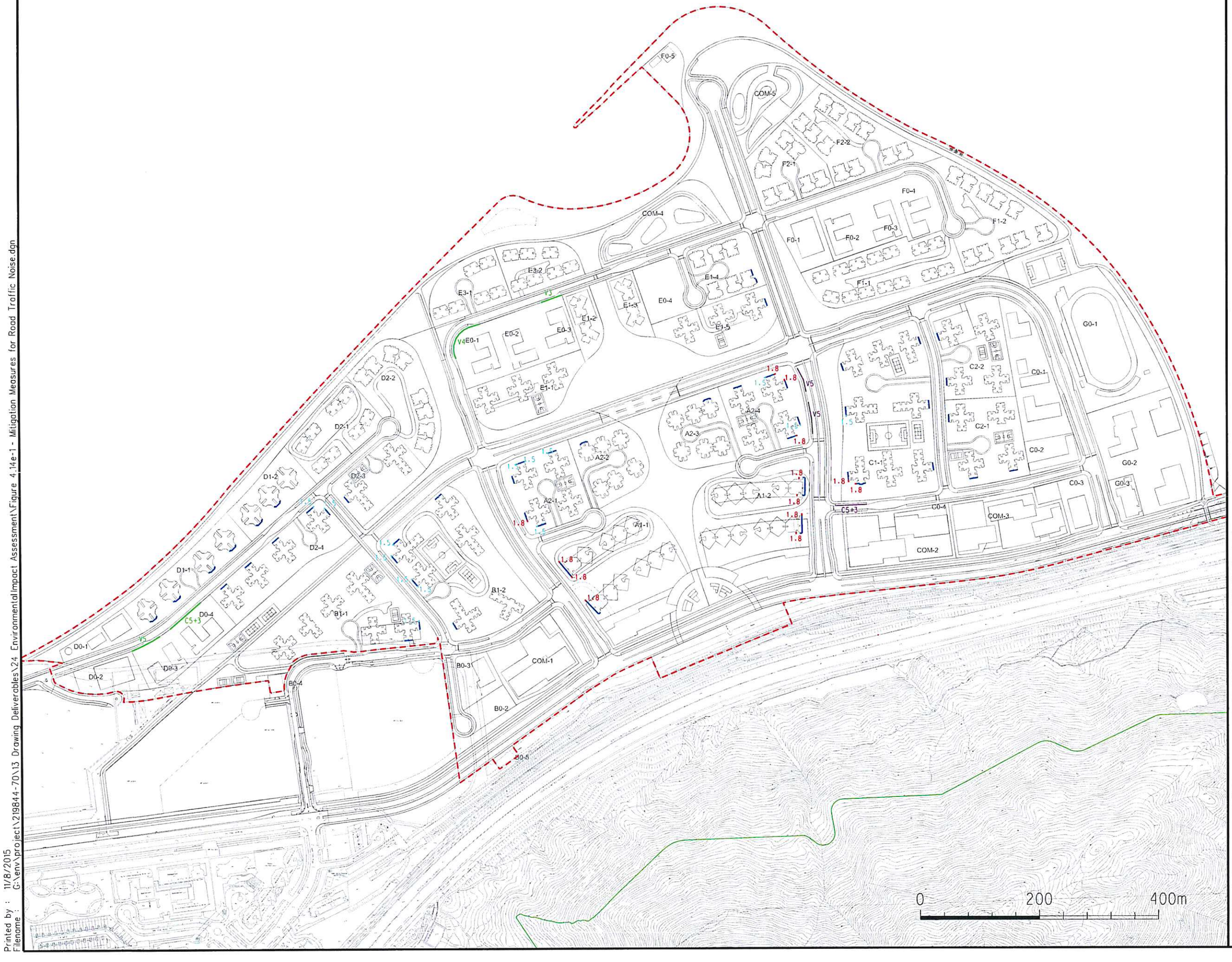

LEGEND

- POSSIBLE DEVELOPMENT AREA
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- COUNTRY PARK
- FACADE WITH NO OPENABLE WINDOWS
- Va — SCHOOL BOUNDARY WALL (aM HIGH)
- Va — VERTICAL NOISE BARRIER (aM HIGH)
- Cg+h — CANTILEVER NOISE BARRIER (gM HIGH + hM CANTILEVER)
- 1.5 — ARCHITECTURAL FIN (1.5M LONG)
- 1.8 — ARCHITECTURAL FIN (1.8M LONG)

Rev	Description	By	Date
A	FIRST ISSUE	GL	09/15

Consultant

ARUP

Project title

Tung Chung
New Town Extension

Drawing title

Mitigation Measures for
Road Traffic Noise
(Sheet 2 of 3)

Drawing no.			Rev.
Figure 6.3.2			A
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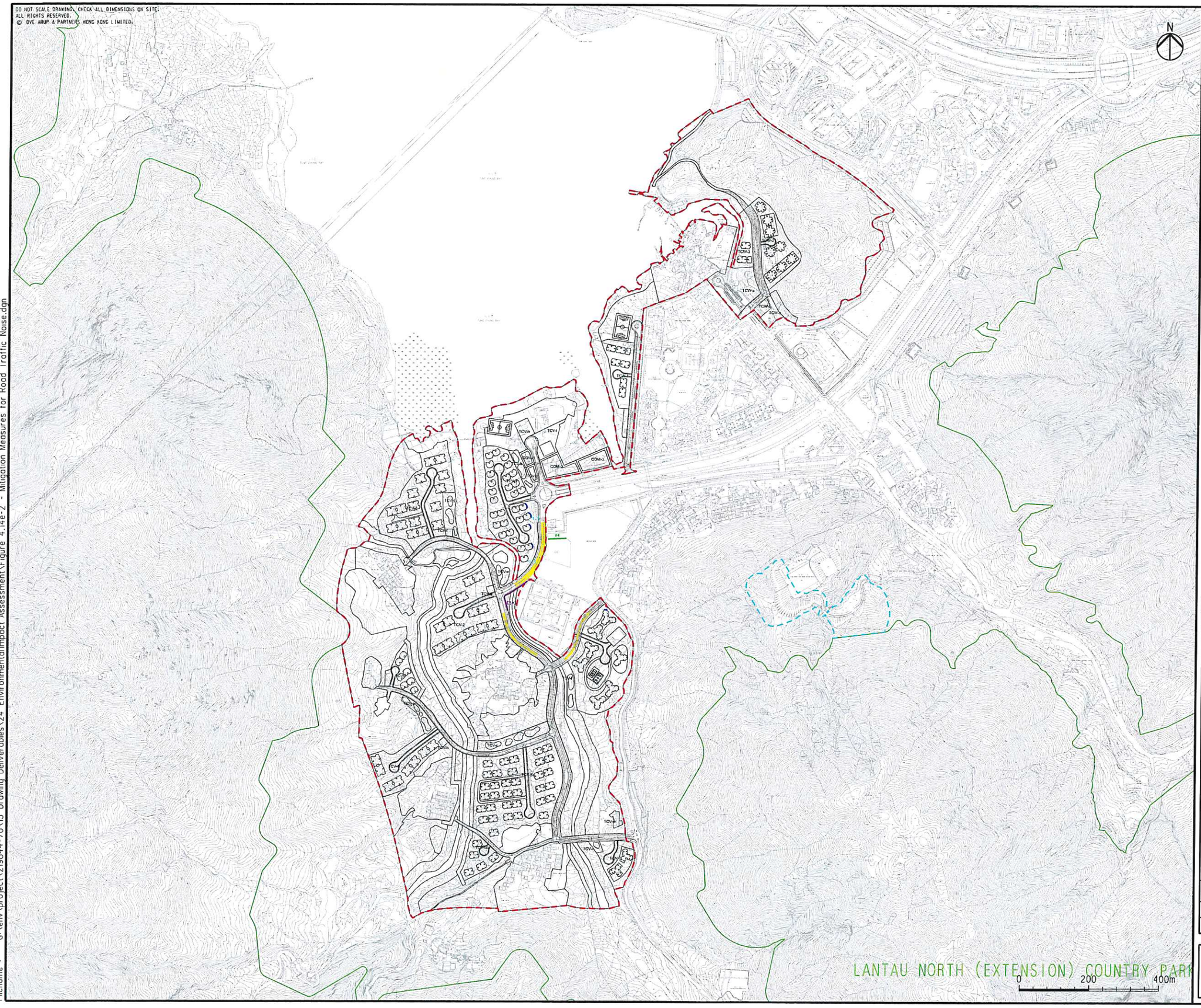

LEGEND

- POSSIBLE DEVELOPMENT AREA
- WORKS AREA FOR SERVICE RESERVOIR
- COUNTRY PARK
- FACADE WITH NO OPENABLE WINDOWS
- Va — SCHOOL BOUNDARY WALL (aM HIGH)
- Cg+h — CANTILEVER NOISE BARRIER (gM HIGH + hM CANTILEVER)
- 1.5 — ARCHITECTURAL FIN (1.5M LONG)
- LOW NOISE SURFACING

Rev.	Description	By	Date
A	FIRST ISSUE	GL	09/15

Consultant

ARUP

Project title

Tung Chung
New Town Extension

Drawing title

Mitigation Measures for
Road Traffic Noise
(Sheet 3 of 3)

Drawing no.			Rev.
Figure 6.3.3			A
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PROPOSED EXPANSION OF
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(BY OTHERS)

HONG KONG
INTERNATIONAL AIRPORT

HK BOUNDARY CROSSING
FACILITIES OF HZMB
(BY OTHERS)

TMCLK LINK
(BY OTHERS)

Figure 4.15c-1

HK LINK ROAD OF HZMB
(BY OTHERS)

TUNG CHUNG
EAST STATION
(BY OTHERS)

TUNG CHUNG
WEST STATION
(BY OTHERS)

PROPOSED LANTAU LOGISTICS PARK
(BY OTHERS)
(REF. REVISED CONCEPT PLAN
FOR LANTAU)

NORTH LANTAU HIGHWAY

TAI HO WAN

SAN TAU

POR KAI SHAN

POR TO YAN

LANTAU NORTH COUNTRY PARK

N

0 500 1000m

LEGEND

- POSSIBLE DEVELOPMENT AREA
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- WORKS AREA FOR SERVICE RESERVOIR
- AIRPORT EXPRESS LINE
- TUNG CHUNG LINE
- PROPOSED ALIGNMENT FOR TUNG CHUNG EAST STATION

Rev	Description	By	Date
A	FIRST ISSUE	GL	09/15

Consultant
ARUP

Project title
Tung Chung
New Town Extension

Drawing title
Mitigation Measures for
Railway Airborne Noise
(Sheet 1 of 2)

Drawing no.			Rev.
Figure 6.3.4			A
Drawn	Date	Checked	Approved
GL	09/15	LK	FC
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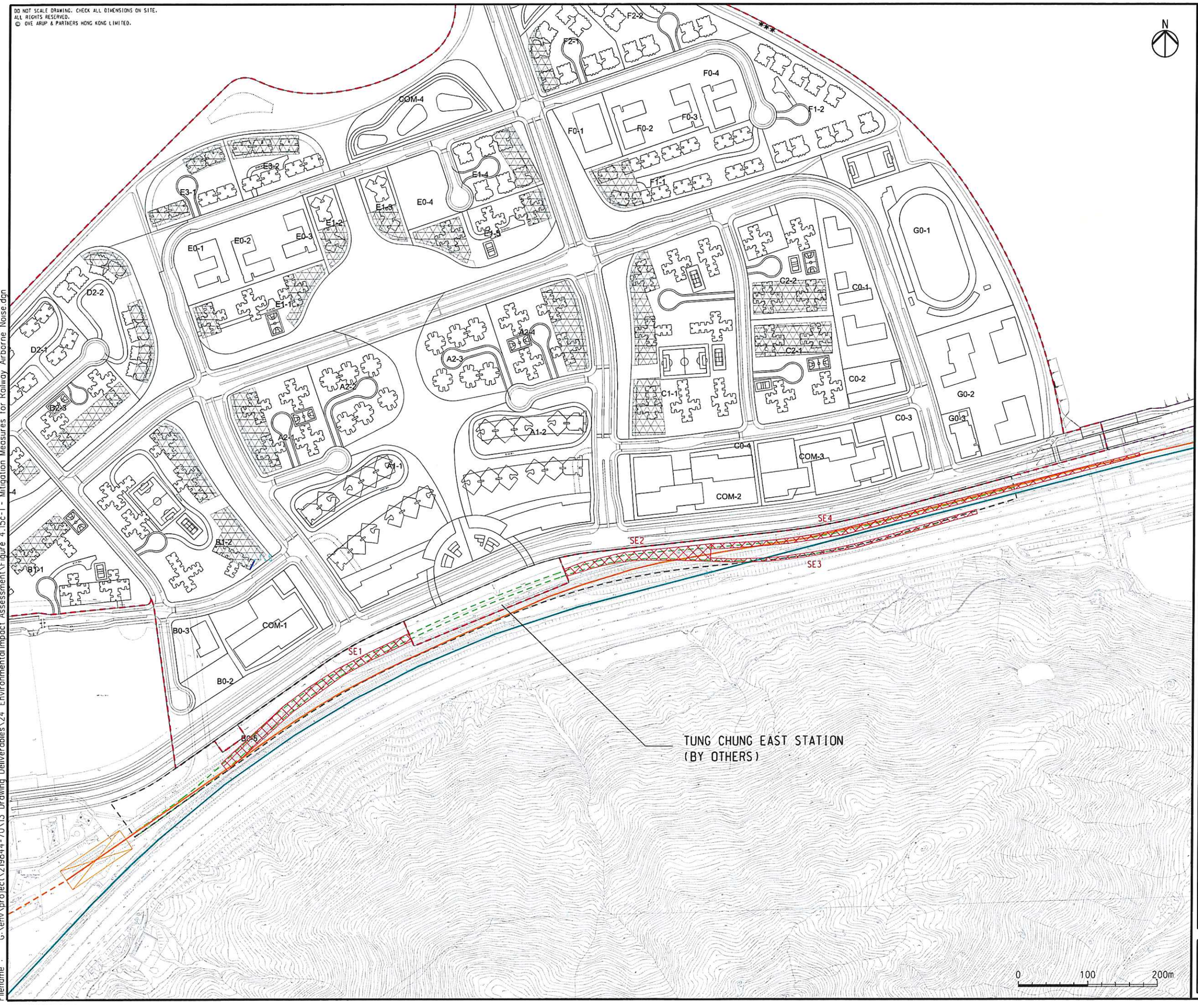

LEGEND

- POSSIBLE DEVELOPMENT AREA
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- AIRPORT EXPRESS LINE
- TUNG CHUNG LINE
- PROPOSED ALIGNMENT FOR TUNG CHUNG EAST STATION
- FACADE WITH NO OPENABLE WINDOWS
- 1.5 ARCHITECTURAL FIN (1.5M LONG)
- PROPOSED SEMI-ENCLOSURE (TENTATIVE SEMI-ENCLOSURE TO BE REVIEWED BY RAIL OPERATOR DURING THEIR SCHEDULE 2 EIA)

Rev	Description	By	Date
B	SECOND ISSUE	GL	10/15
A	FIRST ISSUE	GL	09/15

Consultant
ARUP

Project title
Tung Chung
New Town Extension

Drawing title
Mitigation Measures for Railway Airborne Noise (Sheet 2 of 2)

Drawing no.			Rev.
Figure 6.3.5			B
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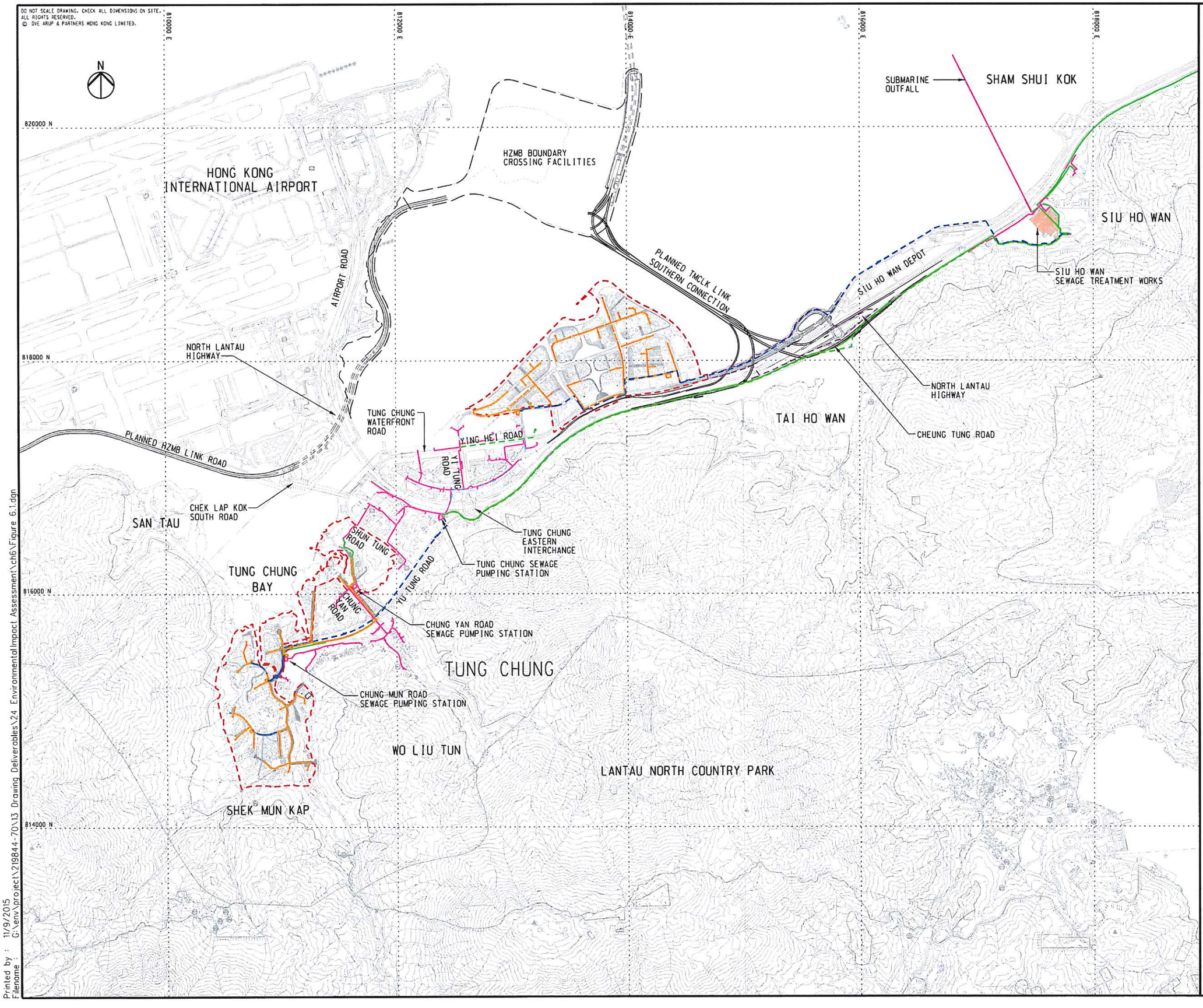

LEGEND

- POSSIBLE DEVELOPMENT AREA
- WORKS AREA FOR ROAD P1 (TUNG CHUNG – TAI HO SECTION)
- EXISTING GRAVITY SEWER
- EXISTING RISING MAIN
- PLANNED GRAVITY SEWER
- PLANNED RISING MAIN (AGREEMENT NO. CE 6/2012(DS) BY DSD)
- PROPOSED GRAVITY SEWER
- ULTIMATE STAGE PROPOSED TWIN RISING MAIN
- INTERIM STAGE PROPOSED TWIN RISING MAIN

Rev	Description	By	Date
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A	FIRST ISSUE	GL	06/15

Consultant

ARUP

Project title

Tung Chung
New Town Extension

Drawing title

Existing, Planned and Proposed Sewerage Network Overall Plan

Drawing no.			Rev.
Figure 6.5.1			C
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N

817000 E
817500 E
818000 E
818500 E
819000 E
819500 E
820000 N
819500 N
819000 N

SHAM SHUI KOK

NORTH LANTAU REFUSE TRANSFER STATION

MTR (AEL)

SHAM SHUI KOK 132kV SUBSTATION

SHAM SHUI KOK DRIVE

PLANNED ORGANIC WASTE TREATMENT FACILITIES

NORTH LANTAU HIGHWAY

SIU HO WAN WATER TREATMENT WORKS

CONCEPTUAL JACKING PIT APPROXIMATE LOCATION

FOR CONTINUATION SEE FIGURE 6.3

MATCH LINE

MTR (AEL)

CHEUNG TUNG ROAD

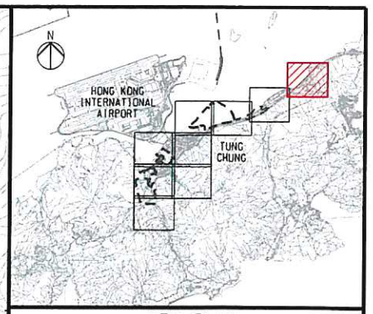
SIU HO WAN SEWAGE TREATMENT WORKS

CONCEPTUAL RECEIVING PIT APPROXIMATE LOCATION

SIU HO WAN

600 DIA.

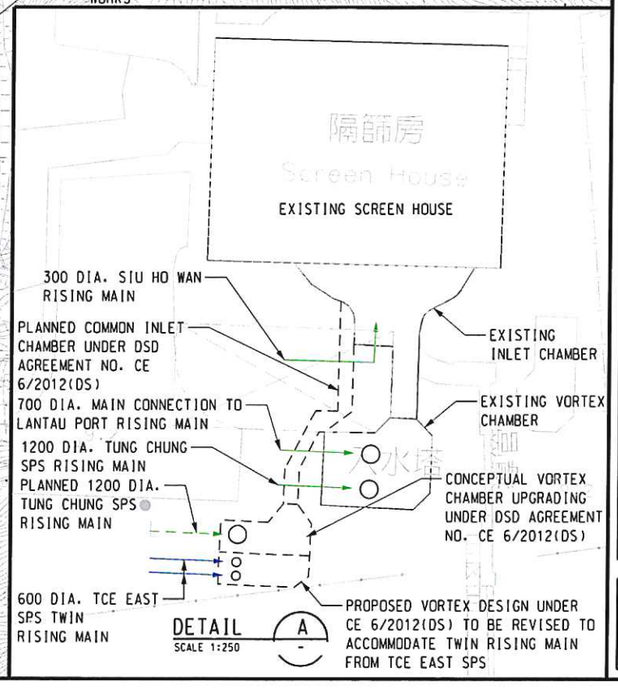
SEE DETAIL A



KEY PLAN

LEGEND

- EXISTING GRAVITY SEWER
- EXISTING RISING MAIN
- PLANNED RISING MAIN (AGREEMENT NO. CE 6/2012(DS) BY DSD)
- ULTIMATE STAGE PROPOSED TWIN RISING MAIN



DETAIL A
SCALE 1:250

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A	FIRST ISSUE	GL	06/15

Consultant
ARUP

Project title
Tung Chung New Town Extension

Drawing title
Existing, Planned and Proposed Sewerage Network (Sheet 1 of 9)

Drawing no.			Rev.
Figure 6.5.2			C
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N

815500 E
816000 E
816500 E

819000 N
818500 N
818000 N

600 DIA.

SIU HO WAN DEPOT

MTR (AEL)

NORTH LANTAU HIGHWAY

MATCH LINE
FOR CONTINUATION
SEE FIGURE 6.2

FOR CONTINUATION
SEE FIGURE 6.4
MATCH LINE

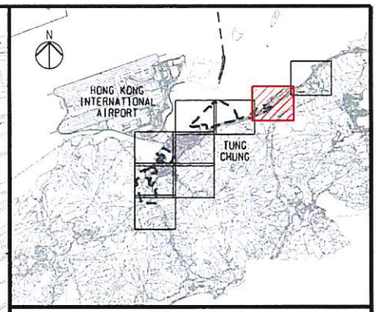
PLANNED TMCLK LINK
SOUTHERN CONNECTION

MTR (AEL)

TAI HO GAS OFF TAKE
AND PIGGING STATION

CHEUNG TUNG ROAD

TAI HO WAN



KEY PLAN

LEGEND

- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- EXISTING GRAVITY SEWER
- EXISTING RISING MAIN
- PLANNED RISING MAIN (AGREEMENT NO. CE 6/2012(DS) BY DSD)
- ULTIMATE STAGE PROPOSED TWIN RISING MAIN

Rev	Description	By	Date
C	THIRD ISSUE	GL	09/15
B	SECOND ISSUE	GL	08/15
A	FIRST ISSUE	GL	06/15

Consultant
ARUP

Project title
Tung Chung
New Town Extension

Drawing title
Existing, Planned and Proposed Sewerage Network (Sheet 2 of 9)

Drawing no.			Rev.
Figure 6.5.3			C
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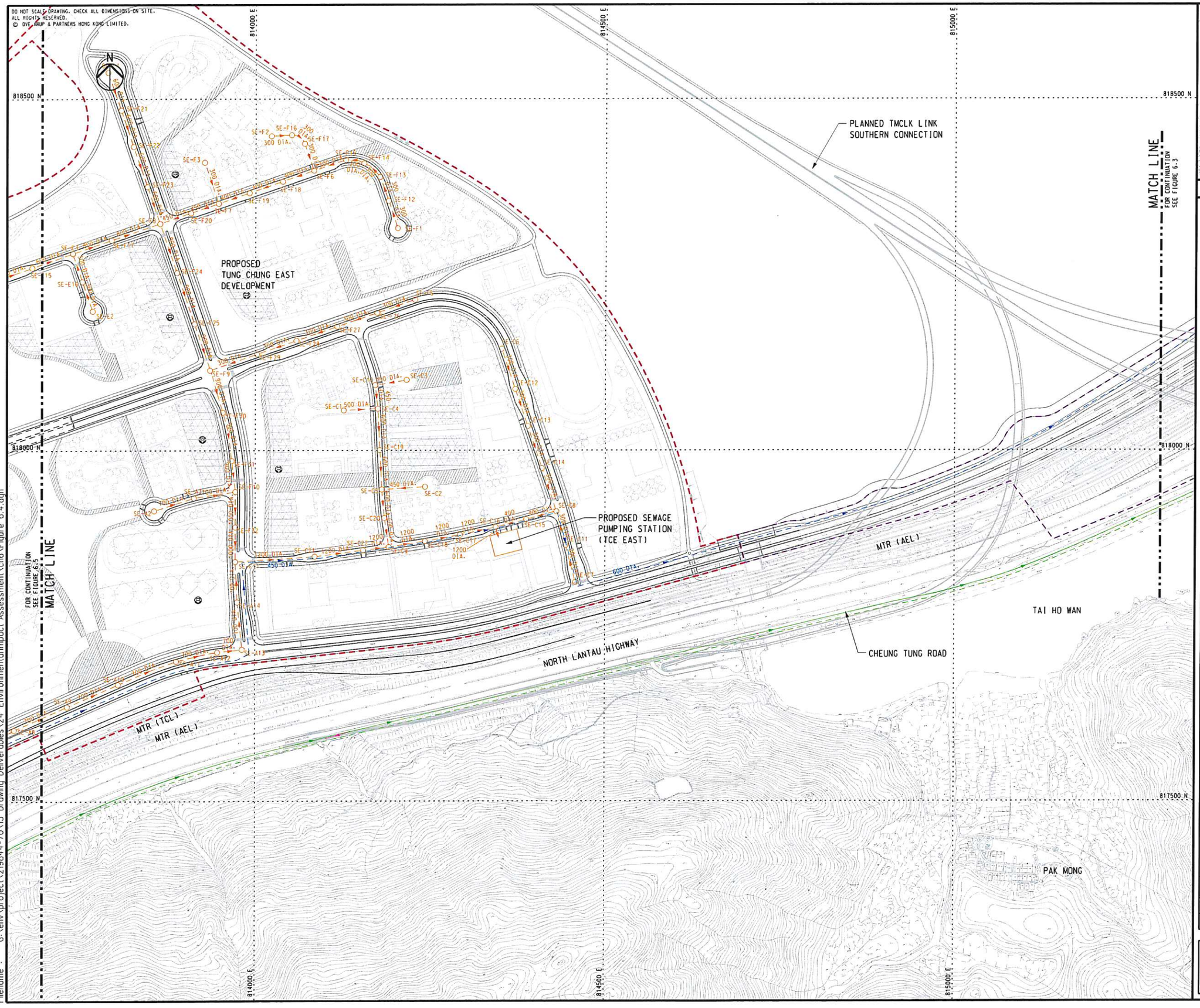

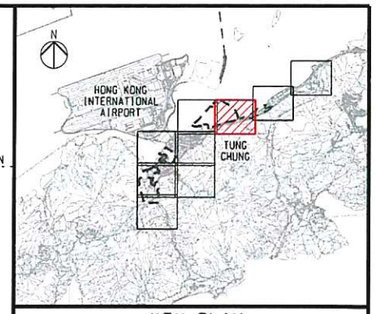

KEY PLAN

LEGEND

- POSSIBLE DEVELOPMENT AREA
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- EXISTING GRAVITY SEWER
- EXISTING RISING MAIN
- PLANNED RISING MAIN (AGREEMENT NO. CE 6/2012(DS) BY DSD)
- PROPOSED GRAVITY SEWER
- ULTIMATE STAGE PROPOSED TWIN RISING MAIN

Rev	Description	By	Date
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Consultant

ARUP

Project title

Tung Chung
New Town Extension

Drawing title

Existing, Planned and Proposed Sewerage Network (Sheet 3 of 9)

Drawing no.	Rev.
Figure 6.5.4	C

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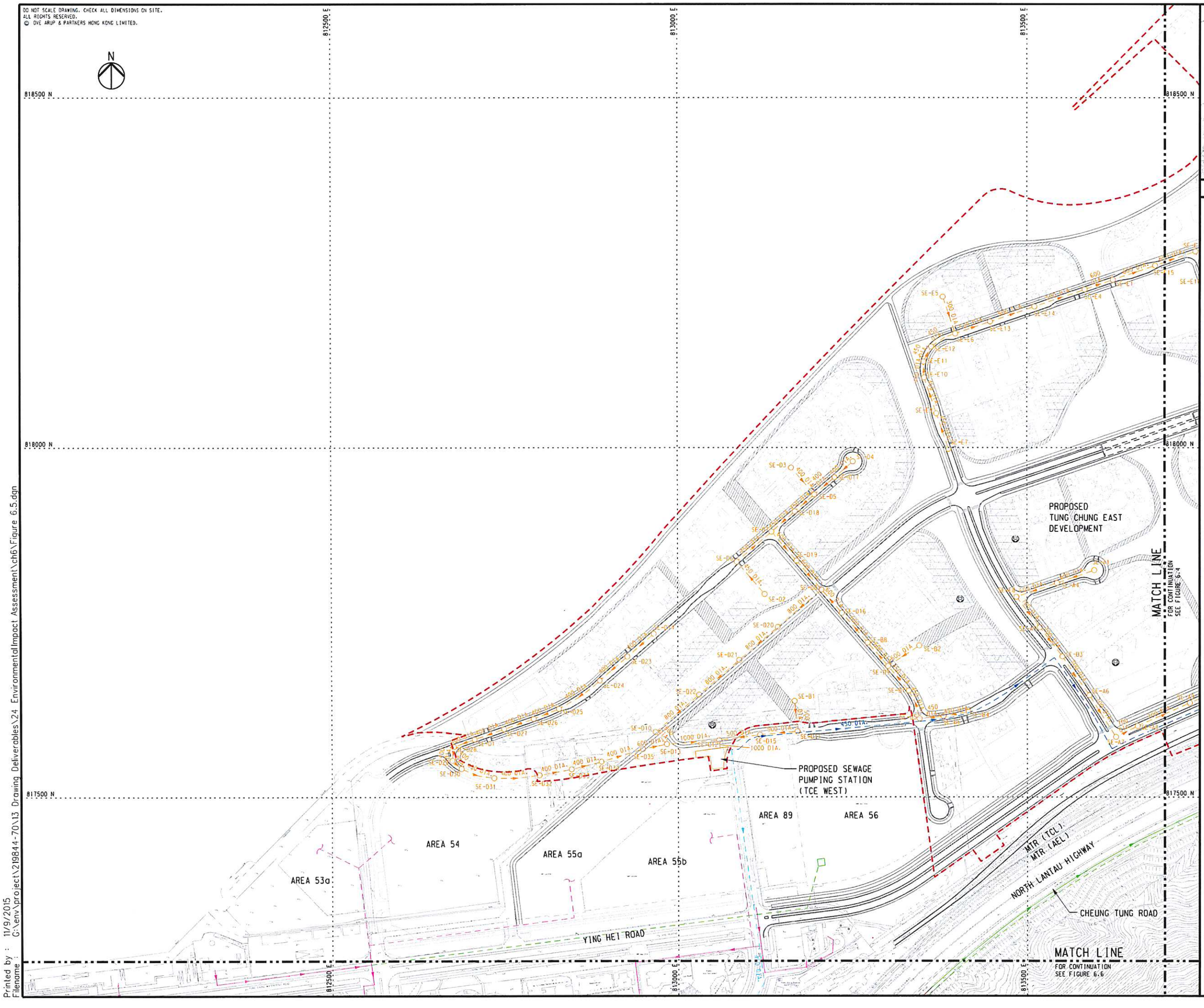

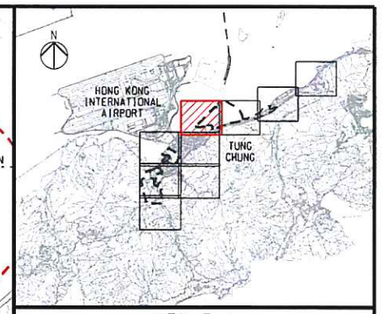

KEY PLAN

LEGEND

- POSSIBLE DEVELOPMENT AREA
- EXISTING GRAVITY SEWER
- EXISTING RISING MAIN
- PLANNED GRAVITY SEWER
- PLANNED RISING MAIN (AGREEMENT NO. CE 6/2012(DS) BY DSD)
- PROPOSED GRAVITY SEWER
- ULTIMATE STAGE PROPOSED TWIN RISING MAIN
- INTERIM STAGE PROPOSED TWIN RISING MAIN

Rev	Description	By	Date
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Consultant

ARUP

Project title

Tung Chung
New Town Extension

Drawing title

Existing, Planned and Proposed Sewerage Network (Sheet 4 of 9)

Drawing no.			Rev.
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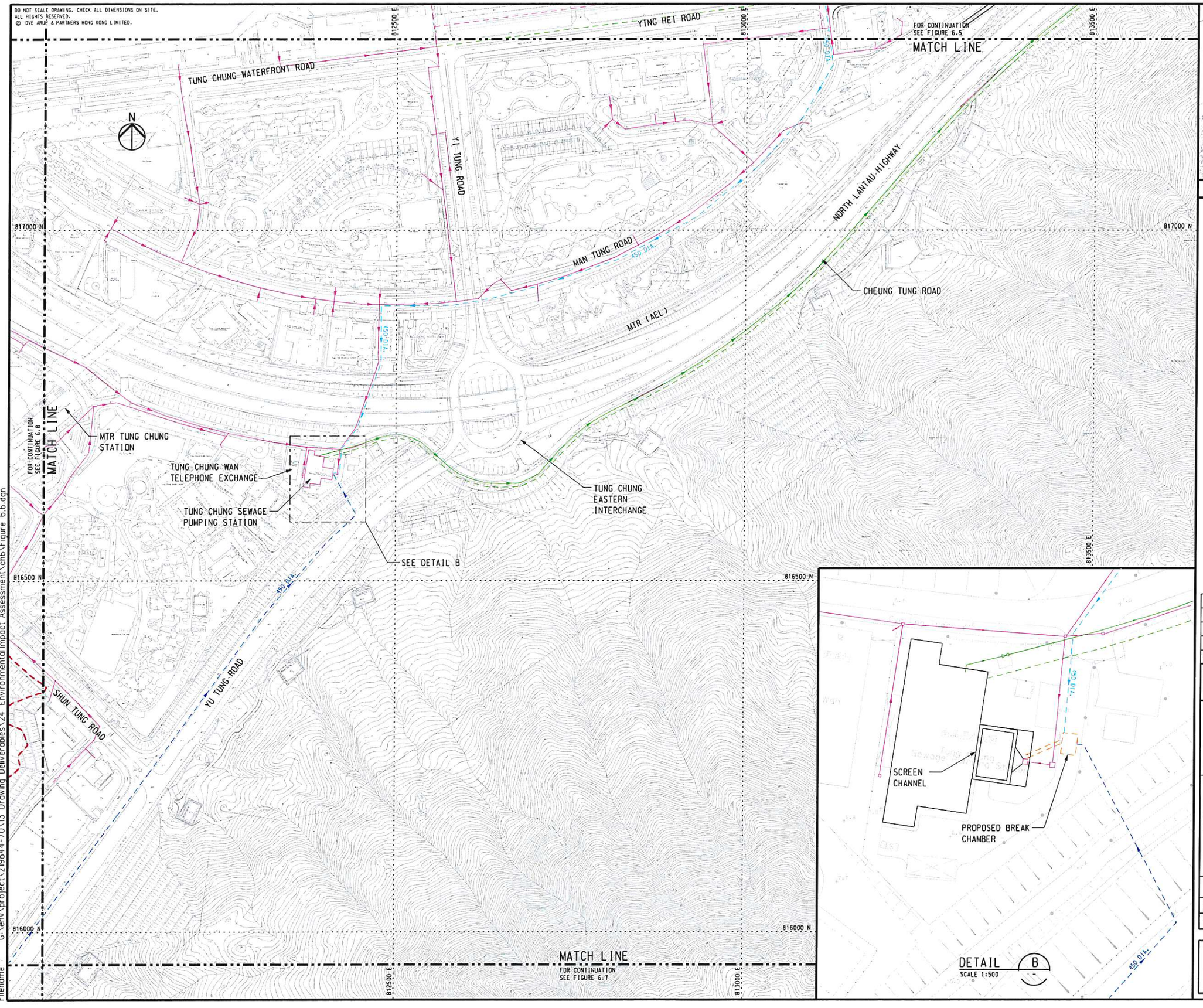

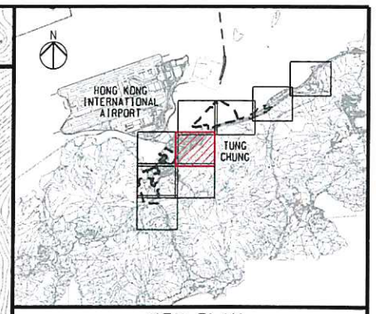

KEY PLAN

LEGEND

- POSSIBLE DEVELOPMENT AREA
- EXISTING GRAVITY SEWER
- EXISTING RISING MAIN
- PLANNED GRAVITY SEWER
- PLANNED RISING MAIN (AGREEMENT NO. CE 6/2012(DS) BY DSD)
- PROPOSED GRAVITY SEWER
- ULTIMATE STAGE PROPOSED TWIN RISING MAIN
- INTERIM STAGE PROPOSED TWIN RISING MAIN

Rev	Description	By	Date
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Consultant

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Project title

Tung Chung
New Town Extension

Drawing title

Existing, Planned and Proposed Sewerage Network (Sheet 5 of 9)

Drawing no.			Rev.
Figure 6.5.6			C
Drawn	Date	Checked	Approved
GL	09/15	LK	FC
Scale		Status	
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812500 E

813000 E

813500 E

FOR CONTINUATION
SEE FIGURE 6.6
MATCH LINE

N

SHAN HA

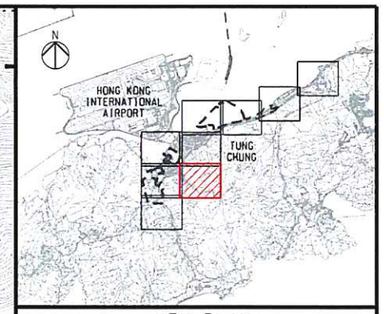
815500 N

815000 N

FOR CONTINUATION
SEE FIGURE 6.9
MATCH LINE

WONG LUNG HANG ROAD

LANTAU NORTH COUNTRY PARK



KEY PLAN

LEGEND

EXISTING GRAVITY SEWER

Rev	Description	By	Date
C	THIRD ISSUE	GL	09/15
B	SECOND ISSUE	GL	08/15
A	FIRST ISSUE	GL	06/15

Consultant

ARUP

Project title

Tung Chung
New Town Extension

Drawing title

Existing, Planned and
Proposed Sewerage Network
(Sheet 6 of 9)

Drawing no.	Rev.
Figure 6.5.7	C

Drawn	Date	Checked	Approved
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Scale	Status
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N

810500 E

811000 E

811500 E

817000 N

816500 N

816000 N

PLANNED HZMB LINK ROAD

SCENIC ROAD

NORTH LANTAU HIGHWAY

MTR (AEL)

CHEK LAP KOK SOUTH ROAD

TUNG CHUNG WATERFRONT ROAD

TUNG CHUNG CABLE CAR TERMINAL

MTR TUNG CHUNG STATION

TAI TUNG ROAD

SHUN TUNG ROAD

TUNG CHUNG ROAD NORTH

MA WAN CHUNG

TCW-2

TCW-3

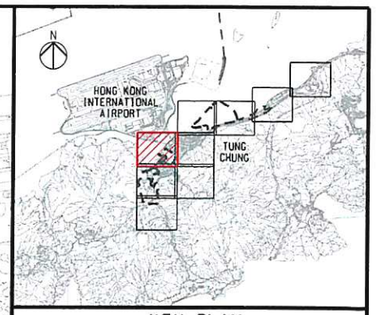
WONG NAI UK

CHUNG YAN ROAD SEWAGE PUMPING STATION

TUNG CHUNG BAY

MATCH LINE
FOR CONTINUATION
SEE FIGURE 6.6

MATCH LINE
FOR CONTINUATION
SEE FIGURE 6.9



KEY PLAN

LEGEND

- POSSIBLE DEVELOPMENT AREA
- EXISTING GRAVITY SEWER
- EXISTING RISING MAIN
- PROPOSED GRAVITY SEWER
- ULTIMATE STAGE PROPOSED TWIN RISING MAIN

Rev	Description	By	Date
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Consultant

ARUP

Project title

Tung Chung
New Town Extension

Drawing title

Existing, Planned and Proposed Sewerage Network (Sheet 7 of 9)

Drawing no.	Rev.
Figure 6.5.8	C

Drawn	Date	Checked	Approved
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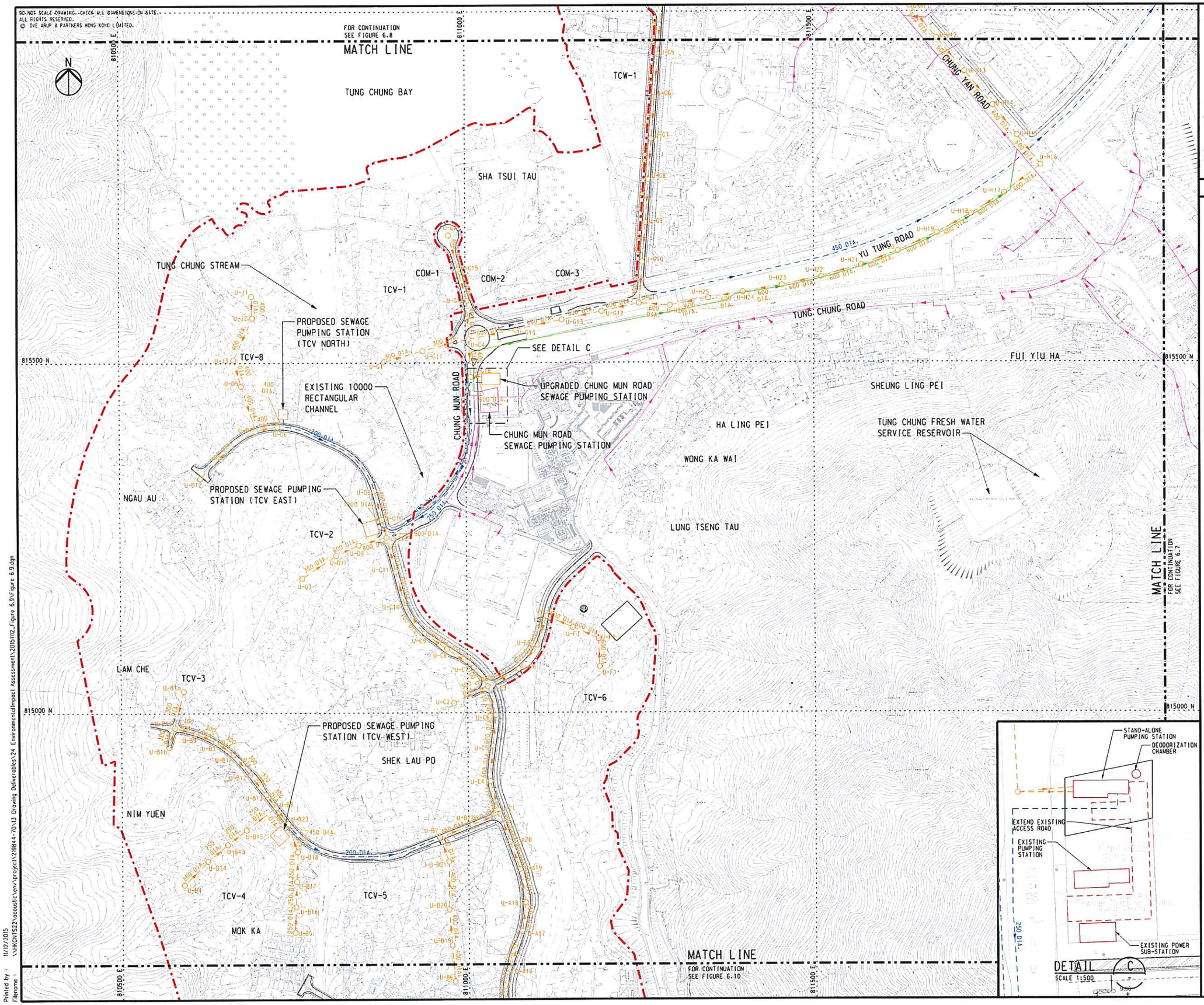

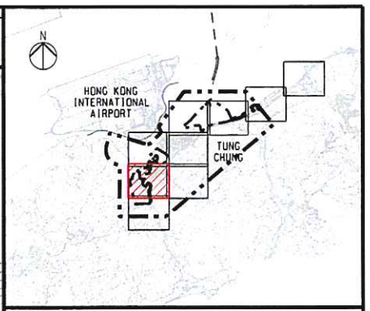

KEY PLAN

LEGEND

- POSSIBLE DEVELOPMENT AREA
- EXISTING GRAVITY SEWER
- EXISTING RISING MAIN
- PROPOSED GRAVITY SEWER
- ULTIMATE STAGE PROPOSED TWIN RISING MAIN

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A	FIRST ISSUE	GL	06/15

Consultant

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Project title

Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title

Existing, Planned and Proposed Sewerage Network (Sheet 8 of 9)

Drawing no.	Rev.
Figure 6.5.9	D

Drawn	Date	Checked	Approved
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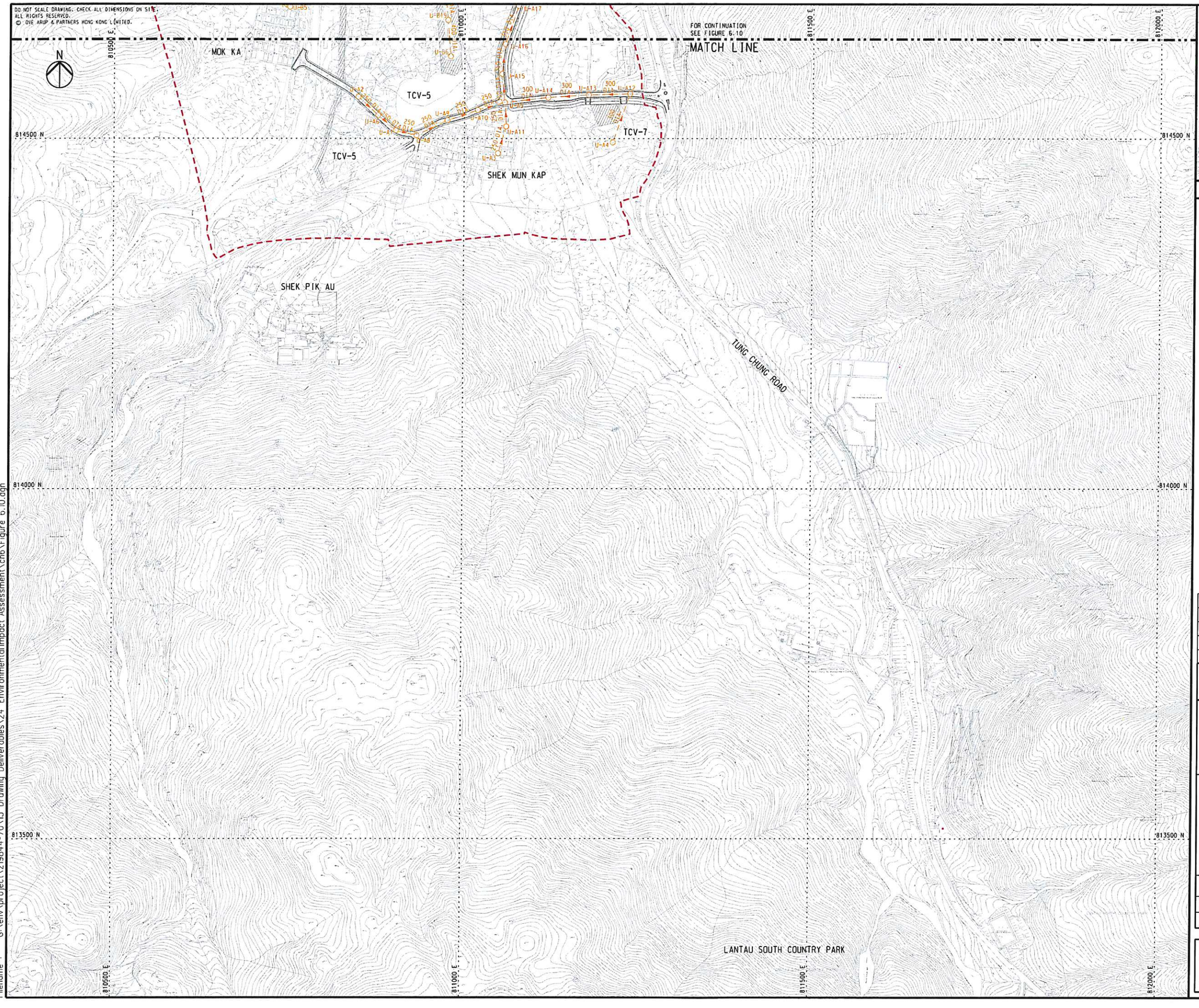

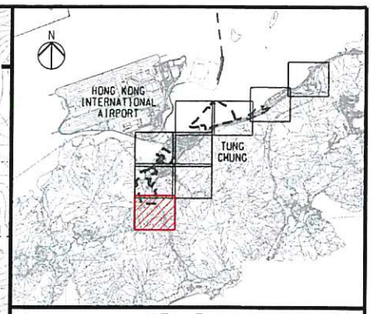

KEY PLAN

LEGEND

- POSSIBLE DEVELOPMENT AREA
- PROPOSED GRAVITY SEWER

Rev	Description	By	Date
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B	SECOND ISSUE	GL	08/15
A	FIRST ISSUE	GL	06/15

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Project title

Tung Chung
New Town Extension

Drawing title

Existing, Planned and Proposed Sewerage Network (Sheet 9 of 9)

Drawing no.	Rev.
Figure 6.5.10	C

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PROPOSED EXPANSION OF
HONG KONG INTERNATIONAL AIRPORT
(BY OTHERS)

HONG KONG
INTERNATIONAL AIRPORT

Figure 11.2aa

Figure 11.2ab

Figure 11.2ac

HK LINK ROAD OF HZMB
(BY OTHERS)

HK BOUNDARY CROSSING
FACILITIES OF HZMB
(BY OTHERS)

TM-CLK LINK
(BY OTHERS)

CYCLE PARK

POSSIBLE LANTAU LOGISTICS
PARK DEVELOPMENT
(BY OTHERS)
(REF. REVISED CONCEPT PLAN
FOR LANTAU)

Pak Mong Site of
Archaeological
Interest

ROAD P1

San Tau Site of
Archaeological Interest

Watchtower, Pak Mong

Entrance Gate, Pak Mong

Tai Ho Site of
Archaeological Interest

Fu Tei Wan
Tang Dynasty Kiln

Tung Chung Battery

Ha Wan Chung Site of
Archaeological Interest

Tung Chung Fort

Hau Wong Temple

Sha Tsui Tau Site of
Archaeological Interest

Tin Hau Temple

CABLE CAR

N

0 500 1000m

* NOTE: PLEASE REFER TO FIGURES 11.2ad TO 11.2al
FOR SUBCATEGORIES OF LR1, LR2 & LR10

LEGEND

- POSSIBLE DEVELOPMENT AREA
- 500M ASSESSMENT AREA (LIA)
- WORK AREA FOR SERVICE RESERVOIR
- SITES OF ARCHAEOLOGICAL INTEREST
- DECLARED MONUMENTS
- HISTORIC BUILDINGS

LANDSCAPE RESOURCES (LR)
TOTAL AREA OF LR WITHIN THE STUDY AREA SHOWN IN HECTARES (HA) BELOW

- PLANTS OF RARE AND PROTECTED SPECIES
- POTENTIALLY REGISTRABLE OVTs
- 1.* SECONDARY WOODLAND (191ha)
- 2.* SHRUBLAND AND GRASSLAND (337.8ha)
- 3. TRANSITIONAL WATERS (28.8ha)
- 4. COASTAL WATERS (505.8ha)
- 5a. NATURAL STREAMS AND RIVERS
- 5b. CHANNELIZED WATERCOURSE
- 6a. MUDFLAT (14.2ha)
- 6b. ROCKY SHORE (0.5ha)
- 7a. ROAD AND URBAN INFRASTRUCTURE (48ha)
- 7b. MAJOR TRANSPORT CORRIDOR (72.1ha)
- 8. VILLAGE TYPE DEVELOPMENT (28.5ha)
- 9. URBANISED DEVELOPMENT (192ha)
- 10.* AGRICULTURAL LAND (54ha)
- 11. PLANTATION (28.8ha)
- 12. FUNG SHUI WOODLAND (6.03ha)
- 13. MANGROVE (5.6ha)
- 14. REEDBED (1.1ha)
- 15. ARTIFICIAL SEAWALL (8.2ha)

Rev	Description	By	Date
C	THIRD ISSUE	GL	09/15
B	SECOND ISSUE	GL	08/15
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Consultant
ARUP

Project title
Tung Chung
New Town Extension

Drawing title
Landscape Resources Plan

Drawing no.			Rev.
Figure 6.10.1			C
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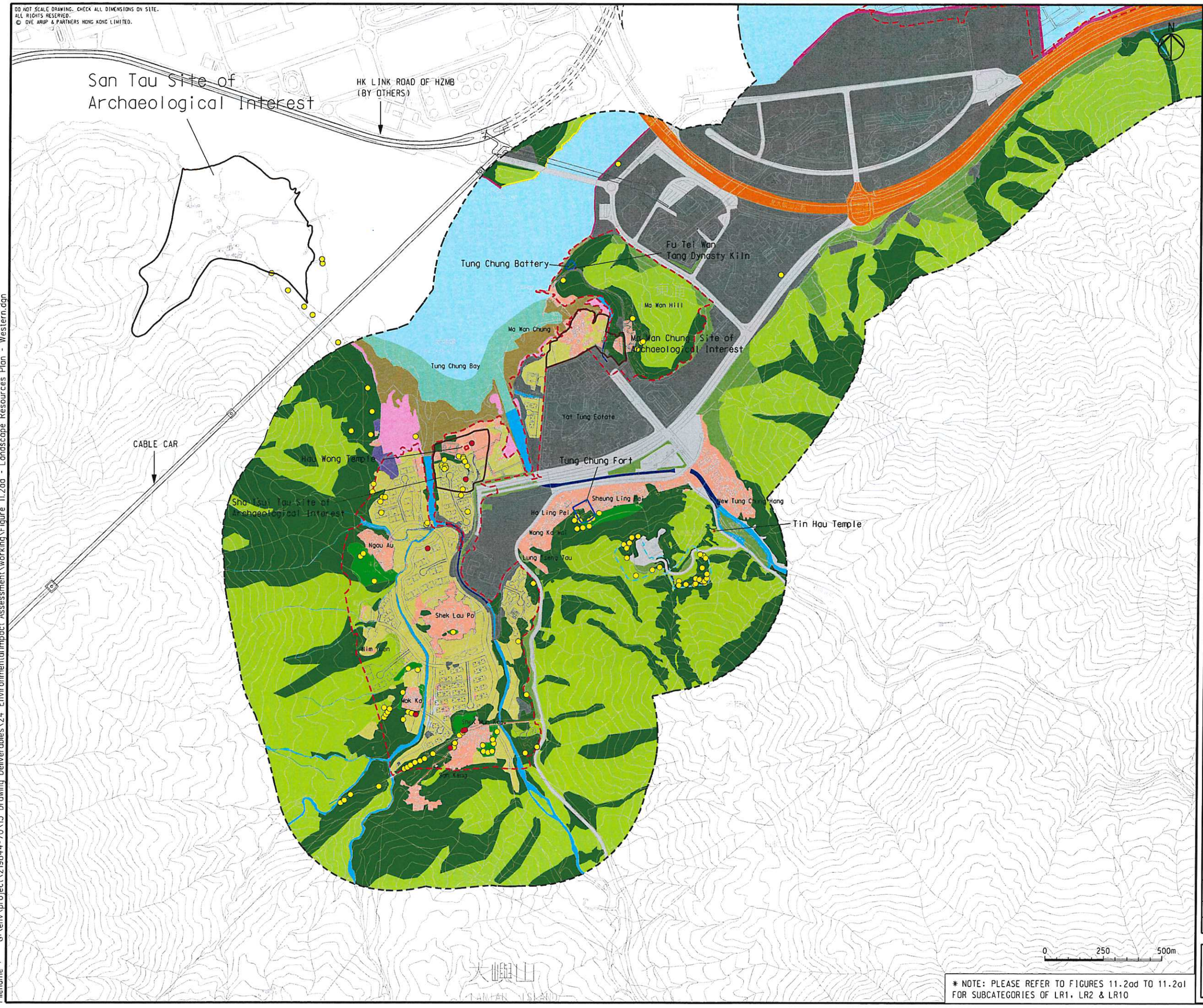

LEGEND

- POSSIBLE DEVELOPMENT AREA
- 500M ASSESSMENT AREA (LIA)
- WORK AREA FOR SERVICE RESERVOIR
- SITES OF ARCHAEOLOGICAL INTEREST
- DECLARED MONUMENTS
- HISTORIC BUILDINGS

LANDSCAPE RESOURCES (LR)
TOTAL AREA OF LR WITHIN THE STUDY AREA SHOWN IN HECTARES (HA) BELOW

- PLANTS OF RARE AND PROTECTED SPECIES
- POTENTIALLY REGISTRABLE OVTs
- 1.* SECONDARY WOODLAND (191ha)
- 2.* SHRUBLAND AND GRASSLAND (337.8ha)
- 3. TRANSITIONAL WATERS (28.8ha)
- 4. COASTAL WATERS (505.8ha)
- 5a. NATURAL STREAMS AND RIVERS
- 5b. CHANNELIZED WATERCOURSE
- 6a. MUDFLAT (14.2ha)
- 6b. ROCKY SHORE (0.5ha)
- 7a. ROAD AND URBAN INFRASTRUCTURE (48ha)
- 7b. MAJOR TRANSPORT CORRIDOR (72.1ha)
- 8. VILLAGE TYPE DEVELOPMENT (28.5ha)
- 9. URBANISED DEVELOPMENT (192ha)
- 10.* AGRICULTURAL LAND (54ha)
- 11. PLANTATION (28.8ha)
- 12. FUNG SHUI WOODLAND (6.03ha)
- 13. MANGROVE (5.6ha)
- 14. REEDBED (1.1ha)
- 15. ARTIFICIAL SEAWALL (8.2ha)

Rev	Description	By	Date
B	SECOND ISSUE	GL	08/15
A	FIRST ISSUE	GL	06/15

Consultant
ARUP

Project title
Tung Chung New Town Extension

Drawing title
Landscape Resources Plan - Western

Drawing no. Figure 6.10.2 Rev. B

Drawn	Date	Checked	Approved
GL	08/15	LK	FC

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* NOTE: PLEASE REFER TO FIGURES 11.2ad TO 11.2al FOR SUBCATEGORIES OF LR1, LR2 & LR10

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Filename : G:\env\project\219844-70\13 Drawing Deliverables\24 EnvironmentalImpact Assessment\working\Figure 11.2aa - Landscape Resources Plan - Western.dgn

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N

HK BOUNDARY CROSSING FACILITIES OF HZMB (BY OTHERS)

POSSIBLE LANTAU LOGISTICS PARK DEVELOPMENT (BY OTHERS)

TM-CLK LINK (BY OTHERS)

CYCLE PARK

ROAD P1

Pak Mong Site of Archaeological Interest

Pak Mong

Kei Tau Kok

Watchtower, Pak Mong

Entrance Gate, Pak Mong

Tai Ho Site of Archaeological Interest

Tung Chung Battery

Fu Tei Wan Tang Dynasty Kiln

Ma Wan Hill

Ma Wan Chung Site of Archaeological Interest

0 250 500m

* NOTE: PLEASE REFER TO FIGURES 11.2ad TO 11.2al FOR SUBCATEGORIES OF LR1, LR2 & LR10

LEGEND

- POSSIBLE DEVELOPMENT AREA
- 500M ASSESSMENT AREA (LIA)
- SITES OF ARCHAEOLOGICAL INTEREST
- DECLARED MONUMENTS
- HISTORIC BUILDINGS

LANDSCAPE RESOURCES (LR)
TOTAL AREA OF LR WITHIN THE STUDY AREA SHOWN IN HECTARES (HA) BELOW

- PLANTS OF RARE AND PROTECTED SPECIES
- 1.* SECONDARY WOODLAND (191ha)
- 2.* SHRUBLAND AND GRASSLAND (337.8ha)
- 3. TRANSITIONAL WATERS (28.8ha)
- 4. COASTAL WATERS (505.8ha)
- 5a. NATURAL STREAMS AND RIVERS
- 6a. MUDFLAT (14.2ha)
- 6b. ROCKY SHORE (0.5ha)
- 7a. ROAD AND URBAN INFRASTRUCTURE (48ha)
- 7b. MAJOR TRANSPORT CORRIDOR (72.1ha)
- 8. VILLAGE TYPE DEVELOPMENT (28.5ha)
- 9. URBANISED DEVELOPMENT (192ha)
- 10.* AGRICULTURAL LAND (54ha)
- 11. PLANTATION (28.8ha)
- 13. MANGROVE (5.6ha)
- 15. ARTIFICIAL SEAWALL (8.2ha)

Rev	Description	By	Date
B	SECOND ISSUE	GL	08/15
A	FIRST ISSUE	GL	06/15

Consultant
ARUP

Project title
Tung Chung
New Town Extension

Drawing title
Landscape Resources Plan
- Middle

Drawing no.	Rev.
Figure 6.10.3	B

Drawn	Date	Checked	Approved
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HK BOUNDARY CROSSING FACILITIES OF HZMB (BY OTHERS)

POSSIBLE LANTAU LOGISTICS PARK DEVELOPMENT (BY OTHERS)

TM-CLK LINK (BY OTHERS)

CYCLE PARK

Pak Mong Site of Archaeological Interest

ROAD P1

Watchtower, Pak Mong

Entrance Gate, Pak Mong

Tai Ho Site of Archaeological Interest

0 250 500m

* NOTE: PLEASE REFER TO FIGURES 11.2ad TO 11.2al FOR SUBCATEGORIES OF LR1, LR2 & LR10

LEGEND

- POSSIBLE DEVELOPMENT AREA
- 500M ASSESSMENT AREA (LIA)
- SITES OF ARCHAEOLOGICAL INTEREST
- HISTORIC BUILDINGS

LANDSCAPE RESOURCES (LR)
TOTAL AREA OF LR WITHIN THE STUDY AREA SHOWN IN HECTARES (HA) BELOW

- PLANTS OF RARE AND PROTECTED SPECIES
- 1.* SECONDARY WOODLAND (191ha)
- 2.* SHRUBLAND AND GRASSLAND (337.8ha)
- 3. TRANSITIONAL WATERS (28.8ha)
- 4. COASTAL WATERS (505.8ha)
- 5a. NATURAL STREAMS AND RIVERS
- 6a. MUDFLAT (14.2ha)
- 6b. ROCKY SHORE (0.5ha)
- 7a. ROAD AND URBAN INFRASTRUCTURE (48ha)
- 7b. MAJOR TRANSPORT CORRIDOR (72.1ha)
- 9. URBANISED DEVELOPMENT (192ha)
- 10.* AGRICULTURAL LAND (54ha)
- 11. PLANTATION (28.8ha)
- 13. MANGROVE (5.6ha)
- 15. ARTIFICIAL SEAWALL (8.2ha)

Rev	Description	By	Date
B	SECOND ISSUE	GL	08/15
A	FIRST ISSUE	GL	06/15

Consultant
ARUP

Project title
Tung Chung
New Town Extension

Drawing title
Landscape Resources Plan
- Eastern

Drawing no.	Rev.
Figure 6.10.4	B

Drawn	Date	Checked	Approved
GL	08/15	LK	FC

Scale: AS SHOWN
Status: PRELIMINARY

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Printed by : 11/11/2015
Filename : G:\env\project\219844-70\13 Drawing Deliverables\24 EnvironmentalImpact Assessment\working\Figure 11.2ac - Landscape Resources Plan - Eastern.dgn

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PROPOSED EXPANSION OF
HONG KONG INTERNATIONAL AIRPORT
(BY OTHERS)

Figure 11.3ac

Figure 11.3ab

Figure 11.3aa

HONG KONG
INTERNATIONAL AIRPORT

POSSIBLE LANTAU LOGISTICS
PARK DEVELOPMENT
(BY OTHERS)
(REF. REVISED CONCEPT PLAN
FOR LANTAU)

HK BOUNDARY CROSSING
FACILITIES OF HZMB
(BY OTHERS)

CYCLE PARK

TM-CLK LINK
(BY OTHERS)

HK LINK ROAD OF HZMB
(BY OTHERS)

Pak Mong Site of
Archaeological
Interest

ROAD P1

San Tau Site of
Archaeological Interest

Watchtower, Pak Mong

Entrance Gate, Pak Mong

Tai Ho Site of
Archaeological Interest

Fu Tei Wan
Tang Dynasty Kiln

Tung Chung Battery

Ma Wan Chung Site of
Archaeological Interest

Tung Chung Fort

Hau Wong Temple

Sha Tsui Tau Site of
Archaeological Interest

Tin Hau Temple

CABLE CAR

0 500 1000m

LEGEND

- POSSIBLE DEVELOPMENT AREA
- 500M ASSESSMENT AREA (LIA)
- WORK AREA FOR SERVICE RESERVOIR
- SITES OF ARCHAEOLOGICAL INTEREST
- DECLARED MONUMENTS
- HISTORIC BUILDINGS

LANDSCAPE CHARACTER AREAS (LCA)
TOTAL AREA OF LCA WITHIN THE STUDY AREA SHOWN IN HECTARES (HA) BELOW

- PLANTS OF RARE AND PROTECTED SPECIES
- POTENTIALLY REGISTRABLE OVTs
- 1. INSHORE WATER LANDSCAPE AREA (476.7ha)
- 2. STRAIT LANDSCAPE AREA (51.2ha)
- 3. INTER-TIDAL COAST LANDSCAPE AREA (25.8ha)
- 4. COASTAL UPLAND AND HILLSIDE LANDSCAPE AREA (112.3HA)
- 5. SETTLED VALLEY LANDSCAPE AREA (135.8ha)
- 6. UPLAND HILLSIDE LANDSCAPE AREA (272.8ha)
- 7a. RECLAMATION/ ONGOING MAJOR DEVELOPMENT LANDSCAPE (32.8ha)
- 7b. ONGOING MAJOR DEVELOPMENT LANDSCAPE (9.7ha)
- 8. TRANSPORTATION CORRIDOR LANDSCAPE AREA (177.6ha)
- 9. MIXED MODERN COMPREHENSIVE URBAN DEVELOPMENT LANDSCAPE AREA (87.7ha)
- 10a. URBAN PERIPHERAL VILLAGE LANDSCAPE AREA (25.6ha)
- 10b. MISCELLANEOUS RURAL FRINGE LANDSCAPE AREA (66.9ha)
- 10c. RURAL TOWNSHIP LANDSCAPE AREA (14.4ha)
- 11. AIRPORT LANDSCAPE AREA (2.2ha)
- 12. INSTITUTIONAL LANDSCAPE AREA (20.5ha)
- 13. RESIDENTIAL URBAN LANDSCAPE AREA (19.3ha)

Rev	Description	By	Date
C	THIRD ISSUE	GL	09/15
B	SECOND ISSUE	GL	08/15
A	FIRST ISSUE	GL	06/15

Consultant
ARUP

Project title
Tung Chung
New Town Extension

Drawing title
Landscape Character Areas
Plan

Drawing no. Figure 6.10.5 | Rev. C

Drawn	Date	Checked	Approved
GL	09/15	LK	FC

Scale 1:30000 @A3 | Status PRELIMINARY

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Printed by : 11/9/2015
Filename : G:\env\project\219844-70\13 Drawing Deliverables\24 Environmental Impact Assessment\working\Figure 11.3a - Landscape Character Areas Plan.dgn

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HK LINK ROAD OF HZMB (BY OTHERS)

San Tau Site of Archaeological Interest

Fu Tei Wan Tang Dynasty Kiln

Tung Chung Battery

Ma Wan Hill

Ma Wan Chung

Ma Wan Chung Site of Archaeological Interest

Tung Chung Bay

Yat Tung Estate

CABLE CAR

Hau Wong Temple

Tung Chung Fort

Sha Tsui Tau Site of Archaeological Interest

Sheung Ling Pei

Ha Ling Pei

New Tung Chung Hang

Tin Hau Temple

Wang Ka Wai

Ngau Au

Lung Tseng Tau

Shek Lau Po

Nim Yuen

Mok Ka

Shek Mun Kap

San Kong

大嶼山
LANTAU ISLAND

0 250 500m

N

LEGEND

- POSSIBLE DEVELOPMENT AREA
- 500M ASSESSMENT AREA (LIA)
- WORK AREA FOR SERVICE RESERVOIR
- SITES OF ARCHAEOLOGICAL INTEREST
- DECLARED MONUMENTS
- HISTORIC BUILDINGS

LANDSCAPE CHARACTER AREAS (LCA)
TOTAL AREA OF LCA WITHIN THE STUDY AREA SHOWN IN HECTARES (HA) BELOW

- PLANTS OF RARE AND PROTECTED SPECIES
- POTENTIALLY REGISTRABLE OVTs
- 1. INSHORE WATER LANDSCAPE AREA (476.7ha)
- 2. STRAIT LANDSCAPE AREA (51.2ha)
- 3. INTER-TIDAL COAST LANDSCAPE AREA (25.8ha)
- 4. COASTAL UPLAND AND HILLSIDE LANDSCAPE AREA (112.3HA)
- 5. SETTLED VALLEY LANDSCAPE AREA (135.8ha)
- 6. UPLAND HILLSIDE LANDSCAPE AREA (272.8ha)
- 7a. RECLAMATION/ ONGOING MAJOR DEVELOPMENT LANDSCAPE (32.8ha)
- 7b. ONGOING MAJOR DEVELOPMENT LANDSCAPE (9.7ha)
- 8. TRANSPORTATION CORRIDOR LANDSCAPE AREA (177.6ha)
- 9. MIXED MODERN COMPREHENSIVE URBAN DEVELOPMENT LANDSCAPE AREA (87.7ha)
- 10a. URBAN PERIPHERAL VILLAGE LANDSCAPE AREA (25.6ha)
- 10b. MISCELLANEOUS RURAL FRINGE LANDSCAPE AREA (66.9ha)
- 10c. RURAL TOWNSHIP LANDSCAPE AREA (14.4ha)
- 11. AIRPORT LANDSCAPE AREA (2.2ha)
- 12. INSTITUTIONAL LANDSCAPE AREA (20.5ha)
- 13. RESIDENTIAL URBAN LANDSCAPE AREA (19.3ha)

Rev	Description	By	Date
C	THIRD ISSUE	GL	09/15
B	SECOND ISSUE	GL	08/15
A	FIRST ISSUE	GL	06/15

Consultant
ARUP

Project title
Tung Chung New Town Extension

Drawing title
Landscape Character Areas Plan - Western

Drawing no.	Rev.
Figure 6.10.6	C

Drawn	Date	Checked	Approved
GL	09/15	LK	FC

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Status: PRELIMINARY

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Printed by : 11/9/2015
Filename : G:\env\project\219844-70\13 Drawing Deliverables\24 EnvironmentalImpact Assessment\working\Figure 11.3aa - Landscape Character Areas Plan - Western.dgn

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HK BOUNDARY CROSSING FACILITIES OF HZMB (BY OTHERS)

POSSIBLE LANTAU LOGISTICS PARK DEVELOPMENT (BY OTHERS)

TM-CLK LINK (BY OTHERS)

CYCLE PARK

Pak Mong Site of Archaeological Interest

ROAD P1

Pak Mong

Kei Tau Kok

Watchtower, Pak Mong

Entrance Gate, Pak Mong

Tai Ho Site of Archaeological Interest

Tung Chung Battery

Fu Tei Wan Tang Dynasty Kiln

Ma Wan Hill

Ma Wan Chung Site of Archaeological Interest

0 250 500m

LEGEND

- POSSIBLE DEVELOPMENT AREA
- 500M ASSESSMENT AREA (LIA)
- SITES OF ARCHAEOLOGICAL INTEREST
- DECLARED MONUMENTS
- HISTORIC BUILDINGS

LANDSCAPE CHARACTER AREAS (LCA)
TOTAL AREA OF LCA WITHIN THE STUDY AREA SHOWN IN HECTARES (HA) BELOW

- PLANTS OF RARE AND PROTECTED SPECIES
- 1. INSHORE WATER LANDSCAPE AREA (476.7ha)
- 2. STRAIT LANDSCAPE AREA (51.2ha)
- 3. INTER-TIDAL COAST LANDSCAPE AREA (25.8ha)
- 4. COASTAL UPLAND AND HILLSIDE LANDSCAPE AREA (112.3HA)
- 5. SETTLED VALLEY LANDSCAPE AREA (135.8ha)
- 6. UPLAND HILLSIDE LANDSCAPE AREA (272.8ha)
- 7a. RECLAMATION/ ONGOING MAJOR DEVELOPMENT LANDSCAPE (32.8ha)
- 7b. ONGOING MAJOR DEVELOPMENT LANDSCAPE (9.7ha)
- 8. TRANSPORTATION CORRIDOR LANDSCAPE AREA (177.6ha)
- 9. MIXED MODERN COMPREHENSIVE URBAN DEVELOPMENT LANDSCAPE AREA (87.7ha)
- 10a. URBAN PERIPHERAL VILLAGE LANDSCAPE AREA (25.6ha)
- 11. AIRPORT LANDSCAPE AREA (2.2ha)
- 12. INSTITUTIONAL LANDSCAPE AREA (20.5ha)
- 13. RESIDENTIAL URBAN LANDSCAPE AREA (19.3ha)

Rev	Description	By	Date
C	THIRD ISSUE	GL	09/15
B	SECOND ISSUE	GL	08/15
A	FIRST ISSUE	GL	06/15

Consultant
ARUP

Project title
Tung Chung New Town Extension

Drawing title
Landscape Character Areas Plan - Middle

Drawing no.	Rev.
Figure 6.10.7	C

Drawn	Date	Checked	Approved
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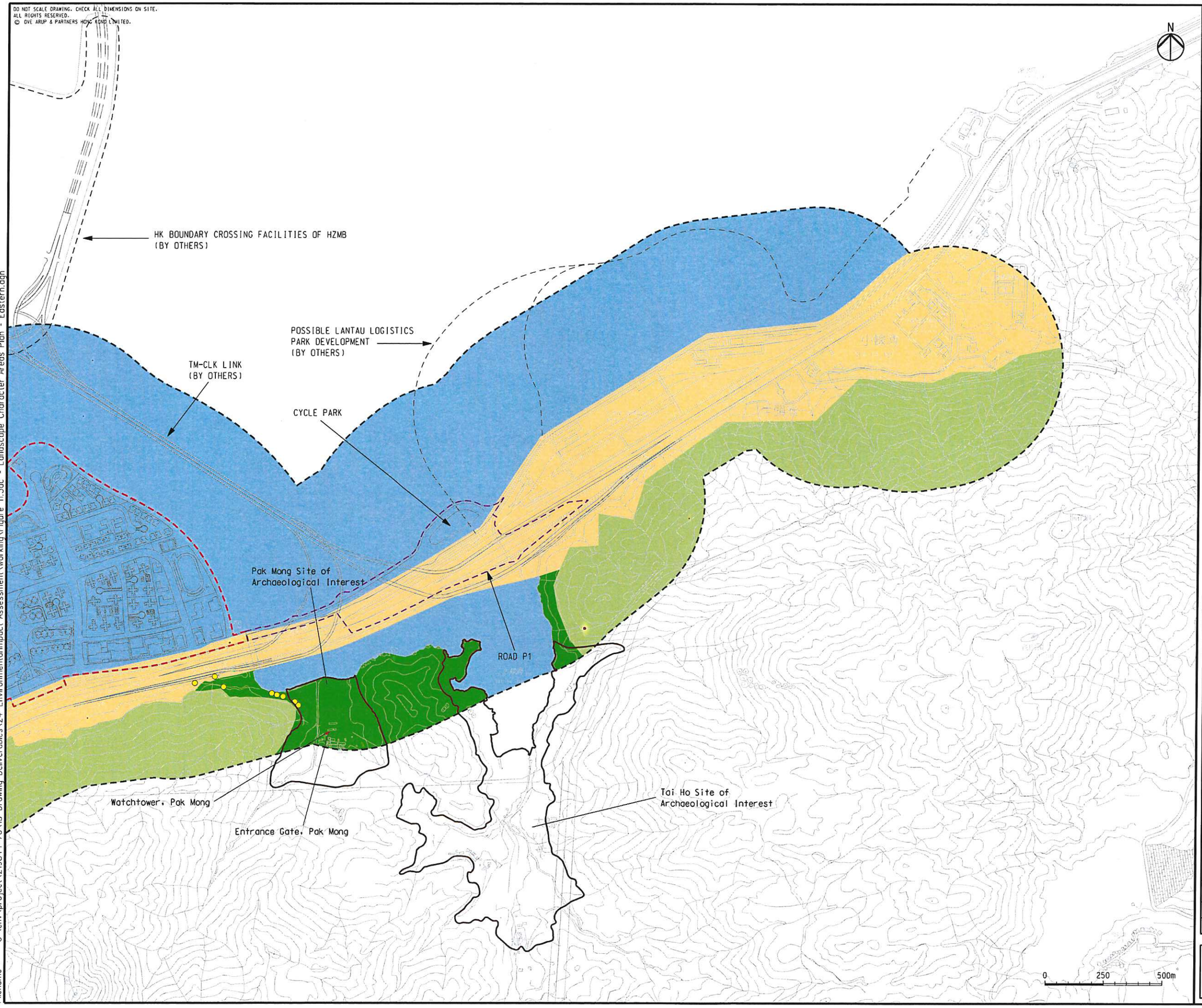

LEGEND

- POSSIBLE DEVELOPMENT AREA
- 500M ASSESSMENT AREA (LIA)
- SITES OF ARCHAEOLOGICAL INTEREST
- HISTORIC BUILDINGS

LANDSCAPE CHARACTER AREAS (LCA)
TOTAL AREA OF LCA WITHIN THE STUDY AREA SHOWN IN HECTARES (HA) BELOW

- PLANTS OF RARE AND PROTECTED SPECIES
- 1. INSHORE WATER LANDSCAPE AREA (476.7ha)
- 5. SETTLED VALLEY LANDSCAPE AREA (135.8ha)
- 6. UPLAND HILLSIDE LANDSCAPE AREA (272.8ha)
- 8. TRANSPORTATION CORRIDOR LANDSCAPE AREA (177.6ha)

Rev	Description	By	Date
C	THIRD ISSUE	GL	09/15
B	SECOND ISSUE	GL	08/15
A	FIRST ISSUE	GL	06/15

Consultant
ARUP

Project title
Tung Chung
New Town Extension

Drawing title
Landscape Character Areas
Plan - Eastern

Drawing no.	Rev.
Figure 6.10.8	C

Drawn	Date	Checked	Approved
GL	09/15	LK	FC

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HONG KONG INTERNATIONAL AIRPORT

HK LINK ROAD HZMB (BY OTHERS)

SAN TAU

TUNG CHUNG

POK TO YAN

LANTAU ISLAND

MATCH LINE

North Lantau Highway

Scenic Hill

Tung Chung Bay

Ma Wo Chung

Yat Tung Estate

Sha Tau Tei

Hau Wong Temple

Ngau Au

Shoung Ling Pei

Ha Ling Pei

Wong Ka Wai

Tung Chung Fort

New Tung Chung Hang

Lung Tseng Tau

Shek Lau Po

Nim Yuen

Yuen Tan Temple

Mok Ko

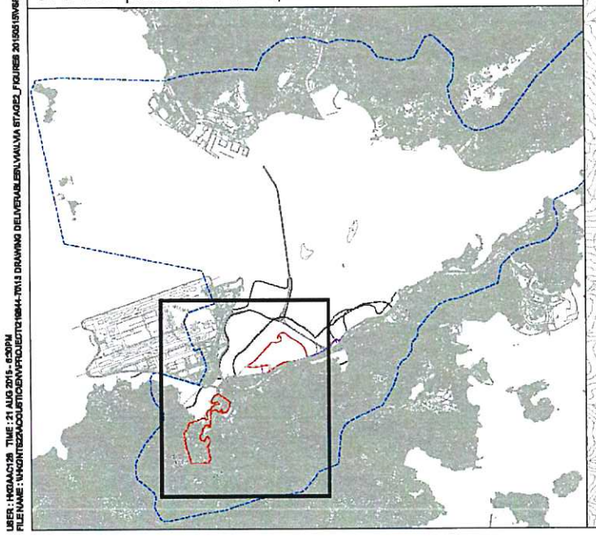
Shek Mun Kap

Lo Hon Temple

Ting Chung Road

2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20. 21. 22. 23. 24. 25. 26. 27. 28. 30. 31. 32. 33. 34. 39. 43. 44. 45.

Overview plan Scale 1:200,000



0m 500m 1000m (1km)

N

LEGEND.

- POSSIBLE DEVELOPMENT AREA
- 500M ASSESSMENT AREA (LVIA)
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- WORKS AREA FOR SERVICE RESERVOIR
- OTHER PROJECT ELEMENTS
- PROPOSED GRAVITY SEWER / RISING MAIN
- VISUAL ENVELOPE
- VSR LOCATION
- TEMPLE
- HERITAGE FEATURE

VSR ID

VSR 1	NEAR ASIA WORLD EXPO
VSR 2	EAST COAST ROAD
VSR 3	NEAR CNAC(GROUP) TOWER
VSR 4	NEAR SITTING OUT AREA
VSR 5	SCENIC HILL EAST
VSR 6	SCENIC HILL WEST
VSR 7	NEAR CHEK LAP KOK ROAD
VSR 8	NEAR TUNG CHUNG WATERFRONT
VSR 9	TUNG CHUNG BATTERY
VSR 10	MA WAN CHUNG PIER - FACING NORTHEAST
VSR 11	MA WAN CHUNG PIER - FACING SOUTHWEST
VSR 12	NEAR YING HEI ROAD
VSR 13	HILLTOP OF PLANNED OPEN SPACE-FACING NORTHWEST
VSR 14	HILLTOP OF PLANNED OPEN SPACE-FACING SOUTHWEST
VSR 15	NEAR YAT TUNG SHOPPING CENTRE
VSR 16	HAU WONG TEMPLE
VSR 17	NEAR TUNG CHUNG STREAM - FACING SOUTH
VSR 18	BUS STATION NEAR FU TUNG STREET
VSR 19	NEAR NGAU AU
VSR 20	NGONG PING 360 RESCUE TRAIL
VSR 21	NEAR SAN TAU
VSR 22	NEAR YUEN TAN TEMPLE
VSR 23	LO HON TEMPLE
VSR 24	LANTAU NORTH COUNTRY PARK - FACING WEST
VSR 25	LANTAU NORTH COUNTRY PARK - FACING NORTH
VSR 26	TUNG CHUNG FERRY PIER
VSR 27	NEAR YI TUNG ROAD
VSR 28	NEAR TUNG CHUNG NORTH WATERFRONT
VSR 29	NEAR TAI HO
VSR 30	NEAR MA WAN NEW VILLAGE
VSR 31	YAT TUNG ESTATE
VSR 32	YU TUNG COURT
VSR 33	NGONG PING 360 CABLE CAR - NORTHEAST TO SOUTH
VSR 34	TUNG CHUNG FORT
VSR 35	OPEN SEA EAST TO CHEK LAP KOK
VSR 36	NORTH LANTAU EXPRESSWAY
VSR 37	SIU HO WAN
VSR 38	SHEK LAU PO
VSR 39	NEAR WONG KA WAI
VSR 40	TUEN MUN SOUTH COAST
VSR 41	ALONG TUEN MUN ROAD AND CASTLE PEAK ROAD
VSR 42	TAI LAM COUNTRY PARK
VSR 43	HKBCF
VSR 44	HKLR
VSR 45	TMCLKL

Rev	Description	By	Date
C	Third Issue	KW	08/15
B	Second Issue	RD	06/15
A	First Issue	RD	02/15

Consultant

ARUP

Project title

Tung Chung
New Town Extension

Drawing title

Visual Sensitive Receiver
Plan (Sheet 1 of 3)

Drawing no.	Rev.
FIGURE 6.10.9	C

Drawn	Date	Checked	Approved
KW	08/15	CY	ST

Scale	Status
NTS	Preliminary

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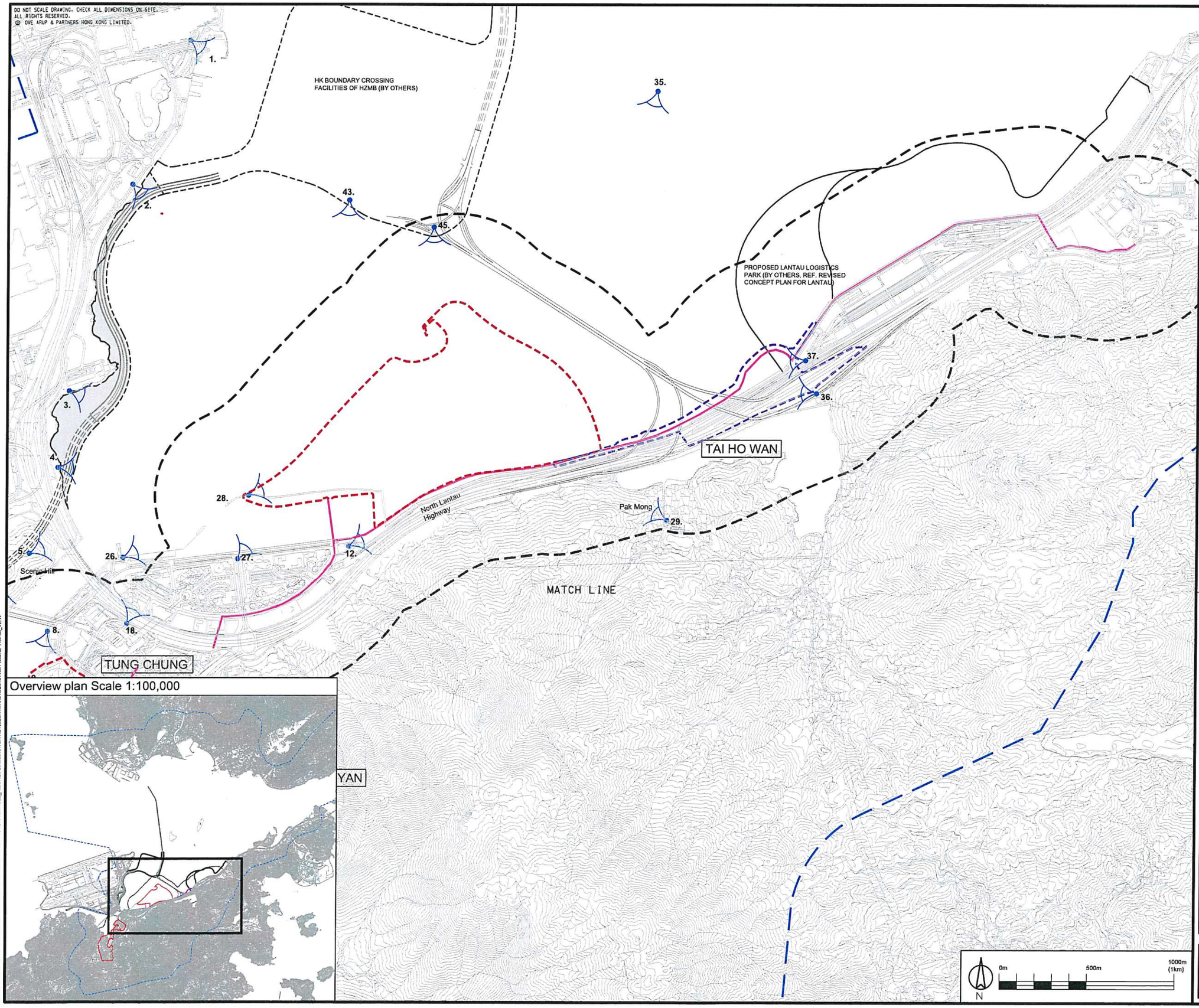
USER: HKGAA2139 TIME: 21 AUG 2015 - 8:50PM
FILENAME: \\HKGINTEZACOUR1\GEN\PROJECTS\19844-70\10 DRAWING DELIVERABLES\VALUA ST\AGP2_FIGURES 20150815\VER REVISED\WORKING\20150821 FI



LEGEND.

- POSSIBLE DEVELOPMENT AREA
- 500M ASSESSMENT AREA (LVIA)
- WORKS AREA FOR ROAD P1 (TUNG CHUNG - TAI HO SECTION)
- OTHER PROJECT ELEMENTS
- PROPOSED GRAVITY SEWER / RISING MAIN
- VISUAL ENVELOPE
- VSR LOCATION
- TEMPLE
- HERITAGE FEATURE

VSR ID

VSR 1	NEAR ASIA WORLD EXPO
VSR 2	EAST COAST ROAD
VSR 3	NEAR CNAC(GROUP) TOWER
VSR 4	NEAR SITTING OUT AREA
VSR 5	SCENIC HILL EAST
VSR 6	SCENIC HILL WEST
VSR 7	NEAR CHEK LAP KOK ROAD
VSR 8	NEAR TUNG CHUNG WATERFRONT
VSR 9	TUNG CHUNG BATTERY
VSR 10	MA WAN CHUNG PIER - FACING NORTHEAST
VSR 11	MA WAN CHUNG PIER - FACING SOUTHWEST
VSR 12	NEAR YING HEI ROAD
VSR 13	HILLTOP OF PLANNED OPEN SPACE-FACING NORTHWEST
VSR 14	HILLTOP OF PLANNED OPEN SPACE-FACING SOUTHWEST
VSR 15	NEAR YAT TUNG SHOPPING CENTRE
VSR 16	HAU WONG TEMPLE
VSR 17	NEAR TUNG CHUNG STREAM - FACING SOUTH
VSR 18	BUS STATION NEAR FU TUNG STREET
VSR 19	NEAR NGAU AU
VSR 20	NGONG PING 360 RESCUE TRAIL
VSR 21	NEAR SAN TAU
VSR 22	NEAR YUEN TAN TEMPLE
VSR 23	LO HON TEMPLE
VSR 24	LANTAU NORTH COUNTRY PARK - FACING WEST
VSR 25	LANTAU NORTH COUNTRY PARK - FACING NORTH
VSR 26	TUNG CHUNG FERRY PIER
VSR 27	NEAR YI TUNG ROAD
VSR 28	NEAR TUNG CHUNG NORTH WATERFRONT
VSR 29	NEAR TAI HO
VSR 30	NEAR MA WAN NEW VILLAGE
VSR 31	YAT TUNG ESTATE
VSR 32	YU TUNG COURT
VSR 33	NGONG PING 360 CABLE CAR - NORTHEAST TO SOUTH
VSR 34	TUNG CHUNG FORT
VSR 35	OPEN SEA EAST TO CHEK LAP KOK
VSR 36	NORTH LANTAU EXPRESSWAY
VSR 37	SIU HO WAN
VSR 38	SHEK LAU PO
VSR 39	NEAR WONG KA WAI
VSR 40	TUEN MUN SOUTH COAST
VSR 41	ALONG TUEN MUN ROAD AND CASTLE PEAK ROAD
VSR 42	TAI LAM COUNTRY PARK
VSR 43	HKBCF
VSR 44	HKLR
VSR 45	TMCLKL

Rev	Description	By	Date
E	FIFTH ISSUE	GL	11/15
D	FOURTH ISSUE	CY	08/15
C	THIRD ISSUE	JC	11/14
B	SECOND ISSUE	GL	08/14

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

VISUALLY SENSITIVE RECEIVER PLAN
(SHEET 2 OF 3)

Drawing no.	Rev.
FIGURE 6.10.10	E

Drawn	Date	Checked	Approved
GL	11/15	CY	FC

Scale	Status
1:20,000 @A3	DRAFT

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USER : HKGAAC154 TIME : 09 NOV 2015 - 2:15PM
FILE NAME : G:\ENVPROJECT\219844-70\13 DRAWING DELIVERABLES\LVIA\LVIA STAGE2_FIGURES 20150515\VSR REVISED\WORKING\20151109 FIGURE 11.4-30_VIEW

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TUEN MUN

TAI LAM COUNTRY PARK

42.

40.

41.

Tuen Mun Road

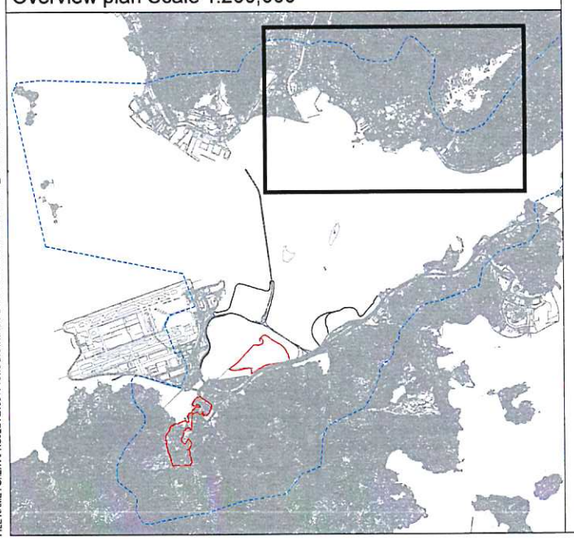
LEGEND.

- POSSIBLE DEVELOPMENT AREA
- VISUAL ENVELOPE
- VSR LOCATION
- TEMPLE
- HERITAGE FEATURE

VSR ID

VSR 1	NEAR ASIA WORLD EXPO
VSR 2	EAST COAST ROAD
VSR 3	NEAR CNAC(GROUP) TOWER
VSR 4	NEAR SITTING OUT AREA
VSR 5	SCENIC HILL EAST
VSR 6	SCENIC HILL WEST
VSR 7	NEAR CHEK LAP KOK ROAD
VSR 8	NEAR TUNG CHUNG WATERFRONT
VSR 9	TUNG CHUNG BATTERY
VSR 10	MA WAN CHUNG PIER - FACING NORTHEAST
VSR 11	MA WAN CHUNG PIER - FACING SOUTHWEST
VSR 12	NEAR YING HEI ROAD
VSR 13	HILLTOP OF PLANNED OPEN SPACE-FACING NORTHWEST
VSR 14	HILLTOP OF PLANNED OPEN SPACE-FACING SOUTHWEST
VSR 15	NEAR YAT TUNG SHOPPING CENTRE
VSR 16	HAU WONG TEMPLE
VSR 17	NEAR TUNG CHUNG STREAM - FACING SOUTH
VSR 18	BUS STATION NEAR FU TUNG STREET
VSR 19	NEAR NGAU AU
VSR 20	NGONG PING 360 RESCUE TRAIL
VSR 21	NEAR SAN TAU
VSR 22	NEAR YUEN TAN TEMPLE
VSR 23	LO HON TEMPLE
VSR 24	LANTAU NORTH COUNTRY PARK - FACING WEST
VSR 25	LANTAU NORTH COUNTRY PARK - FACING NORTH
VSR 26	TUNG CHUNG FERRY PIER
VSR 27	NEAR YI TUNG ROAD
VSR 28	NEAR TUNG CHUNG NORTH WATERFRONT
VSR 29	NEAR TAI HO
VSR 30	NEAR MA WAN NEW VILLAGE
VSR 31	YAT TUNG ESTATE
VSR 32	YU TUNG COURT
VSR 33	NGONG PING 360 CABLE CAR - NORTHEAST TO SOUTH
VSR 34	TUNG CHUNG FORT
VSR 35	OPEN SEA EAST TO CHEK LAP KOK
VSR 36	NORTH LANTAU EXPRESSWAY
VSR 37	SIU HO WAN
VSR 38	SHEK LAU PO
VSR 39	NEAR WONG KA WAI
VSR 40	TUEN MUN SOUTH COAST
VSR 41	ALONG TUEN MUN ROAD AND CASTLE PEAK ROAD
VSR 42	TAI LAM COUNTRY PARK
VSR 43	HKBCF
VSR 44	HKLR
VSR 45	TMCLKL

Overview plan Scale 1:200,000



N

0m 500m 1000m (1km)

Rev	Description	By	Date
D	FIFTH ISSUE	GL	11/15
D	FOURTH ISSUE	CY	08/15
C	THIRD ISSUE	JC	11/14
B	SECOND ISSUE	GL	08/14

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

VISUALLY SENSITIVE RECEIVER PLAN
(SHEET 3 OF 3)

Drawing no.		Rev.
FIGURE 6.10.11		E
Drawn: GL	Date: 11/15	Checked: CY	Approved: FC
Scale: 1:20,000 @A3		Status: DRAFT	

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Civil Engineering and Development Department

USER: HKGAAC154 TIME: 09 NOV 2015 - 2:14PM
FILE NAME: G:\ENVPROJECT\219944-7013 DRAWING DELIVERABLES\LVIA\LVIA STAGE2_FIGURES 20150515\VSR REVISED\WORKING\20151109 FIGURE 11.4-35_VIEW

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Figure 11.5aa



Figure 11.5ab

Legend:

Mitigation Measure Code	Summary Description
Construction Phase	
MM 1	Optimization of Construction Areas & Providing Temporary Landscape on Temporary Construction
MM 2	Minimize Topographical Changes
MM 3	Preservation of Potentially Registrable OVTs, Rare and Protective Vegetation
MM 4	Transplanting of Existing Trees
MM 5	Screen Hoarding
MM 6	Adopting Non-dredge Method for the Reclamation
MM 7	Protection of Natural Rivers and Streams
MM 8	Preservation of Natural Coastline
MM 9	Providing Natural Rock Material/ Planting for Artificial Seawall
Operational Phase	
MM 10	Compensatory Planting
MM 11	Woodland Restoration
MM 12	Screen Planting
MM 13	Roadside Planting
MM 14	Aesthetic Design of Built Development
MM 15	Maximise Greening on Structures
MM 16	Noise Barrier Design
MM 17	Landscape Treatment for Polders & Stormwater Attenuation and Treatment Ponds
Construction Phase & Operation Phase	
MM 18	Landscaping on Slopes
MM 19	Landscape Treatment on Channelized Watercourses
MM 20	Lighting Control

Rev	Description	By	Date
C	Mitigation Measures Renamed	KS	11/15
B	Mitigation Measures Update	CY	09/15
A	Mitigation Measures Update	CY	08/15

Consultant
ARUP

Project title
Tung Chung
New Town Extension

Drawing title
Mitigation Measures Plan
for TCE site (Sheet 1 of 3)

Drawing no.	Rev.
Figure 6.10.12	C

Drawn	Date	Checked	Approved
KW	09/15	CY	ST

Scale: NTS
Status:

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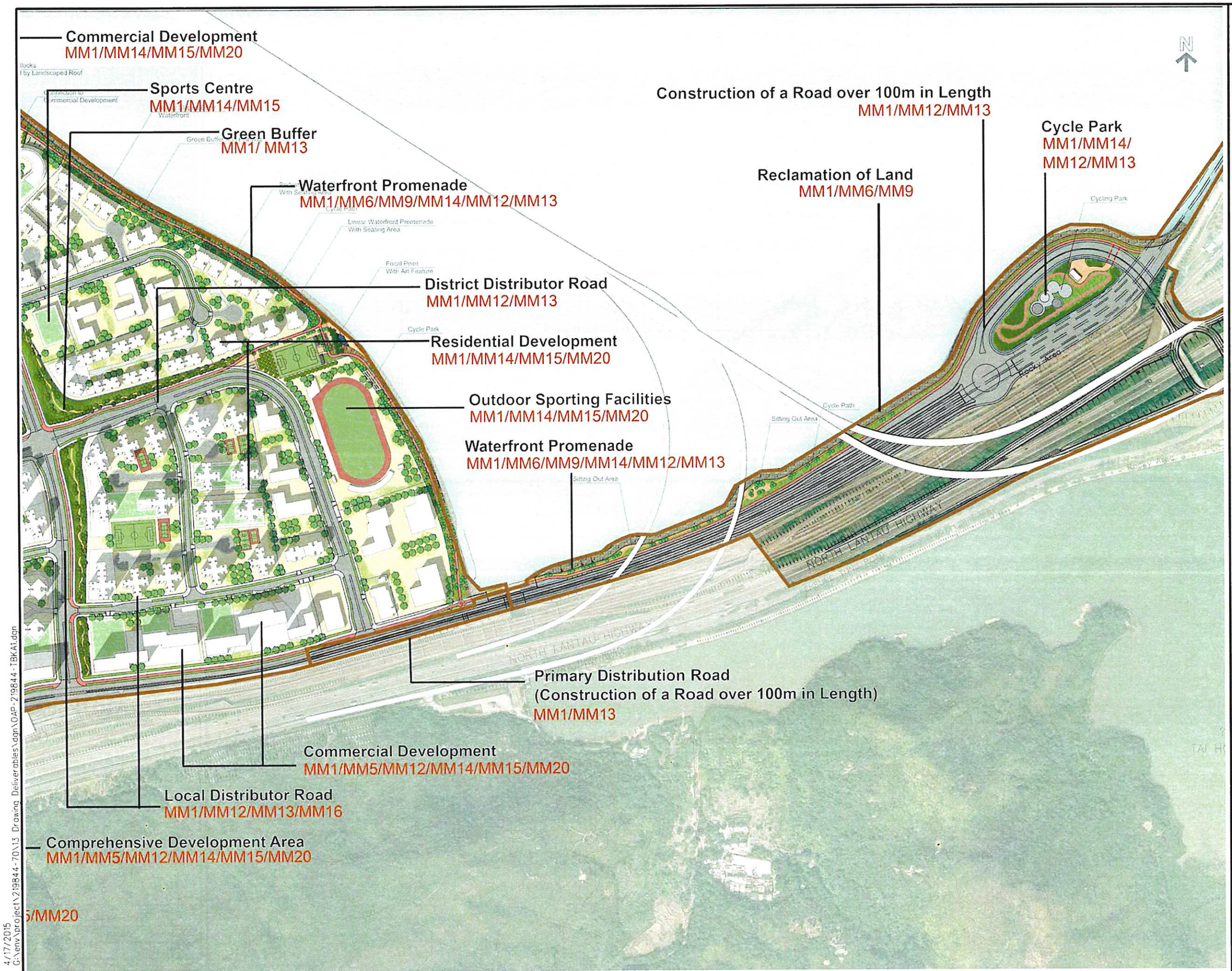

Legend:

Mitigation Measure Code	Summary Description
Construction Phase	
MM 1	Optimization of Construction Areas & Providing Temporary Landscape on Temporary Construction
MM 2	Minimize Topographical Changes
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MM 15	Maximise Greening on Structures
MM 16	Noise Barrier Design
MM 17	Landscape Treatment for Polders & Stormwater Attenuation and Treatment Ponds
Construction Phase & Operation Phase	
MM 18	Landscaping on Slopes
MM 19	Landscape Treatment on Channelized Watercourses
MM 20	Lighting Control

Rev	Description	By	Date
C	Mitigation Measures Renamed	KS	11/15
B	Mitigation Measures Update	CY	09/15
A	Mitigation Measures Update	CY	08/15

Consultant

ARUP

Project title

Tung Chung
New Town Extension

Drawing title

Mitigation Measures Plan
for TCE site (Sheet 2 of 3)

Drawing no.	Figure 6.10.13		Rev. C
Drawn KW	Date 09/15	Checked CY	Approved ST
Scale NTS	Status		

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Legend

TENTATIVE POSSIBLE DEVELOPMENT AREA
(BOUNDARY IS INDICATIVE)

Reclamation of Land
MM1/MM6/MM9

Waterfront Park with Facility Blocks
MM1/MM14/MM15

Marina for Pleasure or Recreation
MM1/MM9/MM14

Central Plaza and Shaded Plaza
MM1/MM14

Waterfront Promenade
MM1/MM9/MM14/MM12/MM13

Local Distributor Road
MM1/MM12/MM13

Central Green
MM1/MM14

Green Buffer
MM1/MM13/MM14

Residential Development
MM1/MM5/MM12/
MM14/MM15/MM20

Commercial Development
MM1/MM14/MM15/MM20

Sports Centre
MM1/MM14/MM15

Green Buffer
MM1/ MM13

Wat
MM

Local Distributor Road
MM1/MM12/MM13/MM1

Comprehensive Development Area
MM1/MM5/MM12/MM14/MM15/MM20

Commercial Development
MM1/MM5/MM12/MM14/MM15/MM20

Local Distributor Road
MM1/MM12/MM13

Tung Chung East Station
(by others)

Great Lawn
F&B Plaza
with Water Feature
Facilities Blocks
Connected by Landscaped Roof
Open Marina Promenade
Art Feature
Natural Shaded Plaza
with Gathering Area
Great Lawn
Amphitheatre
Cultural Plaza
with Art Feature
Natural Shaded
Seating Area
Linear Waterfront Promenade
With Seating Area
Cycle Path
Pedestrian Footpath
With Seating Area
Green Buffer with Planting

0 50 100 150 200 250 300M

Legend:

Mitigation Measure Code	Summary Description
Construction Phase	
MM 1	Optimization of Construction Areas & Providing Temporary Landscape on Temporary Construction
MM 2	Minimize Topographical Changes
MM 3	Preservation of Potentially Registrable OVTs, Rare and Protective Vegetation
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MM 7	Protection of Natural Rivers and Streams
MM 8	Preservation of Natural Coastline
MM 9	Providing Natural Rock Material/ Planting for Artificial Seawall
Operational Phase	
MM 10	Compensatory Planting
MM 11	Woodland Restoration
MM 12	Screen Planting
MM 13	Roadside Planting
MM 14	Aesthetic Design of Built Development
MM 15	Maximise Greening on Structures
MM 16	Noise Barrier Design
MM 17	Landscape Treatment for Polders & Stormwater Attenuation and Treatment Ponds
Construction Phase & Operation Phase	
MM 18	Landscaping on Slopes
MM 19	Landscape Treatment on Channelized Watercourses
MM 20	Lighting Control

Rev	Description	By	Date
C	Mitigation Measures Renamed	KS	11/15
B	Mitigation Measures Update	CY	09/15
A	Mitigation Measures Update	CY	08/15

Consultant
ARUP

Project title
Tung Chung
New Town Extension

Drawing title
Mitigation Measures Plan
for TCE site (Sheet 3 of 3)

Drawing no. Figure 6.10.14 Rev. C
Drawn KW Date 09/15 Checked CY Approved ST
Scale NTS Status

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Figure 11.5ba

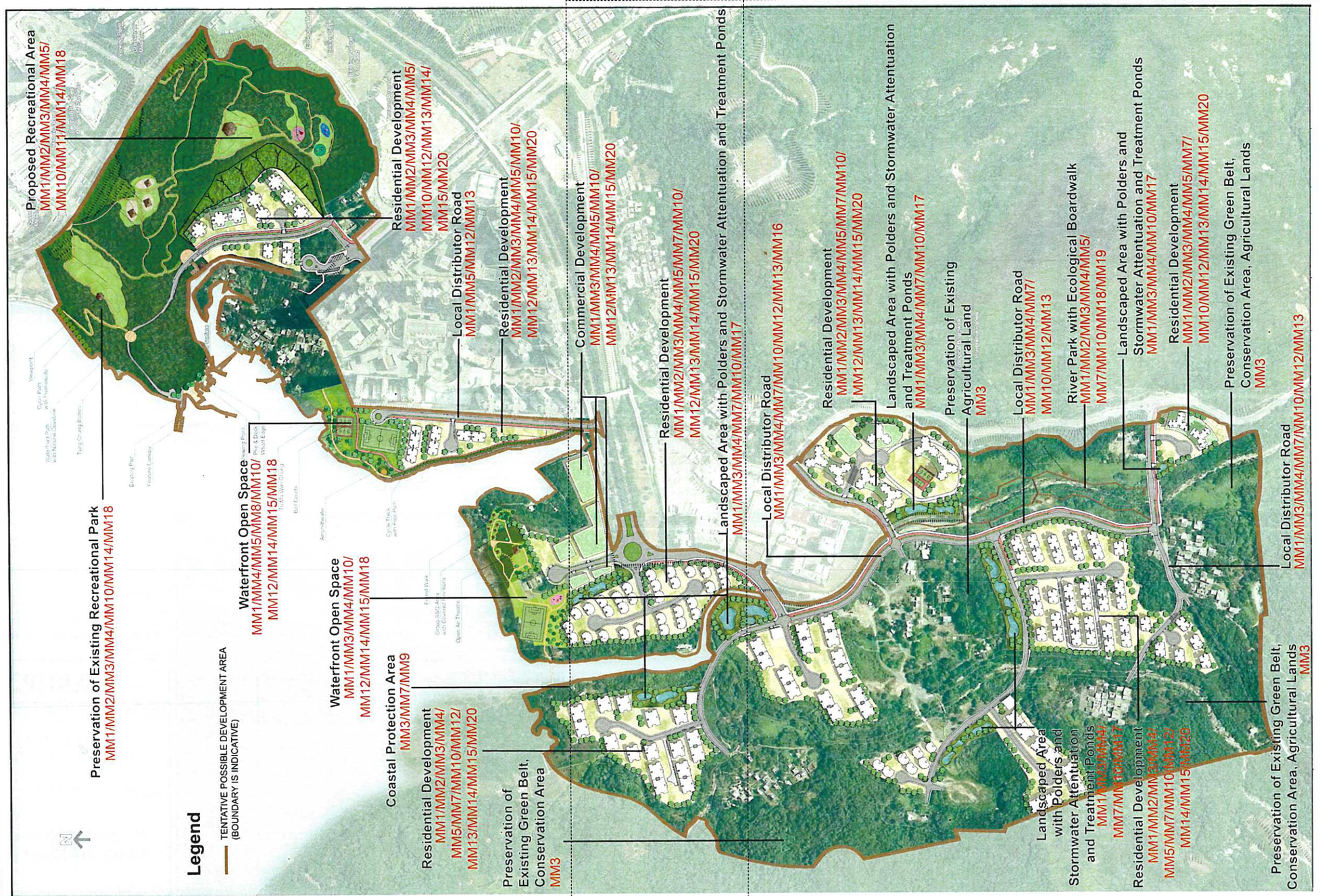

Figure 11.5bb

Legend:

Mitigation Measure Code	Summary Description
Construction Phase	
MM 1	Optimization of Construction Areas & Providing Temporary Landscape on Temporary Construction
MM 2	Minimize Topographical Changes
MM 3	Preservation of Potentially Registrable OVTs, Rare and Protective Vegetation
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MM 5	Screen Hoarding
MM 6	Adopting Non-dredge Method for the Reclamation
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Operational Phase	
MM 10	Compensatory Planting
MM 11	Woodland Restoration
MM 12	Screen Planting
MM 13	Roadside Planting
MM 14	Aesthetic Design of Built Development
MM 15	Maximise Greening on Structures
MM 16	Noise Barrier Design
MM 17	Landscape Treatment for Polders & Stormwater Attenuation and Treatment Ponds
Construction Phase & Operation Phase	
MM 18	Landscaping on Slopes
MM 19	Landscape Treatment on Channelized Watercourses
MM 20	Lighting Control

Rev	Description	By	Date
B	Mitigation Measures Renamed	KS	11/15
A	Mitigation Measures Update	CY	09/15

Consultant
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Project title
Tung Chung
New Town Extension

Drawing title
Mitigation Measures Plan
for TCW site (Sheet 1 of 3)

Drawing no.	Rev.
Figure 6.10.15	B

Drawn	Date	Checked	Approved
KW	09/15	CY	ST

Scale: NTS
Status:

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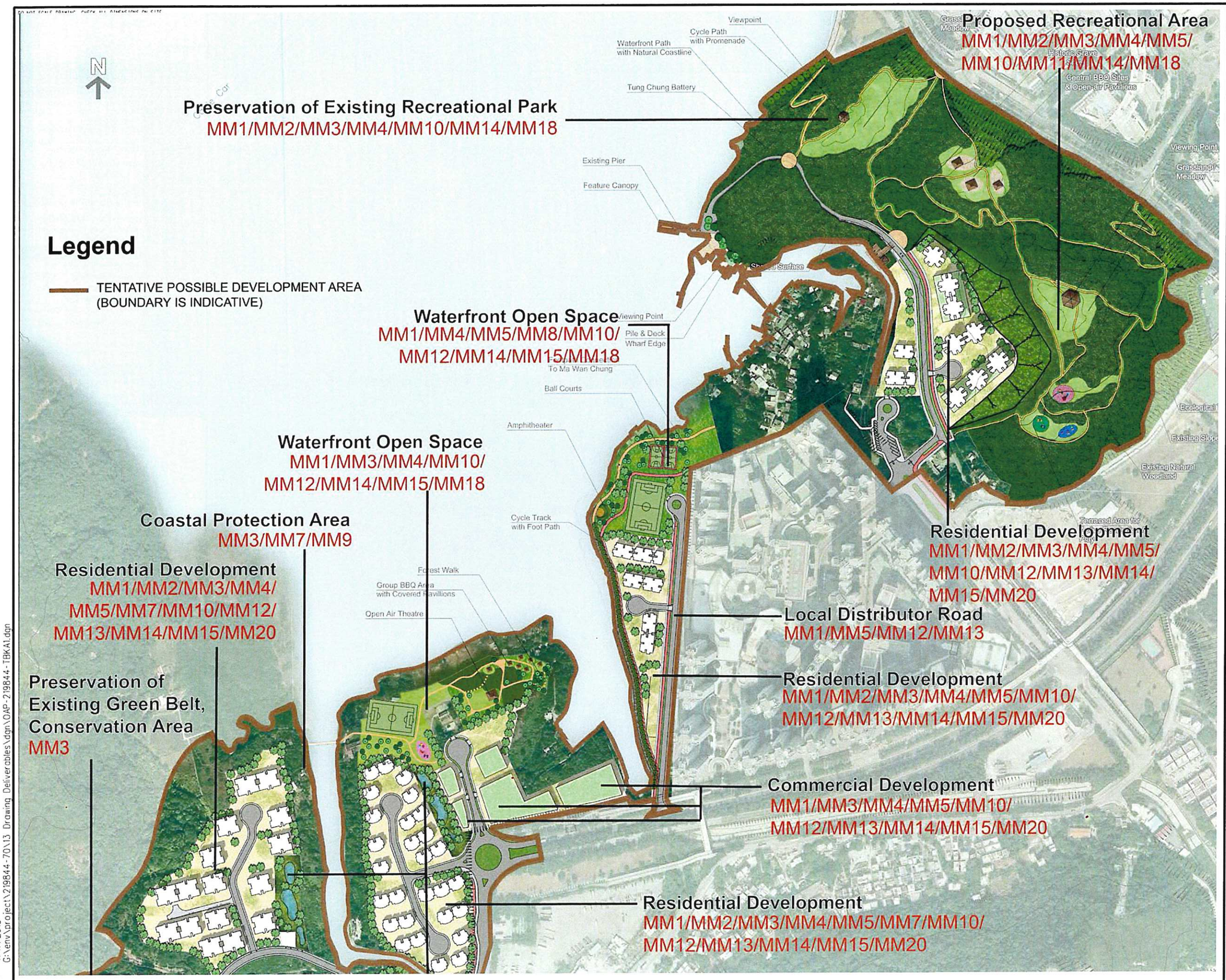

Legend:

Mitigation Measure Code	Summary Description
Construction Phase	
MM 1	Optimization of Construction Areas & Providing Temporary Landscape on Temporary Construction
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Construction Phase & Operation Phase	
MM 18	Landscaping on Slopes
MM 19	Landscape Treatment on Channelized Watercourses
MM 20	Lighting Control

Rev	Description	By	Date
B	Mitigation Measures Renamed	KS	11/15
A	Mitigation Measures Update	CY	09/15

Consultant
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Project title
Tung Chung
New Town Extension

Drawing title
Mitigation Measures Plan
for TCW site (Sheet 2 of 3)

Drawing no.			Rev.
Figure 6.10.16			B
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Scale NTS		Status	

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Residential Development
MM1/MM2/MM3/MM4/MM5/MM7/MM10/
MM12/MM13/MM14/MM15/MM20

Landscaped Area with Polders and Stormwater Attentuation and Treatment Ponds
MM1/MM3/MM4/MM7/MM10/MM17

Local Distributor Road
MM1/MM3/MM4/MM7/MM10/MM12/MM13/MM16

Residential Development
MM1/MM2/MM3/MM4/MM5/MM7/MM10/
MM12/MM13/MM14/MM15/MM20

Landscaped Area with Polders and Stormwater Attentuation and Treatment Ponds
MM1/MM3/MM4/MM7/MM10/MM17

Preservation of Existing Agricultural Land
MM3

Ecological Boardwalk
Interpretive Panels

Local Distributor Road
MM1/MM3/MM4/MM7/
MM10/MM12/MM13

Landscaped Area with Polders and Stormwater Attentuation and Treatment Ponds
MM1/MM3/MM4/
MM7/MM10/MM17

River Park with Ecological Boardwalk
MM1/MM2/MM3/MM4/MM5/
MM7/MM10/MM18/MM19

Residential Development
MM1/MM2/MM3/MM4/
MM5/MM7/MM10/MM12/
MM14/MM15/MM20

Landscaped Area with Polders and Stormwater Attentuation and Treatment Ponds
MM1/MM3/MM4/MM10/MM17

Residential Development
MM1/MM2/MM3/MM4/MM5/MM7/
MM10/MM12/MM13/MM14/MM15/MM20

Preservation of Existing Green Belt, Conservation Area, Agricultural Lands
MM3

Preservation of Existing Green Belt, Conservation Area, Agricultural Lands
MM3

Local Distributor Road
MM1/MM3/MM4/MM7/MM10/MM12/MM13

0 50 100 150 200 250 300M

Legend:

Mitigation Measure Code	Summary Description
Construction Phase	
MM 1	Optimization of Construction Areas & Providing Temporary Landscape on Temporary Construction
MM 2	Minimize Topographical Changes
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Construction Phase & Operation Phase	
MM 18	Landscaping on Slopes
MM 19	Landscape Treatment on Channelized Watercourses
MM 20	Lighting Control

Rev	Description	By	Date
B	Mitigation Measures Renamed	KS	11/15
A	Mitigation Measures Update	CY	09/15

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Project title
Tung Chung
New Town Extension

Drawing title
Mitigation Measures Plan
for TCW site (Sheet 3 of 3)

Drawing no.			Rev.
Figure 6.10.17			B
Drawn: KW	Date: 09/15	Checked: CY	Approved: ST
Scale: NTS		Status:	

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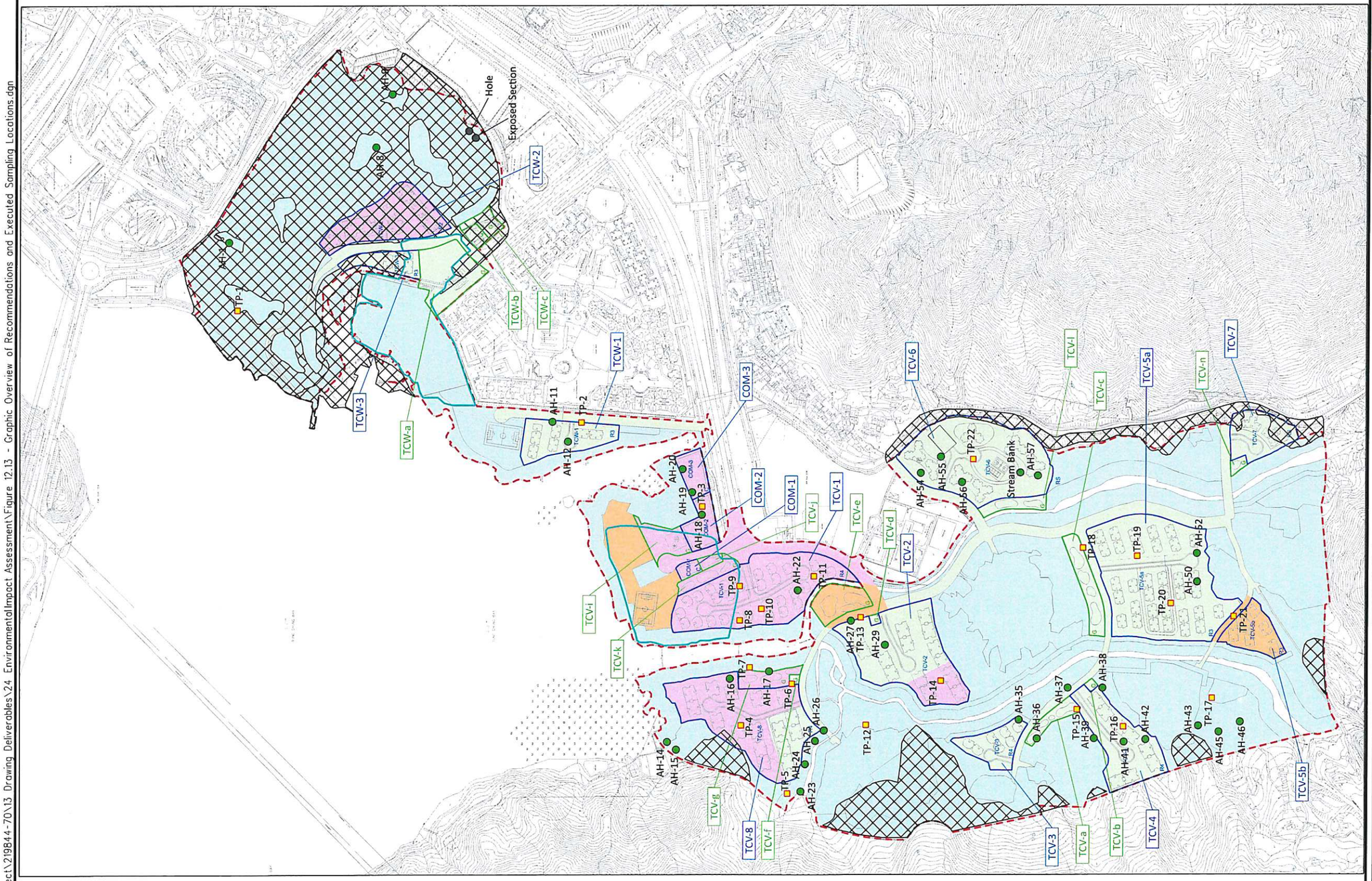

LEGEND

- POSSIBLE DEVELOPMENT AREA
- SITE OF ARCHAEOLOGICAL INTEREST
- HILL SLOPE + ROADS
- AUGER HOLE
- TEST PIT
- DEVELOPMENT CLUSTER

RECOMMENDATIONS

- RESCUE EXCAVATION / SURVEY-CUM-RESCUE EXCAVATION / FURTHER SURVEY
- WATCHING BRIEF
- NO FURTHER ACTION
- NO FURTHER ACTION FOR OTHER DEVELOPMENT AREA (CA,CPA,GB,V,AGR,RO/DO,IC AND OU ZONINGS WITH MINOR WORKS)

Rev	Description	By	Date
D	FOURTH ISSUE	GL	10/15
C	THIRD ISSUE	GL	08/15
B	SECOND ISSUE	GL	06/15
A	FIRST ISSUE	GL	05/15

Consultant

ARUP

Project title

Tung Chung
New Town Extension

Drawing title

Graphic Overview of Recommendations and Executed Sampling Locations

Drawing no.	Rev.
Figure 6.11.1	D

Drawn	Date	Checked	Approved
GL	10/15	LK	FC

Scale: AS SHOWN
Status: PRELIMINARY

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Printed by : 11/10/2015
Filename : G:\env\project\219844-70\13 Drawing Deliverables\24 Environmental Impact Assessment\Figure 12.13 - Graphic Overview of Recommendations and Executed Sampling Locations.dgn

Appendix 4.1

Recommended Outline Development Plan (RODP) & Recommended Outline Zoning Plan (ROZP)

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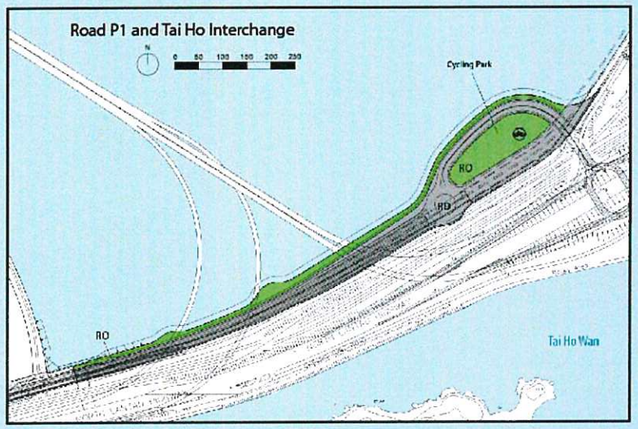
Appendix 4.1



Boatyard and Maintenance Area

Other School Use

Police Married Quarters

Post Secondary Institution

Salt Water Pumping Station

Sewage Pumping Station

Refuse Collection Point

Substation

Proposed TCE Railway Station

Sewage Pumping Station

Tai Ho Wan

The latest RODP and layout plan will show the RCP as a standalone building and will be rezoned as 'G'

North Lantau (Extension) Country Park

Tung Chung Centre District

Legend

	RS	Special Residential (PR 5-6.5)
	R1	Residential 1 (PR 6.5)
	R2	Residential 2 (PR 5)
	R3	Residential 3 (PR 2.5-3.5)
	G	Government
	E	Educational
	OU	Other Specified Uses
	C	Commercial (PR 3-9.5)
	DO	District Open Space
	RO	Regional Open Space
	RD	Proposed Road
	NBA	Non-Building Area

Local Commercial Podium
Maximum Building Height (mPD)
Maximum Building Height (Storeys)
District Police Station
Fire Station
Secondary School
Primary School
General Clinic / Health Centre
Sports Grounds
Sports Centre
Public Transport Interchange
Public Toilets
Petrol Filling Station
Social Welfare Facility
Kindergarten
Cycle Parking Area

N 0 50 100 150 200 250

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title
Revised Recommended Outline Development Plan

Drawing no.		Rev.
Figure 3.3.4.1		
Drawn: CR/JH	Date: May 2015	Checked / Approved
Scale: 1:7,500	Status	

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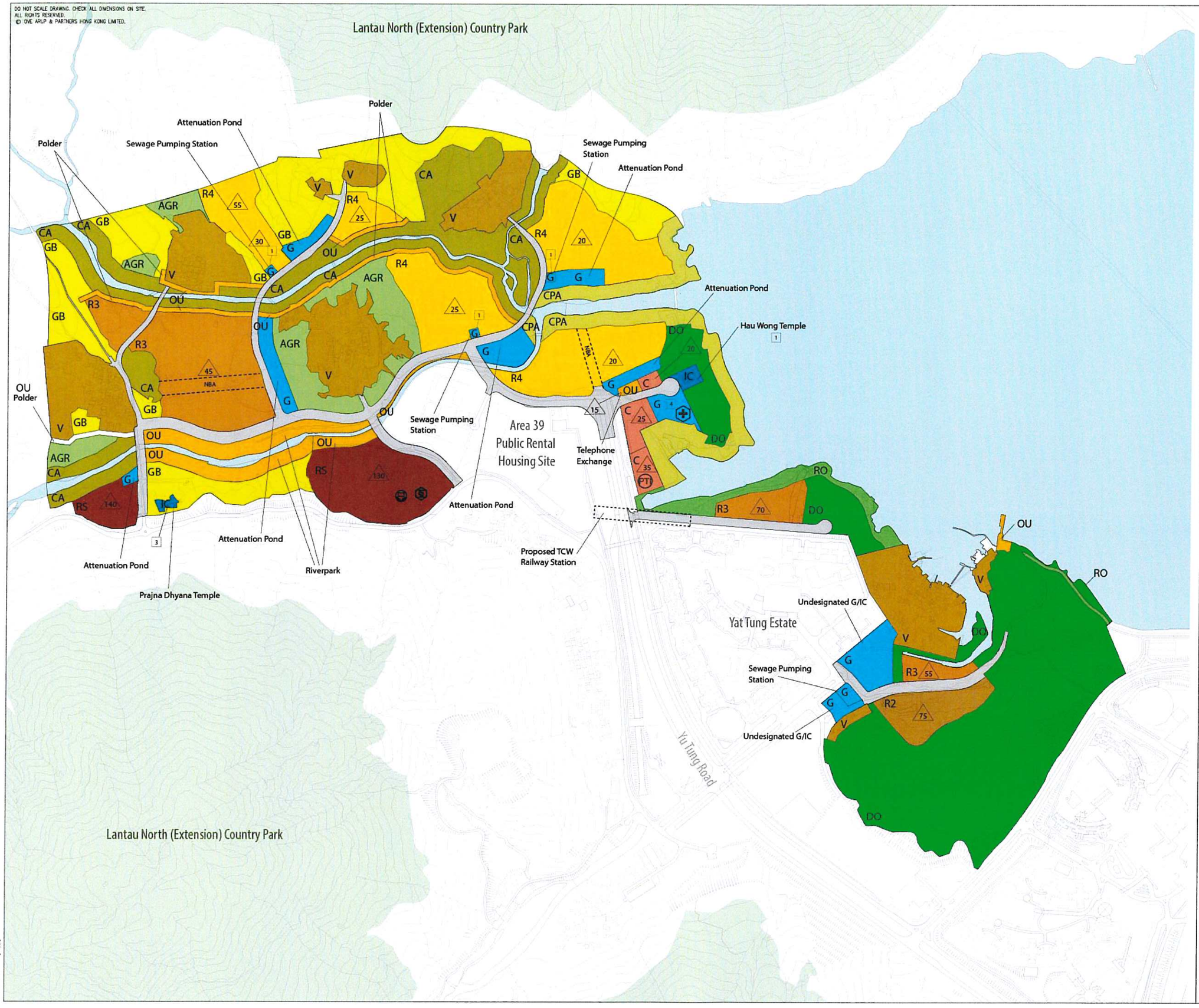

Legend

RS	Residential Special (PR 5-6)
R2	Residential 2 (PR 4)
R3	Residential 3 (PR 1.5-3.5)
R4	Residential 4 (PR 1)
G	Government
OU	Other Specified Uses
IC	Institution and Community
C	Commercial (PR 2-3)
DO	District Open Space
RO	Regional Open Space
V	Village Development Area
CA	Conservation Area
CPA	Coastal Protection Area
AGR	Agriculture
GB	Green Belt
RD	Proposed Road
NBA	Non-Building Area
15	Maximum Building Height (mPD)
1	Maximum Building Height (Storeys)
	General Clinic / Health Centre
	Sports Centre
PTI	Public Transport Interchange
	Social Welfare Facility
	Kindergarten

TUNG CHUNG WEST
1:7,500 on A3

N 0 50 100 150 200 250

Rev	Description	By	Date

Consultant
ARUP

Project title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title
Revised Recommended Outline Development Plan

Drawing no.			Rev.
Figure 3.4.4.2			
Drawn: CR/JH	Date: May 2015	Checked	Approved
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N

YACHT CLUB, BOAT REPAIRING AND COMMERCIAL FACILITIES ASSOCIATED WITH MARINA DEVELOPMENT

DEPRESSED ROAD WITH LANDSCAPE DECK ABOVE (SUBJECT TO DETAILED DESIGN)

TUNG CHUNG CHEUNG ROAD

PROPOSED TATTO INTERCHANGE

TATHO INLET

NORTH LANTAU HIGHWAY

ROAD JUNCTION AND FOOTBRIDGE (SUBJECT TO DETAILED DESIGN)

OU(RAILWAY STATION)

CHEUNG TUNG ROAD

ROAD JUNCTION AND FOOTBRIDGE (SUBJECT TO DETAILED DESIGN)

OU(ELECTRICITY SUBSTATION)

OU(PETROL FILLING STATION)

LANTAU NORTH (EXTENSION) COUNTRY PARK

MASS TRANSIT RAIL

圖例 NOTATION

ZONES

- C COMMERCIAL
- R(A) RESIDENTIAL (GROUP A)
- R(B) RESIDENTIAL (GROUP B)
- G/IC GOVERNMENT, INSTITUTION OR COMMUNITY
- OU OTHER SPECIFIED USES
- O OPEN SPACE

COMMUNICATIONS

- MAXIMUM BUILDING HEIGHT (MPD)
- 15 BUILDING HEIGHT (STOREYS)
- RAILWAY AND STATION
- MAJOR ROAD AND JUNCTION

MISCELLANEOUS

- BOUNDARY OF PLANNING SCHEME
- 23 PLANNING AREA NUMBER

SCHEDULE OF USES AND AREAS

USES	APPROX. AREA # %	
	HECTARES	%
COMMERCIAL	6.24	4.76
RESIDENTIAL (GROUP A)	27.73	21.16
RESIDENTIAL (GROUP B)	16.23	12.39
GOVERNMENT, INSTITUTION OR COMMUNITY	14.91	11.38
OTHER SPECIFIED USES	10.80	8.24
OPEN SPACE	32.06	24.47
MAJOR ROAD ETC	23.07	17.61
TOTAL PLANNING SCHEME AREA	131.03	100.00

AMENDMENTS TO APPROVED PLAN No. S/XXXX/X EXHIBITED UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE ON

SECRETARY, TOWN PLANNING BOARD

TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
TUNG CHUNG EAST AREA - DRAFT OUTLINE ZONING PLAN

SCALE 1 : 5 000 (A1) 比例尺

^ METRES 100 0 100 200 300 400 500 600 700 800 METRES ^

Agreement No. CE 32/2011 (CE)

Planning and Engineering Study on the Remaining Development in Tung Chung

圖則編號 PLAN No. S/XXXX/X



圖例 NOTATION

ZONES

- C — COMMERCIAL
- R(C) — RESIDENTIAL (GROUP C)
- V — VILLAGE
- G/IC — GOVERNMENT, INSTITUTION OR COMMUNITY
- OU — OTHER SPECIFIED USES
- O — OPEN SPACE
- AGR — AGRICULTURE
- GB — GREEN BELT
- CA — CONSERVATION AREA
- CPA — COASTAL PROTECTION AREA

COMMUNICATIONS

- MAXIMUM BUILDING HEIGHT (MPD)
- BUILDING HEIGHT (STOREYS)
- MAJOR ROAD AND JUNCTION

MISCELLANEOUS

- BOUNDARY OF PLANNING SCHEME
- PLANNING AREA NUMBER

SCHEDULE OF USES AND AREAS

USES	APPROX. AREA & %	
	HECTARES	%
COMMERCIAL	1.12	1.45
RESIDENTIAL (GROUP C)	19.37	24.55
VILLAGE	10.51	13.53
GOVERNMENT, INSTITUTION OR COMMUNITY	3.31	4.26
OTHER SPECIFIED USES	4.78	6.16
OPEN SPACE	1.92	2.47
AGRICULTURE	4.97	6.41
GREEN BELT	11.09	14.28
CONSERVATION AREA	10.41	13.41
COASTAL PROTECTION AREA	4.83	6.22
MAJOR ROAD, ETC	5.32	6.85
TOTAL PLANNING SCHEME AREA	77.63	100.00

AMENDMENTS TO APPROVED PLAN No. S/XXXX/X EXHIBITED UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE ON

SECRETARY, TOWN PLANNING BOARD

TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
TUNG CHUNG VALLEY - DRAFT OUTLINE ZONING PLAN

SCALE 1 : 5 000 (A1) 比例尺

METRES 100 0 100 200 300 400 500 600 700 800 METRES

Agreement No. CE 32/2011 (CE)

Planning and Engineering Study on the Remaining Development in Tung Chung

圖則編號 PLAN No. S/XXXX/X



圖例 NOTATION

ZONES

- R(A) RESIDENTIAL (GROUP A)
- R(B) RESIDENTIAL (GROUP B)
- R(C) RESIDENTIAL (GROUP C)
- V VILLAGE
- G/IC GOVERNMENT, INSTITUTION OR COMMUNITY
- OU OTHER SPECIFIED USES
- O OPEN SPACE
- GB GREEN BELT

COMMUNICATIONS

- (A) MAXIMUM BUILDING HEIGHT (MPD)
- (10) BUILDING HEIGHT (STOREYS)
- RAILWAY AND STATION
- MAJOR ROAD AND JUNCTION

MISCELLANEOUS

- BOUNDARY OF PLANNING SCHEME
- (23) PLANNING AREA NUMBER

SCHEDULE OF USES AND AREAS

USES	APPROX. AREA & %	
	HECTARES	%
RESIDENTIAL (GROUP A)	5.01	12.00
RESIDENTIAL (GROUP B)	2.99	7.17
RESIDENTIAL (GROUP C)	0.58	1.39
VILLAGE	3.74	8.97
GOVERNMENT, INSTITUTION OR COMMUNITY	1.82	4.36
OTHER SPECIFIED USES	0.44	1.05
OPEN SPACE	22.43	53.73
GREEN BELT	2.15	5.15
MAJOR ROAD, ETC	2.58	6.18
TOTAL PLANNING SCHEME AREA	41.74	100.00

AMENDMENTS TO APPROVED PLAN No. S/XXXX/X EXHIBITED UNDER SECTION 5 OF THE TOWN PLANNING ORDINANCE ON

SECRETARY, TOWN PLANNING BOARD

TOWN PLANNING ORDINANCE, HONG KONG TOWN PLANNING BOARD
TUNG CHUNG WEST AREA - DRAFT OUTLINE ZONING PLAN

SCALE 1 : 5 000 (A1) 比例尺

METRES 100 0 100 200 300 400 500 600 700 800 METRES

Agreement No. CE 32/2011 (CE)

Planning and Engineering Study on the Remaining Development in Tung Chung

圖則編號 PLAN No. S/XXXX/X

Appendix 4.2

Master Landscape Plan (MLP) & Master Urban Design Plan (MUDP)

Legend

Appendix 4.2



N 0 50 100 150 200 250m

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study
on the Remaining Development
in Tung Chung Feasibility Study

Drawing title

TCE - Landscape Master Plan

Drawing no. Figure 6.10 | Rev.

Drawn Urbis/ CR | Date Oct 2015 | Checked | Approved

Scale 1:5000 on A2 | Status

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土木工程拓展署
Civil Engineering and Development Department

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Legend

N 0 50 100 150 200 250m

Rev	Description	By	Date

Consultant

ARUP

Project title

Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung Feasibility Study

Drawing title

TCW - Landscape Master Plan

Drawing no.			Rev.
Figure 6.11			
Drawn: Urbis/ CR	Date: Oct 2015	Checked	Approved
Scale: 1:5000 on A2		Status	

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Printed by : $DATE$
Filename : $FILE$

Appendix 4.3

Preliminary Layout Plan



APPROVED BY COMMITTEE ON PLANNING AND LAND DEVELOPMENT ON

NOT ADOPTED

Tung Chung East New Town Extension Area - Preliminary Layout Plan

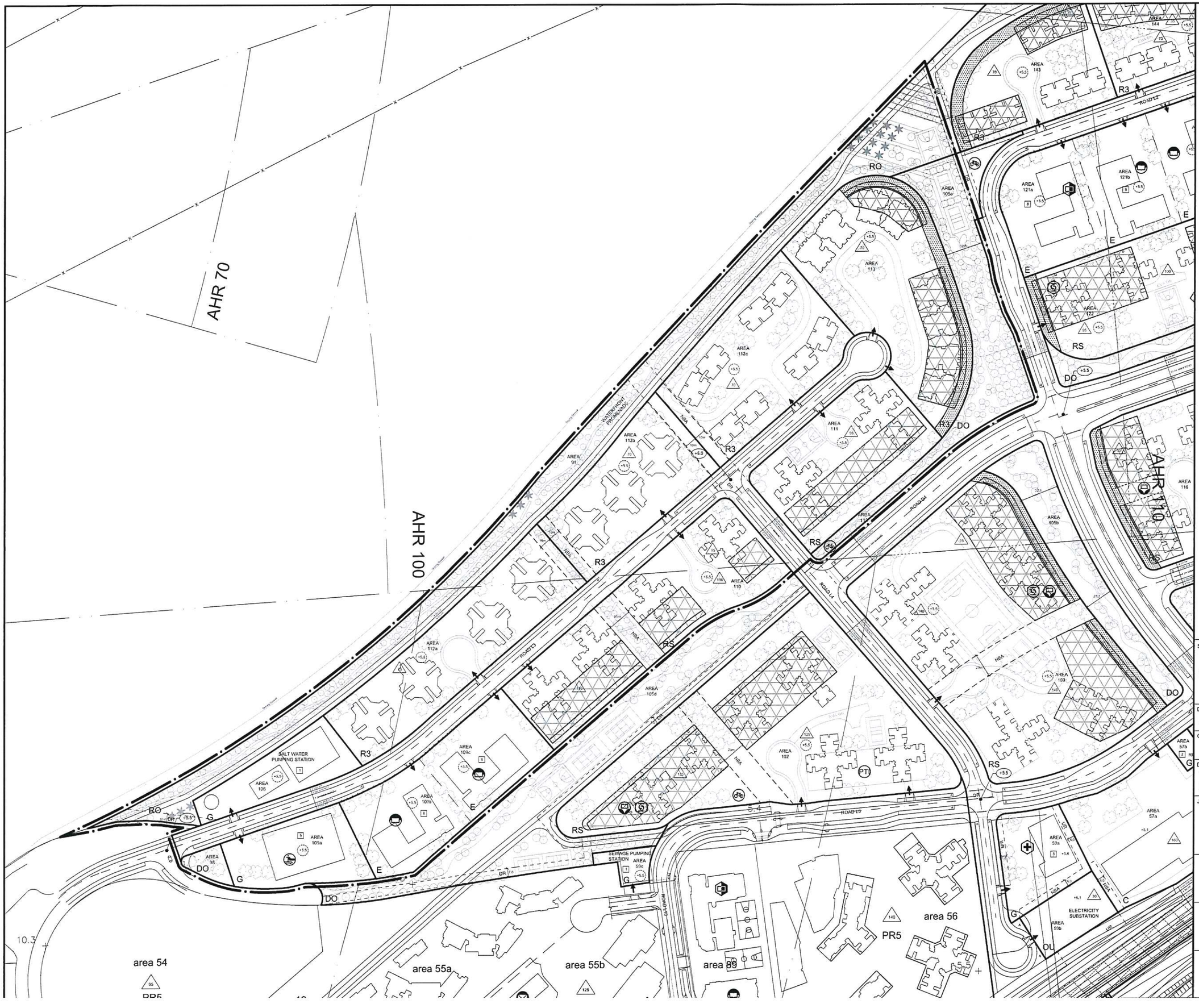
SCALE 1 : 2,000 (extended A0)

程序 ACTION	簽署 SIGNATURE	日期 DATE	檔號 REFERENCE
社會發展 COMMISSION AUTHORISED		00.00.00	
社會發展 CIRCULATION AUTHORISED		00.00.00	
編製 PREPARED		00.00.00	

Agreement No. CE 32 2011 (CE)

Planning and Engineering Study on the Remaining Development in Tung Chung

圖則編號 PLAN No. L/TCE/XX



LEGEND

- DISTRICT POLICE STATION
- FIRE STATION
- HIGHER EDUCATION FACILITY
- SECONDARY SCHOOL
- PRIMARY SCHOOL
- SPORTS GROUND
- SPORTS CENTRE
- PUBLIC TRANSPORT INTERCHANGE
- CYCLE PARKING AREA
- GENERAL CLINIC
- PETROL FILLING STATION
- PUBLIC TOILET
- SOCIAL WELFARE FACILITY
- KINDERGARTEN
- RCP REFUSE COLLECTION POINT
- PLANNING SCHEME BOUNDARY
- ZONING BOUNDARY

- INGRESS/EGRESS
- PEDESTRIAN CROSSING
- FP FOOTPATH
- CT CYCLING TRACK
- EVA EMERGENCY VEHICLE ACCESS
- COMMERCIAL PODIUM
- AREA FOR "SHOP & SERVICES" AND "EATING PLACE" USES ONLY
- DR DRAINAGE RESERVE
- UR UTILITY RESERVE
- SR SEWERAGE RESERVE
- NOISE BARRIER
- NOISE BARRIER (COVERED)
- NBA NON BUILDING AREA
- MAXIMUM BUILDING HEIGHT (in m above PD)
- PROPOSED LEVEL (in m above PD)
- EXISTING LEVEL (in m above PD)
- ROAD SPOT LEVEL (in m above PD)
- HEIGHT CONTROL BOUNDARY
- MAXIMUM BUILDING HEIGHT IN STOREYS
- AHRT AIRPORT HEIGHT RESTRICTIONS
- NEF CONTOUR

- C COMMERCIAL
- SR SPECIAL RESIDENTIAL
- R1 RESIDENTIAL - ZONE 1
- R2 RESIDENTIAL - ZONE 2
- R3 RESIDENTIAL - ZONE 3
- G GOVERNMENT
- E EDUCATION
- OU OTHER SPECIFIED USES
- RO REGIONAL OPEN SPACE
- DO DISTRICT OPEN SPACE
- ROADS AND AMENITY AREA

Scale and Orientation

N

0 25 50 75 100m

1:1,000 on A0

Drawn	Date
JH	Nov 2015
Checked	Approved

Drawing No.	Drawing Title
TCE LP A	Preliminary Layout Plan TCE - Layout A

Job Title

Agreement No. CE 32/2011 (CE)

Planning and Engineering Study on the Remaining Development in Tung Chung

ARUP



LEGEND

- DISTRICT POLICE STATION
- FIRE STATION
- HIGHER EDUCATION FACILITY
- SECONDARY SCHOOL
- PRIMARY SCHOOL
- SPORTS GROUND
- SPORTS CENTRE
- PUBLIC TRANSPORT INTERCHANGE
- CYCLE PARKING AREA
- GENERAL CLINIC
- PETROL FILLING STATION
- PUBLIC TOILET
- SOCIAL WELFARE FACILITY
- KINDERGARTEN
- RGP REFUSE COLLECTION POINT
- PLANNING SCHEME BOUNDARY
- ZONING BOUNDARY

- INGRESS/EGRESS
- PEDESTRIAN CROSSING
- FP FOOTPATH
- CT CYCLING TRACK
- EVA EMERGENCY VEHICLE ACCESS
- COMMERCIAL PODIUM
- AREA FOR "SHOP & SERVICES" AND "EATING PLACE" USES ONLY
- DR DRAINAGE RESERVE
- UR UTILITY RESERVE
- SR SEWERAGE RESERVE
- NOISE BARRIER
- NOISE BARRIER (COVERED)
- NBA NON BUILDING AREA
- MAXIMUM BUILDING HEIGHT (in m above PD)
- PROPOSED LEVEL (in m above PD)
- EXISTING LEVEL (in m above PD)
- ROAD SPOT LEVEL (in m above PD)
- HEIGHT CONTROL BOUNDARY
- MAXIMUM BUILDING HEIGHT IN STOREYS
- AHRB AIRPORT HEIGHT RESTRICTIONS
- NEF CONTOUR

- C COMMERCIAL
- SR SPECIAL RESIDENTIAL
- R1 RESIDENTIAL - ZONE 1
- R2 RESIDENTIAL - ZONE 2
- R3 RESIDENTIAL - ZONE 3
- G GOVERNMENT
- E EDUCATION
- OU OTHER SPECIFIED USES
- RO REGIONAL OPEN SPACE
- DO DISTRICT OPEN SPACE
- ROADS AND AMENITY AREA

Scale and Orientation

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0 25 50 75 100m

1:1,000 on A0

Drawn	Date
JH	Nov 2015
Checked	Approved

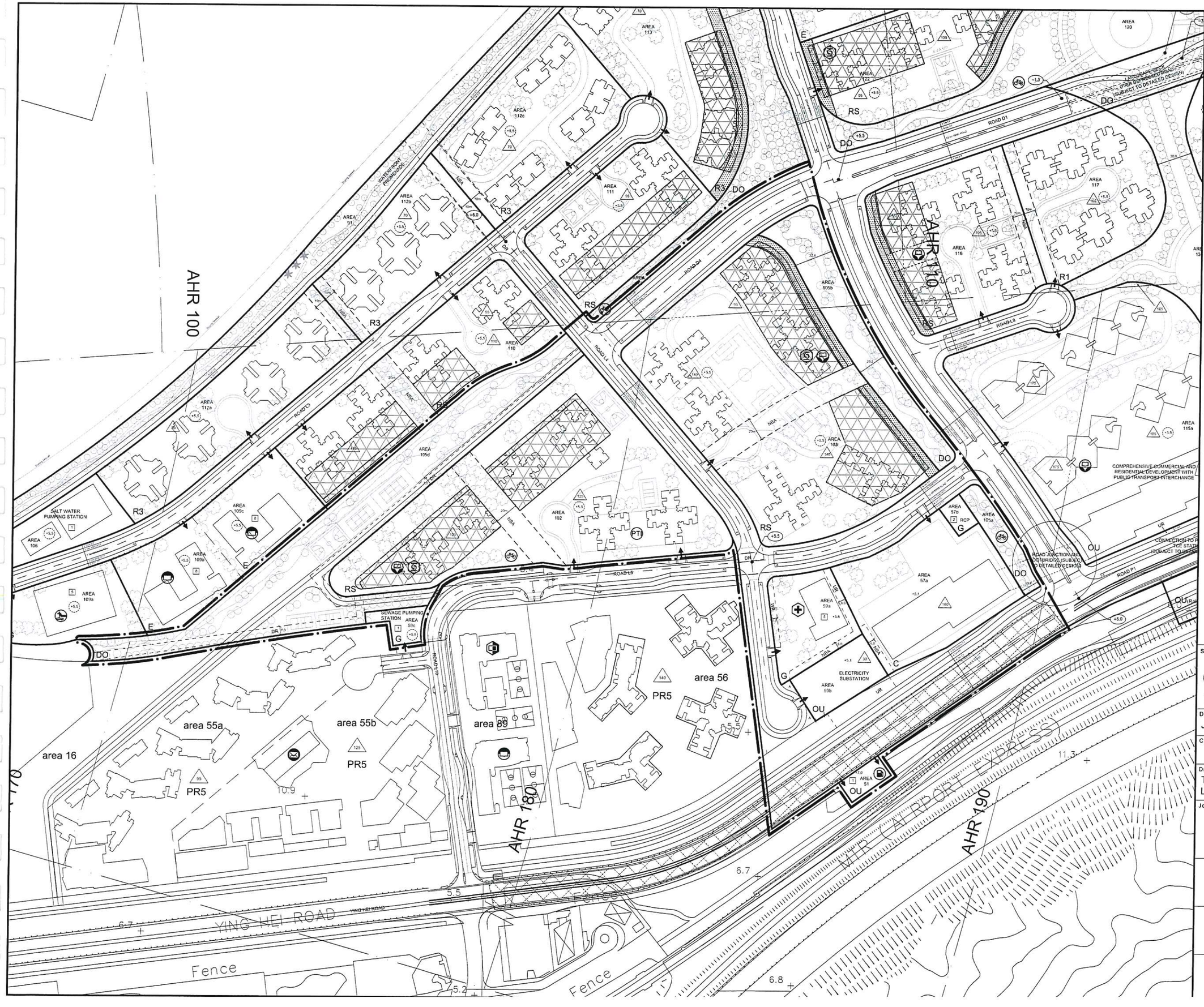
Drawing No.	Drawing Title
TCE LP C	Preliminary Layout Plan TCE - Layout C

Job Title

Agreement No. CE 32/2011 (CE)

Planning and Engineering Study on the Remaining Development in Tung Chung

ARUP



LEGEND

- DISTRICT POLICE STATION
- FIRE STATION
- HIGHER EDUCATION FACILITY
- SECONDARY SCHOOL
- PRIMARY SCHOOL
- SPORTS GROUND
- SPORTS CENTRE
- PUBLIC TRANSPORT INTERCHANGE
- CYCLE PARKING AREA
- GENERAL CLINIC
- PETROL FILLING STATION
- PUBLIC TOILET
- SOCIAL WELFARE FACILITY
- KINDERGARTEN
- REFUSE COLLECTION POINT
- PLANNING SCHEME BOUNDARY
- ZONING BOUNDARY

- INGRESS/EGRESS
- PEDESTRIAN CROSSING
- FOOTPATH
- CYCLING TRACK
- EMERGENCY VEHICLE ACCESS
- COMMERCIAL PODIUM
- AREA FOR "SHOP & SERVICES" AND "EATING PLACE" USES ONLY
- DRAINAGE RESERVE
- UTILITY RESERVE
- SEWERAGE RESERVE
- NOISE BARRIER
- NOISE BARRIER (COVERED)
- NBA NON BUILDING AREA
- MAXIMUM BUILDING HEIGHT (in m above PD)
- PROPOSED LEVEL (in m above PD)
- EXISTING LEVEL (in m above PD)
- ROAD SPOT LEVEL (in m above PD)
- HEIGHT CONTROL BOUNDARY
- MAXIMUM BUILDING HEIGHT IN STOREYS
- AHRS AIRPORT HEIGHT RESTRICTIONS
- NEF CONTOUR

- C COMMERCIAL
- SR SPECIAL RESIDENTIAL
- R1 RESIDENTIAL - ZONE 1
- R2 RESIDENTIAL - ZONE 2
- R3 RESIDENTIAL - ZONE 3
- G GOVERNMENT
- E EDUCATION
- OU OTHER SPECIFIED USES
- RO REGIONAL OPEN SPACE
- DO DISTRICT OPEN SPACE
- ROADS AND AMENITY AREA

Scale and Orientation

N

0 25 50 75 100m

1:1,000 on A0

Drawn	Date
JH	Nov 2015
Checked	Approved

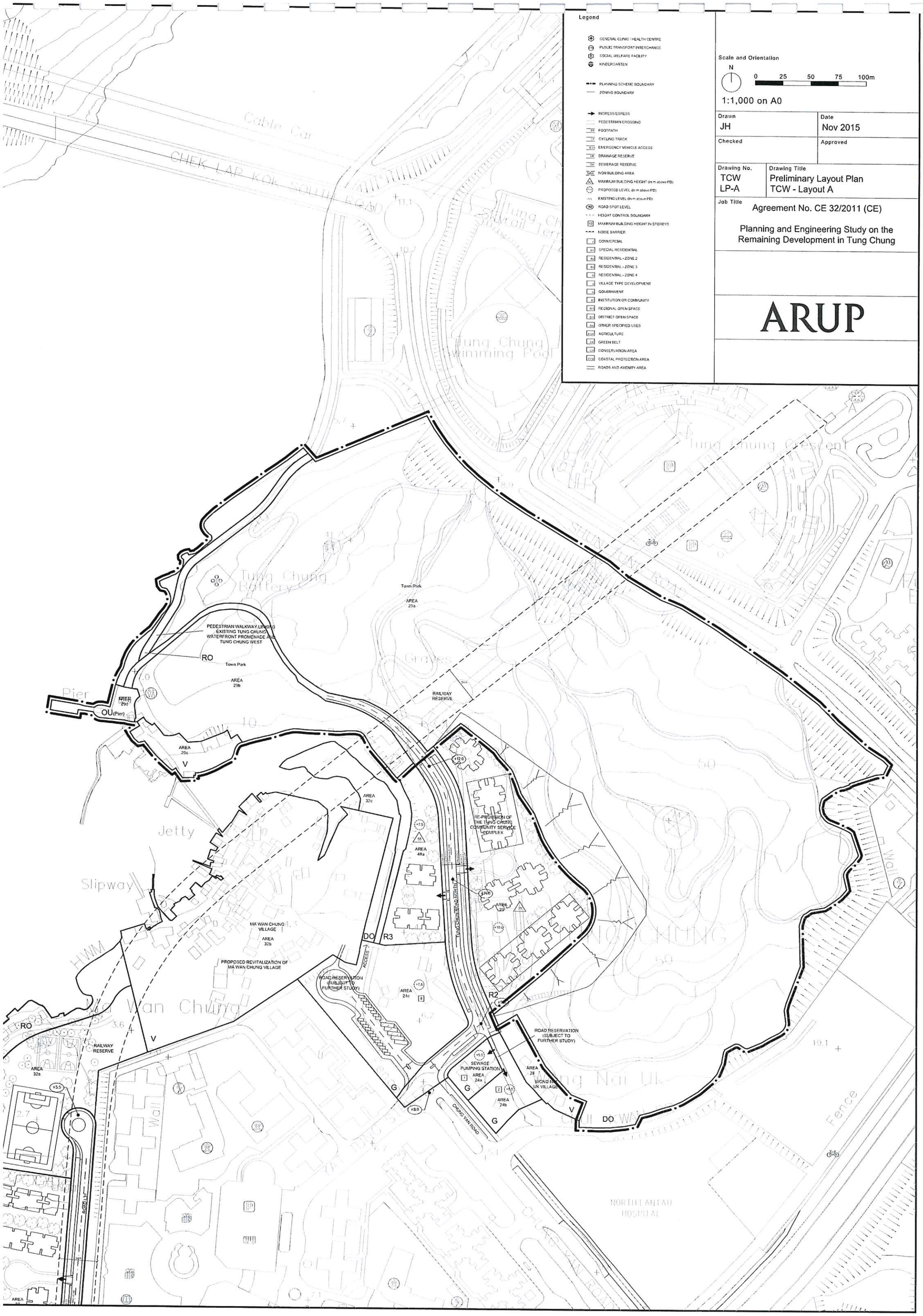
Drawing No.	Drawing Title
TCE LP D	Preliminary Layout Plan TCE - Layout D

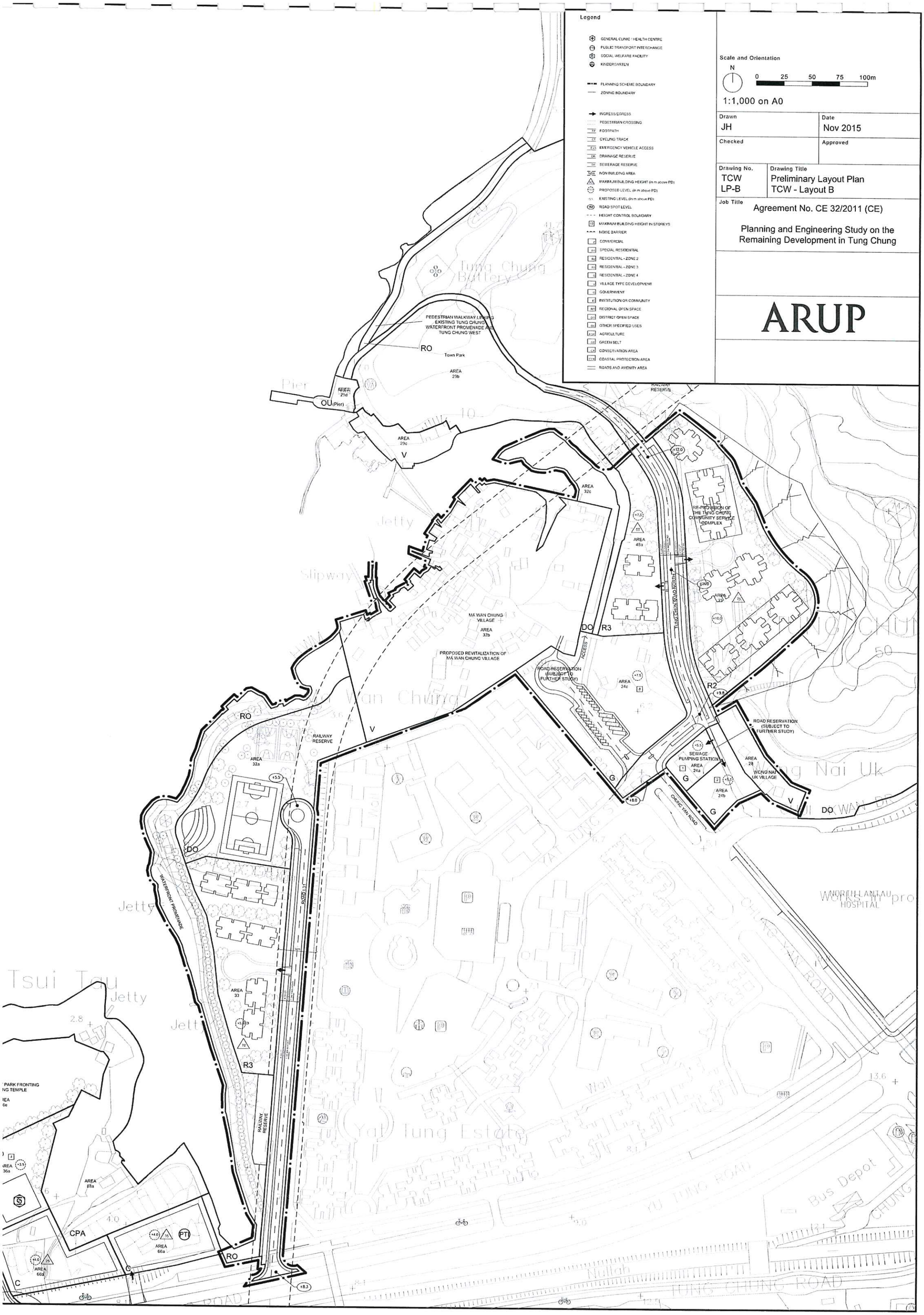
Job Title

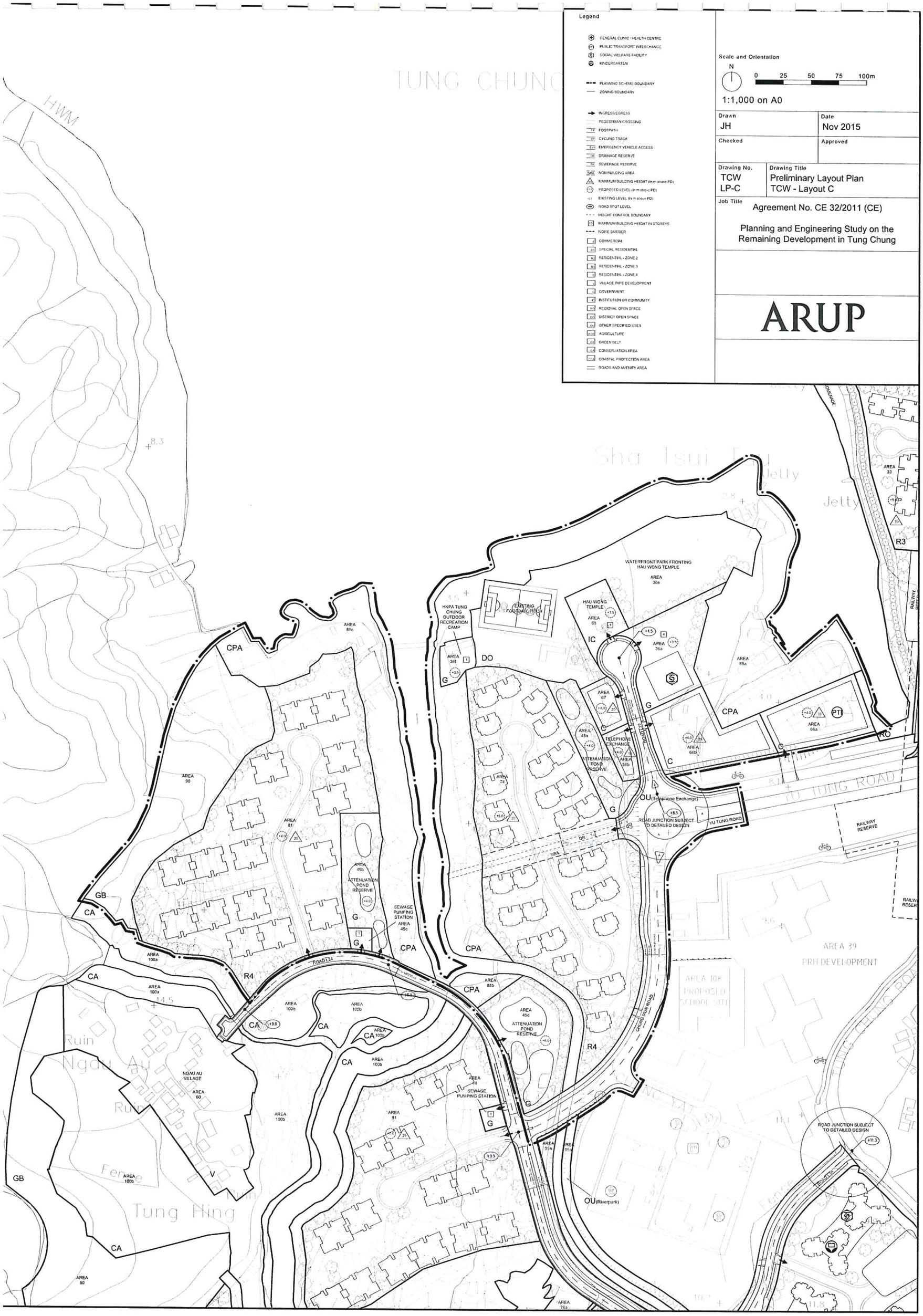
Agreement No. CE 32/2011 (CE)

Planning and Engineering Study on the Remaining Development in Tung Chung

ARUP


Legend
GENERAL CLINIC / HEALTH CENTRE
PUBLIC TRANSPORT INTERCHANGE
SOCIAL WELFARE FACILITY
KINDERGARTEN
PLANNING SCHEME BOUNDARY
ZONING BOUNDARY
INGRESS/EGRESS
PEDESTRIAN CROSSING
FOOTPATH
CYCLING TRACK
EMERGENCY VEHICLE ACCESS
DRAINAGE RESERVE
SEWERAGE RESERVE
NON BUILDING AREA
MAXIMUM BUILDING HEIGHT (in m above PD)
PROPOSED LEVEL (in m above PD)
EXISTING LEVEL (in m above PD)
ROAD SPOT LEVEL
HEIGHT CONTROL BOUNDARY
MAXIMUM BUILDING HEIGHT IN STOREYS
NOISE BARRIER
COMMERCIAL
SPECIAL RESIDENTIAL
RESIDENTIAL - ZONE 2
RESIDENTIAL - ZONE 3
RESIDENTIAL - ZONE 4
VILLAGE TYPE DEVELOPMENT
GOVERNMENT
INSTITUTION OR COMMUNITY
REGIONAL OPEN SPACE
DISTRICT OPEN SPACE
OTHER SPECIFIED USES
AGRICULTURE
GREEN BELT
CONSERVATION AREA
COASTAL PROTECTION AREA
ROADS AND AMENITY AREA
Scale and Orientation
N
0 25 50 75 100m
1:1,000 on A0
Drawn
JH
Date
Nov 2015
Checked
Approved
Drawing No.
TCW
LP-A
Drawing Title
Preliminary Layout Plan
TCW - Layout A
Job Title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study on the Remaining Development in Tung Chung
ARUP
Cable Car
CHEK LAP KOK SOUTH ROAD
Tung Chung Swimming Pool
Tung Chung Crescent
Tung Chung Battery
Town Park
AREA 29a
PEDESTRIAN WALKWAY LINKING EXISTING TUNG CHUNG WATERFRONT PROMENADE AND TUNG CHUNG WEST
RO
Town Park
AREA 29b
Pier
AREA 29d
OU(Pier)
AREA 29c
V
Graves
RAILWAY RESERVE
AREA 32c
Jetty
Slipway
RE-PROVISION OF THE TUNG CHUNG COMMUNITY SERVICE COMPLEX
AREA 48a
AREA 23
MA WAN CHUNG VILLAGE
AREA 32b
PROPOSED REVITALIZATION OF MA WAN CHUNG VILLAGE
DO
R3
ACCESS
ROAD RESERVATION (SUBJECT TO FURTHER STUDY)
AREA 24c
R2
Ma Wan Chung
RO
RAILWAY RESERVE
AREA 32a
V
ROAD RESERVATION (SUBJECT TO FURTHER STUDY)
SEWAGE PUMPING STATION
AREA 24a
AREA 28
WONG NAI UK VILLAGE
AREA 24b
G
CHUNG YAN ROAD
DO
Wong Nai Uk
Wall
Fence
NORTH LANTAU HOSPITAL
CHUNG YAN ROAD


Legend
GENERAL CLINIC / HEALTH CENTRE
PUBLIC TRANSPORT INTERCHANGE
SOCIAL WELFARE FACILITY
KINDERGARTEN
PLANNING SCHEME BOUNDARY
ZONING BOUNDARY
INGRESS/EGRESS
PEDESTRIAN CROSSING
FOOTPATH
CYCLING TRACK
EMERGENCY VEHICLE ACCESS
DRAINAGE RESERVE
SEWERAGE RESERVE
NON BUILDING AREA
MAXIMUM BUILDING HEIGHT (in m above PD)
PROPOSED LEVEL (in m above PD)
EXISTING LEVEL (in m above PD)
ROAD SPOT LEVEL
HEIGHT CONTROL BOUNDARY
MAXIMUM BUILDING HEIGHT IN STOREYS
NOISE BARRIER
COMMERCIAL
SPECIAL RESIDENTIAL
RESIDENTIAL - ZONE 2
RESIDENTIAL - ZONE 3
RESIDENTIAL - ZONE 4
VILLAGE TYPE DEVELOPMENT
GOVERNMENT
INSTITUTION OR COMMUNITY
REGIONAL OPEN SPACE
DISTRICT OPEN SPACE
OTHER SPECIFIED USES
AGRICULTURE
GREEN BELT
CONSERVATION AREA
COASTAL PROTECTION AREA
ROADS AND AMENITY AREA
Scale and Orientation
N
0 25 50 75 100m
1:1,000 on A0
Drawn
JH
Date
Nov 2015
Checked
Approved
Drawing No.
TCW
LP-B
Drawing Title
Preliminary Layout Plan
TCW - Layout B
Job Title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study on the Remaining Development in Tung Chung
ARUP
Tung Chung Battery
PEDESTRIAN WALKWAY LINKING EXISTING TUNG CHUNG WATERFRONT PROMENADE AND TUNG CHUNG WEST
RO
Town Park
AREA 29b
Pier
AREA 29d
OU (Pier)
AREA 29c
V
RAILWAY RESERVE
AREA 32c
Jetty
Slipway
RE-PROVISION OF THE TUNG CHUNG COMMUNITY SERVICE COMPLEX
AREA 48a
TUNG CHUNG ROAD NORTH
MA WAN CHUNG VILLAGE
AREA 32b
DO
R3
PROPOSED REVITALIZATION OF MA WAN CHUNG VILLAGE
ROAD RESERVATION (SUBJECT TO FURTHER STUDY)
ACCESS
AREA 24c
R2
ROAD RESERVATION (SUBJECT TO FURTHER STUDY)
SEWAGE PUMPING STATION
AREA 24a
AREA 28
WONG NAI UK VILLAGE
AREA 24b
G
CHUNG YAN ROAD
Wong Nai Uk
RO
RAILWAY RESERVE
AREA 32a
DO
WATERFRONT PROMENADE
ROAD 1:1
NORTH LANTAU HOSPITAL
Tsui Tau
Jetty
AREA 33
R3
RAILWAY RESERVE
Yat Tung Estate
YU TUNG ROAD
Bus Depot
AREA 88a
CPA
AREA 66a
PTI
RO
C
Nullah
TUNG CHUNG ROAD



Legend
GENERAL CLINIC / HEALTH CENTRE
PUBLIC TRANSPORT INTERCHANGE
SOCIAL WELFARE FACILITY
KINDERGARTEN
PLANNING SCHEME BOUNDARY
ZONING BOUNDARY
INGRESS/EGRESS
PEDESTRIAN CROSSING
FOOTPATH
CYCLING TRACK
EMERGENCY VEHICLE ACCESS
DRAINAGE RESERVE
SEWERAGE RESERVE
NON BUILDING AREA
MAXIMUM BUILDING HEIGHT (in m above PD)
PROPOSED LEVEL (in m above PD)
EXISTING LEVEL (in m above PD)
ROAD SPOT LEVEL
HEIGHT CONTROL BOUNDARY
MAXIMUM BUILDING HEIGHT IN STOREYS
NOISE BARRIER
COMMERCIAL
SPECIAL RESIDENTIAL
RESIDENTIAL - ZONE 2
RESIDENTIAL - ZONE 3
RESIDENTIAL - ZONE 4
VILLAGE TYPE DEVELOPMENT
GOVERNMENT
INSTITUTION OR COMMUNITY
REGIONAL OPEN SPACE
DISTRICT OPEN SPACE
OTHER SPECIFIED USES
AGRICULTURE
GREEN BELT
CONSERVATION AREA
COASTAL PROTECTION AREA
ROADS AND AMENITY AREA
Scale and Orientation
N
0 25 50 75 100m
1:1,000 on A0
Drawn
JH
Date
Nov 2015
Checked
Approved
Drawing No.
TCW
LP-C
Drawing Title
Preliminary Layout Plan
TCW - Layout C
Job Title
Agreement No. CE 32/2011 (CE)
Planning and Engineering Study on the Remaining Development in Tung Chung
ARUP
TUNG CHUNG
HWM
Sha Tsui Fou
Jetty
WATERFRONT PARK FRONTING HAU WONG TEMPLE
AREA 36e
HKPA TUNG CHUNG OUTDOOR RECREATION CAMP
EXISTING FOOTBALL PITCH
HAU WONG TEMPLE
AREA 68
IC
DO
CPA
AREA 88c
AREA 36f
AREA 36a
AREA 88a
AREA 67
AREA 45a
TELEPHONE EXCHANGE
ATTENUATION POND RESERVE
AREA 36b
AREA 66a
AREA 66b
PTI
RO
YU TUNG ROAD
OU (Telephone Exchange)
ROAD JUNCTION SUBJECT TO DETAILED DESIGN
RAILWAY RESERVE
AREA 90
AREA 81
AREA 74
AREA 45b
ATTENUATION POND RESERVE
SEWAGE PUMPING STATION
AREA 45c
GB
CA
AREA 100a
R4
ROAD L24
AREA 88b
AREA 100b
AREA 45d
AREA 100c
AREA 24
AREA 91
AREA 95a
AREA 95b
AREA 76a
AREA 80
NGAU AU VILLAGE
AREA 60
Ruin
Ngau Au
Fence
Tung Hing
V
OU (Riverpark)
CHUNG MUN ROAD
AREA 39
PRH DEVELOPMENT
AREA 108
PROPOSED SCHOOL SITE
ROAD JUNCTION SUBJECT TO DETAILED DESIGN
R3
AREA 33

Legend

- GENERAL CLINIC / HEALTH CENTRE
- PUBLIC TRANSPORT INTERCHANGE
- SOCIAL WELFARE FACILITY
- KINDERGARTEN
- PLANNING SCHEME BOUNDARY
- ZONING BOUNDARY
- INGRESS/EGRESS
- PEDESTRIAN CROSSING
- FOOTPATH
- CYCLING TRACK
- EMERGENCY VEHICLE ACCESS
- DRAINAGE RESERVE
- SEWERAGE RESERVE
- NON BUILDING AREA
- MAXIMUM BUILDING HEIGHT (in m above PD)
- PROPOSED LEVEL (in m above PD)
- EXISTING LEVEL (in m above PD)
- ROAD SPOT LEVEL
- HEIGHT CONTROL BOUNDARY
- MAXIMUM BUILDING HEIGHT IN STOREYS
- NOISE BARRIER
- COMMERCIAL
- SPECIAL RESIDENTIAL
- RESIDENTIAL - ZONE 2
- RESIDENTIAL - ZONE 3
- RESIDENTIAL - ZONE 4
- VILLAGE TYPE DEVELOPMENT
- GOVERNMENT
- INSTITUTION OR COMMUNITY
- REGIONAL OPEN SPACE
- DISTRICT OPEN SPACE
- OTHER SPECIFIED USES
- AGRICULTURE
- GREEN BELT
- CONSERVATION AREA
- COASTAL PROTECTION AREA
- ROADS AND AMENITY AREA

Scale and Orientation

N

0 25 50 75 100m

1:1,000 on A0

Drawn	Date
JH	Nov 2015
Checked	Approved

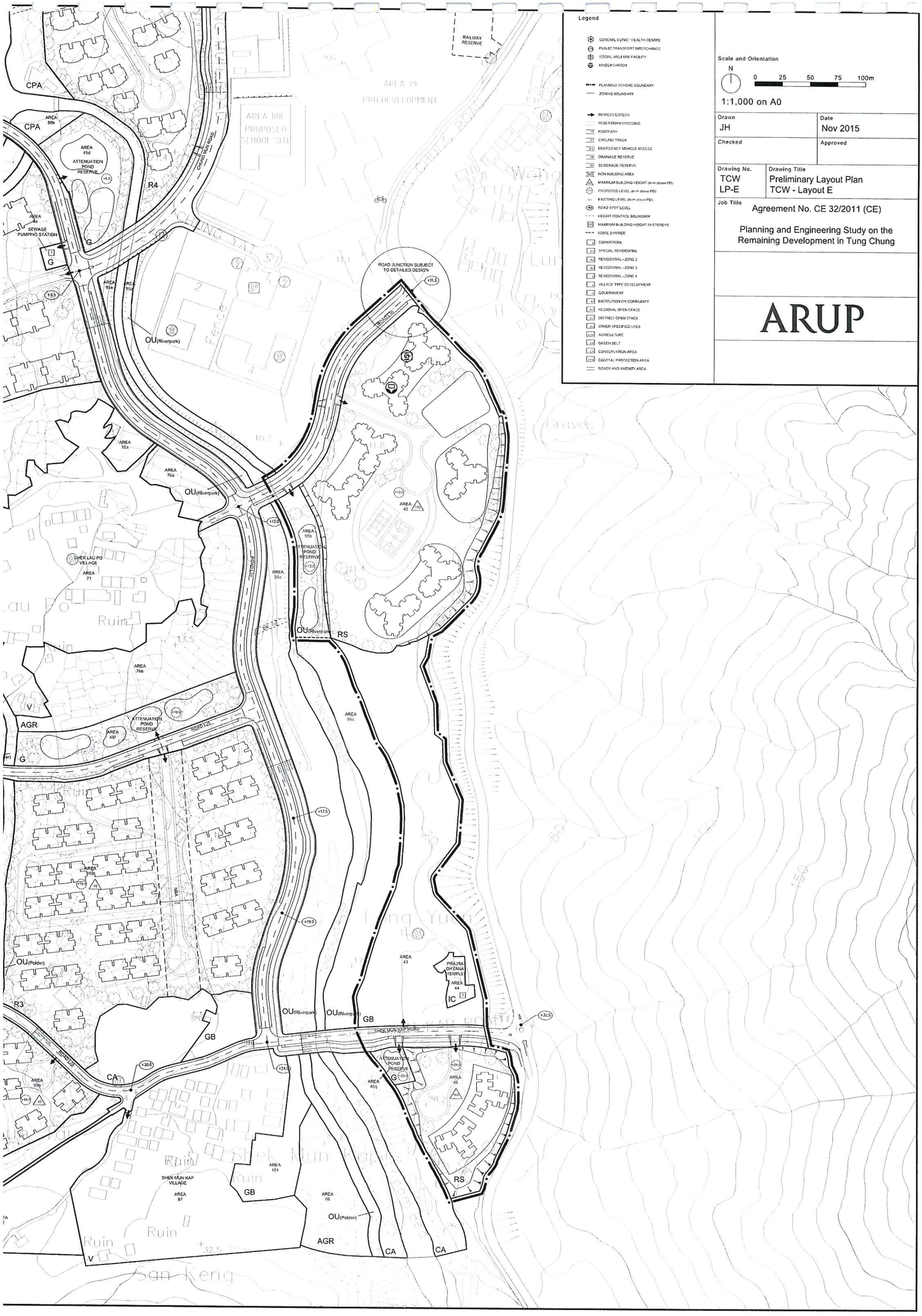
Drawing No.	Drawing Title
TCW LP-D	Preliminary Layout Plan TCW - Layout D

Job Title

Agreement No. CE 32/2011 (CE)

Planning and Engineering Study on the Remaining Development in Tung Chung

ARUP


RAILWAY RESERVE
AREA 39
PRE-DEVELOPMENT
AREA 108
PROPOSED SCHOOL SITE
CHUNG HAU ROAD
CPA
AREA 88b
AREA 45d
ATTENUATION POND RESERVE
R4
AREA 44
SEWAGE PUMPING STATION
G
AREA 95a
AREA 95b
ROAD L12
ROAD L13
ROAD L14
ROAD L15
ROAD L16
ROAD L17
ROAD L18
ROAD L19
ROAD L20
ROAD L21
ROAD L22
ROAD L23
ROAD L24
ROAD L25
ROAD L26
ROAD L27
ROAD L28
ROAD L29
ROAD L30
ROAD L31
ROAD

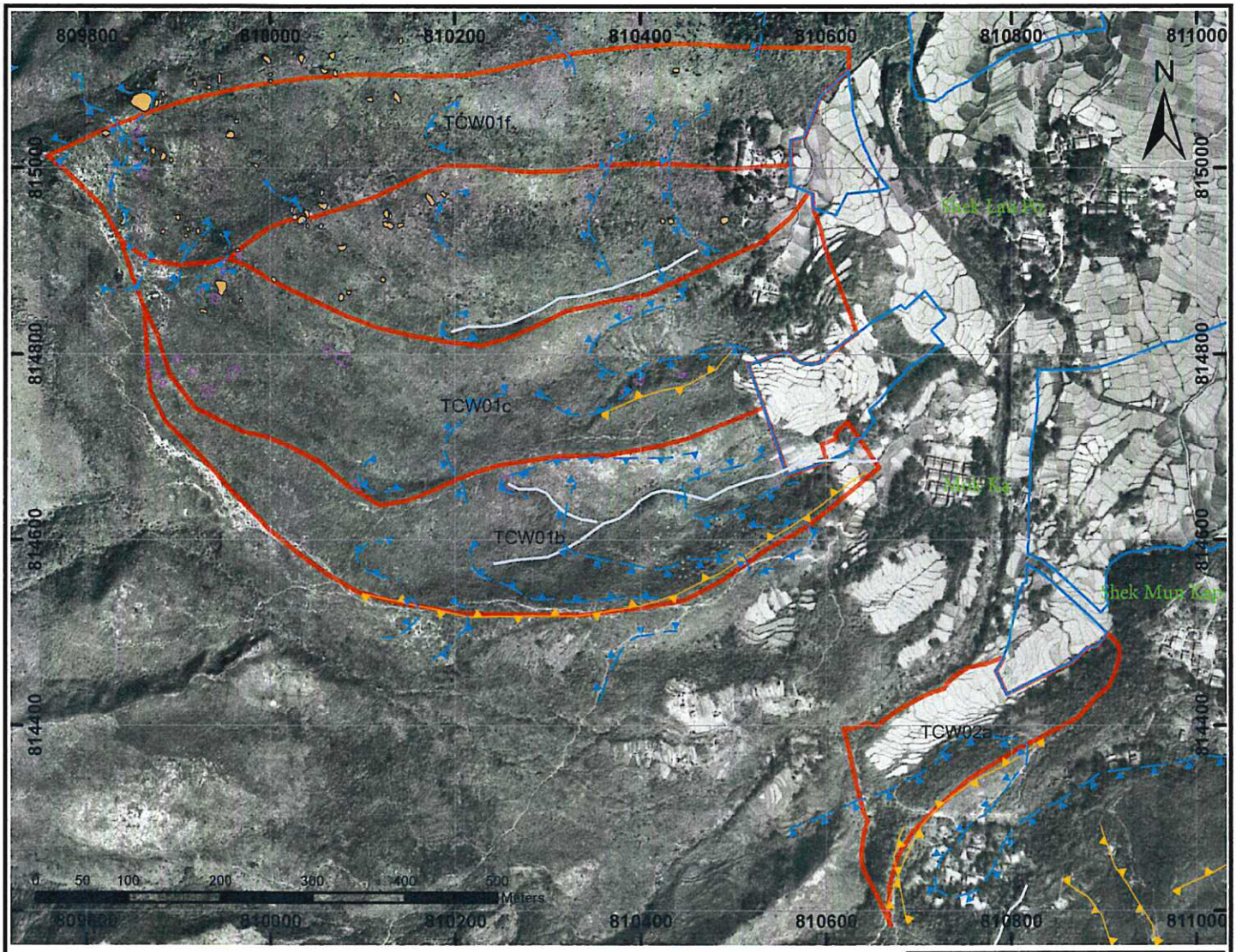
Appendix 5.10

Geotechnical Assessment

REP-155-01 Appendix 5.10

Appendix A

Aerial Photograph Interpretation



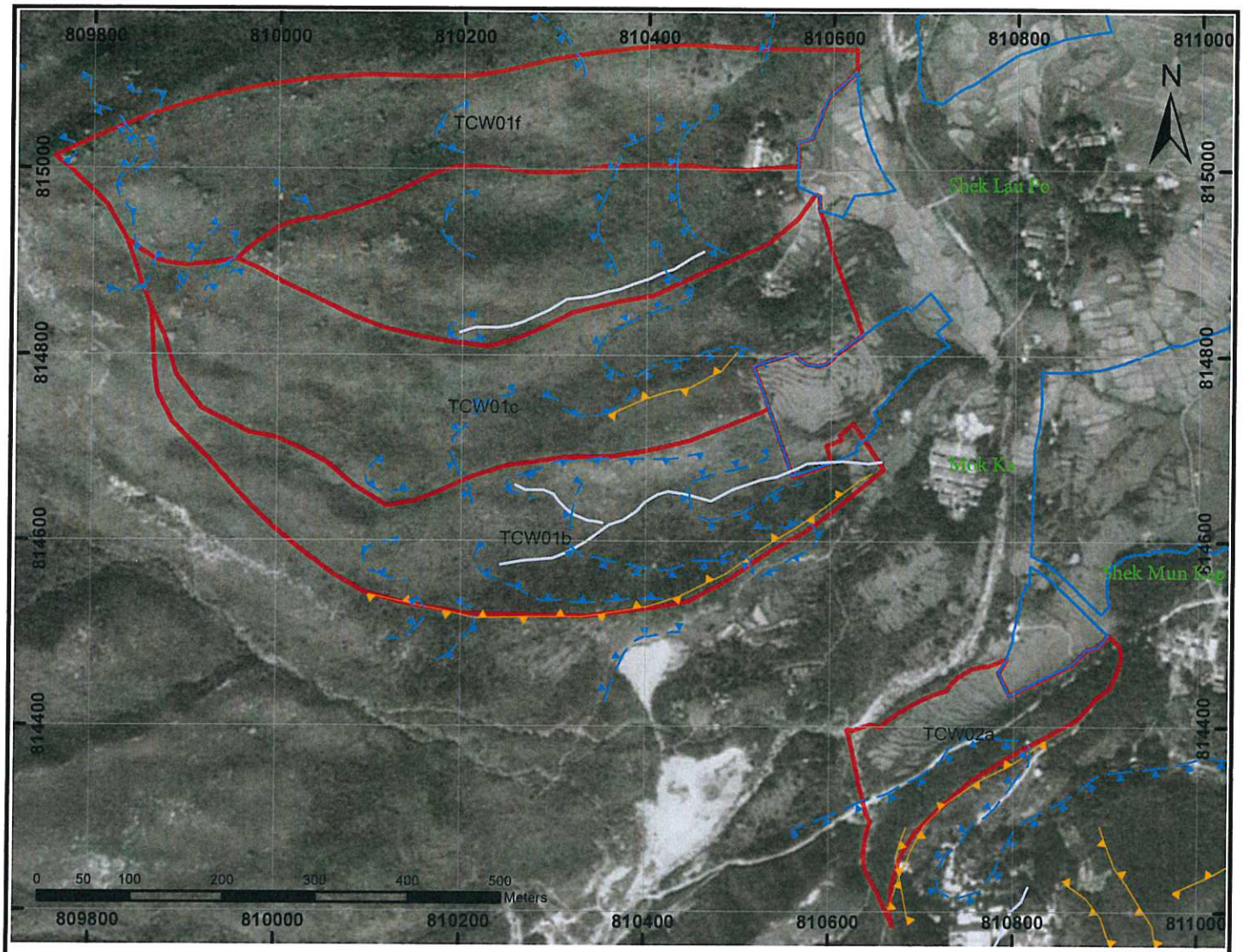
Year 1963

- Catchments TCW01 and TCW02 can be observed with little vegetation, allowing for a clear view of the natural terrain
- The catchments are generally open with several prominent drainage channels
- Several historic (pre 1963) landslides within TCW01 were verified during the API, whilst none could be verified within TCW02
- Numerous boulders can be observed within the catchments, particularly in the upper slopes
- Several village buildings can be observed in close proximity to the footslopes of the natural terrain. Numerous agricultural lots can also be observed

Legend

- NTHS Catchments
- Development Boundary
- Ridge Line
- Spurline
- Convex Change
- Concave Change
- Drainage Line - Perenial
- Drainage Line - Ephemeral
- Verified (API) Recent Landslides
- Verified (API) Relict Landslides

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (West Section) (Sheet 1 of 8)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Dm. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. A1



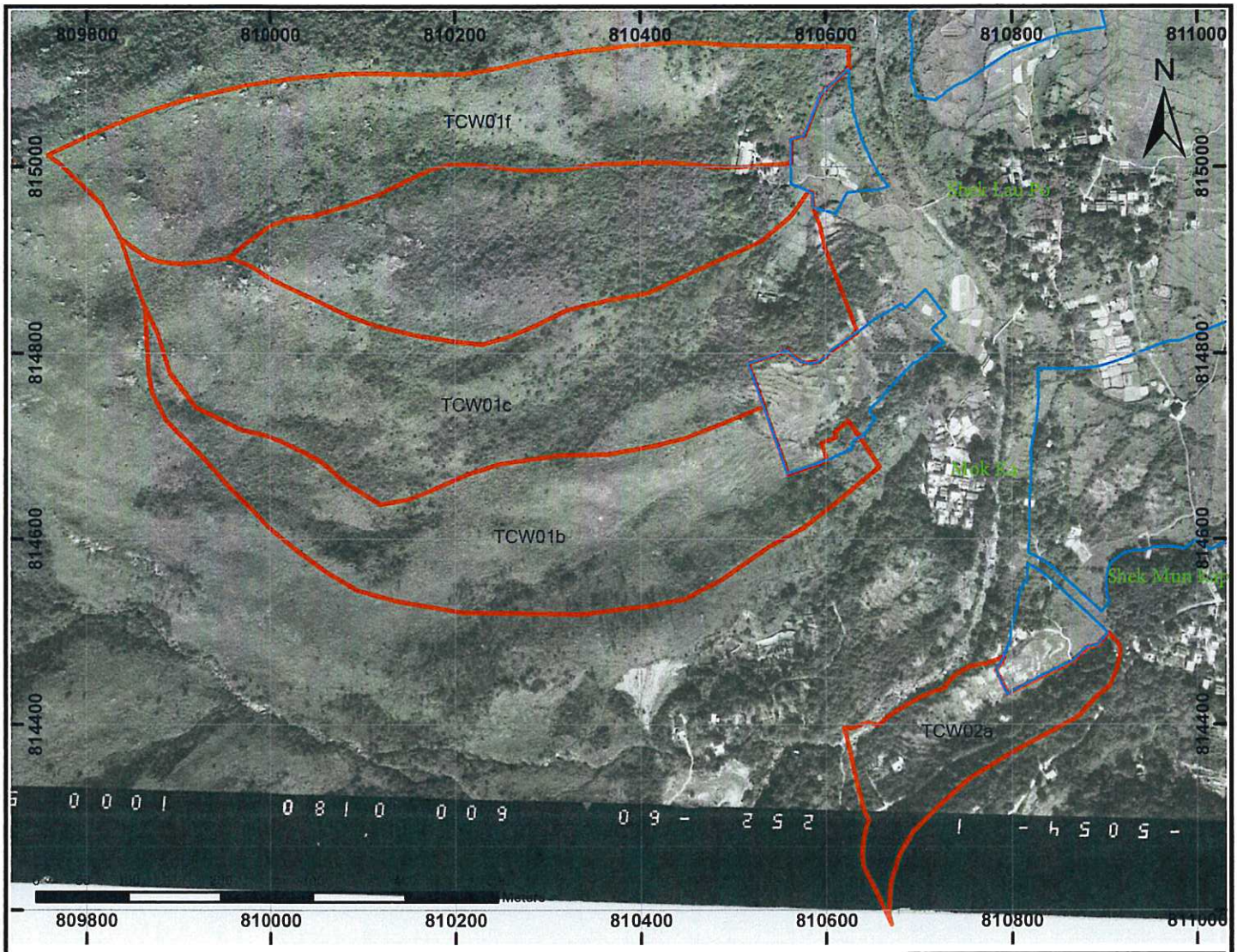
Year 1974

- No significant change observed in the study catchments
- An area of disturbed terrain can be observed to the south of TCW01 catchments

Legend

- NTHS Catchments
- Development Boundary
- Ridge Line
- Spurline
- Convex Change
- Concave Change
- Drainage Line - Perenial
- Drainage Line - Ephemeral

Job Title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title: **Aerial Photo Interpretation** Tung Chung West (West Section) (Sheet 2 of 8)	ARUP Ove Arup & Partners Hong Kong Limited
		Scale N.T.S.
		Drn. JC Date 03/2015 Chd. KKY Approved DML
		Job No. 219844 Figure No. A2



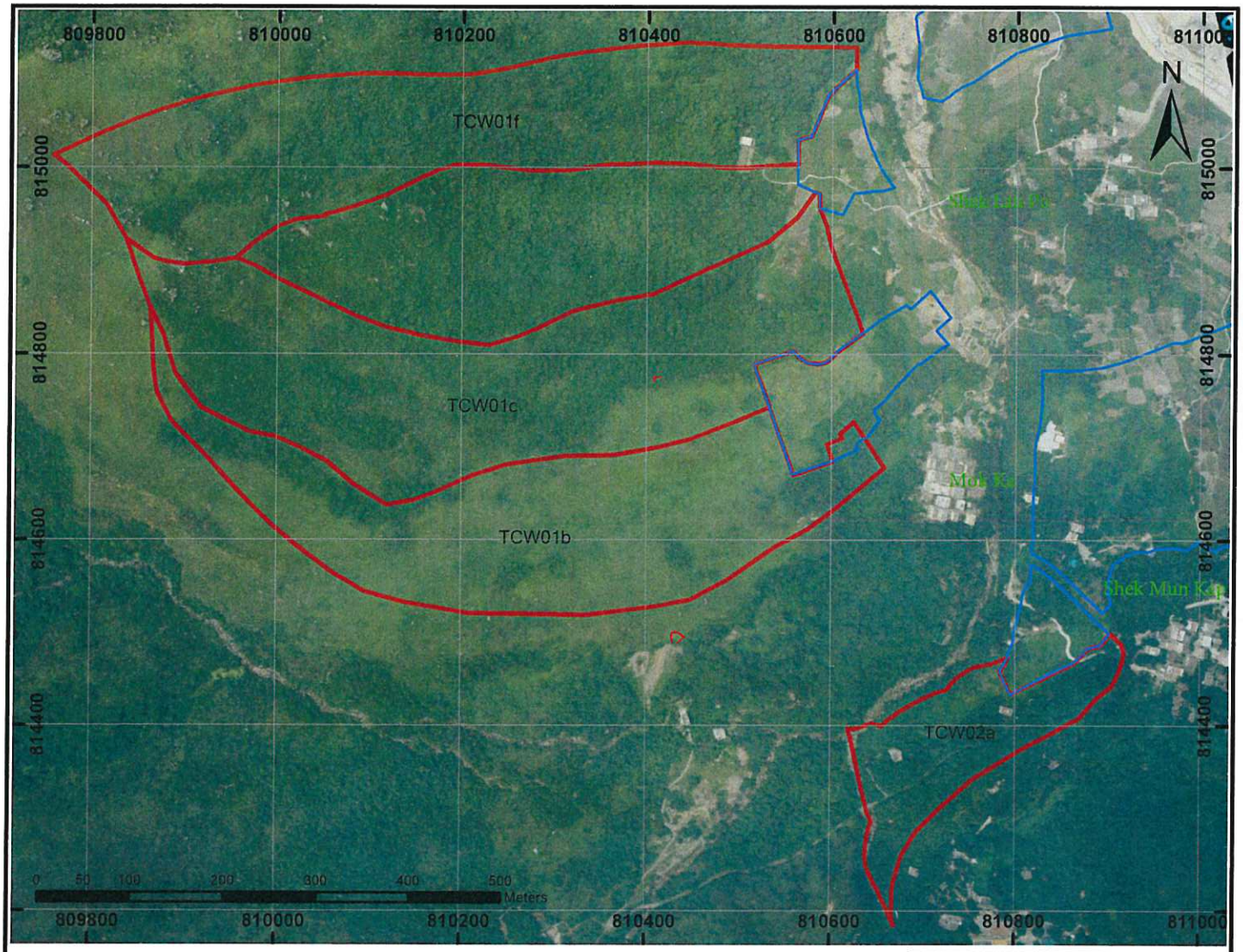
Year 1987

- An increase in vegetation can be observed throughout much of the catchments
- No other significant change observed

Legend

- NTHS Catchments
- Development Boundary

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (West Section) (Sheet 3 of 8)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. A3



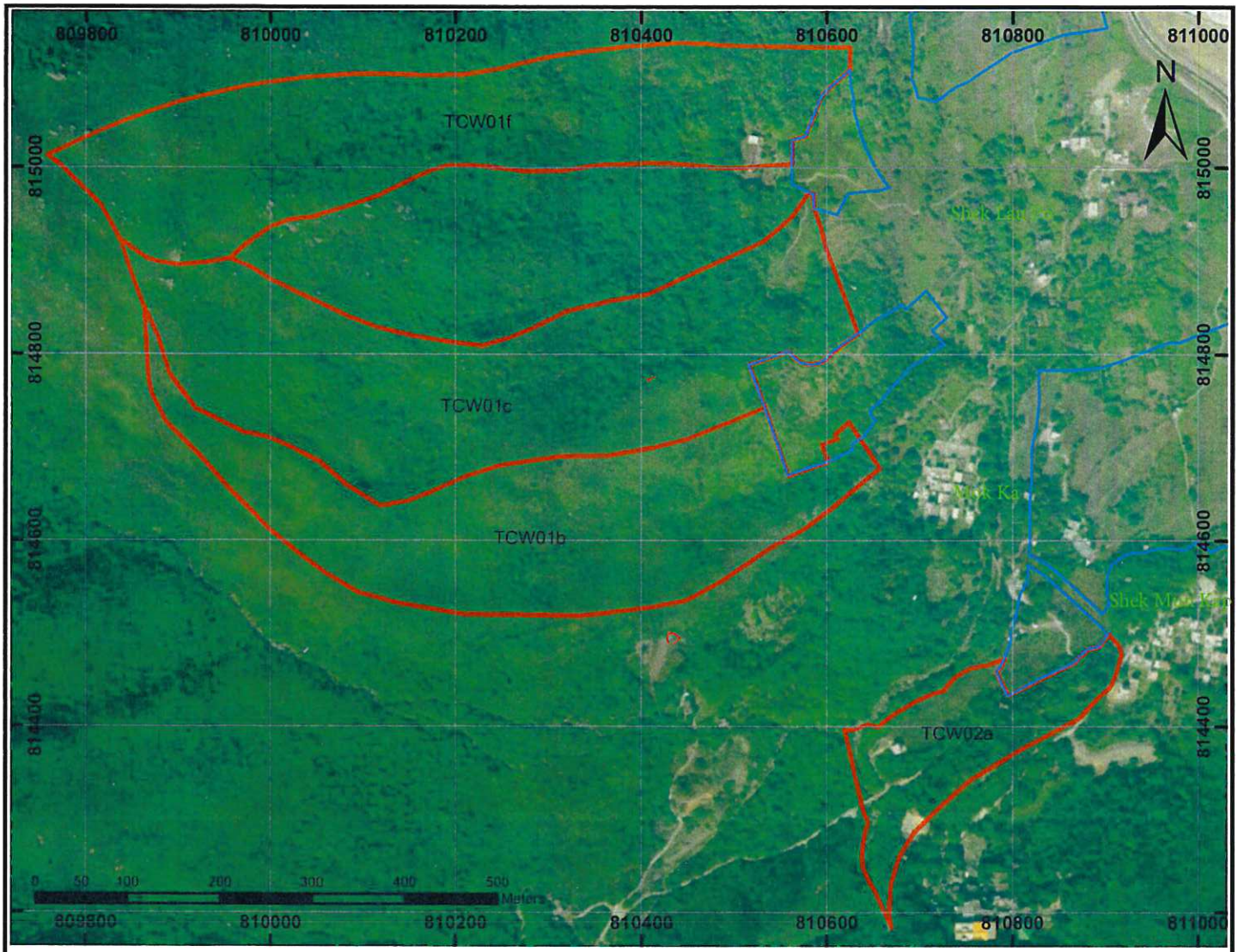
Year 1998

- No significant change observed

Legend

- NTHS Catchments
- Development Boundary
- Verified (API) Recent Landslides

Job Title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title: **Aerial Photo Interpretation** Tung Chung West (West Section) (Sheet 4 of 8)	ARUP Ove Arup & Partners Hong Kong Limited	
		Scale N.T.S.	
		Drn. JC Date 03/2015 Chd. KKY Approved DML	
		Job No. 219844	Figure No. A4



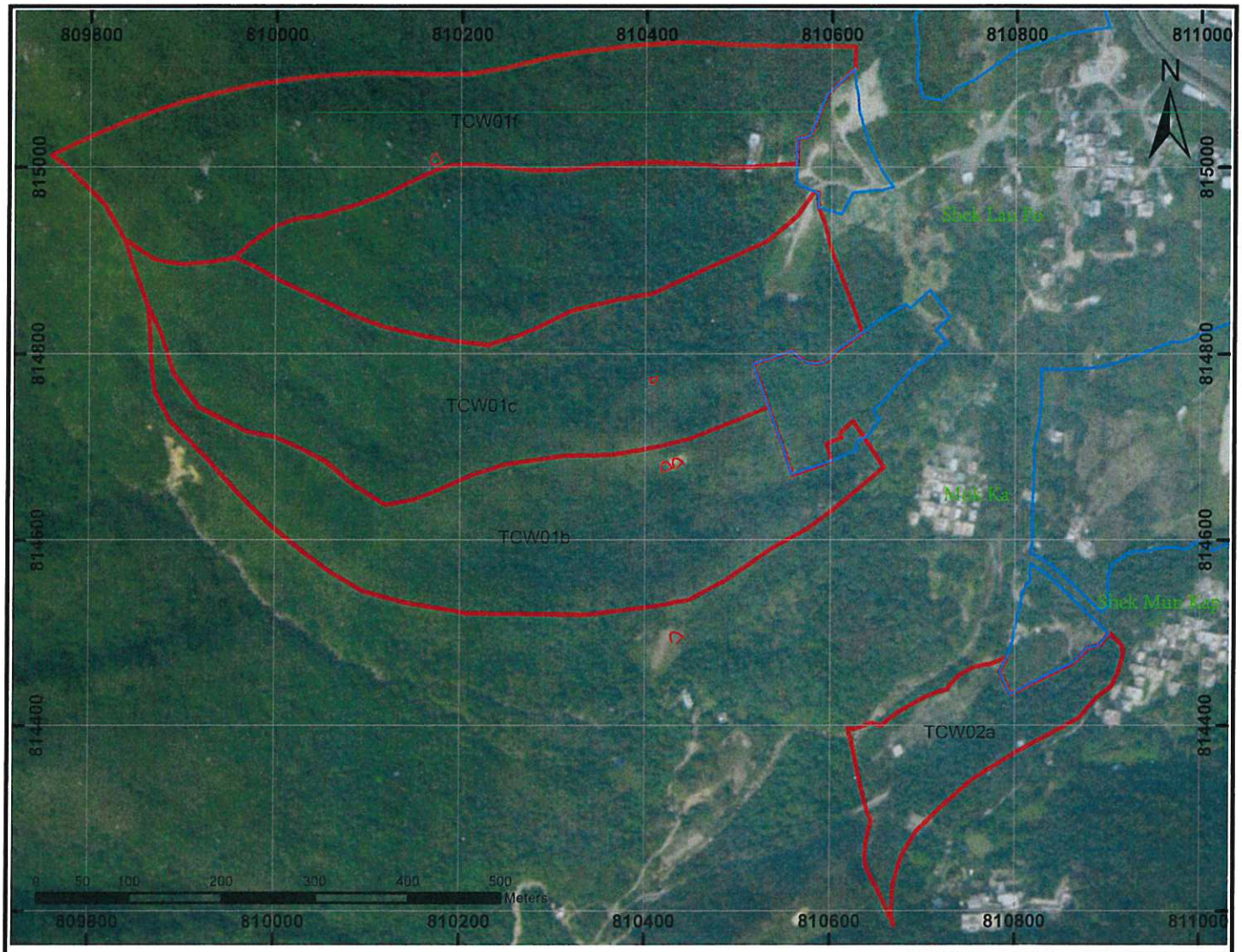
Year 2004

- No significant change observed

Legend

- NTHS Catchments
- Development Boundary
- Verified (API) Recent Landslides

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (West Section) (Sheet 5 of 8)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. A5



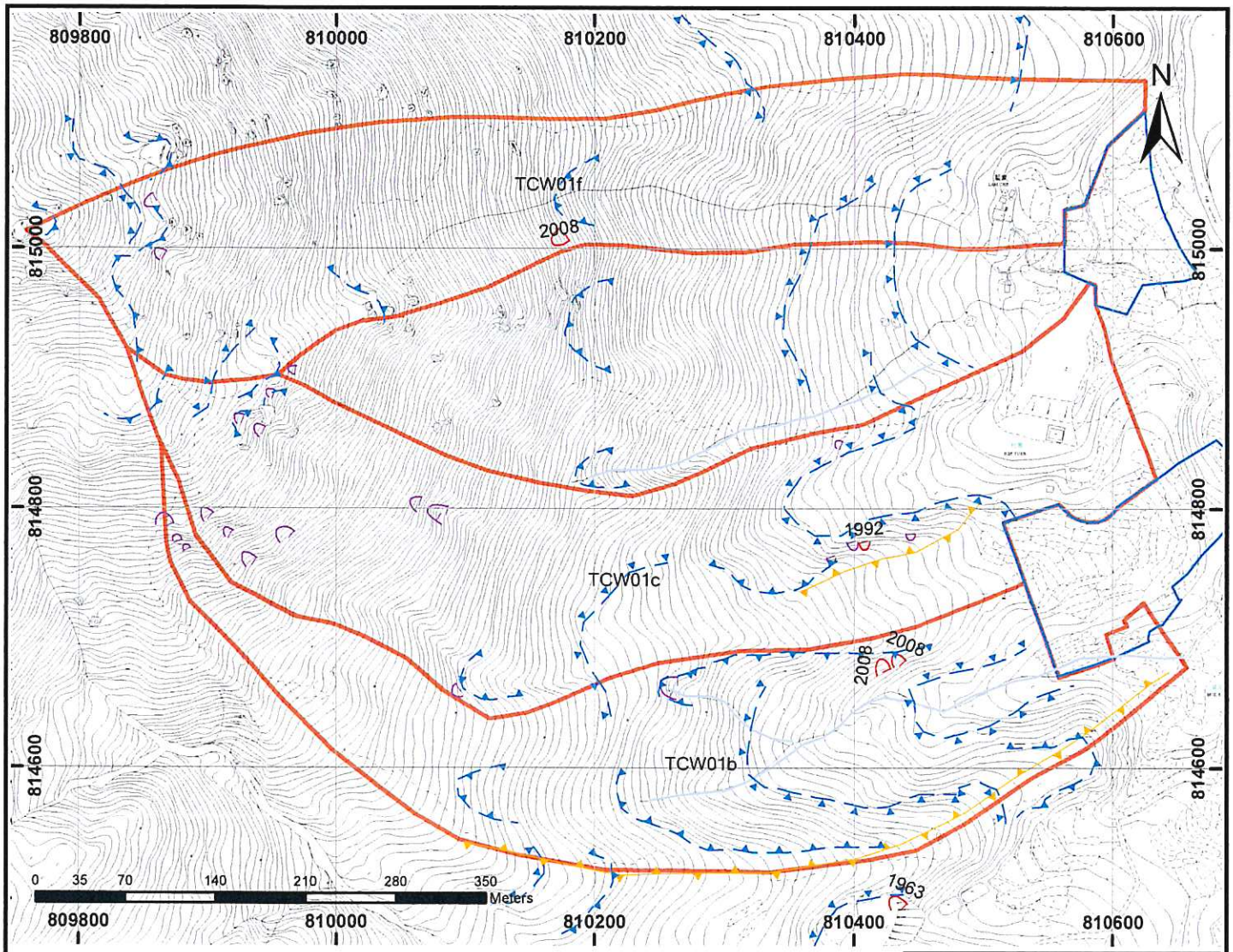
Year 2013

- No significant change observed

Legend

- NTHS Catchments
- Development Boundary
- Verified (API) Recent Landslides

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (West Section) (Sheet 6 of 8)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844	Figure No. A6



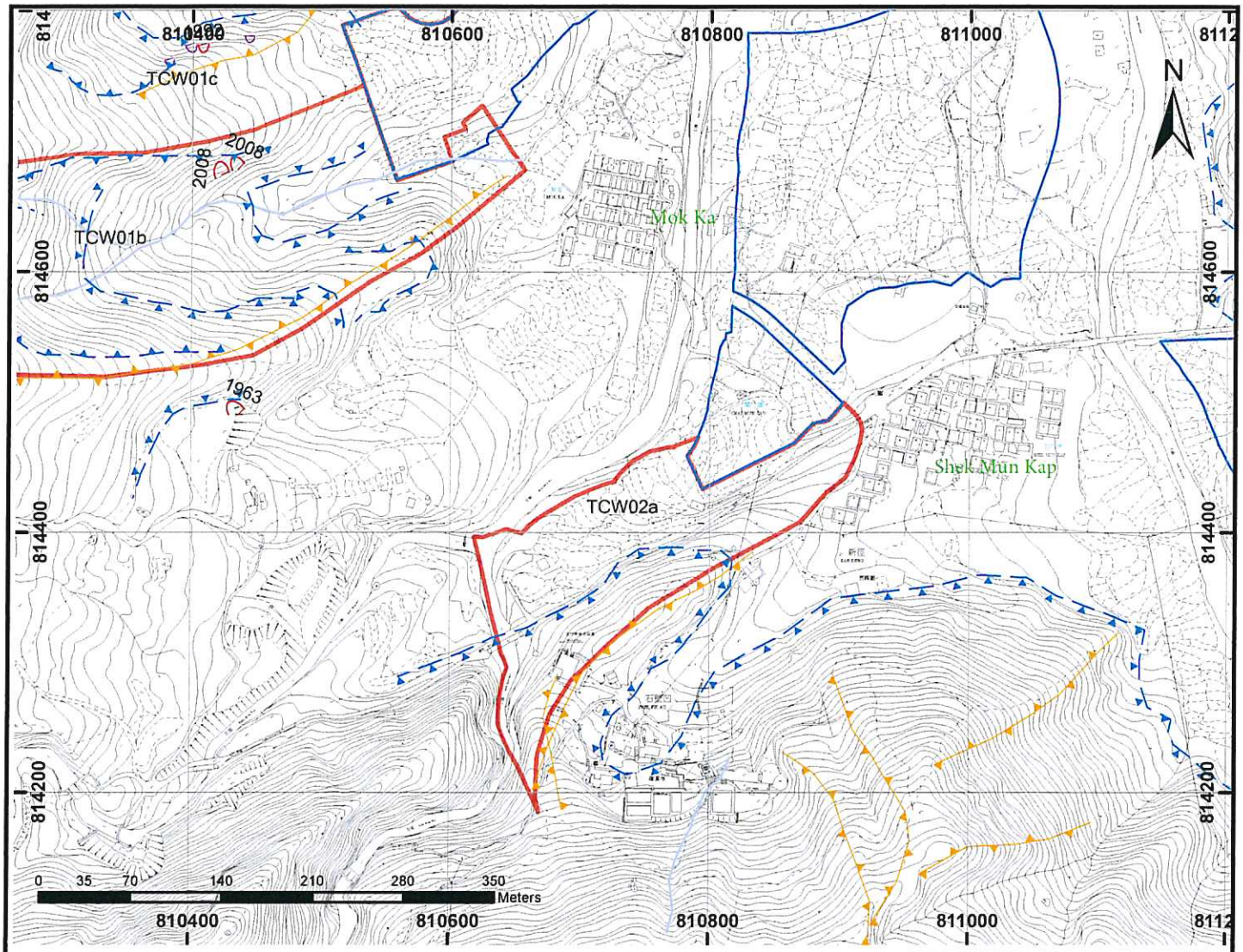
Summary

- The catchments are generally open with several prominent drainage channels in the middle and lower portion of the catchments
- Several historic (pre 1963) and recent landslides throughout TCW01 were verified during the API
- Numerous agricultural lots and some village houses can be observed adjacent to the foot slopes of the study catchments

Legend

- NTHS Catchments
- Development Boundary
- Ridge Line
- Spurline
- Convex Change
- Concave Change
- Drainage Line - Perenial
- Drainage Line - Ephemeral
- Verified (API) Recent Landslides
- Verified (API) Relict Landslides

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (West Section) (Sheet 7 of 8)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Dm. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. A7



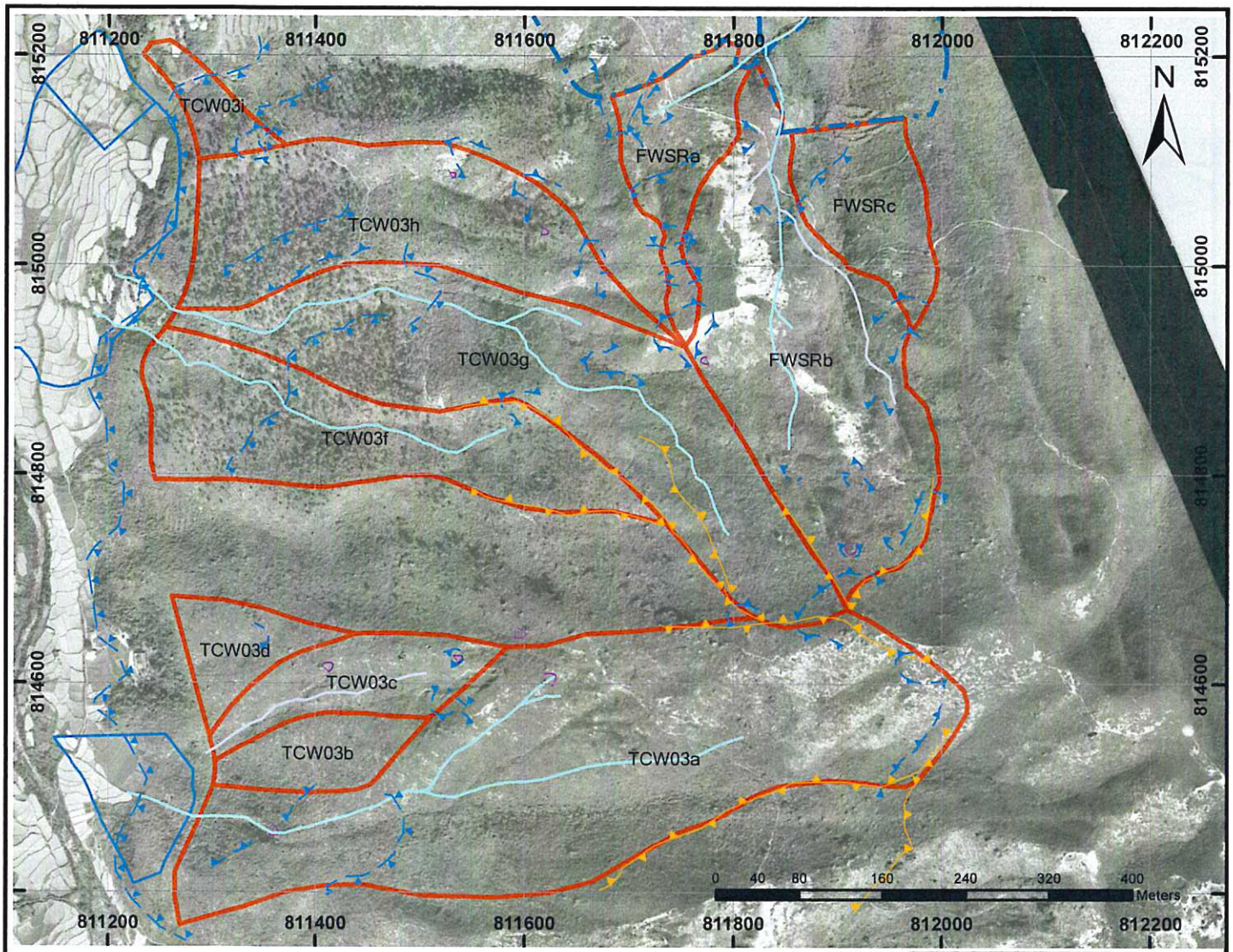
Summary

- The catchment is open with no prominent drainage channel
- No historic (pre 1963) or recent landslides could be observed within the catchment
- Numerous agricultural lots and some village houses can be observed adjacent to the foot slopes of the study catchments

Legend

- NTHS Catchments
- Development Boundary
- Ridge Line
- Spurline
- Convex Change
- Concave Change
- Drainage Line - Perenial
- Drainage Line - Ephemeral
- Verified (API) Recent Landslides
- Verified (API) Relict Landslides

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (West Section) (Sheet 8 of 8)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. A8



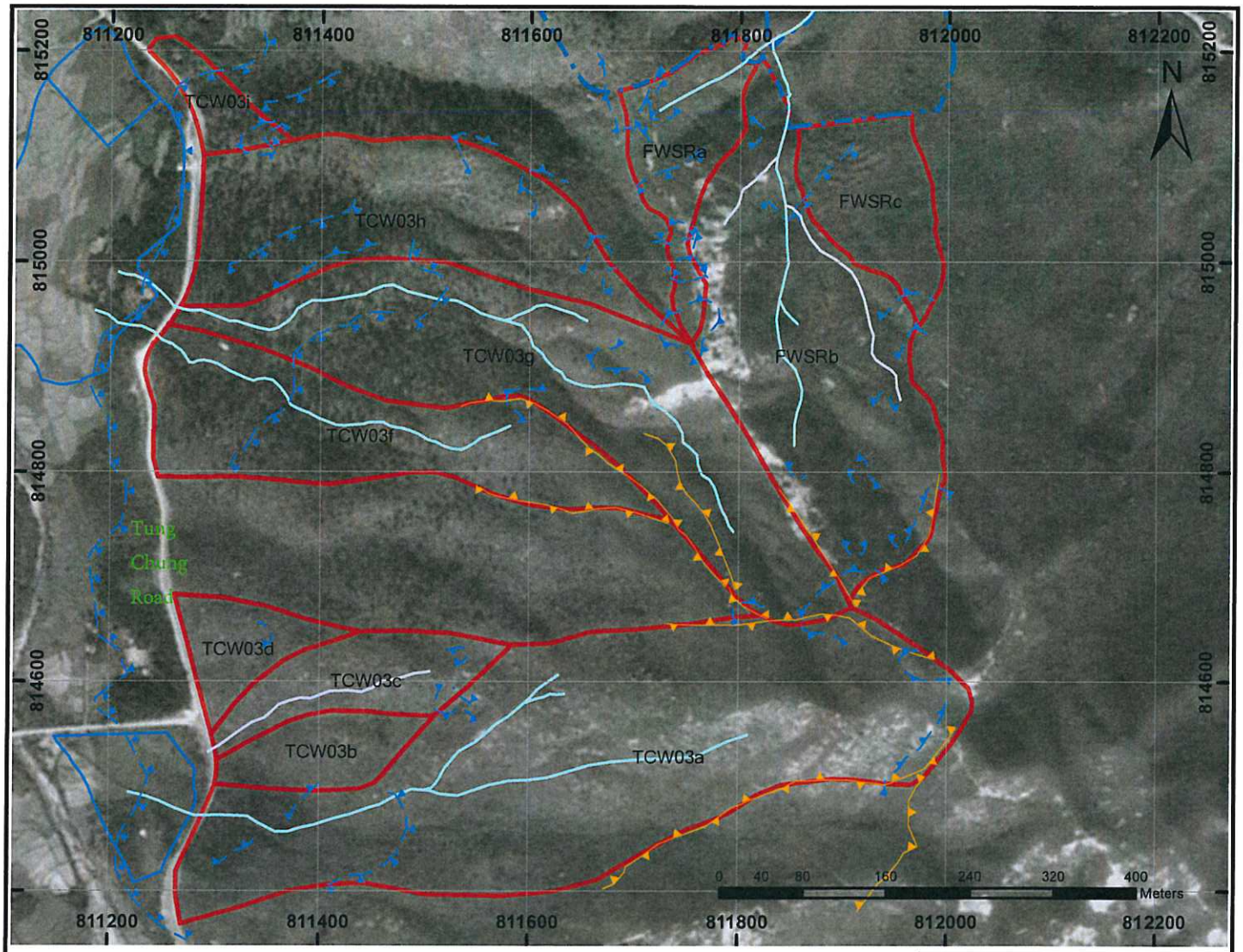
Year 1963

- Catchments TCW03 and FWSR can be observed with little vegetation, allowing for a clear view of the natural terrain
- The catchments are generally open with several prominent drainage channels
- Several historic (pre 1963) landslides within TCW03 and FWSR catchments were verified during the API
- Numerous agricultural lots and several village buildings can be observed in close proximity to the footslopes of TCW03

Legend

- NTHS Catchments
- Development Boundary
- Proposed Fresh Water Service Reservoir
- Ridge Line
- Spurline
- Convex Change
- Concave Change
- Drainage Line - Perenial
- Drainage Line - Ephemeral
- Verified (API) Recent Landslides
- Verified (API) Relict Landslides

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (East Section) (Sheet 1 of 11)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. B1



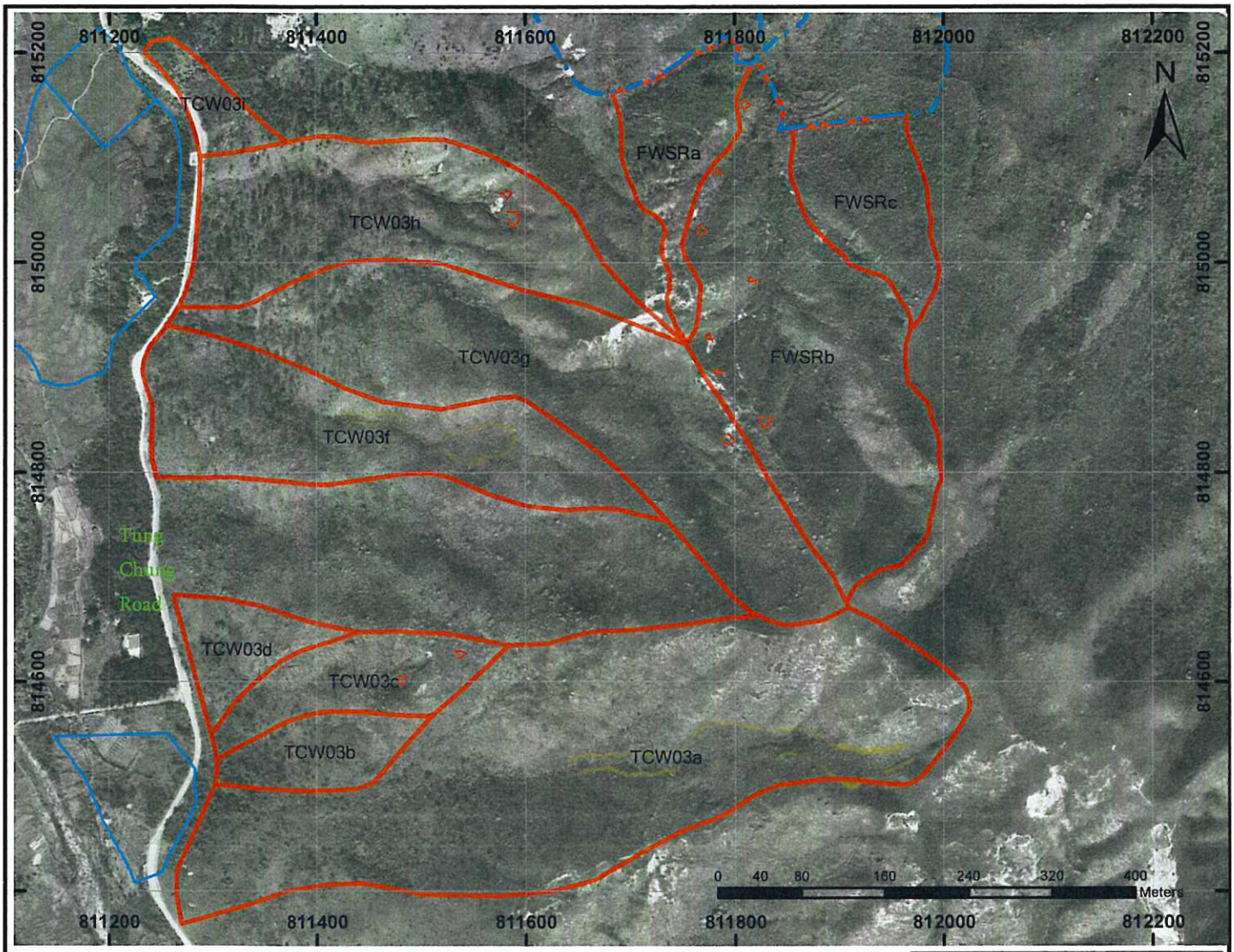
Year 1974

- No significant change observed within the catchments
- Tung Chung Road can be observed in a north to south direct immediately adjacent to the footslopes of TCW03 catchments
- No other significant change can be observed

Legend

- NTHS Catchments
- Development Boundary
- Proposed Fresh Water Service Reservoir
- Ridge Line
- Spurline
- Convex Change
- Concave Change
- Drainage Line - Perenial
- Drainage Line - Ephemeral
- Verified (API) Recent Landslides
- Verified (API) Relict Landslides

Job Title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title: **Aerial Photo Interpretation** Tung Chung West (East Section) (Sheet 2 of 11)	ARUP Ove Arup & Partners Hong Kong Limited
		Scale N.T.S.
		Drn. JC Date 03/2015 Chd. KKY Approved DML
		Job No. 219844 Figure No. B2



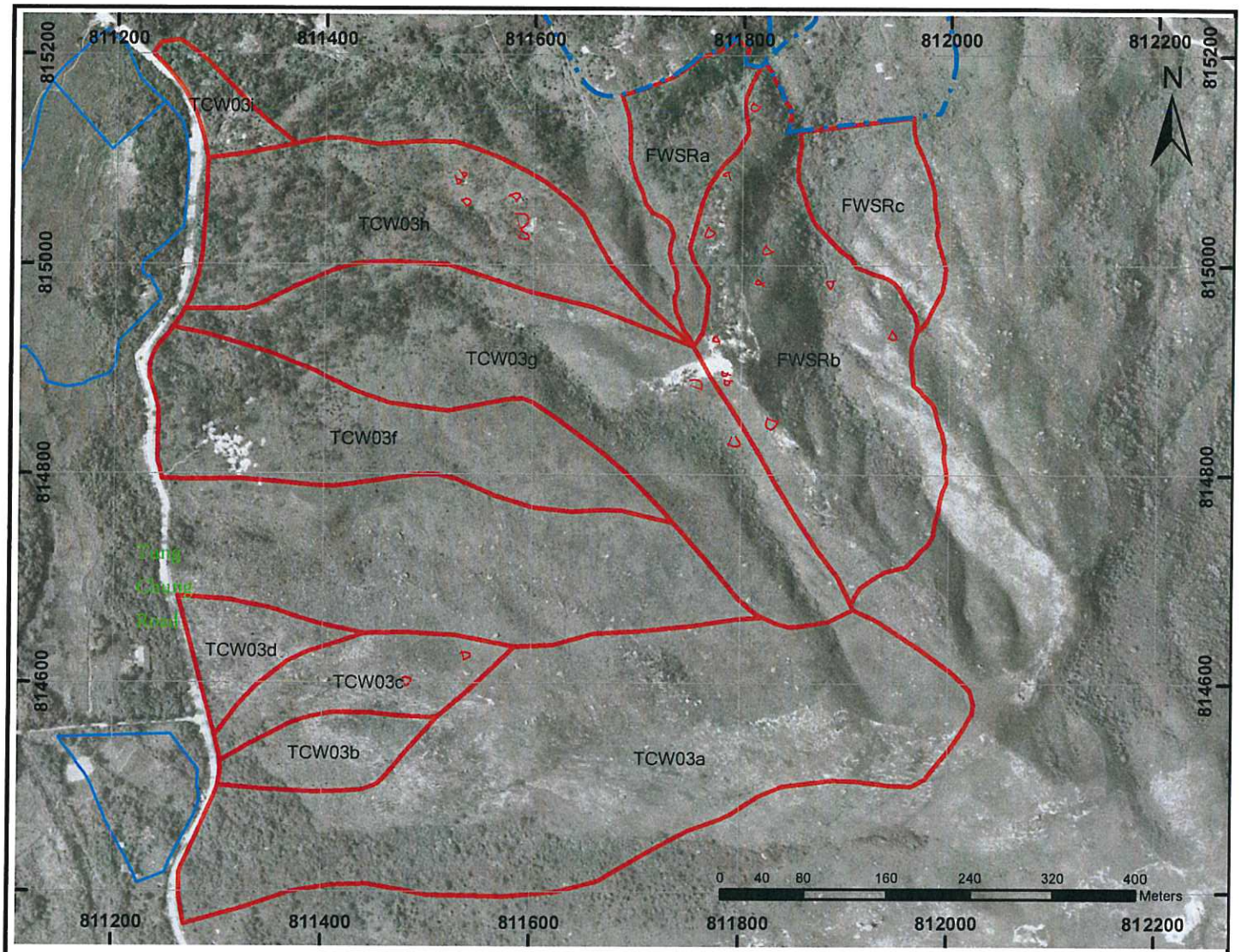
Year 1987

- No significant change observed within the catchments
- Several landslide were observed during the API throughout the TCW03 and FWSR catchments

Legend

- NTHS Catchments
- Development Boundary
- Proposed Fresh Water Service Reservoir
- Verified (API) Recent Landslides

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (East Section) (Sheet 3 of 11)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. B3



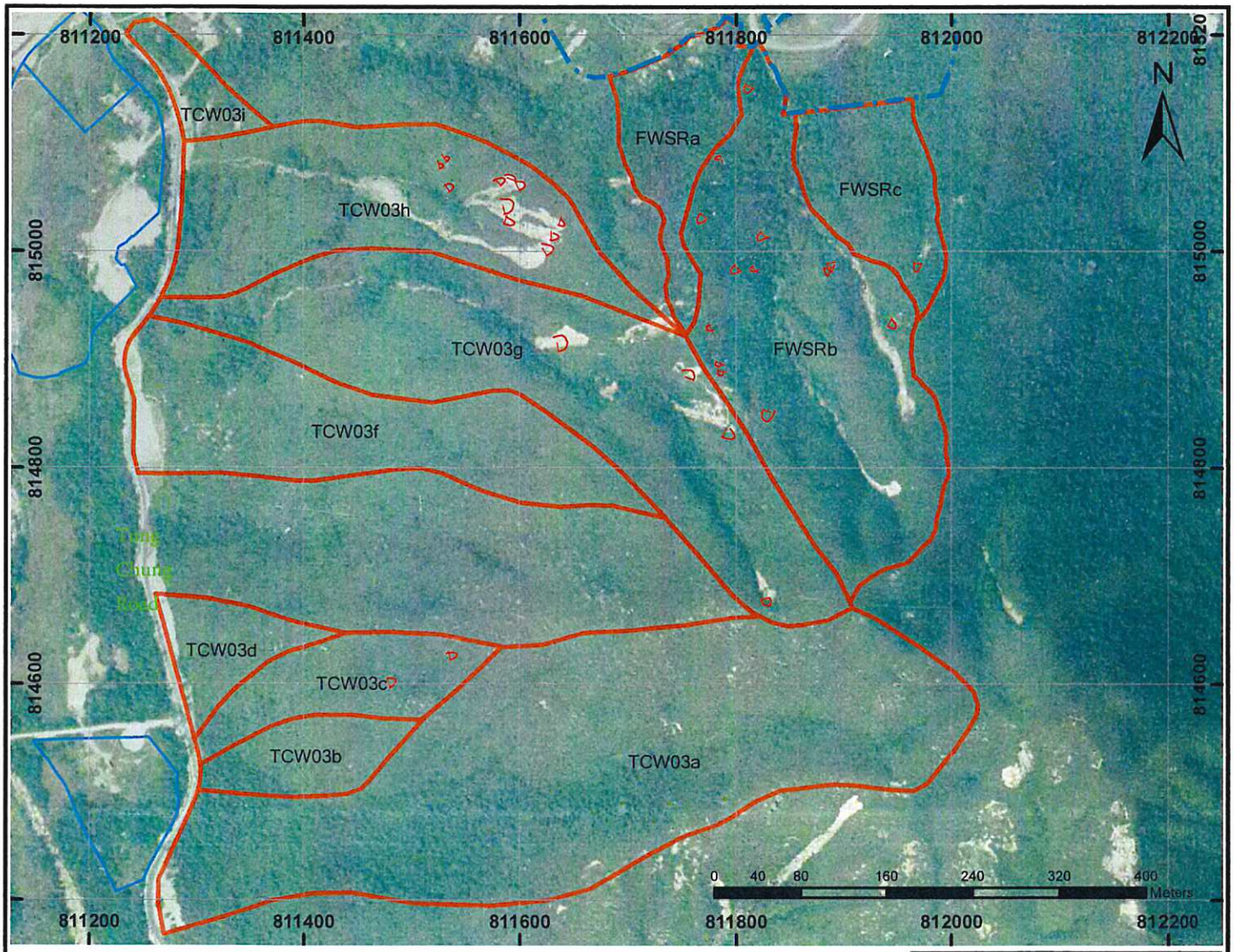
Year 1992

- Several additional recent landslides were observed during the API
- No significant change observed

Legend

- NTHS Catchments
- Development Boundary
- Proposed Fresh Water Service Reservoir
- Verified (API) Recent Landslides

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (East Section) (Sheet 4 of 11)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. B4



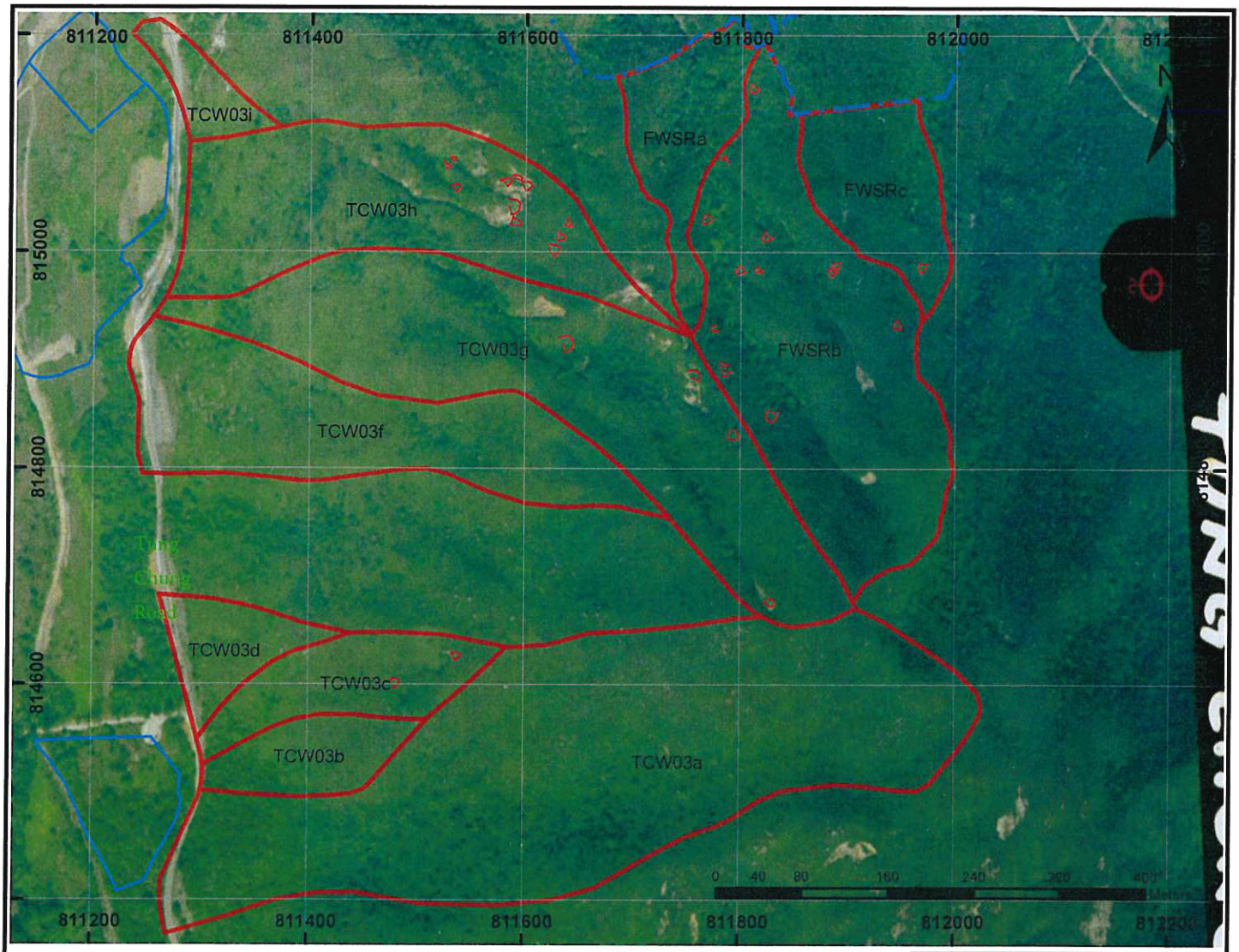
Year 2000

- Several additional recent landslides were observed during the API
- No significant change observed

Legend

- NTHS Catchments
- Development Boundary
- Proposed Fresh Water Service Reservoir
- Verified (API) Recent Landslides

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (East Section) (Sheet 5 of 11)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. B5



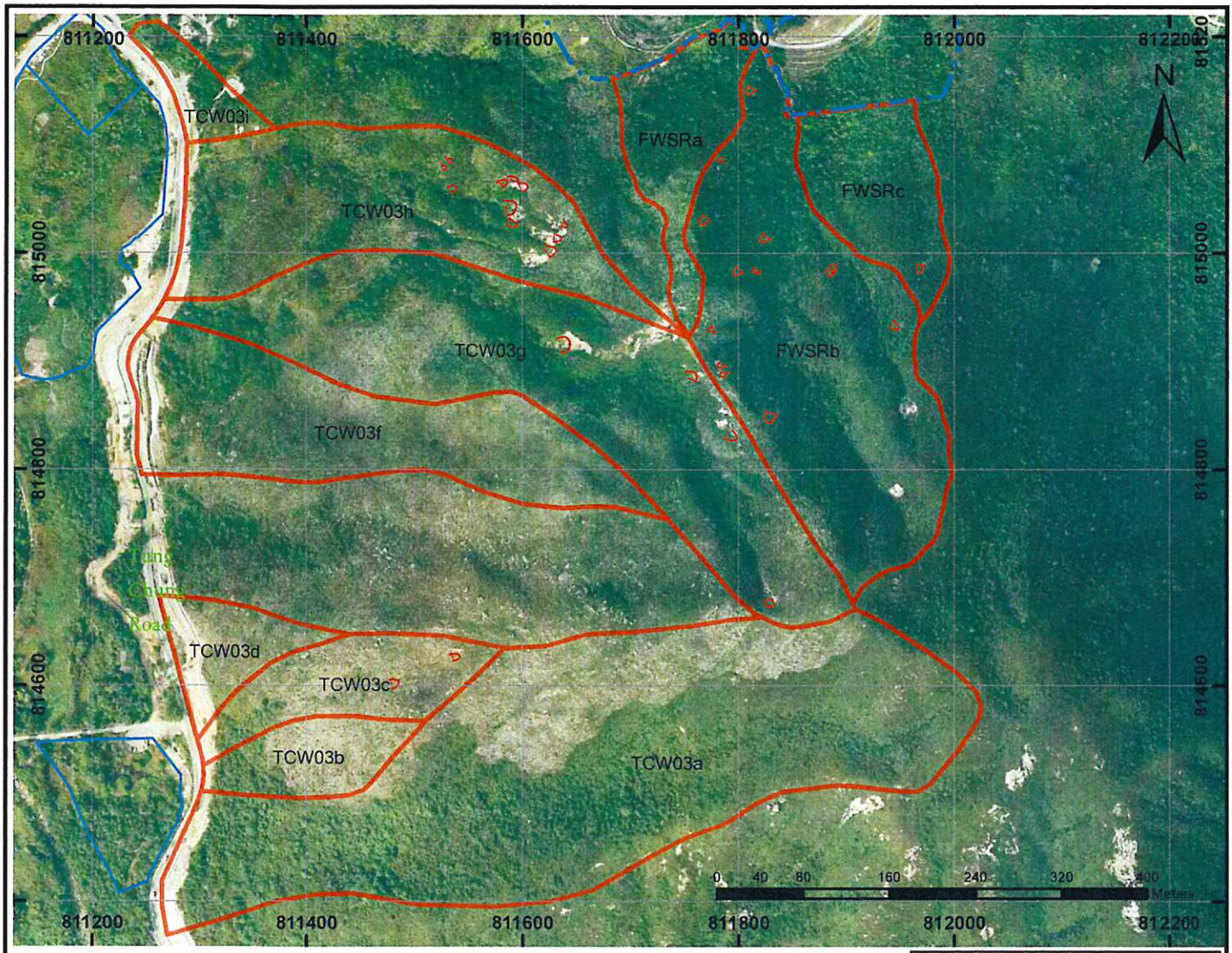
Year 2004

- No significant change could be observed

Legend

- NTHS Catchments
- Development Boundary
- Proposed Fresh Water Service Reservoir
- Verified (API) Recent Landslides

Job Title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title: **Aerial Photo Interpretation** Tung Chung West (East Section) (Sheet 6 of 11)	ARUP Ove Arup & Partners Hong Kong Limited
		Scale N.T.S.
		Drn. JC Date 03/2015 Chd. KKY Approved DML
		Job No. 219844 Figure No. B6



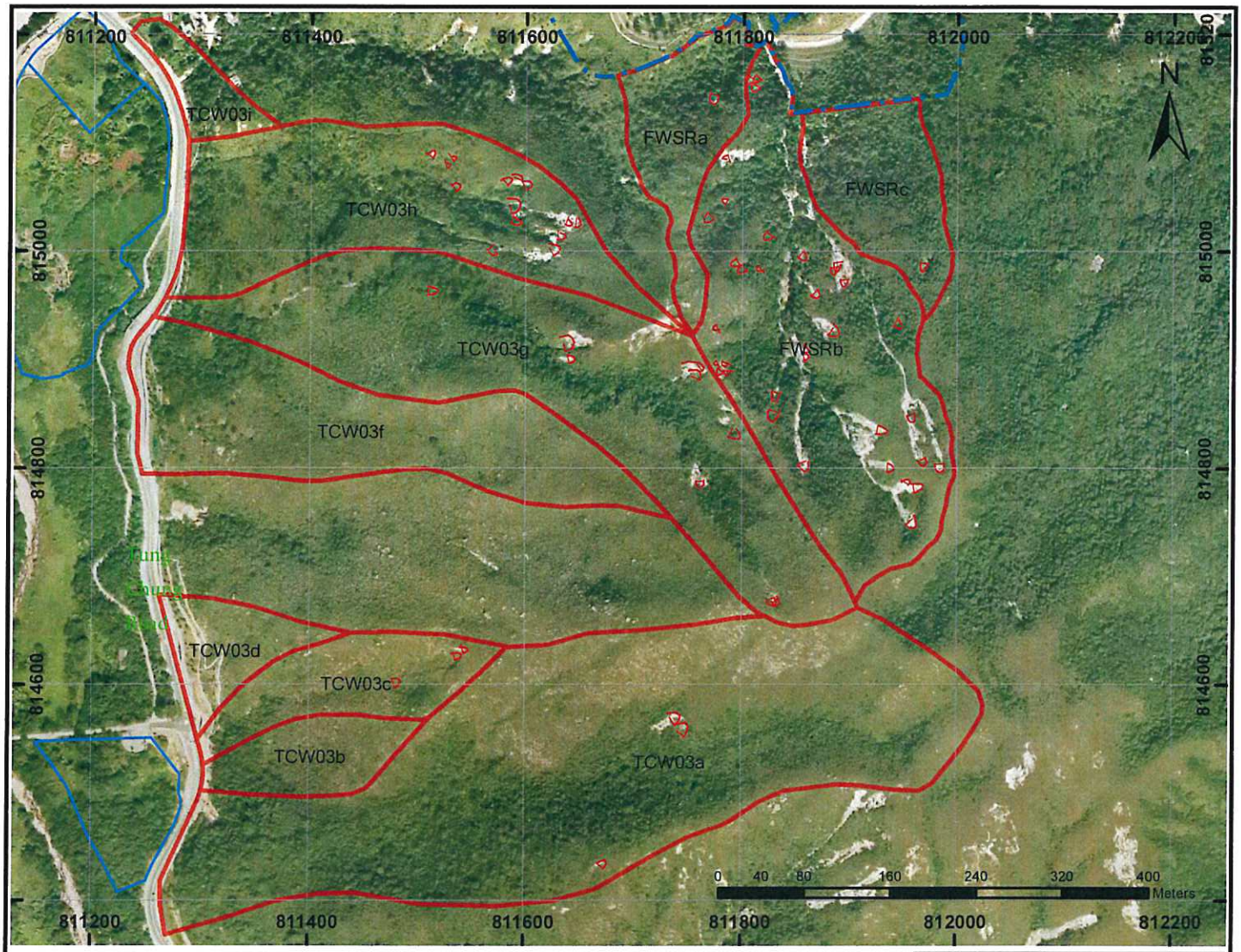
Year 2006

- Significantly less vegetation can be observed throughout catchments TCW03b, c, f, and g, possibly associated with hill fires

Legend

- NTHS Catchments
- Development Boundary
- Proposed Fresh Water Service Reservoir
- Verified (API) Recent Landslides

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (East Section) (Sheet 7 of 11)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. B7



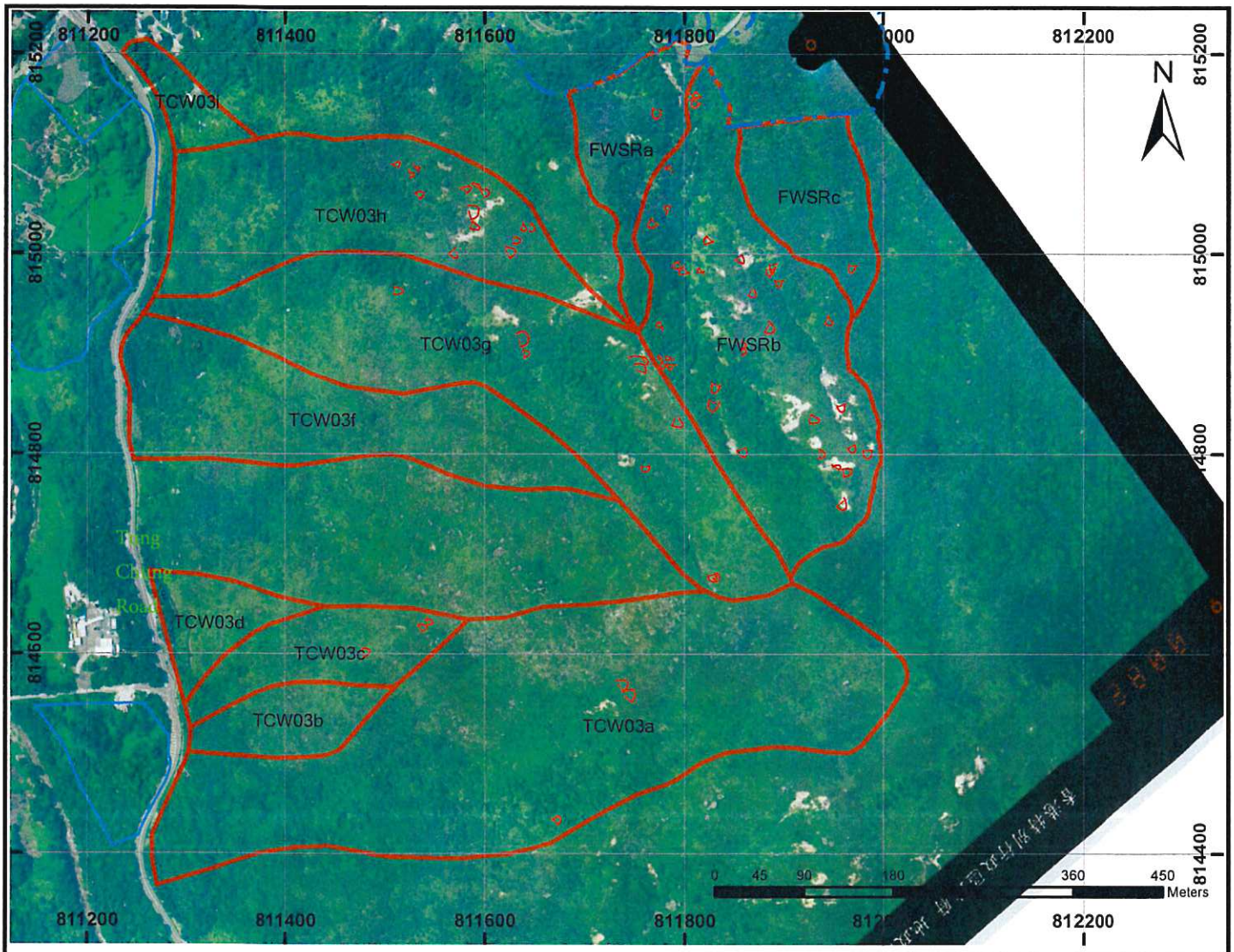
Year 2011

- Several additional recent landslides could b observed
- No other significant change

Legend

- NTHS Catchments
- Development Boundary
- Proposed Fresh Water Service Reservoir
- Verified (API) Recent Landslides

Job Title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title: **Aerial Photo Interpretation** Tung Chung West (East Section) (Sheet 8 of 11)	ARUP Ove Arup & Partners Hong Kong Limited
		Scale N.T.S.
		Drn. JC Date 03/2015 Chd. KKY Approved DML
		Job No. 219844 Figure No. B8



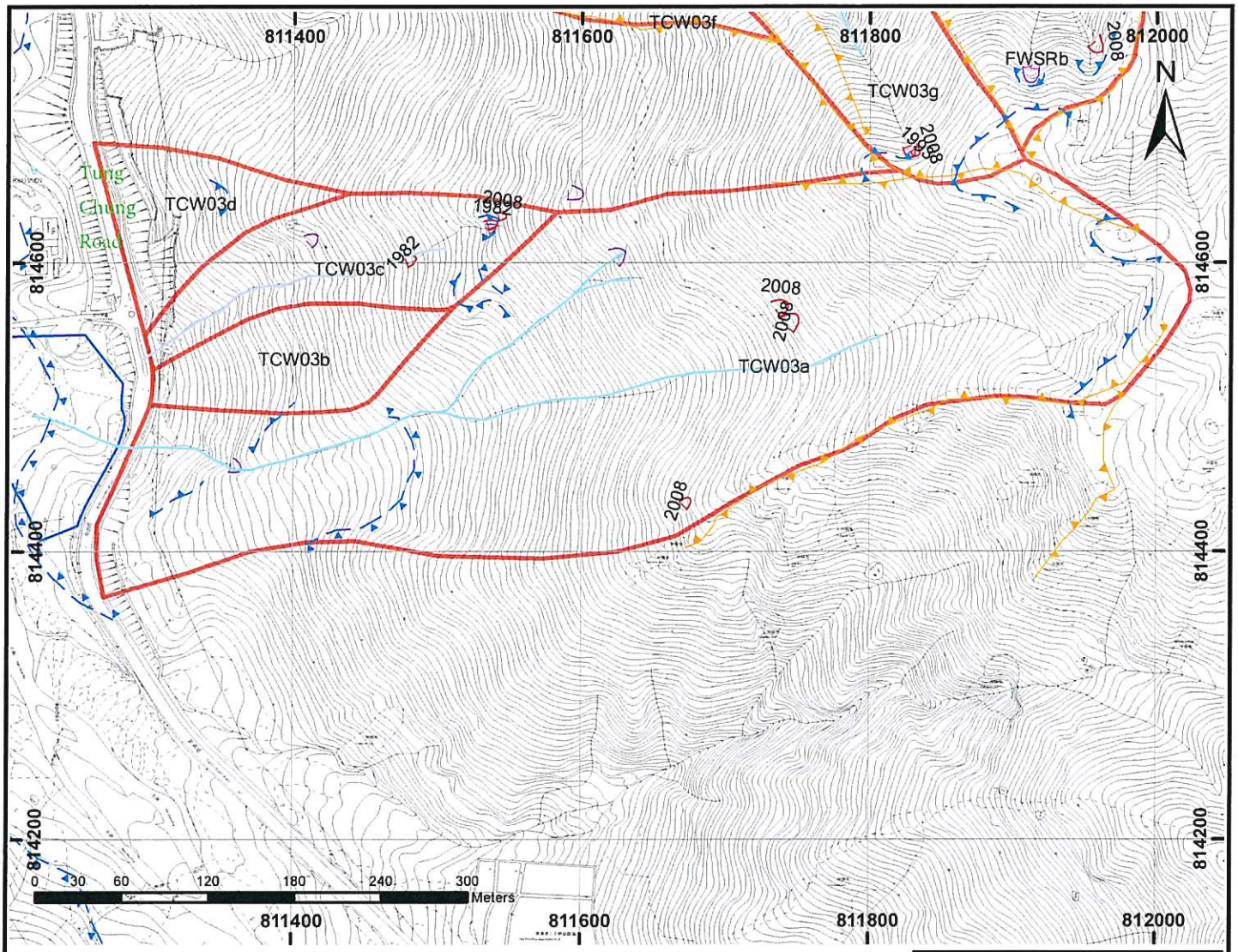
Year 2013

- No significant change observed

Legend

- NTHS Catchments
- Development Boundary
- Proposed Fresh Water Service Reservoir
- Verified (API) Recent Landslides

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (East Section) (Sheet 9 of 11)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. B9



Summary

- Catchments TCW03a, b, c, and d can be observed as being generally open with two prominent drainage lines observed
- Several relict (pre 1963) and recent landslides were observed during the API
- Several agricultural lots were observed adjacent to the footslopes of the catchments

Legend

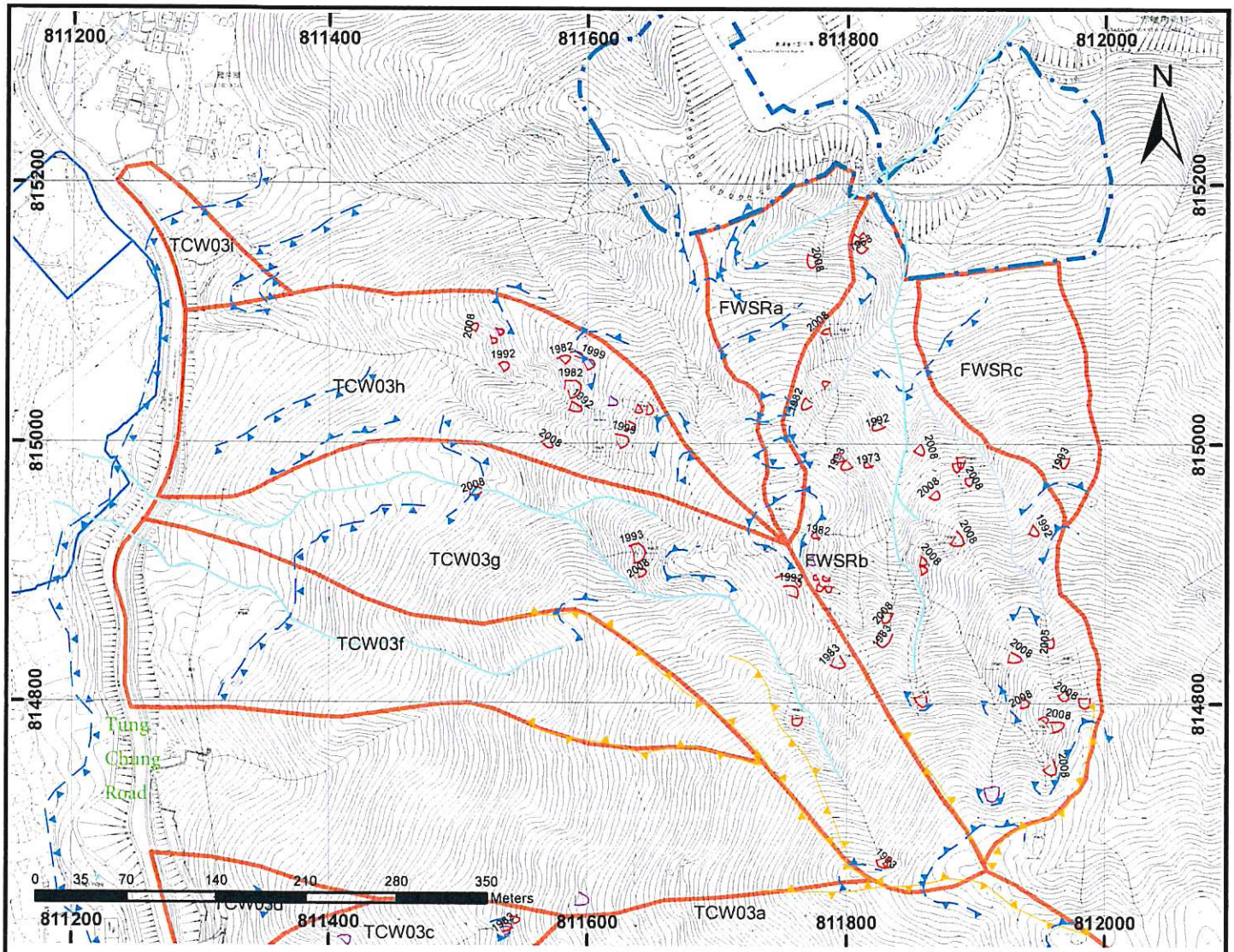
- NTHS Catchments
- Development Boundary
- Proposed Fresh Water Service Reservoir
- Ridge Line
- Spurline
- Convex Change
- Concave Change
- Drainage Line - Perenial
- Drainage Line - Ephemeral
- Verified (API) Recent Landslides
- Verified (API) Relict Landslides

Job Title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title: **Aerial Photo Interpretation** Tung Chung West (East Section) (Sheet 10 of 11)	ARUP Ove Arup & Partners Hong Kong Limited

Scale N.T.S.

Drn. JC Date 03/2015 Chd. KKY Approved DML

Job No. 219844 Figure No. B10



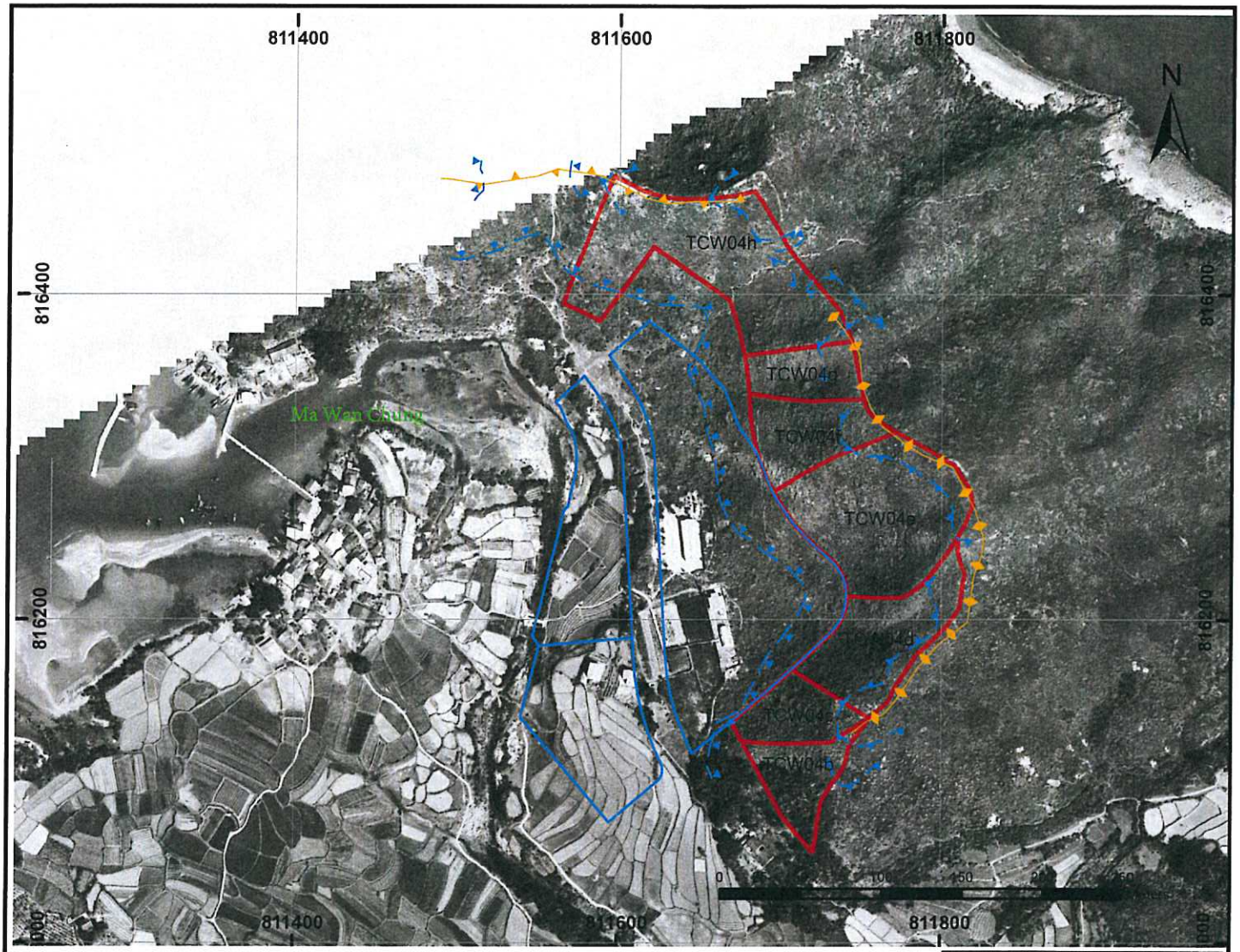
Summary

- Catchments TCW03f, g, h,, i, and FWSR catchments can be observed as having several prominent drainage lines, with small areas of open terrain
- Several relict (pre 1963) and recent landslides were observed during the API, many of which correlate with existing ENTLI records
- Tung Chung road was observed immediately adjacent to the lower slopes of the study catchments
- Beyond Tung Chung road numerous agricultural lots were observed

Legend

- NTHS Catchments
- Development Boundary
- Proposed Fresh Water Service Reservoir
- Ridge Line
- Spurline
- Convex Change
- Concave Change
- Drainage Line - Perenial
- Drainage Line - Ephemeral
- Verified (API) Recent Landslides
- Verified (API) Relict Landslides

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (East Section) (Sheet 11 of 11)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Dm. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. B11



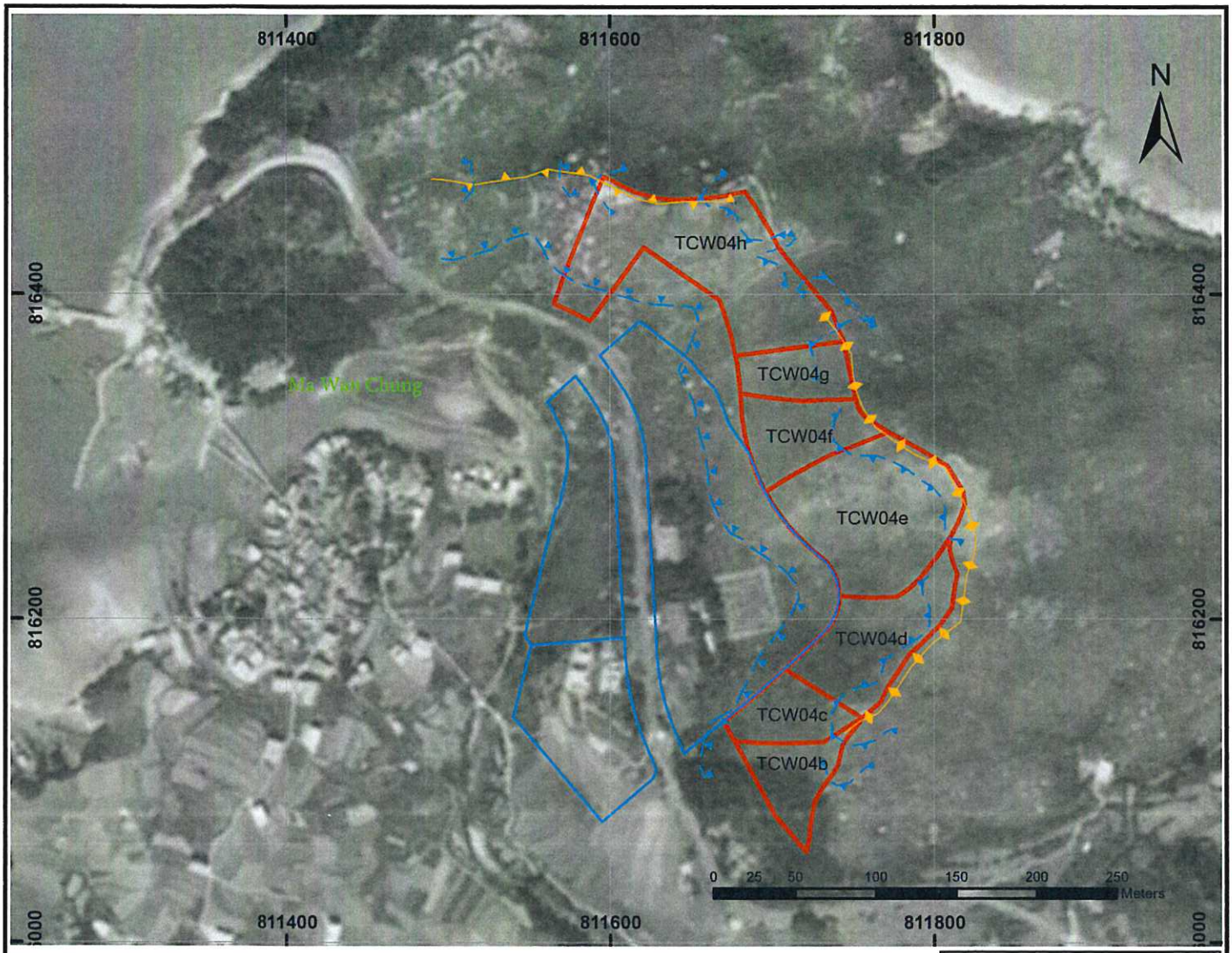
Year 1963

- Catchments TCW04 can be observed with little vegetation, allowing for a clear view of the natural terrain
- The catchments are generally open with no prominent drainage channels
- No historic (pre 1963) landslides could be verified
- Several community buildings can be observed in close proximity to the footslopes of the natural terrain. Beyond these buildings numerous agricultural lots and village housing can be observed

Legend

- NTHS Catchments
- Development Boundary
- Ridge Line
- Spurline
- Convex Change
- Concave Change

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (North Section) (Sheet 1 of 9)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. C1



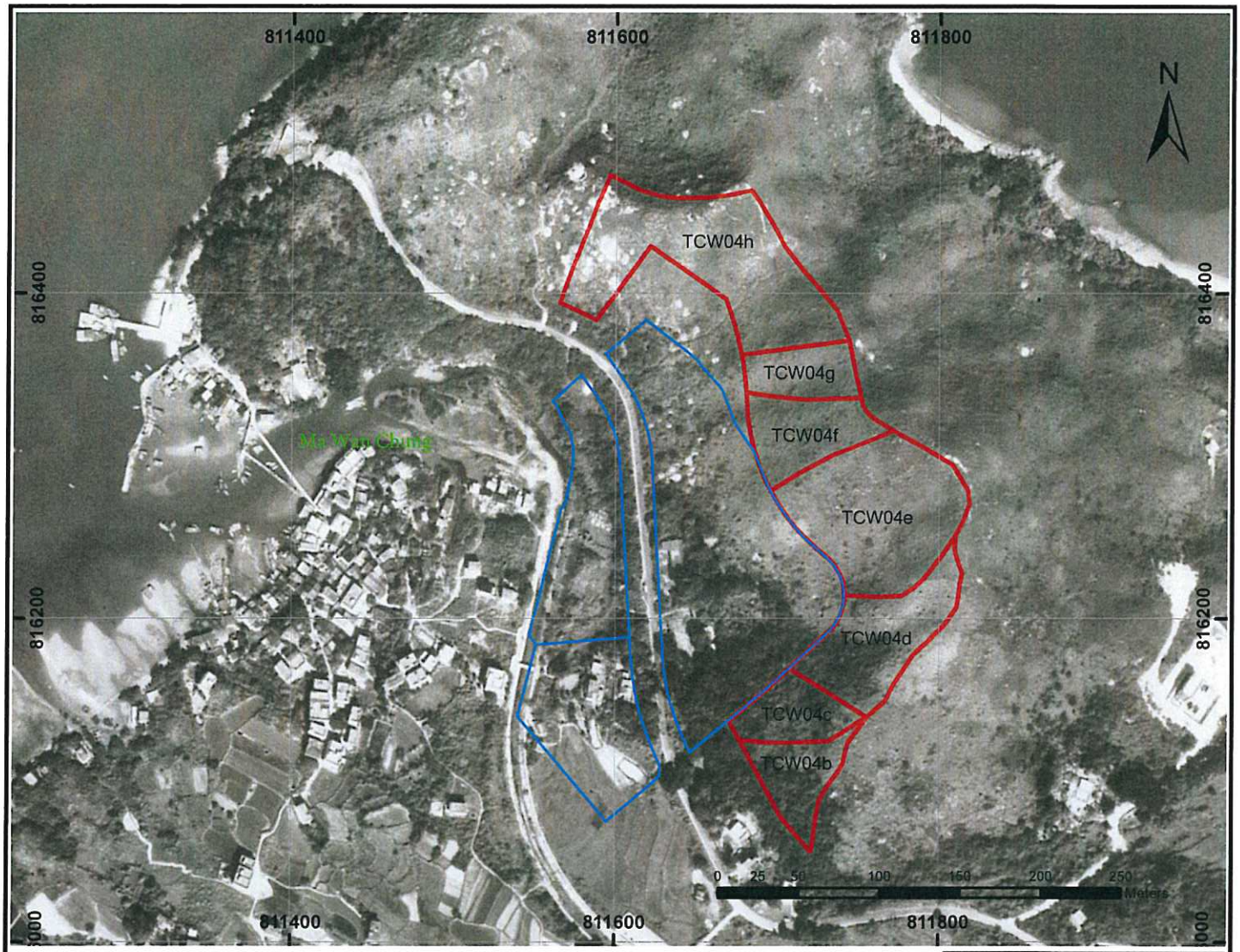
Year 1974

- An additional building can be observed at adjacent to the footslopes of the natural terrain in close proximity to catchments TCW04d and TCW04e.
- An increase in vegetation can be observed along the footslopes of the natural terrain
- Tung Chung Road can now be observed in close proximity to the footslopes of the natural terrain

Legend

- NTHS Catchments
- Development Boundary
- Ridge Line
- Spurline
- Convex Change
- Concave Change

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (North Section) (Sheet 2 of 9)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. C2



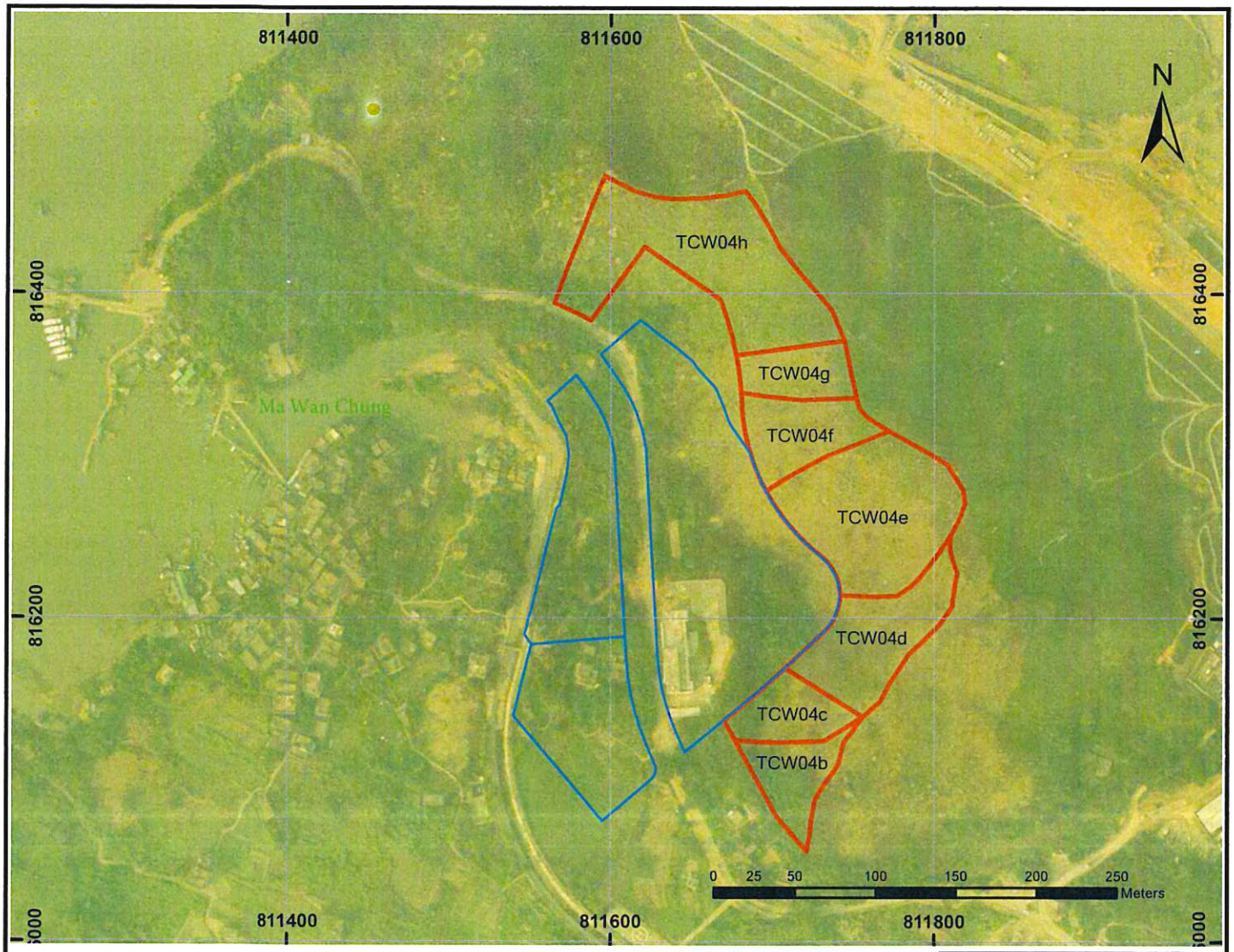
Year 1987

- An increase in village housing can be observed beyond Tung Chung Road
- No significant change

Legend

- NTHS Catchments
- Development Boundary

Job Title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title: **Aerial Photo Interpretation** Tung Chung West (North Section) (Sheet 3 of 9)	ARUP Ove Arup & Partners Hong Kong Limited
		Scale N.T.S.
		Drn. JC Date 03/2015 Chd. KKY Approved DML
		Job No. 219844 Figure No. C3



Year 1993

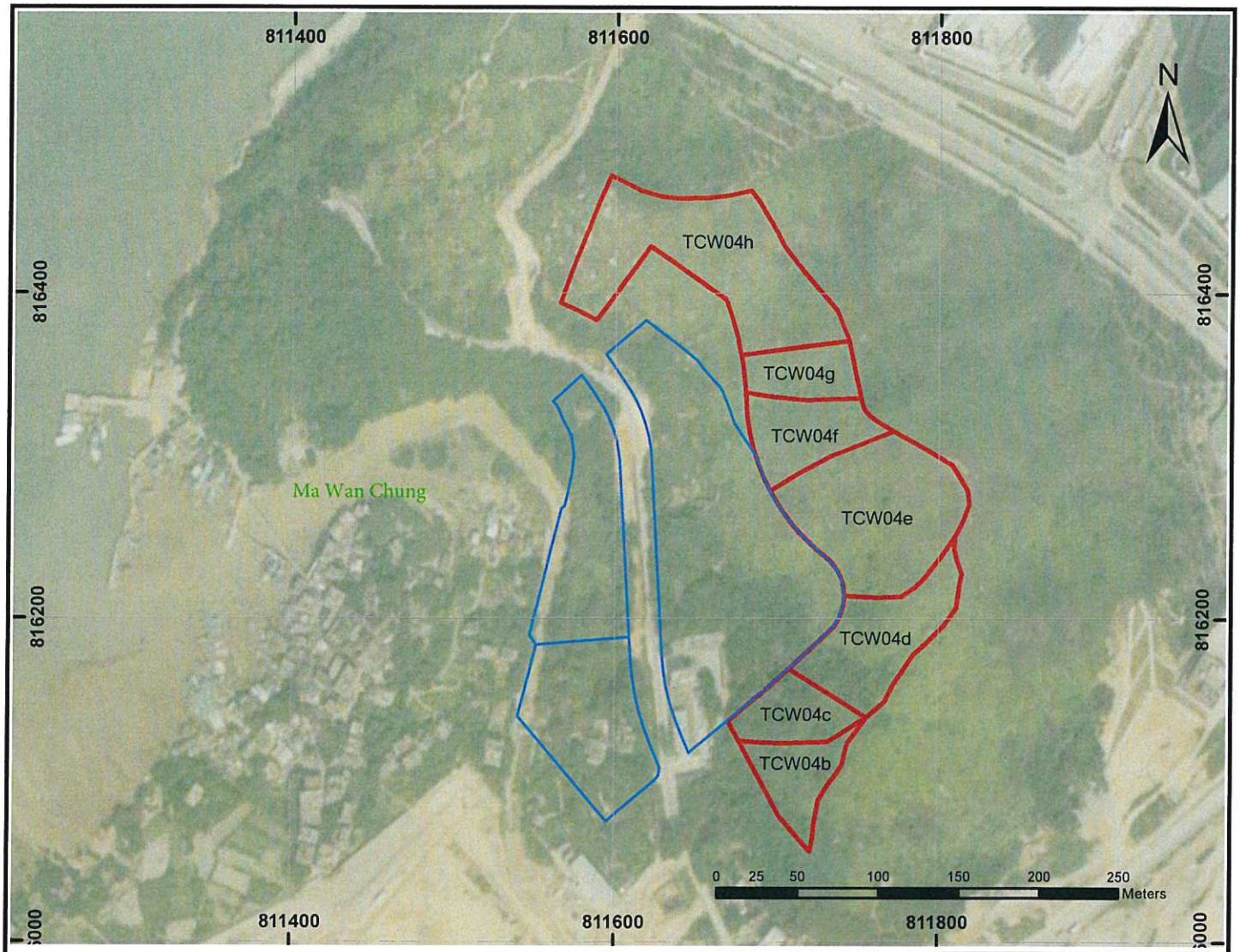
- Redevelopment of the previous identified community buildings in close proximity the catchments TCW04c and TCW04d has been redeveloped with new building structures
- Construction of Sun Tung road can be observed on the northeastern side of the hillslopes, but has not affected the study catchments

Legend

NTHS Catchments

Development Boundary

Job Title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title: **Aerial Photo Interpretation** Tung Chung West (North Section) (Sheet 4 of 9)	ARUP Ove Arup & Partners Hong Kong Limited	
		Scale N.T.S.	
		Drn. JC Date 03/2015 Chd. KKY Approved DML	
		Job No. 219844	Figure No. C4



Year 1998

- No other significant changes observed.
- Site formation works can be observed to the southwest of the study catchments (in excess of 100 metres distance from the natural terrain)

Legend

- NTHS Catchments
- Development Boundary

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (North Section) (Sheet 5 of 9)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. C5



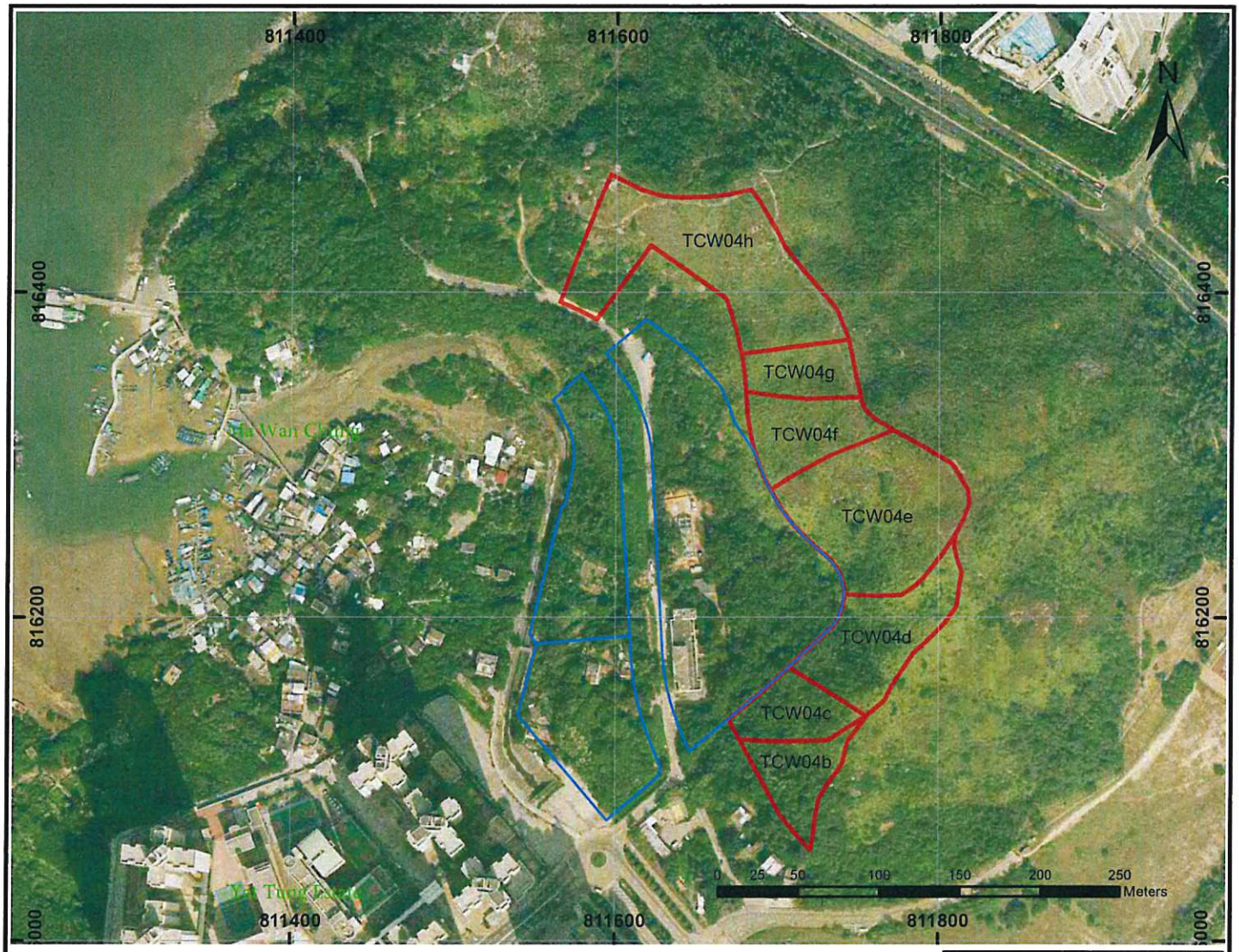
Year 2004

- Site formation previously observed appear to have been completed, with building works currently in progress
- No other significant changes observed

Legend

- NTHS Catchments
- Development Boundary

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (North Section) (Sheet 6 of 9)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. C6



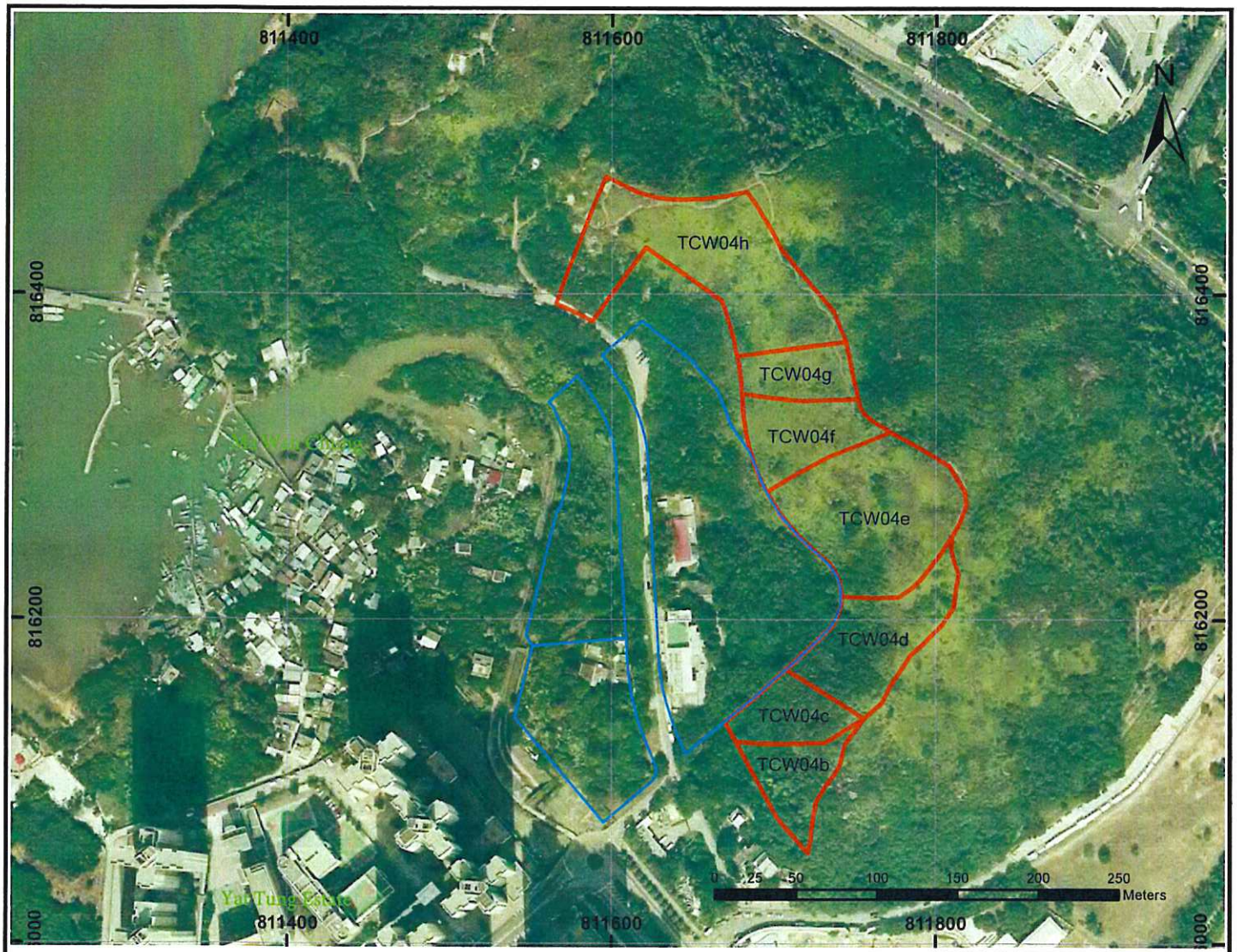
Year 2008

- No significant changes observed.

Legend

- NTHS Catchments
- Development Boundary

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (North Section) (Sheet 7 of 9)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. C7



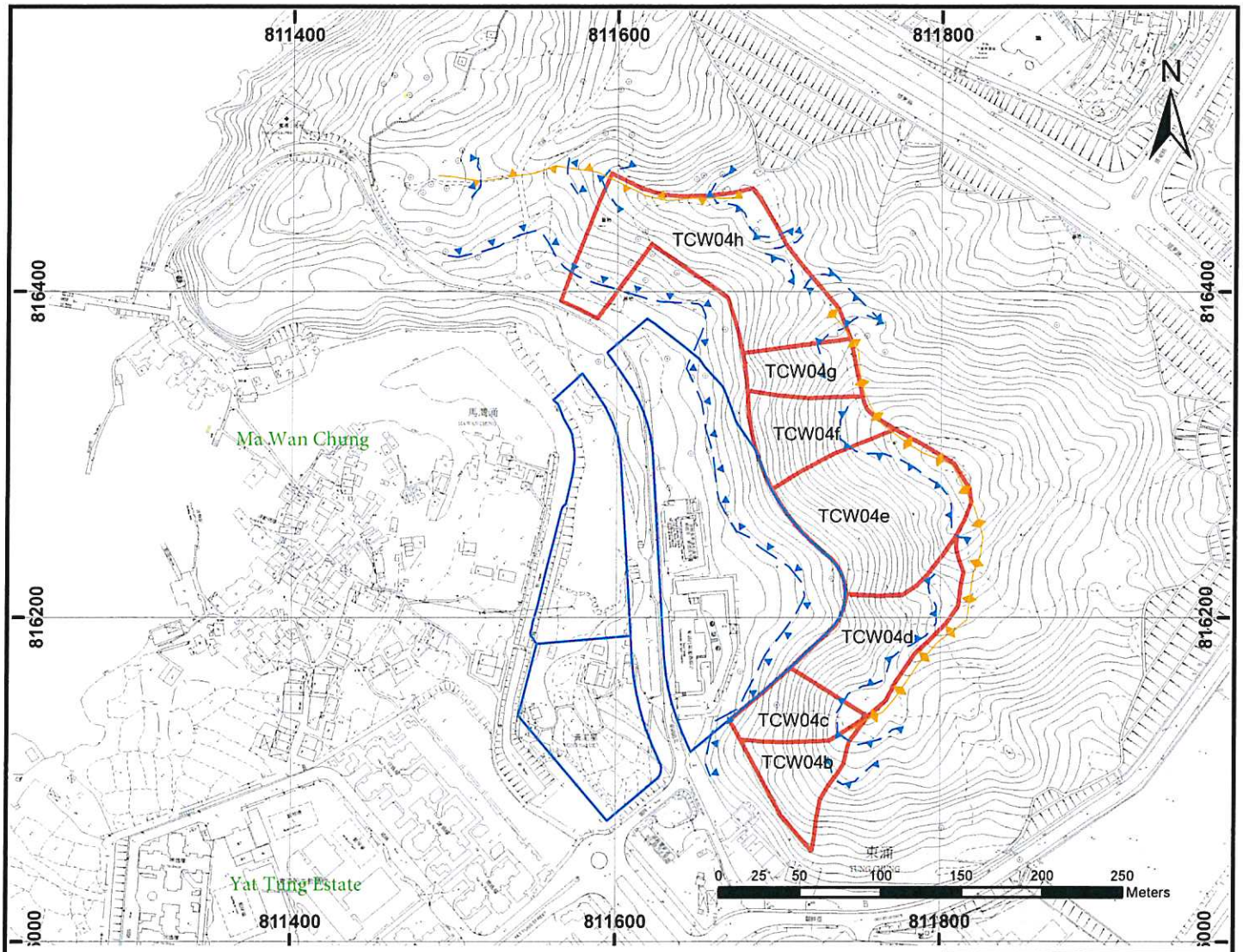
Year 2012

- Man-made features including 9SE-D/ND1, 9SE-D/ND2, 9SE-D/ND3, 9SE-D/ND8, 9SE-D/ND9 near Tung Chung Road was built by 2012.
- No other significant changes observed.

Legend

- NTHS Catchments
- Development Boundary

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (North Section) (Sheet 8 of 9)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. C8



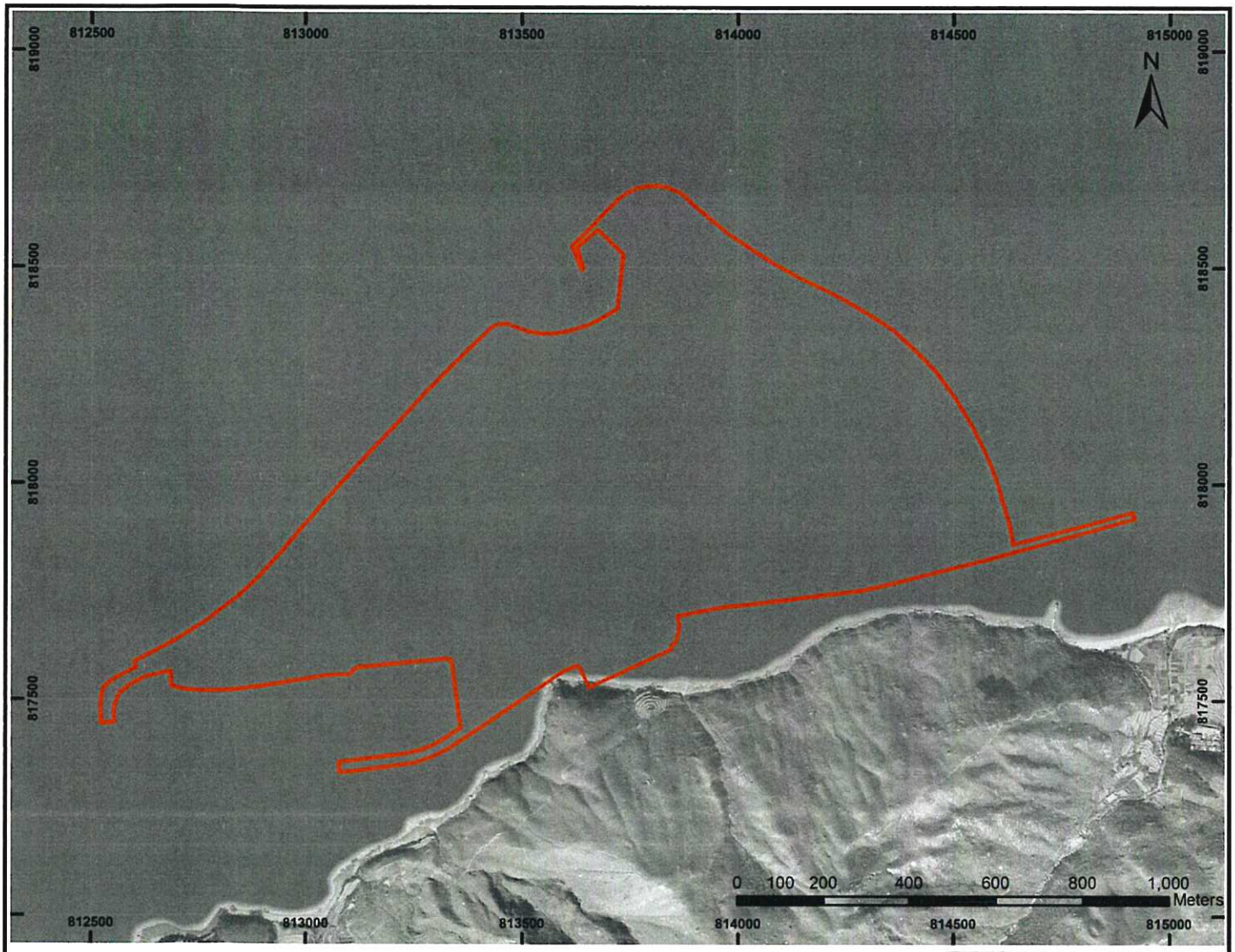
Summary

- The terrain catchments are generally open in nature with no prominent drainage channels
- Vegetation appears to be predominantly low lying shrubs, with more dense trees throughout catchments TCW04b, c, d and the lowers slopes of TCW04h
- Development of community buildings can be observed in the lower footslopes of the terrain, adjacent to the study catchments
- Beyond the above mentioned buildings Tung hung Road can be observed

Legend

- NTHS Catchments
- Development Boundary
- Ridge Line
- Spurline
- Convex Change
- Concave Change

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung West (North Section) (Sheet 9 of 9)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. C9



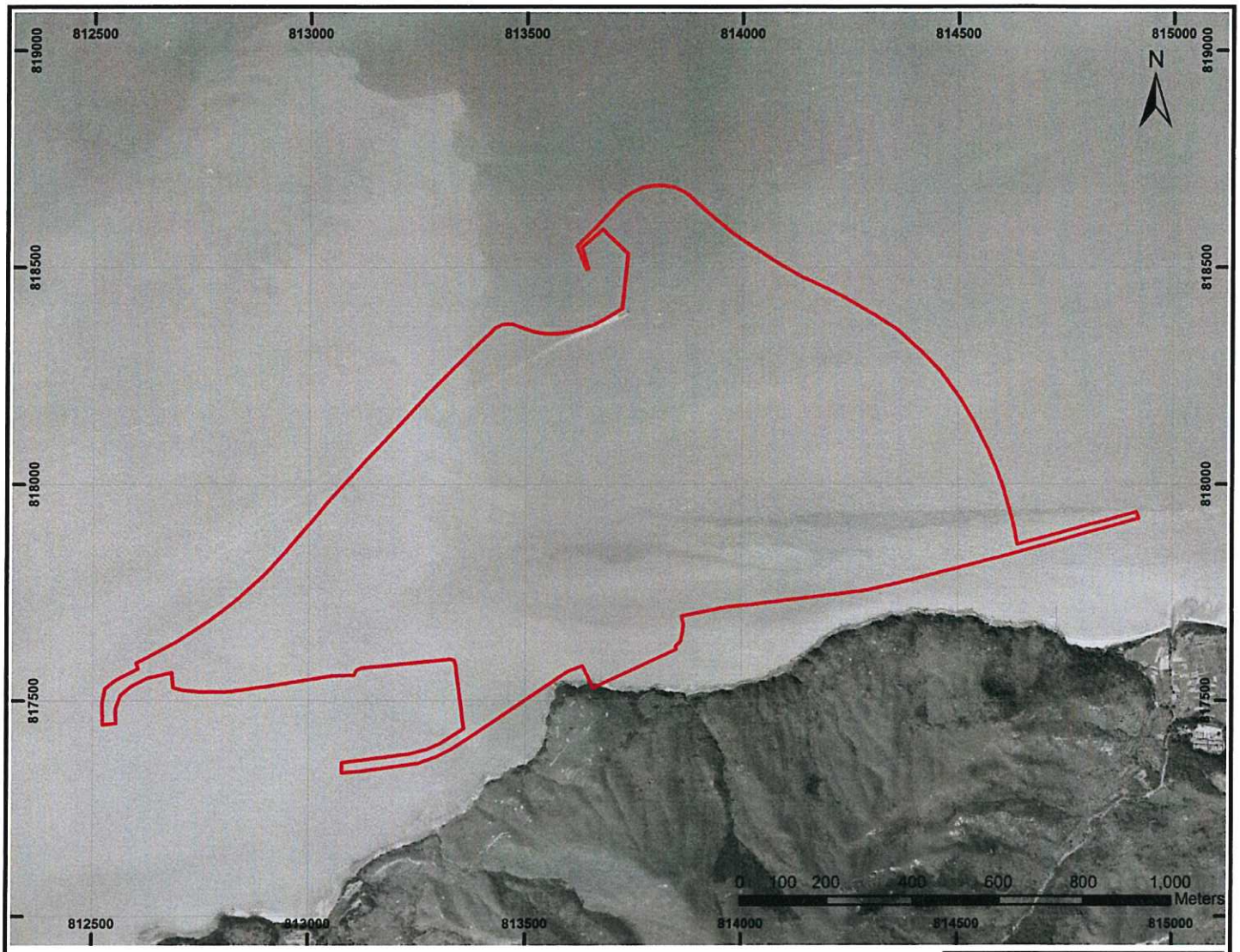
Year 1973

- The proposed development site in Tung Chung East (TCE) was unreclaimed.

Legend

TCE Boundary

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung East (Sheet 1 of 7)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844	Figure No. D1



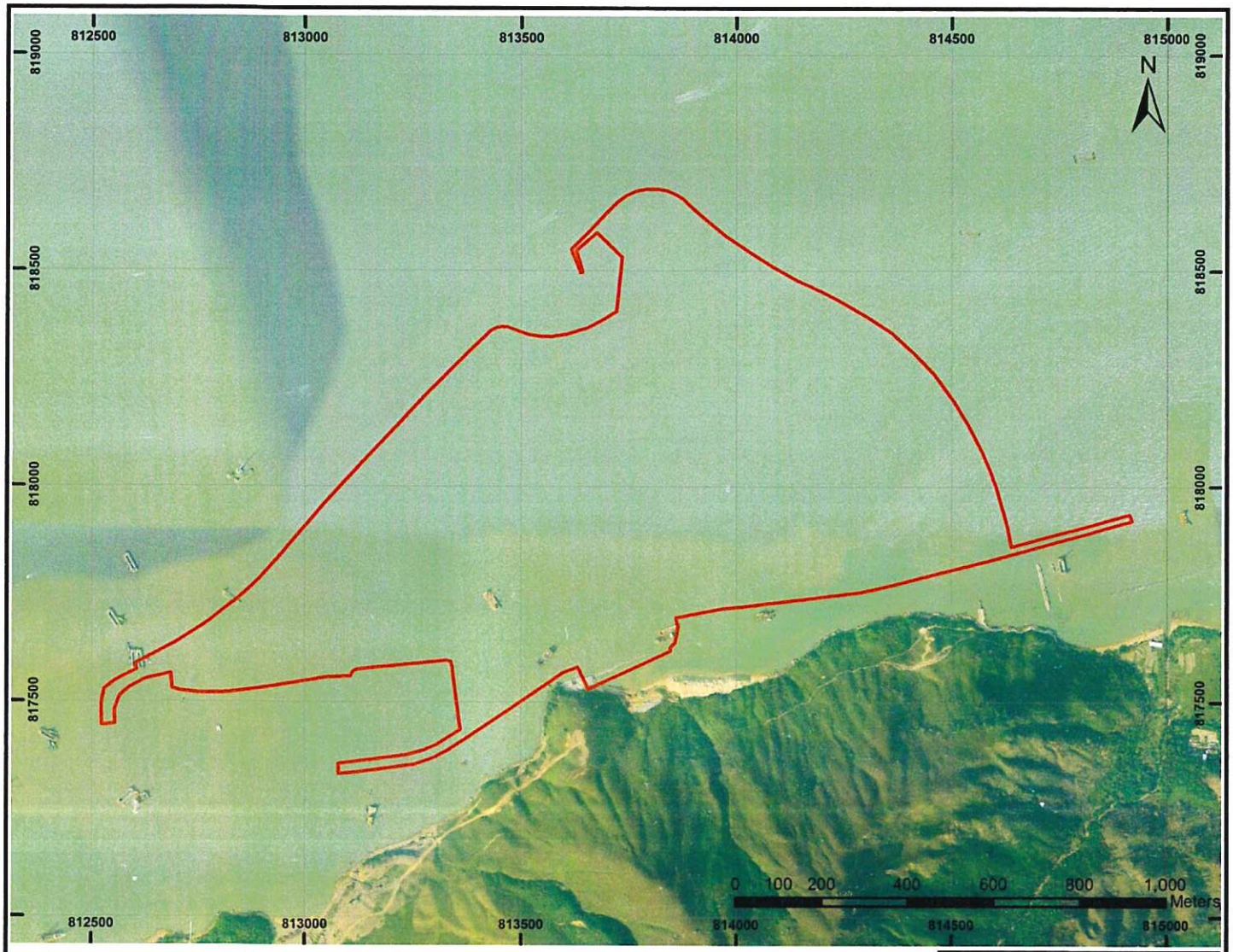
Year 1982

- No significant change observed.

Legend

TCE Boundary

Job Title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title: **Aerial Photo Interpretation** Tung Chung East (Sheet 2 of 7)	ARUP Ove Arup & Partners Hong Kong Limited	
		Scale N.T.S.	
		Drn. JC Date 03/2015 Chd. KKY Approved DML	
		Job No. 219844	Figure No. D2



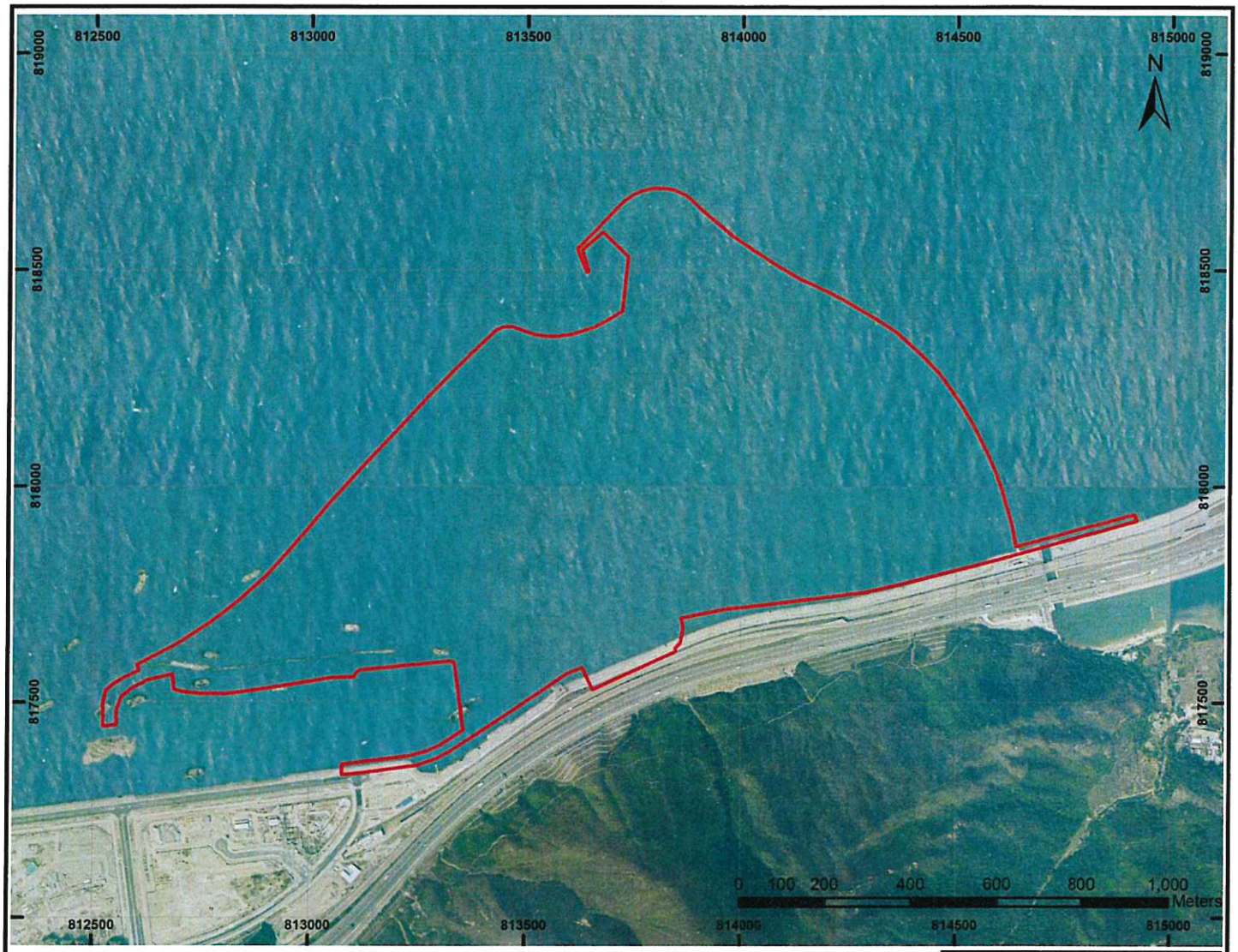
Year 1993

- Reclamation was started in the southern part of TCE.
- No other significant change observed.

Legend

TCE Boundary

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung East (Sheet 3 of 7)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844	Figure No. D3



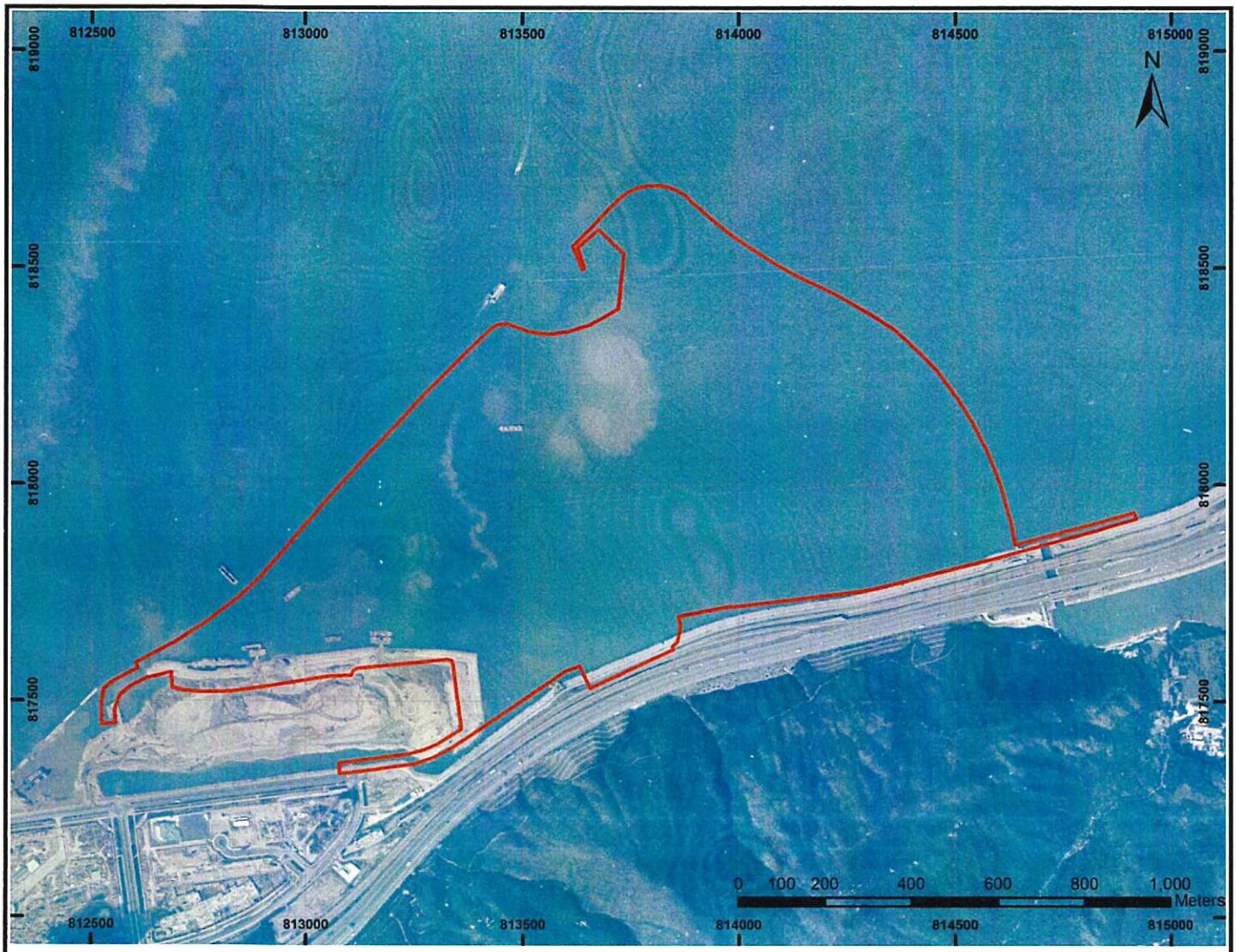
Year 2000

- Majority was the TCW was still unreclaimed
- The reclamation for Tung Chung New town was finished.
- North Lantau Highway was built.

Legend

TCE Boundary

Job Title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title: **Aerial Photo Interpretation** Tung Chung East (Sheet 4 of 7)	ARUP Ove Arup & Partners Hong Kong Limited	
		Scale N.T.S.	
		Drn. JC Date 03/2015 Chd. KKY Approved DML	
		Job No. 219844	Figure No. D4



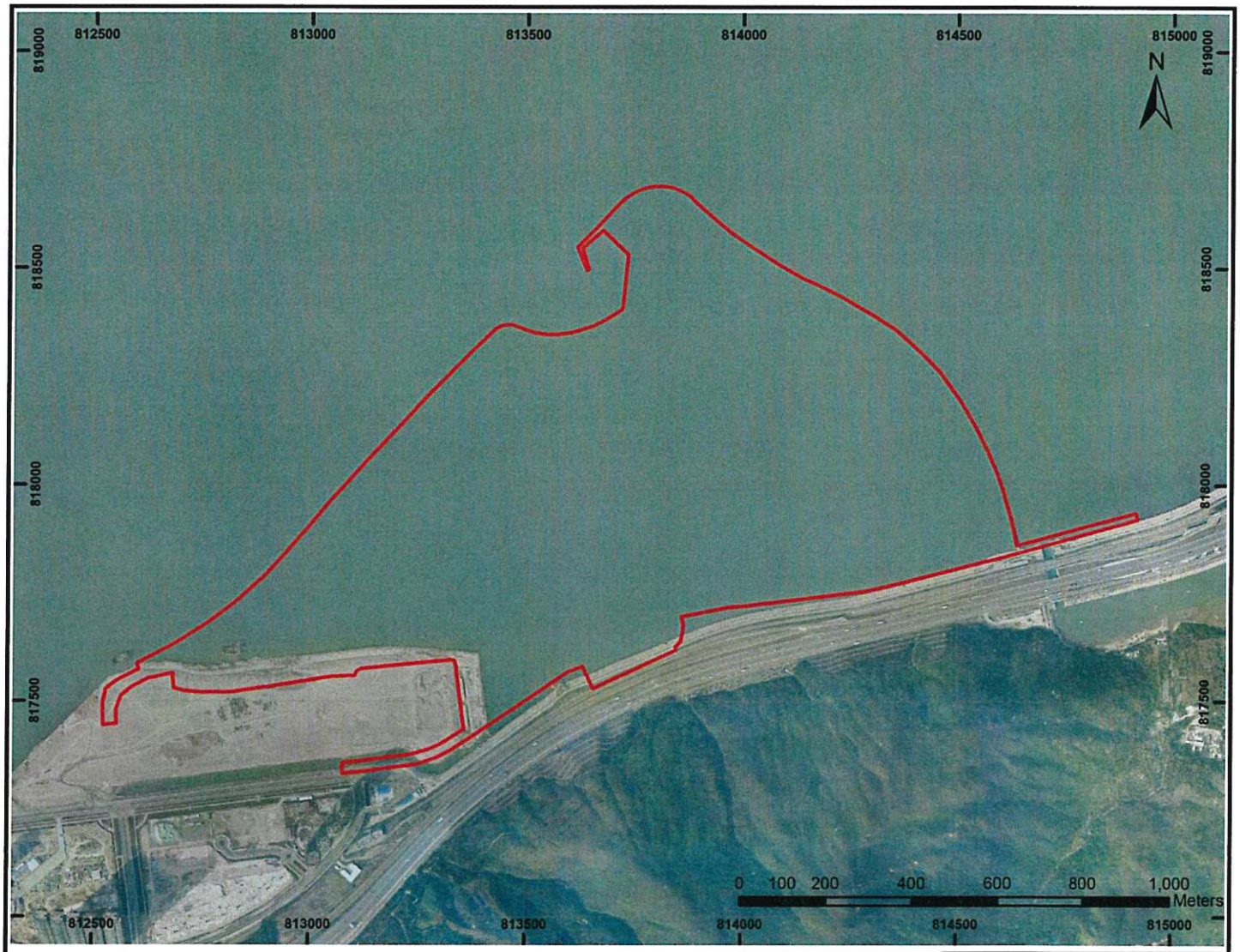
Year 2002

- The rest of the Site was still unreclaimed. Part of the southwestern portion was reclaimed due to the further reclamation of Tung Chung New Town.
- No other significant change observed.

Legend

TCE Boundary

Job Title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title: **Aerial Photo Interpretation** Tung Chung East (Sheet 5 of 7)	ARUP Ove Arup & Partners Hong Kong Limited	
		Scale N.T.S.	
		Drn. JC Date 03/2015 Chd. KKY Approved DML	
		Job No. 219844	Figure No. D5



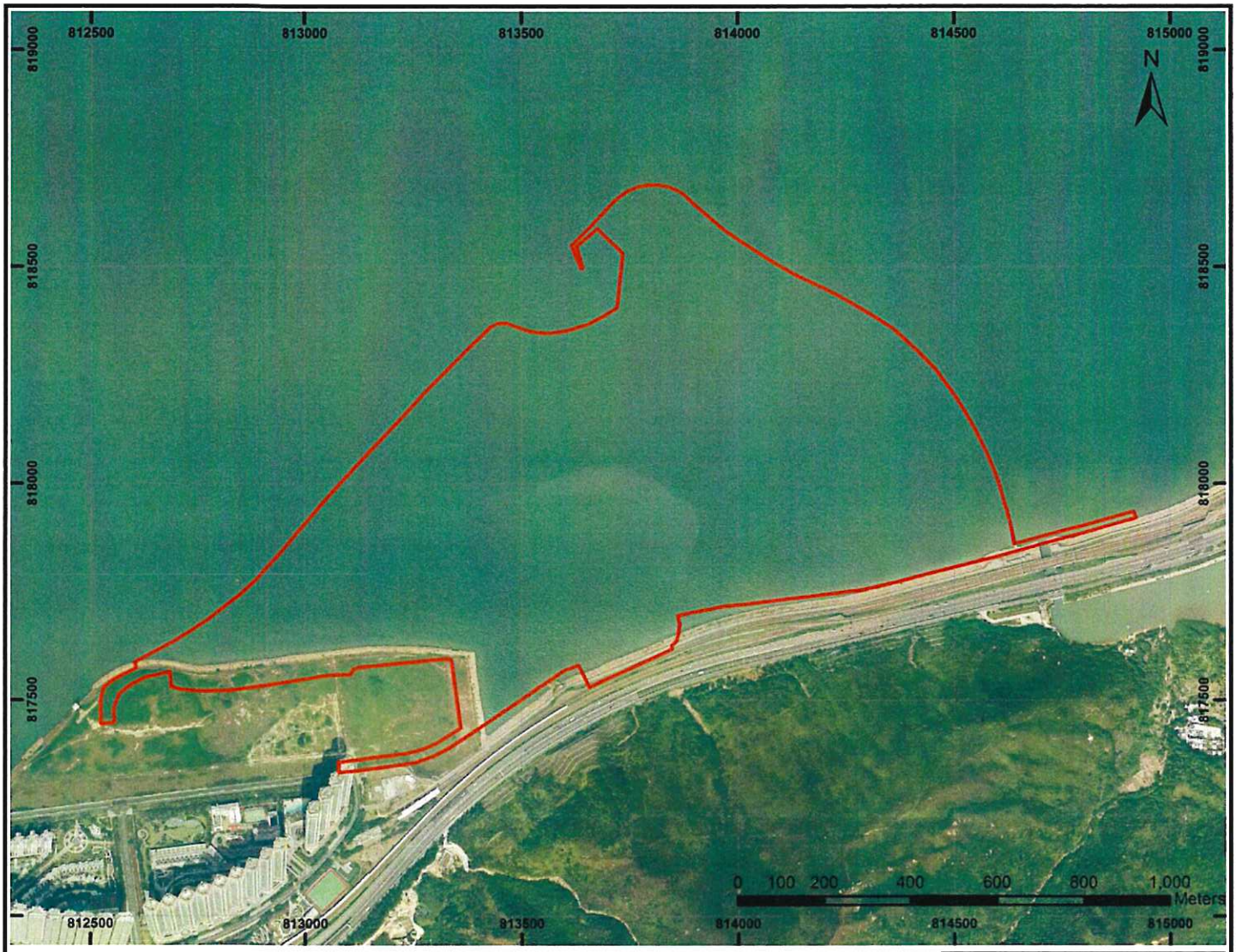
Year 2004

- Part of the southwestern portion was reclaimed.
- Further reclamation of Tung Chun New Town was nearly completed.

Legend

TCE Boundary

Job Title: Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title: **Aerial Photo Interpretation** Tung Chung East (Sheet 6 of 7)	ARUP Ove Arup & Partners Hong Kong Limited	
		Scale N.T.S.	
		Drn. JC Date 03/2015 Chd. KKY Approved DML	
		Job No. 219844	Figure No. D6



Year 2012

- Further reclamation of Tung Chung New Town was completed.
- No significant change observed.

Legend

TCE Boundary

Job Title Agreement No. CE 32/2011 (CE) Planning and Engineering Study on the Remaining Development in Tung Chung	Figure Title **Aerial Photo Interpretation** Tung Chung East (Sheet 7 of 7)	ARUP Ove Arup & Partners Hong Kong Limited Scale N.T.S. Drn. JC Date 03/2015 Chd. KKY Approved DML Job No. 219844 Figure No. D7	

REP-155-01 Appendix 5.10

Appendix B

Preliminary Geotechnical Assessment of Existing Features

Geotechnical Assessment of Existing Registered Features

FEATURE DETAILS			RESPONSIBILITY		EXISTING ASSESSMENTS							EVALUATION									
Type		Registration number	Responsible party	Government / Private / Joint	Stage 2 Study Conducted	Stage 3 Study Conducted	CNPCS (Combined New Priority Classification System)	NPRS (New Priority Ranking System)	NPRS source	SIFT Class	Reported incident within 10m of the feature	Total feature height greater than 10m?	Calculated Shadow Angle (°) [according to GEO TGN No. 15]	Calculated Debris Travel Distance (m) [according to GEO TGN No. 15]	Projected shadow angle reaches proposed development or related works?	Distance of proposed development/utilities/drainage from toe (m)	Nearest Proposed Development from slope toe	Distance of proposed development/utilities/drainage from crest	Nearest Proposed Development from slope crest	Potential risk to proposed development, or impact on existing feature	Justifications	Recommendations
FWSR	Cut Slope		9SE-B/C40	WSD	Government	-	-	-	3	Notional	C2	-	Yes	25	47	YES	0	Fresh Water Service Reservoir	0	Fresh Water Service Reservoir	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
FWSR	Cut Slope		9SE-B/C42	WSD	Government			-	-	-	-	-	No	35	13	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
FWSR	Cut Slope		9SE-B/C43	WSD	Government	-	-	-	0	Notional	C2	-	Yes	25	36	YES	0	Fresh Water Service Reservoir	0	Fresh Water Service Reservoir	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
FWSR	Cut Slope		9SE-B/C44	WSD	Government	-	-	-	0	Notional	C2	-	Yes	25	21	YES	0	Fresh Water Service Reservoir	0	Fresh Water Service Reservoir	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
FWSR	Cut Slope		9SE-B/CR41	WSD	Government	-	-	-	2	Notional	C2	-	Yes	25	66	YES	0	Fresh Water Service Reservoir	0	Fresh Water Service Reservoir	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
FWSR	Fill Slope		9SE-B/F14	WSD	Government	-	-	-	-	-	B2	-	Yes	15	127	YES	76	Fresh Water Service Reservoir	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
FWSR	Fill Slope		9SE-B/F15	WSD	Government			-	-	-	-	-	Yes	15	45	NO	45	Fresh Water Service Reservoir	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
FWSR	Fill Slope		9SE-B/F23	WSD	Government	-	-	-	2	Notional	C2	-	Yes	15	49	YES	0	Fresh Water Service Reservoir	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
FWSR	Fill Slope		9SE-B/F3	WSD	Government	-	-	-	-	-	-	-	No	25	9	NO	42	Fresh Water Service Reservoir	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
FWSR	Fill Slope		9SE-B/F79	WSD	Government			-	-	-	-	-	No	25	15	NO	38	Fresh Water Service Reservoir	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
FWSR	Fill Slope		9SE-B/F80	WSD	Government	-	-	-	2	Notional	C2	-	No	25	15	YES	0	Fresh Water Service Reservoir	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
FWSR	Fill Slope		9SE-B/F12	WSD	Government	-	-	-	-	-	-	-	Yes	15	37	NO	N/A	No change	75	Fresh Water Service Reservoir	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
FWSR	Fill Slope		9SE-B/F13	WSD	Government	-	-	-	-	-	-	-	Yes	15	45	YES	0	Proposed utilities/drainage	50	Fresh Water Service Reservoir	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
FWSR	Fill Slope		9SE-B/C39	WSD	Government	-	-	-	-	-	-	-	No	25	11	YES	0	Proposed utilities/drainage	170	Fresh Water Service Reservoir	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
FWSR	Fill Slope		9SE-B/C35	WSD	Government	-	-	-	-	-	-	-	Yes	15	60	NO	140	Fresh Water Service Reservoir	75	Fresh Water Service Reservoir	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
FWSR	Fill Slope		9SE-B/C37	WSD	Government	-	-	-	-	-	-	-	Yes	15	37	NO	130	Fresh Water Service Reservoir	90	Fresh Water Service Reservoir	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
FWSR	Fill Slope		9SE-B/C38	WSD	Government	-	-	-	-	-	-	-	No	25	17	NO	N/A	No change	70	Fresh Water Service Reservoir	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
FWSR	Fill Slope		9SE-B/F10	WSD and DD3TC Lot2217	Government and Private								Yes	15	243	YES	0	Proposed utilities/drainage	0	Proposed utilities/drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
TCE	Fill Slope		9SE-B/F6	MTR	Private	-	-	-	-	-	-	-	No	25	11	NO	52	TCE	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCE	Fill slope with retaining wall		9SE-B/FR7	MTR	Private	-	-	-	-	-	-	-	No	25	17	NO	N/A	No change	55	TCE	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCE	Fill slope with retaining wall		9SE-B/FR8	MTR	Private	-	-	-	-	-	-	-	No	25	15	NO	N/A	No change	55	TCE	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCE	Fill slope with retaining wall		9SE-B/FR87	MTR	Private	-	-	-	-	-	-	-	Yes	15	37	NO	52	TCE	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCE	Retaining wall		9SE-B/R2	MTR	Private	-	-	-	-	-	-	-	No	35	6	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
Road P1	Fill slope		10SW-A/F52	MTRL2	Private			0.00	0	-	B2	-	No	25	16	NO	70	Road P1	58	Utilities / drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
Road P1	Fill slope with retaining wall		10SW-A/FR54	MTRL2	Private			0.00	1	-	B2	-	Yes	15	45	NO	99	Utilities / drainage	33	Road P1	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
Road P1	Fill slope		10NW-C/F40	MTRL2	Private			0.05	0	-	B2	-	No	25	10	NO	N/A	No change	18	Road P1	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
Road P1	Fill slope with retaining wall		10NW-C/FR39	MTRL2	Private			0.17	0	-	B2	-	No	25	13	YES	0	Utilities / drainage	0	Utilities / drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Road P1	Fill slope with retaining wall		9SE-B/FR88	MTRL2RP	Private			0.00	261	-	B2	-	Yes	15	37	NO	43	Road P1	67	Utilities / drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
Road P1	Fill slope		10SW-A/F53	MTRL2	Private			0.00	0	-	B2	-	No	25	15	NO	17	Road P1	25	Utilities / drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
Road P1	Retaining Wall		10NW-C/R5	MTRL2	Private			0.00	0	-	B2	-	No	35	11	NO	13	Utilities / drainage	37	Road P1	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development

	FEATURE DETAILS			RESPONSIBILITY		EXISTING ASSESSMENTS							EVALUATION										
	Type		Registration number	Responsible party	Government / Private / Joint	Stage 2 Study Conducted	Stage 3 Study Conducted	CNPCS (Combined New Priority Classification System)	NPRS (New Priority Ranking System)	NPRS source	SIFT Class	Reported incident within 10m of the feature	Total feature height greater than 10m?	Calculated Shadow Angle (°) [according to GEO TGN No. 15]	Calculated Debris Travel Distance (m) [according to GEO TGN No. 15]	Projected shadow angle reaches proposed development or related works?	Distance of proposed development/utilities/drainage from toe (m)	Nearest Proposed Development from slope toe	Distance of proposed development/utilities/drainage from crest	Nearest Proposed Development from slope crest	Potential risk to proposed development, or impact on existing feature	Justifications	Recommendations
TCW	Cut Slope		9SE-A/C10	Lands D	Government	-	-	-	-	-	-	-	No	35	6	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-A/C11	Lands D	Government	-	-	-	-	-	-	-	No	35	6	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-A/C12	Lands D	Government	-	-	-	-	-	-	-	No	35	7	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-A/C7	Lands D	Government	-	-	-	-	-	-	-	No	35	4	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-A/C8	Lands D	Government	-	-	-	-	-	-	-	No	35	4	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-A/C9	Lands D	Government	-	-	-	-	-	-	-	No	35	6	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope		9SE-A/F5	HyD	Government	-	-	0.12	0	Notional	B2	-	No	25	9	YES	0	TCV-1, COM-2, COM-3	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
TCW	Cut Slope		9SE-B/C102	Arch SD	Government	-	-	-	-	-	-	-	Yes	25	58	NO	N/A	G/IC, Sports/playground under separate agreement	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C103	Arch SD	Government	-	-	-	-	-	-	-	No	35	6	NO	N/A	G/IC, Sports/playground under separate agreement	N/A	G/IC, Sports/playground under different agreement	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C19	Lands D	Government	-	-	-	-	-	-	-	No	35	5	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C20	Lands D	Government	-	-	-	-	-	-	-	No	35	5	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C33	HyD	Government	-	-	-	-	-	-	-	No	35	10	NO	18	TCV-6	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C64	Arch SD	Government	-	-	-	-	-	-	-	Yes	25	51	NO	N/A	G/IC, Sports/playground under separate agreement	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Fill slope		9SE-B/C65	HyD	Government	-	-	-	-	-	-	-	Yes	15	90	NO	N/A	No change	220	TCW-2	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C66	HyD	Government	-	-	-	-	-	-	-	Yes	25	26	NO	N/A	No change	165	TCW-2	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C67	HyD	Government	-	-	-	-	-	-	-	Yes	25	86	NO	N/A	No change	110	TCW-2	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C68	HyD	Government	-	-	-	-	-	-	-	Yes	25	45	NO	N/A	No change	220	TCW-2	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C69	HyD	Government	-	-	-	-	-	-	-	No	35	9	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C70	HyD	Government	-	-	-	-	-	-	-	No	35	9	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C71	Lands D	Government	-	-	-	-	-	-	-	No	35	8	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C72	HyD	Government	-	-	-	-	-	-	2005/08/0404	No	35	13	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C73	Lands D	Government	-	-	1.20	0	Notional	C1	-	No	35	9	YES	0	Modification of feature, boardering on proposed District Open Space adjacent	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
TCW	Cut Slope		9SE-B/C74	Lands D	Government	-	-	-	-	-	-	-	No	35	7	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-B/C75	Lands D	Government	-	-	-	-	-	-	-	No	35	10	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope		9SE-B/F34	HyD	Government	-	-	-	-	-	-	-	No	25	15	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope		9SE-B/F35	HyD	Government	-	-	-	-	-	-	-	No	25	15	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope		9SE-B/F39	HyD	Government	-	-	-	-	-	-	-	No	25	9	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope		9SE-B/F41	HyD	Government	-	-	-	-	-	-	-	Yes	15	37	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope		9SE-B/F56	HyD	Government	-	-	-	-	-	-	-	No	25	17	NO	N/A	No change	N/A	G/IC, Sports/playground under different	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development

	FEATURE DETAILS			RESPONSIBILITY		EXISTING ASSESSMENTS							EVALUATION									
	Type		Registration number	Responsible party	Government / Private / Joint	Stage 2 Study Conducted	Stage 3 Study Conducted	CNPCS (Combined New Priority Classification System)	NPRS (New Priority Ranking System)	NPRS source	SIFT Class	Reported incident within 10m of the feature	Total feature height greater than 10m?	Calculated Shadow Angle (°) [according to GEO TGN No. 15]	Calculated Debris Travel Distance (m) [according to GEO TGN No. 15]	Projected shadow angle reaches proposed development or related works?	Distance of proposed development/utilities/drainage from toe (m)	Nearest Proposed Development from slope toe	Distance of proposed development/utilities/drainage from crest	Nearest Proposed Development from slope crest	Potential risk to proposed development, or impact on existing feature	Justifications	Recommendations
TCW	Fill Slope		9SE-B/F65	Private TCTL40	Private	-	-	-	-	-	-	-	No	25	11	NO	N/A	No change	N/A	G/IC, Sports/playground under different	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope		9SE-B/F68	HyD	Government	-	-	-	-	-	-	-	No	25	9	NO	N/A	G/IC, Sports/playground under different agreement	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope		9SE-B/F74	HyD	Government	-	-	-	-	-	-	-	No	25	11	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope		9SE-B/F75	HyD	Government	-	-	-	-	-	-	-	No	25	11	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope with Retaining Wall		9SE-B/FR32	HyD	Government	-	-	-	-	-	-	-	No	25	15	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope with Retaining Wall		9SE-B/FR37	Arch SD HyD	Government	-	-	-	-	-	-	-	No	25	19	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope with Retaining Wall		9SE-B/FR81	Arch SD	Government	-	-	-	-	-	-	-	No	25	17	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope with Retaining Wall		9SE-B/FR82	Private TCTL30	Private	-	-	-	-	-	-	-	No	25	12	NO	25	TCW-1	2	Proposed utilities/drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
TCW	Fill Slope with Retaining Wall		9SE-B/FR86	HyD	Government	-	-	-	-	-	-	-	No	25	11	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-C/C34	WSD	Government	-	-	-	-	-	-	2006/06/1013	No	35	6	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-C/C35	WSD	Government	-	-	-	-	-	-	2008/07/0652	No	35	7	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-C/C48	Lands D	Government	-	-	-	-	-	-	-	No	35	6	NO	N/A	G/IC, Sports/playground under separate agreement	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-C/C49	Lands D	Government	-	-	-	-	-	-	-	No	35	11	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-C/C96	HyD	Government	-	-	0.00	0	Notional	C2	-	No	35	11	YES	7	TCV-6	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
TCW	Fill Slope		9SE-C/F31	Lands D	Joint	-	-	-	-	-	-	-	No	25	11	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope		9SE-C/F43	HyD	Government	-	-	-	-	-	-	-	No	25	10	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Cut slope with retaining wall		9SE-C/FR13	LandsD Private LICENCE 0346	Joint	-	-	-	-	-	-	-	Yes	25	64	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope with Retaining Wall		9SE-C/FR42	HyD Private: DD2TC, LOT125	Joint	-	-	-	-	-	-	-	Yes	15	40	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Retaining wall		9SE-C/R10	WSD	Government	-	-	-	-	-	-	-	No	35	4	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Retaining wall		9SE-C/R11	WSD	Government	-	-	-	-	-	-	-	No	35	4	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Retaining wall		9SE-C/R43	Lands D Private: DDITC, LOT2980	Mixed	-	-	-	-	-	-	-	No	35	4	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Retaining wall		9SE-C/R51	HyD	Government	-	-	0.27	0	Notional	B2	-	No	35	9	NO	16	TCV-6	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
TCW	Retaining wall		9SE-C/R54	WSD	Government	-	-	-	-	-	-	-	No	35	6	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Cut Slope		9SE-D/C70	HyD	Government	-	-	-	-	-	-		No	35	12	NO	N/A	G/IC, Sports/playground under separate agreement	8	proposed utilities/drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
TCW	Cut Slope		9SE-D/C71	HyD	Government	-	-	-	-	-	-	-	No	35	11	NO	12	TCV-7	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Fill Slope		9SE-D/F18	HyD	Government	-	-	0.00	0	Notional	B2	MW93/11/151	No	25	9	YES	6	TCV-6	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
TCW	Fill Slope		9SE-D/F20	HyD	Government	-	-	-	-	-	-		No	25	12	YES	N/A	G/IC, Sports/playground under separate agreement	0	proposed utilities/drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
TCW	Fill Slope		9SE-D/F21	HyD	Government	-	-	0.00	0	Notional	B2.	-	No	25	11	YES	0	TCV-7	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
TCW	Fill Slope with Retaining Wall		9SE-D/FR17	HyD	Government	-	-	0.00	0	Notional	B2	-	Yes	15	49	YES	30	TCV-6	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
TCW	Fill Slope with Retaining Wall		9SE-D/FR19	HyD	Government	-	-	0.00	0	Notional	B2	-	Yes	15	67	YES	40	TCV-7	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
TCW	Mitigation		9SE-D/ND1	HyD	Government	-	-	-	-	-	-	-	N/A	N/A	N/A	No	N/A	Mitigation	N/A	Mitigation	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Mitigation		9SE-D/ND2	HyD	Government	-	-	-	-	-	-	-	N/A	N/A	N/A	No	N/A	Mitigation	N/A	Mitigation	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development

	FEATURE DETAILS			RESPONSIBILITY		EXISTING ASSESSMENTS							EVALUATION										
	Type		Registration number	Responsible party	Government / Private / Joint	Stage 2 Study Conducted	Stage 3 Study Conducted	CNPCS (Combined New Priority Classification System)	NPRS (New Priority Ranking System)	NPRS source	SIFT Class	Reported incident within 10m of the feature	Total feature height greater than 10m?	Calculated Shadow Angle (°) [according to GEO TGN No. 15]	Calculated Debris Travel Distance (m) [according to GEO TGN No. 15]	Projected shadow angle reaches proposed development or related works?	Distance of proposed development/utilities/drainage from toe (m)	Nearest Proposed Development from slope toe	Distance of proposed development/utilities/drainage from crest	Nearest Proposed Development from slope crest	Potential risk to proposed development, or impact on existing feature	Justifications	Recommendations
TCW	Mitigation		9SE-D/ND3	HyD	Government	-	-	-	-	-	-	-	N/A	N/A	N/A	No	0	proposed utilities/drainage	N/A	Mitigation	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
TCW	Mitigation		9SE-D/ND8	HyD	Government	-	-	-	-	-	-	-	N/A	N/A	N/A	No	N/A	Mitigation	N/A	Mitigation	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
TCW	Mitigation		9SE-D/ND9	HyD	Government	-	-	-	-	-	-	-	N/A	N/A	N/A	No	0	proposed utilities/drainage	N/A	Mitigation	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
TCW	Cut Slope		9SE-B/C105	DSD	Government	-	-	-	-	-	-	-	No	35	11	YES	0	Proposed utilities/drainage	0	Proposed utilities/drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
TCW	Cut Slope		9SE-B/C106	DSD	Government	-	-	-	-	-	-	-	No	35	11	YES	0	Proposed utilities/drainage	0	Proposed utilities/drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Utilities + WTF	Cut slope with retaining wall		10NW-C/CR56	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.00	-	-	C2	-	Yes	25	23	NO	52	Proposed Utilities / Drainage	N/A	No Change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C21	WSD	Government	-	-	0.60	-	-	C1	-	Yes	25	21	NO	82	Proposed WTF	N/A	No Change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Utilities + WTF	Cut Slope		10NW-C/C30	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.00	-	-	C2	-	No	35	13	NO	13	Proposed Utilities / Drainage	N/A	No Change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C57	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.00	19	Notional	C2	-	Yes	25	58	NO	84	Proposed Utilities / Drainage	N/A	No Change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C32	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.00	-	-	C2	-	No	35	11	NO	24	Proposed Utilities / Drainage	N/A	No Change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C55	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.00	34	Notional	C2	-	Yes	25	68	NO	N/A	Proposed Utilities / Drainage	N/A	No Change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C31	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.00	-	-	C2	-	Yes	25	28	NO	28	Proposed Utilities / Drainage	N/A	No Change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C19	Lands D	Government	-	-	0.00	-	-	C2	-	No	35	6	NO	95	Proposed Utilities / Drainage	N/A	No Change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C18	WSD	Government	-	-	5.49	-	-	C2	-	No	35	10	NO	81	Proposed Utilities / Drainage	N/A	No Change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C23	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.00	-	-	C2	-	No	35	4	NO	15	Proposed Utilities / Drainage	N/A	No Change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C44	WSD	Government	-	-	6.25	2	Notional	C2	-	Yes	25	47	NO	N/A	No change	70	Proposed WTF	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C16	WSD	Government	-	-	0.55	-	-	C2	-	No	35	6	NO	N/A	WTF. But no viable travel path	N/A	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C34	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.00	-	-	C2	-	No	35	9	NO	26	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut slope with retaining wall		10NW-C/CR42	WSD	Government	-	-	1.82	-	-	C2	-	No	35	12	NO	N/A	Proposed Utilities / Drainage	19	Proposed WTF	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C54	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.00	18	Notional	C2	-	Yes	25	53	NO	62	Proposed Utilities / Drainage	N/A	No Change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C64	WSD	Government	-	-	0.75	-	-	C2	-	No	35	4	NO	N/A	WTF. But no viable travel path	N/A	No Change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C29	DSD	Government	-	-	0.12	-	-	C2	-	No	35	6	NO	23	Proposed WTF	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C45	WSD	Government	-	-	6.36	3	Notional	C2	-	Yes	25	49	NO	N/A	No change	75	Proposed WTF	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C63	WSD	Government	-	-	0.40	-	-	C2	-	No	35	5	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut slope with retaining wall		10NW-C/CR58	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.00	-	-	C2	-	No	35	9	NO	N/A	No change	48	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C43	WSD	Government	-	-	0.55	-	-	C2	-	No	35	9	NO	N/A	No change	66	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Fill Slope		10NW-C/F32	WSD	Government	-	-	0.15	-	-	B2	-	No	25	11	NO	N/A	No change	43	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Fill Slope		10NW-C/F43	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.08	-	-	B2	-	No	25	17	NO	N/A	No change	49	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development

	FEATURE DETAILS			RESPONSIBILITY		EXISTING ASSESSMENTS							EVALUATION									
	Type		Registration number	Responsible party	Government / Private / Joint	Stage 2 Study Conducted	Stage 3 Study Conducted	CNPCS (Combined New Priority Classification System)	NPRS (New Priority Ranking System)	NPRS source	SIFT Class	Reported incident within 10m of the feature	Total feature height greater than 10m?	Calculated Shadow Angle (°) [according to GEO TGN No. 15]	Calculated Debris Travel Distance (m) [according to GEO TGN No. 15]	Projected shadow angle reaches proposed development or related works?	Distance of proposed development/utilities/drainage from toe (m)	Nearest Proposed Development from slope toe	Distance of proposed development/utilities/drainage from crest	Nearest Proposed Development from slope crest	Potential risk to proposed development, or impact on existing feature	Justifications	Recommendations
Utilities + WTF	Fill Slope		10NW-C/F44	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.24	-	-	B2	-	No	25	15	NO	N/A	No change	45	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Fill Slope		10NW-C/F47	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.14	-	-	B2	-	No	25	17	NO	N/A	No change	53	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Fill Slope		10NW-C/F16	HyD	Government	-	-	0.26	-	-	B2	-	No	25	19	NO	49	Propsed Utilities / Drainage. But no viable travel path	49	Propsed Utilities / Drainage. But no viable travel path	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Fill Slope		10NW-C/F12	HyD	Government	-	-	0.30	-	-	B2	-	No	25	19	NO	74	Propsed Utilities / Drainage. But no viable travel path	36	Propsed Utilities / Drainage. But no viable travel path	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Fill Slope		10NW-C/F11	HyD	Government	-	-	0.30	-	-	B2	-	No	25	19	NO	20	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Fill Slope		10NW-C/F33	WSD	Government	-	-	0.33	-	-	B2	-	No	25	17	NO	37	Proposed Utilities / Drainage	29	Proposed WTF	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Fill Slope		10NW-C/F9	MTRL2	Private	-	-	0.00	-	-	B2	-	No	25	18	NO	55	Proposed Utilities / Drainage	4	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Cut Slope		10NW-C/C13	WSD	Government	-	-	0.00	-	-	C2	-	Yes	25	79	YES	10	Proposed WTF	N/A	No Change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Utilities + WTF	Fill Slope with Retaining Wall		10NW-C/FR21	DSD STT CX1333	Mixed	-	-	0.00	-	-	B2	-	No	25	17	NO	N/A	No change	20	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Fill Slope		10NW-C/F17	HyD	Government	-	-	0.26	-	-	B2	-	No	25	19	NO	20	Proposed Utilities / Drainage	N/A	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Fill Slope		10NW-C/F10	MTRL2	Private	-	-	0.00	-	-	B2	-	No	25	15	YES	13	Proposed Utilities / Drainage	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Utilities + WTF	Fill Slope		10NW-C/F8	WSD	Government	-	-	0.14	-	-	B2	-	Yes	15	60	NO	N/A	Proposed Utilities / Drainage, but no viable travel path	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Retaining Wall		10NW-C/R4	MTRL2	Private	-	-	0.00	-	-	B2	-	No	35	11	YES	10	Proposed Utilities / Drainage	13	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Utilities + WTF	Retaining Wall		10NW-C/R8	DSD	Government	-	-	0.00	-	-	B2	-	No	35	7	NO	20	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Retaining Wall		10NW-C/R10	DSD	Government	-	-	0.19	-	-	B2	-	No	35	7	NO	N/A	No change	13	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Retaining Wall		10NW-C/R11	DSD	Government	-	-	0.00	-	-	B2	-	No	35	7	NO	N/A	No change	13	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Retaining Wall		10NW-C/R12	DSD	Government	-	-	0.00	-	-	B2	-	No	35	7	NO	N/A	No change	8	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Retaining Wall		10NW-C/R19	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.00	-	-	B2	-	No	35	9	NO	N/A	No Change	36	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Retaining Wall		10NW-C/R9	DSD	Government	-	-	0.00	-	-	B2	-	No	35	7	NO	N/A	No change	20	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Retaining Wall		10NW-C/R17	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.00	-	-	B2	-	No	35	6	NO	N/A	No change	22	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Retaining Wall		10NW-C/R6	DSD	Government	-	-	0.00	-	-	B2	-	No	35	7	NO	20	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Retaining Wall		10NW-C/R18	Discovery Bay Road Tunnel Co. Ltd.	Private	-	-	0.00	-	-	B2	-	No	35	5	NO	N/A	No change	33	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities + WTF	Retaining Wall		10NW-C/R7	DSD	Government	-	-	0.00	-	-	B2	-	No	35	7	NO	50	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities/drainage	Cut Slope		9SE-B/CS5	HyD	Government			0.34	0		C2	-	Yes	25	26	YES	3	Proposed Utilities / Drainage	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Cut Slope		9SE-B/CS6	HyD	Government			0.33	0		C1	-	No	35	9	YES	3	Proposed Utilities / Drainage	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Fill Slope		9SE-B/F47	HyD	Government			0.00	0		B2	-	No	25	17	YES	0	Proposed Utilities / Drainage	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Fill Slope		9SE-B/FS4	HyD	Government			0.60	0		B2	-	Yes	15	45	YES	N/A	No change	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Fill Slope		9SE-B/FS5	HyD	Government			0.69	0		B2	-	Yes	15	41	YES	N/A	No change	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Fill Slope with Retaining Wall		9SE-B/FR20	HyD	Government			3.08	1		B2	-	Yes	15	63	NO	90	proposed utilities/drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development

	FEATURE DETAILS			RESPONSIBILITY		EXISTING ASSESSMENTS						EVALUATION										
	Type		Registration number	Responsible party	Government / Private / Joint	Stage 2 Study Conducted	Stage 3 Study Conducted	CNPCS (Combined New Priority Classification System)	NPRS (New Priority Ranking System)	NPRS source	SIFT Class	Reported incident within 10m of the feature	Total feature height greater than 10m?	Calculated Shadow Angle (°) [according to GEO TGN No. 15]	Calculated Debris Travel Distance (m) [according to GEO TGN No. 15]	Projected shadow angle reaches proposed development or related works?	Distance of proposed development/utilities/drainage from toe (m)	Nearest Proposed Development from slope toe	Distance of proposed development/utilities/drainage from crest	Nearest Proposed Development from slope crest	Potential risk to proposed development, or impact on existing feature	Justifications	Recommendations
Utilities/drainage	Fill Slope		9SE-B/F21	HyD	Government			0.13	0		B2	-	No	25	13	YES	N/A	No change	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Fill Slope		9SE-B/F50	HyD	Government			0.25	0		B2	-	No	25	11	YES	0	Proposed Utilities / Drainage	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Fill Slope		9SE-B/F48	HyD	Government			0.00	0		B2	-	No	25	11	YES	0	Proposed Utilities / Drainage	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Cut Slope		9SE-B/C51	HyD	Government			3.09	0		C2	-	Yes	25	21	NO	35	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities/drainage	Cut Slope		9SE-B/C52	HyD	Government			3.84	0		C2	-	Yes	25	30	NO	38	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities/drainage	Cut Slope		9SE-B/C101	N/A	N/A			0.00	0		C2	-	No	35	6	NO	N/A	No change	21	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities/drainage	Cut Slope		9SE-B/C98	HyD	Government			0.00	0		C2	-	No	35	7	NO	N/A	No change	25	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities/drainage	Cut Slope		9SE-B/C49	N/A	N/A			0.00	0		C2	-	No	35	9	NO	N/A	No change	32	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
FWSR	Cut Slope		9SE-B/C36	WSD	Government			0.00	0		C2	-	No	35	11	YES	N/A	No change	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such that any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Fill Slope with Retaining Wall		9SE-B/FR64	N/A	Government			0.00	0		B2	-	No	25	16	NO	N/A	No change	8	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities/drainage	Fill Slope		9SE-B/F78	HyD	Government			0.33	0		B2	-	No	25	17	NO	N/A	Proposed Utilities / Drainage	58	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities/drainage	Fill Slope		9SE-B/F69	HyD	Government			0.10	0		B2	-	No	25	11	YES	0	Proposed Utilities / Drainage	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Fill Slope with Retaining Wall		9SE-B/FR67	HyD Arch SD	Government			0.65	5		B2	-	No	25	19	NO	N/A	No change	3	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Fill Slope		9SE-B/F49	HyD	Government			0.15	0		B2	-	No	25	11	YES	0	Proposed Utilities / Drainage	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Fill Slope		9SE-B/F84	HyD	Government			0.06	0		B2	-	No	25	11	NO	N/A	Proposed Utilities / Drainage	84	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities/drainage	Fill Slope with Retaining Wall		9SE-B/FR66	HyD	Government			0.00	0		B2	-	No	25	11	NO	N/A	No change	3	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Fill Slope		9SE-B/F19	HyD	Government			0.00	0		B2	-	No	25	19	YES	0	Proposed Utilities / Drainage	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Retaining Wall		9SE-B/R12	HyD	Government			3.01	1		B2	-	Yes	25	21	NO	N/A	Proposed Utilities / Drainage	N/A	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Utilities/drainage	Retaining Wall		9SE-B/R15	WSD	Government			0.00	0		B2	-	Yes	25	26	YES	4	Proposed Utilities / Drainage	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Utilities/drainage	Retaining Wall		9SE-B/R32	TCTL 30	Private			0.00	1		B2	-	No	35	6	NO	N/A	No change	9	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF01	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	93	TCV-3	76	TCV-4	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF02	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	83	TCV-1	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF03	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	30	TCV-1	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF04	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	80	TCV-2	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF05	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	85	TCV-2	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF06	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	N/A	No change	31	TCV-2	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF07	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	43	TCV-2	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF08	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	30	TCV-6	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF09	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	N/A	No change	16	TCV-6	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development

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	Type		Registration number	Responsible party	Government / Private / Joint	Stage 2 Study Conducted	Stage 3 Study Conducted	CNPCS (Combined New Priority Classification System)	NPRS (New Priority Ranking System)	NPRS source	SIFT Class	Reported incident within 10m of the feature	Total feature height greater than 10m?	Calculated Shadow Angle (°) [according to GEO TGN No. 15]	Calculated Debris Travel Distance (m) [according to GEO TGN No. 15]	Projected shadow angle reaches proposed development or related works?	Distance of proposed development/utilities/drainage from toe (m)	Nearest Proposed Development from slope toe	Distance of proposed development/utilities/drainage from crest	Nearest Proposed Development from slope crest	Potential risk to proposed development, or impact on existing feature	Justifications	Recommendations
Non-Reg	Fill Slope		NRGF10	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	57	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF11	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	N/A	No change	23	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF12	N/A	N/A	-	-	-	-	-	-	-	Yes	15	41	NO	N/A	No change	8	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF13	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	N/A	No change	9	TCV-7	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF14	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	0	TCW-1	0	TCW-1	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF15	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	0	TCW-1	0	TCW-1	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF16	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	0	Proposed Utilities / Drainage	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF17	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	N/A	No change	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF18	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	0	Proposed Utilities / Drainage	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF19	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	0	Proposed Utilities / Drainage	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF20	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	2	Proposed Utilities / Drainage	14	G/IC, Sports/playground under separate agreement	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such that any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF21	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	0	Proposed Utilities / Drainage	0	G/IC, Sports/playground under separate agreement	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF22	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	0	Proposed Utilities / Drainage	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF23	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	0	Proposed Utilities / Drainage	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF24	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	3	Proposed Utilities / Drainage	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF25	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	3	Proposed Utilities / Drainage	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF26	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	4	Proposed Utilities / Drainage	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF27	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	N/A	No change	8	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF28	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	N/A	No change	8	Proposed Utilities / Drainage	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF29	N/A	N/A	-	-	-	-	-	-	-	No	25	13	YES	10	Proposed Utilities / Drainage	6	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF30	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	1.5	Proposed Utilities / Drainage	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF31	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	35	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF32	N/A	N/A	-	-	-	-	-	-	-	No	25	11	NO	35	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF33	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	2	TCW proposed road	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development is such tha any failure of the feature may impact on the proposed development or utilities/drainage.	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF34	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	0	Road P1	N/A	No change	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF35	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	14	Road P1	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF36	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	N/A	No change	28	Road P1	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF37	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	64	Road P1	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF38	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	0	Proposed Utilities / Drainage	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF39	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	40	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF40	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	32	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development

	FEATURE DETAILS			RESPONSIBILITY		EXISTING ASSESSMENTS							EVALUATION									
	Type		Registration number	Responsible party	Government / Private / Joint	Stage 2 Study Conducted	Stage 3 Study Conducted	CNPCS (Combined New Priority Classification System)	NPRS (New Priority Ranking System)	NPRS source	SiFT Class	Reported incident within 10m of the feature	Total feature height greater than 10m?	Calculated Shadow Angle (°) [according to GEO TGN No. 15]	Calculated Debris Travel Distance (m) [according to GEO TGN No. 15]	Projected shadow angle reaches proposed development or related works?	Distance of proposed development/utilities/drainage from toe (m)	Nearest Proposed Development from slope toe	Distance of proposed developmnes/utilities/drainage from crest	Nearest Proposed Development from slope crest	Potential risk to proposed development, or impact on existing feature	Justifications	Recommendations
Non-Reg	Fill Slope		NRGF41	N/A	N/A	-	-	-	-	-	-	-	No	25	6	YES	0	Proposed Utilities / Drainage	0	Proposed Utilities / Drainage	Potential risk to proposed development or existing feature	The location of the feature in relation to the proposed development or utilities/drainage is such that the feature may be affected	Further consideration of feature recommended at site formation detailed design stage
Non-Reg	Fill Slope		NRGF42	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	31	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF43	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	19	Proposed Utilities / Drainage	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF44	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	N/A	No change	9	WTP	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development
Non-Reg	Fill Slope		NRGF45	N/A	N/A	-	-	-	-	-	-	-	No	25	6	NO	73	WTP	N/A	No change	No potential risk to proposed development or existing feature	1. No proposed facilities within shadow angle/expected travel distance of landslide debris (according to GEO TGN No. 15). 2. No Proposed utilities/drainage immediately adjacent to or within the footprin of the feature.	No further consideration of the feature is required under the current proposed development

Note: For the purpose of calculating travel distance of non-registered geotechnical features, all non-registered features have been assume to behave as Fill Slopes, which would result in the most conservative debris travel distance

REP-155-01 Appendix 5.10

Appendix C

Summary of Existing GI Data

Location	Borehole	Easting		Northing		Rockhead (mPD)	Rock Type/Geology	Base of Strata (mPD)							Notes
								N/V	Fill	Colluvium	Debris Flow Deposits	Marine Deposits	Alluvium	Beach Deposits	Pond Deposits	
FWSR	02610/D139	813650		815218			Rh	21.38		4					
FWSR	14143/BH4	813969.02		815301.91		37.24	T	6		1.5					
FWSR	14149/BH7	813931.97		815331.86		91.49	T	-		3.5					
FWSR	14149/BH4	812006.38		815314.19		28.47	T	6		4.5					
FWSR	17578/DH-91818/804 (16277)	812093.21		815234.70		81.84	T	4		2					
FWSR	17578/DH-91818/805	812802.05		815239.53		16.28	T	3.6		2.7					
FWSR	17578/DH-91818/806	813032.92		815322.60		78.83	T	1.65							
FWSR	17578/DH-91818/807	813604.28		815370.27		80.06	T	3.7							
FWSR	17578/DH-91818/809	811722.92		815109.02		98.29	T	15.77							
FWSR	17578/DH-91818/011	812643.43		815289.44		84.94	T	2.75							
FWSR	17578/DH-91818/012	811749.94		815237.06		83.14	T	13.5							
FWSR	17578/DH-91818/013	811843.08		815284.03		81.7	T	2.3							
FWSR	17578/DH-91818/014	811758.76		815214.18		82.21	T	14.22							
FWSR	17578/DH-91818/015	811837.57		815200.87		70.24	T	12.2		3.7					
FWSR	17578/DH-91818/027	811671.83		815248.69		87.34	T	8.65							
FWSR	17578/DH-91818/028	811720.66		815278.26		99.64	T	8.9							
FWSR	17578/DH-91818/029	811748.69		815290.72		98.99	T	9.75							
FWSR	17578/DH-91818/030	811781.67		815333.74		93.7	T	6.25							
FWSR	17578/DH-91818/031	811784.37		815300.26		95.88	T	7							
FWSR	17578/DH-91818/091	812840.25		815317.15		87.87	T	4.9							
FWSR	17578/DH-91818/040	811995.07		815159.26		74.58	T	4.9		0.6					
TCE	00750/TB306/T33B	813790		817680		-	G			21		19.5			
TCE	00750/TB306/T34B	813970		817800		-						19.4			
TCE	02610/D139	813641		817492		>57.38*	Rh	1.12							4.42m of rock proven to base of hole
TCE	19427E/A62	812201		817822								18			
TCE	19624/TRM129	813927.1		817420.97		4.72	Rh	6.6		2.66				3.25	
TCE	19624/TRM130	813484.26		817377.42		12.84	Rh	12.85		3.9					3.25m
TCE	19625/TRM135	813674.85		817355.13						0.39					
TCE	19625/TRM136	813743.46		817354.96		1.01	Rh	1.5		3					
TCE	19625/TRM139	813778.06		817631.74		-17.82*	Rh	16.5				7.3	8.6		2.8m
TCE	19625/TRM140	813810.82		817570.98		-6.95	Rh	6.5		5		3.3			
TCE	19625/TRM141	813863.47		817567.07		-5.96	Rh	6		2					
TCE	19625/TRM144	813963.52		817588.18		-9.2	Rh	8.5		4.45		3.16			Length of longest continuous layer: 3.16
TCE	19625/TRM146	813953.16		817691.83		-27.9*	Rh	26.5		9		8			2.58m
TCE	19625/TRM148	814008.45		817606.81		-16.74	Rh	10.45				7.5			
TCE	19625/TRM150	814043.45		817669.09		-	Rh	16		10.5		9			
TCE	19625/TRM151	814088.59		817706.44		3.02	Rh	5		2					
TCE	19625/TRM153	814148.76		817658.67		9.6*	Rh	9				6.5			3.64m
TCE	19625/TRM154	814219.53		817636.58		-14.65*	Rh	14.5				6			4.56m
TCE	19625/TRM155	814308.28		817718.69		-3.08	Rh			2.08					
TCE	19625/TRM158	814607.47		817733.87		-13.49*	Rh	10.5				7.5			3m
TCE	19312/TRL147	814407.814		817675.563		14.02	G								
TCE	19313/TRL137	813975.15		817437.12		13.36		9.25							
TCE	16460/N523	813720.1		817190		-49*	Rh/Pr, RT			26		18.5	21.5		Pressiated rock recorded from -20.75mPD to -25.75mPD, indicated as Fault Zone
TCE	14460/N523	813069.29		817314.7		-30.2*				18.5		7.5	17.20.45	9	
TCE	14460/N59	814320.071		817908.709		-27.36	G, Rh	24.83				10.95	19.95		
TCE	14478/EL-T9	814440.16		817644.99		13.13	Rh	1.65							
TCE	14478/EL-T2	814175.31		817598.8		11.42	Rh	9.8 05		3.05					
TCE	14478/EL77	815689.7		817435.06		12.26	Rh	1.48							
TCE	14478/EL-T8	815789.35		817578.51		10.11	Rh	9.15		2					
TCE	14478/EL80	813908.45		817186.22		3.82	Rh	2.35							
TCE	14479/EN61	814859.76		817383.09		-18.92	G					1.5	18.42		
TCE	14479/EN62	814873.01		817779.01		-16.95	Rh	15.25				5.5	9		
TCE	14479/EN63	814451.09		817825.6		-15.9	Rh	14.2		9.12 45		1.3.8		8.45	
TCE	14479/EN64	813494.94		817474.01		-11.9	Rh	28.5				8	18.5		
TCE	14479/EN65	813339.76		817357.1		-14.8	Rh	14.6				9	8.45		
TCE	17534/MP202	812368.33		817278.71			G	>35.0*				13.45	21.45		
TCE	17534/MP203	812499.8		817325.76								12.5	24.5		
TCE	17534/MP204	813319.8		817379.94			G	>35.0*				7.9	17.5		
TCE	17534/MP205	813449.66		817360.17			G	>35.0*				9.5	21.5		
TCE	17534/MP205A	813424.28		817609.51			G	>24.45*					24		
TCE	17534/MP206	813549.99		817699.96		-24.57	G	23.2				8.5	30		9.25m
TCE	17830/T14	814522.14		817817.96		-	G	>35.0*					22.5		
TCE	14514/TC36-3	813148.42		817368.28		-		101.8105.6328.74	22.5				35	27.9	
TCE	14514/TC36-13	813342.44		817547.95		-		63.4	22.5			14.5	31		
TCE	14514/TC36-32	813338.97		817506.05		-		65.56	18.6				30.8	20.05	
TCE	14514/TC36-2	813175.11		817503.53		-		74.6	20.3			28	41.3		
TCE	14514/TC36-5	813220.05		817568.18		-		55	16.5				35.1		
TCE	14514/TC36-8	813281.4		817573.47		-		84.16	27.1				33.5		
TCE	19520/N520	812470.2		817470.2			Dy, PF, PG					16.5 24	25.730	19	Fault breccia and fault gouge recorded from -18.75mPD to -42.25mPD, indicative of Fault Zone
TCE	G22261/AD 09	813383.96		817442.9								9	5.8		
TCE	G22261/AD 10	813453.14		817497.71					4.5				6.3		
TCE	G22261/AD 11	813495.24		817565.11								8	14.3		
TCE	G22261/AD 12	813574.18		817367.12					4.95				6.3		
TCE	G27360/CP9-1	812982.16		816430.41		-			0.7		9.2				
TCE	G27360/CP9-2	812937.27		816419.86		-					8.1				
TCE	G27595/S-6	812948.35		811590.68		-			3						
TCE	G27595/S-7	812286.29		812082.65		-			1.9		2.3				
TCE	G27595/S-8	812566.61		811827.54		-					3.15				
TCE	G27595/S-9	812395.14		810823.54		-		9.3	4.7		6.7				
TCE	G27595/S10	812549.97		810619.63		-			1		3.3				
TCE	G28034/M3	812194.3		817739		56.69	G, M	40.6				17.5	39		Marble with cavity deposits recorded between -42.74mPD and -72.54mPD
TCE	G28034/M2	812810.12		817700.11		-46.04	G, Rh	39.1				12.5	21.45.30.45		
TCE	G28034/M3	813000.6		817650.3		-118.08	G, MSI	97.6,107.8				14.4	32.55		Meta-sedimentary rock recorded between -114.86mPD and -115.98mPD
TCE	G28034/M4	812950.2		817400.2		-132.38	SI, G	129.9				14.8	23.5		Sedimentary rock recorded between -25.82mPD and -66.42mPD
TCE	G32573/TP/12/L	813740.48		817716.8											
TCE	G33391/BH 9	812309		812148				10.19 3		6.7					
TCE	G33391/BH10	812402		812002						2.5					
TCE	G33391/BH12	812346		811855						10.7					
TCE	G33391/BH13	812679		811521		-		9.6		0.6					
TCE	G33391/BH14	812634		811487		-		19.85		1.7					
TCE	G33391/BH16	813012		811353		-		9		5.05					
TCE	G33391/BH2A	812392		811774				10.8		3.8					
TCE	G33391/BH2B	812560		811496				9.8 19.1		0.5					
TCE	G33391/BH10	812364		811081				7.5		2.4					
TCE	G33391/SS 1	812446		811734											
TCE	G33391/SS 2	812378		810445				14	10.5	11.7					
TCE	G33391/SS 3	813377		810979		-									
TCE	G33391/TP18	812221		812167		-									
TCE	G33391/TP19	812333		812074		-									
TCE	G33391/TP20	812380		812087		-				2.6					
TCE	G33391/TP21	812504		811928		-									
TCE	G33391/TP22	812432		811755		-									
TCE	G33391/TP23	812472		811567		-				0.8					
TCE	G33391/TP24	812752		811499											
TCE	G33391/TP25	812883		811421						1					
TCE	G33391/TP26	812364		811384		-									
TCE	G33391/TP46	812583		811445		-									
TCE	G33391/TP47	812487		810757		-			2						
TCE	G33391/TP48	812528		810668		-				2.5					
TCE	G33708/BH23	819244		811166				28.32		21.33					
TCE	G33709/BH31	819129		811084				10.8 32.2 14.9 19.3		3.2					
TCE	G33709/TP40	819367		811240											
TCE	G33709/TP41	819479		811266											
TCE	G33709/TP42	819563		811285						2					
TCE	G33709/TP44	819351		811137											
TCE	G33709/TP50	819173		812907											
TCE	G33709/TP51	812813		812350		-				3					
TCE	G33709/TP52	812417		812318		-									
TCE	G33709/TP53	812401		812189											
TCE	G33709/TP54	812860		812186											
TCE	G33709/TP55	812685		812166											
TCE	G3451/STC36_1	813197		817436.93			Rh	72.22	32.5			20.5	37.6		
TCE	G3451/STC36_4	813200.12		817412.09			Rh	54.22	17.1				27		
TCE	G3451/STC36_6	813238.99		817454.38			Rh, B	76.52	14.5			20.5	35.6		
TCE	G3451/STC36_7	813247.05		817406.02			Rh, G	46.93	17.8				28		
TCE	G3451/STC36_9	813204.06		817471.01		56.11	G, Rh	61.9	14			19.1	35		
TCE	G3451/STC36_10	813303.12		817424.04		43.45	Rh, G	49.2	13.8			15.6	27.6		
TCE	G3451/STC36_13	813329.95		817419.6		38	Rh	42.1	17				33.2		
TCE	G3451/STC36_14	813184.05		817393.96		42.49	Rh	92.85	22.5			28	40.2		
TCE	G3451/STC36_15	813184.23		817368.33		45.86	Rh, B	62.1 72.65	29				35		
TCE	G3451/STC36_16	813295.05		817354.02		44.72	Rh, B, G	77.36	21			30	39.5		
TCE	G3808/B/B2	819911.17		817469.9		48.39	Rh	33.87	16			18	33		
TCE	G3808/B/B8	819317.89		817495.08		51.99	G	64.95	16			20	32.2		
TCE	G3808/B/B9	819310.13		817512.77		47.51	Rh, G	70.3 72.7	16			19	32		
TCE	G3808/B/C1	819304.1		817472.49		51.78	Rh	37.3	14			18	34		
TCE	G3808/B/C10	819342.05		817504.24		42.83	G, Rh	68.25	28				34		
TCE	G3808/B/C11	819306.87		817505.45		48.18	Rh, G	69.3 79.7.77	14			20	36		
TCE	G3808/B/C12	819317.15		817512.83		46.5	Rh, G	71.85	18			20	34		
TCE	G3808/B/C13	819304.87		817518.48		49.55	Rh	58.2 1.45.55	14			22	34		
TCE	G3808/B/C14	819312.14		817520.94		42.11	Rh	82.35 86.13	18			20	36		
TCE	G3808/C2	819306.63		817485.28		57.8	Rh, G	61.28	11.5			19.5	33.5		
TCE	G3808/C/E5	819307.72		817483.29		59.64	G, Rh	64.22	18			20	32		
TCE	G3808/C/C4	819314.17		817491.76		58.37	G, Rh	63.95	19				35		
TCE	G3808/C/C5	819345.18		817491.12		61.16	G	66.73	26			18			
TCE	G3808/C/C6	819331.32		817498.74		60.91	G	66.37	22				34		
TCE	G3808/C/C7	819345.15		817498.56		57.86	G	66.46	24			26	34		
TCE	G3808/C/C9	819302.19		817479.51			Rh	61.35	16			20	34		
TCE	G3808/C8	819310.7		817498.6		-62.57	G, MSI	68.12	15			19	35		Meta-sedimentary rock recorded between -39.45mPD and -47.45mPD
TCE	G3808/C80	819318.23		817477.38		-49.76	Rh	55.23	18			18	34		
TCE	G3808/C81	819334.8		817484.96		54.13	G, Rh	63.64	21.3				31.5		
TCE	G3808/C82	819341.52		817483.26		57.09	G, Rh	62.55	26				32		
TCE	G3808/C9	819327.9		817504.73		45.91	G, Rh	71.45	20				36		
TCE	G3808/C/G1	819325.54		817334.06		49.23	G, Rh	65.2	18			20	38		
TCE	G3881/B/A19	819318.39		817353.83		-59.65	G	65.25	27				34.5		
TCE	G3881/B/A16	819330.1		817581.4		-49.77	Rh, B, G	59.24.99	27.5			29	35		
TCE	G3881/B/A17	819344.44		817546.43		-56.77	Rh	64.67	23			26	32		
TCE	G3881/B/A18	819270.24		817343.16		57.95	Rh	63.34	18.5			20	36.5		
TCE	G3881/B/B15	819295.73		817562.13		58.29	G, B, Rh	63.75	24.5				36.5		
TCE	G3881/B/B16	819284.96		817359.8		60.38	Rh	65.77	17			21	37		
TCE	G3881/B/B18	819280.45		817318		55.38	G, Rh	60.8	18			22	40		
TCE	G3881/B/C15	819299		817525.56		60.48	Rh	62.85	14			20	34		
TCE	G3881/B/C16	819312.64		817532.29		48.05	Rh	65.53	16			20	36		
TCE	G3881/B/C17	819305.14		817532.44		45.14	Rh	59.13	13.5			21.5	35.5		
TCE	G3881/B/C18	819295.75		817530.96		54.58	Rh, G	59.8	20			22	36		
TCE	G3881/B/C19	819306.02		817536.68		57.85	Rh	63.05	25				39		
TCE	G3881/B/C20	819301.83		817542.84		57.3	G, Rh	62.7	24				36		
TCE	G3881/B/C21	819280.76		817530.85		56.96	G	62.4	21				41		
TCE	G3881/B/C22	819291.82		817536.09		58.01	G, Rh	63.39	21				37		
TCE	G3881/B/C23	819289.1		817568.03		57.22	G, B	62.7	27				35		
TCE	G3881/B/C24	819284.73		817536.43		57.43	B, Rh	62.36	24				35		
TCE	G3881/B/C25	819277.35		817544.97		55.71	G, Rh	60.54	20			26	38		
TCE	G3881/B/C26	819271.03		817557.92		44.37	G, B, Rh	63.8 60.3	23				37		
TCE	G3881/B/C83	819290.01		817551.14		40.61	Rh, G	64.98 65.6	16			20	36		
TCE	G3881/B/C84	819305.35		817544.42		41.17		62.76 66.2	20			22	36		
TCE	G3881/B/C85	819331.22		817536.6		-41.56	G, Rh	69.63 71.9	26				38		
TCE	G3881/B/C86	819301.02		817574.08		-37.39	G	62.8	29				33		
TCE	G3881/B/B24	819231.84		817465.04		-71.46	G, Rh	76.95	14.5			19.5	33.5		
TCE	G3881/B/C60	819216.15		817472.54		-	G, Rh	78.17	16			20	38		
TCE	G3881/B/C61A	819212.65		817458.97		-	Rh, G	78.53	16.5			20.5	36.5		
TCE	G3881/B/C63	819223.22		817470.8		-73.53	G, Rh	78.35	16			22.5	37.5		
TCE	G3881/B/C64	819215.55		817492.33			Rh, G	81	13.65			20	36		
TCE	G3881/B/C65	819226.63		817497.3			Rh, B, G	81.53	16			20	36		
TCE	G3881/B/C66A	819229.53		817491.13			G, Rh	79.6	14			18	34		
TCE	G3881/B/C67	819203.99		817482.05			G, Rh	70.6	16			20	42		
TCE	G3881/B/C67A	819241.63		817457.71		-72.17	G, B, Rh	77.2	14			20	36		
TCE	G3881/B/C69	819224.83		817438.86		-	-		6.5						
TCE	G3881/B/C69A	819243.52		817449.84		-	Rh, G, B	69.84	14			18	32		
TCE	G3881/B/C70	819219.82		817421.1		-	Rh, G	67.8 58.08	17.5				28.5		
TCE	G3881/B/C71	819246.48		817440.62			G, Rh	61.13	15			18	33		
TCE	G3881/B/C72	819218.42		817445.93			Rh, B, G	79.5	16			20	36		
TCE	G3881/B/C74	819217.56		817433.97			Rh, G	74.6	12.4			17	33.5		
TCE	G3881/B/C75	819224.23		817433.46			Rh, G, B	67.9	14			20	34		
TCE	G3881/B/C93	819212.86		817421.87		-	G, Rh	61.16	10.5				34.5		
TCE	G3881/B/C94	819218.87		817426.78		-	G, Rh	61.7	11.5			17.5	33.5		
TCE	G3881/B/C96	819216.42		817422.93		-	Rh	59.16.60.6	18				32		
TCE	G3881/B/B26	819315.95		817473.47		-48.98	G, Rh	54.57	16			18	34		
TCE	G3881/B/B8a	819323.37		817495.47		-40.65	G	66.16	20				34		
TCE	G3881/B/B9a	819323.7		817507.46		-47.25	G	72.75	20				36		
TCE	G3881/B/C17a	819348.02		817501		-51.61	G	67.1	22			28	34		
TCE	G3881/B/C12a	819313.16		817501.63		-42.33	G	67.88	16.3			20.5	34.5		
TCE	G3881/B/C12a	819319.99		817501.46		-43.02	G	66.59	18			22	36		
TCE	G3881/B/C13a	819304.21		817511.96		-42.98	G	65.75.71.33	14			20	34		

Location	Borehole	Easting	Northing		Rockhead (mPD)	Rock Type/Geology	Base of Strata (mbGL)							Notes
							H/V	Fill	Colluvium	Debris Flow Deposits	Marine Deposits	Alluvium	Beach Deposits	Pond Deposits	
TCE	G3881/C14a	813516.86	817519.59		-39.47	G, Rh	65	18			20	14			
TCE	G3881/C14	813307.03	817472.2		-31.82	G, Rh	57.34	18			22	18			
TCE	G3881/C2a	813303.56	817439.65		-40.68	G, Rh	64.18	14.5			20.5	32.5			
TCE	G3881/C7a	813353.67	817489.04		-40.93	G, Rh	65.86.64.95	20				32			
TCE	G3881/C4a	813357.11	817495.08		-43.72	G	65.6	25			25	35			
TCE	G3881/C5a	813368.59	817494.87		-43.2	G	64.8	14				34			
TCE	G3881/C6a	813332.9	817463.4		-39.54	G	65.06	16			20	34			
TCE	G3881/C7a	813316.27	817451.19		-43.51	G, Rh	49.51.66.6	16			20	32			
TCE	G3881/C7a	813313.93	817489.3		-39.96	G	64.17	18			20	34			
TCE	G3881/C8/a	813323.53	817483.18		-35.96	G, Rh	81.52	18			22	30.62			
TCE	G3881/C81a	813340.75	817489.02		-41.94	G, Rh	65.48	22				36			
TCE	G3881/C81a	813347.87	817488.82		-53.86	G	61.96	26				32			
TCE	G3881/C6a	813303.96	817501.73		-67.62	G, B	64.59.69.19	15			19	37			
TCE	G3881/C9a	813334.09	817501.03		-61.94	G	66.9	24				34			
TCE	G3882/V19	813256.53	817375.99		-63.14	G	57.2.66.61	29			30.5	33.5			
TCE	G3882/V19	813250.74	817357.02		-63.38	G, B	74	26				40			
TCE	G3882/V22	813247.21	817387.28		-64.03	Rh	67.93	20			22	38			
TCE	G3882/C28	813228.87	817370.55		-52.64	G	58.18.60.05	29.5			31.5	39.5			
TCE	G3882/C30	813230.19	817370.45		-57.45	G, Rh, Sk	52.5.67.73	28.5			30.5	33.5			
TCE	G3882S/C31	813229.5	817558.2		-84.96	G, MSI	90.28	24				32			Meta-sedimentary rock recorded between -32.48mPD and -50.48mPD
TCE	G3882S/C33	813226	817552.4		-79.65	G, Sk, MSI	85.19	22				32			Meta-sedimentary rock recorded between -58.48mPD and -62.46mPD
TCE	G3882/C34	813229.15	817546.07		-77.2	G	81.76	19			23	45			
TCE	G3882S/C35	813218.2	817540.5		-73.79	MSI, G	81.33	18			22	48			Meta-sedimentary rock recorded between -42.46mPD and -64.46.mPD
TCE	G3882/C36	813220.08	817527.53		-32.08	Rh	57.53.58.63.65.62.76.72	16			22	36.86			
TCE	G3882/C39	813219.21	817539.54		-67.73	G, Rh	71.9	16			22	38			
TCE	G3882/C40	813210.9	817550.86		-66.1	Rh, B, G	71.75	22				38			
TCE	G3882/C41	813230.1	817545.63		-74.53	Rh, G	80.15	20				36			
TCE	G3882/C42	813250.06	817545.02		-67.62	G, Rh	66.41	22				40			
TCE	G3882/C43	813246.8	817551.35		-	-	-	6							
TCE	G3882/C76	813195.54	817555.54		-66.22	G, Rh	71.7	23				35			
TCE	G3882/C77	813268.38	817553.6		-105.82	Rh, G	107.15	22			25	34			
TCE	G3882S/C78	813372.31	817528.31		-76.61	Rh, G	87.06	15.5			21.5	35			
TCE	G3882S/C87	813260.19	817547.91		-64.15	G, B, Rh	69.7	22.1				38.1			
TCE	G3882S/G16	813187.4	817519.8		-63.97	G, MSI	69.12	17.5			21.5	39.5			Meta-sedimentary rock recorded intermittently between -38.04mPD and -48.04mPD
TCE	G3885A/A2	813318.14	817457.92		-59.5	Rh	50.22	19.5			28.5	34			
TCE	G3885A/A3	813310.47	817419.12		-64.03	Rh, G	74.95	18			20.85	32.8			
TCE	G3885A/A4	813256.81	817422.05		-	Rh	56.8	23			24.5	39.5			
TCE	G3885A/A5	813280.76	817407.1		-	Rh	58.81	24			27	36			
TCE	G3885A/A6	813205.18	817422.37		-	Rh	66.76	21			23.5	30.5			
TCE	G3885A/B1	813316.55	817434.34		41.06	Rh	51.94	18			22	34			
TCE	G3885A/B25	813286.1	817392.86		-	Rh	59.3	22				36			
TCE	G3885A/B26	813262.82	817345.04			G, Rh	55	18			26				
TCE	G3885A/B28	813252.41	817515.41		-87.88	Rh, B, G	98.53	16.95			29.5	42			
TCE	G3885A/B29	813128.3	817519.6		-127.22	MSI, Q	114.72.136.6	21.5			36	44			Meta-sedimentary rock recorded intermittently between -38.04mPD and -131.99mPD
TCE	G3885A/B5	813278.17	817416.32		-49.71	Rh, G	83.65	22			24	32			
TCE	G3885A/B50	813241.32	817380.72		-38.93	G	50.1.54.4.56.58	24			38	46			
TCE	G3885A/B6	813236.67	817411.35			Rh, G	49.89	20			22	36			
TCE	G3885A/B7	813224.87	817410.15			Rh	51.5.56.5.62.02	20			21	45			
TCE	G3885A/B8	813182.07	817430.21			Rh	70.97.73.2	21.5			27.5	39.5			
TCE	G3885S/A11	813292.41	817458.64		-	Rh, B, G	87.7	21			25	33.5			
TCE	G3885S/A12	813205.88	817472.96		-	G, Rh	84.23	22.5			25.95	42.9			
TCE	G3885S/A13	813210.5	817499.94		-55.85	Rh	67.04	22.5			30	39			
TCE	G3885S/A14	813169.7	817502.48		-62.96	G, Rh	74	23			27.5	42.1			
TCE	G3885S/A8	813303.02	817495.93		-61.63	B, G	79.06	19.5			24.5	40.6			
TCE	G3885S/B19	813236.82	817446.14		-	Rh, B	83	20			25.5	49.5			
TCE	G3885S/B11	813214.16	817432.86			G, Rh	76.63	18			24	40			
TCE	G3885S/B12	813219.29	817460.04			G, B, Rh	87.42	20			24	40			
TCE	G3885S/B18	813204.89	817482.23			Rh	79.86.83.66	19.26			30.71	41.46			
TCE	G3885S/B1A	813182.41	817501.69		59.66	Rh	70.69	22.55			28	40			
TCE	G3885S/B15	813205.85	817510.49		-61.2	Rh	72.57	22			26.5	41.5			
TCE	G3885S/B7	813310.86	817464.51		-59.54	Rh, G	70.58	20			21.5	40			
TCE	G3885S/G18	813159.44	817508.76		-12.36	Rh, G	46.6	20.5							
TCE	G3885S/G54	813323.04	817478.64		-46.68	Rh		17				24.8			
TCE	G3885T/A20	813212.54	817371		-11.5	G	62.5	23.5			34.5	42			
TCE	G3885T/A22	813213.97	817523.52		74.36	G, Rh, Q	85.45	28.5			24.5	40.5			
TCE	G3885T/A22	813183.53	817533.35		71.99	Rh, G	79.08.83.07	21.5			28.5	40			
TCE	G3885T/B20	813224.26	817568.09		69.07	Rh	73.2.74.33	24			30	44			
TCE	G3885T/B21	813223.61	817537.06		75.42	Rh, B, G	87	20			24.3	43.3			
TCE	G3885T/B23	813207.03	817537.99		80.93	G, Q, Rh	89.56.83.7	24			26.5	43.3			
TCE	G3885T/B3A	813215.89	817515.82		-74.58	Rh, G	85.64	24			26.5	42.5			
TCE	G3885T/G52	813195	817595.8		-71.99	MSI, G, Q		20							Meta-sedimentary rock recorded between -71.99mPD and -75.41mPD
TCE	G39353/BH1	812445.78	816470.45			T			8.03						
TCE	G39353/BH2	812868.23	816432.96			Rh			2.81						
TCE	G39353/BH3	813220.98	816981.94						3.33						
TCE	G39353/TP1	814705.15	817633.6			G			9.16						
TCE	G39353/TP10	813793.31	816551.21		-	-									
TCE	G39353/TP11	812352.41	816514.21		-	-									
TCE	G39353/TP13	813799.27	816162.78		-	T			2.36						
TCE	G39353/TP1b	812784.69	816645.4		-	-		0.86							
TCE	G39353/TP18	812413.33	816291.75		-	T			1.11						
TCE	G39353/TP19	812809.74	816676.62		-	-									
TCE	G39353/TP22	812554.64	816467.19		-	-									
TCE	G39353/TP23	813519.35	816899.07			T			0.91						
TCE	G39353/TP24	813583.85	816536.88			T			2.34						
TCE	G39353/TP25	812824.24	816498.5			T			1.35						
TCE	G39358/TP26	812579.64	816639.13						5.09						
TCE	G39353/TP28	813411.5	816671.62			T			2.23						
TCE	G39353/TP29	812917.83	816510.24			T			1.4						
TCE	G39353/TP3	814220.2	817540.33		-	G	1.56		0.94						
TCE	G39353/TP4	814414.77	817537.48		-	G			1.87						
TCE	G39388/TP6	813796.31	816467.01		-	T			0.75						
TCE	G39353/TP7	813416.04	817124.97		-	T			0.7						
TCE	G39353/TP8	813296.61	816674.94		-	T			9.26						
TCE	G39353/TP9	814282.87	817543.05			G			1.8						
TCE	G4008I/D1	813304.85	817480.19		59.58	G	65	14			18	36			
TCE	G4008I/D10	813312.54	817495.82		-60.57	G	66.04	16			22	34			
TCE	G4008I/D11	813320.45	817495.53		-59.19	G	64.9	17.8			19.8	35.8			
TCE	G4008I/D12	813318.02	817493.96		-61.35	G	66.83	19				33			
TCE	G4008I/D13	813353.38	817495.97		-61.24	G	66.7	24				34			
TCE	G4008I/D14	813343.14	817493		-61.19	G	66.83	26.5				34.5			
TCE	G4008I/D15	813306.95	817504.09		-61.82	G	64.95.71.72.74.83	14			20	36			
TCE	G4008I/D16	813314.67	817503.97		-70.55	G, B	66.79.79.12	16			20	36			
TCE	G4008I/D17	813322.46	817503.68		-66.34	G	72.08	20				36			
TCE	G4008I/D18	813331.81	817502		-63.51	G	52.22.69.05	22				34			
TCE	G4008I/D19	813339.42	817501.98		-62.24	G	67.04	24.5				34.5			
TCE	G4008I/D2	813312.45	817476.53		-54.62	Rh, G	59.65	15			19	33			
TCE	G4008I/D20	813305.58	817511.49		-66.19	G, B	67.95.68	17.5			19.5	37			
TCE	G4008I/D21	813319.08	817512.92		-67.18	G	69.9.79.16	16.5			20.5	36.5			
TCE	G4008I/D22	813320.49	817512.68		-68.49	G	69.26.76.67	18			20	36			
TCE	G4008I/D23	813307.4	817518.76		-59.95	Rh	61.19.63.4	16			20	34			
TCE	G4008I/D3	813320.2	817478.34		-49.43	Rh	66.59	16.5			16.5	34.9			
TCE	G4008I/D4	813306.87	817487.46		-61.36	G, Rh	66.59	13.85			18.25	33.85			
TCE	G4008I/D5	813314.93	817487.51		-59.16	G	64.63	15.5			19.5	33.5			
TCE	G4008I/D6	813322.04	817487.49		-62.84	G, Rh	66.87	17.8			19.8	33.9			
TCE	G4008I/D7	813331.64	817488.72		-60.85	G, Rh	63.26	21.5				33.5			
TCE	G4008I/D8	813339.21	817488.32		-61.34	G, Rh	66.3	24.5				34.5			
TCE	G4008I/D9	813305.02	817495.84		-61.41	G	64.85	18			20	34			
TCE	G4008I/D47	813258.22	817556.49		-66.19	G	71.71	23.43				35.43			
TCE	G4008I/D48	813255.13	817542.97		-64.91	Rh	70.47	20			22	36			
TCE	G4008I/D49	813218.58	817575.86		-54.6	G	60.12	13				36.5			
TCE	G4008J/D50	813231.5	817568.8		-74.51	Rh, MSI, G	68.56.80.09	1.85				38			Meta-sedimentary rock recorded between -68.32mPD and -80mPD
TCE	G4008J/D51	813214.76	817562.24		-72.51	G	68.43.78.01	26.4				38			
TCE	G4008J/D52	813240.5	817554.5		-73.47	G, MSI, Mix	78.98	23.5				37.5			Meta-sedimentary rock recorded between -76.81mPD and -82.89mPD
TCE	G4008J/D53	813244.17	817547.51		-69.13	G	74.68	20.85				35.15			
TCE	G4008J/D54	813247.52	817540.75			Rh	66.2.73.15	19			21	37			
TCE	G4008J/D56	813227.3	817562.7		-64.25	Rh, MSI, G	69.74,79.61	25.5				37.5			Meta-sedimentary rock recorded between -71.11mPD and -76.61mPD
TCE	G4008J/D57	813231.31	817555.42		-79.35	G	84.61	22				38			
TCE	G4008J/D58	813239.84	817549.02		-77.46	G	82.96	21.6				36			
TCE	G4008J/D59	813237.79	817547.42		-69.86	B, G, Rh	73.39	20.2			22.6	36.2			
TCE	G4008J/D60	813241.15	817563.63		-66.51	Rh, G	72.09	18			24	34.4			
TCE	G4008J/D61	813216.08	817569.94		-59.64	G	59.51	28.6				34.49			
TCE	G4008J/D62	813219.69	817562.93		-63.08	Rh	70.64	26				38			
TCE	G4008J/D63	813222.78	817596.53		-78.96	G	81.15.81.96	28				38			
TCE	G4008J/D64	813226.55	817547.12		-75.42	G	80.97	22				36			
TCE	G4008J/D65	813229.46	817540.3		-73.63	G	81.32	22.5			22.9	36			
TCE	G4008J/D66	813233.08	817533.6		-68.16	Rh	71.9	16.5			20.5	36.5			
TCE	G4008J/D67	813222.26	817534.26		-75.57	G	81.05	18			20.4	36			
TCE	G4008J/D68	813227.2	817528.46		-71.11	Rh	76.6	15.33			21.85	35.85			
TCE	G4008J/D69	813233.8	817534.2		-74.73	G, Mix, G	48.24.60.27	17.5			21.5	37.5			Meta-sedimentary rock recorded Intermittently between -46.49mPD and -74.73mPD
TCE	G4008K/D100	813215.93	817442.9		-	Rh, G	77.04.79.71	16			19.6	34			
TCE	G4008K/D101	813219.74	817430.88			Rh, G	80	14.63			20.65	34.65			
TCE	G4008K/D102	813221.85	817437.14			Rh, Sk, G	81.33	21.93				33.95			
TCE	G4008K/D104	813228.23	817461.72		-	B, G, Rh	81.8	19.5			19.5	33.5			
TCE	G4008K/D106	813214.18	817429.32		-	Rh, Sk, G	69.72	14.45			18.45	34.45			
TCE	G4008K/D107	813227.2	817447.9		-	Rh, G	81	20				38			
TCE	G4008K/D108	813231.7	817454.1		-	Rh, G, MSI, B	81.86	15.5			19.5	35.5			Meta-sedimentary rock recorded intermittently between -61.99mPD and -76.35mPD
TCE	G4008K/D110	813221.54	817428.71			Rh	62.92	14			18	32			
TCE	G4008K/D111	813225.97	817434.67			B, Rh, G	69.97	14.5			18.5	34.5			
TCE	G4008K/D113	813237.2	817447.82			Rh, Sk	76.05	14			20	32.4			
TCE	G4008K/D114	813241.49	817454.19		-	Rh, G, MSI	71.42	21.5				33.5			
TCE	G4008K/D115	813241.65	817458.09			Rh, B	65.95	20				34			
TCE	G4008K/D116	813248.61	817431.23		-	Rh, G	83.8	14.2			20.2	34.2			
TCE	G4008K/D117	813249.91	817457.03		-	Rh	61.89	19.7	32			23.96			
TCE	G4008K/D118	813253.93	817445.73		-	Rh	59.64	24.8	33						
TCE	G4008K/E1	813210.61	817503.69		-59.8	Rh	65.9	15.7							
TCE	G4008K/E2	813213.66	817487.58		-60.07	Rh, B, G	65.4	14.1							
TCE	G4008K/E3	813232.02	817520.63		-78.54	Rh, Sk, G									
TCE	G4008K/E4	813221.76	817504.65		-56.21	G, Rh	61.7	18							
TCE	G4011B/D24	813305.8	817524.97		-60.31	G, Rh	58.77.56.65.57.71.59.74.62.83.64.23.65.8.66.21	16			20	34			
TCE	G4011B/D23	813294.59	817527.16		-59.63	G, Rh	63.24	14			20	36			
TCE	G4011B/D26	813307.84	817539.11		-59.93	G, Rh	58.9	17			21	35			
TCE	G4011B/D27	813299.2	817532.96		-61.53	G	63.25	16			20	36			
TCE	G4011B/D28	813297.32	817539.5		-61.4	G	63.8	17.5			21.5	37.5			
TCE	G4011B/D29	813300.96	817545.88		-51.49	Rh	51.92.53.23.57.81.60.46	18			22	36			
TCE	G4011B/D30	813304.76	817554.61		-53.34	G	60.75	22				36			
TCE	G4011B/D31	813309.18	817561		-58.41	Rh	64.85	23				37			
TCE	G4011B/D32	813285.23	817553.62		-60.39	Rh	65.33	16			22	36			
TCE	G4011B/D33	813289.25	817542.09		-57.6	G, Rh	61.03	20			22	36			
TCE	G4011B/D34	813299.3	817548.96		-55.73	G, Rh	58.59.61.33	18			20	36			
TCE	G4011B/D35	813297.44	817535.05		-56.02	Rh, G	61.12	24				34			
TCE	G4011B/D36	813301.46	817561.54		-58.33	G, B, Rh	61.8	24				34			
TCE	G4011B/D37	813305.33	817567.87		-56.49	G, B, Rh	62	26				38			
TCE	G4011B/D38	813279.56	817581.4		-53.96	G, Rh	63.45	18			24	36			
TCE	G4011B/D39	813283.48	817567.87		-54.91	G	60.38	20			22	38			
TCE	G4011B/D40	813287.43	817554.27		-56.54	Rh	61.03	24				36			
TCE	G4011B/D41	813289.7	817561.59		-59.96	G, B, Rh	54.65.69	24			28	32			
TCE	G4011B/D42	813197.88	817568.06		58.89	B, G	62.8	27				33			
TCE	G4011B/D43	813271.89	817548.96		55.44	Rh	60.9	18			22	34			
TCE	G4011B/D44	813274.74	817551.2		-56.99		62.35	22				36			
TCE	G4011B/D45	813278.72	817537.66		-58.92	G, Rh	62.71	18				36			
TCE	G4011B/D46	813266.66	817549.41		-62.09	G, B, Rh	65.05.67.6	14				34			
TCE	G4012G/D70	813206.02	817525.1		-74.05	G, Rh, B	82.96	16			22	34			
TCE	G4012G/D71	813213.5	817522.46		-63.31	G, MSI, Rh	72.05	15.8			22	36			Fault breccia recorded from -66.6mPD to -71.5mPD, indicative of Fault Zone
TCE	G4012G/D72	813201.38	817517.86		-66.61	G, B	72.14	16			22	36			
TCE	G40120/D73	813208.9	817517.2		80.82	G, Rh, MSI, SI, M	79.62.85.85	26			24	34			Meta-sedimentary rock recorded between -62.47mPD and -80.77mPD, over Marble recorded between -80.77mPD and -85.77mPD
TCE	G40120/D74	813214.36	817513.33		-59.51	Rh, G	64.94	20			22	36			
TCE	G4012G/D75	813214.15	817509.03		-63.11	G, P	68.56	16.2			22.2	34.2			
TCE	G40120/D76	813181.7	817508.4		-68.15	G, SI	69.4	17			27	35			Sedimentary rock recorded between -31.55mPD and -37.55mPD
TCE	G40120/D77	813189.13	817507.96		-62.35	Rh	67.72	16			22	36			
TCE	G4012G/D78	813198.82	817508.73		-63.58	G, B, Rh	68.85	24.75			22	34			
TCE	G4012G/D79	813206.79	817508.23		-61.46	G, Rh	66.4	17.5			21.5	33.5			
TCE	G4012G/D80	813213.93	817507.72		-60.04	G	64.61.65.6	16.85			24	36			
TCE	G4012G/D81	813177.42	817502.22		-59.71	Rh	61.2	16			22	36			
TCE	G4012G/D82	813184.87	817501.67		-60.96	G, Rh	65.91	13.6			24	36			
TCE	G4012G/D83	813192.53	817501.01		-61.05	G, B, Rh	66.5	16			22	34			

Location	Borehole	Easting		Northing		Rockhead (mPD)	Rock Type/Geology	Base of Strata (mbgl)							Notes
								N/V	Fill	Colluvium	Debris Flow Deposits	Marine Deposits	Alluvium	Beach Deposits	Pond Deposits	
TCE	G40120/D84	813200		817500.63		42.64	G, Rh	68.13	16			22	40			
TCE	G40120/D85	813207.57		817500.14		-57.76	G	63.36	17			25	35			
TCE	G40120/D86	813213.93		817499.41		-53.89	G	61.44,62.41	17.11			22	36			
TCE	G40120/D87	813373.16		817495.91		-59.67	G, B, Rh	65.2,67.12	16			22	34			
TCE	G40120/D88	813380.85		817499.26		-60.53	G, Rh	66.03	16			22	34			
TCE	G40120/D89	813188.3		817494.8		44.94	MSt, G	65.4,67.25	16			22	32			Meta-sedimentary rock recorded between -26.51mPD and -30.51mPD
TCE	G40120/D90	813197.4		817492.41		-58.9	G	64.35	16			22	36			
TCE	G40120/D91	813205.28		817491.9		-61.84	G	65.56	16			21	34			
TCE	G40120/D92	813212.8		817491.5		44.4	G, B, Rh, M	71.82	16			22	34			Marble recorded between -74.38mPD and -80.28mPD
TCE	G40120/D93	813198.9		817483.33			G	67.5	16			22	34			
TCE	G40120/D94	813206.43		817482.93		-72.42	G, B, Rh	74.88,78.2	16			22	38			
TCE	G40120/D95	813214.27		817483.77		-63.25	Rh, B	73.66	16			20	42			
TCE	G40120/D96	813202.52		817475.5		-	G, Rh, B	70.68,75.11	14			20	36			
TCE	G40717/D10	814747.86		818156.52		-						32.24				
TCE	G40717/D11	814792.13		818151.8		-						30				
TCE	G40717/D15	812845.46		818241.41		-						13.2				
TCE	G40717/D16A	813660.82		818555.87		-						6.3				
TCE	G40717/D17	813877.83		818616.71								6.1,13				
TCE	G40717/D18	814369.53		818582.42								6.1,13				
TCE	G40717/D19	814814.91		818553.69								4.5				
TCE	G40717/D4	812478.69		818044.05		-						6.1,32.2				
TCE	G40717/D5A (40714, 40716)	813158.36		817967.44		-						6.1,16.4				
TCE	G40717/D6	813514.54		817847.56		-						6.1,13.45				
TCE	G40717/D7	813410.85		818022.71		-						6.1,13.45				
TCE	G40717/D8	813815.85		817785.1		-										
TCE	G40717/D8A	813853.86		817785.96		-						9.1				
TCE	G40717/D9	813800.02		818049.49		-						10.6				
TCE	G40749/E1	814183.6		819733.66		-										
TCE	G40749/E10	813972.13		818102.73		-										
TCE	G40749/E14	813419.84		819177.19												
TCE	G40749/E15	813181.16		819037.61												
TCE	G40749/E16	812945.16		818736.15												
TCE	G40749/E17	812700.56		818418.74												
TCE	G40749/E18	812460.57		818096.34												
TCE	G40749/E19	814091.79		819053.41												
TCE	G40749/E20	812849.12		818486.3												
TCE	G40749/E9	813616.88		819138.07		-										
TCE	G40749/E4	813333.73		818884.97												
TCE	G40749/E5	813052.28		818608.56												
TCE	G40749/E6	812787.91		818320.73												
TCE	G40749/E7	812209.15		817754.81												
TCE	G40749/E9	813640.48		819411.32		-										
TCE	G40998/MH10	812212.4		818045.8		-63.16	M					22.45	60.95			Marble with cavity deposits recorded between -63.16mPD and -109.77mPD
TCE	G40998/MH11 (40998, 41000)	812573.7		818028.2		-147.74	MSt, Sk, MSa, M	78.81,81.89.2				22	42.45			Meta-sedimentary rock recorded between -44.49mPD and -80.04mPD, Marble, cavity deposits and meta-sedimentary rock recorded between -91.49mPD and -150.44mPD
TCE	G40998/MH12A	812925.71		818252.68		-140.71	G	92.4,137.19					25			
TCE	G40998/MH13	813418.24		818148.11		-52.85	G	47.82,50.28				11	32.5			
TCE	G40998/MH14	813555.54		817881.23		-47.33	Rh	44.85				12	32			
TCE	G40998/MH15	814508.72		818235.49		-52.8	G	49.84				10	32			
TCE	G40998/MH18 (40999, 41000)	812320.9		817920.4		-49.27	M, G					22.5,28.5	28,41.03			Marble recorded between -49.27mPD and -55.79mPD
TCE	G40998/MH19	812420.9		818120.9		-72.86	MSt, M	64	82.5			22	60			Meta-sedimentary rock recorded between -82.15mPD and -88.15mPD, with marble and cavities recorded between -66.15mPD and -105.42mPD
TCE	G40998/MH20 (40999, 41000)	812680.36		818220.77		-69	G	59.55,64.92				21.64	37			
TCE	G40998/MH9 (40999, 4100)	812222.6		818245.2		-49.79	MSt, MSa	41.8,62.1,73.7,77.8,104.8,109.12				22.1	38.9			Meta-sedimentary rock recorded between -40.89mPD and -116.48mPD, with cavities recorded from -45.94mPD to -68.09mPD
TCE	G41338/F1	812330.5		818236		-										
TCE	G41338/F2	812715.5		818315.5		-										
TCE	G41338/F3	813188.8		818700.3								17.5				
TCE	G41338/F4	813432.7		818687.4								11.93				
TCE	G41338/MH24	812328.4		818266.5		-54.39*	M					22	52			Marble with cavities recorded between -54.05mPD and -81.3mPD
TCE	G41338/MH25	812411.1		818322.5		-51.79*	M					23	50.5			Marble with cavities recorded between -53.78mPD and -89.96mPD
TCE	G41338/MH26	812493.2		818378.8		-44.85*	M					22	40.5			Marble with cavities recorded between -42.45mPD and -89.76mPD
TCE	G41338/MH27	812577.4		818434.8		-57.07*	M					24	54.5			Marble recorded between -57.07mPD and -79.22mPD
TCE	G41338/MH28	812659.8		818489.2		-58.79*	M, G					24	41.5			Marble with cavities recorded between -54.56mPD and -80.84mPD
TCE	G41338/MH29	812742.4		818544.8			MSt, MSa, M	77.5,84.86.6,97.5,109.5,123.5,128.5				25	39.5			Meta-sedimentary rock recorded between -41.25mPD and -141.42mPD, Marble and cavities recorded between -79.25mPD and -148.05mPD, Fault zone recorded between -111.25mPD and -117.25mPD.
TCE	G41338/MH30	812828.4		818599.1		-64.23	G	82				24	40			
TCE	G41338/MH31	812917.4		818642.6		-93.13	MSa	52.91				26	40			Meta-sedimentary rock recorded between -42.3mPD and -60.41mPD
TCE	G41338/MH32	813032.4		818675		-99.86	G, Gj	59.05,71.7,84.8,107.7,121.7				23	49			Fault zone recorded between -60.35mPD and -81.0mPD, and between -105mPD and -107mPD
TCE	G41338/MH33	813109.7		818693.2		-44.14*	MSt, G, M, MSa	55.6				26	42.5			Meta-sedimentary rock recorded between -44.7mPD and -70.95mPD. Marble and cavities recorded between -80.2mPD and -65.49mPD.
TCE	G41338/MH34	813209.5		818699.8		-92.5	MSt, G	87,89.05,95.52				16	43			Meta-sedimentary rock recorded between -45.45mPD and -86.55mPD
TCE	G41338/MH35	813511.5		818693.3		-86.5	G	43.6				14	40.5			
TCE	G41338/MH36	813676.5		818687.2		-42.7	G	58.1				14	26.5			
TCE	G41338/MH37	813762.6		818664.6		-67.18	G	62.39				7	35			
TCE	G41338/MH38	814161.7		818637.39		-45.92	G	62.81				31	37			
TCE	G41338/MH39	814581.2		818700.8		-57.7	G	44.6,46.6,58.8				32	30			
TCE	G43104/ABH04	813244		816916		-		59.65		4						
TCE	G43104/ABH05	813322		816961						6.57						
TCE	G43104/ABH06	813742		817031				11.35		4.6						
TCE	G47802/DH 1	813876.39		817489.48			T			3.3						
TCE	G47802/DH 2	813322.58		817355.21			Rh, T	17.8		1.6						
TCE	G47802/DH 3	813536.87		817019.11			T	8.45		4.7						
TCE	G47802/DH 4	813205.91		817004.95			T	11.1		3						
TCE	G47802/DH 5	813196.48		816988.67			T			6.55						
TCE	G47802/DH 6	813209.32		816970.71			T	12.5,17.9		4.2						
TCE	G47802/DH 7	813226.75		816975.39			T	11		5						
TCE	G47802/DH12	812340.47		816377.22			T			4						
TCE	G47802/DH13	812372.86		816404.23			Rh	29.85		7.5						
TCE	G47802/DH14	812359.87		816383.71			Rh	20.18		4.2						
TCE	G47802/DH15	812346.01		816360.31			Rh	23.64		4.3						
TCE	G47802/DH16	812220.54		816382.53			T	12.6		3						
TCE	G47802/DH17	812222.72		816364.27			T	13		0.6						
TCE	G47802/DH18	812232.37		816350.38			T	13		1						
TCE	G47802/DH19	812218.55		816348.82			T			1.1						
TCE	G47802/TP 2	813329.97		817115.7												
TCE	G47802/TP 3	813255.52		817051.84			T			1.6						
TCE	G47802/TP 4	813222.69		816985.92												
TCE	G47802/TP 6	812367.12		816563.71												
TCE	G47802/TP 7	812233.24		816177.11												
TCE	G47802/TP A	812341.35		816368.09												
TCE	G51923/PHLD8	821886.97		825790.72			G	8.3	2.2							
TCE	G51923/PHLD9	821824.11		825608.44			G	13.58	2	7						
TCE	G51923/PHTP1	812783.25		825549.39		-			2							
TCE	G51923/PHTP3	821870.16		825633.67		-	G		1.3							
TCE	G51923/PHTP6	813157.17		825898.62		-	G									
TCE	G51923/PHLD7	814206.57		817599.73		2.71	Rh	10.9								
TCE	G51825/PHLD 6	814836.83		817879.02		-17.71	Rh	24.27	19.98				21.8			
TCE	G52062/PHLD1	813062.65		825054.48			G, Q	13.7,8.85	0.5							
TCE	G52062/PHLD10	812660.09		825345.02			G	6.13	4.8							
TCE	G52062/PHLD2	812821.99		825739.83			G		2.07							
TCE	G52062/PHLD3	812979.94		825907.05			G		0.8							
TCE	G52062/PHLD7	812837.25		825686.41			G	21.9	3.6							
TCE	G52062/PHTP1	812787.77		825707.82			G		0.45							
TCE	G52062/PHTP7	813064.29		825929.86		-										
TCE	G52062/PHLD1	814337.66		817587.06		-	Rh	14.55		0.5						
TCE	R31611/TRL149	814440.16		817668.117		11.78	G	3.9								
TEW	02610/D128	811081		816257		+19.79*	Rh	6.71								3.2m of rock proven to base of hole
TEW	02610/D129	811447		816461		+33.43*	Rh	13.39		2						4.8m of rock proven to base of hole
TEW	02610/D131	811825		816267		42.23	G	10.29		8						
TEW	02610/D132	811443		816341		4.35	Rh	6.65		2						
TEW	02610/D133	811961		816162		+17.25*	Rh	13.73								3.81m of rock proven to base of hole
TEW	02610/D162	810110		814633		111.57	Rh	23.43		10						
TEW	02610/D163	810415		815118		29.04	G	28.96		16			14.22			Length of longest continuous layer: 4.999999999999
TEW	02610/D164	810582		815414			G			8						
TEW	02610/D164A	810473		815950		38.6	G	3.4								
TEW	02610/D164B	810468		815594		51.28	G	4.72								
TEW	03229/29	810643.8		816248.9		-						2.4				
TEW	03229/SB42	810600.9		816391.6		-						4.3				
TEW	03229/SB42A	810740.2		816472.5		-										
TEW	03229/TE4	810504.5		816259.4		-						5				
TEW	03229/TE5	810525.1		816315.1		-						5				
TEW	03606/TRL107	811873.03		816511.57						0.4						
TEW	03606/TRL108	811726.79		816537.14		13.53	Rh	10.19.1		14.1						
TEW	03606/TRL109	811463.3		816472.37		12.91	Rh	8.1		2						3.08m of rock proven to base of hole
TEW	03606/TRL110	811737.66		816601.41			Rh	5.5								
TEW	03606/TRL113	811982.22		816414.05		9.61	Rh	8.7								
TEW	03606/TRL326	812083.65		816185.7						7.5						
TEW	03606/TRL328	811904.16		816291.55		+24.24*	Rh	11.4								4.6m of rock proven to base of hole
TEW	03606/TRL329	811970.77		816059.89		-	Rh	14.1		8.2			11.4			
TEW	03606/TRL332	811867.41		815965.28		-	Rh			8.23						
TEW	03606/TRL337	811981.43		815870.8			Rh						12.4			
TEW	03606/TRL338	811731.97		815836.99			Rh	12					10.48			
TEW	03606/TRL339	812094.95		816308.26		9.71	Rh	10								
TEW	03623/TRM102	811540.32		816942.97		-13.13	G	32.4		3		9	23.4			
TEW	03623/TRM108	811393.17		816852.64		-32.96	Rh					9.7				
TEW	03623/TRM106	811677.07		816653.74		-7.31	Rh	7.42					0.42			
TEW	03623/TRM111	811511.24		816208.74		-14.83		12.75		10				2		
TEW	03623/TRM112	811512.22		816134.05		-10.1	Rh	10								
TEW	03623/TRM113	811588.87		816099.42			Rh					4.8	12	2.5		
TEW	03623/TRM114	811704.27		816071.74			Rh						17.45	4		
TEW	03623/TRM115	811802.66		815995.58		13.5*	Rh					3.2	16			8.05m of rock proven to base of hole
TEW	03623/TRM116	811892.99		816024.08			Rh	2.5,22.25					14.8			
TEW	03623/TRM117	811102.52		815956.85			Rh	12.5				5	7			
TEW	03624/TRM120	811864.16		815568.71		-10.5*	G	10.6				3.5	7.6			4.4m of rock proven to base of hole
TEW	03624/TRM124	811874.84		816483.8		-4.71*	Rh	2.3				1.5				4.45m of rock proven to base of hole
TEW	03637/5	811269		816311		-	-					6				
TEW	14107/T # 8A	811241.8		814528.92		-	-									
TEW	14459/N127	811985.92		815748.6			Rh	23		20		2.5	17			Length of longest continuous layer: 4
TEW	14459/N130	811236.12		814882.16		17.95	T	2.1		3.25						
TEW	14459/N135	810727.25		814960.23		>29.92	T			3.3			2.1,3.8			Rock not encountered
TEW	14459/N136	810587.48		814612.75		>9.09*	T	10		2.5						
TEW	14459/N135	810548.8		814871.35		> 24.96*							3			
TCW	14459/NL36	810541.5		815004.8		-15.76*	T, Rh, Br	22		3.5			4.5			Brecciated rock recorded from +8.64mPD to -8.86mPD 2m of rock proven at base of hole
TEW	14459/NL37	810626.55		815335.49		1.68	Rh	11					3			
TEW	14459/NL38	810715.75		815606.28		-24.58	Rh	25.7					14.45			
TCW	14460/N512	811209.4		816189.5		-17.3 *	G, FBr	17.3				0.7	16.45			Fault breccia recorded from -18.32mPD to -18.98mPD. Indicative of Fault Zone 3.35m of (I) Granite proven to base of hole
TCW	14460/N513	811028.2		816581.3		-19.09*	G			3.7		2.45	17.7	2		2.77m
TEW	14460/N516	810771.05		816210.3		>-21.9*		21.4				2.95	17			
TCW	14461/TPNT22	811300.91		814371												
TCW	14461/TPNT24	810764.83		814637.44					1.5							
TCW	14461/TPNT25	810650.93		814835.81			T			1.2						
TCW	14461/TPNT26	810607.65		815113.6												
TCW	14461/TPNT27	810648.17		815198.57		-	T		1	2			1.5			
TCW	14461/TPNT28	810757.11		815430.49												
TCW	15900/NL201	811951.2		816425.99		19.27	Rh	9.45								
TCW	15900/NL202	811979.8		816152.84		15.47	Rh	14.8								
TCW	17357/M130	812054.53		816429.66		-	Rh	10	2.5			3				
TCW	17357/M136	812040.18		816413.53		-	Rh	6.92	1.5			3				
TEW	17357/M107	812068.67		816413.92			Rh	5	1.5			3				
TEW	17357/M133	812054.53		816401.17			Rh	5	1.5							
TCW	17357/M128	812068.67		816387.09			Rh	9.17	1.5							
TCW	17357/M124	812082.81		816372.89			Rh		2.6							
TCW	17357/M128	812096.95		816356.73			G	2.35	1.8							
TCW	17357/H67	811997.96		816486.01		-	Rh	5.16	3.3			4.3				
TEW	17357/H73	812012.1		816471.89		-	Rh	11.3	3			3.4				
TEW	17357/H83	811997.96		816457.74			Rh	14.23	3			4.5				
TEW	17357/H84	812026.24		816457.74			Rh	9.95	5			7.5				
TEW	17357/H92	812012.1		816443.6				6.45	3.5			3.5				
TCW	17357/H93	812040.38		816443.6			Rh	7	4.5							
TEW	17357/H99	812026.24		816429.46			Rh	11.41	3.3			3				

Location	Borehole	Easting		Northing		Rockhead (mPD)	Rock Type/Geology	Base of Strata (mbGL)								Notes
								W/V	Fill	Colluvium	Debris Flow Deposits	Marine Deposits	Alluvium	Beach Deposits	Pond Deposits	
TCW	20110/BH122	813460.41		8159359.45		9.86	G	16.73	0.5				15.6			3.4m
TCW	20110/BH124P	813628.98		8160837.38		0.6	Rh		1.5				7.85			
TCW	20110/T.P.218	813623.91		8160351.52		-										
TCW	20110/T.P.218A	813630.77		8160351.99		-										
TCW	20110/T.P.314	813638.09		8164004.85		-	G	2.6			2.4					
TCW	20782/TC2-1	813720.48		8159347.55		-12.62	Rh	16.7					12.5			
TCW	20782/TC2-2	813367.75		8159359.97		-19.75	Rh	35.9					15			
TCW	20787/TC2-3	813415.7		8160784.3		-22.26	Rh/Str. F2	22.45					23			Brecciated rock recorded from: 11.93mPD to -14.48mPD, indicated as Fault Zone
TCW	21006/BH301P	813966.44		8162213.75		13.66	Rh	3.4			1.7					
TCW	21006/BH302P	813923.09		8161981.01		16.38	Rh	7.34			2.5					
TCW	21006/BH303P	813922.64		8161617.5		13.79	Rh	14.45			1					
TCW	21006/BH304P	813870.38		8160681.91		13.14	Rh	7.45			1					
TCW	21006/BH305P	813755.98		8160650.14		15.08	Rh	5.9			0.44					
TCW	21006/BH316P	813203.28		8159682.49		-41.53	T	41.3 44.8					13.5			
TCW	21006/BH317M	813192.3		8157719.06		-		21.75					10.5			
TCW	21006/BH318M	813173.76		8157776.97		-	Rh	37.22					12			
TCW	21006/BH319M	813115.32		8158518.46		-	G	23.7					13.1			
TCW	21006/BH320P	810981.74		8155570.09		-		20.5					15.5			
TCW	21006/BH321P	811098.24		8153402.91		-		56.2					16.55			
TCW	21006/BH322P	811041.07		8152411.01		-	Rh	21.15 23.95 22.85					12.25			
TCW	21006/T.P.310	812263.69		8156602.81		-										
TCW	21006/T.P.316	811052.37		8152346.12		-										
TCW	21644/TC2/7	813564.08		8155913.33		-		32.65	1.45				16			
TCW	21644/TC2/8	813333.79		8155897.33		-		33.5					14			
TCW	21644/TC2/9	813281.97		8155782.24		-27.05	Rh	33.30					14		0.7	
TCW	21170/TC2/10	812210.91		8153652.43		-48.53	T, Rh	24.32					16		1	
TCW	24327/BH 38	813108		8155661.95		-		45.5					13.75			
TCW	24327/BH 39	813120.75		8155652.24		-		39.63					12.95			
TCW	24327/BH 40	813116.98		8155665.88		-		49.1					12.85			
TCW	24327/BH-41	813115.08		8155650.14		-		40.92					15			
TCW	24327/BH-42	813114.08		8155669.19		-		63.85					13.4			
TCW	24327/BH-43	813345.45		8155672.11		-		42.1					13.8			
TCW	24327/BH-45	813361.98		8155674.81		-		43.28					16.1			
TCW	24327/BH-46	813358		8155691.19		-		44.75					14			
TCW	24345/BH58	812299.57		8157706.04		-		35.08					14			
TCW	24345/BH59	812287.98		8157218.49		-29.59	Rh	32.19					16.1		0.3	
TCW	24345/BH60	813701.83		8157211.67		-		34.8					15			
TCW	24345/BH61	813513.92		8157211.18		-		36.78					13.75			
TCW	24345/BH62	813299.71		8157137.84		-		38.84					19			
TCW	24345/BH63	813304.03		8157301.13		-		44.1					14.8			
TCW	24345/BH64	813284.62		8157548.13		-39.73	Rh	35.5 40.5 45.42.5					20.5			
TCW	24345/BH65	813303.66		8157766.92		-		59.08					15			
TCW	24345/BH66	813316.93		8157766.02		-		60.4					16.1			
TCW	24345/BH67	813303.22		8157767.86		-		58.82					14			
TCW	24345/BH68	813304.8		8157768.82		-		28.41					14			
TCW	24345/BH69	813293.15		8157632.32		-		28.25					14.5			
TCW	24345/BH70	813309.07		8158098.52		-		29.6					19			
TCW	24345/BH71	813321.83		8158068.22		-		31.98	0.75				14.5			
TCW	24345/BH72	813310.82		8158028.04		-22.22	Rh	24.65					14			
TCW	24345/BH73	813308.24		8158038.72		-22.8	Rh	26.12					15			
TCW	24345/BH74	812295.91		8158053.03		26.48	Rh	34.55					13.85			
TCW	24345/BH75	813309.24		8158053.88		-	Rh	17.6					14.3			
TCW	24345/BH76	813322.79		8158053.26		-	Rh	20.87					15.1			
TCW	24345/BH77	813333.08		8158070.91		16.95	Rh	20.2					15.5			
TCW	27877/TC2/17	813465.56		8159029.89				21.62	0.45				13.35			
TCW	27877/TC2/20	813582.27		8159084.28				33.48.47.19	4.65				11.95			
TCW	27877/TC2/21	813521.49		8160670.15				18.71	3.35				12.35			
TCW	27877/TC2/22	813539.85		8160618.26				17.59 14.1	5.31				15			
TCW	27877/TC2/24	813477.07		8161311.9				27.15	5.65				15			
TCW	27877/TC2/26	813345.71		8159963.33				18.26					14.95			
TCW	27899/BH110	813318.83		8159918.75				19.5	3				16			
TCW	27899/BH111	813443.07		8159918.85		-		35.95	3.2				13.15			
TCW	27899/BH112	813367.11		8159919.96				36.69	3.7				14			
TCW	27899/BH113	813304.85		8159893.34		-		27.14	4				17.25			
TCW	27899/BH114	813319.73		8159893.2		-		33.82	1.95				16.85			
TCW	27899/BH115	813354.78		8159894.65		-		23 35.96.73	4.75				16.24			
TCW	27899/BH116	813379.66		8159894.48		-		28	3				14			
TCW	27899/BH118	813443.46		8159869.14		18.41	Rh	25.37	4.63				15.9			
TCW	27899/BH119	813367.23		8159868.27		30.86	Rh	34.41.37.33.37.82	5.05				13			
TCW	27899/BH123	813329.43		8159843.66		29.1	Rh	30.26.31.66	5.08				15.85			
TCW	27899/BH124	813355.22		8159844.18		-33.65	Rh	34.5.41.12	3.45				16.4			
TCW	27899/BH129	813345.13		8159817.48				37.63	5.55				14.8			
TCW	27899/BH130	813367.31		8159816.94				39.94.51	4				16			
TCW	27909/BH103	811286.89		8159706.9		-26.19	Rh	30.69	3.1				13.8			
TCW	27909/BH104	813318.58		8159706.81		-		31.41.76	3.85				19			
TCW	27909/BH105	813401.32		8159696.06		-		33.7.40	2.9				17			
TCW	27909/BH106	8112 58.6		8159680.83		-		38.2	2.8				16.4			
TCW	27909/BH107	813281.33		8159668.53		15	Rh	21.8	2.8				15			
TCW	27909/BH108	811295.86		8159663.76		47.01	Rh	37.6.46.41.52.7	2.95				15.97			
TCW	27909/BH109	811292.68		8159649.96		-		42.83	2.75				13.75			
TCW	29912/CC2-1	813366.88		8159383.22		-		42.63	5.6				15.9			
TCW	29912/CC2-4	813379.95		8159403.08		-		42.8	3.7				17.5			
TCW	29912/CC2-5	813335.82		8159382.21		-		48.86	5.26				15			
TCW	29913/33 3	813492.98		8160007.12		-		29.49	0.76				13			
TCW	33557/BH1	811012.65		8153700.97		-			2				10			
TCW	33557/BH10	811014.85		8152532.03		-	Rh		2				10.5			
TCW	33557/BH11	811010.84		8152546.82		-	Rh		2				9.8			
TCW	33557/BH2	810989.94		8153210.95		-			2				10			
TCW	33557/BH3	810974.74		8152202.14		-		49.59	2				10			
TCW	33557/BH4	811021.87		8152317.76		-		48.1	2				10			
TCW	33557/BH5	811003.06		8152216.66		-		43.1	2				11			
TCW	33557/BH6	810983.73		8152263.14		-		29.75	2				12			
TCW	33557/BH7	811028.52		8152253.3		-		47.22					10.5			
TCW	33557/BH8	811003.09		8152246.12		15.93	Rh	24.5	2				11			
TCW	33557/BH9	811016.35		8152251.73		23.1	Rh	26.5	2				8.5			
TCW	34224/BH1	810973.74		8152245.07		-17.24	T	25.9	2.5				14.2			
TCW	34224/BH10	811013.59		8152266.06		-			2.26				9.8			
TCW	34224/BH11	811019.35		8152258.61		-			3.6				9.2			
TCW	34224/BH12	811049.09		8152252.31		-			2				11			
TCW	34224/BH13	811066.3		8152247.06		-			3.5				10.5			
TCW	34224/BH14	811055.64		8152273.23					3.2				14.7			
TCW	34224/BH15	811071.12		8152265.22					2				12.7			
TCW	34224/BH16	811062.99		8152192.04					3.19				13.5			
TCW	34224/BH17	811078.11		8152147.26					2.6				13.5			
TCW	34224/BH2	810988.83		8153204.83					2				10.2			
TCW	34224/BH3	810988.16		8153201.56		-			2.2				10.2			
TCW	34224/BH5	810971.4		8153185.53					2				10.7			
TCW	34224/BH6	810981.54		8152181.94					2				11.2			
TCW	34224/BH7	811018.57		8152180.23		-			5				10.2			
TCW	34224/BH8	811099.08		8152183.36		-		55.07	2				9.8			
TCW	34224/BH9	811026.65		8152177.36		-		20.2	2.5				10.2			
TCW	34224/TP1	811010.5		8152258.54		-										
TCW	34224/TP2	811095.58		8152260.75		-										
TCW	35520/TRL111	814481.233		8156414.049			G	5								Length of longest continuous layer: 3.07
TCW	62176A/BH306P	814825.5		8158434.64				42.33	1				16			
TCW	62176A/BH312P	813420.1		8158257			Rh	45.5.47.8					13			
TCW	62176A/BH314P	815118		8156618.94				36.75					12.95			Length of longest continuous layer: 4.95
TCW	62176A/BH315	811224.2		8155981.87		-	Rh	44.65					15.5			
TCW	62582/DH-1	811249.76		8164812.09		32.86	LT	3.26			1					
TCW	62582/DH-2	811257.19		8164817.79		-	LT				1.61					
TCW	62736/CF1-1	813594.81		8164612.74		11.47		8.5								
TCW	62736/CF1-2	813582.99		8164604.43		14.3		4 18.9 18			0.8					
TCW	62736/CF4-1	813958.74		8163630.68				10.86	0.25							
TCW	62736/CF4-2	813952.89		8163646.13				6.95.11.87								
TCW	62736/CF5-1	813974.84		8163619.28		27.61		5.65								Length of longest continuous layer: 3.05
TCW	62739/S-2	813246.21		8164420.18				5			4.3					

Location	Borehole	Easting		Northing		Rockhead (mPD)	Rock Type/Geology	Base of Strata (mbGL)								Notes
								N/V	Fill	Colluvium	Debris Flow Deposits	Marine Deposits	Alluvium	Beach Deposits	Pond Deposits	
TCW	G27595/S 3	815800.52		815246.79							9.1					
TCW	G27595/S 4	815823.92		815270.11												
TCW	G29906/16-1	815919.72		815992.79		-18.56		22	9.85				18.5			
TCW	G29906/16-2	815900.33		815954.91		-17.92	G	13.9	5.7				15			
TCW	G29906/16-3	815840.65		815953.08		-13.7		19.86	4.95				15			
TCW	G29906/16-4	815823.06		815973.32		-13.55			5.7				15			
TCW	G29906/15-1	815910.05		815990.98		-19.52	G	25.35	5.82				16.25			
TCW	G29906/15-2	815840.12		815998.01		-15.06		19.2	3.65				12.3.37			
TCW	G29906/15-3	815827.14		816024.12		-17.45		27.40.7.43.1	5.23				17			
TCW	G29906/16-1	815910.06		816048.03		-41.16	Rh	46.52	5.27				17.9			
TCW	G29906/16-2	815849.96		816045.93		-39.87		45.91	5.3				8.6.17.85			
TCW	G29906/16-3	815830.11		816054.51		-37.54		84.7.74.85.91.16	5.25				17.75			
TCW	G29906/16-4	815829.49		816046.85		-46.58		88.1.72.09	5.21				5.65.17.5			
TCW	G29906/16-5	815847.07		816068.43		-48.23		48.13.67.1	5.7				16.25			
TCW	G29914/AR-1	815974.98		816078.03		-55.49		41.56	5.18				17.45			
TCW	G29914/P1-1	815861.73		815982.42		-16.36		25.7	7.09				9.78.25			
TCW	G29914/P1-2	815995.01		815959.94				30.57	5.1				10.6.18.6			
TCW	G29914/P1-3	815870.02		816065.06		-33.07		20.2	7.21				7.73.17.23			
TCW	G29914/P1-4	815995.06		816024.65		-36.87		23.47	4.5				17.9			
TCW	G29914/P1-5	815871.6		816040.35		-30.68		37.3	5.12				18			
TCW	G33161/13-A1	815461.93		815990.16		-		17.45	5.4				17.5			
TCW	G33161/13-A2	815475.56		815982.57		-		39.1	5.4				17.5			
TCW	G33161/13-A3	815466.47		815970.34		-		51.8	4.45				18.2			
TCW	G33161/13-A4	815450.98		815983.17		-		40.46	5.74				18.5			
TCW	G33161/16-A1	815529.57		816069.58		-49.69		49.21.56.7.44.43.66.9.82	4.95				18.9			
TCW	G33161/16-A2	815842.95		816043.08				92	2.5				18.5			
TCW	G33161/16-A3	815824.87		816034.15		-45.42		52.6	4				20			
TCW	G33161/16-A4	815816.89		816047.12		-51.49	Rh	52.2.55.2.56.9.58.6.76.9.78.2.83.7.87.9.102.88	4.8				20.8			
TCW	G33391/BH-1	812296		814668			T	9.9		2.2						
TCW	G33391/BH-2	811618		813967						4						
TCW	G33391/BH-3	811686		813741				24.2		5.4						
TCW	G33391/BH-4	811842		813222				8.8		7.3			8.4			
TCW	G33391/BH-6	811911		812797				23		9.8						
TCW	G33391/BH-7	812016		812728		-				10						
TCW	G33391/TP-1	811919		815201		-				1.3						
TCW	G33391/TP-2	812250		814901		-	T	0.3								
TCW	G33391/TP-3	811297		814608		-	T	2.3	0.3	2						
TCW	G33391/TP-4	811312		814308		-										
TCW	G33391/TP-5	815586		813989		-										
TCW	G33391/TP-6	811663		813808		-				1.7						
TCW	G33391/TP-7	811674		813578		-										
TCW	G33391/TP-8	811483		813536		-										
TCW	G33391/TP-9	811681		813085		-										
TCW	G33391/TP12	811915		812753		-										
TCW	G33391/TP13	811980		812471		-										
TCW	G33586/NL11/TP 7	811231		815416		-			2							
TCW	G33709/BH-5	812960		812969				22.2.30.4		12.8						
TCW	G33709/S1-4	811251		814673					9.2							
TCW	G33709/S1-5	813224		814594					2.5							
TCW	G33709/TP10	811809		812828		-										
TCW	G33709/TP14	812058		812563		-										
TCW	G33709/TP16	812040		813695		-										
TCW	G33709/TP17	812300		812402		-				2.3						
TCW	G33709/TP58	811255		814642		-										
TCW	G33709/TP59	811212		814910		-										
TCW	G33709/TP60	811255		815052		-										
TCW	G34749/BH1	810716.73		814297.02		30.54	Rh	6.95		3.15						
TCW	G34749/BH2	810892.2		814297.2		30.65	Rh, Fdz									Fault Breccia recorded from +32.95mPD to +47.78mPD, indicative of Fault Zone
TCW	G34749/BH3	810687		814282.31		30.85	Rh	6.92		3.5						
TCW	G34749/BH4	810684.93		814302.7		49.69	Rh	3.62		2.1						
TCW	G34749/TP1	810710.2		814307.5		-	Fdz, Rh			0.8						Fault Breccia recorded from +45.47mPD to +54.07mPD, indicative of Fault Zone
TCW	G34749/TP2	810708.4		814282.72												
TCW	G34749/TP2A	810711.72		814284.6												
TCW	G36053/AA-BH1	811681		815874.22				41.78					11.5			
TCW	G36053/AA-BH15	811597.5		815941.91		13.43		21.66					13.63			
TCW	G36053/AA-BH16	811574.92		815963.9		-19.95		37.49					13.67			
TCW	G36053/AA-BH4	815844.05		815883.04		-		39.55	3.9				13.5			
TCW	G36053/AA-BH5	815868.57		815846.05		-		44.55					11.9			
TCW	G36053/AA-BH6	815887.18		815877.91		-		44.69					13.5			
TCW	G36053/AA-BH7	815860.63		815917.09		15.35		21.54.23.26					15.2			
TCW	G36053/AA-BH8	815836.49		815916.96		13.31		21.78					13.1			
TCW	G36053/AA-BH9	815862.85		815892.85		12.81		21.01.29.6					13.93			
TCW	G37183/BH1	812293.37		815122.04			T	11.4		0.5						Length of largest continuation layer: 1.75
TCW	G37183/BH2	811813.14		815043.88			T	13.4		1.5						
TCW	G37183/BH3	811287.31		815009.92			T			2						
TCW	G37183/BH4	811262.6		814938.58		10.36	LT		0.13	2.25						
TCW	G37183/BH5	811312.92		814779.75		48.65				4.2						
TCW	G37183/BH6	811264.44		814637.59		55.13		7.7		4.2						
TCW	G37183/BH7	811285.06		814582.68		56.69	T	7.5.15.8.18.07		4.2						
TCW	G37183/CTBH1	811224.68		814807.72		21.39			LT							
TCW	G37183/TBH1	811246.83		814977.71		-	T	4.1.13.17		2.6						
TCW	G37183/TBH2	811208.01		814905.23		-		9.8.12.47	0.5	1.85						
TCW	G37183/TBH3	811124.68		814807.72		-	T, LT	9.4		2.6						
TCW	G37183/TBH4	811220.37		814689.86		-	T		0.5	1.5						
TCW	G37183/TBH5	811263.12		814568.45		-	T		1	2.7						
TCW	G37183/TP1	811266.99		815128.62		-			0.3							
TCW	G37183/TP2	811262.03		815018.59		-			0.9							
TCW	G37183/TP3	811238.62		814759.6		-										
TCW	G37183/TP4	811251.18		814652.07		-	T			2.6						
TCW	G37183/TP5	811257.09		814605.16		-										
TCW	G37183/TTP1	811233.79		814946.83		-										
TCW	G37183/TTP2	811221.99		814847.73		-				2.2						
TCW	G37183/TTP3	811292.65		814723.35		-										
TCW	G39351/TP17	812047.68		815055.88		-										
TCW	G40717/A11	810650.09		814621.43		-						2.7				
TCW	G40717/A12	810590.44		814613.57		-										
TCW	G40717/D1	811610.67		817847.43		-						8.1.10.15				
TCW	G40717/D14	812996.48		817868.24		-						6.1.12.2.15				
TCW	G40717/D3	813465.68		817996.72		-						6.1.9.2.5				
TCW	G40717/D9	812703.49		818006.71		-						6.1.12.2.14.18				
TCW	G40892/MWC1	811225.49		816380.92								0.78				
TCW	G40892/MWC2	811224.22		816290.46												
TCW	G40892/MWC5	811308.27		816275.55								2				
TCW	G40998/SH8	813979.06		818047.73			G	33.3				14	31			
TCW	G42296/BH1	811959.74		816339.86		16.44	Rh	2.7	0.5							
TCW	G42296/BH10	811776.08		815979.4		-7.42	RA	18.96	2				12.5			
TCW	G42296/BH11	811814.83		815933.45		-17.99	Rh	19.1.20.22.35.29.69.28.04.90.4	0.5				12.1			
TCW	G42296/BH12	811953.42		815887.43					1.5				10			
TCW	G42296/BH19	811691.53		815986.32		15.73	Rh	25	2				14.5			
TCW	G42296/BH14	811710.24		815940.78		9.33	Rh	19.75.21.3.25.46	1				13			
TCW	G42296/BH13	811768.74		815994.9				30.77.32.02	3.16				10.87			
TCW	G42296/BH16	811807.7		815844.24		-		46.97.52.22	0.4	11.05			9.25			
TCW	G42296/BH17	811955.8		816091.68		8.91	Rh	10.12	2	5.1						
TCW	G42296/BH2	811998.57		816088.14		7.06	Rh	17.5					7.5			
TCW	G42296/BH3	811951.86		816095.23		12.84	G	5.2	1	4.1						
TCW	G42296/BH4	811952.72		816049.56		-1.67	Rh	26.19.19.75					11			
TCW	G42296/BH5	811967.72		816056.71		11.4	Rh	5.95	0.5	5						
TCW	G42296/BH6	811906.59		816010.75		8.55	Rh	29.93.26.43					12			
TCW	G42296/BH7	811814.71		816014.31		1.81	Rh		2.88				11.04			
TCW	G42296/BH8	811861.45		815972.4		12.97	Rh	19.17.22.77.23.4		5.44			6			
TCW	G42296/BH9	811930.87		815935.87		-		34.1.37.53.26	1	1			9.5			
TCW	G43104/ABH01	811478		816618		1.42	G		3.1							
TCW	G43104/ABH02	811472		816561		24.51	G	5.48		2.5						
TCW	G43104/BH03	811409		816550		7.35	G			1.37						
TCW	G43104/ABH07	811674		816414		28.06	G	4.76	1.8							
TCW	G44455/H6316 1	811455.79		816729		14.52	RA	21.63	10.8			10.3	18.5			
TCW	G44455/H6316 10	811827.63		816630.43		6.39	G	14.58	9.5			10.4				
TCW	G44455/H6316 11	811642.3		816709.95		7.57	RA	15.9	11			14				
TCW	G44455/H6316 12	811638.75		816768.1				20.08	15			18	19			
TCW	G44455/H6316-2	811719.78		816749.44					9.7			14.9	21.4			
TCW	G44455/H6316-3	811667.87		816798.84		-		30	15			20	28			
TCW	G44455/H6316-4	811619.69		816733.29	G	-15.18	G	23	15			14.3				
TCW	G44455/H6316-5	811639.14		816681.1	G	-2.06	G	10.3	9.1				10.2			
TCW	G44455/H6316-6	811639.88		816705.37				18.67	9			11	12			
TCW	G44455/H6316-7	811682.78		816772.66				24.68	11			19	24			
TCW	G44455/H6316 A	811658.63		816837.23					16.2			20.6	28.7			
TCW	G44455/H6316 B	811667.8		816789.43				33.58	13			19	24			
TCW	G45467/TT1	813580.75		816715.77					1.6							
TCW	G45467/TT1A	813589.04		816726					1.2							
TCW	G45467/TT1B	813582.17		816699.01		-			1.8							
TCW	G45467/TT2	813588.28		816705.1		-			1.35							
TCW	G45467/TT2A	813582.05		816708.92		-			1.6							
TCW	G45467/TT2B	813584.16		816699.27		-			1.8							
TCW	G47802/DH20	812051.82		815958.43		-	T	29		15.7						
TCW	G47802/DH21	812068.78		815956.81		-	T	20.85.35.55		18						
TCW	G47802/DH22	812010.39		815926.41		-	T	20.2.36.23.39.44		16						
TCW	G47802/DH23	812078.75		815950.18		-	T	18.5		4.5						
TCW	G47802/TP 8	812076.33		815953.4		-										
TCW	G47802/TP 9	812050.39		815916.55		-										
TCW	G48581/AB#1	813811.16		815890.9		-		35.65	3				12.1			
TCW	G48581/AB#2	813824.89		815928.09		-5.78	G	38.5.22.85	4				15			
TCW	G48581/AB#3	813784.54		815982.96	Rh	-12.24	Rh	22.81	3.5				14.5			
TCW	G48581/AB#4	813810.42		815867.92		-		44.22.97.59	4.9				10.1			
TCW	G48581/AB#5	813787.13		815871.63				34.63.39.04	4.5				13.5			
TCW	G50987/CAB/D001	813777.7		816828.3				39.52	19.5				28			
TCW	G50987/CAB/D002	813782.82		816783.59				37.73.39.95	19			19	21.5			
TCW	G50987/CAB/D003	813687.76		816837.46				30.13	18				21.5			
TCW	G50987/CAB/D004	813643.9		816855.8		-			14.5				24.86			
TCW	G50987/CAB/D005	813518.3		816677.1		49.63	G,Rh	46.98.50.88.56.7	20.2				3.4			Fault zone recorded between -42.42mPD and -49.69mPD
TCW	G50987/CAB/D006	811085.61		816974.47					3.52							
TCW	G50987/CAB/D008	810997.37		816905.08					17.52							
TCW	G50987/CAB/TP009	811098.11		817036.75												
TCW	G50988/ACAB/D001	811443.45		816729.84		-		20.55.21.95	18.5				19.5			
TCW	G50988/ACAB/D002	811420.18		816748.4		-		29.42	18.5				22.15			
TCW	G50988/ACAB/D003	811781.49		816763.36				27.18.29.6	17				21			
TCW	G50988/ACAB/D008	811545.23		816879.84	G	-14.72	G	46.9	19				43.5	23.91		
TCW	G51382/DH41	811318.36		815070.6		9.18		7.4.11.8.16.3.18.6		1.4						
TCW	G51382/DH42	811299.38		815087.6		20.86		2.95.7.3.10.4.17		2.6						
TCW	G51382/DH43	811802.14		815518.46				18.32		1.3						
TCW	G51382/DH44	811816.69		815557.23				18.6		1.3						
TCW	G51382/TP41	811312.13		815072.16												
TCW	G51382/TP42	811373.18		815108.54		-										
TCW	G51382/TP43	811345.46		815200.32		-										
TCE	38811/CB0	819216.19		817471.34		-73	Rh	78.67	16							
TCE	38811/CB1	819208.93		817465.86		-										
TCE	38811/CB1A	819211.65		817458.37		-73.84	Rh	78.32	16.5							
TCE	38811/CB2	819216.69		817464.57		-73.16	Rh	78.9	16							
TCE	38811/CB4	819215.55		817432.35		-73.62	Rh	81	32.65							
TCE	38811/CB5	819226.65		817437.50		-78.24	Rh	81.33	16							
TCE	38811/CB6	819227.39		817443.36		(+-73.32)	Rh	79.9	17							
TCE	38811/CB6A	819229.35		817431.15		-74.08	Rh	79.6	16							
TCE	38811/CB7	819203.89		817432.05		-84.8	Rh	70.4	16							
TCE	38811/CB8	819214.96		817437.11		(+-71.66)	Rh	77.58	16							
TCE	38811/CB8A	819232.57		817443.66		75.12	Rh	80.65	16							
TCE	38811/CB9	819224.85		817498.86												
TCE	38811/CB9A	819243.52		817449.94		64.84	Rh	69.84	14							
TCE	38811/C70	819219.82		817421.10		-58.48	Rh	47.6	17.5							
TCE	38811/C70A	819195.61		817438.46		61.79	Rh	65.33	16							
TCE	38811/C71	819186.48		817445.62		-56.67	Gr	62.12	15							
TCE	38811/C72	819218.43		817445.93		-74.3	Rh	79.9	16							
TCE	38811/C73	819206.49		817428.81		61.98	Gr	67.45	14							
TCE	38811/C74	819217.38		817433.87		-69.08	Rh	74.6	12.4							
TCE	38811/C75	819224.15		817433.46		61.39	Rh	67.9	14							
TCE	38811/C85	819212.86		817421.87		55.3	Rh	61.18	18.1							
TCE	38811/C86	819223.87		817426.78		59.17	Rh	62.62	15.5							
TCE	38811/C95	819208.28		817437.42		70.47	Gr, Mz	76.36	16							Occasional small meta siltstone xenoliths recorded within Granite
TCE	38811/C96	819216.42		817421.93		53.02	Rh	59.36	16							
TCE	52127/BH1	819074.18		817496.01		77.77	Gr	74.8	17							
TCE	52127/BH2	819078.16		817435.96		-63.92	Rh	69.65	16							
TCE	52127/BH3	819059.96		817511.74		-92.22	Gr	97.8	19							

Location	Borehole	Easting		Northing		Rockhead (mPD)	Rock Type/Geology	Base of Strata (mbGL)								Notes
								H/V	Fill	Colluvium	Debris Flow Deposits	Marine Deposits	Alluvium	Beach Deposits	Pond Deposits	
TCE	52317/BH17	813976.36		817465.09		-100.13	Rh	106.2	14							V/IV Rhyolite Gravel recorded between 61.50 and 106.20mbGL
TCE	52317/BH19	812991.55		817423.47		-96.87	Rh	103	20							V/IV Rhyolite Gravel recorded between 83.50 and 103mbGL
TCE	52317/BH11	812475.87		817362.62		-77.98	Rh	88.73	21							V/IV Rhyolite Gravel recorded between 80.00 and 85.75mbGL
TCE	52317/BH31	812382.83		817370.45		-61.77	Rh	66.83	16.71							
TCE	52317/BH32	812304.37		817340.45		-65.17	Rh	-	-							
TCE	52317/BH33	812397.62		817387.59		-93.7	Rh	-	-							
TCE	52317/BH34	812303.54		817392.01		-78.36	Rh	-	-							
TCE	52317/BH35	812357.40		817395.22		-72.59	Rh	-	-							
TCE	52317/MBH1	813072.33		817514.00		-77.91	Gr	79.54	17.1							
TCE	52317/MBH2	813076.65		817476.16		-69.12	Gr	74.46	12							
TCE	52317/MBH3	813081.32		817436.56		-59.76	Gr	65.39	16							V/IV Granite Gravel recorded between 56.00 and 63.0mbGL
TCE	52317/MBH4	813086.57		817395.89		-59.62	Gr	64.5	14.7							
TCE	52317/MBH10	813098.62		817473.92		-64.65	Gr	90.3	17.5							
TCE	52317/MBH12	813049.45		817389.28		-45.76	Gr	58.12	21.3							V/IV Rhyolite Gravel recorded between 51.50 and 58.12mbGL
TCE	52317/MBH18	812959.26		817467.72		-101.33	Gr	109.47	16.5							
TCE	52317/MBH19	812819.73		817441.15		-106.14	Gr	112.06	20.6							
TCE	52317/MBH20	812909.90		817414.97		-110.01	Rh	113.4	20							V/IV Rhyolite Gravel recorded between 110.0 and 115.4mbGL
TCE	52317/MBH22	812964.82		817437.46		-97.29	Gr	109.6	17							
TCE	52317/MBH23	812411.26		817411.24		-92.91	Rh	99.07	20.6							V/IV Rhyolite Gravel (in sand matrix) recorded between 70.0 and 99.07mbGL
TCE	52317/MBH26	812973.73		817457.44		-70.73	Gr	93.7	19.5							IV/III Corestones between 55.7 and 63.1mbGL
TCE	52317/MBH27	812941.90		817411.42		-86.38	Rh, Gr, M	92.5	14.8			28.5	40.2			Marble xenolith from 99.45 to 100.85mbGL
TCE	52317/MBH29	812985.02		817437.72		-32.18	Rh	57.68	15.9			26	35			
TCE	52317/MBH30A	812869.87		817349.16		-47.72	Rh	-	-							
TCE	52317/MBH30B	812874.20		817346.46		-43.73	Rh	-	-							
TCE	52317/MBH33	812917.58		817363.16		-54.87	Rh	60	26.1				33.1			
TCE	52318/BH3	813084.64		817414.15		-68.05	Rh	72.56	19							
TCE	52318/BH4	813089.31		817371.11		-46.78	Rh	52.3	17.2			23.5	31.5			
TCE	52318/BH9	813086.13		817491.76		-86.5	Gr	91.93	20			26	38			
TCE	52318/BH10	813041.12		817451.51		-82.95	Rh	88.6	13			26.1	36.1			
TCE	52318/BH11	813046.17		817409.91		-62.89	Rh	68.14	19			27				
TCE	52318/BH12	813051.23		817366.79		-44.49	Rh	50.03	17.5			26	38			
TCE	52318/BH16	812981.14		817428.31		-87.64	Gr	93.18	18			26	38			
TCE	52318/BH18	812961.64		817451.76		-102.59	Gr	108.82	14			28	45			
TCE	52318/BH22	812958.89		817414.69		-95.85	Gr	101.5	19.5				38			V/IV Granite Gravel recorded between 96.0 and 101.5mbGL
TCE	52318/BH24	812899.85		817381.25		-66.48	Gr	68.6	22				42			
TCE	52318/BH27	812927.10		817375.78		-59.09	Rh	64.95	14.8			19	39			
TCE	52318/BH28	812895.54		817345.54		-46	Rh	51.5	22				33			
TCE	52318/BH30	812953.44		81737.69		-56.39	Rh	61.56	18.5			25	33			
TCE	52318/MBH8	813070.52		817369.14		-44.82	Rh	50.22	24.3			26.5	30			
TCE	52318/MBH9	813013.78		817509.77		-94.01	Gr	99.54	18			27	45			
TCE	52318/MBH15	813048.23		817432.10		-74.06	Gr	79.55	16			26	36			
TCE	52318/MBH16	813011.17		817364.60		-40.91	Rh	46.26	23				38			
TCE	52318/MBH17	812988.75		817491.94		-100.16	Gr	88.5	16.5			26.5	37.6			Corestones between 88.5 and 103.97
TCE	52318/MBH21	812865.04		817381.92		-116.91	Rh	125.05	19			25	36			IV Rhyolite Gravel from 99.0 to 125.05mbGL
TCE	52318/MBH25	812868.98		817450.91		-89.04	Gr	93.52	19.5			20.5	38			Corestones between 83.52 to 73.41, and 81.7 to 91.5
TCE	52318/MBH30	812870.19		817344.28		-48.69	Rh	53.95	17.1				32			
TCE	52318/MBH36	812914.83		817351.11		-45.9	Gr	51.26	24				29			
TCE	52318/MBH38	812964.82		817353.07		-46.05	Rh	51.5	19.25				37.25			
TCE	52318/MBH39	813007.50		817360.73		-45.78	Gr	51.71	22.72			26.9	38.72			
TCE	52319/BH6	813058.54		817474.05		-84.5	Rh	90	16.5			23	35.67			
TCE	52319/BH7	813063.02		817434.43		-72.78	Gr	74.2	20			22	46			
TCE	52319/BH8	813068.03		817391.50		-56.65	Rh	62.2	20.4				24.5			IV Rhyolite Gravel zone beneath RH from 69.90 to 73.91mbGL
TCE	52319/BH13	813018.84		817469.59		-81.41	Gr	89.3	17			25	51			
TCE	52319/BH14	813022.58		817429.91		-70.43	Rh	76	14.5			25	45			
TCE	52319/BH15	813028.53		817387.16		-51.8	Rh	52.78	21.8				30			III/II rock recorded immediately above RH from 52.78 to 58.98mbGL, but with poor recovery in final core run
TCE	52319/BH20	812902.32		817398.97		-97.83	Rh	103.87	21			25	39			IV Rhyolite Gravel zone above RH from 91.0 to 103.87mbGL
TCE	52319/BH21	812859.06		817382.45		-97.1	Rh/Gr	97.1	17.1			27	37.1			Rhyolite recovered from 97.70 to 98.10mbGL, at a depth of 0.4m after 0.8m of core run over this interval
TCE	52319/BH23	812885.99		817413.18		-84.83	Gr	89.83	12.5				36			
TCE	52319/BH26	812954.99		8173196.35		-72.31	Gr	78.21	18			22	34			
TCE	52319/BH28	812983.04		817394.50		-67.02	Rh	72.96	8			20	30			
TCE	52319/MBH5	813053.94		817454.00		-84.15	Rh	89.58	17			23.5	40			
TCE	52319/MBH6	813061.67		817454.15		-70.04	Rh	75.8	19.5			23.5	40.1			Assumed TCR error in BH log 74.41 - 77.91mbGL
TCE	52319/MBH7	813063.55		817411.99		-67.58	Rh	67.7	16			22	30			
TCE	52319/MBH13	813018.75		817487.69		-84.21	Gr	89.75	19			24	38			
TCE	52319/MBH14	813021.35		817439.29		-72.67	Gr	78.4	15			25	34.1			
TCE	52319/MBH15	813026.46		817404.50		-61.36	Gr	66.5	16			21.5	36.5			
TCE	52319/MBH24	812867.40		817384.28		-103.66	Rh	113.66	22				35.1			IV Rhyolite Gravel zone above RH from 82.0 to 111.66mbGL
TCE	52319/MBH28	812914.69		817384.66		-62.19	Gr	67.5	21.1			24	41			
TCE	52319/MBH31	812972.04		817409.47		-71.98	Gr	77.87	16.5				37			
TCE	52319/MBH32	812942.35		817382.83		-65.96	Gr, Rh	72.95	21				39			
TCE	52319/MBH34	813003.13		817408.09		-65.23	Gr	70.91	16			23.5	31.9			
TCE	52319/MBH35	812970.63		817381.28		-66.91	Rh	72.52	21				31			
TCE	52319/MBH37	812997.54		817384.70		-63.21	Rh	68.78	24				30.3			
TCE	53640/4BP1	813042.69		817392.16		-52.97	Rh									
TCE	53649/4BP2	813049.99		817401.76		-65.77	Gr									Corestone above RH from 67.09 to 72.53mbGL
TCE	53649/4BP3	813050.58		817388.84		-52.23	Gr									
TCE	53649/4BP4	813053.40		8173196.99		-62.46	Gr									
TCE	53649/4BP5	813042.06		817403.33		-63.14	Gr									
TCE	53649/4BP6	813049.63		817413.38		-62.92	Gr									
TCE	53649/4BP7	817451.93		817387.49		-53.11	Rh									
TCE	53649/4BP8	813023.96		817404.58		-60.6	Gr									
TCE	53649/4BP9	813037.18		817411.86		-62.44	Gr									
TCE	53649/4BP10	813042.55		817418.81		-69.91	Gr									
TCE	53649/4BP11	813021.74		817403.80		-60.5	Gr									
TCE	53650/5BP1	812993.97		817380.23		-64.61	Gr									
TCE	53650/5BP2	812976.05		817381.91		-69.14	Gr									
TCE	53650/5BP3	812987.64		817383.20		-69.43	Gr									
TCE	53650/5BP4	812999.64		817384.97		-64.11	Gr									
TCE	53650/5BP5	813961.67		817389.08		-70.07	Rh									
TCE	53650/5BP6	812978.37		8173390.28		-69.47	Gr									
TCE	53650/5BP7	812978.43		817391.42		-68.42	Gr									
TCE	53650/5BP8	812990.92		817392.99		-63.69	Gr, Rh									
TCE	53650/5BP9	812999.25		817394.37		-62.8	Gr									
TCE	53650/5BP10	812960.17		817398.92		-71.55	Gr									
TCE	53650/5BP11	812979.37		817400.45		-68.62	Gr									
TCE	53650/5BP12	812964.24		817401.90		-67.69	Gr									
TCE	53650/5BP13	812997.42		817403.48		-63.79	Gr									
TCE	53653/7BP1	813073.53		817403.83		-60.22	Gr									
TCE	53653/7BP2	812924.91		817373.37		-57.56	Gr									
TCE	53653/7BP3	812937.70		817376.38		-58.31	Gr									
TCE	53653/7BP4	812950.43		817378.67		-61.43	Gr									
TCE	53653/7BP5	812912.19		817382.82		-62.9	Gr									
TCE	53653/7BP6	812963.21		817383.73		-59.91	Gr, Rh									
TCE	53653/7BP7	812910.04		817385.08		-63.12	Gr									
TCE	53653/7BP8	812941.46		817386.37		-63.2	Gr, R. Q, Rh									
TCE	53653/7BP9	812969.91		817387.57		-66.79	Rh									
TCE	53653/7BP10	812916.92		817382.49		-78.02	Gr									
TCE	53653/7BP11	812924.91		817384.17		-73.17	Rh									
TCE	53653/7BP12	812914.25		817395.60		-66.54	Gr									
TCE	53653/7BP13	812948.08		817397.23		-70.29	Gr									
TCE	54718/3BP1	813072.46		817395.33		-72.58	Gr, Rh									
TCE	54718/3BP2	813077.96		817404.09		-67.45	B, Gr									
TCE	54718/3BP9	813083.84		817411.87		-68.9	Gr									
TCE	54718/3BP4	813068.63		817405.43		-72.14	Rh, SSI, B, G									
TCE	54718/3BP5	813074.43		817410.26		-63.78	Rh, Gr									
TCE	54718/3BP6	813074.64		817417.05		-67.31	Gr									
TCE	54718/3BP7	813061.94		817405.89		-67.84	Rh									
TCE	54718/3BP8	813063.70		817419.40		-67.01	Gr									
TCE	54718/3BP9	813066.83		817424.84		-72.02	Gr									
TCE	54719/4BP1	813042.69		817397.15		-52.97	Rh									
TCE	54719/4BP2	813049.99		817401.76		-65.77	Gr									
TCE	54719/4BP3	813050.58		817388.84		-52.23	Gr									
TCE	54719/4BP4	813053.40		8173196.99		-62.46	Gr									
TCE	54719/4BP5	813042.16		817403.33		-63.14	Gr									
TCE	54719/4BP6	813049.63		817413.38		-62.92	Gr									
TCE	54719/4BP7	813023.96		817387.49		-53.11	Rh									-
TCE	54719/4BP8	813027.95		817404.58		-60.6	Gr									
TCE	54719/4BP9	813037.18		817411.86		-62.44	Gr									
TCE	54719/4BP10	813042.55		817418.81		-69.91	Gr									
TCE	54719/4BP11	813021.74		817403.80		-60.5	Gr									
TCE	54720/5BP1	812962.37		817380.23		-64.63	Gr									
TCE	54720/5BP2	812976.05		817381.91		-69.14	Gr									
TCE	54720/5BP3	812987.64		817383.20		-69.43	Gr									
TCE	54720/5BP4	812999.64		817384.97		-64.11	Gr									
TCE	54720/5BP5	812961.60		817389.08		-70.07	Rh									
TCE	54720/5BP6	812970.37		817390.28		-69.47	Gr, Rh									
TCE	54720/5BP7	812979.45		817391.42		-68.42	Gr									
TCE	54720/5BP8	812990.92		817382.99		-63.69	Gr									
TCE	54720/5BP9	812999.25		817384.37		-62.8	Gr									
TCE	54720/5BP10	812960.17		817398.92		-71.68	Gr									
TCE	54720/5BP11	812978.37		817400.45		-68.61	Gr									
TCE	54720/5BP12	812964.24		817401.90		-67.79	Gr									
TCE	54720/5BP13	812997.42		817403.48		-63.79	Gr									
TCE	54356/1BP1	813054.45		817478.99		-83.37	Gr									
TCE	54356/1BP2	813040.70		817474.21		-85.2	Gr									
TCE	54356/1BP3	813059.98		817484.50		-83.27	Gr									
TCE	54356/1BP4	813047.42		817479.24		-86.21	Gr									
TCE	54356/1BP5	813053.51		817481.60		-85.42	Gr									
TCE	54356/1BP6	813046.43		817484.82		-87.29	Gr									
TCE	54356/1BP7	813049.87		817490.78		-86.31	Gr									
TCE	54356/1BP8	813059.06		817484.81		-85.33	Gr, R. Q, Rh									
TCE	54356/1BP9	813049.90		817502.48		-84.36	Gr									
TCE	54356/1BP10	813055.20		817497.68		-85.77	Gr									
TCE	54356/1BP11	813060.83		817491.80		-83.06	Gr									
TCE	54356/1BP12	813066.77		817489.06		-80.37	Gr									
TCE	53655/2BP1	813039.22		817459.36		-84.23	Rh, Gr									
TCE	53655/2BP2	813044.53		817453.37		-76.51	Rh									
TCE	53655/2BP3	813048.16		817446.55		-81.84	Gr, Rh									
TCE	53655/2BP4	813050.18		817441.01		-77.61	Gr, Rh, SSI									Siltstone xenolith encountered below RH between 88.10 and 92.39mbGL
TCE	53655/2BP5	813053.32		817436.23		-73.65	Gr									
TCE	53655/2BP6	813048.79		817453.00		-81.79	Rh									
TCE	53655/2BP7	813058.74		817447.95		-71.4	Gr									
TCE	53655/2BP8	813063.51		817444.19		-68.73	Gr									
TCE	53655/2BP9	813056.74		817442.34		-73.37	Rh									
TCE	53655/2BP10	813060.91		817438.64		-70.24	Gr, Rh									
TCE	53655/2BP11	813066.23		817433.48		-66.02	Gr									
TCE	53655/2BP12	813071.83		817449.27		-64.28	Gr									
TCE	57120/AH19	813235.05		817336.96		-68.91	Rh	73.81	17			20.5	30.4			
TCE	57120/AH20	813245.86		817324.97		-63.94	Rh	68.1	16			19.5	31.9			
TCE	57120/AH21	813249.46		817310.21		-67.26	Gr, B	75	9.5			29.5	35.1			
TCE	57120/AH22	813227.80		817317.20		-62.38	Gr, B	62.3	13.9			20.45	31.4			
TCE	57120/AH23	813253.58		817312.38		-61.61	Rh	64.18	13.3			20.45	30.33			
TCE	57120/AH24	813218.96		817436.73		-63.56	Rh	64.5	16.1			20	36.7			
TCE	57120/AH25	813281.63		817434.58		-52.72	Rh	58.19	14.5			20.5	37.6			
TCE	57120/AH26	813242.99		817497.88		-61.97	Rh	65.58	11.4			21	31.4			Corestones recorded from 58.8 to 69.58mbGL
TCE	57120/AH27	813231.58		817434.95		-62.72	Gr	67.8	14.4			20.5	33			
TCE	57120/AH28	813285.62		817560.94		-56.67	Rh	64.05	21.5				35.4			
TCE	57120/AH29	813289.13		817548.78		-54.16	Rh	58.56	19.4				34.4			
TCE	57120/AH30	813312.33		817554.68		-56.11	Rh	61.7	19.9				33.3			
TCE	57120/AH31	813321.92		817548.30		-57.66	Rh	57.8	26.1				33.8			
TCE	57120/AH32	813311.29		817534.27		-62.12	Rh	56.4	16.5			20	34.6			
TCE	57120/AH33	813324.05		817537.56		-64.75	Rh	63.75	22				34.5			

Location	Borehole	Easting	Northing	Rockhead (mPD)	Rock Type/Geology	Base of Strata (mbGL)								Notes
						N/V	Fill	Colluvium	Debris Flow Deposits	Marine Deposits	Alluvium	Beach Deposits	Pond Deposits	
TCE	57120/AH34	813316.56	817527.61	-64.99	Rh	65.42	18			18.7	34.7			
TCE	57120/AH35	813298.31	817447.37	-61.62	Rh	67.2	13.5			18.5	37.35			
TCE	57120/AH36	813258.10	817459.07	-58.9	Rh	62.73	14.5			17	34.5			
TCE	57120/AH37	813233.74	817431.05	-55.83	Rh	59.64	15.4			17.5	32.7			
TCE	57120/AH38	813219.77	817437.11	-68.87	Rh	74.25	14.58			18.19	33.59			
TCE	57120/AH39	813228.47	817433.01	-64.25	Rh	69.91	14.5			18.5	32			
TCE	57120/AH40	813245.94	817434.99	-57.67	Rh	63.37	14.5			17	30.6			
TCE	57120/AH41	813256.31	817425.00	-46.79	Rh	52.52	17.3				30.5			
TCE	57120/AH42	813237.79	817430.17	-54.73	Rh	60.3	14.9			16.95	32			
TCE	57120/AH43	813253.21	817432.87	-55.72	Rh	61.3	14.8			16.85	30.3			
TCE	57120/AH44	813262.27	817429.84	-52.59	Rh	57.82	14.8			16	30.5			
TCE	57120/AH45	813287.34	817432.59	-57.35	Rh	63.1	14.7			18.2	33.1			
TCE	57120/AH46	813307.41	817468.99	-48.48	Rh	54.21	14.9			18.5	28.5			
TCE	57120/AH47	813297.52	817454.84	-47.6	Rh	53.22	15			17.5	32.5			
TCE	57120/AH48	813316.00	817450.69	-54.82	Rh	60.45	14.9			18.2	32.6			
TCE	57120/AH49	813318.15	817498.17	-60.68	Gr	66.42	18.4			19.5	34.4			
TCE	57120/AH50	813333.43	817476.29	-47.06	Rh	52.02	20.9				30.9			

Note:
Borehole details in this table are those located within 100m of the proposed development sites where borehole logs or AGS data is available. 100m zone is indicated in **Figures 9.6.1 and 9.6.2**
Rock Type/Geology Legend:
Gr Granite, Rh=Rhyolite, TxTuff, MrMarble, BrnBreccia, FZ=Fault Zone, FGnFault Gouge, MSnMeta Siltstone, MSanMeta Sandstone, SmSiltstone, QtzQuartz, SkrSkarn, PnPegmatite, BnBasalt
Rockhead Details:
* Indicates rock encountered at base of borehole, but required length of rock not sufficient to prove rockhead

Marble Recorded
Fault Recorded
Meta Sedimentary Rock Recorded

Appendix 7.2

Implementation, Management and Maintenance agent

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study on the Remaining Development in Tung Chung
Proposed Management and Maintenance Responsibilities of the Works

Item No.	Proposed Works	Reference No. (see Key Plans in Appendix C)	Area / Size	Policy Bureau	Proposed Works Agent	Proposed Management Agent	Proposed Maintenance Agent	Remark
	Formation of Land by Reclamation:							
1	Formation of Land (Reclamation Works) in TCE	-	118ha	DEVB	CEDD/HKI&I	-	-	-
2	Seawall for Reclamation in TCE	-	Approx. 3350m long	DEVB	CEDD/HKI&I	LandsD	CEDD/Port Works	-
3	Breakwater for the Marina in TCE	E12	Approx. 220m long	DEVB	CEDD/HKI&I	LandsD	CEDD/Port Works	-
4	Formation of Land (Reclamation Works) for Road P1 (between TCE Reclamation and Tai Ho Interchange)	-	9ha	THB	HyD	-	-	-
5	Seawall for Reclamation for Road P1 (between TCE Reclamation and Tai Ho Interchange)		Approx. 1270m long	THB	HyD	LandsD	CEDD/Port Works	-
	Roadworks in TCE							
6	Roadworks for Road P1 (along the southern boundary of new development area in TCE)	-	-	DEVB	CEDD/HKI&I	TD	HyD	Demaraction of Maintenance Agents please refer to Figure 3 in Appendix D
7	Footpath, Cycle Tracks (Road P1 along the southern boundary of new development area in TCE)	-	-	DEVB	CEDD/HKI&I	TD	HyD	Demaraction of Maintenance Agents please refer to Figure 3 in Appendix D
8	Roadside Amenities along Road P1 (along the southern boundary of new development area in TCE)	-	-	DEVB	CEDD/HKI&I	TD	LCSD	Demaraction of Maintenance Agents please refer to Figure 3 in Appendix D
9	Amenities at central median of Road P1 (along the southern boundary of new development area in TCE)			DEVB	CEDD/HKI&I	TD	LCSD	Demaraction of Maintenance Agents please refer to Figure 3 in Appendix D
10	Roadworks for Local Distributor/District Distributor (within new development areas in TCE)	-	-	DEVB	CEDD/HKI&I	TD	HyD	Demaraction of Maintenance Agents please refer to Figures 1 & 2 in Appendix D
11	Footpath and Cycle Tracks (along roadworks within new development areas in TCE, outside "O" zone)	-	-	DEVB	CEDD/HKI&I	TD	HyD	Demaraction of Maintenance Agents please refer to Figures 1 & 2 in Appendix D
12	Roadside Amenities (along road within new development areas in TCE, outside "O" zone)			DEVB	CEDD/HKI&I	TD	LCSD	Demaraction of Maintenance Agents please refer to Figures 1 & 2 in Appendix D
13	Depressed Road at TCE	E45	-	DEVB	CEDD/HKI&I / LCSD	TD / LCSD	HyD / LCSD	Demaraction of Works, Management and Maintenance Agents please refer to Figures 5 to 10 in Appendix D
14	Public Transport Interchanges (within private development)	E44	1.0ha, subject to further study	THB	Private Developer	TD	HyD	Construction cost to be reimbursed by government to private developer
14a	Public Transport Interchanges (within subsidized housing site)	E30, E55	0.3ha, 0.3ha, subject to further study	THB	HyD	TD	HyD	-
	Roadworks in TCW							
15	Roadworks (Local Distributor/District Distributor within new development areas in TCW)	-	-	DEVB	CEDD/HKI&I	TD	HyD	Demaraction of Maintenance Agents please refer to Figures 1 & 2 in Appendix D
16	Footpath and Cycle Tracks (along roadworks within new development areas in TCW, outside "O" zone)	-	-	DEVB	CEDD/HKI&I	TD	HyD	Demaraction of Maintenance Agents please refer to Figures 1 & 2 in Appendix D
17	Roadside Amenities within New Development Area (along roadworks within new development areas in TCW, outside "O" zone)			DEVB	CEDD/HKI&I	TD	LCSD	Demaraction of Maintenance Agents please refer to Figures 1 & 2 in Appendix D
18	Public Transport Interchanges (within private development)	W28	subject to further study	THB	Private Developer	TD	HyD	Construction cost to be reimbursed by government to private developers
19	(not used)							

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study on the Remaining Development in Tung Chung
Proposed Management and Maintenance Responsibilities of the Works

Item No.	Proposed Works	Reference No. (see Key Plans in Appendix C)	Area / Size	Policy Bureau	Proposed Works Agent	Proposed Management Agent	Proposed Maintenance Agent	Remark
20	Vehicular Bridge across Tung Chung River	W39, W40, W41, W43, W44	-	DEVB	CEDD/HKI&I	TD	HyD	-
21	Access Bridge across Tung Chung River	W42	-	DEVB	CEDD/HKI&I	TD	HyD	-
	Road P1 & Tai Ho Interchange:							
22	Roadworks for Road P1 (between new development area in TCE and Tai Ho Interchange)	-	-	DEVB	CEDD/HKI&I	TD	HyD	Demaraction of Maintenance Agents please refer to Figure 4 in Appendix D
23	Footpath, Cycle Tracks (Road P1 between new development area in TCE and Tai Ho Interchange)	-	-	DEVB	CEDD/HKI&I	TD	HyD	Demaraction of Maintenance Agents please refer to Figure 4 in Appendix D
24	Roadside Amenities along Road P1 (for Road P1 portion between new development area in TCE and Tai Ho Interchange)			DEVB	CEDD/HKI&I	TD	LCSD	Demaraction of Maintenance Agents please refer to Figure 4 in Appendix D
25	Amenities at Road P1 (between new development area in TCE and Tai Ho Interchange)			DEVB	CEDD/HKI&I	HyD	HyD	Demaraction of Maintenance Agents please refer to Figure 4 in Appendix D
26	Vehicular Bridges and Elevated Interchange for Road P1 (connecting Road P1 and Tai Ho Interchange)	-	-	DEVB	CEDD/HKI&I	TD	HyD	
27	Tai Ho Interchange	-	-	DEVB	CEDD/HKI&I	TD	HyD	-
	Sewerage Networks:							
28	Sewer and Rising Main for New Development Area (for TCE and TCW)	-	-	DEVB	CEDD/HKI&I	DSD	DSD	-
29	New Sewage Pumping Stations	E41, E56, W33, W36, W49	30mx40m, -, 20mx20m, 20mx20m	DEVB	CEDD/HKI&I	DSD	DSD	-
30	Upgrading of Existing Chung Mun Road Sewage Pumping Stations (TCW)	-	-	DEVB	CEDD/HKI&I	DSD	DSD	-
31	Fitting out of Siu Ho Wan Sewage Treatment Works	-	-	ENB	DSD	DSD	DSD	-
31a	Noise & Odour Emission Mitigation Measures from SPSs	-	-	DEVB	CEDD/HKI&I	DSD	DSD	-
31b	Pipe Bursting Prevention at TCE (interim and ultimate stage) and TCW	-	-	DEVB	CEDD/HKI&I	DSD	DSD	-
31c	Septicity Mitigation Measures	-	-	DEVB	CEDD/HKI&I	DSD	DSD	-
31d	Emergency Situations at TCW and TCE New SPSs and CMRSPS Upgraded Part - Standby and Spare Pumping under Emergency Situations, Twin Rising Mains, Emergency Communication Mechanism, Emergency Storage Facilities	-	-	DEVB	CEDD/HKI&I	DSD	DSD	-
31e	Emergency Situations at TCW and TCE New SPSs and CMRSPS Upgraded Part - Dual-Feed Power Supply	-	-	-	CLP	CLP	CLP	-
	Water Supply Networks:							
32	Site Formation Works (for Fresh Water and Salt Water Service Reservoirs and its Access Road)	-	-	DEVB	WSD	WSD	WSD	-
33	Access Road (for Fresh Water and Salt Water Service Reservoirs)	-	-	DEVB	WSD	WSD	WSD	-
34	Fresh Water and Salt Water Service Reservoirs Construction Works	-	-	DEVB	WSD	WSD	WSD	-
35	Fresh Water and Salt Water Mains (for connecting Reservoirs)	-	-	DEVB	WSD	WSD	WSD	-
36	Fresh Water and Salt Water Mains (for TCE & TCW)	-	-	DEVB	CEDD/HKI&I	WSD	WSD	-
37	Salt Water Pumping Station (in TCE)	E1	0.5ha	DEVB	WSD	WSD	WSD	-
38	Upgrading of Siu Ho Wan Water Treatment Works	-	-	DEVB	WSD	WSD	WSD	-
	Drainage Networks:							
39	Extension of Existing Box Culvert in TCE Reclamation	-	-	DEVB	CEDD/HKI&I	DSD	DSD	-
40	Stormwater Drain for New Development Area (for TCE and TCW)	-	-	DEVB	CEDD/HKI&I	DSD	DSD	-
41	Attenuation Ponds and its corresponding pumping station (within TCW)	W1, W32, W37, W34, W35 W38,W48	0.25ha, 0.56ha, 0.58ha, 0.32ha, 0.09ha, 0.3ha	DEVB	CEDD/HKI&I	DSD	DSD	-
42	River Park	W50	-	DEVB	CEDD/HKI&I	DSD	DSD	-

Agreement No. CE 32/2011 (CE)
Planning and Engineering Study on the Remaining Development in Tung Chung
Proposed Management and Maintenance Responsibilities of the Works

Item No.	Proposed Works	Reference No. (see Key Plans in Appendix C)	Area / Size	Policy Bureau	Proposed Works Agent	Proposed Management Agent	Proposed Maintenance Agent	Remark
43	Polders Scheme (including Drainage and Box Culvert Works) for TCW	-	-	DEVB	CEDD/HKI&I	DSD	HAD/ DSD/ HyD	Demaraction of Maintenance Agents please refer to Figures 11 to 14 in Appendix D
44	De-channelization of channelized section of Tung Chung River	-	-	DEVB	CEDD/HKI&I	DSD	DSD	-
	Leisure & Recreational Facilities:							
45	District Open Space (Central Park, Linear Parks, Cycle Parking Area)	E64 to E72	-	HAB	ArchSD	LCSD	ArchSD EMSD(for E&M elements)	-
46	Football Pitch	W9	-	HAB	ArchSD	LCSD	ArchSD EMSD(for E&M elements)	-
47	Sports Centre/ Sports Ground	E24, E57, E34	0.6ha, 0.6ha, 0.6ha, 3.0ha	HAB	ArchSD	LCSD	ArchSD EMSD(for E&M elements)	-
48	*Waterfront Promenade Facilities:*							
	i) Cycle path	E3, E4, E5, E6, W3	-	DEVB	CEDD/HKI&I	TD	HyD	
	ii) Other than cycle path	E3, E4, E5, E6, W3, W5	-	DEVB	ArchSD	LCSD	ArchSD EMSD(for E&M elements)	-
49	*Town Park Facilities:*							
	i) Other than cycle path	W16	-	DEVB	ArchSD	LCSD	ArchSD EMSD(for E&M elements)	-
50	Focal Point (Recretional Area and Landmark/ Sculpture & Art Feature)	E32	-	DEVB	ArchSD	LCSD	ArchSD EMSD(for E&M elements)	-
51	Amphitheater	E74, W46	-	HAB	ArchSD	LCSD	ArchSD EMSD(for E&M elements)	-
52	*(not used)*	-	-	-	-	-	-	-
53	Cycle Park	E75	1.4 ha	DEVB	ArchSD	LCSD	ArchSD EMSD(for E&M elements)	-
	Government Security Buildings:							
54	Police Station	E40	0.5ha	SB	ArchSD	HKPF	ArchSD	-
55	Police Married Quarters	E37	0.5ha	SB	ArchSD	HKPF	ArchSD	
56	Fire Station	E39	0.3ha	SB	ArchSD	FSD	ArchSD	-
	Education Buildings:							
57	Schools (Primiary and Secondary)	E58, E60, E61, E62, E63	-	EDB	ArchSD	Relevant Operators	EDB	-
58	Post Secondary Institution	E38	2.5ha	EDB	ArchSD	Relevant Operators	EDB	-
59	International School	E31	1.5ha	EDB	Relevant Operators	Relevant Operators	Relevant Operators	-
	Public Health Facilities:							
60	Clinic & GIC complex	E51, W2	0.5ha	FHB	ArchSD	Department of Health/ Relevant Departments	ArchSD	-
61	Public Toilet	E19, E43	100 square m, 100 square m	FHB	ArchSD	FEHD	ArchSD	-
62	Refuse Collection Point	E54	600 square m	FHB	ArchSD	FEHD	ArchSD	-
	Site Formation for Subsidized Housing:							
63	Site Formation (For Subsidized Housing Site) at TCV-6 & TCV-7	-	-	DEVB	CEDD/HKI&I	HA	HA	-
	Works in Ma Wan Chung:							
64	Ma Wan Chung Car Park	W24	27 spaces	DEVB	CEDD/HKI&I	TD	HyD	-
65	Footpath connection to Ma Wan Chung	W10	-	DEVB	CEDD/HKI&I	LandsD	HAD	-
66	Ma Wan Chung Improvement Works - Sewage Connections	-	-	DEVB	CEDD/HKI&I	DSD	DSD	
67	Ma Wan Chung Improvement Works - Tourism Facilities	-	-	DEVB	CEDD/HKI&I	HAD	HAD	
	Natural Terrain Mitigation Measures							
68	Natural Terrain Mitigation Measures (if necessary)	-	-	DEVB	CEDD/HKI&I	According to SMIRS	According to SMIRS	-

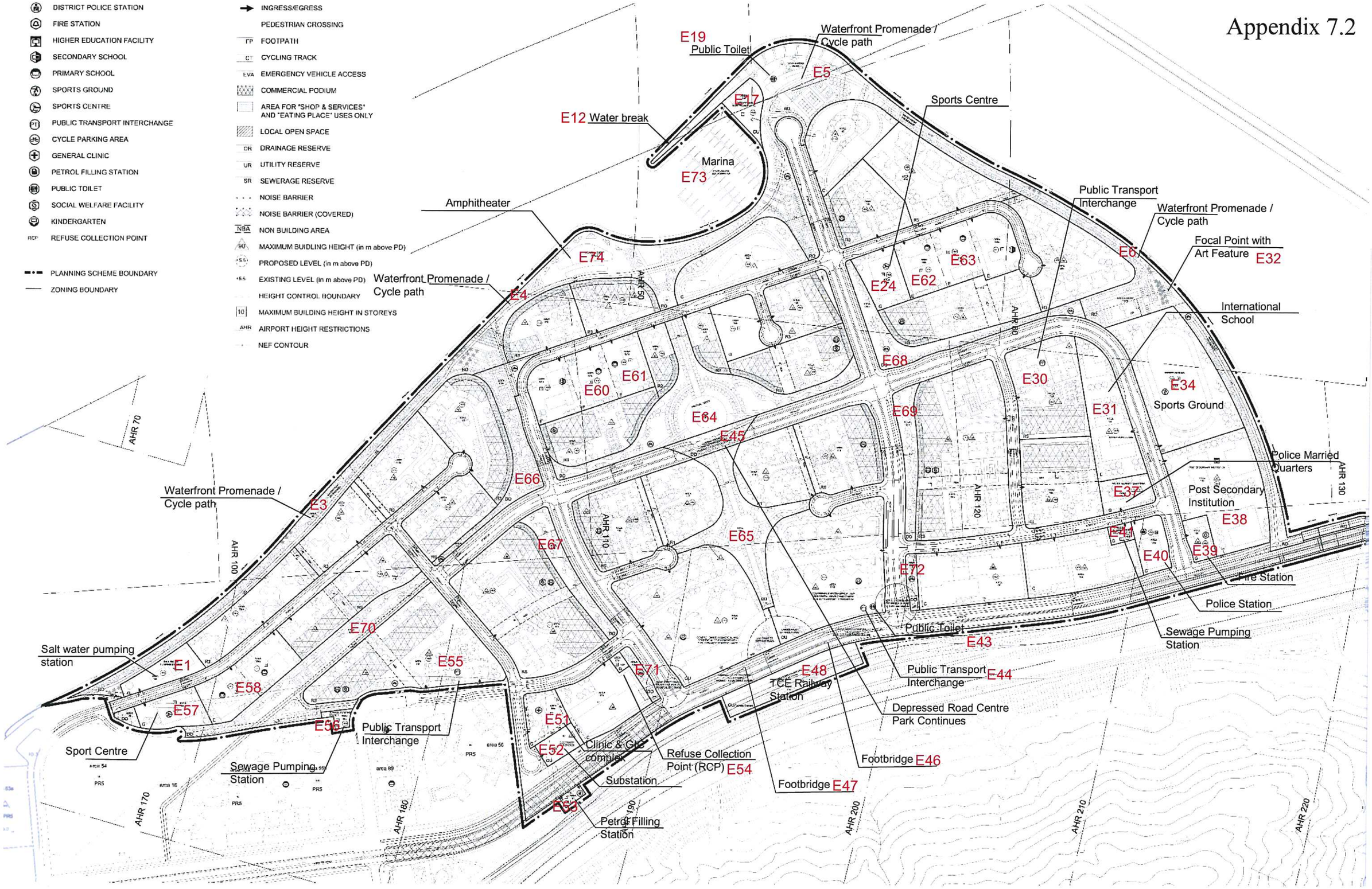
Appendix 7.2

圖 例 NOTATION

- DISTRICT POLICE STATION
- FIRE STATION
- HIGHER EDUCATION FACILITY
- SECONDARY SCHOOL
- PRIMARY SCHOOL
- SPORTS GROUND
- SPORTS CENTRE
- PUBLIC TRANSPORT INTERCHANGE
- CYCLE PARKING AREA
- GENERAL CLINIC
- PETROL FILLING STATION
- PUBLIC TOILET
- SOCIAL WELFARE FACILITY
- KINDERGARTEN
- RCP REFUSE COLLECTION POINT

- PLANNING SCHEME BOUNDARY
- ZONING BOUNDARY

- INGRESS/EGRESS
- PEDESTRIAN CROSSING
- FP FOOTPATH
- CT CYCLING TRACK
- EVA EMERGENCY VEHICLE ACCESS
- COMMERCIAL PODIUM
- AREA FOR "SHOP & SERVICES" AND "EATING PLACE" USES ONLY
- LOCAL OPEN SPACE
- DR DRAINAGE RESERVE
- UR UTILITY RESERVE
- SR SEWERAGE RESERVE
- NOISE BARRIER
- NOISE BARRIER (COVERED)
- NBA NON BUILDING AREA
- 90 MAXIMUM BUIDLING HEIGHT (in m above PD)
- +55 PROPOSED LEVEL (in m above PD)
- +55 EXISTING LEVEL (in m above PD)
- HEIGHT CONTROL BOUNDARY
- 10 MAXIMUM BUILDING HEIGHT IN STOREYS
- AHR AIRPORT HEIGHT RESTRICTIONS
- NEF CONTOUR

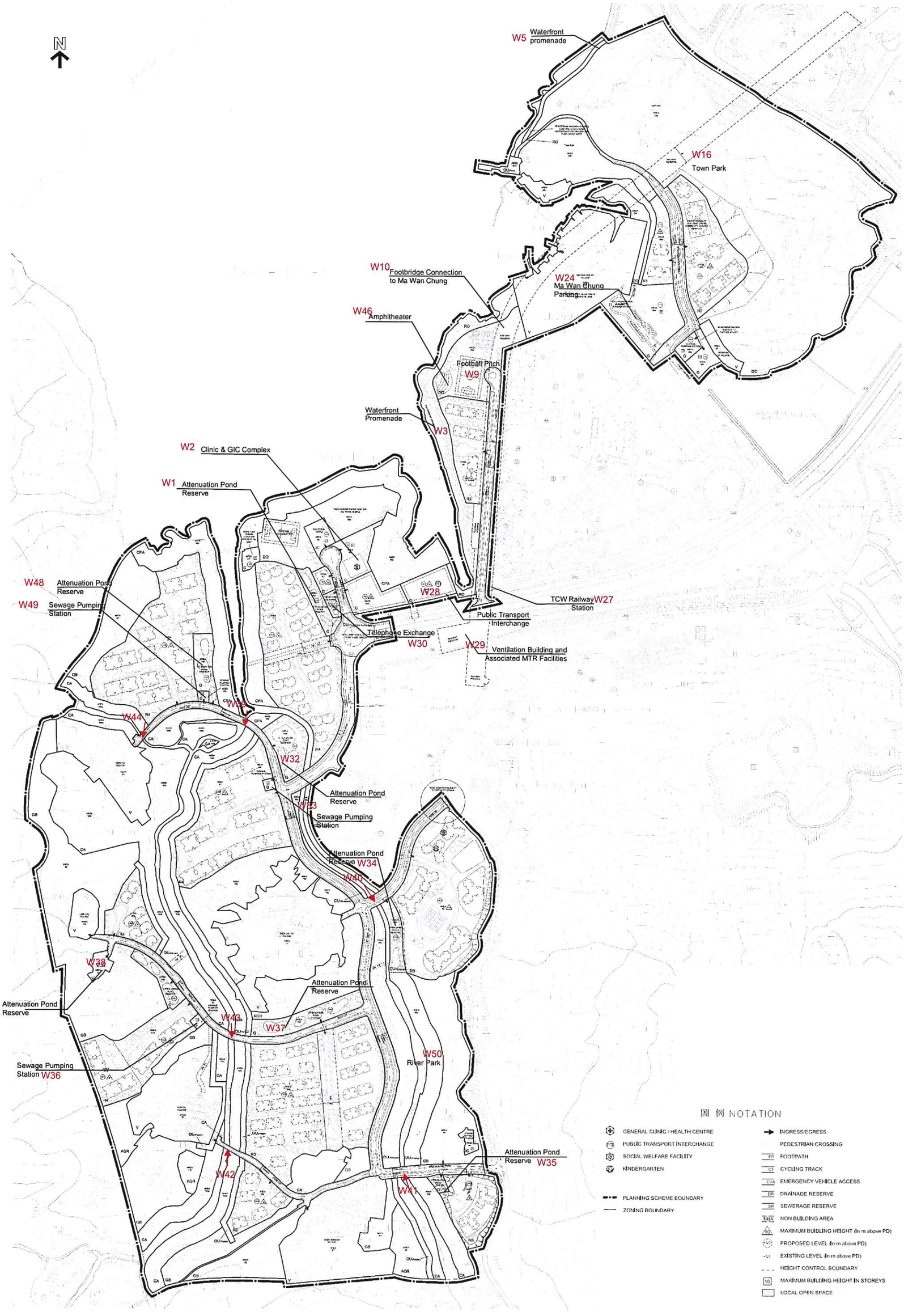


Key Plan of the Proposed Works, Management and Maintenance Responsibilities
(Layout plan extracted from REP-124-04 Technical Paper TP10C&16C)

Sheet 1 /3

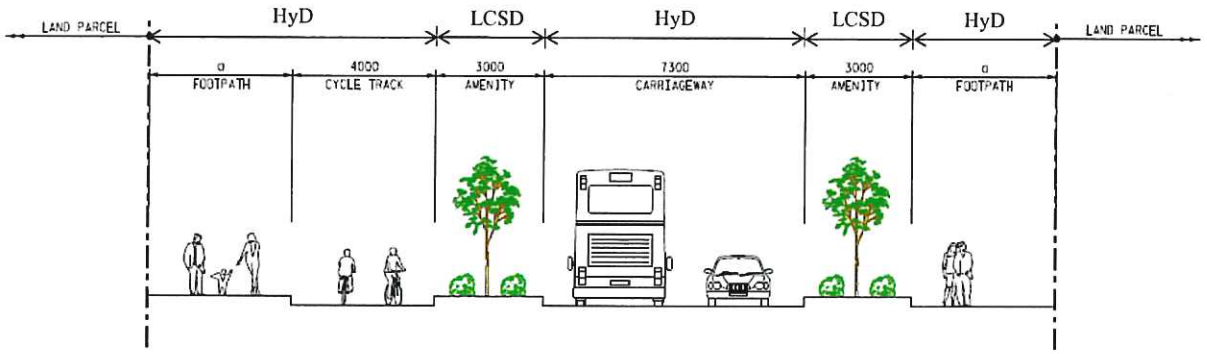


Key Plan of the Proposed Works, Management and Maintenance Responsibilities
(Layout plan extracted from REP-124-04 Technical Paper TP10C&16C)



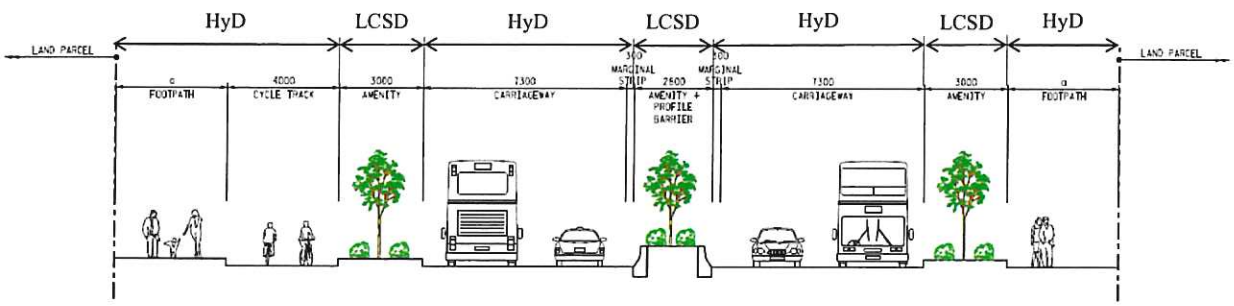
Key Plan of the Proposed Works, Management and Maintenance Responsibilities
(Layout plan extracted from REP-124-04 Technical Paper TP10C&16C) **Sheet 3 /3**

Figure 1 - Demarcation of Maintenance Agents for Roadworks (Local Distributor) within the New Development Area in TCE and TCW



Typical Road Cross-section

Figure 2 - Demarcation of Maintenance Agents for Roadworks (District Distributor) within the New Development Area in TCE and TCW



Typical Road Cross-section

Figure 7 - Demarcation of Maintenance Agents for Depressed Road (Tunnel Portion)

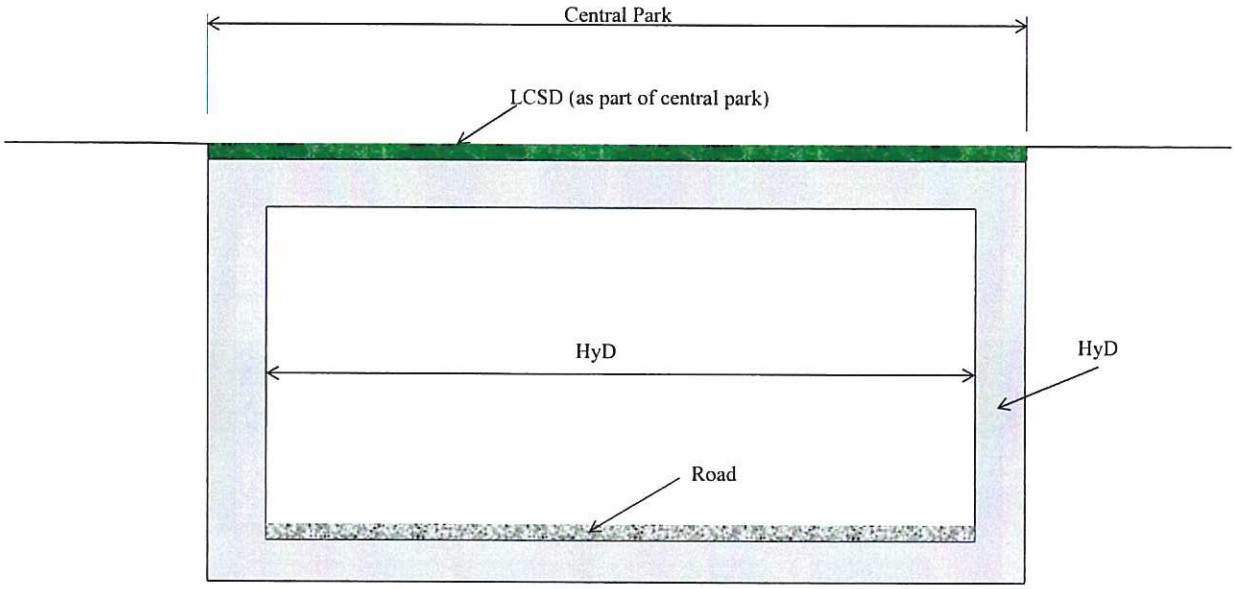


Figure 8 - Demarcation of Works Agent for Depressed Road (U-trough Portion)

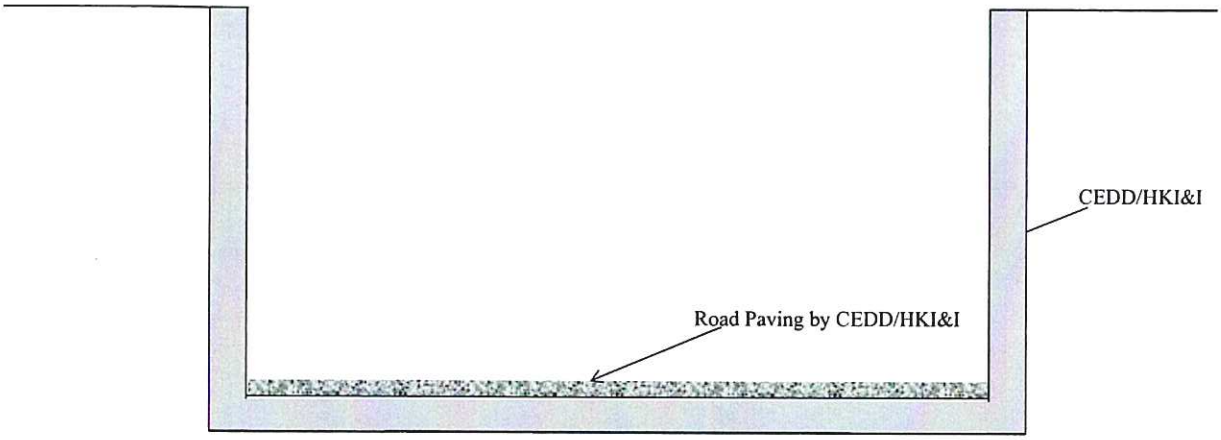


Figure 9 - Demarcation of Management Agent for Depressed Road (U-trough Portion)

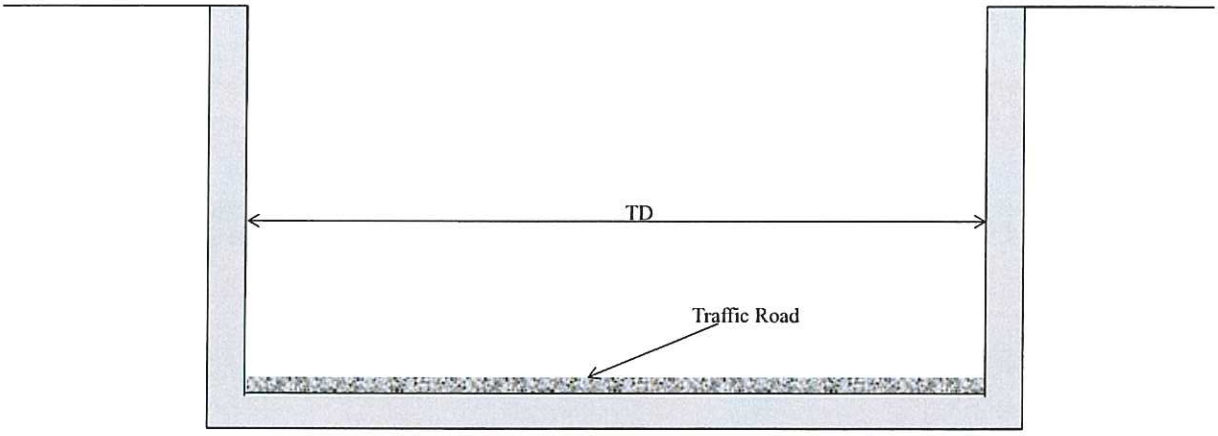


Figure 10 - Demarcation of Maintenance Agent for Depressed Road (U-trough Portion)

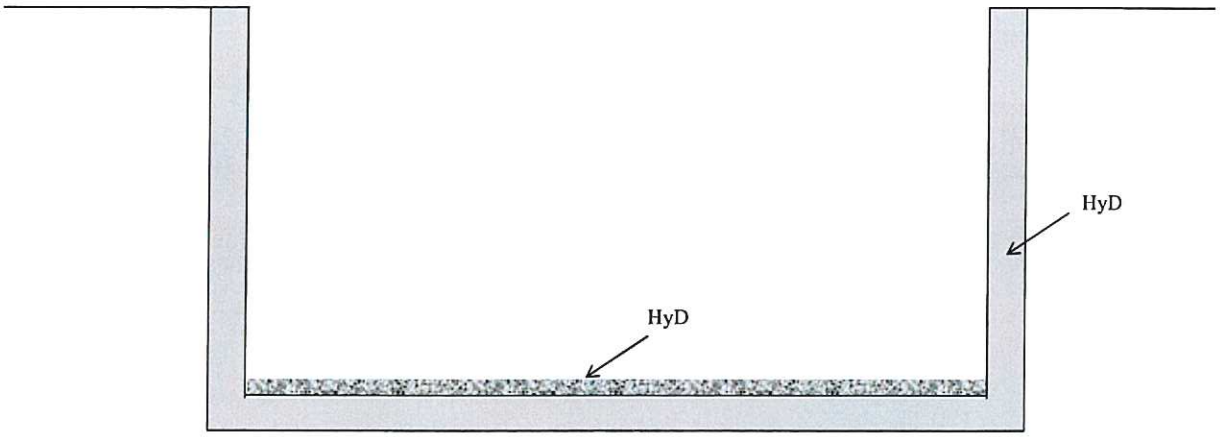


Figure 11 - Demarcation of Maintenance Agent for Polder Scheme – *Earth Embankment Portion*

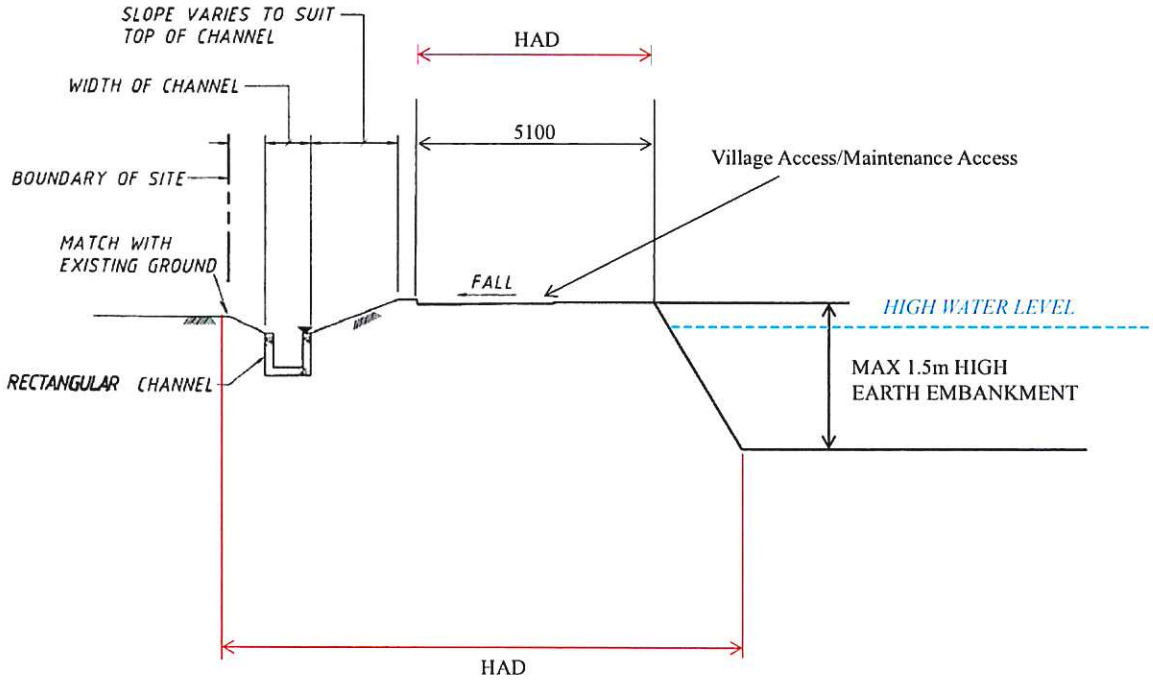


Figure 12 - Demarcation of Maintenance Agents for Polder Scheme – *Earth Embankment with Diversion Storage Pipes Portion*

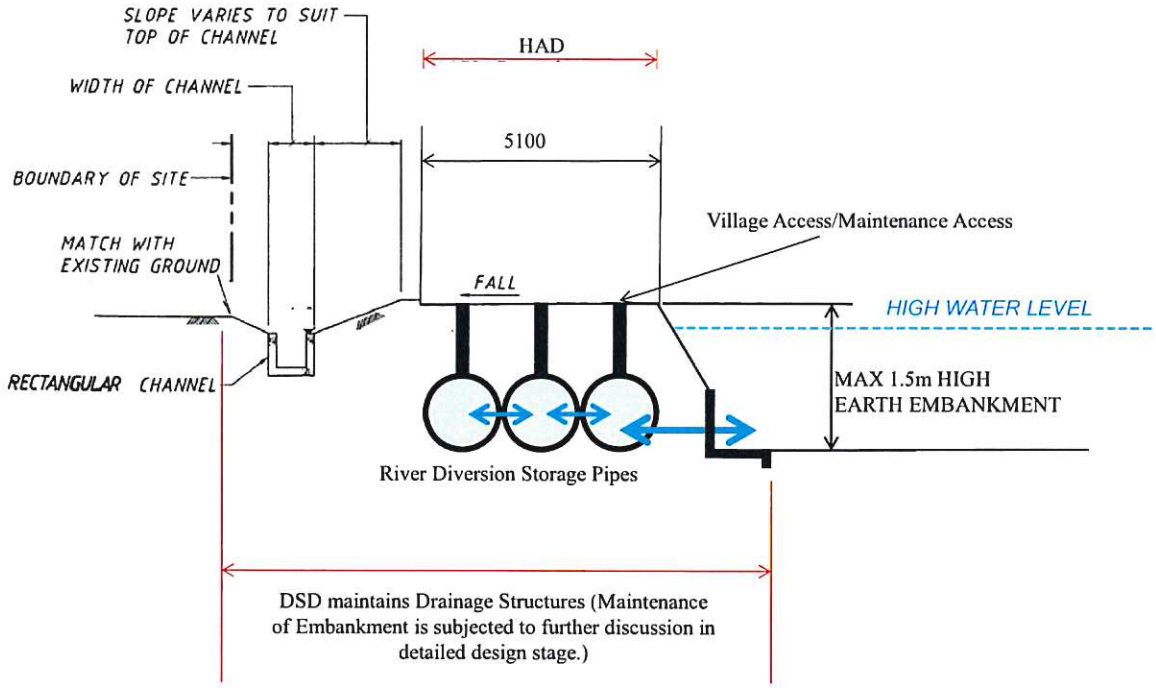


Figure 13 - Demarcation of Maintenance Agents for Polder Scheme – *Earth Embankment with Box Culvert Storage Portion*

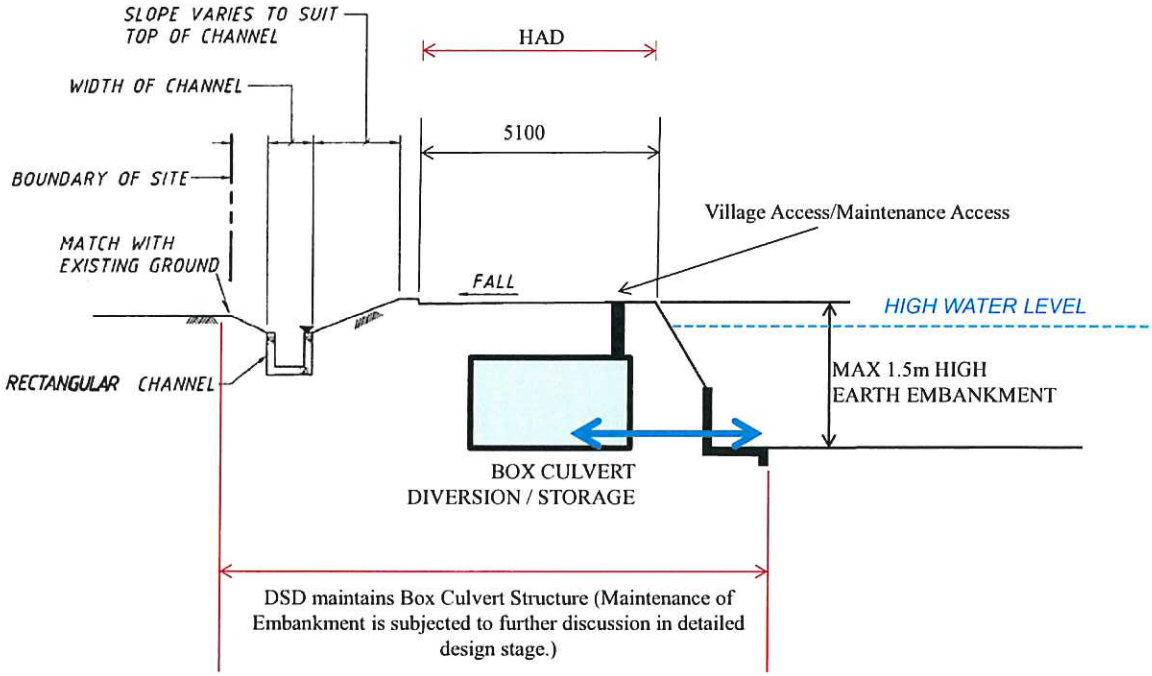
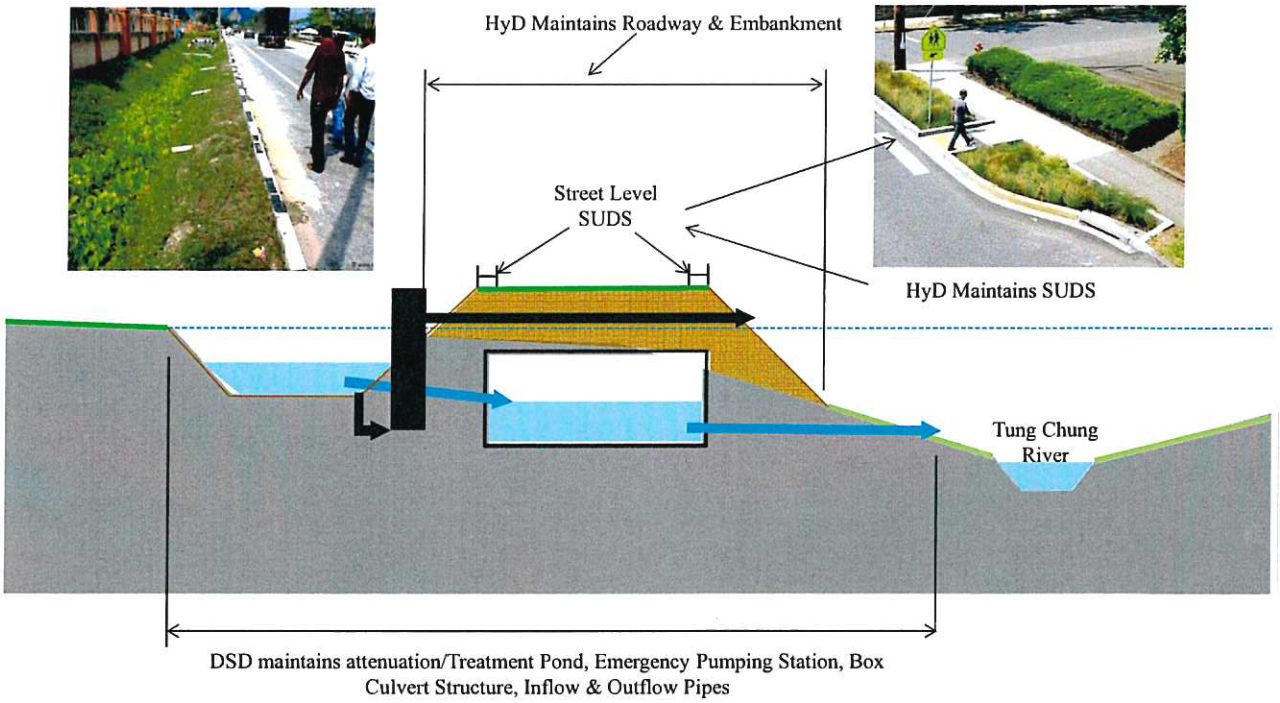


Figure 14 - Demarcation of Maintenance Agents for Polder Scheme – *Road Embankment with Box Culvert and Attenuation/Treat Pond Portion*



Appendix 9

Responses-to-Comments Table

