

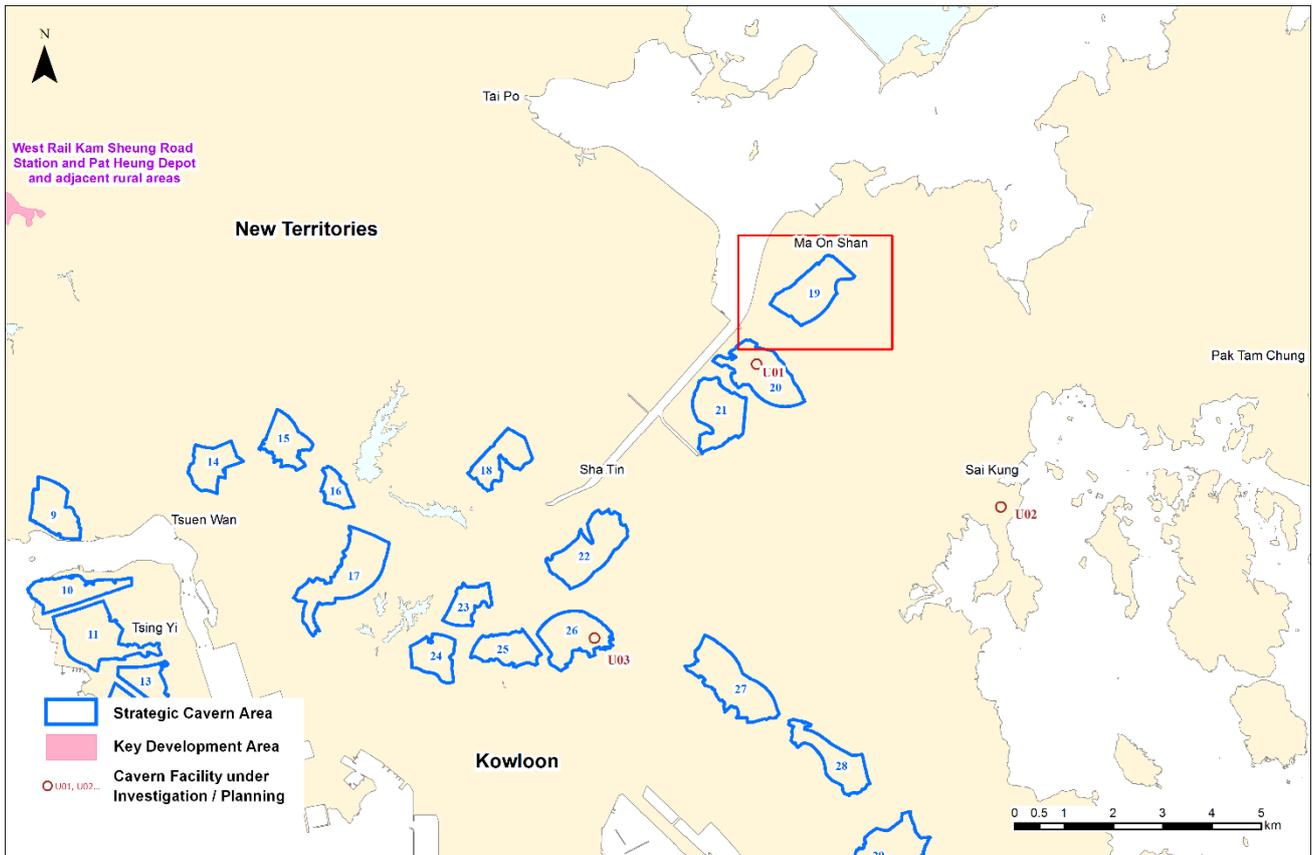
CAVERN MASTER PLAN – INFORMATION NOTE

STRATEGIC CAVERN AREA NO. 19 – MA ON SHAN

This Information Note describes the characteristics, key development opportunities and constraints of Strategic Cavern Area No. 19 - Ma On Shan (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 Ma On Shan OZP No. S/MOS/22
Area:	113.1 ha
Maximum elevation in the SCVA:	+389 mPD
Minimum elevation in the SCVA:	+5 mPD

3. District Context

Location

The SCVA is located in the southwestern part of Ma On Shan, which is to the northeast of Kowloon. Ma On Shan town is to the north of the SCVA, Ma On Shan Country Park is to the east, Tai Shui Hang is to the south, Sha Tin New Town is to the southwest and Sha Tin Hoi (Tide Cove) is to the west.

The SCVA is generally hilly with a maximum elevation of about +389 mPD. About half of the SCVA at the eastern side encroaches onto Ma On Shan Country Park. There are some structures scattered on the hillsides within the SCVA.

The residential areas of Ma On Shan adjacent to the SCVA contain medium- to high-rise residential developments (e.g. Kam Ying Court about 200 m to the north of the SCVA, Yiu On Estate about 300 m to the northwest of the SCVA and Heng On Estate about 200 m to the west of the SCVA) and local villages (e.g. Ma On Shan Tsuen about 700 m to the southeast of the SCVA and Tai Shui Hang about 400 m to the southwest of the SCVA). To the southwest of the SCVA, Sha Tin New Town also consists of various high- to medium-rise residential developments and local villages.

In the proximity of the SCVA, there are a number of key Government, Institution and Community (GIC) facilities supporting the development of Ma On Shan, including sports centres (e.g. Heng On Sports Centre about 300 m to the west of the SCVA and Ma On Shan Sports Centre about 950 m to the northwest of the SCVA) and a cluster of service reservoirs (i.e. Ma On Shan Fresh Water Service Reservoir, Ma On Shan No. 2 Fresh Water Service Reservoir, Ma On Shan Salt Water Service Reservoir, Ma On Shan No. 2 Salt Water Service Reservoir and Ma On Shan No. 3 Salt Water Service Reservoir, all are close to the northern boundary of the SCVA).

Access

This SCVA is accessed from its northern and western edges via Ma On Shan Tsuen Road and Ma On Shan Road respectively. Regional connections could be routed through the nearby Tate's Cairn Highway, Tolo Highway and Ma On Shan Bypass.

The MTR Ma On Shan Line serves the Ma On Shan area and the stations in the vicinity of the SCVA include Ma On Shan Station (about 700 m to the north of the SCVA), Heng On Station (about 400 m to the west of the SCVA) and Tai Shui Hang Station (about 350 m to the southwest of the SCVA).

Land Use Zoning

While the majority of the SCVA is zoned "Green Belt" ("GB") under the Approved Ma On Shan OZP No. S/MOS/22, the remainder in the eastern portion of the SCVA is not covered by any Statutory Plan and is designated as Country Park. The zonings of the surrounding areas include "GB" to the north and south, "Residential (Group A)", "Government, Institution or Community", "Other Specified Uses" annotated "Petrol Filling Station" and "Open Space" to the north and west, with the rest being the Ma On Shan 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 a geological fault. The eastern boundary of the SCVA is defined by Ma On Shan Site of Special Scientific Interest (SSSI), the solid geology of sedimentary rock (which is not suitable for cavern development) and an extent at 800 m from the potential portal locations. The western boundary of the SCVA is defined by Ma On Shan Road and Ma On Shan Bypass. The southern boundary of the SCVA is defined by private lots and a geological fault.

4.2. Geology

The solid geology of the SCVA is primarily fine-grained granite within the eastern portion and medium-grained granite within the western portion, both of which belong to Shui Chuen O Granite. The SCVA is with the rock types that are suitable for cavern development. A number of geological features, such as faults and photolineaments, 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.

Further geological information of the SCVA can be found on 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 Ma On Shan. The surrounding areas are also well connected by major roads and railways to the rest of the territory. There is thus potential for the SCVA to support the development of these areas.

The major residential communities of Ma On Shan are located to the western and northern sides of the SCVA. These areas consist of various medium- to high-rise residential developments (e.g. Kam Ying Court, Heng On Estate and Yiu On Estate) and local villages (e.g. Ma On Shan Tsuen) supported by a number of GIC facilities (e.g. sports centre, service reservoir, etc.). Given that the SCVA is in close proximity to the existing residential developments, there is potential for the SCVA to support these communities and any future population by providing additional community facilities (e.g. leisure centre/sports centre).

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 Ma On Shan while preserving the natural landscape adjacent to Ma On Shan Country Park as a natural backdrop to the urban developments in the locality.

Given the close proximity of the SCVA to various major residential developments and railway stations (e.g. Ma On Shan Station and Heng On Station), the SCVA also has the potential to support uses which require good road connectivity and easy access by local population and the general public, such as warehousing (e.g. mini-storage) and recreational complex. The development of these land uses could contribute to meet the potential demand from local communities as well as from the territory.

4.4. Environmental

Environmental sensitive receivers to cavern development in the SCVA are the nearby residential developments (e.g. Heng On Estate, Yiu On Estate and Kam Ying Court) and schools (e.g. Ma On Shan St. Joseph's Primary School, Chiu Chow Association Secondary School and Ma On Shan Lutheran Primary School). The SCVA comprises wooded area and shrubby hillside. The eastern portion of the SCVA encroaches onto Ma On Shan Country Park, and is adjacent to the Ma On Shan SSSI. The SCVA also falls within Water Gathering Grounds. There are two built heritages at Tai Shui Hang, namely the Cheung Village House No. 6 (Grade 3 historic building) and Cheung Village Houses Nos. 16-18 (Grade 3 historic building). Two traditional burial grounds are located in the vicinity of the SCVA (one to the northeast and one to the south). There are natural or modified surface water courses 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

This SCVA can be accessed from its northern and northwestern edges via Ma On Shan Tsuen Road and Ma On Shan Road respectively. Regional connections could be routed through the nearby Tate's Cairn Highway, Tolo Highway and Ma On Shan Bypass.

The SCVA can be easily accessed from the primary road network if direct road connections to Ma On Shan Road can be established. Ma On Shan Road is a high-capacity expressway and it is expected to have sufficient capacity to accommodate more traffic in future. Access to the SCVA via Ma On Shan Tsuen Road can also be routed through Ma On Shan Road, rendering the SCVA with very high accessibility from other areas of the territory via the major road networks.

4.6. Other Key Issues / Constraints on Cavern Development

An abandoned tunnel namely the Ex-Ma On Shan Mine Tunnel and its portal at Ma On Shan Tsuen Road is located within the SCVA and extends to further southeastern to the SCVA. A Water Supplies Department's tunnel between the Tai Shui Hang Shaft and High Island Main Tunnel is located about 50 m to the south of the SCVA. Owing to the differences in locations and elevations, these 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
<p>Leisure Centre/ Sports Centre</p>	<p>The SCVA is close to a large population catchment as it is adjacent to various existing major residential communities in Ma On Shan such as Heng On Estate and Yiu On Estate. There is potential for the SCVA to support the potential expansion of these areas by providing additional supporting community facilities, such as leisure centre/sports centre to meet the local demand.</p> <p>The potential portal locations are in close proximity to the existing residential developments, and MTR Ma On Shan Station, Heng On Station and Tai Shui Hang Station are about 500 m to 800 m from the SCVA which could facilitate the access by the local residents. These would further enhance the potential for housing such uses in the SCVA.</p>
<p>Recreational Complex</p>	<p>The SCVA is adjacent to various existing major residential areas and close to railway stations in Ma On Shan as mentioned above. It has good connectivity and is easily accessed by the locals and the general public. There is thus potential to develop recreational related land uses to support the residential development in these areas and meet the demand from the local communities as well as the growing need for non-core recreational facilities (e.g. snowboarding/baseball/softball etc.) in the territory, such as recreational complex.</p>

Land use	Description
Service Reservoir	<p>Ma On Shan is home of various residential developments as mentioned above 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 for the SCVA to develop suitable land use to support the potential expansion of these residential areas, by relocating some of the suitable infrastructure facilities, such as service reservoirs, to caverns.</p> <p>Existing service reservoirs are found in the vicinity of the SCVA. If further upgrade/expansion of the existing service reservoirs are required to cater for future population growth within Ma On Shan, the relocation of the upgraded/expanded service reservoirs could be placed at this SCVA rather than surface land and the surface land can be released for other beneficial uses.</p>
Warehousing	<p>The SCVA is adjacent to various existing major residential areas and close to railway stations in Ma On Shan as mentioned above. It has good connectivity and is easily accessed by the general public. There is thus potential to develop warehousing related land uses to support the residential development in these areas and meet the demand from local communities as well as from the territory, such as warehousing including mini-storage.</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 Ma On Shan Tsuen Road to the north and Ma On Shan Road to the northwest.

The potential portal location at Ma On Shan Tsuen Road is located at the slope alongside the carriageway. Direct road access could be provided via suitable connection arrangement associated with the portal formation to suit the proposed land use in future cavern development project. However, the associated road connection and portal formation works should be away from Ma On Shan Country Park as far as practicable to reduce any possible ecological, visual and recreational impact on the country park and disturbance to its users.

The potential portal locations along Ma On Shan Road are located at the slopes alongside the carriageway. Direct road connection to the portal would require adequate merging and diverging arrangements. This would likely involve slope excavation and/or retaining structures to be constructed along Ma On Shan Road.

There are natural slopes above the potential portal locations. There may be potential natural terrain hazards in the vicinity 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 and/or leisure centre/sports centre). The SCVA could also utilise its locational advantage to house suitable land uses, such as warehousing with mini-storage and recreational complex, which could meet both the local and territorial demand. Project proponents for cavern development should take due consideration of the existing and potential residential developments, accessibility for cavern development and environmental sensitive receivers to minimise the interfacing issues and bring about greater synergy and opportunities.

8. Notes

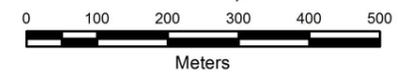
The Cavern Master Plan and all supporting documents do not exempt project proponents for cavern development from following the relevant statutory and planning procedures. Information including the potential land uses and the extent of potential portal locations indicated in this Information Note should 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 Cavern Master Plan for further details.



Legend

- Strategic Cavern Area
- Extent of Potential Portal Locations
- Existing Railway Line
- Drainage Services Department Tunnel
- Water Supplies Department Tunnel
- Abandoned Tunnel
- River / Nullah / Sea
- Graded Historic Building
- Private Lot
- Burial Ground
- Country Park
- Site of Special Scientific Interest

Scale : 1:10,000



REFERENCE DRAWING OF STRATEGIC CAVERN AREA NO. 19 - MA ON SHAN