

The Fugro logo is positioned in the top left corner of the image. It features the word "FUGRO" in a bold, white, sans-serif font. The letter "F" is stylized with a vertical line extending downwards from its base. The background of the entire page is a photograph of a dense, green, overgrown area with a narrow, dark, muddy path or stream running through the center. The vegetation is thick and appears to be a mix of grasses and small shrubs. The lighting is somewhat dim, suggesting an overcast day or a shaded area.

1st Post-translocation Report (August 2022)

Northeast New Territories Landfill Extension (NENTX) | Contract No. EP/SP/77/15

0092/22/ED/0180 01 | 15 December 2022

Formal Submission

Veolia Environmental Services Hong Kong Ltd.



Our Ref.: CL/91823/0195-VES
Date: 22 December 2022

By Email

Veolia Environmental Services Hong Kong Limited
40/F, One Taikoo Place
979 King's Road
Quarry Bay
Hong Kong

Attn.: Mr. Alvin Kam

**Meinhardt Infrastructure and
Environment Ltd**
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Dear Sir

Re: Contract No. EP/SP/77/15
North-East New Territories Landfill Extension (NENTX)
Submission of 1st Post-Translocation Monitoring Report (August 2022)

I refer to Conditions 2.8 and 2.10 under Environmental Permit No. EP-292/2007 and Conditions 2.6 and 2.8 under Further Environmental Permit No. FEP-01/292/2007, regarding the submission of a report for baseline monitoring. I hereby verified the captioned "1st Post-Translocation Monitoring Report (August 2022)" dated 15 December 2022.

Yours faithfully
MEINHARDT INFRASTRUCTURE AND ENVIRONMENT LTD



Claudine Lee
Independent Environmental Checker

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Ref: P521530-0000-REV-NN-0020

By Email

20 December 2022

Meinhardt Infrastructure & Environment Ltd.
10/F Genesis
33-35 Wong Chuk Hand Road
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Attn: Ms. Claudine Lee,

Dear Claudine,

Re: Contract No. EP/SP/77/15
Northeast New Territories Landfill Extension
Submission of 1st Post-Translocation Monitoring Report (August 2022)

In accordance with the requirement specified in Conditions 2.8 and 2.10 of Environmental Permit No. EP-292/2007 and Conditions 2.6 and 2.8 of Further Environmental Permit No. FEP-01/292/2007, we are pleased to submit the certified "1st Post-Translocation Monitoring Report (August 2022)" dated on 15 December 2022 for your verification.

Should you require any further information or clarification, please do not hesitate to contact the undersigned or our Mr. Keith Chau on 3664 6788.

Yours faithfully,
For and on behalf of
Aurecon Hong Kong Limited

A handwritten signature in blue ink, appearing to read "Fredrick Leong".

Fredrick Leong
Environmental Team Leader

Encl.

1. 1st Post-Translocation Monitoring Report (August 2022)

cc.

1. IEC - Ms. Claudine Lee (By email: claudinelee@meinhardt.com.hk)
2. IEC Representative - Mr. Jimmy Lui (By email: jimmylui@meinhardt.com.hk)

Document Control

Document Information

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01	15 Dec 2022	Formal Submission	For AFCD’s and EPD’s comments	KJB	FN	CY

Project Team

Initials	Name	Role
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KJB	Kalvin Jay Boregon	Ecologist
JPT	Jhomar Tillo	Ecologist
RL	Ray Li	Environmental Consultant
SMR	Sheila Marie Rabi	GIS Specialist/ Ecologist



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1. Introduction

- 1.1.1 The North East New Territories Landfill Extension (the NENTX Project) is a designated project. The Environmental Impact Assessment (EIA) Report was approved with conditions on 20 September 2007 (AEIAR-111/2007) and the Environmental Permit (EP) EP-292/2007 (the "EP") was issued on 26 November 2007. Additionally, a Further Environmental Permit FEP-01/292/2007 (the "FEP") was also issued under the EIA Ordinance on 28 April 2022.
- 1.1.2 In order to fulfil FEP conditions 2.6 and 2.8 on the post-translocation monitoring of the endemic freshwater crab *Somanniathelphusa zanklon*, a survey shall be carried out to monitor the establishment and effectiveness of the measures for the endemic *S. zanklon* community in the translocated site.
- 1.1.3 The post-translocation monitoring methodology shall be in accordance with the approved Revised Translocation Proposal for the Endemic Freshwater Crab *Somanniathelphusa zanklon* (NENTX-FUG-RP-E-EM-I01 Revised Translocation Proposal) (the "approved Proposal"). The approved Proposal was agreed upon with the Environmental Protection Department (EPD) and Agriculture, Fisheries and Conservation Department (AFCD).
- 1.1.4 The NENTX Design-Build-Operate (DBO) Contractor, on behalf of EPD/LDG, is responsible for carrying out the post-translocation monitoring works in accordance with the approved Proposal.
- 1.1.5 The NENTX DBO contract was awarded to Veolia Environmental Services Hong Kong Ltd. (Veolia) and Fugro Technical Services Limited (Fugro) was appointed by Veolia to implement the post-translocation monitoring works in accordance with the approved Proposal.

1.2 Purpose of this Document

- 1.2.1 This Post-Translocation Monitoring Report for the Endemic Freshwater Crab *Somanniathelphusa zanklon* (the "Report") was prepared to detail the findings of the mark-recapture post-translocation activities in fulfilment of Section 4 of the approved Proposal, FEP conditions 2.6 and 2.8, and Conditions of EIAR Approval No. 4 for the NENTX Project.

1.3 Structure of the Report

- 1.3.1 Succeeding this Section 1 Introduction, the remainder of this Report is presented as follows:
- Section 2 details the methodology of the mark-recapture activity;
 - Section 3 presents the survey results of mark-recapture activity;
 - Section 4 details the post-translocation monitoring schedule; and
 - Section 5 presents the summary and conclusion.

2. Mark-Recapture Methodology

2.1.1 This section presents the methodology and approach of the post-translocation mark-recapture monitoring in accordance with Section 4 of the approved Proposal; and in fulfilment of FEP conditions 2.6 and 2.8 and Conditions of EIAR Approval No. 4 for the NENTX Project.

2.2 The Monitoring Area

2.2.1 The Recipient Site (the “Monitoring Area”) (**Appendix A**) is the site where the eight individuals of *S. zanklon* were translocated during capture-translocation surveys conducted from 21 to 24 July 2022.

2.2.2 The Monitoring Area is located at the middle section of Ping Yuen River tributary, and adjacent to Ping Yuen Road, to the north of Ping Yeung Village. In this tributary, *S. zanklon* was previously recorded during the approved EIA studies (i.e. EIA-133/2007 and EIA-190/2010) (ERM, 2022) suggesting that this watercourse is suitable for *S. zanklon*.

2.2.3 Although channelisation features (e.g. concrete bank and gabions) and an inflatable water dam are present about 100m to the east, the monitoring area is still considered largely natural with a low gradient and low water flow (see **Photo 2.1**). The streambed is mainly covered by soil and stream banks are vegetated with grass. This area meets the habitat requirements of the species. The soft soil stream substrate and the availability of riparian vegetation are ideal for *S. zanklon* to create microhabitat to inhabit. In addition, the natural meander would also reduce the water flow, which is preferred by the *S. zanklon*. It is anticipated that pollution or disturbance would be in a low level in this section, considering there is limited roads and houses (and therefore limited human activities) until the stream reaches Kan Tau Wai and Tong Fong along Ping Che Road.



Photo 2.1: Section of the monitoring area with low gradient and low water flow

2.3 Personnel

- 2.3.1 The post-translocation monitoring survey team was led by a qualified ecologist with minimum of five years of experience in aquatic ecology or other related experience as accepted by AFCD and EPD. In particular, the survey team leader have the experience in surveys of *S. zanklon*.

2.4 Mark-Recapture Activity

- 2.4.1.1 The first mark-recapture activity was conducted last 29 August 2022 during night-time period. Hand netting and kick sampling in the monitoring area were conducted. In addition, direct observation was also conducted along the stream riparian zone to search for *S. zanklon* in their potential hiding spaces (e.g. under rocks and fallen tree branches).

2.4.2 Hand Netting

- 2.4.2.1 Hand netting (see **Photo 2.2**) was used to search the potential habitats along the watercourse. The sweeping motion of the hand netting scraped the layer of the stream bottom substrate into the net, e.g., soil and leaf litter where possible, as *S. zanklon* is likely to be among these substrates. After taking the hand net out of the water, it was allowed to drain, and the net content was emptied on to a large sorting tray. All caught *S. zanklon*, if any, would be carefully moved to a plastic container for marking.



Photo 2.2: Hand netting at a potential habitat (vegetation) along the watercourse

2.4.3 Kick-netting

- 2.4.3.1 Kick-netting (see **Photo 2.3**) was done along the watercourse by moving upstream with the net facing the water current. The surveyor disturbed the substrate by kicking the streambed substrate by kicking, such that the *S. zanklon* dislodged from the streambed would be trapped in the net. In order to maximise the survey effort within the stream, the surveyor moved up the stream in a zigzag direction to increase the kick sampling coverage. The net was checked after a maximum of one minute of kick sampling. Additionally, the net was checked more frequently if large amount of substrate was kicked into the net.



Photo 2.3: Surveyor kick-netting the substrate and checking the net's contents

- 2.4.3.2 Similar to hand netting, the net content was emptied on to a large sorting tray. All caught *S. zanklon*, if any, were carefully moved to a plastic container for post-translocation marking.

2.4.4 Marking

- 2.4.4.1 All captured *S. zanklon* individuals would be marked prior to releasing them back to the monitoring area. The marker would be an epoxy-resin based paint (Jotamastic Wintergrade) which contains a metallic component and cures in contact with water. Earlier laboratory and field trials had established that crab survival and behaviour was unaffected by paint marking on the carapace and that the marks persisted in field conditions (Eaton et. al., 2001). Recaptures, if any, would be re-marked with black numerals to indicate the month of capture.

3. Survey Results

- 3.1 There was no *S. zanklon* individual that was recaptured nor marked during the monitoring period (**Appendix B**). The result could be due to the recent Typhoon Signal 8 by the Severe Tropical Storm Ma-on last 24 August 2022 (HKO, 2022), days prior the monitoring activity, which could have affected the monitoring area and the translocated individuals.

4. Post-translocation Monitoring Schedule

- 4.1 Continued post-translocation monitoring will be conducted to further monitor the establishment and effectiveness of the measures for *S. zanklon* community in the translocated site. Succeeding post-translocation monitoring will be carried out once a month (at night-time) for the upcoming two months, and then will be done quarterly after the third month for one year. This is to ensure that only minimal disturbance will be created to the newly establishing translocated *S. zanklon* community in the recipient site.

5. Summary and Conclusion

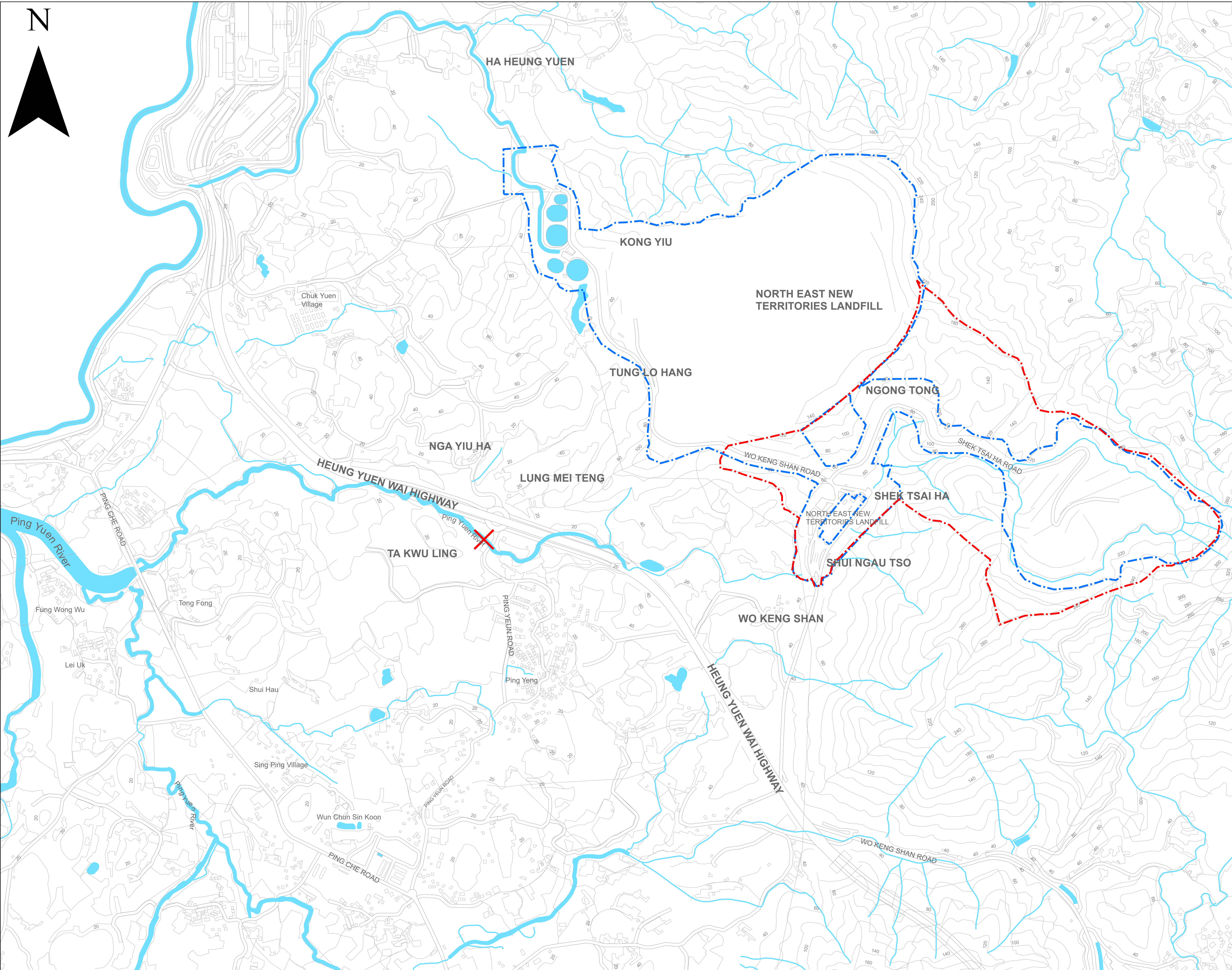
- 5.1 No *S. zanklon* individual was recaptured nor marked during the monitoring period. The translocated individuals could have been disturbed by the Severe Tropical Storm Ma-on, days prior the monitoring activity. However, the Monitoring Area will be continuously monitored in accordance with the approved Proposal.

6. References

- Eaton, D.R., J.T. Addison, S.P. Milligan, J. Brown and L.J. Fernand. 2001. Larvae surveys of edible crab (*Cancer pagurus*) off the east coast of England: implications for stock structure and management. ICES CM 2001/J:14. 10pp.
- ERM. 2022. Aquatic Fauna Survey Findings included in previous Translocation Proposal (version 4.0).
- Hong Kong Observatory (HKO). 2022.
https://www.hko.gov.hk/en/wxinfo/climat/warndb/warndb1.shtml?opt=1&sgnl=1.or.higher&start_ym=202208&end_ym=202208&submit=Submit+Query

Appendix A

Monitoring Area



Legend

Monitoring Area

NENT Landfill Extension (NENTX)

Existing NENT Landfill

Hydrographic features

No.	Date	Description	Designed	Checked
		Name		Date
Drawn		SMR		02 AUG 2022
Checked		FMN		02 AUG 2022
Project No.		0092-22		
Project Title				
NORTHEAST NEW TERRITORIES LANDFILL EXTENSION (NENTX)				
Figure title				
Recipient Site (outside NENTX) for the Endemic Freshwater Crab <i>Somanniathelphusa zanklon</i>				
Drawing No.		Revision	Scale	
0092-22/002			<div>03060120</div> <div>Meters</div>	
Client				
<div><div></div>VEOLIA</div> <div>VEOLIA ENVIRONMENTAL SERVICES HONG KONG LTD.</div>				
Environmental Team				
<div><div></div>aurecon</div> <div>AURECON HONG KONG LTD.</div>				
Sub-consultant				
<div><div></div>FUGRO</div> <div>FUGRO TECHNICAL SERVICES LIMITED</div>				

Appendix B

Fieldwork Datasheet

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