

# PROPOSED COMPREHENSIVE RESIDENTIAL AND COMMERCIAL DEVELOPMENT ATOP SIU HO WAN DEPOT

Environmental Impact Assessment Report



July 2017

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## 8 Land Contamination

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### 8.1 Legislation, Standards and Guidelines

#### 8.1.1 General

**8.1.1.1** The relevant legislation, standards and guidelines applicable to the present study for land contamination assessment include:

- Annex 19 of the Technical Memorandum on Environmental Impact Assessment Ordinance (EIAO-TM), Guidelines for Assessment of Impact On Sites of Cultural Heritage and Other Impacts (Section 3: Potential Contaminated Land Issues), Environmental Protection Department (EPD), 1997;
- Guidance Note for Contaminated Land Assessment and Remediation EPD 2007;
- Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management, EPD, 2007; and
- Practice Guide for Investigation and Remediation of Contaminated Land, EPD, 2011.

#### 8.1.2 Environmental Impact Assessment Ordinance (EIAO) (Cap. 499), Technical Memorandum on Environmental Impact Assessment Process (EIAO-TM)

**8.1.2.1** Under Annex 19 of the EIAO-TM, a number of potentially contaminating historical land uses should be considered, including oil installations, gas works, metal workshops, car repair and dismantling workshops, which have the potential to cause or have caused land contamination.

#### 8.1.3 Guidance Note for Contamination Land Assessment and Remediation

**8.1.3.1** In accordance with EPD's *Guidance Note for Contamination Land Assessment and Remediation*, a contamination assessment evaluation should:

- provide a clear and detailed account of the present use of the land and the relevant past land history, in relation to possible land contamination;
- identify areas of potential contamination and associated impacts, risks or hazards; and
- submit a plan to evaluate the actual contamination conditions for soil and/or groundwater, if required.

## 8.1.4 Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management

8.1.4.1 The Guidance Manual introduces the risk based approach in land contamination assessment and present instructions for comparison of soil and groundwater data to the Risk-Based Remediation Goals (RBRGs) for 54 chemicals of concern commonly found in Hong Kong. The RBRGs were derived to suit Hong Kong conditions by following the international practice of adopting a risk-based methodology for contaminated land assessment and remediation and were designed to protect the health of people who could potentially be exposed to land impacted by chemicals under four broad post restoration land use categories. The RBRGs also serve as the remediation targets if remediation is necessary.

## 8.1.5 Practice Guide for Investigation and Remediation of Contaminated Land

8.1.5.1 The EPD's *Practice Guide for Investigation and Remediation of Contaminated Land* includes a summary of the general steps of a contamination assessment study, which include site appraisal, site investigation and remediation.

## 8.2 Baseline Conditions

### 8.2.1 Site Description

8.2.1.1 SHD, with a site area of about 30ha reclaimed over 20 years ago, is located in Northshore Lantau at approximately 5km east of Tung Chung New Town and Hong Kong International Airport (HKIA). It is bounded by an existing seawall maintenance access road to its north and the Lantau Airport Railway (LAR) and the North Lantau Highway (NLH) to its south (**Figure 1.1**).

8.2.1.2 SHD provides essential maintenance and support facilities such as stabling, workshop and running/heavy maintenance for the entire fleet of TCL, Airport Express Line (AEL) and Disneyland Resort Line, along with other infrastructure maintenance such as track work maintenance and engineering trains to support the maintenance functions.

8.2.1.3 Apart from the proposed comprehensive residential and commercial development atop SHD, a new sewage pumping station (SPS), associated utilities and accesses to the Subject Site are proposed. The locations and alignment are illustrated in **Figure 1.1**.

### 8.2.2 Scope of Assessment

8.2.2.1 The works involved in this EIA comprise construction of superstructure atop Siu Ho Wan Depot (SHD) and associated utilities, eastern connection access on Sham Shui Kok Drive and western access via Tai

Ho Interchange. A sewage pumping station (SPS) would also be constructed at the east of SHD. As the proposed residential and commercial developments atop SHD is located on the concrete slab to be constructed under Railway EIA for SHO and SHD Replanning Works, the land contamination issues will be discussed and assessed in the Railway EIA. Therefore, this EIA only covers the SPS, the proposed utilities, eastern connection access on Sham Shui Kok Drive and western access via Tai Ho Interchange, while the land contamination assessment and necessary site investigation and remediation for the SHD area will be conducted under the Railway EIA. The land within SHD would be adequately remediated (if remediation is required) before commencement of works for the proposed topside development.

**8.2.2.2** According to the Contamination Assessment Plan (CAP) of the Railway EIA, potential land contamination is not anticipated in the area where the proposed SPS is located. Nevertheless, excavation would be required for the SPS, the proposed utilities, eastern connection access on Sham Shui Kok Drive and western access via Tai Ho Interchange. Hence, this section will focus on assessing the land contamination potential of these concerned areas. The location of the SPS, utilities alignment, eastern connection access on Sham Shui Kok Drive and western access via Tai Ho Wan are illustrated in **Figure 1.1**.

## 8.2.3 Review of Historical Land Use

**8.2.3.1** Selected aerial photographs between Year 1982 and Year 2015 have been reviewed to identify any past and present land uses or activities at the proposed SPS, utilities alignment, eastern connection access on Sham Shui Kok Drive and western access via Tai Ho Interchange. These areas are indicated in the historical aerial photographs annexed in **Appendix 8.1**. The description of land uses of these areas are summarised in **Table 8.1**.

**Table 8.1** Historical land use

Year	Description
1982	The footprint of the proposed SPS, utilities area, road improvement area of eastern connection access on Sham Shui Kok Drive and the western access via Tai Ho Interchange were in open sea and no reclamation was observed.
1993	Reclamation was observed in progress.
2000	Land reclamation completed and the SHD and railway tracks were observed. The area within SHD for the proposed SPS was observed to be vacant. The utilities and road improvement areas of the eastern and western access were observed to be a paved road.
2015	No change in land use since Year 2000.

## 8.2.4 Site Geology

**8.2.4.1** The concerned areas are located on a land reclaimed previously in the early 1990's. Before that time, the area was the original coastline at the north shore of Lantau Island as revealed from the aerial photo in 1982. The area is generally flat with levels varying from +5.0 to +6.3mPD.

## 8.2.5 Information from Government Authorities

### **Information from Environmental Protection Department**

**8.2.5.1** Information request has been made to EPD on any Chemical Waste Producer (CWP) registered, and any records of chemical spillage / leakage incidents within the concerned areas.

**8.2.5.2** The reply from EPD indicated no records of chemical spillage / leakage has occurred within the utilities area, road improvement area of eastern connection access on Sham Shui Kok Drive and the western access via Tai Ho Interchange.

**8.2.5.3** The CWP register was reviewed on 23 November 2016 to identify CWP registered premises within the concerned areas. No CWP register was identified on Sham Shui Kok Drive for the proposed eastern connection access. For the proposed alignments of sewage utilities beyond the site boundary leading to the Siu Ho Wan Sewage Treatment Works (SHWSTW), though one of the options will pass through the SHWSTW which is a CWP registered premises, the alignment follows the existing access road inside the SHWSTW where no chemical wastes are stored. Though SHD is also a registered CWP, the chemical waste is stored in the Dangerous Goods Store away from the proposed sewage pumping station. Hence, land contamination issue is unlikely to have occurred. The correspondences regarding the information request is included in **Appendix 8.2.**

### **Information from Fire Services Department**

**8.2.5.4** Information request has been made to FSD on any Dangerous Goods (DG) license registered, and any records of DG spillage / leakage incidents within the utilities area, road improvement area of eastern connection access on Sham Shui Kok Drive and the western access via Tai Ho Interchange.

**8.2.5.5** The reply from FSD is included in **Appendix 8.3.** which indicated a list of DG records. Further checking reveal that item 1 – 27 in the list of DG records provided by FSD are for the SHD area, where land contamination issue would be evaluated under the EIA Report for SHO and SHD Replanning EIA. Also, the DGs are stored in the Dangerous Goods Store away from the proposed sewage pumping station. For item 28 and 29 in the list of DG records provided by FSD, oxygen and acetylene, they are gaseous compounds and would not lead to

contamination of land. Besides, no incident record associated with fire or chemicals are recorded in the concerned areas. Therefore, land contamination issues due to the storage/ incidents of DG are not anticipated.

## 8.2.6 Site Survey

**8.2.6.1** Site visit reveals that the proposed utilities alignment are located along paved roads, with some road side plantations. The eastern connection access on Sham Shui Kok and western access via Tai Ho Interchange are also along existing concrete-paved roads. The proposed sewage pumping station within SHD is a vacant area with a simple container structure as the gate house, which is for office use. Some grass and short vegetation is planted in the area. According to the Contamination Assessment Plan (CAP) appended in the Railway EIA, potential land contamination is not anticipated in the area where the proposed SPS is located.

## 8.2.7 Future Land Use and Activities

**8.2.7.1** The relevant Risk-Based Remediation Goals (RBRGs) would be adopted for the land contamination assessment. Four different post-restoration land uses have been developed for the RBRGs, namely “Urban Residential”, “Rural Residential”, “Industrial” and “Public Parks”, to reflect the actual settings which people could be exposed to contaminated soil or groundwater. Definition of post-restoration land uses are given in EPD’s *Guidance Note for Contaminated Land Assessment and Remediation and Guidance Manual for Use of Risk-Based Remediation Goals (RBRGs) for Contaminated Land Management*.

**8.2.7.2** For the proposed SPS, utilities alignment, eastern connection access on Sham Shui Kok Drive and western access via Tai Ho Interchange, they are planned within the footprint of existing roads and boundary of SHD. Hence, the most relevant land use “Industrial” will be adopted for result comparison for the land contamination assessment.

## 8.3 Potentially Contaminated Sites

### 8.3.1 Identification of Potentially Contaminated Sites

**8.3.1.1** Since the proposed SPS, utilities alignment, eastern connection access on Sham Shui Kok Drive and western access via Tai Ho Interchange are located on existing concrete-paved roads, office area and vegetation, with no historical or present contaminating land use occurred, potential contamination of land is not anticipated in these areas. Therefore, no site investigation is proposed as soil sampling and testing would not be necessary.

## 8.4 Land Contamination Assessment to be Conducted by SHO and SHD Replanning Works

**8.4.1.1** As discussed in **Section 1.3**, the latest implementation strategy has recommended the following items in EIA Study Brief ESB-296/2016 will be separately implemented by the SHO and SHD Replanning Works project which will be addressed in the Railway EIA:

- Railway depot replanning works within the existing site boundary;
- Podium deck and property enabling works for the topside development;
- A new SHO and associated track works, as well as local access roads and emergency vehicular access (EVA); and
- Provision of the sewerage network with sewage pumping station to cater sewage generated by SHO and SHD Replanning Works.

**8.4.1.2** According to the Railway EIA, potential land contamination issues are anticipated due to the usage and storage of chemicals and DGs within the site, as well as facilities/areas have been identified, during site walkover, as having potential for causing land contamination (e.g. power substation, wheel lathe facility). A Contamination Assessment Plan (CAP) has been prepared to identify the potentially contaminated areas and proposed sampling and testing programme for site investigation (SI). The SI and Contamination Assessment Report (CAR) will be prepared under the Railway EIA prior to construction works of Railway EIA at the concerned area. If land contamination is identified during the proposed environmental SI and remediation is required, a Remediation Action Plan (RAP) will be prepared. Upon completion of remediation works, a Remediation Report (RR) will also be prepared to demonstrate adequate clean-up works have been conducted. These land contamination assessment and necessary remediation works will be conducted under the SHO and SHD Replanning Works Project. As such the land would be adequately remediated (if remediation is required) for construction of SHO and SHD Replanning Works and subsequent construction works of the Project.

## 8.5 Conclusion

**8.5.1.1** This land contamination assessment examined the potential contaminative land uses within the areas of proposed sewage pumping station, utilities, eastern connection access on Sham Shui Kok Drive and western access via Tai Ho Interchange. The assessment involved desktop review and site visit. It is anticipated that no potential land contamination issues has occurred within these areas as there has been no potential contaminative activities since the reclamation of the area. Hence no further site investigation is required.

**8.5.1.2** The land contamination issues within existing SHD would be assessed and remediated, if necessary, under the SHO and SHD Replanning

Works. All necessary SI works within the existing SHD area would be conducted under Railway EIA. If land contamination is confirmative within the SHD, a CAR/RAP will be prepared under Railway EIA and endorsed by EPD. Remediation works will be carried out in accordance with the endorsed RAP. Remediation Report(s) (RRs) demonstrating the completion of remediation works at the area(s) confirmed with contamination (if any) would be prepared and submitted to EPD for approval under SHO and SHD Replanning Works prior to the commencement of construction works for SHO and SHD Replanning Works at the contaminated area(s). As such, the land would be adequately remediated (if remediation is required) before construction of SHO and SHD Replanning Works and subsequent construction works of the Project.