

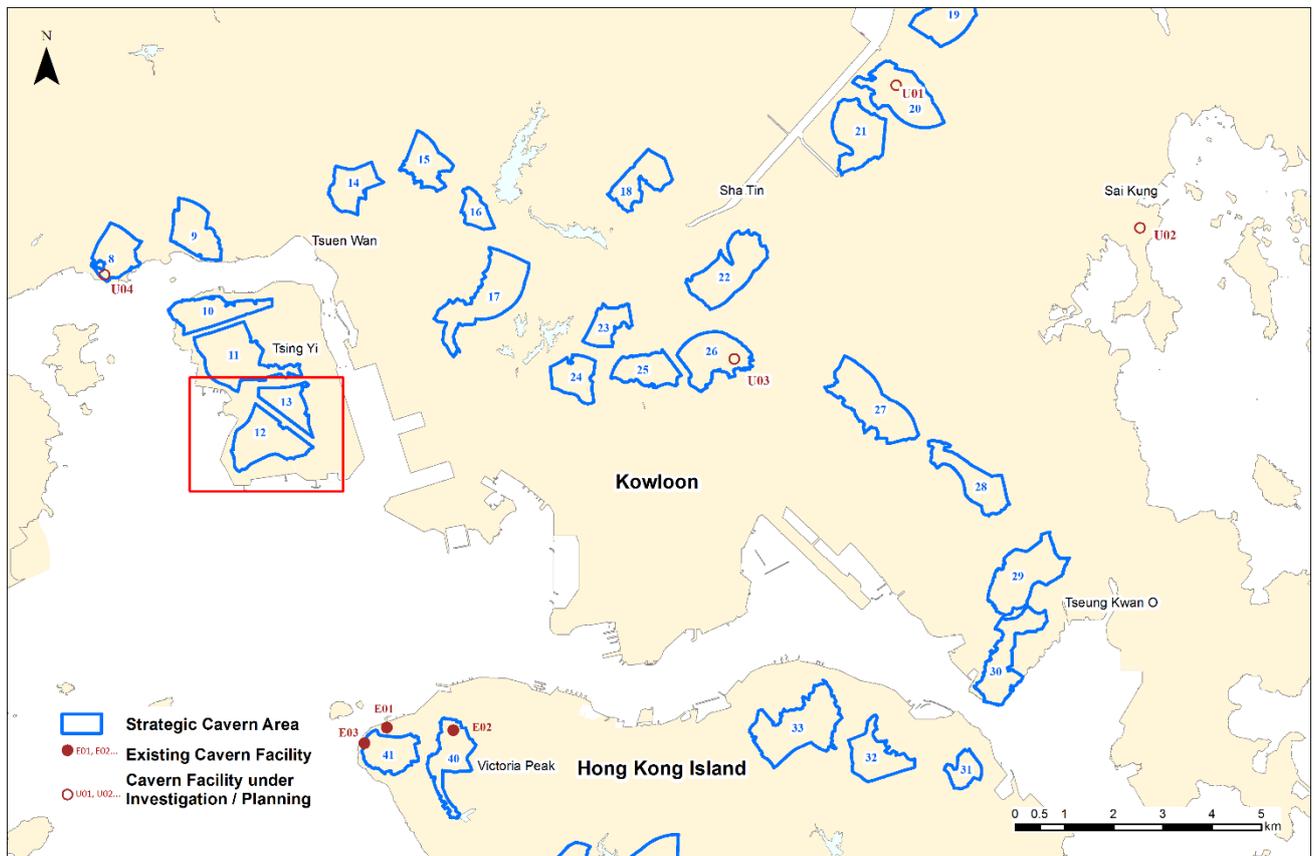
CAVERN MASTER PLAN – INFORMATION NOTE

STRATEGIC CAVERN AREA NO. 12 – TSING YI SOUTH

This Information Note describes the characteristics, key development opportunities and constraints of Strategic Cavern Area No. 12 - Tsing Yi South (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:	112.8 ha
Maximum elevation in the SCVA:	+334 mPD
Minimum elevation in the SCVA:	+3 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 Nam Wan and Nam Wan Kok. Sai Shan is to the north of the SCVA, Chun Fa Lok is to the east, and the coastal areas facing Ma Wan Channel is to the south and west.

The SCVA is generally hilly with a maximum elevation of about +334 mPD. Within the SCVA, Tsing Yi South Fire Station is located at the western portion, Tsing Yi South Fresh Water Service Reservoir and an ex-chemical works are located at the southern portion.

To the west of the SCVA, there is focused development of industrial undertakings including oil depots, dockyards and container related uses along the western coast of Tsing Yi. To the south of the SCVA, there are also focused industrial developments including oil depots, chemical waste treatment and container related uses along the southern coast of Tsing Yi. The area to the east of the SCVA is mainly developed for container related uses. To the north of the SCVA, it is the residential area of Tsing Yi, which consists of a number of medium-to high-rise residential developments and local village settlements, including Cheung Ching Estate (about 1,050 m to the northeast of the SCVA), Rambler Crest and Mayfair Gardens (both about 900 m to the northeast of the SCVA).

In the proximity of the SCVA, there are a number of key Government, Institution and Community (GIC) facilities supporting the development of Tsing Yi and the territory, including Tsing Yi East Fresh Water Service Reservoir (about 1,100 m to the northeast of the SCVA), Tsing Yi Preliminary Treatment Works (about 1,200 m to the northeast of the SCVA), Hong Kong Institute of Vocational Education (Tsing Yi) (HKIVE) (about 650 m to the northeast of the SCVA) and the Environmental Protection Department Chemical Waste Treatment Facilities (about 200 m to the southeast of the SCVA).

Access

The SCVA is accessed from its western and southern edges via Tsing Yi Road West, Tsing Keung Street, Tsing Nam Street and Tsing Yi Road. Regional connections could be routed through the nearby Cheung Tsing Highway and Tsing Sha Highway.

The MTR Airport Express/Tung Chung Line runs through Tsing Yi with Tsing Yi Station located about 2.2 km to the north of the SCVA.

Land Use Zoning

Under the Approved Tsing Yi OZP No. S/TY/28, the majority of the SCVA falls within an area zoned “Green Belt”, with isolated parts zoned “Government, Institution or Community” and “Industrial” to the southeast, southwest and northwest. The surrounding areas of the SCVA are zoned “Industrial” and “Other Specified Uses” annotated “Container Related Uses” to the northwest, southwest and southeast, “Green Belt” and “Site of Special Scientific Interest” to the northeast.

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 northeastern boundary of the SCVA is defined by the Nam Wan Tunnel and the South Tsing Yi Site of Special Scientific Interest. The western boundary of the SCVA is defined by Tsing Yi Road West and Tsing Keung Street. The southern boundary of the SCVA is defined by Tsing Yi Road and private lots, including Tien Chu (Tsing Yi) Industrial Centre and Styron Chemical.

4.2. Geology

The solid geology of the SCVA is primarily fine-grained granite and medium-grained granite within the southern portion, which belong to Sha Tin Granite; and coarse ash crystal tuff within the northern portion, which belongs to Yim Tin Tsai Formation. The SCVA is with the rock types that are suitable for cavern development. Some geological features, such as faults 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 material 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 adjacent to existing industrial areas 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.

The western and southern coasts of Tsing Yi, located to the west and south of the SCVA respectively, have been developed as hubs of various industrial uses that require direct marine access and extensive land, including dockyards, oil depots, 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 oil depots and container related uses of 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 container related uses into caverns.

On the northern side 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) and local village settlements 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 Nam Wan and Nam Wan Kok as a natural buffer between the industrial and residential areas.

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 bridges), Kwai Chung and the Kowloon mainland via Cheung Tsing Bridge, Tsing Yi Bridge and Kwai Tsing Bridge (please refer to Reference Drawing of SCVA No. 13 for the location of the bridges), and Stonecutters Island and the west Kowloon area via Stonecutters 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 SCVA overlaps with the currently proposed alignment of Tsing Yi – Lantau Link. The proposed link shall provide additional access to Tsing Yi. The development of the SCVA shall consider the proposed link and its traffic network as well.

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

The South Tsing Yi Site of Special Scientific Interest is located at the northern boundary of the SCVA. The SCVA also encroaches onto the Consultation Zones of five Potentially Hazardous Installations (PHI) along the western and southern coast of Tsing Yi, i.e. the LPG/Oil terminals of Exxon Mobil Hong Kong Ltd (east terminal & west terminal), 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. There may be potential land contamination in the areas of industrial facilities, e.g. oil depot and chemical waste facilities, located close to the western and southern boundaries of the SCVA and further investigation may be required in future cavern development project in the vicinity. 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 is accessed from its western and southern edges via Tsing Yi Road West, Tsing Keung Street, Tsing Nam Street and Tsing Yi Road. Regional connections could be routed through the nearby Cheung Tsing Highway and Tsing Sha Highway. The future development of the proposed Tsing Yi – Lantau Link across the SCVA may provide additional access to the SCVA.

Tsing Yi Road may become oversaturated in terms of capacity subject to further detailed traffic assessment to be carried out by the project proponent of cavern development. 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

The proposed vehicle tunnel for the Tsing Yi – Lantau Link passes through the southern portion of the SCVA. A vehicle tunnel, namely Nam Wan Tunnel, is located 50 m away from the northern boundary of the SCVA. Due to the elevation difference and horizontal separation respectively, the tunnels will not pose any insurmountable constraint on cavern development within the SCVA.

In addition, a potential quarry site is identified in the western portion of the SCVA under Agreement No. CE 17/2011 (GE), and will be subject to further study. Project Proponents should take due consideration of the latest finding of the study.

5. Potential Land Uses

The potential land uses for the SCVA are as follows:

Land use	Description
Industry	<p>Tsing Yi is a hub of various industrial uses that require direct marine access and extensive land, including the focused development of dockyards, oil depots, chemical waste treatment and container related uses to the west and south of the SCVA. There is thus potential to develop suitable land uses to support the potential expansion of the industrial activities, by relocating and/or expanding the industrial related uses into caverns.</p> <p>The potential portal locations of the SCVA are fronting the existing industrial areas and are away from existing residential areas, which make the SCVA compatible with such land use.</p>

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 Tsing Long Highway, Cheung Tsing Highway and Lantau Link. 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>The potential portal locations of the SCVA are away from existing residential areas, which make the SCVA compatible with such land use.</p>
Oil Bulk Storage	<p>For the same reason as described for “Industry”, there is also potential of the SCVA fronting the existing industrial areas to develop suitable land uses to support the potential expansion of industrial activities of territorial significance, for example, by relocating and/or expanding the existing oil depots into caverns.</p> <p>In view that marine transport is generally required for shipping the raw materials and/or products, should relocating and/or expanding of the existing oil depots to caverns be considered, marine access should be maintained.</p> <p>Most of the potential portal locations are fronting the oil depots and are away from existing residential areas, which make the SCVA more 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>

Land use	Description
Service Reservoir	<p>Tsing Yi is home of various residential developments (e.g. Mayfair Gardens, Rambler Crest, Cheung Ching Estate, etc.) and has the potential for further growth 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 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 such facilities to caverns may be considered, thereby releasing the surface land for other beneficial uses (e.g. residential developments and/or community facilities).</p>
Storage / warehousing Container Storage	<p>For the same reason as described for “Industry”, and considering the good connectivity of the SCVA with various major highways (e.g. Tsing Sha 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 examples, by developing storage/warehousing uses and relocating and/or expanding the existing container related uses into caverns.</p> <p>Some potential portal locations of the SCVA are fronting the existing industrial areas including container related uses and away from the existing residential areas, which make the SCVA compatible with such land 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 can be accessed from Tsing Yi Road West and Tsing Keung Street to the west, and Tsing Nam Street and Tsing Yi Road to the south.

The extent of potential portal locations on Tsing Yi Road, Tsing Yi Road West and Tsing Keung Street are located at the slopes alongside the carriageways. The access road to the Tsing Yi South Fresh Water Service Reservoir off Tsing Nam Street is currently a restricted road. It would be suitable for low traffic-generating land uses. Further widening and upgrading of which may be required in order to support moderate to high traffic generating land uses.

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.

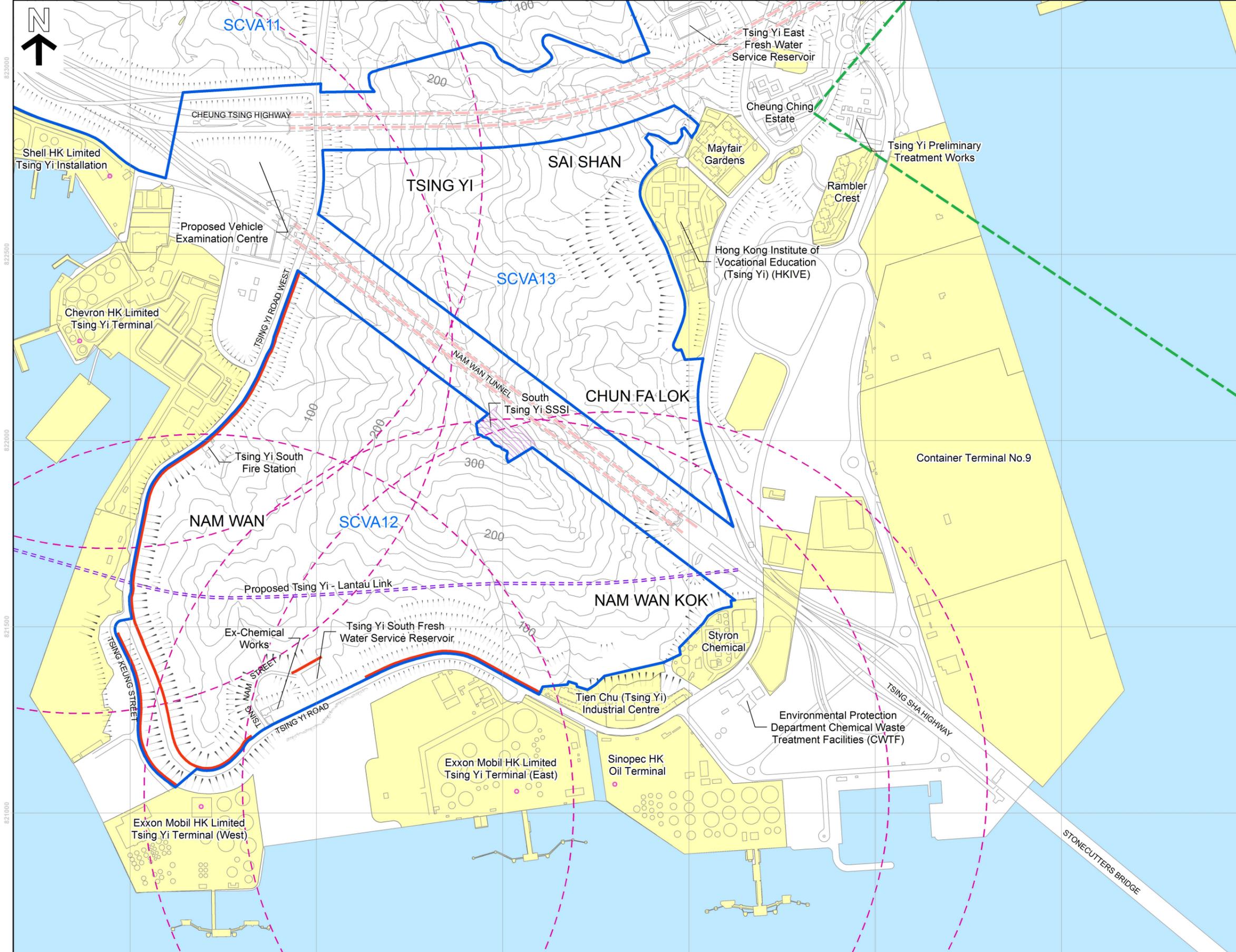
Project proponents should carry out further studies on identifying specific locations of portals for the proposed cavern development.

7. Concluding Remarks

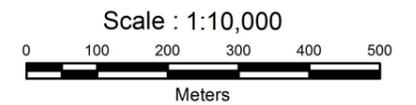
The SCVA presents an opportunity for locating suitable land uses in rock caverns to facilitate the growth of the local industrial hub of territorial significance by housing its related land uses (e.g. industry, storage/warehousing and container storage, and oil depots). There is also potential to locate maintenance depot which could well utilise its strategic location and comprehensive transport network of the SCVA. It can also serve the residential communities in Tsing Yi by, for example, housing service reservoirs in caverns. Project proponents for cavern development should take due consideration of the existing and proposed residential developments, industrial developments, environmental constraints, accessibility for cavern development and Consultation Zones of the five 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
 - Proposed Major Road
 - Vehicle Tunnel
 - Drainage Services Department Tunnel
 - Nullah / Sea
 - Private Lot
 - Potentially Hazardous Installation
 - Consultation Zone of Potentially Hazardous Installation
 - Site of Special Scientific Interest



REFERENCE DRAWING OF STRATEGIC CAVERN AREA NO. 12 - TSING YI SOUTH