

Contract No. DC/2012/05

**Sewerage at Yuen Long Kau Hui and Shap Pat Heung
(Sewerage Works at Portion B – Tai Tong Tsuen)**

Archaeological Watching Brief
Final Report



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Abstract

Kwan On Construction Co. Ltd has been commissioned by the Drainage Services Department to conduct Sewerage Works at Portion B of Sewerage at Yuen Long Kau Hui and Shap Pat Heung (Project) under Contract No. DC/2012/05. The Project site involves an area of archaeological potential at Tai Tong Tsuen, Yuen Long, and the Hong Kong Institute of Archaeology (HKIA) has conducted an Archaeological Watching Brief (AWB) for the Project from April 2014 to July 2015. During the past two years, the archaeologist of the HKIA has observed the excavation of sewerage works at 40 AWB Points and not identified any sign of archaeological remains at any of the observed AWB Points within the boundary of Tai Tong Tsuen. The archaeologist has also scanned the entire surface of the village during the visits but has not found any archaeological artifact. Based on the results of the AWB works and surface search, it can be concluded that the archaeological potential within the AWB Licence Area at Tai Tong Tsuen is very low.

受渠務署委託，均安建築有限公司承接元朗舊墟及十八鄉污水收集系統工程(B區)，合約編號 DC/2012/05。此工程範圍內的元朗大棠村區域可能有考古潛在價值，中港考古研究室為此從 2014 年 4 月至 2015 年 7 月開展考古監察工作。在過去的兩年中，考古人員在 40 個監察點查看了污水系統的發掘工作，但在整個工程範圍內的任何監察點未見到任何考古遺存。在次期間，考古人員還在大棠村範圍內做地表調查，但也未發現任何文物。根據此次考古監察和地表調查的結果，可以推斷，大棠村此次考古監察執照範圍內的考古潛在價值極低。

Table of Contents

1.	Introduction	1
1.1	Background	1
1.2	Objective	1
2.	Literature Review	2
2.1	Geography and Geology	2
2.2	History and Archaeology	2
3.	Methodology	3
3.1	Scope of AWB	3
3.2	AWB Points and Monitoring Frequency	3
4.	Results of AWB	4
4.1	General Introduction	4
4.2	Brief Description	5
5.	Conclusion	8
5.1	Summary of AWB Results	8
5.2	Assessment of Archaeological Potential at Tai Tong Tsuen	8
	References	8

Appendices

Table 1 Record of AWB at Tai Tong Tsuen

Figure 1 Location Plan of AWB at Tai Tong Tsuen

Figure 2 Geological Map of Tai Tong District

Figure 3 Proposed and Observed AWB Points at Tai Tong Tsuen

- Plate 1** Manhole/Sewer Trench Sections of TTT0102 & TTT0110
- Plate 2** Manhole/Sewer Trench Sections of TTT0112 & TTT0113
- Plate 3** Manhole/Sewer Trench Sections of TTT0115 & TTT0204
- Plate 4** Manhole/Sewer Trench Sections of TTT0209 & TTT0810
- Plate 5** Manhole/Sewer Trench Sections of TTT0813 & TTT0816
- Plate 6** Manhole/Sewer Trench Sections of TTT0903 & TTT1001
- Plate 7** Manhole/Sewer Trench Sections of TTT2001 & TTT2002
- Plate 8** Manhole/Sewer Trench Sections of TTT2005 & TTT2006
- Plate 9** Manhole/Sewer Trench Sections of TTT2008 & TTT2009
- Plate 10** Manhole/Sewer Trench Sections of TTT2014 & TTT2019
- Plate 11** Manhole/Sewer Trench Sections of TTT2028 & TTT2031
- Plate 12** Manhole/Sewer Trench Sections of TTT2034 & TTT2036
- Plate 13** Manhole/Sewer Trench Sections of TTT2708 & TTT2712
- Plate 14** Manhole/Sewer Trench Sections of TTT3302 & TTT3802
- Plate 15** Manhole/Sewer Trench Sections of TTT4511 & TTT4512
- Plate 16** Manhole/Sewer Trench Sections of TTT4516 & TTT4518
- Plate 17** Manhole/Sewer Trench Sections of TTT4527 & TTT4532
- Plate 18** Manhole/Sewer Trench Sections of TTT4601 & TTT4903
- Plate 19** Manhole/Sewer Trench Sections of TTT5202 & TTT5701
- Plate 20** Manhole/Sewer Trench Sections of TTT5803 & TTT6001

1 INTRODUCTION

1.1 Background

- 1.1.1 Kwan On Construction Co. Ltd (the Contractor) has been conducting Sewerage Works at Portion B of Sewerage at Yuen Long Kau Hui and Shap Pat Heung (the Project) under Contract No. DC/2012/05. The Project is sponsored by the Drainage Services Department of the Government of HKSAR and managed by Black & Veatch Hong Kong Limited.
- 1.1.2 The Project site involves an area of archaeological potential at Tai Tong Tsuen, Yuen Long. Due to the large-scale disturbance of underground soils by the Project, an Archaeological Watching Brief (AWB) was recommended to be carried out during the period of ground excavations to mitigate adverse impact on archaeological potential. The Hong Kong Institute of Archaeology (HKIA) was commissioned by the Contractor in 2013 to execute the AWB at Tai Tong Tsuen.
- 1.1.3 To conduct the AWB, the HKIA was granted the first Licence to Excavate and Search for Antiquities (Licence) by the Antiquities and Monuments Office (AMO) on 19 April 2013 (Licence No. 348). After its expiration, the renewal of the Licence was granted on 12 July 2014 (Licence No. 373).
- 1.1.4 Starting from April 2013 and up to July 2015, the archaeologist of the HKIA has conducted the AWB for 27 months and observed the subsurface deposits of the excavated sewerage works at 40 locations along the alignment (AWB Points). During this period, the archaeologist has also submitted 22 progress reports to the AMO.
- 1.1.5 The renewed licence No. 373 was expired on 12 July 2015, but the sewerage works, according to the Contractor, will continue for several more months until the end of 2015. The archaeologist has decided not to renew another licence to continue the AWB for the remaining months for two reasons. First, the AWB works of past two years have adequately demonstrated that there is no archaeological remaining in the entire area of the sewerage works at Tai Tong Tsuen. Second, the remaining sewerage works will all be applied along Kiu Hing Road, where the subsurface deposits have been deeply disturbed by the construction of the road.
- 1.1.6 This report will first review geographic, geologic, historical and archaeological information relevant to the AWB area and its vicinity. After discussing the methodology of the AWB, the report will present the result of the AWB works of the past two years at Tai Tong Tsuen.

1.2 Objective

- 1.2.1 The objective of the AWB is to identify any archeological resources revealed during the excavation phase of the Project in the AWB area at Tai Tong Tsuen.
- 1.2.2 Upon identification of such resources, artifacts and other kinds of archaeological remains will be properly retrieved and recorded.
- 1.2.3 If necessary, further appropriate mitigation measures will be recommended to be taken on site with AMO's approval.

2 LITERATURE REVIEW

2.1 Geography and Geology

- 2.1.1 The AWB site is located at Tai Tong Tsuen, Tai Tong District, Yuen Long of Western New Territories. Currently, this area is surrounded by Shui Tsiu San Tsuen Road in the northwest, Kiu Hing Road in the south and Kiu Hing Road and Tai Tong Road in the southeast (**Figure 1**).
- 2.1.2 Geographically, the Tai Tong Tsuen area belongs to the southern part of the Yuen Long plain, connected to the northern edge of the hills of Tai Lam Country Park. The surface elevation of the AWB site gradually rises from around 13 mPD in the north to around 17 mPD in the south.
- 2.1.3 Geologically, the solid base of this area is composed of two major rock types. One is fine-to-medium-grained granite formed during the Jurassic-Cretaceous period of the Mesozoic; the other is metasiltstone and metasandstone formed during the Carboniferous period of the Palaeozoic (**Figure 2**).
- 2.1.4 The surface deposit of the Tai Tong Tsuen area is primarily terraced alluvial soil formed during the Pleistocene period, characterized by gravelly or sandy clay and silt. In the lower areas along the river courses, the surface is covered with Holocene alluvial deposit composed of well-sorted or semi-sorted clay and silt ⁽¹⁾.

2.2 History and Archaeology

- 2.2.1 The district of Yuen Long is distinguished from other areas in Hong Kong by its long recorded history. According to historical documents, the first group of immigrants from mainland China, a line of the Tang clan, began to settle in Yuen Long since the late northern Song dynasty ⁽²⁾. Following the Tang clan, other clans of mainlanders gradually established their villages in Yuen Long and other areas of the New Territories.
- 2.2.2 The earliest settlement of Tai Tong Tsuen is unclear. However, according to the List of Established Villages confirmed by the colonial government, there were over 30 villages that had already been established in Yuen Long South by the end of the 19th century, including the village of Tai Tong.
- 2.2.3 The buildings at Tai Tong Tsuen have mostly been renovated or rebuilt in the past decades. At present, there are only a few newly built or renovated structures indicating the history of the village, including an arch as the village gate, an abandoned Study Hall, a Leung Yin Wo Ancestral Hall, a Lee Wing Hing Ancestral Hall and two earth-god shrines ⁽³⁾.
- 2.2.4 Archaeologically, the AWB area at Tai Tong Tsuen and its vicinity has not been identified with archaeological deposit by previous Territory-wide survey conducted in 1997 ⁽⁴⁾. According to AMO's record, however, stone artifacts were collected several decades ago at Tai Tong Tsuen. Therefore, archaeological potential might still be present in the AWB area and its vicinity ⁽⁵⁾.
- 2.2.5 Archaeological deposits have neither been identified in the surrounding areas. The closest Site of Archaeological Interest found is over 1500 meters away to the northeast at the Yuen Leng Site of Archaeological Interest at Kong Tau Tsuen.
- 2.2.6 The Yuen Leng Site of Archaeological Interest was identified on a hilly terrace at Kong Tau Tsuen in 1998. An undisturbed layer of greyish yellow clay deposit was

identified in two test pits, which yielded ceramic and lithic remains dating to the period of 2700 – 1500 B.C. The unearthed and surface-collected ceramic remains are characterized by geometric patterns impressed on soft pottery, including double-lined net pattern, cloud-and-thunder pattern and lozenge pattern; the lithic remains include types of adze, chopper, hammer and net sinker.

- 2.2.7 The archaeologist who identified the site suggests that there should be other prehistoric sites in the surrounding areas because prehistoric sites have often been found in groups in Hong Kong, rarely found as a single and separated site ⁽⁶⁾.

3 METHODOLOGY

3.1 Scope of AWB

- 3.1.1 In accordance with Clause 32 of the Particular Specification (PS) of the Project, the HKIA shall carry out archaeological watching brief during the period when ground excavation works are conducted at Portion B – Tai Tong Tsuen.
- 3.1.2 The area of the AWB to be monitored for the proposed sewerage works at Tai Tong Tsuen is shown in the drawing as **Figure 1** of this report.

3.2 AWB Points and Monitoring Frequency

- 3.2.1 The total length of sewerage works at Portion B is 2813 metres and the proposed working time is 1103 days.
- 3.2.2 In the Proposal of AWB Field Work that was submitted for the first time for the application of the Licence in 2013, a systematic monitoring scheme was proposed to carry out the AWB for the proposed sewerage works at Tai Tong Tsuen. The adoption of the systematic scheme was based on two reasons. First, the only clue of archaeological potential in this area was a surface collection of stone artifacts several decades ago, but the collection had not been recorded for its specific locations. Second, the surface soil at the AWB site had largely been modified or disturbed by village development and construction of roads, paths and other facilities in the past decades. Under these circumstances, therefore, no monitoring focuses could be pre-determined.
- 3.2.3 According to Clause 32 of the PS of the Project, the archaeologist shall inspect the site at an interval of not less than once a month where there is an excavation work on site. Considering the total working duration of 1103 days, the archaeologist originally proposed 40 preliminary AWB Points for the total process, which were roughly evenly distributed within the Licence Area along the proposed sewerage works at Tai Tong Tsuen. These AWB Points were coded each with a manhole number following the initials of Tai Tong Tsuen. For example, the AWB Point at the location of Manhole 0102 is coded TTT0102. The proposed AWB Points are marked with red color in **Figure 3**.
- 3.2.4 In the practice, 40 AWB Points in total have been observed and recorded. The observed AWB Points are marked with blue color for their locations in **Figure 3**. It is clear, however, that some of the observed AWB Points are not the proposed ones and some proposed AWB Points have not been observed.
- 3.2.5 There are two reasons for the adjustment. First, as mentioned above, the archaeologist is required to visit the site at least once a month, but the sewerage

works might not be conducted at the locations with a proposed AWB Point for a long period, thus the archaeologist has to record some other AWB points in process instead when visiting the site.

- 3.2.6 Second, the specific time each month for the archaeologist to visit the site depends on the arrangement of the site agent of the Contractor; although the plan of the proposed AWB points has been given to the agent, and the archaeologist has repeatedly reminded the agent to call if there is any proposed AWB point is under excavation, the site agent, due to the complex working process, might not be able to notify the archaeologist to visit site at the right time.
- 3.2.7 However, the adjustment of the AWB Points will not affect the result of the AWB work, because the total amount of the observed AWB Points has matched the proposed number of 40, and the observed AWB Points are still distributed over the site roughly evenly instead of clustered at some limited locations within the site. In addition, the AWB usually observes trenches connecting an AWB Point under construction; therefore, the observed length of the sewerage works is practically much longer than the designated AWB Point, providing more information for the understanding of the site.
- 3.2.8 The following table lists the observed AWB Points. As shown in the Legend of **Figure 1**, the sewerage works at Tai Tong Tsuen are composed of two types, with one as “Proposed Gravity Trunk Sewers” and the other as “Proposed Village Sewerage Works”. The former group is distributed along public roads surrounding the village with comparatively larger and deeper excavations, and the latter along the paths within the village with small and shallow excavations. For the convenience of locating the AWB Points, the following table also lists the observed AWB points in the two categories respectively according to their locations.

Table of Observed AWB Points and Remaining Proposed AWB Points

Observed AWB Points										
Along Village Sewerage Works (24 in total)	0102	0204	0209	0810	0813	0816	0903	1001	2014	2019
	2028	2031	3802	4511	4512	4516	4518	4527	4532	4601
	4903	5202	5701	5803						
Along Gravity Trunk Sewers (16 in total)	0110	0112	0113	0115	2001	2002	2005	2006	2008	2009
	2034	2036	2708	2712	3302	6001				

4 RESULTS OF AWB

4.1 General Introduction

- 4.1.1 The results of the observation of the 40 AWB Points are briefly described in the following chapter. The details of the observed AWB Points are recorded in **Table 1** of this report; the locations of observed AWB Points are indicated in **Figure 3**; the photographs of the observed AWB Points are presented respectively in **Plate 1** to **Plate 20**.

4.2 Brief Description

- 4.2.1 **TTT0102:** Four layers can be observed in this trench of about 1.2-metre deep. Under the concrete path surface is a blackish modern layer; further downward are two layers of sandy sludge soaked in water (**Plate 1.1**).
- 4.2.2 **TTT0110:** This trench is about 2.50 m in depth and reveals two layers. The first layer is the concrete path with a bitumen base; the second layer is modern fill with soil of mixed colors (**Plate 1.2**).
- 4.2.3 **TTT0112:** This trench is about 2.80 m in depth and reveals two layers. The first layer is the concrete path with a bitumen base; the second layer is modern fill with soil of mixed colors (**Plate 2.1**).
- 4.2.4 **TTT0113:** This trench is about 2.20 m in depth and reveals two layers. The first layer is the concrete cover with a bitumen base; the second layer is modern fill with soil of mixed colors (**Plate 2.2**).
- 4.2.5 **TTT0115:** This trench is about 2.60 m in depth and reveals three layers. The first layer is the concrete path with a bitumen base; the second layer is modern fill with soil of mixed colors; the bottom layer is a pure deposit of yellowish brown clay, probably a regolith deposit (**Plate 3.1**).
- 4.2.6 **TTT0204:** This trench is about 1.20 m in depth and reveals three layers. The first layer is the concrete path cover; the second layer is modern fill with a rubber cable and a steel pipe running through this layer; the bottom layer in water is a regolith deposit composed of yellowish red clay (**Plate 3.2**).
- 4.2.7 **TTT0209:** This trench is about 1.20 m in depth and reveals three layers. The first layer is the concrete path cover; the second layer is blackish modern fill; the bottom layer is a regolith deposit composed of yellowish red clay (**Plate 4.1**).
- 4.2.8 **TTT0810:** This trench is about 1.40 m deep and its strata are the same as in TTT0209, with a blackish modern fill layer under concrete path and with regolith clay deposit further downward (**Plate 4.2**).
- 4.2.9 **TTT0813:** This trench is approximately 1.90 m deep and reveals three layers. The first layer is the concrete path; the second layer is modern fill of mixed colors with a pipe running through; the bottom layer is a deposit of brownish yellow clay (**Plate 5.1**).
- 4.2.10 **TTT0816:** This trench is about 1.30 m in depth and reveals three layers. The first layer is the crushed concrete path; the second layer is modern fill of mixed color with a pipe running through; the third and bottom layer is a deposit composed of brownish yellowish clay (**Plate 5.2**).
- 4.2.11 **TTT0903:** This trench is about 1.60 m in depth and reveals four layers. The first layer is the concrete path over a bitumen base; the second layer is reddish brown modern fill with cable and iron bar; underneath the fill is a layer of blackish sludge, and the bottom layer is soft yellowish silty clay soaked in water (**Plate 6.1**).
- 4.2.12 **TTT1001:** Three layers are observed in this trench of about 1 metre deep. Under the yellow surface soil is a layer of black modern soil, which is on top of soft yellowish red clay deposit soaked in water (**Plate 6.2**).

- 4.2.13 **TTT2001:** This trench is about 1.60 m in depth and reveals two layers. The first layer is the concrete cover with a bitumen base; the second layer is modern fill with a section of steel pipe (**Plate 7.1**).
- 4.2.14 **TTT2002:** This trench is about 1.60 m in depth and reveals two layers. The first layer is the concrete cover with a bitumen base; the second layer is modern fill with a section of steel pipe (**Plate 7.2**).
- 4.2.15 **TTT2005:** This trench is about 1.35 m in depth and reveals two layers. The first layer is the concrete path over a bitumen base; the second layer is grayish yellow modern fill with steel pipes and concrete chunks (**Plate 8.1**).
- 4.2.16 **TTT2006:** This trench is about 1.40 m deep and reveals three layers. The first layer is the concrete path over a bitumen base; the second layer is modern fill of mixed colors with concrete chunks; the third and bottom layer is grayish mud soaked in water (**Plate 8.2**).
- 4.2.17 **TTT2008:** This trench on Kiu Hing Road is about 1.80 m in depth and reveals two layers. The first layer is the concrete road cover and the second layer is modern fill of mixed colors (**Plate 9.1**).
- 4.2.18 **TTT2009:** Two layers can be observed in this trench of about 1.20 m deep on Kiu Hing Road. The first layer is the concrete road cover over a bitumen base, and the second layer is modern fill mixed with rock fragments (**Plate 9.2**).
- 4.2.19 **TTT2014:** Four layers can be observed in this trench of about 1.10 m deep. Under the concrete path surface is a blackish modern deposit with a cable; further downward is a sandy deposit which is on top of blackish sludge (**Plate 10.1**).
- 4.2.20 **TTT2019:** Two layers can be observed in this trench of about 1.30 m deep. The first layer is light black surface soil with concrete path cover and the second layer is light brown sandy silt soaked in water (**Plate 10.2**).
- 4.2.21 **TTT2028:** This trench is dug about 2.40 metre deep from the surface. Under the black surface soil is a slope deposit of modern fill, which cuts into the bottom layer of reddish regolith clay (**Plate 11.1**).
- 4.2.22 **TTT2031:** Two layers can be observed in this trench of about 1 metre deep. The first layer is surface soil with concrete path cover and the second layer is black sludge deposit soaked in water (**Plate 11.2**).
- 4.2.23 **TTT2034:** This trench is dug about 2.50 m deep from the surface. Under the concrete road cover is all fill from road construction with bricks and boulders (**Plate 12.1**).
- 4.2.24 **TTT2036:** Two layers can be observed in this trench of about 1.50 m deep on Shui Tsiu San Tsuen Road. The first layer is concrete path cover over a bitumen base; the second layer is modern fill mixed with broken bricks and rocks (**Plate 12.2**).
- 4.2.25 **TTT2708:** This trench is adjusted its location from the original alignment across the street. This trench is about 1.50 m in depth and reveals two layers. The first layer is the concrete road surface and the second layer is modern fill (**Plate 13.1**).
- 4.2.26 **TTT2712:** This trench is about 1.20 m in depth and reveals three layers. The first layer is the concrete path over a bitumen base, the second layer is the modern fill with broken rocks, and the bottom layer is a regolith deposit composed of reddish clay (**Plate 13.2**).

- 4.2.27 **TTT3302:** This trench is about 1.10 m in depth and reveals three layers. The first layer is the concrete path over a bitumen base; the second layer is the modern fill with broken boulders; the bottom layer is a regolith deposit composed of reddish clay (**Plate 14.1**).
- 4.2.28 **TTT3802:** Two layers are observed in this trench of about 0.80 m deep. Under the surface layer is a silty deposit of modern fill (**Plate 14.2**).
- 4.2.29 **TTT4511:** This trench is about 1.10 m deep and reveals three layers. The first layer is the concrete path over a blackish base; the second layer is a fill deposit of soft clay; the bottom layer is a deposit of grayish yellow sludge soaked in water (**Plate 15.1**).
- 4.2.30 **TTT4512:** Three layers are observed in this trench of about 1 metre deep. Under the surface layer is a modern deposit of gray sludge, with pipes and cables running through the deposit. At the bottom is a deposit characterized by yellow silt mixed with red clay flecks (**Plate 15.2**).
- 4.2.31 **TTT4516:** This trench is about 1.00 m deep and reveals two layers. The first layer is the concrete path; underneath the path is a blackish deposit of modern fill, which is being molded with a concrete platform at the bottom (**Plate 16.1**).
- 4.2.32 **TTT4518:** This trench is about 1.00 m deep and reveals three layers. The first layer is the concrete path; the second layer is a blackish deposit of modern fill with cable and metal pipe; the bottom layer is a light brownish deposit of sludge with steel pipe soaked in water (**Plate 16.2**).
- 4.2.33 **TTT4527:** This trench is about 1.70 m deep and reveals three layers. The first layer is the concrete path over blackish fill with a metal pipe at the bottom; the second layer is a thick fill deposit of soft clay; the third and bottom layer is a deposit of grayish yellow sludge (**Plate 17.1**).
- 4.2.34 **TTT4532:** Three layers are observed in this trench of about 1.50 m deep. Under the surface concrete cover is a modern deposit with a section of cable, and the modern deposit overlaps a layer of soft yellow clay deposit soaked in water (**Plate 17.2**).
- 4.2.35 **TTT4601:** This trench is about 1.10 m deep and reveals three layers. The first layer is the concrete path over blackish fill; the second layer is a fill deposit with rocks and bricks; the bottom layer is a deposit of grayish yellow sludge soaked in water (**Plate 18.1**).
- 4.2.36 **TTT4903:** This trench is about 1.00 m deep and reveals three layers. The first layer is the concrete path; the second layer is a light blackish deposit of modern fill with plant roots; the third and bottom layer is also a modern fill mixed with modern rubbish (**Plate 18.2**).
- 4.2.37 **TTT5202:** This trench is about 1.00 m in depth and reveals three layers. The first layer is the concrete path over light black surface soil; the second layer is grayish black modern fill with a water pipe running through, and the bottom layer is dark grayish sludge (**Plate 19.1**).
- 4.2.38 **TTT5701:** This trench is about 1.10 m deep and reveals three layers. The first layer is the concrete path over blackish fill, the second layer is a fill deposit of soft clay; the bottom layer is a deposit of grayish yellow sludge soaked in water (**Plate 19.2**).
- 4.2.39 **TTT5803:** Two layers can be observed in this trench of about 1 metre deep. The first layer is concrete path cover over a bitumen base; the second layer is modern fill

of reddish clay with a section of metal pipe. The bottom of the second layer has reached the water table (**Plate 20.1**).

- 4.2.40 **TTT6001:** Four layers can be observed in this trench of about 1.40 m deep on Shui Tsiu San Tsuen Road. The first layer is concrete path cover over a bitumen base; underneath are three layers of modern slope deposits, comprising light brown fill, light black fill and dark gray sludge soaked in water (**Plate 20.2**).

5 CONCLUSION

5.1 Summary of AWB Results

- 5.1.1 During the past two years, the archaeologist of the HKIA has observed the excavation of sewerage works at 40 AWB Points and not identified any sign of archaeological remains at any of the observed AWB Points within the boundary of the Licence Area.
- 5.1.2 The archaeologist has also surface scanned the entire Licence Area during the visits of the site but has not found any archaeological artifact on the surface.

5.2 Assessment of Archaeological Potential at Tai Tong Tsuen

- 5.2.1 The archaeological potential within the Licence Area of Tai Tong Tsuen is extremely low based on the results of current AWB works and surface search.
- 5.2.2 It should be pointed out, however, that all the AWB works are executed along the old alignments of the sewerage works or constructed roads/paths. Obviously, the sub-surface deposits at these locations have previously been disturbed and the reliability of the assessment of archaeological potential is now still limited.
- 5.2.3 The initiation of the AWB at Tai Tong Tsuen is due to the discovery of prehistoric artifacts in this area. Although the archaeological potential is extremely low within the Licence Area, the possibility of the existence of archaeological potential cannot be totally excluded for the vicinity of Tai Tong Tsuen outside of the Licence Area, because of the limitation of the AWB and surface scan conducted this time.
- 5.2.4 It is recommended that further archaeological works in the form of AWB or small-scale survey be considered if construction works are to be taken on undisturbed land outside of the Licence Area at Tai Tong Tsuen, subject to the details of the proposed construction works and the prior consultation with AMO.

REFERENCES

- (1) Geotechnical Control Office, *Hong Kong Geological Survey, Yuen Long: Solid and Superficial Geology Map* (Hong Kong: Civil Engineering Services Department, 1988), Sheet 6.
- (2) 蕭國建：《香港古代史》（香港：中華書局，2002 再版），頁 60。
- (3) Black & Veatch Hong Kong Limited, *Environmental Study Final Report, Yuen Long and Kam Tin Sewerage Stage 2 and Stage 3, Design and Construction* (Agreement No. CE 13/2006DS), 2008, p. 10-100.

(4) 區家發:《全港文物普查 1997 第一地區(元朗區)工作報告》(Hong Kong: AMO Archive, Ref. No. YL9, 1997).

(5) Black & Veatch Hong Kong Limited, *Environmental Study Final Report, Yuen Long and Kam Tin Sewerage Stage 2 and Stage 3, Design and Construction* (Agreement No. CE 13/2006DS), 2008, p. 10-39.

(6) 區家發:《元朗港頭圓嶺山崗遺址調查報告》(Hong Kong: AMO Archive, Ref. No. YL13, 1998)。

Table 1

Record of AWB Points at Tai Tong Tsuen

AWB Point Code	Manhole / Trench Depth (cm)	Deposit Layer	Layer Depth (cm)	Soil Characters	Remains	Remark
TTT0102	~120	1	10	Yellow surface soil with concrete cover	Nil	
		2	20	Black modern deposit		
		3	60	Brownish sandy sludge		
		4	> 30	Dark gray sandy sludge		Reached water table
TTT0110	~250	1	20	Concrete path cover and bitumen base	Nil	
		2	>230	Modern fill with soil of mixed colors		
TTT0112	~280	1	20	Concrete path cover and bitumen base	Nil	
		2	>260	Modern fill with soil of mixed colors		
TTT0113	~220	1	20	Concrete path cover and bitumen base	Nil	
		2	>200	Modern fill with soil of mixed colors		
TTT0115	~260	1	30	Concrete path cover and bitumen base	Nil	
		2	60	Modern fill with soil of mixed colors		
		3	>170	Yellowish brown clay		Probably regolith
TTT0204	~120	1	10	Concrete path cover	Nil	
		2	50	Grayey dark modern fill with rubber cable and steel pipe		
		3	>60	Yellowish red clay		Regolith; reached water table
TTT0209	~120	1	10	Concrete path cover	Nil	
		2	60	Blackish modern fill		
		3	>50	Yellowish red clay		Regolith
TTT0810	~140	1	10	Concrete path cover	Nil	
		2	60	Blackish modern fill with steel pipe		
		3	>70	Yellowish red clay		Regolith
TTT0813	~190	1	10	Concrete path cover	Nil	
		2	20 -40	Grayey dark modern fill with pipe		
		3	>140	Brownish yellow clay		Reached water table
TTT0816	~130	1	10	Concrete path cover	Nil	
		2	50	Modern fill of mixed colors with pipe		
		3	>70	Brownish yellow clay		

Table 1

Record of AWB Points at Tai Tong Tsuen

AWB Point Code	Manhole / Trench Depth (cm)	Deposit Layer	Layer Depth (cm)	Soil Characters	Remains	Remark
TTT0903	~160	1	15	Concrete path cover and bitumen base	Nil	
		2	35	Reddish brown clay with cable and iron bar		
		3	20	Blackish sludge		
		4	>90	Yellowish soft silty clay		Reached water table
TTT1001	~100	1	10	Yellow surface soil with concrete cover	Nil	
		2	40	Black modern deposit		
		3	> 50	Soft yellowish red clay		Reached water table
TTT2001	~160	1	40	Concrete path cover and bitumen base	Nil	
		2	>120	Modern fill with pipes		
TTT2002	~160	1	40	Concrete path cover and bitumen base	Nil	
		2	>120	Modern fill with pipes		
TTT2005	~135	1	35	Concrete path cover and bitumen base	Nil	
		2	>100	Grayish yellow modern fill with iron pipes and concrete chunks		Reached water table
TTT2006	~140	1	30	Concrete path cover and bitumen base	Nil	
		2	70	Blackish, brownish and reddish modern fill with concrete chunks		
		3	>40	Grayish sludge		Reached water table
TTT2008	~180	1	15	Concrete road cover	Nil	
		2	>165	Modern fill		
TTT2009	~120	1	15	Concrete road cover	Nil	
		2	>105	Modern fill		it was later dug to 1.80m and reached water table
TTT2014	~110	1	10	Concrete path cover	Nil	
		2	20	Black modern deposit with cable-line		
		3	30	Fill of reddish silty clay		
		4	> 50	Grayish black sludge		Reached water table
TTT2019	~130	1	20 - 30	Light black surface soil with concrete cover	Nil	
		2	> 100	Light brown sandy silt		Reached water table

Table 1

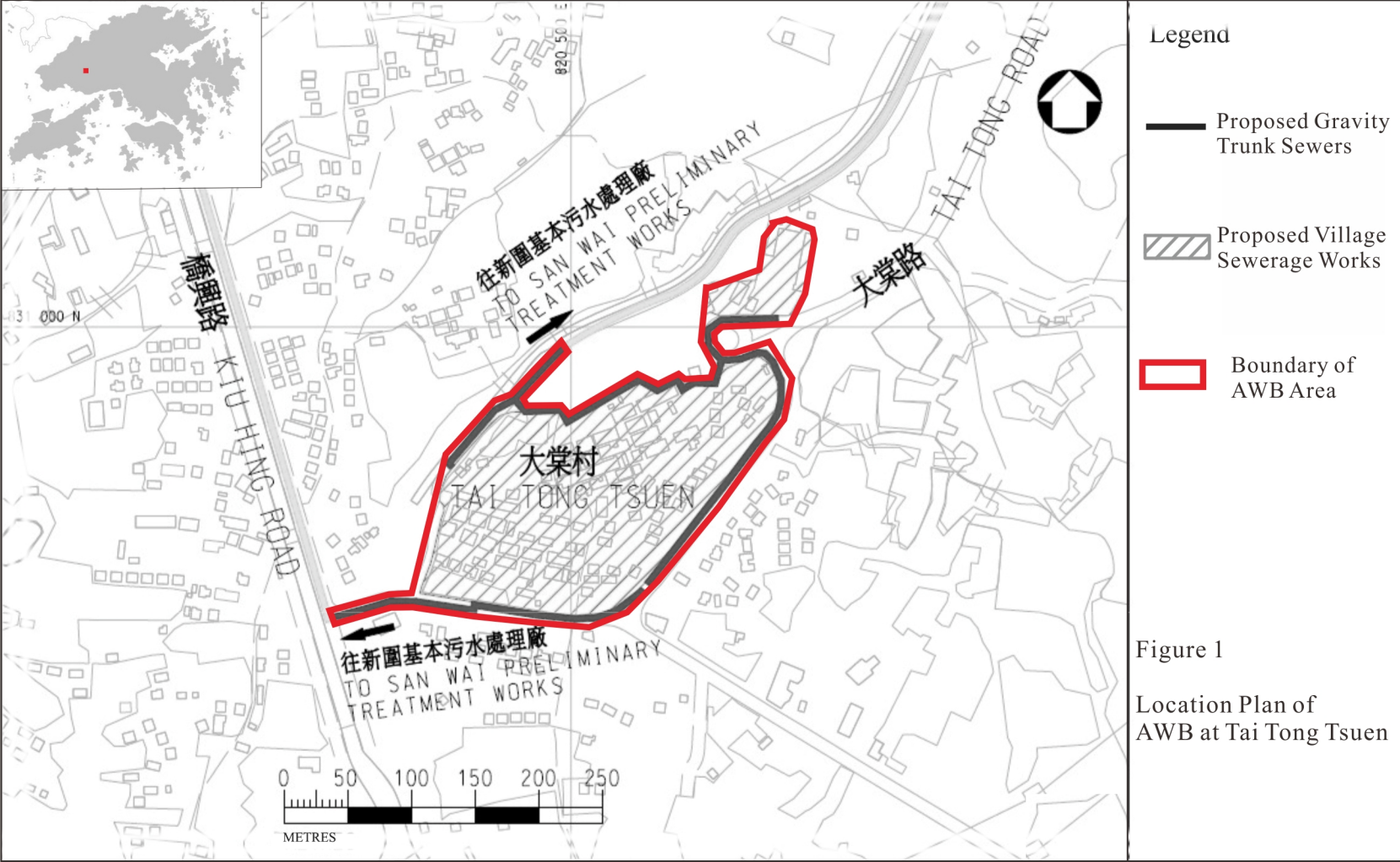
Record of AWB Points at Tai Tong Tsuen

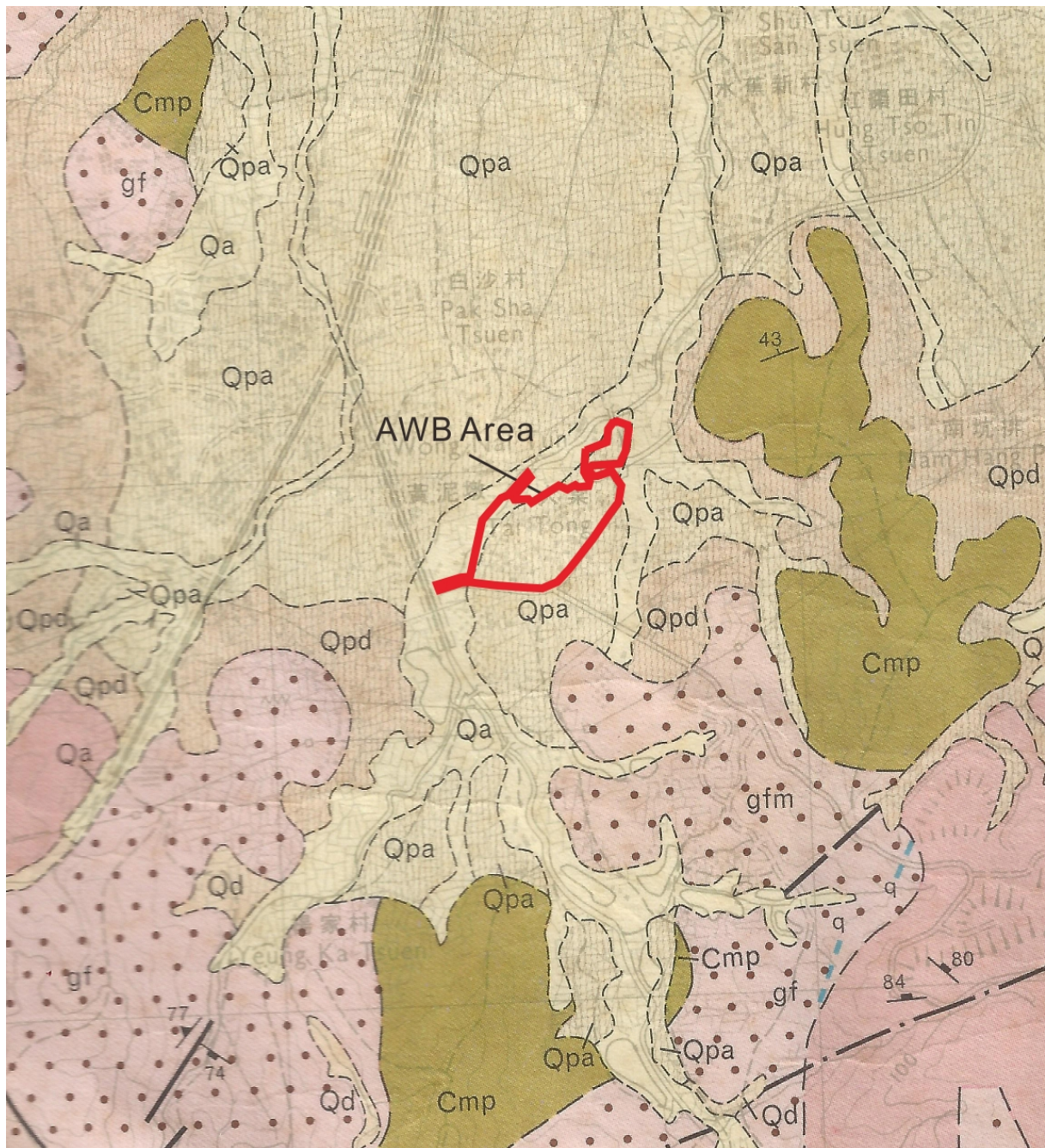
AWB Point Code	Manhole / Trench Depth (cm)	Deposit Layer	Layer Depth (cm)	Soil Characters	Remains	Remark
TTT2028	~240	1	15 - 40	Black surface soil	Nil	
		2	30 - 140	Dark brownish modern deposit		
		3	>150	Reddish clay with rock fragments		Regolith
TTT2031	~100	1	~20	Surface layer with concrete cover	Nil	
		2	>80	Black sludge deposit		Reached water table
TTT2034	~250	1	30	Concrete road surface and bitumen base	Nil	
		2	>220	Modern fill with rocks and bricks		Fill of road construction
TTT2036	~150	1	20	Concrete road surface and bitumen base	Nil	
		2	>130	Modern fill with rocks and bricks		
TTT2708	~150	1	30	Concrete road surface	Nil	
		2	>120	Modern fill		
TTT2712	~120	1	20	Concrete road surface and bitumen base	Nil	
		2	30	Modern fill with rocks		
		3	>70	Reddish clay		Regolith
TTT3302	~110	1	20	Concrete road surface and bitumen base	Nil	
		2	30	Modern fill with rocks		
		3	>60	Reddish clay		Regolith
TTT3802	~80	1	10	Concrete path cover	Nil	
		2	>70	Light black modern silty fill		Reached water table
TTT4511	~110	1	30	Concrete path cover on blackish base	Nil	
		2	40	Modern fill of soft clay		
		3	>40	Grayish yellow sludge		Reached water table
TTT4512	~100	1	30	Black surface soil with concrete cover	Nil	
		2	40-60	Gray to black sludge deposit with pipes and cables		
		3	>30	Yellowish silt with red clay flecks		Reached water table

Table 1

Record of AWB Points at Tai Tong Tsuen

AWB Point Code	Manhole / Trench Depth (cm)	Deposit Layer	Layer Depth (cm)	Soil Characters	Remains	Remark
TTT4516	~100	1	10	Concrete path cover	Nil	
		2	>90	Blackish modern fill		Bottom of this layer is being molded with concrete
TTT4518	~100	1	10	Concrete path cover	Nil	
		2	40	Blackish modern fill with modern pipe		
		3	>40	Light brown sludge with steel pipe		Reached water table
TTT4527	~170	1	30	Concrete path cover on blackish base	Nil	
		2	100	Modern fill of soft clay		
		3	>40	Grayish yellow sludge		
TTT4532	~150	1	15	Concrete path cover	Nil	
		2	45	Light black modern fill with cable-line		
		3	>90	Soft yellowish clay		Reached water table
TTT4601	~110	1	30	Concrete path cover on blackish base	Nil	
		2	50	Modern fill with rocks and bricks		
		3	>30	Grayish yellow sludge		Reached water table
TTT4903	~100	1	10	Broken concrete path	Nil	
		2	40	Light blackish modern deposit		Mixed with plant roots
		3	50	Modern fill mixed with modern rubbish		
TTT5202	~100	1	20	Concrete path cover and light blackish surface soil	Nil	
		2	60	Grayish black soft fill with metal pipe		
		3	>20	Dark gray sludge		
TTT5701	~110	1	30	Concrete path cover on blackish base	Nil	
		2	50	Modern fill of soft clay		
		3	>30	Grayish yellow sludge		Reached water table
TTT5803	~100	1	30	Concrete path cover and bitumen base	Nil	
		2	>70	Reddish clay with metal pipe		Reached water table
TTT6001	~140	1	25	Concrete path cover and bitumen base	Nil	
		2	15	Light brown fill		
		3	20-90	Light black modern fill		Slope deposit
		4	10 - >90	Dark gray sludge		Reached water table





Note:

Qa: Holocene alluvium; clay/silt, sand and gravel, well-sorted to semi-sorted

Qpa: Pleistocene terraced alluvium; clay/silt, gravelly sandy, well-sorted to semi-sorted

Qpd: Pleistocene debris flow deposits; silt/sand, gravelly, clayey with cobbles and boulders

gfm: Mesozoic, Jurassic-Cretaceous; Megacrystic; fine- to medium-grained granite

Cmp: Palaeozoic, Carboniferous; Metasiltstone and phyllite, with metasandstone

Figure 2 Geological Map of Tai Tong District



1, TTT0102 (Facing SE)



2. TTT0110 (Facing SE)



1. TTT0112 (Facing S)



2. TTT0113 (Facing S)



1. TTT0115 (Facing S)



2. TTT0204 (Facing W)

1.



TTT0209 (Facing W)

2.



TTT0810 (Facing S)



1. TTT0813 (Facing E)



2.

TTT0816 (Facing E)



1. TTT0903 (Facing E)



2. TTT1001 (Facing N)



1. TTT2001 (Facing SE)



2. TTT2002 (Facing SE)



1. TTT2005 (Facing E)



2. TTT2006 (Facing SE)



1. TTT2008 (Facing SE)



2. TTT2009 (Facing SE)



1. TTT2014 (Facing E)



2. TTT2019 (Facing S)



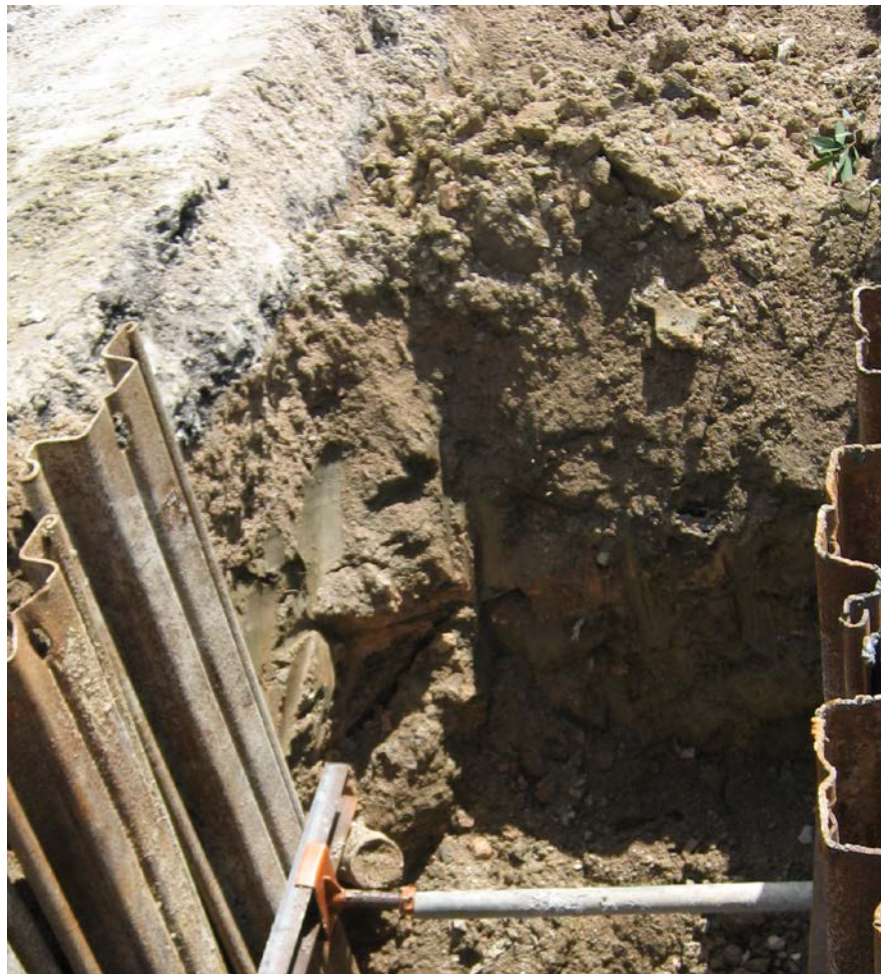
1. TTT2028 (Facing S)



2. TTT2031 (Facing E)



1. TTT2034 (Facing NE)



2. TTT2036 (Facing NE)



1. TTT2708 (Facing E)



2. TTT2712 (Facing NE)



1. TTT3302 (Facing N)



2. TTT3802 (Facing NW)



1. TTT4511 (Facing NW)



2. TTT4512 (Facing SE)



1. TTT4516 (Facing SE)



2. TTT4518 (Facing SE)



1. TTT4527 (Facing NW)



2. TTT4532 (Facing S)



1. TTT4601 (Facing N)



2. TTT4903 (Facing N)



1. TTT5202 (Facing SE)



2. TTT5701 (Facing SW)



1. TTT5803 (Facing SE)



2. TTT6001 (Facing NW)