

Our Ref: TCS00874/16/300/L0030

Welcome Construction Co., Ltd.

Flat 01, 19/F, Westley Square,
48 Hoi Yuen Road,
Kwun Tong, Kowloon.

Attn: Mr. Edmond Ho

4 July 2017
By E-mail

Dear Sir,

Re: CEDD Contract No. CV/2012/05 - Bathing Beach at Lung Mei, Tai Po
Report for Capture and Relocation of Common Rat Snake

I refer to the captioned submission submitted to us by email on 27 June 2017, please note that we have no adverse comment on this submission. We herewith certify the captioned submission in accordance with Condition 2.4 of the Environmental Permit no. EP-388/2010.

Should you have any queries, please feel free to contact the undersigned at Tel: 2959-6059 or Fax: 2959-6079 or E-mail: twtam@fordbusiness.com.

Yours sincerely,

For and on Behalf of

Action-United Environmental Services & Consulting



T. W. Tam
Environmental Team Leader
TW/nh

Environmental Permit No. EP-388/2010

Development of a Bathing Beach at Lung Mei, Tai Po

Independent Environmental Checker Verification


Reference Document/Plan

Document/ Plan to be Certified / Verified:	Report for Capture and Relocation of Common Rat Snake
Date of Report:	26 June 2017
Date received by IEC:	4 July 2017

Reference EP Condition

Environmental Permit Condition:	2.4
To mitigate the ecological impact on the Common Rat Snake <i>Ptyas mucosus</i> , capture-surveys on the species shall be conducted by a qualified ecologist within the project site before the commencement of construction of the Project. Any of these species caught during the surveys shall be relocated to nearby shrubland or other suitable habitats to be agreed by the Director. The Permit Holder shall, within one month after completion of capture-survey and relocation works, deposit with the Director three hard copies and one electronic copy of the report including the following information :	
(a) qualification of the ecologist(s) to carry out the capture-survey and relocation works;	
(b) methodology and findings on capture-surveys of Common Rat Snake <i>Ptyas mucosus</i> , and photographs of Common Rat Snake <i>Ptyas mucosus</i> captured and relocated; and	
(c) locations of the receptor sites for relocation.	

IEC Verification

I hereby verify that the above referenced document/ plan complies with the above referenced condition of EP-388/2010	
Mr Jovy Tam	Date: 7 July 2017
Independent Environmental Checker	

Contract No.: CV/2012/05. Bathing Beach at Lung Mei, Tai Po

Report for capture and relocation of

Common Rat Snake 滑鼠蛇

Dr. Mark Shea

(June 26, 2017)

1. Introduction

1.1. To comply with the environmental permit requirement of the Project (EP-388/2010), i.e. section 2.4 under task of measures for mitigating ecological impact, it is required to mitigate the ecological impact on the Common rat Snake *Ptyas mucosus*. capture survey on the species shall be conducted by a qualified ecologist (refer to Appendix 1: CV of Dr. Mark Shea) within the project site before the commencement of construction of the Project. Any of this species caught during the survey shall be relocated to suitable habitats, which has been agreed by the Director of EPD.

2 Method

- 2.1 The capture survey has been conducted on 24th March 2017 during day time. Boundary of the snake capture survey covered the whole project site, shown as **Figure 1**. In accordance with EM & A Manual and EP, captured common rat snake will be released at the shrubland habitat (as receptor site) on north of the project area, **Figure 2**. The proposed relocation site is a shrubland with some rocks and leaf litters, which provides potential habitat for snake foraging, hiding and breeding (refers to **Photos 1-4**). The habitat is similar to that found at the proposed capture site
- 2.2 As the species is strictly diurnal (HKU 2017; Karsen *et al.*, 1986) and the capture habitat is small in area (approximately 1 ha) with easy access by walk, one day time survey has been carried out. Terrestrial area of the project site has been surveyed.
- 2.3 Careful searches of appropriate microhabitats and refugia (e.g. stones, crevices, leaf litter/debris, dead/fallen wood, underside of wood/plastic board) have been undertaken. In considering the species is very swift and difficult to capture, snake hooks has been used during capture survey. Proper clothes, shoes and gloves have been wore by surveyors to prevent potential snake bite.
- 2.4 To increase the chance finding the snake, systematic and intensive search of appropriate microhabitats and refugia (e.g. stones, crevices, leaf litter/debris, dead/fallen wood, underside of wood/plastic board) were performed during capture survey.

3 Result

3.1 The capture survey has been undertaken on the 24th March 2017. The proposed site comprised of woodland and shrubland habitats (Photos 5-8) that potentially inhabited by the snake. The snake was not found during the survey period .

4 Summary

4.1 Capture survey of the snake has been done systematically throughout the proposed survey area on the 24th March 2017 and no snake was noticed/captured during the survey period.

5 Reference

HKU (The University of Hong Kong). (2017). *Ptyas mucosus* Common Rat Snake. Available at http://www.biosch.hku.hk/ecology/hkreptiles/snake/Ptyas_mucosus.html. [Accessed 5th January 2017]

Karsen, S.J., Lau, W.N., Bogadek, A. (1986). *Hong Kong Amphibians and Reptiles*, the Urban Council Hong Kong. HKSAR.



Figure 1. Boundary of snake capture survey at Lung Mei beach.



Figure 2. Indicative areas for common rat snake capture survey and relocation at Lung Mei beach.



Photo 1. General View of the relocation site (Outside)



Photo 2. General View of the relocation site (Outside)



Photo 3. General View of the relocation site (inside)



Photo 4. General View of the relocation site (inside)



Photo 5. General View of Capture Survey Area



Photo 6. General View of Capture Survey Area



Photo 7. General View of Capture Survey Area



Photo 8. View of Capture Survey at the site

Appendix 1: CV of Dr. Mark Shea

Personal Details



Name : SHEA She-sang, Mark

Current Position: Principal Ecology Consultant - China Hong Kong Ecology Consultants Ltd.

Education, Professional Qualifications and Memberships

B.Sc. Biology, Hunan Normal College, PRC, 1981

M.Sc. Zoology, Nanjing Normal University, PRC, 1987

Ph.D. Ecology/Environmental Science, The University of Hong Kong, 1995

Certified Arborist of International Society of Arboriculture, 2011-2014

Member of China Flower Association

Council member of Southern China Palm Plants Association

Member of The Institution of Hong Kong Environmental Impact Assessment

Member of The Marine Biological Association of Hong Kong 1989 - 2006

Member of International Association for Landscaping Ecology

Member of International Association of Impact Assessment (2002-2005, 2013-2018)

Member of Zoological Society of China

Member of Ecological Society of China

Key Qualifications

Dr. Mark Shea is an ecology consultant with over 25 years of experience in the field of biology, ecology and environmental impact assessment in Hong Kong, China and the region. He has undertaken over 250 projects with ecological component dealing with terrestrial ecology, wetland ecology, insect taxonomy, pollution biology, mangrove, hepercto-fauna, avi-fauna, terrestrial vertebrates, fishery, benthic community ecology in Hong Kong's stream, river, coast, marine and terrestrial environments. During last fifteen years, he conducted and led over 200 tree survey projects and a number of tree risk assessment projects. Dr. Shea is a Certified Arborist of International Society of Arboriculture. In addition, he has experience for ecology related projects in Mainland China, Taiwan and Macau.

Key Experiences:

- **Terrestrial ecology:** responsible for over 180 projects dealing with ecological survey, mitigation, ecological impact assessments, flora and fauna conservation;
- **Mangrove ecology:** an certified arborist (AIS); responsible for over 50 ecological consultation projects dealing with mangrove survey, health monitoring; responsible for over 5 mash habitat creation projects involving plant sourcing, supervision of marsh plant planting and monitoring;
- **Marine ecology:** responsible for over 30 projects dealing with marine fish, benthic surveys, mitigation, ecological impact assessments, marine fish relocation (marine fish releasing as marine ecology mitigation measure for HMZB project).

Experience Records

1997.4-present: Senior Ecology Consultant - China - Hong Kong Ecology Consultants Ltd.

Selected projects:

Application for Small House Re-Development of Lot 966 RP in D.D. 22 Pan Chung San Tsuen, Tai Po. Site Investigation and Landscape Proposal. Client: Ms. Peggy Wong, 2016.

Rezoning proposal for Various lots at Sha Tau Kok: Ecological impact assesment and mitigation. Client: Eton Properties Agency Co Ltd, 2016-2017.

Contract No. DP 01/2016 Drainage Improvement Works at North District –Package B – Investigation: Ecology, Client: DSD, HKSAR, 2016-2017.

Section 12A Application for Proposed Amendments to the Ma On Shan Outline Zoning Plan in Support of Private Residential Development and Primary School at Various Lots and Adjoining Government Land in DD

167, Nai Chung, Ma On Shan: Ecological Impact Assessment, Client/leading consultant: Ramboll Environ Hong Kong Limited, 2016.

Application for Proposed Low Density Residential Development at Various Lots in D.D. 433, Chuen Lung, New Territories. Conducting full scale of ecological surveys including habitat, flora and fauna and ecological impact assessment. Client: Environ, 2015.

Ecological Impact Assessment for the Proposed Development at STTL 601 Yiu Sha Road Whitehead Ma On Shan. Conducting ecological surveys including habitat, flora and fauna and ecological impact assessment. Client: AEC, 2015.

Agreement No. CE9/2006 (DS) Tolo Harbour Sewerage of Unsewered Areas, Stage II-Investigation, Design and Construction: Conducting full scale of ecological surveys including habitat, flora, diving monitoring of coral and sea bottom; and fauna and ecological impact assessment. Client: DSD/AECOM, 2015.

Ecological consultation for a site at Ka Wai Man Road and Ex-Mount Davis Cottage Area, Kennedy Town: Conducting ecological surveys including habitat, flora and fauna and ecological impact assessment. Client: Environ, 2015.

Contract No. 12-06337: Provision of Services for the Post Project Monitoring of HATS 2A (also named as Performance Verification of Discharge of HATS 2A). Undertaken marine benthic sampling, sorting, identification, data analysis and reporting. Sub-consultant of EGS. 2014-2015.

Site Formation and Infrastructural Works for Eight Housing Sites in Ma On Shan Feasibility Study, Conducting ecological surveys including habitat, flora and fauna and ecological impact assessment. Client: Environ, 2015.

Environmental Consultancy Services for Planning, Supervision and Management of the Proposed Fish Fry Release Scheme by Ecologist/Biologist for HONG KONG-ZHUHAI-MACAO BRIDGE HONG KONG Boundary Crossing Facilities: Fish Fry Release Trial, supervising, operation and documentation for the project. For the project, marine fish were translocated from fish nursery in Guangdong Province to Tun Mun Port, Hong Kong, uploaded to a specially prepared boat and some 100,000 fish were live released in water around Brothers Islands, north Lantau, Hong Kong. Client China Harbour/AEC, 2014.

Agreement No. CE65/2013(EP) Post-Construction Ecological Monitoring of River Improvement Work in Upper Lam Tsuen River, She Shan River and Upper Tai Po River – Investigation. Client: AEC/DSD, 2014-2017.

Contract No. 2013/11: Environmental Monitoring of Sediment Disposal to the South of Brothers, East of Sha Chau and East of Tung Lung Chau: diving monitoring of coral and sea bottom; demersal trawling samples of fishes and invertebrates. In supporting of EGS/Lam, responsible for on-board sampling supervision, sorting, taxonomic identification, tissue preparation for chemical testing, data analysis and reporting. Sub-consultant of EGS. 2014-2017.

Theme Park and Resort Hotel Development in Macau - Ecological Impact Assessment: Responsible for ecological consultancy services including eco impact assessment and mitigation. Client: BMT, 2014.

Agreement No. CE16/2012 (CE) Engineering Feasibility Study for Kong Nga Po - Feasibility Study: Ecological field survey and reporting. Conducting full scale of ecological surveys including habitat, flora and fauna. Client: CEDD/Mott MacDonald, 2013.

Agreement No. LD01/2012 Eco-hydraulics Study on Green Channels – Stage 1 Provision of Services of Ecological Field Survey. Conducting full scale of ecological surveys including habitat, flora and fauna for 12 drainage channels. Client: DSD/Mott MacDonald, 2012-2013.

Contract No. SPW 03/2012 Ecological Survey for Relocation of Sha Tin Sewage Treatment Works to Caverns – Feasibility Study. Conducting full scale of ecological surveys including habitat, flora and fauna of terrestrial and marine environment (benthic survey, scuba diving coral survey and intertidal survey). Client: DSD, 2012-2013.

Proposed Student Hostel of The City University of Hong Kong within “CDA(1)” Zone, South of Yiu Sha Road Whitehead, Ma On Shan, The New Territories: Environmental Assessment - Responsible for ecological consultancy services including eco impact assessment and mitigation. Client: Environ, 2013 -2014.

Residential cum Recreational Development at Kam Tsin Road, Kwu Tung: Environmental Assessment: Responsible for ecological consultancy services including eco impact assessment and mitigation. Client: Environ, 2013-2014.

Construction of Public Rental Housing at Ex-Au Tau Departmental Quarters at Yuen Long (Contract No : 20120746) Trade : Independent Tree Specialist, responsible for tree survey, tree risk assessment and tree protections, and other arborist consultancy. Client: Housing Authority / Hsin Chong Construction Co. Ltd. 2014-2016.

Architectural Services Department – Consultancy Agreement No. 9AA 115 for Provision of Columbarium at Wo Hop Shek Cemetery –Phase I. Responsible for ecological consultancy services including eco-assessment and mitigation. Client: DLN, 2013-2014.

Contract 823B – Shek Kong Stabling Sidings & Emergency Rescue Siding: Sub-Contract for Provision of Consultancy Services for Stream Habitat Restoration Works (M50/153), provision of wetland construction specialist and wetland plant botanist for the project. Client: MTR / Maeda – China State Construction JV, 2011-2017.

Agreement No. DP/01/2010 Services as Independent Environmental Checker for Drainage Improvement Works in Shatin and Tai Po: Responsible for ecology aspects for transplanted projected plants, ecological mitigation wetland, ecological monitoring in areas under Contract 1 & 2. 2011 – 2014. Client: DSD / Environ Hong Kong Ltd.

Contract No. CV 2005/06, Contract No. CV 2008/07 & Contract No. 2009/16: Field Sampling and Laboratory Testing for Contaminated Mud Pit IV and V East of Sha Chau -- Demersal trawling samples of fishes and invertebrates. In supporting of Lamlab Ltd. And EGS, responsible for on-board sampling supervision, sorting, taxonomic identification, tissue preparation for chemical testing, data analysis and reporting. Sub-consultant of Lam Lab and EGS. March 2006- February 2009; and 2010-2014.

Contract No. CV 2008/07 & Contract No. 2009/16: Testing and Sampling for Contaminated Mud Pits IV and V at East of Sha Chau, - Benthic Survey, sorting, taxonomy and reporting. Sub-consultant of EGS (Asia) Ltd. 2009 - 2014.

Contract No. DC/2007/06 River Improvement Works in Upper Lam Tsuen River, She Shan River and Upper Tai Po River. Employed by Contractor (Chiu Hing Construction & Transportation Co. Ltd.) as ecology specialist responsible for conducting ecological baseline survey (flora and fauna), impact monitoring, mitigation, part of post-construction monitoring and as well as capture surveys. The project also required to capture and relocate some rare fish and amphibian species with conservation value to unaffected river sections to reduce adverse impact by the river works construction period. 2007 - 2014.

澳門“小潭山旅遊休憩計劃”項目，生態及景觀初步評估研究。顧主：澳門瑞峰工程顧問有限公司 / SMEC； 2013.

Construction of public house at Tuen Mun Area 18: Independent tree specialist responsible for tree monitoring, tree risk assessment, mitigation and protection. Client: Housing Authority / Shui On Construction. 2010-2013.

Contract No. DC/2006/09: Drainage Improvement Works in Kau Lung Hang, Yuen Leng, Nam Wa Po and Tai Hang Areas and Construction of Ping Kong Drainage Channels. Employed by Contractor (Chiu Hing Construction & Transportation Co. Ltd.) as ecology specialist responsible for conducting ecological baseline survey, impact monitoring, fish relocation operation and mitigation/post monitoring. The project also required

to capture and relocate some rare fish species with conservation value to temporal constructed fish aquarium and to unaffected river sections to reduce adverse impact by the river works during construction period. The fish will be released back to new river channel after completion of river works. Committed in April 2007 and estimated completion in 2013.

Residential cum Recreational Development at Various Lots and Adjoining Government Land in Pine Hill, Tai Po: Environmental Assessment. Conducting full scale of ecological surveys including habitat, flora and fauna of terrestrial and coastal environment. Client: sub-consultant with Environ HK Ltd. 2013.

Proposed Residential Development at Nai Chung, Ma On Shan: Ecological Impact Assessment. Conducting full scale of ecological surveys including habitat, flora and fauna of terrestrial and coastal environment. Client: sub-consultant with Environ HK Ltd. 2013.

CE58/2011(HY) Widening of Castle Peak Road – Castle Peak Bay – Investigation: Conducting full scale of ecological surveys including habitat, flora and fauna of terrestrial and coastal environment. Client: Highway Department/Scott Wilson. 2012-13.

Application for Amendment to the Draft Tai Tong Outline Zoning Plan No. S/YL-TT/15 from “Agriculture” and “Open Storage” to “Village Type Development”, Various Lots in D.D. 177 and Adjoining Government Land, Tai Tong, Yuen Long. Responsible for ecological survey and impact assessment. Client: City Development Ltd, 2012.

Agreement No. CE 38/2010 (CE) Liantang / Heung Yuen Wai Boundary control Point and associated Works (Site formation and Infrastructures) - Design and Construction – conducted brush and detailed tree surveys. Client: AECOM, 2012-2013.

Contract No. DC/2007/08 Drainage Improvement Works at Tai Po Tin, Ping Che, Man Uk Pin and Lin Ma Hang. Responsible for ecological impact monitoring during late stage of construction. Client: DSD/Chiu Hing, 2012.

Strategic cooperative study on contaminated sediments of Shenzhen River – Benthic organism investigation. 深圳河污染底泥治理策略合作研究底泥特徵調查專題工作-底棲生物調查(BENTHIC SURVEY); Client: 深圳治河辦 Shenzhen River Administration Office / EGS (HK) Ltd., 2010.

Verification of animal species purchased from USA laboratory supplier for eco-toxic testing of contaminated sediments. Employed by ALS Laboratory as benthic specialist consultant, committed in March 2010.

Wo Hop Shek Creamatorium Construction – Monitoring of transplanted plants. One year contract with AEC

Ltd. August 2009 to August 2010.

Additional Tree Survey for Agreement No.NEX2212 of MTR's Shatin to Central Railway Line. Client: MTR/China ARSC, 2009.

Shatin Union Hospital Development project: Tree Survey, Client: Ted and Chen Associates, 2009.

Fire Services Training School cum Driving Training School At Pak Shing Kok, Area 78, Tseung Kwan O. Ecological impact assessment. Client: FSD/Hyder Consulting. 2009.

Lantau – Tuen Mun Link Project: ecological baseline surveys. Client, Meinhardt Infrastructure and Environment Ltd. Scope of works including terrestrial, inter-tidal, mangrove, stream flora and fauna surveys. 2008-2009.

Agreement No. CE 65/2006 (DS) Port Shelter Sewerage Stage 2 and Stage 3 – Design and Construction– Ecological Survey. Client, DSD/Black and Veatch Consultants. Scope of works: conducting terrestrial, intertidal and marine ecological surveys including coral diving surveys. 2008-2009.

Contract No. DC/2008/07, Lam Tsuen Valley Sewerage – Investigation, Design & Construction. Conducting ecological wet season baseline survey. Client: DSD/Ove Arup. October to December 2008

Contract No. DC/2008/07, Lam Tsuen Valley Sewerage – Investigation, Design & Construction. Conducting tree survey. Client: China ARSC. 2008.

Mangrove Survey in North West New Territories. Conducted field survey of mangrove community structure, diversity, growth formation. The collected data was used in modeling of drainage flood risk assessment and mitigation. Client: DSD/MottConell. October to December 2008.

Ma On Shan Development, Engineering Works At Whitehead and Lok Wo Sha phase 1: Design and Construction. Scope of works: Vegetation Surveys and Transplantation Scheme. Client: Maunsell. January to August 2009.

Agreement No. CE 7/2008 (EP) Organic Waste Treatment Facilities, Phase I, Lantau – Feasibility Study. Client: ENSR Asia (HK) Ltd. Conduct tree survey. February 2009.

Construction and Development Office of Macau SAR: Macau Nature Reserve Ecological Monitoring. Conduct monthly ecological monitoring activities including fish, benthic fauna (Mangrove habitat), insect, amphibians, reptiles, mammals, micro-algae sampling at wetland habitat, inter-tidal, mangrove habitats. Also

responsible for produce monthly and annual monitoring reports. Client: Macau Government/Macau ecology consultant. Completed two contracts with extensions from 2004 to 2010.

Repositioning and Long Term Operation Plan of Ocean Park. EM & A practice. Conduct vegetation survey to identify and locate some protected plants for transplantation. Plant transplantation and monitoring. Supporting Contractor / Dragages-Bouygues JV, Committed in February 2007 and completed in September 2008.

Bat Survey and Impact Assessment at The Chik Kwai Study Hall, Sheung Tsuen, Pat Heung, Yuen Long. The scope of work include bat field surveys in daytime and night time, impact assessment and propose of mitigation measures; bat box design, installation and monitoring. Client: AMO; in supporting AEC Ltd., 2007-2009.

Proposed development at Pak Kung, Sai Kung: tree surveys. Client: Belt Collins Hong Kong Ltd., committed and completed in 2007.

Proposed development at So Kwun Wat, Tuen Mun: tree survey. Client: Sun Hung Kai Architects & Engineering Ltd., committed and completed in 2007.

Proposed residential re-development at Severn Road, Hong Kong island: tree survey. Client: Sun Hung Kai Architects & Engineering Ltd., committed and completed in 2007.

Agreement No. CE69/2001 (HY) Tsuen Wan Road Upgrading – Investigation: EIA – vegetation and habitat surveys. In supporting Scott Wilson Limited, committed and completed in November 2007.

Proposed development at Fairview Park, Yuen Long: bird surveys at various habitats including fish ponds, cultivation and urban land. Supporting Environ Hong Kong Limited, committed and completed in 2007.

(DS) Drainage Improvement in Northern Hong Kong Island – Hong Kong West Drainage Tunnel Environmental Impact Assessment: Ecologica Baseline Survey. The job also involved stream faunan surveys for several streams. Client: DSD / Black & Veatch Hong Kong Limited; committed in August 2003 and completed in 2005.

Contract No. HY/2000/18 Construction of Kam Tin Bypass - Constructed wetland. Being appointed as wetland specialist involving wetland surveys, monitoring, advise on construction of wetland habitats and design, sourcing, verification and supervision of wetland plant plantation. (Client: Highway Department; Employer: ZHUHAI International Economic & Technical Cooperation Corporation, committed in June 2001 and completed in 2006).

Ecological Monitoring at NENT landfill - Vegetation monitoring on selected tree species and natural vegetation adjacent to operational landfill. (Client: Far East Landfill Technology Ltd.; sub-contracted to BMT Asia Ltd., commissioned in March 1999 and completed in 2005.).

Feasibility Study for Proposed Resort and Residential Development at Hai Tung Bay, Sanya, Hainan, China: Involving field ecological surveys and reporting in 2005. Client: Henderson Land / Belt Collins.

Proposed Residential Development at Various Lots in DD 129, Deep Bay Road, Lau Fau Shan, Yuen Long. Ecological Review and impact assessment for proposed Access Road and Stream Widening Works. 2004.

S16 Application for site at Tin Fook Wai, Yuen Long: Ecological supporting works including pond benthic plagic sampling, sorting, identification in 2001-2002. Ecological baseline updating involving birds, amphibians, mammals and Odonata surveys in 2005. Client: Henderson Land / EcoSchemes / BMT.

Section 16 application: Proposed Residential Development at Ha Wo Hang, Sha Tau Kok – Ecological Impact Assessment. Scope of ecological surveys and assessment: Flora and fauna in Fung Shui woodland, woodland, shrubland, stream course, agricultural land, pond. Client: Eton Property; Committed in July 2003 and completed in 2004.

Proposed hotel development at the Old Marine Police Head Quarters at Tsim Sha Tsui, Kowloon: Tree Survey. July 2003.

Proposed Development at Sai Sha, Ma An Shan: tree survey. Client: Belt Collins Asia Limited. 2003.

Agreement No. CE 50/2001 (DS) Drainage Improvement in Sha Tin and Tai Po – Design and Construction - Ecology Survey. Being appointed by Maunsell Consultants to carry out ecological surveys of habitats, flora and fauna for the project. Scope of surveys include terrestrial, freshwater and marine environment. Committed in August 2002 and completed in July 2003.

Agreement No. CE 11/2002 (DS) Drainage Improvement in Sai Kung – Design and Construction: Ecology Survey. Being appointed by Maunsell Consultants to carry out ecological surveys of habitats, flora and fauna for the project. Scope of surveys include terrestrial, freshwater and marine environment. Committed in October 2002 and completed in July 2003.

Agreement No. CE 11/2002 (DS) Drainage Improvement in Sai Kung – Design and Construction: Tree Survey. Being appointed by Ted & Chan Associates to carry out all surveys for the project. Completed in June 2003.

Development at Ting Kok: Rezoning Application and Section 16 Application – Tree Survey. Appointed by

ADI Limited. Completed in 2003.

Proposed development at Lo Lau Uk, Tai Po: Stream ecological survey. Sub-consultant of Ecosystem Asia Limited. Completed in 2002.

Ecological Monitoring at WENT landfill - Vegetation monitoring on selected tree species and natural vegetation adjacent to operational landfill; Marine benthic in-fauna identification; bio-monitoring by oyster population, growth, health, survive rate and as well as metal/organic contamination. (Client: SWIRE SITA Waste Services Ltd.; 2001-2002).

Agreement No. CE 109/98, Deep Bay Link Investigation and Preliminary Design - EIA - Specialist Ecological Survey and Impact Assessment. Involved in two season ecological surveys on mangrove, inter-tidal in-fauna/epi-fauna surveys, stream fauna, mammal, reptile, amphibian surveys and fishery impact assessment. Completed in August 2002. (sub-contracted to EcoSchemes Asia Ltd.; Leading consultants: Ove Arup/EML)

Agreement No. CE 109/98, Deep Bay Link Investigation and Preliminary Design. Tree survey, completed part of the tree surveys. Appointed by EcoSchemes Asia Limited in 2002.

Proposed Development at Fung Lok Wai, Yuen Long at Lot 1457 R.P. in D.D. 123. - Tree Survey, Appointed by ADI Limited.

Ecological assessment of the proposed Theme Park project at Ma Wan – report revising and re-submission. Appointed by CH2M Hill (China) Limited in 2002.

Agreement No. CE 31/98, Lantau North-South Road Link between Tai Ho Wan and Mui Wo - Specialist Ecological Survey and Impact Assessment. Responsible for four season ecological surveys and ecological impact assessment and was commissioned in August 1998. The scope of work include terrestrial flora, fauna including avi-fauna, stream fauna, marine flora/fauna and estuarine fishes. (sub-contracted to Mouchel Asia Ltd., completed in March 2001)

Ecological impact assessment and damage quantification for AMORGOS Oil Spill in Kenting, Taiwan. (Client: confidential, commissioned in 2001 and completed in 2002).

Plant Inventory/Surveys for CLP 11k voltage power lines – (Client: Belt Collins Ltd., 2001- 2002).

Vegetation Inventory/Surveys for proposed CLP 11k voltage power line renovation between Tung Chung and Cheung Sha Wan, Lantau – (Client: CLP/BMT Asia Ltd., 2002).

Ecological review and preliminary impact assessment for a project of low density residential/recreational development of various lots in DD104 Yeun Long. The project involved design of mitigation wetland habitats. Apointed by Ove Arup in 2001.

Agreement No. CE 17/98 Development of an Ecological Monitoring Programme for the Mai Po and Inner Deep Bay Ramsar Site. (Client: AFD; sub-consultant of Hyder Environmental Ltd.) Involving the Study as benthic specialist. (2000).

Proposed development at Tong Fu, Lantau Island: Ecological survey and impact assessment. Ecological survey covered vegetation, birds, reptiles and large inveterbrates. sub-contracted to ERM Hong Kong Ltd., 2000.

Sludge Treatment and Disposal Strategy Study – Site Specific Feasibility Study: Ecology Study at Nim Wan Site. Ecological surveys covered vegetation, mammals, birds, reptiles, amphibians, large inveterbrates and stream fauna. (Client: EPD; sub-contracted to ERM Hong Kong Ltd., Completed in 2000).

Wetland off-site compensation study at out Deep Bay for site selection study of Waste to Energy Incinerator Facilities (Ha Pak Nai site). Ecological surveys covered vegetation, mammals, birds, reptiles, amphibians, large invertebrates and stream fauna. Client: EPD, Sub-consultant of CDM International, Completed in 2000.

Strategic Master Plan for Expansion of the Main Campus of The University of Hong Kong. Preliminary ecology survey and impact assessment for PPFS. . Ecological surveys covered vegetation, mammals, birds, reptiles, amphibians, large inveterbrates and stream fauna. (Client: The University of Hong Kong; sub-contracted to Over Arup & Partners Hong Kong Ltd., completed in 1999).

Agreement No. CE 5/96: Sludge Treatment and Disposal Strategy Study – Site Specific Feasibility Study: Terrestrial Ecology Surveys and impact assessment at Siu Ho Wan and Nim Wan site. (Client: EPD; sub-contracted to ERM Ltd., completed in 1999).

Preliminary Project Feasibility Study of the Proposed Lantau Cable Car between Tung Chung and Ngong Ping. Botanical and mammal surveys. (Client: MTR Corporation; sub-contracted to an environmental consultant firm, 1999).

Agreement No. CE 64/98 Study on Wetland Compensation. (Client: AFD; sub-consultant to Binnie Black & Veatch Hong Kong Ltd.) Involving the Study as a team leader in conducting wetland field surveys. (completed in 1999).

Waste-to-Energy Incineration Feasibility Study: Ecological habitat survey, stream fauna and riparian flora surveys at Ha Pak Nai. Habitat surveys at Tim Chim Chau and Black Point. (sub-contracted to CDM International Inc., completed in 1999)

Preliminary ecological survey at East and West Lake (constructed brackish water lake/or wetland) in Nanwan, **Macau**. (Client: Nanwan Development Ltd., completed in 1999).

Long Term Ecological Monitoring at SENT landfill - Mammal live-trapping: monitoring population of small mammals in the natural habitats adjacent to operational landfill. (sub-contracted to EcoSchemes Ltd., January to December 1998)

Nam Sang Wai Development - Ecological Monitoring: Benthic sample sorting, identification and biomass estimation. (sub-contracted to EcoSchemes Ltd., January to December 1998)

Proposed private development at Pak Kong, Sai Kung, conducting onsite tree surveys, responsible for tree identification and measuring over 1500 trees on site. (Completed in October 1998)

Agreement No. CE 24/97 Desilting and Renovation of Impounding Reservoirs on Hong Kong Island and Lantau Island Investigation Study, undertaking ecological surveys on flora and fauna. (sub-contracted to Enviros Hong Kong Ltd.; Completed in Jan. 1999)

Agreement No. CE 92/97 - Engineering Feasibility Study for Infrastructure Works for Housing Development at Telegraph Bay (cyber port site). Responsible for ecological surveys including flora and fauna. (sub-contracted to Enviros Hong Kong Ltd.; Completed in Jan. 1999)

Ecological recourse review of Shenzhen coastal line. Client: Shenzhen Land Bureau. (sub-consultant of Atkins China Ltd., Completed in November 1998)

Agreement CE 6/97 Feasibility Study for Housing Sites in Sha Tin District - Shing Mun Valley- undertaken the Additional Ecological Survey and Impact Assessment (main consultant: Binnie Black & Veatch Hong Kong Ltd.). (Completed in September 1998)

Agricultural expert's opinion on ten agricultural products of Hong Kong - a report for Henderson Land Development Co. Ltd. (completed in August 1998)

Agreement No. CE 66/96, Planning and Development Study on North West New Territory - conduct specialist ecological survey at a variety of areas in the New Territories in Hong Kong. (completed in June 1998)

Proposed Residential Development at DD 92; Development at DD 92; Lot Nos.D 92; Lot Nos. 2558, 915sC and 947;8, 915sC and 9Kam Tsin Tsuen, Sheung Shui, N. T.: Ecological survey and impact assessment.

Planning and Development Study on Hong Kong Island South and Lamma Island. Responsible for fauna surveys (birds, reptile, amphibians, stream benthos and large terrestrial insects) at a number sites including Fok Fu Lam area. Sub-contract to Atkins China Ltd, completed in 2001.

Proposed Section 16 Planning Application, Planning Application for Residential Development at Lot 101 & DD111, Yuen Long N. T.: Ecological survey and impact assessment.

Engineering Feasibility Study for Proposed Housing Development at North of Pamela Youde Hospital, Chai Wan: Ecological survey, impact assessment and reporting.

Route 9, Detailed Feasibility Study: Ecological Surveys (fauna) and Reporting.

Discovery Bay Development: shoreline/habitats survey and marine resources review.

EIA for Tin Kau Development: benthic ecologist responsible for identifying invertebrates collected from the stream and the estuarine.

Ecological Impact Assessment for a proposed resort development at Ngong Ping, Lantau Island: responsible for site surveying, stream benthic sampling, sorting, identifying, evaluating, assessing impacts and propose of ecological mitigation 1998.

1995.7-1997.3 Senior Environmental Consultant - Hyder Environmental Ltd. (formerly AXIS Environmental Consultants Ltd. Projects involved:

Deep Bay Water Quality Regional Control Strategy: Project Co-ordinator for a large study developing a management strategy for Deep Bay which borders Hong Kong and the PRC.

Shenzhen River Regulation Project Phase I: Environmental Monitoring and Audit Programme: Project Manager and specialist for the benthic and sediment sampling and sample processing at the Mai Po mudflats.

Shenzhen River Regulation Project Phase II Stage II Works: Project manager and specialist supporting Atkins Haswell Ltd. with environmental aspects especially ecological mitigation.

ECCI Calcium Carbonate Grinding Facility, Nanling, Wuhu, PRC: Site investigation, scoping of environmental impact assessment, costing and liaison with local environmental protection/regulation

authorities for a British invested factory.

Revised Sha Lo Tung Development EIA: Responsible for the ecological survey of three stream courses in the Sha Lo Tung valley.

Discovery Bay Development - Environmental Consultancy Services for Mangrove Restoration: Specialist to organise and carry out habitat, mangrove and rock shore surveys; supervise and undertake stream channel, mudflat design and nursery construction.

Literature Review on Chinese White Dolphin (*Sousa chinensis*): Supporting study for Hyder Consultants to provide information on spatial distribution and population of white dolphins; and to provide information on status and views of biological conservation of the species.

Part-time Tutor for Environmental Impact Assessment Course: Employed by Hong Kong Open Learning Institute as a Part-time tutor during April 1995 to April 1996 and October 1996 to April 1997.

1993 - 1995 Binnie Consultants - Environmental Scientist and Benthic Ecologist, Projects involved:

Tai Po and Butterfly Valley Additional Water Treatment Works EIA: Responsible for ecological surveys of terrestrial and freshwater flora and fauna, 1994.

Proposed Explosive Storage Development, Kau Shek Wan, Lantau: Responsible for the ecological survey of the site of the proposed explosive storage depot, 1994.

Ting Kau Bridge EIA: Ecological survey and impact assessment (terrestrial and freshwater flora and fauna) of proposed Ting Kau Bridge project.

North Lantau Port Development EIA: Ecological survey and EIA of the proposed port development site at Tsing Chau, Lantau.

Kwu Tung Residential Development EIA: Ecological survey and impact assessment (terrestrial and freshwater flora and fauna) of a proposed residential development at North and South of Kwu Tung, North New Territories.

Hoi Ha Wan Ecological Study: Studied benthic communities in streams and the estuary at Hoi Ha Wan, Hong Kong.

Along Bay Resort Development: undertaken a preliminary ecological assessment at Along Bay, a proposed

national resort development in Hainan, PRC.

WENT Landfill EIA: Involved in the ecological studies for the supplementary EIA and ecological monitoring at the WENT landfill site on the edge of Deep Bay.

NENT Landfill Environmental Review: Performed an ecological survey of the NENT landfill site as part of the Environmental Review of the project.

East Sha Chau Contaminated Mud Pit Environmental Monitoring: Benthic ecologist and team leader responsible for long-term benthic monitoring for the East Sha Chau contaminated mud pits during 1993-1995. Work included sampling, sample sorting, identification, data analysis and reporting.

South Cheung Chau Spoil Disposal Site Monitoring: Benthic ecologist and team leader responsible for benthic faunal sampling, sorting, identification and reporting.

Seabed Ecology Study: Conducted part of the Remote Seabed Survey (REMOTS) and also a benthic ecologist and team leader (of Binnie Consulting Ltd) undertook the 'Remote Ground Truthing' of benthic communities in west, south and east waters of Hong Kong. Work included project co-ordination, grab sampling, sorting, identification, data analysis and reporting 1993-1995.

Fill Management EIA of Ninepin Islands: Benthic ecologist and team leader undertook a baseline benthic study and impact assessment of the proposed dredging site near the Ninepin Islands. 1994.

Environmental Audit of Dredging in the Lamma Channel: Benthic ecologist and team leader carried out the baseline ecological study and impact assessment of dredging on benthic fauna in the Lamma Channel. 1994.

1991 - 1993 - Freelance ecological consultant, Project involved:

Team 73, Townland consultants and New World Development. Independent undertaken or involved the following projects:

Sha Lo Tung Development EIA: Ecological survey of proposed golf course development at Sha Lo Tung.

Mai Po Tsuen, Yuen Long and Tai Po Kau Development EIAs

1988 - 1993 The University of Hong Kong - Ph.D. candidate and part-time demonstrator for a variety of biological and ecological courses.

River/Stream Benthic Community and Water Chemistry Studies: Ph.D project studying macroinvertebrate communities in both polluted and unpolluted streams in Hong Kong. The project focused on the various environmental factors influencing animal communities and community structure. Both biotic (e.g. algae and riparian vegetation) and abiotic factors (e.g. water chemistry, substrate, hydraulics and organic pollution) were studied. A relatively new multivariate statistical analysis technique (CANOCO) was used to analyse large community data sets with multivariate environmental parameters. The data on the benthic community and some identified sensitive species could be applied to aquatic environmental stress assessment in Hong Kong.

1984 - 1987 Study for Master of Science degree at the Biology Department of Nanjing Normal University: Research on animal taxonomy.

1987 - 1988 Biology teacher at Nanjing Normal School: Teaching biology and Human Physiology.

1978 - 1981 Undergraduate at the Biology Department of Hunan Normal University: Project research on animal taxonomy. Undertaken plant phenology record of a variety of trees and shrubs.

Publications and Thesis (not including technical reports)

Shea She Sang (junior editor), 1986. Proceedings of Nature Calendar of China. Sinica Science press. 421 pp.

Shea She Sang and You, D., 1988. A new species of *Isonychia* from China (Ephemeroptera: Oligoneuriidae). Pan-Pacific Entomologist. 64(1): 29-31.

Shea She Sang, 1992. Benthic community transitions from freshwater to sea water at Hoi Ha Wan, Hong Kong. In The marine flora and fauna of Hong Kong and Southern China III (ed. B. Morton). Proceedings of the Fourth International Marine Biological Workshop, Hong Kong, 11-29 April 1989. Hong Kong University Press. pp. 801-814.

Shea She Sang, 1993. Determinants of macroinvertebrate community structure in stone surfaces in Hong Kong streams. Ph.D thesis. The University of Hong Kong.

Shea She Sang, 1994. The effects of water quality, epilithic algae and organic matter on the communities of stone-dwelling macroinvertebrates in a Hong Kong river. Mitt. Internat. Verein. Limnol. 24: 327-336.

Shea She Sang and Gui Hong, 1995. Studies on Ephemeroptera (Insecta) of Hainan Province. Acta Nanjing Normal University.

Shea She Sang, Lynn Smith and Pamela Sanders, 1995. Ecological Impact Assessment and Ecological Monitoring of a Strategic Landfill: A Case Study in Hong Kong. Proceedings of The First Symposium of Chinese Zoologist in Southeast Asian, Guangzhou, 14-17 December 1994. In Supplement to The Journal of Sun Yatsen University. 1995 (3): 30 - 39.

Cai Lizhe, Lin Peng, She Shusheng (Mark Shea) and Lawman Law, 1998. Studies on polychaete ecology on the mudflat of the intertidal zone in Shenzhen Esturay. Marine Environmental Science. Vol. 17 (1): 41-47.

Zhou Weichuan, She Shu-Sheng (Mark Shea) etc. 2006. STUDY ON GEOGRAPHY DISTRIBUTION MODEL OF *HEMIBERLESIA PITYSOPHILA*. (周卫川, 余书生 等: 松突圆蚘地理分布模型的研究). To be published.

Zhou Weichuan, She Shu-Sheng (Mark Shea) etc. 2007. A study on the land and freshwater mollusks as hosts of *Angiostrongylus cantonensis* Chen. (周卫川, 余书生 等: 广州管圆线虫中间宿主- 软体动物概述). Chinese Journal of Zoonoses Vol. 23. No. 4; P. 401-408.

WEI ji-ling, ZHOU Wei-chuan, SHAO Bi-ying, SHE Shu-sheng (Mark Shea), WANG Shou-kun, CHEN Wen-bing, CHEN Shou-ling. 2008. Establishment of a PCR assay for detection of snail infected with *Angiostrongylus cantonensis*. PCR 检测螺类感染广州管圆线虫方法的建立与应用. Chinese Journal of Zoonoses Vol. 24. No. 12; P. 1136-1140.

(end)