


MTR Corporation Limited

Consultancy Agreement No. C1502
(Variation Order No. C1502/009)

**Environmental Monitoring and Audit
(EM&A) for Tuen Mun South Extension**

**Monthly Ardeid Monitoring Report
(March 2024)**

April 2024

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Table of Contents

	Page
1 INTRODUCTION.....	1
1.1 Background	1
2 MONTHLY ARDEID SURVEY.....	2
2.1 Survey Methodology	2
2.2 Monitoring Results and Findings.....	2

List of Tables

Table 2.1	Summary of Ardeid Monitoring and Site Observation
Table 2.2	Number and Species of Night Roosting Ardeids Recorded during Monthly Ardeid Survey

List of Figure

C1502/C/TME/ACM/M63/001	Location of TME Alignment, TMP Night Roost and 100m Buffer Zone, and Representative Flight Lines of Night Roosting Ardeids
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List of Appendix

Annex A	Representative Photograph taken on Site
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1 INTRODUCTION

1.1 Background

- 1.1.1 The Tuen Mun South Extension (TME) (hereinafter referred to as “the Project”) is one of the seven recommended railway schemes in the Railway Development Strategy 2014 (“RDS-2014”). The Project will extend the Tuen Ma Line (TML), from Tuen Mun (TUM) Station southwards by about 2.4 km, terminating at a new station near Tuen Mun Ferry Pier (i.e. Tuen Mun South (TMS) Station) with an intermediate station at Tuen Mun Area 16 (i.e. A16 Station).
- 1.1.2 An Environmental Impact Assessment (EIA) study for the Project was conducted in accordance with EIA Study Brief No. ESB-332/2020. The EIA Report and Environmental Monitoring and Audit (EM&A) Manual (Register No.: AEIAR-236/2022) were approved under the Environmental Impact Assessment Ordinance (EIAO), with an Environmental Permit (EP) granted on 18 August 2022 (EP No: EP-615/2022).
- 1.1.3 The Project extends from the existing overrun at TUM Station to southward, and its viaduct structure would be located adjacent to an ardeids night roost in Tuen Mun Park (hereafter referred to as “TMP Night Roost”). This TMP Night Roost comprises a group of mature trees (Big-leaved Fig (*Ficus virens*) and Chinese Banyan (*Ficus microcarpa*), which supported night roosting ardeids, including Little Egret (*Egretta garzetta*), Great Egret (*Ardea alba*), and Chinese Pond Heron (*Ardeola bacchus*). According to the ecological surveys conducted in 2021 during the EIA study and the pre-construction ardeid survey conducted on 28 August 2023¹, the abundance of night roosting ardeids at this TMP Night Roost ranged from 39 to 126 individuals in wet season and up to 300 individuals in dry season. The construction of the viaduct structure may result in potential disturbance and indirect impact on the night roosting ardeids.
- 1.1.4 Mitigation measures include a buffer zone at 100 m from the night roost, where the working hours of construction activities were recommended in the approved EIA Report to minimise the potential disturbance to TMP Night Roost during the construction stage.
- 1.1.5 According to the recommendation of the approved EIA Report and EM&A Manual and the approved MAMP (January 2024), monthly ardeid monitoring shall be conducted when construction activities are present within the 100 m Buffer Zone of the Tuen Mun Park (TMP) Night Roost, to monitor the potential impact on the TMP night roost, and evaluate effectiveness of the proposed mitigation measures during construction, which include avoiding direct impact to the TMP Night Roost (e.g. careful planning of pruning works), and minimising indirect disturbances that could displace or discourage the use of the night roost.
- 1.1.6 A monthly ardeid monitoring was conducted on 20 March 2024 with details of monitoring methodology and findings are presented in **Section 2**.

¹ Detailed findings are provided in the Pre-Construction Ardeid Report (December 2023) submitted under EP Condition 2.17 (<https://www.epd.gov.hk/eia/register/english/permit/ep6152022/documents/pasr/pdf/pasr.pdf>).

2 MONTHLY ARDEID SURVEY

2.1 Survey Methodology

- 2.1.1 Monthly monitoring was conducted according to the methodology stated in the approved MAMP (January 2024). Direct observation (with the aid of binoculars) of the night roosting ardeids was made from two vantage points (VR1 and VR2a). The location of the TMP Night Roost, 100 m Buffer Zone and vantage points are shown in **Figure No. C1502/C/TME/ACM/M63/001**.
- 2.1.2 Ardeid species, abundance, flight line, location, and the tree species used for night roosting ardeids were recorded as close to the night roosts as possible. Observation of the flight lines (including flight direction, flight height, and returning time of the roosting ardeids) were undertaken at the agreed vantage points.
- 2.1.3 The monthly ardeid monitoring started from approximately an hour before sunset and last until nightfall, which is the peak period of ardeid activities at the night roost. The exact sunset time of the survey was made reference to the Hong Kong Observatory.

2.2 Monitoring Results and Findings

- 2.2.1 Ardeid monitoring at the TMP Night Roost was conducted on 20 March 2024, starting at 17:25 (at least an hour before sunset time) and lasted for 2 hours, with findings presented in the following sections. Site clearance and preparation works were observed along both east and west of Tuen Mun River Channel, part of these works are within the 100 m Buffer Zone. Construction works were not carrying out on site during the monitoring period.

Table 2.1 Summary of Ardeid Monitoring and Site Observation

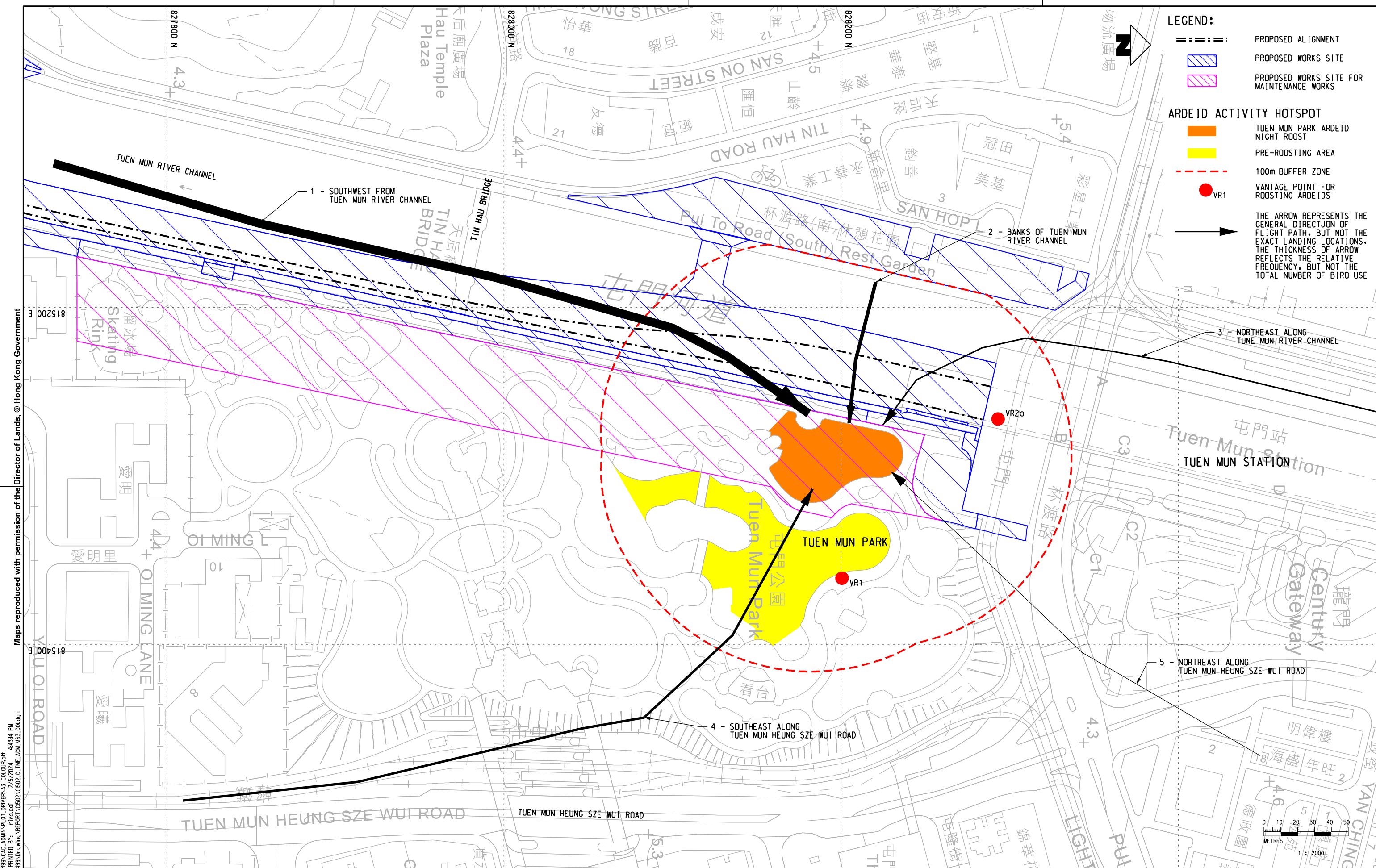
Date of Monitoring	Time of Sunset	Weather Condition	Noticeable Activities in the vicinity of the TMP Night Roost
20 th March 2024	18:34	Fine	Site preparation works (outside and within 100 m Buffer Zone)

- 2.2.2 One active night roost, the TMP Night Roost, was observed within the survey area (**Figure No. C1502/C/TME/ACM/M63/001** refers). A total of three ardeid species (i.e. Chinese Pond Heron, Great Egret, and Little Egret) were observed utilising the TMP Night Roost on a group of mature Big-leaved Fig interspersed with some Chinese Banyan in Tuen Mun Park. Representative photograph of the TMP Night Roost is shown in **Annex A**.
- 2.2.3 A total of 211 ardeids returning to the TMP Night Roost was recorded (**Table 2.2** refers). Majority of the recorded ardeids were Little Egret, with low proportion of Great Egret and Chinese Pond Heron. A summary of the number of ardeids recorded, sunset time, and peak return time of the roosting ardeids are shown in **Table 2.2**.
- 2.2.4 The majority of the recorded ardeids were observed flying along the Tuen Mun River Channel to the TMP Night Roost from the south, while some other flight lines were recorded from Tuen Mun Heung Sze Wui Road to the TMP Night Roost. Additionally, majority of the recorded ardeids were observed returning to the TMP Night Roost at elevations between 10 and 20 m.
- 2.2.5 Pre-roosting behaviour from some of these night-roosting ardeids was observed at the artificial lake in Tuen Mun Park (i.e. Pre-roosting Area shown in **Figure No. C1502/C/TME/ACM/M63/001**). Furthermore, some Black Crowned Night Heron (*Nycticorax nycticorax*) individuals were recorded within Tuen Mun Park, but none of them utilized the TMP Night Roost.
- 2.2.6 No other construction activities or any other noticeable disturbance was observed at the TMP Night Roost and within the 100m Buffer Zone during this monitoring period.

Table 2.2 Number and Species of Night Roosting Ardeids Recorded during Monthly Ardeid Survey (Mar 2024)

Survey Date	Species Recorded				Sunset Time	Peak Return Time
	Chinese Pond Heron	Great Egret	Little Egret	Total		
20 th March 2024	4	29	178	211	18:34	18:15 - 18:29

Figure



- LEGEND:**
- — — — — PROPOSED ALIGNMENT
 - ▨ PROPOSED WORKS SITE
 - ▨ PROPOSED WORKS SITE FOR MAINTENANCE WORKS
- ARDEID ACTIVITY HOTSPOT**
- TUEN MUN PARK ARDEID NIGHT ROOST
 - PRE-ROOSTING AREA
 - - - - - 100m BUFFER ZONE
 - VR1 VANTAGE POINT FOR ROOSTING ARDEIDS
- THE ARROW REPRESENTS THE GENERAL DIRECTION OF FLIGHT PATH, BUT NOT THE EXACT LANDING LOCATIONS. THE THICKNESS OF ARROW REFLECTS THE RELATIVE FREQUENCY, BUT NOT THE TOTAL NUMBER OF BIRD USE

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TUEN MUN SOUTH EXTENSION

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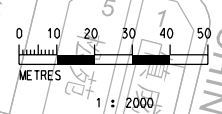
TUEN MUN SOUTH EXTENSION

LOCATION OF THE ALIGNMENT, TMP NIGHT ROOST AND 100m BUFFER ZONE, AND REPRESENTATIVE FLIGHT LINES OF NIGHT ROOSTING ARDEIDS

SCALE 1 : 2000 (A3)

FIGURE NO. C1502/C/TME/ACM/M63/001

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Annex A

Representative Photograph taken on Site

Annex A – Representative Photograph Taken on Site



Latest aerial view of the TMP Night Roost