

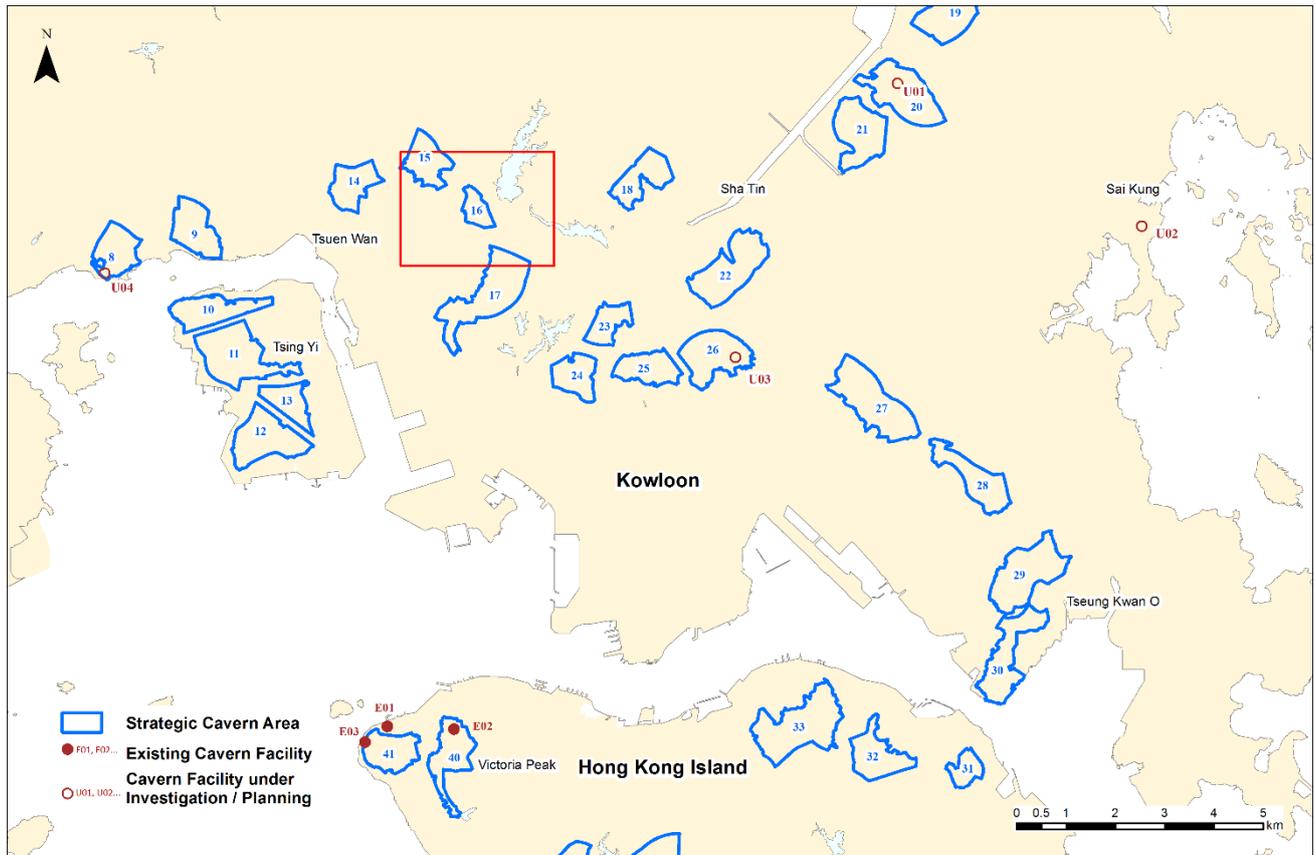
CAVERN MASTER PLAN – INFORMATION NOTE

STRATEGIC CAVERN AREA NO. 16 – SMUGGLERS’ RIDGE

This Information Note describes the characteristics, key development opportunities and constraints of Strategic Cavern Area No. 16 - Smugglers’ Ridge (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 Plan (OZP):	Draft Kwai Chung OZP No. S/KC/28
Area:	33.2 ha
Maximum elevation in the SCVA:	+187 mPD
Minimum elevation in the SCVA:	+49 mPD

3. District Context

Location

The SCVA is located at the northeastern part of Kwai Chung, which is geographically at the south of the New Territories. The SCVA covers the foothill area of Smugglers' Ridge in Kwai Chung. Shing Mun Country Park is to the north of the SCVA, Kam Shan Country Park is to the east, and Kwai Chung is the south and west.

The SCVA is generally hilly with a maximum elevation of about +334 mPD. Within the SCVA, Ha Lo Wai Salt Water Service Reservoir, Kwai Chung North Salt Water Service Reservoir and Kwai Chung North Fresh Water Service Reservoir are located in the northwestern and middle portions. A minor portion of the SCVA at its north encroaches onto Shing Mun Country Park.

To the south and west of the SCVA, Kwai Chung is mainly comprised of residential communities with high-rise developments and local villages, including Lei Muk Shue Estate (about 100 m to the west of the SCVA), On Yam Estate (about 50 m to the south of the SCVA), and Sheung Kwai Chung Village (about 450 m to the west of the SCVA). These areas are supported by some commercial and industrial developments, as well as a number of key Government, Institution and Community (GIC) facilities, including Tsuen Wan Fresh Water Service Reservoir (about 1,050 m to the west of the SCVA), Tsuen Wan No. 2 Fresh Water Service Reservoir (about 400 m to the west of the SCVA) and Tsuen Wan Water Treatment Works (about 850 m to the west of the SCVA).

Access

The SCVA is accessed at its western and southwestern edges via Wo Yi Hop Road and Tai Pak Tin Path respectively. Regional connections could be routed through the nearby Cheung Pei Shan Road.

Although Kwai Chung is served by the MTR Tsuen Wan Line, the SCVA is not in the close proximity to the railway stations. The nearest MTR stations are Tai Wo Hau Station (about 1,250 m to the southwest of the SCVA) and Kwai Hing Station (about 1,350 m to the south of the SCVA).

Land Use Zoning

Under the Draft Kwai Chung OZP No. S/KC/28, the majority of the SCVA falls within an area zoned “Green Belt”, with an area in the middle zoned “Government, Institution or Community” (“G/IC”). The remainder of the SCVA is not covered by any Statutory Plan and is designated as country park. The surrounding areas of the SCVA are mainly zoned “Green Belt” to the east and north, “Residential (Group A)”, “G/IC” and “Open Space” to the south and west, with the rest being the Shing Mun Country Park.

For details of the latest land use zonings on the OZP, 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 Cheung Pei Shan Road and the portal of Shing Mun Tunnel. The eastern boundary of the SCVA is defined by a Water Supplies Department tunnel. The western boundary of the SCVA is defined by Wo Yi Hop Road and private lots. The southern boundary of the SCVA is defined by Tai Pak Tin Path and residential developments, i.e. Shek Yam East Estate and On Yam Estate.

4.2. Geology

The solid geology of the SCVA is primarily fine-grained granite within the southern portion, which belongs to Needle Hill Granite; and granodiorite within the northern portion, which belongs to Tai Po Granodiorite. The SCVA is with the rock types that are suitable for cavern development. A number of geological features, such as faults and photolineaments, identified within and in the areas surrounding the SCVA. The excavated fine-grained granite and granodiorite within the SCVA are suitable for reuse as construction aggregate.

Further geological information of the SCVA can be found in the 1:20,000-scale Geological Map Sheet 7 (Sha Tin) published by the Geotechnical Engineering Office, Civil Engineering and Development Department.

4.3. Planning

The SCVA is close to the existing urban developments in Kwai Chung. There is thus potential for the SCVA to support the development of the area.

The southern and western sides of the SCVA is the major developed areas of Kwai Chung with residential communities as well as commercial and industrial related developments. These areas consist of various high-rise residential developments (e.g. Lei Muk Shue Estate and On Yam Estate) and local villages (e.g. Sheung Kwai Chung Village) supported by a number of GIC facilities (e.g. sports ground, school, service reservoir, etc.). Given that the SCVA is in close proximity to these existing residential developments, there is potential of the SCVA to support these communities and any future population by providing additional community facilities (e.g. leisure centre/sports centre and/or civic centre). Also, the SCVA has the potential to provide vehicle parking in view of its proximity to the high-rise residential developments, so as to meet the rising demand from the increasing population.

Should there be any need for providing additional land for residential use, the SCVA may provide the solution space by, for example, relocating some of the suitable infrastructure facilities (e.g. service reservoirs) to caverns. By doing so, surface land could be released for other beneficial uses (e.g. residential developments and/or community facilities), and it could also enable more effective utilisation of land resources in Kwai Chung while preserving the natural landscape in Smugglers' Ridge as a natural backdrop of the urban developments in the locality.

There are several data centres developed in Kwai Chung, including those located near MTR Kwai Hing Station and Kwai Fong Station. Given that there are commercial and industrial related uses including data centres in Kwai Chung, there is potential for the SCVA to provide additional space to support any future expansion of the industry by housing more data centres and related facilities in caverns, which is in line with the Government's policy objective of promoting Hong Kong as a data centre hub.

4.4. Environmental

Environmental sensitive receivers to cavern development in the SCVA are the nearby residential developments (e.g. Shek Yam East Estate, Prosperity Villa, Lei Muk Shue Estate and On Yam Estate), and occupied GIC facilities including Mrs. Wu York Yu Health Centre and the North Kwai Chung Tang Shiu Kin Sports Centre. The SCVA encroaches onto Shing Mun Country Park in its northern portion. There are graded historic buildings located to the east of the SCVA, including the group of buildings of Shing Mun Redoubt (Grade 2 historic building), Bellmouth Overflow (Grade 1 historic building), Gorge Dam (Grade 1 historic building), Valve Tower (Grade 1 historic building) and Steel Bridge (Grade 2 historic building) of Shing Mun Reservoir, and a declared monument, namely the Memorial Stone, of Shing Mun Reservoir. In addition, an identified old footpath, namely “Tai Po Route (Kowloon City to Sham Chun: Kowloon City to Shing Mun Sub-Section)”, is located to the east of the SCVA. Also, some natural water courses and streams are within the SCVA.

All potential environmental constraints, which may impose restrictions on cavern development, should be identified and taken into account 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 at its western and southwestern edges via Wo Yi Hop Road and Tai Pak Tin Path respectively. Regional connections could be routed through the nearby Cheung Pei Shan Road.

The extent of potential portal locations on the western portion of the SCVA is located on Wo Yi Hop Road, which is an Urban District Distributor Road. The possible direct road connection to Wo Yi Hop Road could allow for good connectivity to the primary road network and easy connections to the expressway network at Cheung Pei Shan Road to the north and Kwai Chung Road to the south.

Tai Pak Tin Path is an existing pedestrian access. Subject to detailed traffic assessment and engineering design, construction of vehicular access from Lei Muk Road is required for cavern development project adopting the potential portal location on it.

4.6. Other Key Issues / Constraints on Cavern Development

A Water Supplies Department’s tunnel, namely Tai Po-Butterfly Valley Fresh Water Tunnel, is about 50 m to the eastern boundary of the SCVA. A Drainage Services Department’s tunnel is about 150 m to the northwestern boundary of the SCVA. A road tunnel, the Shing Mun Tunnel, is about 50 m to the northeastern boundary of the SCVA. A railway tunnel, the Express Rail Link, including the associated Shek Yam Construction Adit, is about 400 m to the western boundary of the SCVA. A cable tunnel, namely the CLP Kwai Chung Cable Tunnel, is about 20 m to the southwestern boundary of the SCVA. Some air raid tunnels (which are abandoned tunnels) are approximately 250 m to the eastern boundary of the SCVA. There are also pylons and overhead power lines running above the SCVA. Due to the differences in locations and elevations, the pylons and overhead power lines and the tunnels would not pose any insurmountable constraint to cavern development within the SCVA.

5. Potential Land Uses

The potential land uses for the SCVA are as follows:

Land use	Description
Civic Centre	<p>The SCVA is located close to a large population catchment as it is adjacent to various existing major residential communities in Kwai Chung such as Lei Muk Shue Estate and On Yam Estate. There is potential for the SCVA to support the potential expansion/future development of these areas by providing additional supporting community facilities, such as civic centre, to meet the rising demand from the increasing population.</p> <p>Some potential portal locations are in close proximity to the existing residential developments (e.g. Lei Muk Shue Estate) which provide easy access for the local residents. This further enhances the potential for housing such use in the SCVA.</p>
Leisure Centre/Sports Centre	<p>For the same reason as described for “Civic Centre”, there is also potential for the SCVA to provide additional supporting community facilities, such as leisure centre/sports centre, to meet the rising demand from the increasing population in Kwai Chung.</p>

Land use	Description
Data Centre	<p>Kwai Chung has developed with several data centres. There are also commercial and industrial related developments in the area. There is potential for the SCVA to provide solution space to support the industry by housing data centres and related facilities in caverns. This is in line with the policy objective of promoting Hong Kong as a data centre hub.</p>
Service Reservoir	<p>Kwai Chung is home of various residential developments (e.g. Lei Muk Shue Estate and On Yam Estate) and has the potential for further growth given they are located in an urban setting equipped with well-established infrastructural systems. There is thus opportunity to develop suitable land uses to support the potential expansion of the residential areas by relocating some of the suitable infrastructure facilities, such as service reservoir, to caverns.</p> <p>Existing service reservoirs are found within and in the vicinity of the SCVA. Relocation of the facilities to caverns may be considered, thereby releasing the surface land for other beneficial uses (e.g. residential developments and/or community facilities).</p>
Vehicle Parking	<p>The SCVA is located close to a large population catchment as it is adjacent to various existing major residential communities in Kwai Chung such as Lei Muk Shue Estate and On Yam Estate. Also considered that the SCVA has good connectivity to the primary road network, there is potential for the SCVA to provide vehicle parking, to meet the rising demand from the increasing population.</p> <p>Some potential portal locations are in close proximity to the existing residential developments (e.g. Lei Muk Shue Estate) which provide easy access for the local residents. This further enhances the potential for housing such use in the SCVA.</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 potential portal location at Wo Yi Hop Road is located at the slope alongside the carriageway. The access arrangement could be integrated with one of the existing signalised intersections on Wo Yi Hop Road to facilitate the development of land uses with different traffic requirements.

The potential portal location at Tai Pak Tin Path would require an access road to be constructed from Lei Muk Road. The area in front of the slope of Tai Pak Tin Path may be suitable for forming the portal and part of the vehicular access road.

There are natural slopes above the potential portal locations. There may be potential natural terrain hazards in the vicinity of the potential portal locations which may require further study by the project proponents.

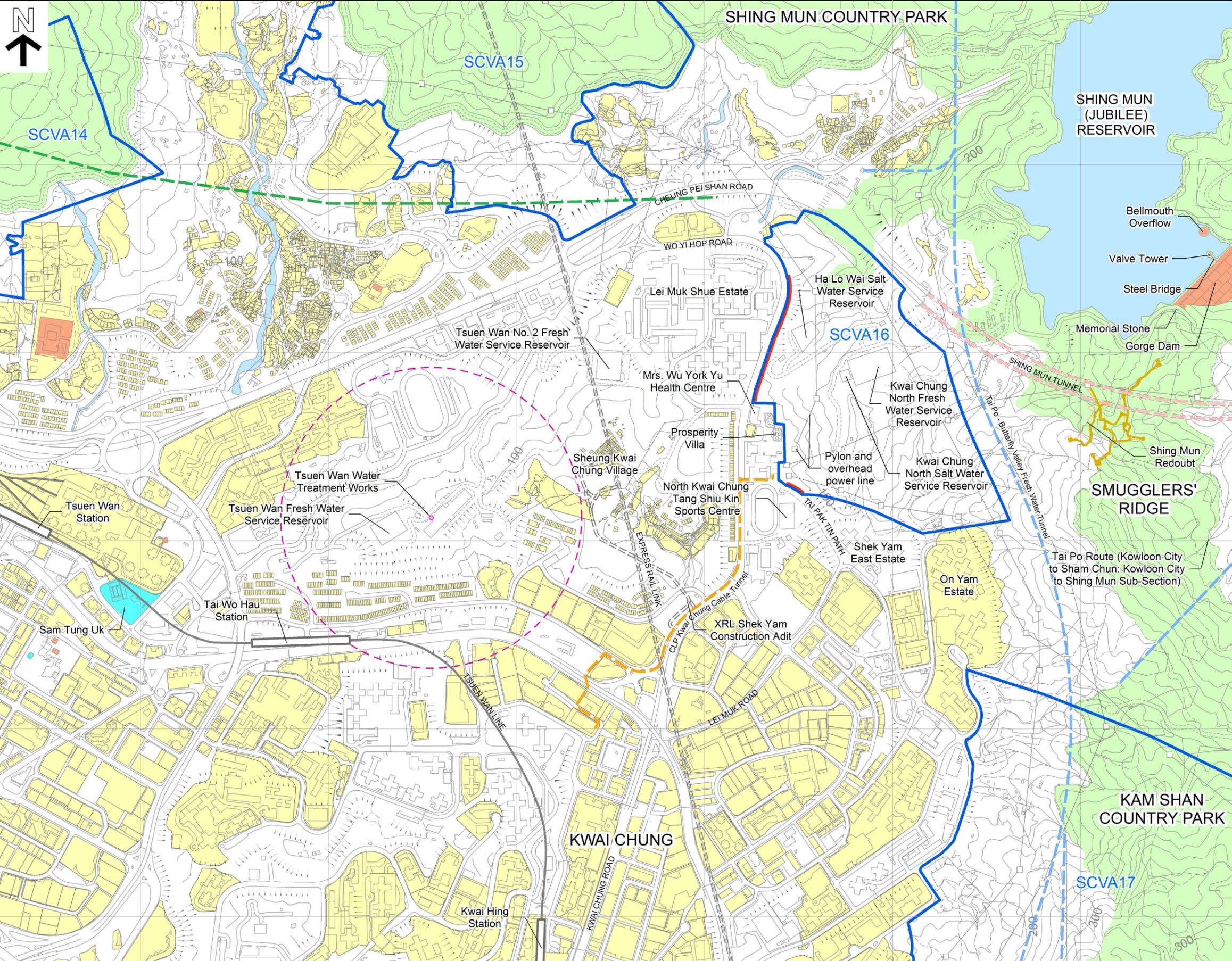
Project proponents should carry out further studies on identifying specific locations of portals for the proposed cavern development.

7. Concluding Remarks

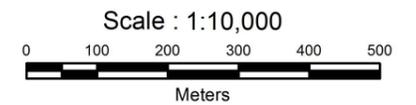
The SCVA presents an opportunity for placing suitable land uses in rock caverns to serve the neighbouring residential communities (e.g. by housing service reservoir, civic centre, leisure centre/sports centre and vehicle parking). Also, the SCVA could facilitate the growth of data centres in the area by housing data centres and related facilities in caverns. Project proponents for cavern development should take due consideration of the existing and potential residential developments, accessibility for cavern development, as well as environmental sensitive receivers 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
 - Committed Railway Line
 - Cable Tunnel / Gas Tunnel
 - Vehicle Tunnel
 - Drainage Services Department Tunnel
 - Water Supplies Department Tunnel
 - Abandoned Tunnel
 - Reservoir / River / Nullah
 - Graded Historic Building
 - Declared Monument (Historic Building)
 - Private Lot
 - Potentially Hazardous Installation
 - Consultation Zone of Potentially Hazardous Installation
 - Country Park



REFERENCE DRAWING OF STRATEGIC CAVERN AREA NO. 16 - SMUGGLERS' RIDGE