

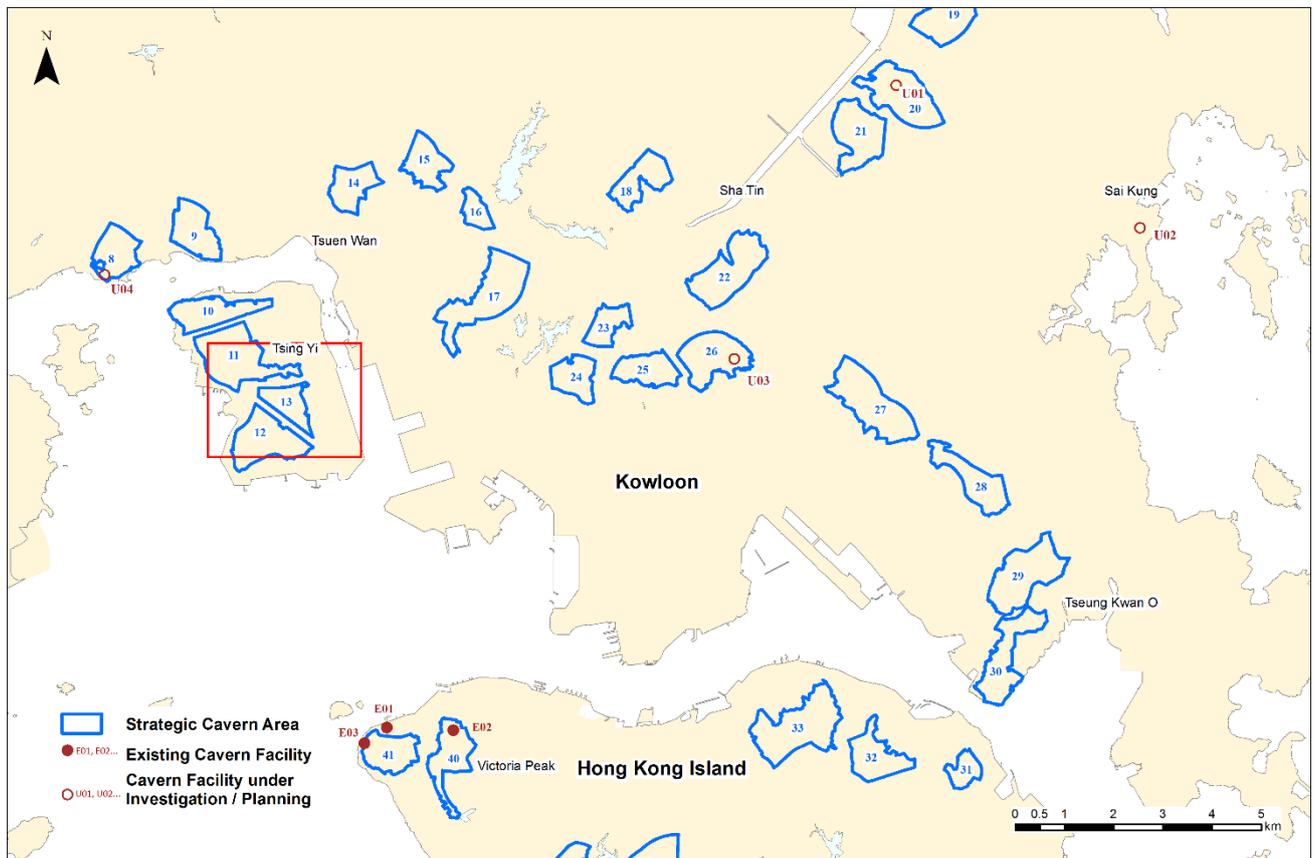
CAVERN MASTER PLAN – INFORMATION NOTE

STRATEGIC CAVERN AREA NO. 13 – TSING YI CENTRAL

This Information Note describes the characteristics, key development opportunities and constraints of Strategic Cavern Area No. 13 - Tsing Yi Central (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):	Approved Tsing Yi OZP No. S/TY/28
Area:	55.2 ha
Maximum elevation in the SCVA:	+279 mPD
Minimum elevation in the SCVA:	+12 mPD

3. District Context

Location

The SCVA is located at the southern portion of Tsing Yi Island, which is situated to the west of Kwai Chung and Tsuen Wan. It occupies the areas of Sai Shan and Chun Fa Lok. Sheung Ko Tan is to the north of the SCVA, Sai Tso Wan is to the west, Nam Wan is to the south, and the coastal area facing Rambler Channel is to the east.

The SCVA is generally hilly with a maximum elevation of about +279 mPD. To the north and northeast of the SCVA, there are residential areas of Tsing Yi which consists of a number of medium- to high-rise residential developments and local village settlements, including Mayfair Gardens and a housing site at Sai Shan (at the northeast boundary of the SCVA), a proposed public housing site at Tsing Hung Road (about 250 m to the east of the SCVA), Rambler Crest (about 400 m to the east of the SCVA), Cheung Ching Estate (about 480 m to the northeast of the SCVA), Ching Wah Court (about 500 m to the north of the SCVA) and Tsing Yu New Village (about 1,200 m to the north of the SCVA). To the east of the SCVA along the southeastern coast of Tsing Yi, there is focused development of industrial undertakings including the Kwai Chung Container Terminal 9 and other container related uses. To the south and west of the SCVA, there are also focused industrial developments including oil depots, dockyards, chemical waste treatment and container related uses along the southern and western coasts of Tsing Yi.

In the proximity of the SCVA, the Hong Kong Institute of Vocational Education (Tsing Yi) (HKIVE) is located adjoining the eastern boundary of the SCVA. There are also other key Government, Institution and Community (GIC) facilities supporting the development of Tsing Yi, including Tsing Yi East Salt Water Service Reservoir (about 250 m to the northeast of the SCVA), Tsing Yi East Fresh Water Service Reservoir (about 200 m to the northeast of the SCVA) and Tsing Yi East No. 2 Fresh Water Service Reservoir (about 250 m to the northeast of the SCVA).

Access

The SCVA is accessed from its western and eastern edges via Tsing Yi Road West and an access road of the HKIVE which connects to Sai Shan Road respectively. Regional connections could be routed through the nearby Cheung Tsing Highway and Tsing Kwai Highway.

The MTR Airport Express/Tung Chung Line runs through Tsing Yi with Tsing Yi Station located about 1.5 km to the north of the SCVA.

Land Use Zoning

Under the Approved Tsing Yi OZP No. S/TY/28, the entire SCVA falls within an area zoned “Green Belt”. The surrounding areas of the SCVA are mainly zoned “Green Belt” and “Other Specified Uses” annotated “Traditional Burial Area for Tsing Yi Villager” to the north, “Government, Institution or Community”, “Residential (Group A)” and “Other Specified Uses” annotated “Container Related Uses” to the east, “Green Belt” and “Site of Special Scientific Interest” to the south, and “Industrial” to the west.

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 the Cheung Tsing Tunnel. The eastern boundary of the SCVA is defined by Tsing Sha Highway, the HKIVE, Mayfair Gardens and the housing site at Sai Shan. The western boundary of the SCVA is defined by Tsing Yi Road West. The southern boundary of the SCVA is defined by the Nam Wan Tunnel.

4.2. Geology

The solid geology of the SCVA is primarily fine-grained granite and medium-grained granite within the eastern portion, which belong to Sha Tin Granite; and coarse ash crystal tuff within the western portion, which belongs to Yim Tin Tsai Formation. The SCVA is with the rock types that are suitable for cavern development. A number of geological features, such as faults, photolineaments and isolated dykes, are identified within and in the areas surrounding the SCVA. The excavated fine-grained granite and medium-grained granite within the SCVA are suitable for reuse as construction aggregate. Other excavated rock within the SCVA can be used as road base materials and for asphalt production, etc.

Further geological information of the SCVA can be found in the 1:20,000-scale Geological Map Sheet 10 (Silver Mine Bay) published by the Geotechnical Engineering Office, Civil Engineering and Development Department.

4.3. Planning

The SCVA is sandwiched between the existing residential area and industrial area in Tsing Yi. Given the SCVA is well connected to the rest of the territory by various major highways, there is potential for the SCVA to support the development of these areas.

On the northern and northeastern sides of the SCVA, there are major residential areas in Tsing Yi. These consist of various medium- to high-rise residential developments (e.g. Cheung Ching Estate, Ching Wah Court, Mayfair Gardens and a proposed public housing site at Tsing Hung Road) and local village settlements (e.g. Tsing Yu New Village) supported by a number of GIC facilities (e.g. sports ground, sewage treatment works, service reservoirs, etc.). 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 to caverns (e.g. service reservoirs). 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 Tsing Yi while preserving the natural landscape in Sai Shan and Chun Fa Lok as a natural buffer between the industrial and residential areas.

The southeastern, southern and western coasts of Tsing Yi, which are located to the east, south and west of the SCVA respectively, have been developed as hubs of various industrial uses that require direct marine access and extensive land, including oil depots, dockyards, chemical waste treatment and container related uses. The advantageous geographical setting and extensive road network connections of Tsing Yi, which are favourable for such kinds of industrial development including the container and oil depots related uses with territorial significance, could be further utilised. The SCVA could provide new space to support the potential expansion of these industrial activities, for example, relocation and/or expansion of the existing oil depots and/or industrial type of warehousing related facilities into caverns.

The SCVA is strategically located in the urban fringe with easy access to the rest of the territory, including Ma Wan and Lantau via the Lantau Link, Ting Kau and Northwest New Territories via Tsing Long Highway, Tsuen Wan via Tsing Tsuen Bridge (please refer to Reference Drawing of SCVA No. 11 for the location of the bridge), Kwai Chung and the Kowloon mainland via Cheung Tsing Bridge, Tsing Yi Bridge and Kwai Tsing Bridge, and Stonecutters Island and the west Kowloon area via Stonecutters Bridge (please refer to Reference Drawing of SCVA No. 12 for the location of the bridge). This distinctive advantage could be well utilized in developing land uses that require convenient transport infrastructure for serving a large catchment area, such as maintenance depot.

The proposed Tsing Yi – Lantau Link located to the south of the SCVA may provide additional access to Tsing Yi. The development of the SCVA shall also take into account the proposed link and the associated traffic network.

As stated in Section 3, the SCVA encroaches onto the “GB” zone under the Approved Tsing Yi OZP No. S/TY/28. According to its Explanatory Statement, the “GB” zone serves the purpose of protecting the existing ridgeline which provides physical barriers separating the oil depots in the south and west of Tsing Yi from residential developments in the north-east. The land above +150 mPD in the “GB” zone is designated as ‘No Borrow Area’ by the Coordinating Committee on Land-use Planning and Control relating to Potentially Hazardous Installations (CCPHI) in 1988, where borrowing and alternation of landforms are prohibited. Any alteration of the ridge below 150mPD has to be agreed with concerned departments including the Gas Standards Office of Electrical and Mechanical Services Department. Project proponents shall consult relevant departments if the proposed land uses and portals involve alternation of the ridge below 150mPD.

4.4. Environmental

Environmental sensitive receivers to cavern development in the SCVA are the nearby residential developments (e.g. Mayfair Gardens) and education institution (i.e. HKIVE). The South Tsing Yi Site of Special Scientific Interest is located to the south of the SCVA. Additionally, the SCVA encroaches onto the Consultation Zones of four Potentially Hazardous Installations (PHI), i.e. the LPG/Oil terminals of Exxon Mobil Hong Kong Ltd., Sinopec Hong Kong Ltd., Chevron Hong Kong Ltd. and Shell Hong Kong Ltd. Quantitative Risk Assessment would be required at the planning stage of the projects. The blasting assessment shall take these LPG/Oil terminals in the vicinity into account. Also, some natural water courses and streams are located within the SCVA and close to the extent of potential portal locations.

All potential environmental constraints, which may impose restrictions on the cavern development, should be identified and taken into account under the Environmental Impact Assessment Ordinance (EIAO) and other relevant ordinances. 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 can be accessed from its western and eastern edges via Tsing Yi Road West and an access road of the HKIVE which connects to Sai Shan Road. Regional connections could be routed through the nearby Cheung Tsing Highway and Tsing Kwai Highway. The future development of the proposed Tsing Yi – Lantau Link to the south of the SCVA may provide additional access to the SCVA.

Tsing Yi Road West may become oversaturated in terms of capacity subject to further detailed traffic assessment to be carried out by the project proponent of the cavern development project. The usage of the access road of the HKIVE would require further liaison with the institute and relevant stakeholders. The project proponent shall also assess the combined traffic impact due to the proposed Tsing Yi – Lantau Link. Further advice on the scope of Traffic Impact Assessment shall be sought by the project proponent.

4.6. Other Key Issues / Constraints on Cavern Development

There are two existing vehicle tunnels in the vicinity of the SCVA. Cheung Tsing Tunnel is located 50 m away from the northern boundary of the SCVA while Nam Wan Tunnel is located 50 m away from the southern boundary of the SCVA. The proposed vehicle tunnel for the Tsing Yi – Lantau Link is located approximately 200 m to the southeastern portion of the SCVA. Two Harbour Area Treatment Scheme Stage 1 tunnels of the Drainage Services Department are located approximately 300 m to the northeastern portion of the SCVA. Due to the horizontal separations, these underground facilities will 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
Maintenance Depot	<p>The SCVA is located at the urban fringe connected with extensive road network, and is easily accessible via various major highways, such as Cheung Tsing Highway and Tsing Kwai Highway. There is thus potential to develop suitable land uses that require convenient transport infrastructure for serving a large catchment area, such as maintenance depot.</p> <p>Some potential portal locations of the SCVA are away from existing residential areas, which make the SCVA compatible with such land use.</p>

Land use	Description
Oil Bulk Storage	<p>Tsing Yi is a hub of various industrial uses that require direct marine access and extensive land, including the focused development of oil depots, dockyards and container related uses to the east, south and west of the SCVA. There is thus potential to develop suitable land uses to support the potential expansion of relevant industrial activities of territorial significance, for example, by relocating and/or expanding the existing oil depots into caverns.</p> <p>Some potential portal locations of the SCVA are away from the existing residential areas, which make the SCVA compatible with such land use. Further technical assessments shall be required if this potential land use is taken forward in future cavern development project.</p>
Service Reservoir	<p>Tsing Yi is home of various residential developments (e.g. Mayfair Gardens, Cheung Ching Estate, etc.) and has the potential for further growth (e.g. proposed public housing site at Tsing Hung Road) given it is located in an urban setting equipped with well-established infrastructural systems. There is thus opportunity to develop suitable land uses to support the proposed residential development and 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 in the vicinity of the SCVA. Relocation of the facility to caverns may be considered, thereby releasing the surface land for other beneficial uses (e.g. residential developments and/or community facilities) and for integration with the future development.</p>

Land use	Description
Storage / warehousing	<p>For the same reason as described for “Oil Bulk Storage”, and considering the good connectivity of the SCVA with various major highways (e.g. Tsing Long Highway and Cheung Tsing Highway), there is also potential to develop suitable land uses to support the potential expansion of industrial activities of territorial significance, for example, by developing related storage/warehousing facility in caverns.</p> <p>Some potential portal locations of the SCVA are away from the existing residential areas, which makes the SCVA compatible with such land use.</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 can be accessed from Tsing Yi Road West and a cut slope at Sai Tso Wan Road to the west, and from the access road of the HKIVE which connects to Sai Shan Road to the east.

The potential portal location on Tsing Yi Road West is located at the slope alongside the south-bound lane of the carriageway. There is a cut slope at Sai Tso Wan Road which is also identified as a potential portal location. It is noted that, adjoining that cut slope, a Vehicle Examination Centre is proposed at Sai Tso Wan Road to the west of the SCVA and to the south of Cheung Tsing Tunnel portal, together with necessary road improvement works at Sai Tso Wan Road¹. Project proponents should take this into consideration when formulating any cavern development proposals using that slope as the portal and should consult relevant Government departments, including but not limited to Development Bureau, Energizing Kowloon East Office and Transport Department, where appropriate.

¹ For more information, please refer to the ‘Supplementary Information for Relocation of Transport Department's Vehicle Examination Centre to Tsing Yi’ (Document No. 6/2015) submitted to the Traffic and Transport Committee of K&TDC by the Development Bureau, Energizing Kowloon East Office and Transport Department in May 2015:
http://www.districtcouncils.gov.hk/kwt/doc/2012_2015/en/committee_meetings_doc/TTC/8951/TTC6_2015.pdf

Another extent of potential portal location is on the access road of the HKIVE. The access road is currently a restricted road connected to Sai Shan Road. It would be suitable for low traffic-generating land uses. Widening and upgrading of the access road would be required in order to support moderate to high traffic-generating activities. The usage of the access road of the HKIVE would require further liaison with the institute and relevant stakeholders.

The 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 of the potential portal locations which will require further study by project proponents.

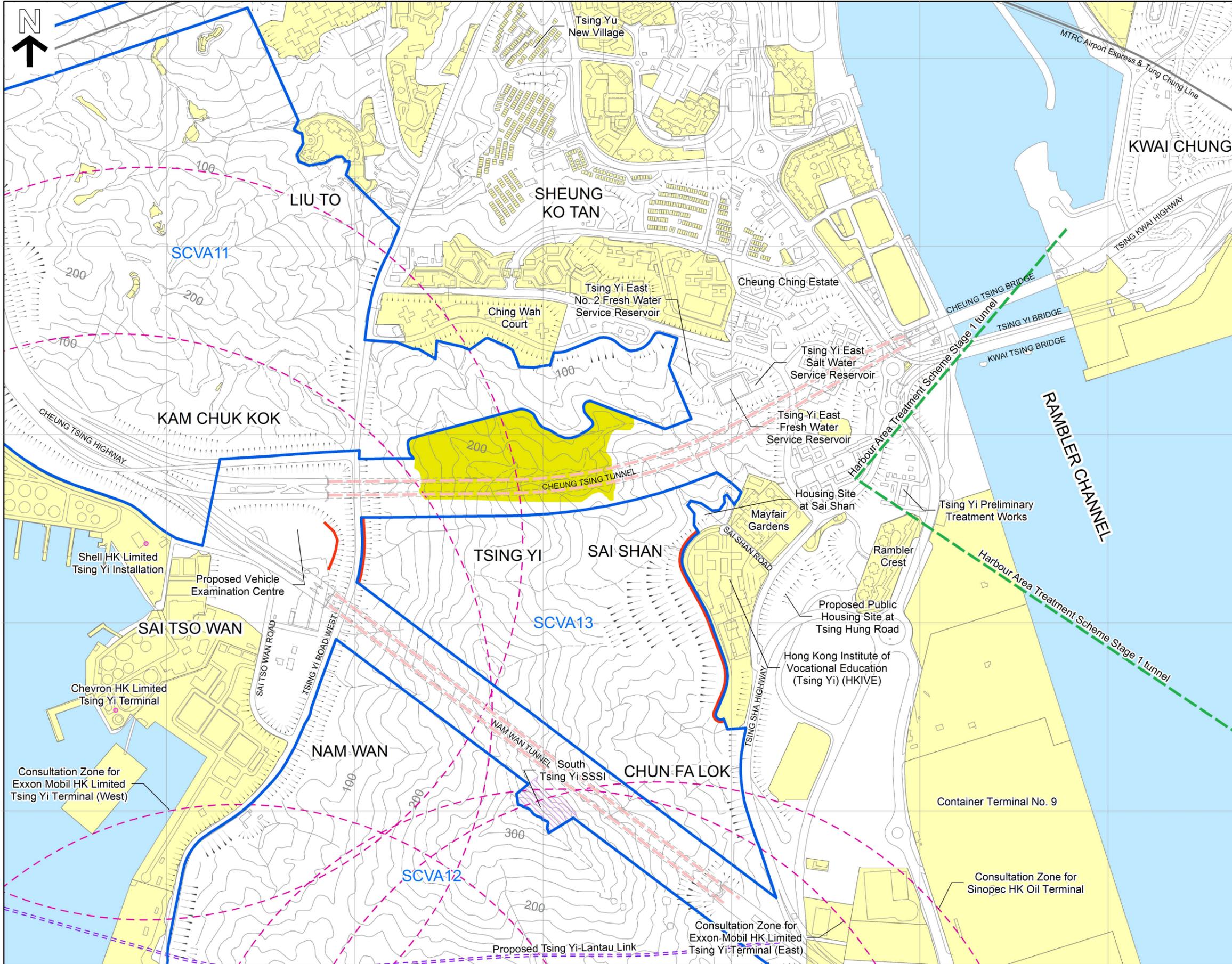
Project proponents should carry out further studies on identifying specific locations of portals for the proposed cavern development.

7. Concluding Remarks

The SCVA presents an opportunity for locating suitable land uses in rock caverns to serve the neighbouring existing residential communities and potential new developments (e.g. by housing service reservoirs). It can also facilitate the growth of the local industrial hub of territorial significance by housing its related uses (e.g. oil depots and/or storage/warehousing). There is also potential to locate maintenance depot in cavern which could well utilise its strategic location and comprehensive transport network of the SCVA. Project proponents for cavern development should take due consideration of the existing and proposed residential developments, industrial developments, education institute, environmental sensitive receivers, accessibility for cavern development and Consultation Zones of the four PHIs that are in close proximity of the SCVA, to minimise the interfacing issues and bring about greater synergy and opportunities.

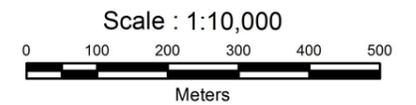
8. Notes

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 Major Road
- Vehicle Tunnel
- Drainage Services Department Tunnel
- Sea
- Private Lot
- Potentially Hazardous Installation
- Consultation Zone of Potentially Hazardous Installation
- Site of Special Scientific Interest
- "Other Specified Uses" annotated
- "Traditional Burial Area for Tsing Yi Villager" Zone on Outline Zoning Plan



REFERENCE DRAWING OF STRATEGIC CAVERN AREA NO. 13 - TSING YI CENTRAL