

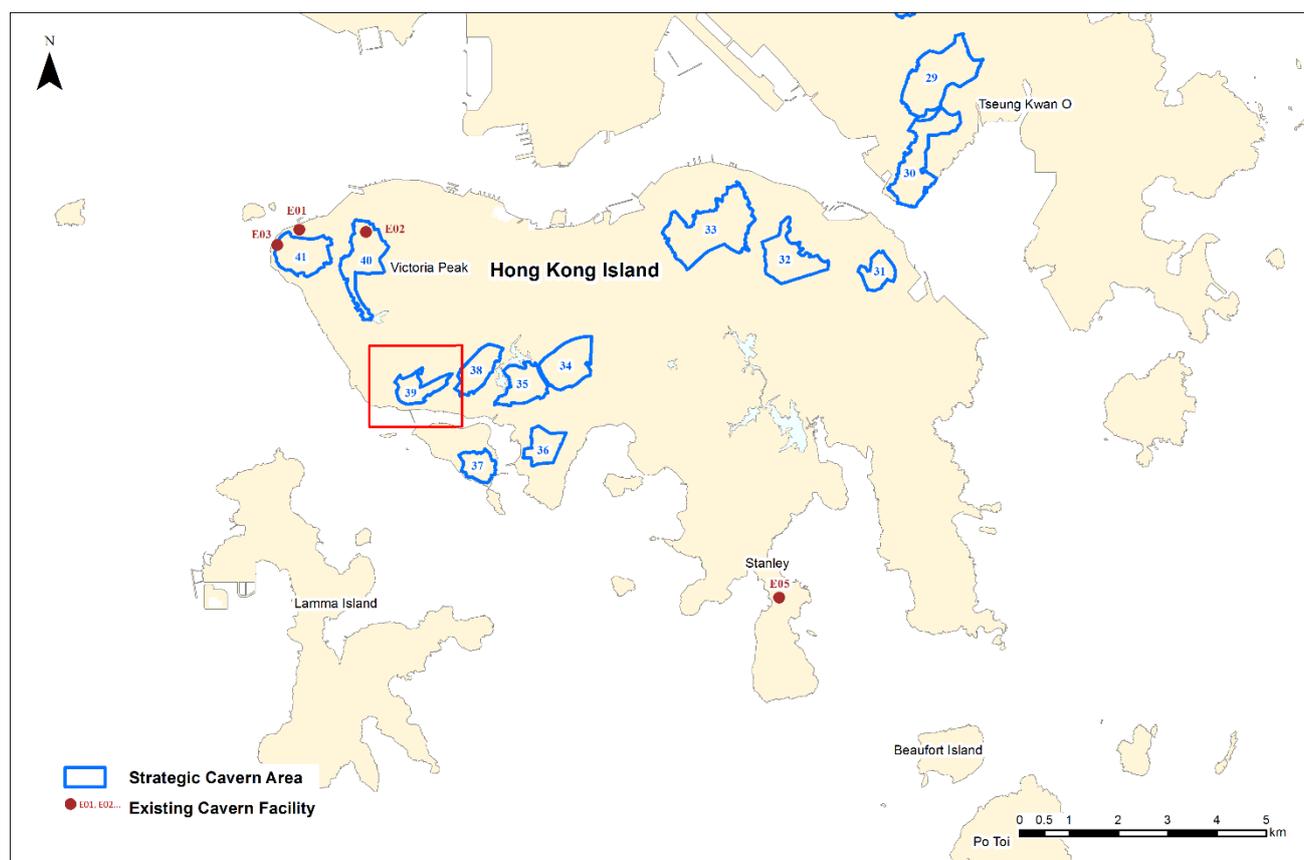
CAVERN MASTER PLAN – INFORMATION NOTE

STRATEGIC CAVERN AREA NO. 39 – MOUNT KELLETT

This Information Note describes the characteristics, key development opportunities and constraints of Strategic Cavern Area No. 39 - Mount Kellett (the SCVA). It indicates the potential land uses suitable for cavern development within the area but would not pre-empt other possible land uses put forward by the project proponents with justifications. It also denotes the extent of potential portal locations. The spatial context of the SCVA is illustrated in the Reference Drawing appended to this Information Note.

Reference should be made to the Explanatory Statement of the Cavern Master Plan for its background and purposes, as well as the definition and delineation criteria of SCVAs.

1. Location Plan



2. Strategic Cavern Area Details

Outline Zoning Plans (OZPs):	Draft Pok Fu Lam OZP No. S/H10/16 Draft Aberdeen & Ap Lei Chau OZP No. S/H15/32 Draft The Peak Area OZP No. S/H14/12
Area:	40.4 ha
Maximum elevation in the SCVA:	+361 mPD
Minimum elevation in the SCVA:	+16 mPD

3. District Context

Location

The SCVA is located in the southwestern part of Hong Kong Island. It occupies the foothill area of Mount Kellett in Aberdeen. Aberdeen Country Park is to the northeast of the SCVA, Pok Fu Lam Country Park is to the north, Aberdeen is to the east, Tin Wan is to the south and Wah Fu is to the west.

The SCVA is generally hilly with a maximum elevation of about +361 mPD. The Tam Kung Yeh Temple is located at the southeastern portion of the SCVA. To the north, the SCVA abuts the Pok Fu Lam Reservoir Catchment Area Site of Special Scientific Interest (SSSI). To the east, south and west of the SCVA, the areas of Aberdeen, Tin Wan and Wah Fu are predominantly residential communities with high-rise developments. These include Aberdeen Centre (about 750 m to the southeast of the SCVA), Tin Wan Estate (at the eastern boundary of the SCVA), Wah Kwai Estate (at the southwestern boundary of the SCVA) and Wah Fu Estate (about 400 m to the west of the SCVA). In Aberdeen and Tin Wan, industrial related uses are intended to be phased out gradually through redevelopment for residential uses.

In the proximity of the SCVA, there are a number of key Government, Institution and Community (GIC) facilities and other facilities supporting the development of surrounding areas and the territory, including Aberdeen Chinese Permanent Cemetery (about 350 m to the east of the SCVA), Aberdeen Preliminary Treatment Works (about 100 m to the south of the SCVA), Kai Lung Wan Fresh Water Service Reservoir (at the northwestern boundary of the SCVA) and Wah Fu Fresh & Salt Water Service Reservoirs (about 500 m to the northwest of the SCVA).

Access

The SCVA is accessed from its eastern and southern edges via an access road to Tin Wan Estate, Tin Wan Hill Road and Shek Pai Wan Road. Regional connections could be routed through Pok Fu Lam Road, Aberdeen Praya Road and Aberdeen Tunnel.

The proposed MTR South Island Line (West), with an indicative implementation window from 2021 to 2026 recommended for planning, will serve the western and southern parts of Hong Kong Island. This proposed line, together with the South Island Line and the Island Line, will form a railway loop covering the central and western parts of Hong Kong Island. The South Island Line (West) will comprise proposed stations at Tin Wan and Wah Fu (exact locations to be determined) serving the locality of the SCVA.

Land Use Zoning

Under the Draft Pok Fu Lam OZP No. S/H10/16, the Draft Aberdeen & Ap Lei Chau OZP No. S/H15/32 and the Draft The Peak Area OZP No. S/H14/12, the majority of the SCVA falls within an area zoned “Green Belt” with a small tip at the western side falling within a “Government, Institution or Community” (“G/IC”) zone, and other two portions at the western side falling within “Residential (Group A)” (“R(A)”) and “Residential (Group A) 1” zones, which are under OZP amendments. The zoning of the surrounding areas includes “Green Belt” to the northeast, south and northwest, “Country Park” to the north, “R (A)” and “G/IC” to the southeast and southwest.

For details of the latest land use zonings on OZPs, please refer to the Town Planning Board website (<http://www.tpb.gov.hk>).

There is currently no existing or planned cavern facility within the SCVA.

4. Summary of Characteristics of Strategic Cavern Area

4.1. Boundary

The northern boundary of the SCVA is defined by the Pok Fu Lam Reservoir Catchment Area SSSI and the Hong Kong Electric Wah Fu – Bowen Road cable tunnel. The eastern boundary of the SCVA is defined by an inferred fault, residential development of Tin Wan Estate and some GIC facilities. The western boundary of the SCVA is defined by the Hong Kong Electric Cyberport - Wah Fu cable tunnel and Shek Pai Wan Road. The southern boundary of the SCVA is defined by Shek Pai Wan Road and Tin Wan Hill Road.

4.2. Geology

The solid geology of the SCVA is primarily fine ash vitric tuff, which belongs to Ap Lei Chau Formation. The SCVA is with a rock type that is suitable for cavern development. A number of geological features, such as faults and folds, are identified within and in areas surrounding the SCVA. The excavated rocks within the SCVA can be used as road base materials and for asphalt production, etc.

Further geological information of the SCVA can be found on the 1:20,000-scale Geological Map Sheet 11 (Hong Kong & Kowloon) published by the Geotechnical Engineering Office, Civil Engineering and Development Department.

4.3. Planning

The SCVA is adjacent to various residential areas in Aberdeen, Tin Wan and Wah Fu. The SCVA is also well connected to the rest of the territory by roads and a railway to be implemented. There is potential for the SCVA to support the development of these areas.

The areas of Aberdeen, Tin Wan and Wah Fu are major residential communities consisted of high-rise developments (e.g. Aberdeen Centre, Tin Wan Estate and Wah Kwai Estate) supported by various GIC facilities (e.g. sports centre, school, sewage treatment works and service reservoir, etc.). The industrial areas in Tin Wan and Aberdeen have been rezoned to “Residential (Group E)” (except for the waterfront industrial area) and are intended to be transformed into residential uses gradually. In view of the possible large population induced by these planned residential developments, the SCVA would be able to provide the solution space to support such expansion by providing additional suitable GIC facilities (e.g. leisure centre/sports centre), supporting retail and warehousing uses in caverns to serve the expanding urban development whilst balancing community needs. Furthermore, relocation of infrastructure facilities (e.g. service reservoir or sewage treatment plant) to caverns could also be another option for releasing surface land for other uses (e.g. community facilities). This could enable more effective utilisation of land resources in the areas while preserving the landscape of Mount Kellett as a natural backdrop to the adjacent communities. By housing ‘Not-In-My-Backyard’ (NIMBY) type of facilities, such as sewage treatment plant, the nuisance to the community could also be minimised.

It should also be noted that the SCVA falls partly within an area that is restricted by the Pok Fu Lam Moratorium. The Moratorium covers part of the Mount Davis and extends through the Pok Fu Lam area to Wah Fu Estate. The policy of the administrative Moratorium, imposed on traffic grounds, is to:

- (i) defer sale of Government land;

- (ii) defer all further lease modifications which would give rise to a greater intensity of development; and
- (iii) realise any development proposed for the Mount Kellett Site, approval to partially uplift the Pok Fu Lam Moratorium will be required.

Any cavern development in this area must take account of the Pok Fu Lam Moratorium, and Transport Department and Lands Department should be consulted with regards to any proposals.

The partial lifting of the Pok Fu Lam Moratorium to the south of Pok Fu Lam, i.e. the area close to Wah Fu Estate, was announced in the 2014 Policy Address to provide new public housing developments and facilitate the Wah Fu Estate redevelopment¹. Technical assessments to examine the feasibility of the proposed public housing developments have been undertaken². Project proponents should take due consideration of the findings of the abovementioned public housing developments in formulating cavern proposals. Civil Engineering and Development Department and Housing Department should be consulted on any potential interface issues.

4.4. Environmental

Environmental sensitive receivers to cavern development in the SCVA are the nearby residential developments (e.g. Tin Wan Estate, Wah Kwai Estate, SAGE Bradbury Home for the Elderly and SAGE Quan Chuen Home for the Elderly) and schools (e.g. SKH Tin Wan Chi Nam Primary School). The SCVA comprises natural greenery and Reservoir Catchment Area. Pok Fu Lam Country Park, Aberdeen Country Park and the Pok Fu Lam Reservoir Catchment Area SSSI abut to the northern boundary of the SCVA. The Main Building of Matilda and War Memorial Hospital (Grade 2 historic building) is located to the further north of the SCVA. Natural or modified surface water courses are identified within the SCVA. In addition, a small portion of the SCVA is within the Consultation Zone of the Potentially Hazardous Installation (PHI) of the Towngas Aberdeen Depot. Quantitative Risk Assessment would be required during the planning stage before commencement of construction works.

¹ For more information, please refer to the information paper presented to the Legislative Council Panel on Development on Jan 2015 (Paper No. CB(1)407/14-15(01)) via: <http://www.legco.gov.hk/yr14-15/english/panels/dev/papers/devcb1-407-1-e.pdf>

² Relevant studies commissioned by the Government include: (1) Site Formation and Infrastructural Works for Proposed Public Housing Development at Pokfulam South - Feasibility Study; and (2) Site Formation and Infrastructures for Development at Pok Fu Lam South - Investigation, Design and Construction.

All potential environmental constraints, which may impose restrictions on cavern development, should be identified and taken into account in cavern development proposals under the Environmental Impact Assessment Ordinance (EIAO) and other relevant ordinances, such as the Country Parks Ordinance. Project proponents are required to take into account the potential environmental constraints when planning each cavern development project and undertaking the environmental impact assessment under the EIAO to determine its environmental acceptability, potential environmental impacts and environmental mitigation measures required.

4.5. Traffic

The SCVA is accessed from its eastern and southern edges via Tin Wan Hill Road, access road to Tin Wan Estate and Shek Pai Wan Road. Regional connections could be routed through Pok Fu Lam Road, Aberdeen Praya Road and Aberdeen Tunnel.

As the SCVA falls partly within the area covered by the Pok Fu Lam Moratorium, project proponents are required to take special attention to any potential traffic impacts to the Pok Fu Lam area (i.e. west of the SCVA) when planning cavern development. In view of local concerns, any potential local and accumulative traffic impacts to the Southern District as a whole should also be assessed and minimized as far as possible. Project proponents are required to conduct necessary studies and assessments relevant to each project stage in formulation of development proposals and review and assess any potential traffic impact on both local and district basis.

4.6. Other Key Issues / Constraints on Cavern Development

A Drainage Services Department's tunnel, namely the Harbour Area Treatment Scheme Stage 2A tunnel, passes through the southwestern tip of the SCVA. The proposed railway tunnel for the South Island Line (West) will pass through the SCVA from west to east. Two cable tunnels, namely the Hong Kong Electric Wah Fu – Bowen cable tunnel and the Hong Kong Electric Cyberport – Wah Fu cable tunnel, are located approximately 100 m to the north and west of the SCVA respectively. Owing to the difference in elevations with respect to the extent of potential portal locations, these tunnels would not pose any insurmountable constraint on cavern development within the SCVA.

5. Potential Land Uses

The potential land uses for the SCVA are as follows:

Land use	Description
<p style="text-align: center;">Leisure Centre/Sports Centre</p>	<p>The SCVA is located close to a large population catchment as it is adjacent to the various existing and planned major residential communities in Tin Wan, Aberdeen and Wah Fu. There is potential for the SCVA to support these neighbouring communities by providing additional supporting community facilities, such as leisure centre/sports centre, to meet the rising demand.</p> <p>Some of the potential portal locations are in close proximity to the existing residential developments (e.g. Tin Wan Estate and Wah Kwai Estate) and also the proposed South Island Line (West) with proposed stations at Tin Wan and Wah Fu. The ease of access for local residents further enhances the potential for housing such facilities in the SCVA.</p>
<p style="text-align: center;">Retail</p>	<p>For the same reason as described for “leisure centre/sports centre”, the SCVA could also provide new space for retail uses in caverns to support the residential communities nearby.</p>
<p style="text-align: center;">Service Reservoir</p>	<p>Given the close proximity to the existing and planned major residential developments in Tin Wan, Aberdeen and Wah Fu, there is opportunity for the SCVA to provide alternative space for relocating the existing service reservoirs in the vicinity, so as to release the surface land for other uses to support the neighbouring communities.</p>

Land use	Description
Sewage Treatment Plant	<p>There is opportunity for the SCVA to provide alternative space for relocating the existing sewage treatment plant in the vicinity, so as to release the surface land for other uses to support the neighbouring communities. Moreover, housing the ‘NIMBY’ type of facility in caverns can help minimise the nuisance to the existing/future communities in respect of land use compatibility.</p> <p>Some of the extent of potential portal locations of the SCVA is away from the existing and planned residential areas, which makes the SCVA compatible with such land use.</p>
Warehousing	<p>For the same reason described for “leisure centre/sports centre”, the SCVA could also provide warehousing (such as mini-storage) in caverns to serve the expanding urban development whilst balancing community needs. Also, relocation of existing warehousing and related facilities to caverns may contribute to release surface land for other beneficial uses.</p>

Note: Zoning amendment/planning application may be required to facilitate the pursuit of the above potential land uses.

6. Extent of Potential Portal Locations

The extent of the potential portal locations is shown on the Reference Drawing.

The SCVA is accessed from Shek Pai Wan Road to the south and southwest; and Tin Wan Hill Road and the access road to Tin Wan Estate to the east of the SCVA.

Since Shek Pai Wan Road is a District Distributor, slip roads with adequate merging and diverging arrangements would be required for connecting the portal access for any level of traffic generating activities. This would require excavation to the hillside to form slopes or retaining structures.

Portal access could be provided on Tin Wan Hill Road or access road to Tin Wan Estate via a run-in/out or priority controlled junction, depending on the proposed land use. The use of these locations would minimise the disruption to the existing primary road network but may be limited by the actual capacity of the roads, and the restricted nature of the access road to Tin Wan Estate.

All the extent of potential portal locations of the SCVA are located at cut slopes with natural terrain above. There may be potential natural terrain hazards in the vicinity which will require further study by the project proponents.

Project proponents should carry out further studies on identifying specific locations of portals for the proposed cavern development.

7. Concluding Remarks

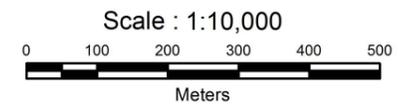
The SCVA presents an opportunity for rock cavern developments to serve the neighbouring communities (e.g. by housing leisure centre/sports centre, retail facility, service reservoir, sewage treatment plant or warehousing). Project proponents for cavern development should take due consideration of the existing and proposed residential developments, environmental sensitive receivers, accessibility for cavern development and development constraints posed by the Pok Fu Lam Moratorium, to minimise the interfacing issues and bring about greater synergy and opportunities.

8. Notes

The Cavern Master Plan and all supporting documents do not exempt project proponents for cavern development from following the relevant statutory and planning procedures. Information including the potential land uses and the extent of potential portal locations indicated in this Information Note should serve as reference materials only. In formulation of development proposals, project proponents should conduct the necessary studies and assessments relevant to each project stage. Reference should be made to the “Implementation” section of the Explanatory Statement of the Cavern Master Plan for further details.



- Legend**
- Strategic Cavern Area
 - Extent of Potential Portal Locations
 - Existing Railway Line
 - Proposed Railway Line
 - Cable Tunnel / Gas Tunnel
 - Drainage Services Department Tunnel
 - Abandoned Tunnel
 - Reservoir / River / Nullah / Sea
 - Graded Historic Building
 - Declared Monument (Historic Building)
 - Private Lot
 - Potentially Hazardous Installation
 - Consultation Zone of Potentially Hazardous Installation
 - Country Park
 - Site of Special Scientific Interest



REFERENCE DRAWING OF STRATEGIC CAVERN AREA NO. 39 - MOUNT KELLETT