

ISSN 1816-9554

# Surveying & Built Environment

Vol. 32 Issue 1 ■ March 2023

# **Surveying & Built Environment**

THE HONG KONG INSTITUTE OF SURVEYORS

# Information

All rights reserved. No part of this Journal may be reproduced or transmitted in any form or by any means without the permission of the Hong Kong Institute of Surveyors. Contents of the Journal do not necessarily reflect the views or opinion of the Institute and no liability is accepted in relation thereto.

Copyright © 2023 The Hong Kong Institute of Surveyors  
ISSN 1816-9554



THE HONG KONG INSTITUTE OF  
**SURVEYORS**

香港測量師學會

## 總辦事處 Head Office

香港上環干諾道中 111 號 永安中心 12 樓 1205 室

Room 1205, 12/F Wing On Centre, 111 Connaught Road Central, Sheung Wan, Hong Kong

Telephone 電話: 2526 3679 Fax 傳真: 2868 4612

E-mail 電郵: [info@hkis.org.hk](mailto:info@hkis.org.hk) Website 網址: [www.hkis.org.hk](http://www.hkis.org.hk)

## 北京辦事處 Beijing Office

中國北京市朝陽區建國路 118 號 招商局大廈 3 樓 301 室 B08 號 (郵編: 100022)

Room 301 - B08, 3/F., China Merchants Tower, No.118 Jianguo Road, Chaoyang District,

Beijing, China (Postal Code: 100022)

Telephone 電話: 86 (10) 8219 1069

E-mail 電郵: [info-bjo@hkis.org.hk](mailto:info-bjo@hkis.org.hk) Website 網址: [www.hkis.org.hk](http://www.hkis.org.hk)

# Editorial Board

## ■ Honorary Editor

Sr Raymond Kam  
The Hong Kong Institute of Surveyors  
Hong Kong SAR, People's Republic of China

## ■ Chairman and Editor-in-Chief

Sr Professor K.W. Chau  
Department of Real Estate and Construction  
The University of Hong Kong  
Hong Kong SAR, People's Republic of China

## ■ Editor

Sr Professor Lawrence W.C. Lai  
Department of Real Estate and Construction  
The University of Hong Kong  
Hong Kong SAR, People's Republic of China

## ■ Editorial Assistants

Dr Mark Hansley Chua  
Institute of Policy Studies  
Lingnan University  
Hong Kong SAR, People's Republic of China

Mr Nixon T.H. Leung  
Department of Real Estate and Construction  
The University of Hong Kong  
Hong Kong SAR, People's Republic of China

## ■ Members

Sr Dr M.W. Chan  
Department of Building and Real Estate  
The Hong Kong Polytechnic University  
Hong Kong SAR, People's Republic of China

Dr Cecilia Chu  
Division of Landscape Architecture  
The University of Hong Kong  
Hong Kong SAR, People's Republic of China

Sr Professor Daniel C.W. Ho  
Faculty of Design and Environment  
Technological and Higher Education Institute of  
Hong Kong  
Hong Kong SAR, People's Republic of China

Dr John P. Lea  
Faculty of Architecture, Design & Planning  
The University of Sydney  
Australia

Emeritus Professor Andrew Y.T. Leung  
Department of Architecture and Civil Engineering  
City University of Hong Kong  
Hong Kong SAR, People's Republic of China

Sr Professor S.M. Lo  
Department of Architecture and Civil Engineering  
City University of Hong Kong  
Hong Kong SAR, People's Republic of China

Professor Graeme Newell  
School of Business  
University of Western Sydney  
Australia

Professor L.Y. Shen  
School of Construction Management and Real Estate  
The Chongqing University  
People's Republic of China

Professor Chris Webster  
Department of Urban Planning and Design  
The University of Hong Kong  
Hong Kong SAR, People's Republic of China

Professor Cecilia Y.L. Wong  
School of Environment, Education and Development  
The University of Manchester  
The United Kingdom

Sr Professor Charles M. S. Wong  
Department of Land Surveying and Geo-Informatics  
The Hong Kong Polytechnic University  
Hong Kong SAR, People's Republic of China

Sr Professor Bo Wu  
Department of Land Surveying and Geo-Informatics  
The Hong Kong Polytechnic University  
Hong Kong SAR, People's Republic of China

Professor Simon Y. Yau  
Institute of Policy Studies  
Department of Sociology and Social Policy  
Lingnan University  
Hong Kong SAR, People's Republic of China

## ■ English editing

Dr Stephen N.G. Davies  
Dr Peter Herbert  
Dr Chohong Choi



# Contents

## ■ Editorial

Experiences getting into World War II pillboxes	5
---	---

## ■ Research Papers

A Neo-institutional Economic Centennial Literature Review (1919–2019) of Research Publications on Land Readjustment <i>By Lawrence W.C. Lai</i>	6-84
---	------

Planning for Official Rest Time in Borrowed Official Space: An Exploratory Survey of the Use of Formal and Informal Open Spaces for Foreign Domestic Helpers in Hong Kong <i>By Lawrence W.C. Lai, Stephen N.G. Davies, Daniel C.W. Ho, K.W. Chau, Mark Hansley Chua, James Caswang, Nixon T.H. Leung, Locinda M.L. Kwan</i>	85-108
---	--------

## ■ Field Notes

Field Notes and Photos of Pillboxes on Hong Kong Island in the Era of World War II <i>By Robin Weir</i>	107-166
--	---------

## Editorial

### Experiences getting into World War II pillboxes



I entered the deserted pillboxes (PBs) either through their entrances or, if they were blocked, through their loopholes (Hong Kong Island PB14, JLO/WNC Gap PB1, and the PB above University Hall).

Although my purpose was just to take some photos for the benefit of recording details for research, the experience was valuable.

The first thing I looked for was any sign of a grenade explosion. Given the cleverly good ventilation designs of World War 2 PBs, no grenade could have entered a PB through its ventilation shaft.

In PBs (especially PBs 314 and 315 along the Gin Drinker's Line) that were never squatted and, therefore, less "homely," I often thought about the folly of wars, the repetition of human mistakes in history, and the neglect of people (no just soldiers and civilians) who suffered heroically. Inside these PBs, I can imagine the shadows of the defenders (of JLO/WNC Gap PBs1, 2, and PB 14) loitering.

Squatted PBs saw their inhabitants evicted, but they left behind relics that testify to the history of anonymous Chinese immigrants in Hong Kong moving up the housing ladder without government help during the 1970s and 1980s. Those who dwelled inside the PB

inside the Eurasian Cemetery did not bother to remove the huge earthen MG mounts added by the Japanese when they occupied Hong Kong. I wonder how they managed to live in such a cramped space caused by these mounts. There was once a squatted PB near a row of government "NDQs" (non-departmental quarters) whose last occupants were likely civil servants. It had flowering pots around its perimeter and a few bottles of unused perfume inside. Only a small portion of PB16's base, which stood at about the high water mark below the promenade from Deep Water Bay to Repulse Bay, has survived. On it, some floor tiles added by squatters can still be found.

For those PBs (at least four remain, as one needs another 11 years for its occupant to gain adverse possession) still used by squatters, they bring to mind the perennial housing shortage for the underprivileged in a growing Hong Kong and the innovative adaptability of their residents.

PB29 is unique, as it was certainly used as a restroom for construction workers of the American Club and neighbouring properties along Tai Tam Road. Hooks with keys on them, which might have served as workers' lockers (see photo), can still be found.

Most PBs have graffiti inside and outside. PB6, Waterfall Bay, was painted in blue. The PB above HKU's new Pathology Building has crosses painted in red by squatters. While hardly attractive, these signs pointed to the human will and desire for freedom of expression.

In 2010, the National Trust of Australia (WA) filed an application to conserve post-war squatter shacks for beach recreation as Australian heritage. By that standard, the PBs built before the Pacific War and sites of partisan activities in Hong Kong deserve far more attention.

# A Neo-institutional Economic Centennial Literature Review (1919–2019) of Research Publications on Land Readjustment<sup>1</sup>

Lawrence W.C. Lai\*

---

## ABSTRACT

This paper explains the meaning of “land readjustment” and presents reviews of all research work on land readjustment from 1919 to 2019, which are the unpublished source materials for **Lai et al. (2022)** in *Land Use Policy*.

## KEYWORDS

Coase, transaction cost, property boundaries, transfer of development rights, land readjustment, land pooling

## INTRODUCTION

A characteristic of land as exclusive property, whether in the form of a lot as part of a formal layout or plat, which forms the basic unit of modern town planning (“zoning” in a generic sense), or that of an informal customary (typically irregularly aligned) land boundary pattern, is that it has a well-delineated and unique boundary that defines, in Euclidean terms, its area and location (**Lai 2021, 2022; Lai & Davies 2017, 2020, 2022**). The form of land property is its boundary.

While the layout is resilient enough to withstand social changes due to property rights constraints (**Lai et al. 2020**), the uniquely delineated boundary of land lots can be revised (i.e., “adjusted”) by agreement or edict through a process of subdivision or land assembly to enable new developments that can no longer be accommodated by existing property boundaries (**Lai et al. 2021**).

While subdivision or land assembly under single ownership in the land market is easy, readjusting land boundaries under multiple private or communal owners incurs great transaction costs. As a coordinated organisational (**Coase 1937**) response to this problem, a mechanism or process called “land consolidation,” “land pooling,” or “land readjustment” has emerged.

---

\* Hon. Professor, Ronald Coase Centre for Property Rights Research, Department of Real Estate and Construction, University of Hong Kong. FRICS, FHKIS, MAPI. Email: wclai@hku.hk

1 This paper is dedicated to Jimmy C.F. Leung, the author’s placement mentor at Town Planning Office in 1984.

A synoptic account of the research landscape of this mechanism was offered in *Land Use Policy* by **Lai et al. (2022)**, hereinafter referred to as “our paper,” who, informed by neo-institutional economics, systematically reviewed individual studies from 1919 to 2019. This paper discloses all of these individual reviews, which were the source materials that **Lai et al. (2022)** did not present due to space constraints of the journal.

## AUTHORS WHOSE WORKS WERE REVIEWED

The authors whose works were reviewed are as follows:

1. Abd-Elkawy, A.A.M.
2. Acharya, Ballabh Prasad
3. Adam, Achamyeleh Gashu
4. Adams, David, Alan Disberry, Norman Hutchison, and Thomas Munjoma
5. Agrawal, P.
6. Alterman, Rachelle
7. Almeida, Joana, José Antunes Ferreira, Beatriz Condessa, and Ricardo Tomé.
8. Anderson, Robert
9. Archer, Raymon Walter
10. Arimoto, Yutaka
11. Asami, Yasushi
12. Asami, Yasushi, and Tamiki Ohtaki
13. Asano, Makoto, Chikashi Deguchi, Tetsunobu Yoshitake, Hiroshi Yokota, and Takanori Sata
14. Balakrishnan, Sai.
15. Bayartuvshin, Ganbat
16. Brain, Isabel and Pía Mora
17. Brennan, Ellen M., and Harry W. Richardson
18. Byahut, Sweta
19. Cain, Allan, Beat Weber and Moises Festo
20. Cashin, Daniel Joseph
21. Çete, Mehmet
22. Chau, K.W., Lennon H.T. Choy and Lawrence W. C. Lai
23. Chhetri, Ram Bhandari
24. Choe, Sang-Chuel
25. Chou, T. C., and S. K. Shen
26. Chun, Jin-Sung
27. Condessa, Beatriz, Marco Couto
28. Rodrigues, Ana Morais de Sá, and Ricardo Tomé.
29. Davy, Benjamin
30. de Souza, Felipe Francisco
31. de Souza, Felipe Francisco and Takeo Ochi
32. de Souza, Felipe Francisco, Takeo Ochi, and Akio Hosono
33. Devas, Nick
34. Dixon, Timothy, Noriko Otsuka, and Hirokazu Abe
35. Doebele William A.
36. Eberhard, María Cristina Rojas
37. Edamura, T. and T. Tsuchida
38. Ehlers, J.H.
39. Ellickson, Robert C.
40. English, Brian
41. Evans, Neil
42. Firman, Tommy
43. Go, V. and Lai, Lawrence W.C.
44. Gozalvo Zamorano, María Jesús and Muñoz-Gielen, Demetrio
45. Gurumukhi, K.T.
46. Habibi, Said Mustafa and Hiroko Ono
47. Hannah, Lawrence, Kyung-Hwan Kim, and Edwin S. Mills
48. Hartmann, Thomas and Tejo Spit
49. Hayashi, Kitotaka
50. Hebbert, Michael
51. Hein, Carola
52. Heller, Michael, and Rick Hills
53. Hewes, Laurence I
54. Hieu, Nguyen Ngoc
55. Home, Robert
56. Hong Yu-hung
57. Hong, Yu-Hung and Isabel Brain
58. Hong, Yu-hung and Mansha Chen
59. Hong, Yu-hung and Barrie Needham
60. Hong, Yu-hung and Julia Tierney
61. Hosono, Akio
62. Hu, Wei
63. Inadomi, Akira
64. International Union of Local Authorities
65. Ito, Shigeru
66. Javid, Habib Ahmad
67. Joshi and Shrestha
68. Jun, Myung-jin, and Seong-kyu Ha
69. Kalbro, Thomas
70. Karki, Tej Kumar
71. Kase, U. and Lass, K.
72. Kashyap, Poonam and Anil Kashyap

72. Khamaisi, Rassem
73. Kidokoro, Tetsuo
74. Kigawa, Tsuyoshi, Kyung Wook Seo, and Masao Furuyama
75. Kim, Hyoung-Soo, Young-Dai Lee, and Jun-Yong Lee
76. Kim, Ik-Jin, Myong-Chan Hwang, and William A. Doebele
77. Kim, Karl, and Robert B. Olshansky
78. Kim, Sung Hong
79. Kimura, Y., Matsumori, K., and Kurita, H.
80. Koide, Susumu
81. Korotkova, Elena
82. Kucukmehmetoglu, Mehmet, and Abdurrahman Geymen
83. Kung, James Kai-sing
84. Lai, Lawrence W.C.
85. Lai, Lawrence W.C. and Stephen N.G. Davies
86. Lai, Lawrence W.C. K. W. Chau, and Lennon H.T. Choy
87. Lai Lawrence W.C. Lai, KW Chau, Alwin Chan and Lennon, H.T. Choy
88. Larsson, Gerhard
89. Leeruttanawisut, Kittima and Paul Rabé
90. Li, Can, Zhang Fengrong, Zhu Taifeng, Yuan Yaqin, Gao Yang, and Wu Hao
91. Li, Ling Hin, and Xin Li
92. Li, Ping.
93. Li, Yang, and Xi Yin-Sheng
94. Lieban, Richard W
95. Liebmann, George W.
96. Lim, Gill-Chin
97. Lin, George C. S., Xun Li, Anthony G. O. Yeh, Shenjing He, Zhiyong Hu and Xingjian Liu
98. Lin, Tzu-Chin
99. Lin, Tzu-Chin and Hsiu-Yin Ding
100. Lin, Tzu-Chin, and Alan W. Evans
101. Lin, Jian, and Gang Li
102. Linke, Hans Joachim
103. Lozano-Gracia, Nancy, Cheryl Young, and Tara Vishwanath
104. Ma, Mingfei
105. Magel, Holger
106. Masser, Ian
107. Masuda, Tsuyoshi
108. Mathur, Shishir
109. Menezes, L. M.
110. Meier, Richard L.
111. Minerbi, Luciano
112. Minerbi, Luciano, Peter Nakamura, Kiyoko Nitz, Jane Yanai eds.
113. Mirams, A. E.
114. Mittal, Jay
115. Mittal, Jay, and Anil Kashyap
116. Miyazawa, Michio
117. Monk, Sarah, Christine M.E. Whitehead, Connie Pui Yee Tang, Gemma Burgess
118. Montandon, Daniel Todtmann and Felipe Francisco De Souza
119. Monteiro, Livia, Tiago Esteves Gonçalves Da Costa, Thiago Medeiros De Castro Silva and Leonardo Amaral Castro *et al.*
120. Mukherji, Anuradha
121. Mukhija, Vinit
122. Müller-Jökel R.
123. Mullin, John
124. Muñoz-Gielen, Demetrio
125. Muñoz-Gielen, Demetrio and Willem K. Korthals Altes
126. Muñoz-Gielen and van der Krabben
127. Nagamine, Haruo
128. Nakayama, Ichiro
129. Needham, Barrie
130. Norbu, Geley
131. Oredson, Vincent
132. Österberg, Tommy
133. Pearce, B. J.
134. Peter, Jacob Manohar Abraham and Harpal Dave
135. Pinilla, Juan Felipe
136. Pradhan, Tribeni
137. Pryor, Edward G.
138. Pugh, Cedric
139. Ragheb, Ghada, Hisham El-Shimy, and Amany Ragheb
140. Ray, Binayak
141. Renne, Roland R
142. Renner, G.T.
143. Rondinelli, Dennis A
144. Royal Institution of Chartered Surveyors (RICS)
145. Sagalyn, Lynne B
146. Sakamoto, Hideo
147. Schnidman, Frank
148. Schnidman, Frank
149. Schrock, Melissa Melissa Elaine
150. Schwarzwald, Brian, Roy Prosterman, Ye Jianping, and Jeffrey Riedinger



151. Seele, Walter
152. Shen, Zhenjiang, Mitsuhiro Kawakami, and Ippei Kawamura
153. Shen, Zhenjiang, and Mitsuhiro Kawakami
154. Shirai, Yoshihiko
155. Shultz, Michael M. and Frank Schnidman
156. Siman, B. B.
157. Sorensen, André
158. Stewart, John R.
159. Supriatna, Andri
160. Tabuchi, Toshio
161. Tan, Rong, and Nico Heerink
162. Tanmanee, Ittipong
163. Taylor, Carl C.
164. Thomas, Joachim
165. Tiits, Tambet and Aivar Tomson
166. Türk, Sevkiye Şence
167. Türk, Sevkiye Şence and Korthals Altes
168. Türk, Sevkiye Şence and Celil Türk
169. UN-Habitat
170. Van Den Brink, Adri
171. Van der Krabben, Erwin van and Barrie Needham
172. Van der Krabben, Erwin and Jean-Marie Halleux
173. Van der Krabben, Erwin and Harvey M. Jacobs
174. Viitanen, Kauko
175. Vitikainen, Arvo
176. Walters, Lawrence
177. Wang, Hui, Juer Tong, Fubing Su, Guoxue Wei, and Ran Tao
178. Wang, Ting, Guohua Zhou and Yan Yang
179. Wang, Tong-eng
180. Wangmo, Tashi
181. Wen, Guanzhong James
182. Yamazaki, Kenji
183. Yanase, Norihiko
184. Yau, Yung
185. Yilmaz, Ahmet, Volkan Çağdaş, and Hülya Demir
186. Yomralioglu, Tahsin, Bayram Uzun and Recep Nisanci
187. Zeluel, Abebe
188. Zhang, Xiaobo and Guo Li.

## PERIOD I: END OF FIRST WORLD WAR TO OUTBREAK OF SECOND WORLD WAR

### A British planning act, German and Japanese land readjustment

Imperial British India, Germany and Japan featured in the earliest period of English pre-war works on the subject matter, which have largely been ignored until the past 20 years.

The first work by **Mirams (1919)** has already been mentioned in our paper brought to our notice in the recent book chapter of **Home (2018)**, presents the provisions of the *Bombay Town Planning Act 1915* (first mentioned by **Liebmann (2000: 4)** who traces its subsequent development in post-colonial India in this review) as based on the German *Lex Adickes* for Frankfurt with specific reference to s.12. That section provides for the pooling of and redistribution of land in a “scheme” that determines “the size, shape and every reconstituted plot” for building purpose by consent of owners. The British Indian experience of adopting the German way of land readjustment was discussed in **Mirams (1924)** which considered that the colonial planning act was superior to the *British Town Planning Act*. **Home’s (2018)** excellent historical study on the British Indian land readjustment remarks,

“When town planning legislation was, following colonial office policy, rolled out to the British colonies in the 1930s (**Home 1993**), land readjustment was not included as a component in the planner’s “tool-box,” and the advisors who drafted the legislation were probably unaware of its possibilities, or even its existence. (**Home 2018:193**).

While the pragmatic British planners were ill informed and about land readjustment, the Americans had an early interest in it as applied successful and spectacularly in the Far East (**Mullin 1976**). **Anderson (1925)** reported briefly how the Imperial Japanese government devised and implemented a huge scheme that

involved the “readjustment of properties” of a metropolitan scale of 830 acres (335-9 ha) as the aftermath of the great earthquake and fire in Tokyo in 1923. **Anderson (1925: 104)** probably was the first person who coined the term “land readjustment”. Anderson’s work was followed soon by an 84-page US Department of Commerce’s report compiled by **Ehlers (1928)**, which fully studied and reported on the land readjustment schemes in the reconstruction of Tokyo. It found that post disaster permanent reconstruction proceeded very quickly in the suburb and slow inside the city. The terms of “land adjustment” and “readjustment of property lines” are used.

#### US and Japanese agricultural land readjustment

Twelve years after the Tokyo earthquake and 6 years after the New York stock market crash, the term “land readjustment” appeared in an agricultural scene in **Renner (1935: 151)**,

“We were asked to prepare a large section in the Report to the President dealing with those social and economic characteristics of the United States which indicate a need for land readjustment.”

The characteristics refer to “land-use maladjustment over the nation.” The subject actually referred to “maladjustment” in farming land uses rather than cadastral boundaries of urban properties. Such maladjustment was covered also by **Renne (1935)**, who was dealing with a kind of regional planning called “land adjustment” which would be the contemporary US parallel to Soviet central economic planning condemned by **Hayek (1945)**: shifting population around or “readjusting people to the land” to make sure the resulting rural population distribution pattern attains the optimal spatial spread of school and other civic facilities. Such “land adjustment” was discussed by **Taylor (1937)** towards the end of the Great Depression and on the eve of the Second World War in the year Japanese troops crossed Marco Polo Bridge in Peking. The remark “Rural zoning is proving a useful tool in land readjustment and will probably be more widely applied in the future” in a University of Michigan Master of

Forestry thesis by **Cashin (1939: 57)** is another example of this agricultural usage of the term land readjustment. It is uncertain if the “Land Readjustment Committees” (**Stewart 1939: 42**) in “Manchoukou” (or Manchuko), a puppet state erected by Japan in Manchuria, was dealing with rural land development readjustment in that place.

## PERIOD II: END OF SECOND WORLD WAR TO 1970: JAPAN, MAINLAND CHINA & SOUTH KOREA

The work of **Hewes (1949)** on readjustment of the land tenure programme in post war Japan has been mentioned in the text during the time of Operation Blacklist, was not a continuation of the type of US prewar studies on rural land readjustment. Instead of transferring and fitting people to land, the programme involved transfer of land and hence pointing back towards land readjustment in the mind of the legislator for the Bombay town plan. The rest of the works, all about Japan, show this well.

**Oredson’s (1954)** paper argues that both “land readjustment in Japan and urban redevelopment in the United States, as authorized by the Housing Act of 1949, are attempts at assembling large areas of land by equitable means for the purpose of redesign” (p.19) and the Japanese experience, albeit met with “fierce opposition” by many landlords, was “an encouragement to us in America to attempt more urban redevelopment.” A total of 700,000 acres of urban land in Japan was planned to be adjusted by the end of 1954.

The work of **Lieban (1955)** traced the history of land readjustment in Ryukyus from the pre-war, *Okinawa Land Readjustment Law* of 1899 to the survival of the indigenous *jiwari seido* system on Kudaka Island in post war Ryukyus. The concluding statement (p. 155) is instructive about the economic incentive for land readjustment to date.

“Land, little prized before the war, is now even less important and more available.

And the question of private rights in land is of little or no consequence to any one in Kudaka.”

A MIT Masters of Architecture thesis by **Akashi (1957)** covered details of urban land replotting and redevising under a “Land Readjustment Council.” A total of 1,583 projects covering 103,100 acres were reported. Koide published a series of five papers (**1960, 1961a, 1961b, 1961c, 1961d**) in Japanese with English abstracts, good drawings and/or tables, entitled “On the Land Readjustment.” In **Koide (1960: 387)**, it was summarised,

“The land valuation is very important for the treatment of land gathering. The Department of Agriculture and Forestry of Japan now expects that the replotting of arable land is performed not proportional to the area but to the land valuation and the cost of construction is imposed upon a person according to his land’s value.”

The second, third and fourth works of **Koide** commented, respectively, on the readjusted widths of roads and straight line replotting on hilly areas, organisational matters like low wages of directors and staff of the land improvement wards, and cases of rural land replotting and possible grievances of farmers. **Nakayama’s (1960)** economic treatise touched on pre-war farm land readjustment as a government involvement in the Meiji economy. The MIT M.A. thesis of **Inadomi (1960: 7)** covered the result of the land readjustment programme after the 1923 earthquake and fire: a total of 203,280 houses were removed and 52 playgrounds added “at the expense of the landlords,” presumably in terms of land surrendered. **Ito (1964)** presents how the Japanese Housing Corporation planned in 1960 to develop Kozoji hills of the north-eastern part of Aichi Prefecture as a new town according to a land readjustment scheme. This is the probably the first reported post war example of land readjustment for new urban development. The work of the same year by **Sakamoto (1964: 33)** remarks that farmers along the coastal villages of the Pacific coast started their forcing culture (horticulture) as “they cannot trust any

longer in the plowed land, because of small and unsystematic land readjustment, scanty water for irrigation (in needy circumstances) and plenty of soil fatigues.”

**International Union of Local Authorities (1965)** is important as it examines issues and problems of land readjustment in Japan, a type of mildly critical work that was rare. The next example is the comment in the paper of **Devas (1983)** many years after.

**Schirai (1967: 46)** summarised the differences between rural land readjustment in Japan before and after the war.

“Arable Land Readjustment Law was in execution before the last war, which was promoted mainly for the purpose of landowner’s pursuit for a differential rent. According to the law, land properties were exchanged only among the land owners of a small scale and all others were left unchanged. Under the Land Improvement Law of 1949, farm-land consolidation has been carried on for the development of agricultural mechanization and rationalization of agricultural management by the initiative of peasantry and the help of the Ministry of Agriculture and Forestry. The work was done at 9,123 localities with the total area of 1,686,551 ha, or 31.6% of the total farm-land area (1959 to 1960).”

For a good account of the institutional aspect of the Arable Land Readjustment Law in Japan, **Masuda’s 1967** work is indispensable. The work of **Tabuchi (1967)** discovered that the effect of rural land readjustment under joint operations did not differ much from private concerns based on smaller private plots due to several practical obstacles. This seems to be another real life demonstration of the invariant theorem at work.

While in this post war period there was hectic research with hard facts on Japan, we found only one work on communist China. The passionate Iowa University Ph.D Thesis

of **Wang (1966)**, completed in USA at the beginning of the Cultural Revolution based on highly suspect censored statistics, mentioned “land readjustment” of rural communist China. It has not a single word on human lives other than those due to natural calamities over the years before the communist party captured the government of China in 1949. In all fairness, this thesis must be read in the light of accounts that present statistics other than those officially released at the time.

The CCP under Deng characterised the Cultural Revolution as “a decade of disasters” during which the economy was very poor while the “four little Asian dragons” flourished. One of these little dragons was South Korea. **Meier (1970)** noted that for this dragon “most of the land readjustment is intended to raise circulation space in cities from 7.2 percent at present to 20 percent or more to accommodate the coming “My-Car” days.”(387-388) Though the passing remark was about affluence, the practice of land readjustment in the country was first mentioned. There was no mention that the Korean land readjustment programme was introduced in 1937 under the rule of Japan (**Brennan and Richardson 1989: 123**), and likewise of German planning origin.

### PERIOD III: 1971 TO 1982: AUSTRALIA & SOUTH KOREA APPEARING ON THE SCENE

This is a period for which further searches for any literature on land readjustment should be carried out. The works found focused on Australia and Japan. Six works written by Australian researcher **Archer (1976a, 1976b, 1976c, 1977, 1978, 1980)** are specifically about Perth but also more generally Australia and Asia. The term “land pooling”, practised in Perth, was used as an alternative to land readjustment. The common focus of these works was on “large scale-development,” which refers actually to redevelopment to capture potential land value. **Archer’s (1981)** bibliography on land readjustment in Asia and West Germany was a useful reference for research materials of Germany after the work of **Mullin (1976)**,

which reviewed the legal and policy connection between German and US town planning until 1916. At the end of this period saw an important work on South Korea edited by **Doebele (ed.1982)**.

Most articles on land readjustment published in this period were written by Archer. Six of these were obtained and reviewed here, which all use the term “land pooling”.

**Archer (1974)**, then with Metropolitan Research Trust, Canberra, refers to “land pooling” in relation to compulsory land purchase for a landowner-developer but does not explain this term in terms of readjusting land boundaries. In line with planning school ideology of the time, this paper subscribes to the market failure thesis for “urban fringe” areas.

**Archer (1976a)** is a typewritten manuscript dealing with land readjustment in the name of “land pooling” which is defined as

“a technique for consolidating land holdings so that they can be serviced and subdivide as a whole and the costs shared between landowners. It provides a means of improving the efficiency and equity of urban development and land use.” (**Archer 1976a: 1**)

What is the meaning of “efficiency” and “equity”? The manuscript addresses efficiency by defining the problem of the Australian planning scheme system, a zoning system based on the *British Town and Country Planning Act 1932*, as being unable to prevent conversion of rural to urban uses along the urban fringe from resulting in fragmented development. As land assembly of urban fringe land under fragmented ownership for large scale and comprehensive property development by a consortium is “difficult and costly” and as there is strong political opposition to land acquisition by government, financially constrained, land pooling is the best option to achieve “*rapid and efficient urban development to a good standard.*” Equity is directly addressed but the practice is considered feasible politically, financially and administratively. The two maps



of the *Town of Canning Town Planning Scheme No. 26* (approved by Minister in June 1973) is shown between page 24 and 26. The manuscript makes reference to international experience of land readjustment in Japan, South Korea and Taiwan citing respectively a document of the United Nations (**Sah 1972**), a draft of **Doebele (1976)** for the World Bank and a document of the provincial government of Taiwan (**Land Bureau 1971**).

**Pryor (1976)**, who retired in 1999 as Principal Government Town Planner of the government of Hong Kong Special Administrative Region, shows how private rural land lots in an area of the New Territories of Hong Kong, which retain the irregular cadastral boundaries typical on customary Chinese land holdings, are readjusted to conform to an urban layout using an ingenious government issued interest-bearing “I O U” (called Letter A/B) which can be freely traded. This work was discovered from the citation by **Archer (1981)**.

**Archer’s (1977)** work is a sequel to **Archer (1976b)**, which cites his own work on land pooling in Perth (**Archer 1976a**), develops the thesis that a statutory planning framework of Australia should be extended to cover land planning and management to address particularly the issues of suburbanisation at the urban fringe.

**Archer (1978)**, like his 1976 paper, discusses the use of land readjustment under the term “land pooling” in Perth. This paper is a landmark in Archer’s discourse. Here, his ideas merge with those in “mainstream” land readjustment. This paper defines land pooling this way,

“Land pooling is a technique for consolidating private landholdings so that they can be planned, serviced and subdivided as a whole with the costs spread across all the lands and recovered from the increase in land values.” (**Archer 1978: 397**)

The content of land pooling is:

“A pooling project can be viewed as a

compulsory partnership between the land owners and between the council and the landowners, for the servicing and subdivision of their lands as a unified estate. The council is the land subdivider and the planning scheme prepared to define and regulate the project can be viewed as a partnership agreement between the council and the landowners.” (**Archer 1978: 401**)

The technique is not limited to the urban fringe and is now connected with mainstream land readjustment via what has been applied to the urban fringe of Japan:

“The pooling of privately-owned lands for urban development is a common practice in Japan, South Korea and Taiwan, mainly in response to the difficulties of subdividing numerous small and irregular shaped farms into a regular pattern of streets and building sites (SAH, 1972; DOEBELE 1976; and THE LAND BUREAU 1971, respectively). (**Archer 1978: 398**)

Archer champions for land readjustment based on the Western Australian experience:

“The Perth experience has shown not only that pooling is a technique for improving urban development under private landownership but also that it is a technique which is politically feasible, financially feasible and administratively feasible and can be undertaken by local government.” (**Archer 1978: 407**)

Planning gain through project contributing financially to public infrastructure and dedicating land for public uses is a factor in his support for compulsory partnership.

In this work, the land readjustment scheme for Tribute Street under the Town of Canning Town Planning Scheme No. 26, first appearing in **Archer (1976a)**, is reproduced at Figure 1, page 402. This will feature again in his future (say **1982, 1988**) publications and in the works of **Larsson (1993: 77)**.



Though he was aware of land readjustment in Japan (**Archer 1976a**), this paper does not mention the technique used in Japan to readjusted property boundaries of Tokyo-Yokohama in the 1920s after the earthquake.

**Archer (1980)** describes the legislative framework of land pooling in Perth under the *Town Planning and Development Act, 1928-1974*, which authorises councils to make and implement “planning schemes”; analyzes the pros and cons of this practice and makes suggestions to apply land readjustment more systematically, at a large scale as well as to cover also planning schemes devised by councils for “guided development.” Good illustrative materials including maps and scheme statistics are presented.

The work of **Doebele (1979)** is first most important English work on South Korea’s land readjustment. It treats the contribution of land by landowners as a form of taxation in kind.

The paper by **Pearce (1980)** is clumsy in its classification of property rights regarding land interests by leaving out rights to *income* and confusing *distribution* with *allocation* of rights. The work is not informed by the tradition of **Coase (1937, 1960)** as developed by such economists as **Cheung (1974, 1978)** on regulation or Austrian economics, which is basically libertarian. However, it is highly important from a planning history perspective, as it is a leading British planning work that imports US neo-institutional concepts of property rights referencing the important works of **Demsetz (1967)** and **Burton (1978)**. Yet, it is basically hesitant in championing the practice. For the purpose for this review, what is the most relevant is that US methods for freeing new development from the fetters of old property boundaries like the transfer of development rights (expressed less precisely as “transferable development rights”) (TDR) and land readjustment (expressed after **Archer (1978)** as “land pooling”) are presented as tools of “implementation” of land policies. TDR is considered unable to deal with “the sources of land value inequities” (143) and land readjustment is deemed fit only for

“relatively small scale development” (141), an understanding that would be corrected by reference to the history of land readjustment in Japan and South Korea.

**Archer (1981)** is a type-written annotated bibliography which was common before the advent of e-journals to help students and researchers to grasp the landscape of research for a subject. This work gives a very clear account of why Archer prefers to use the term “land pooling” rather than land readjustment.

“Land pooling is a technique for managing and financing the land development stage of new urban development. It is also known as land readjustment, land redistribution and land consolidation, because it involves these processes. Pooling involves the consolidation of the separate private landholdings in urban-fringe areas for their planning, servicing and subdivision as a single estate with the sale of some of the new to recover costs and the distribution of other sites back to the landowners. Each land pooling project is therefore compulsory partnership of the landowners in each pooling area for unified land development, with the sharing of project costs out of the land value increases.” (**Archer 1981: 1, underline authors’**)

Archer treats land readjustment as only a step in a development process that necessarily involves compulsion. He reports that land readjustment originated in Germany and has spread to Japan, South Korea, Taiwan, Australia and India. The reference to India is novel but references cited and annotated exclude this country. The work does not have a parallel structure expected. There is a country summary for Australia, for which Archer contributes five items, but not the other four countries. There is no summary of key ideas or points for every work referenced. An interesting reference is that written by **Pryor (1976)** on Hong Kong and Taiwan reviewed above.

**Doebele’s (ed. 1982)** work is the first book edited

in English on land readjustment. It is essentially a collection of various papers presented at a conference titled “Land Consolidation: its Potential; for New Urbanisation at the Rural Fringe.” jointly held by the Lincoln Institute of Land Policy, the Land Reform Training Institute, and the World Bank on 6-13 June 1979 month. Of interest of the nine conference papers collected are those by **Archer (1982)**, **Chou and Shen (1982)**, **Hayashi (1982)**, **Kim et al. (1982)**, **Miyazawa (1982)** and **Seele (1982)**. Note that “the conference voted to change the term *land consolidation* to land readjustment to avoid confusion with agrarian reform programs.” Six chapters are selected for review.

**Archer (1982)**, chapter 3, presents the case of Perth. The most valuable part of the book chapter is Appendix 3A, which is a case study on the Tribute Street Land Pooling Project 1972/1974 Project of the Canning Town Municipal Council, as it reproduces the scheme maps one first shown in **Archer (1978: 402)** referred to above.

The work of **Chou and Shen (1982)**, chapter 5, uses the case of Kaohsiung with good illustrative maps to illustrate how land readjustment can be adopted as a mean to solve urban problems like overpopulation, squatting, and badly-organized development. It explains why regulations regarding land readjustment ought to evolve and how they have evolved.

Chapter 6 by **Miyazawa (1982)** examines the first application of land readjustment in Japan from Meiji Japan. It offers two observations: (i) land readjustment is mostly public sector-led when adopted in central urban areas and (ii) land readjustment is mostly private sector-led in the rural areas. Figure 6.1 is a conceptual diagram that shows that a typical original 90 to 10 private-public land share in a place became transformed upon readjustment to one of 30 to 35 to 35 being public-Japan Housing Corporation-Private.

**Hayashi (1982)** at chapter 7 describes the intensive use of land readjustment in urban development of Nagoya. He reports that the main criticism is that land owners make huge

profits. However, he considers there is no more effective way to carry out “extensive urban development” in Japan.

The account of **Kim et al. (1982)**, chapter 8, is on South Korea’s extensive application of land readjustment and some case-specific complications. Its introduction is highly instructive:

“In South Korea (hereinafter called Korea), no particular organisation pushed the concept of land readjustment. Rather it has its roots in traditional concepts that originated about forty years ago...the present method...by local governments, which are given the responsibility for implementing the projects after consultation with a committee of private owners.” (**Kim et al. 1982: 127**)

Again, a clear avoidance of connection with Japanese rule but indication of consensus building among land owners as a norm. The chapter is well written and shows steps to land readjustment clearly with supporting statistics.

**Seele (1982)**, chapter 9, examines the development of land readjustment in the Federal Republic of Germany (former West Germany), with a tradition of land readjustment that can be traced back to the 19 century. It traces the evolution of land readjustment as a complicated instrument of “land organisation”. Two real cases, with maps showing land parcel-road plotting before and after readjustment, in Appendix 9A, are highly useful.

“Land readjustment is an instrument for land organization, which means both the provision of land needed for public purposes (especially transport and green areas and ground for public use) and the suitable formation (location, shape, size) of private land according to the rules of town planning. Land organization can come about by voluntary arrangements (private land organization) or by compulsory measures (sovereign land organization). Sovereign land organization is only utilized when the

desired purpose cannot be attained by private land organisation.” (Seele 1982: 175)

“Compulsory readjustment makes possible the execution of planning according to a development and microzoning plan that meets the housing requirements as well as the interests of the economy, energy, water supply, requirements for sport leisure and relaxation, as well as traffic, nature protection, preservation of the countryside, and environmental control. However, it does not always satisfy the interests of landownership (willingness to sell, economic and political status of landowners, size and shape of lots). On the other hand, it forces a critical discussion of the landowner’s interests and does bring about balanced and realizable planning.” (Seele 1982: 193)

“It also makes possible a fruitful division of duties and cooperation between the local authority, as land-use planner and provider of services on the one hand, and the landowners and commercial builders, as developers of actual buildings on the other hand. The local authority receives the land needed for local roads, green areas, and playgrounds and without any payment. The private builder-owners and commercial builders are able to calculate quite certainly to avoid investment failures.” (Seele 1982: 193)

The paper by Yamazaki (1981) is the most recent one written in Japanese with an English abstract that we obtained from the web under this review. It is a case study of the Horie Land Adjustment Project. Referring to land readjustment as “a mother of town planning,” the paper reports that land adjustment projects in Tokyo under the Land Readjustment Project Act are mostly promoted by an individual or an association, and account for the largest percentage in terms of both number and area. Horie was reclaimed from marshes in the middle of Edo Period by the inhabitants of Urayasu to become farmland for laver and

vegetables. By the 1960’s, land subsidence caused the inundation of land. Moreover in 1963, the reclamation of Tokyo Bay deprived the inhabitants of the right of laver cultivation. Private enterprises and real estate agents bought the marshes speculatively. The building of the Tozai Subway Line fostered the Horie Land Readjustment Project in 1968. The important point to note is that most of the leaders of the project were chosen from absentee owners who were land speculators. The completion of the project results in small houses densely built on a reclamation formed by industrial waste which renders farming unsuitable.

Ray’s (1982) book review on Archer (1980b), which is a monograph of the Australian Institute of Urban Studies, is a good example of a poorly written criticism. This review reflects that the reviewer did not pay attention to the references in Archer (1980b) or his other works. The contribution of Archer is promoting a useful planning tool based on solid Western Australian experience and corroborated by years of well-documented practice in Germany, Japan, Korean and Taiwan. That he criticises the cases of South Korea and Taiwan for being “by any definition do not representing a small part of the developing world” indicates some ignorance of the value of case studies of successful examples. Ray (1982) seems satisfied only with a step by step guide to land readjustment for every country on earth! Such a guide will come 36 years after in de Souza *et al.* (eds. 2018) and Hong and Tierney (eds. 2018).

## PERIOD IV: 1983 TO 2000: DEVELOPMENT ALL OVER THE WORLD

This period saw the end of the Cold War and rapid globalisation. In the planning scene, the commodification of rural and urban land accelerated as former and surviving socialist regimes liberated their markets to different extents, if not their societies. Land readjustment became seen less as an urban land control than an urban development tool. After the book *Land Readjustment* edited by Doebele (ed.1982) in the last period, the book edited by

**Minerbi et al. (eds. 1986)** *Land Readjustment: the Japanese System* is the landmark text in this period.

**Devas (1983)** discussed several possible land policies for urbanizing Jakarta and drew attention to some issues of land readjustment as an option,

“The disadvantage is that it needs careful surveying of plots and a precise redivision, which require technical skills and which may be difficult where the land is not of uniform quality. It also tends to reinforce existing inequalities in land ownership, since owners benefit in proportion to the size of their original landholdings. Furthermore, in the case of Seoul, South Korea, where land readjustment has become the main way in which land for housing is made available, the municipality has tended to limit the supply and hence maintain a high price for serviced land, in order to maintain the viability of its schemes.”

These comments by **Devas (1983)** were echoed in a subsequent work by **Sorensen (1999)**.

**Archer**, then based in the Asian Institute of Technology (AIT), produced at least nine more works (**1986, 1987, 1988, 1990, 1992a, 1992b, 1994, 1997, 1999**) in this period. The first one was on Bangkok, the next one on Perth, followed by Medan, Indonesia; Thailand and Jakarta. All except the first works were well illustrated by drawings of the projects.

Archer's first paper (**Archer 1986: 155**) gave a useful summary description or definition of land readjustment,

“Urban land-pooling is a technique for carrying out the unified servicing and subdivision of separate landholdings in urban-fringe areas for planned urban development. It is also known as “urban land consolidation”, “land readjustment”, “land replotting”, and “land redistribution” in particular countries because it involves these processes.”

**Archer (1987)** discusses the possible adoption of urban land pooling in Thailand as a technique to manage and finance the future development of Bangkok. At footnote 3, Archer distinguishes land pooling from land readjustment not in the sense that the latter is only a step of the former (**Archer 1976a**) but as legally different:

“Although the pooling projects in Western Australia are very similar to the readjustment projects undertaken in Japan, South Korea and Taiwan, there is an important legal difference between pooling and readjustment. Under land pooling the separate landholdings are actually pooled with the transfer of ownership to the .....(**Archer 1987: 251-252**)

His next paper (**Archer 1988: 207**) states,

“Landpooling is a technique for the unified subdivision of separate private landholdings in urban fringe areas. Land pooling/readjustment (LP/R) is a technique for managing the planned development of urban-fringe lands, whereby a government agency consolidates a selected group of land parcels and then designs, services and subdivides them into a layout of streets, open spaces and serviced building plots, with the sale of some of the plots for cost recovery and the distribution of the remaining plots back to the landowners to develop or to sell for development.”

The abstract of **Archer (1989)** reads:

“Urban land pooling/readjustment (LP/R) is a land development technique in which a group of adjoining land parcels in a selected urban...fringe area are consolidated by a government agency for their unified planning, servicing and subdivision with the sale of some of the new building plots for cost recovery and the redistribution of the other plots to the landowners. It is widely used in Japan, South Korea and Taiwan and in some cities in Australia and Canada, and has



recently been introduced in Indonesia and Nepal.” (Archer 1989: 331)

Footnote 5 concludes Archer’s understanding of the term land pooling:

“The technique has different names in different countries, including land readjustment in Japan and Korea, land consolidation in Taiwan and Indonesia, land pooling in Australia and Nepal, and land replotting in Canada. But it is essentially the same technique and the present writer finds it useful to use the words pooling and readjustment together in order to indicate this and to give it a name that is self-explanatory.” (Archer 1989: 307)

The importance of this paper of Archer is that it reports in an academic journal the land readjustment process in Nepal and this predated Karki (2004). It also mentions Canada but provides no reference.

Hebbert’s (1986) analysis, also focused on the urban fringes, found land readjustment as a driver of “urban sprawling” treated in the same pejorative sense as that by Abercrombie (1933). Hebbert described land readjustment this way,

“Nothing better demonstrates the active participation of the small farmer in the urban development process in Japan than the widespread phenomenon of the land readjustment associations. Land readjustment, *Kukakuseiri*, is a cooperative technique of local area development, applicable equally to agricultural improvement, urban development and urban renewal projects, whereby landowners temporarily pool their holdings within a framework of public law in order to develop an area according to a common plan and programme. Once the improvements have been made the association disbands and each owner emerges with a holding of enhanced value which will be smaller and may be differently located but corresponds equitably with the original

stakes. The technique originated in nineteenth century Germany and has been applied widely in Japan since it was first introduced - principally for paddy field improvements - in 1899.” (Hebbert 1986: 151)

The book edited by Minerbi *et al.* (eds. 1986) *Land Readjustment: the Japanese System* traces land readjustment law in pre-war and post-war Japan to German planning law and offers a conceptual model with excellent illustrative materials.

Nagamine’s (1986) paper of the same year covers Japan. This paper is instructive. It does not only offers an interesting personal insight that the admirable Japanese industrial quality was due to poor living conditions but also the expert finding that,

“It would be fair to say that it is almost solely *Kukakuseiri*, or the Land Readjustment (hereinafter LR) that effectively worked as a systematic device for urban land development in Japan. In fact, urban land development under LR has invariably constituted no less than half of the annual urban land supply throughout the last two decades or so.” (Nagamine 1986:51)

Therefore, to studying land readjustment for urban and peri-urban development in a planned manner, Japan is a model for both the developed and developing countries.

The paper by Doebele (1987) is basically a typical “housing paper” centred on shelter for the poor in developing countries but makes a passing reference (18) to land readjustment as a major policy approach of South Korea. Doebele (1987) is an interventionist as he sees a conflict between equity and efficiency (property rights) and favours interventions like rent and price controls. In the same vein, Lim (1987) in this Thatcher-Regan era sees land readjustment as a form of “direct engagement of the public sector” beyond planning by zoning to correct “imperfections and failures” in the land market, something about which Coasian economists



have another story to tell (**Lai 1994**).

**Masser's (1987)** overview of three contributions to the *Third World Planning Review* on land readjustment, considers it as a matter for developing countries based on Japanese experience.

**Acharya (1988)** with AIT evaluates the applicability of land readjustment to urbanizing South Asia.

“The technique of land-pooling/readjustment (LP/R) has been gaining wider recognition as a powerful tool to address many of the urban land related problems. Urban LP/R is a land development technique for the unified design, servicing and subdivision of separate land holdings for planned urban development. The technique is widely used in Japan, Taiwan and South Korea, and in some cities of Australia and Canada.” (**Acharya 1988:103, underline authors'**)

From the stance of land control, **Menezes (1998)** compares 12 countries and found major government interventions in India, Singapore, Hong Kong, South Korea. However, only Japan and South Korea used land readjustment. This observation ignores village re-siting layout planning for indigenous villagers in Hong Kong (**Pryor 1976**) or “plot reconstitution” under town planning acts of various states of India after independence (**Gurumukhi 2009**).

**Schnidman's (1988)** work is a good summary review of the international practice of land readjustment with two map illustrations (at pages 3 and 4) borrowed from a map (also used in **Minerbi et al. (eds. 1986:88)** and **Larsson (1993: 20)**) from a 1982 publication of Nagoya City Planning Bureau and another apparently from the *Carning Town Planning Scheme No. 26* (see **Archer (1976a: between p.24 and p. 25; 1978:402; 1980: 78-79; 1982:49; 1988:214; Archer 1990; Archer 1997; Archer 2000)**). It is a very useful demonstration of a real life scheme for students and researchers.

The work of **Brennan and Richardson (1989)** examined housing problems of ten Asian megacities and identified land readjustment in South Korea as an example of “the most active intervention in the land market”(123), whilst not seeing it as an institutional reform to facilitate the land market to work more efficiently.

The paper by **Rondinelli (1989)** under the heading cost recovery has this to say regarding the meaning of land readjustment and its significance in revenue collection in local governments of development countries:

“The costs of providing services are recovered by taxing surplus value created by public improvements on or near private property. Land readjustment programs — whereby land owners pool their property for service improvements and contribute a sufficient amount of land to compensate government for the cost of services and infrastructure — have been used effectively in Korea, Taiwan and Thailand to recover the costs of servicing land that is likely to be developed in the near future (Doebele, 1979; Archer, 1987). When they are applied effectively, user charges encourage fiscal discipline among both service providers and service users. The World Bank (1988b) reports that in a survey of 25 countries user charges accounted for nearly one-third of all locally raised revenue. One advantage of user charges is their flexibility; they can be adjusted as costs change.” (**Rondinelli 1989:87, underline authors'**)

**Masser (1990)** discussed international transfer of planning practice using land readjustment as an example, referring to Germany and Japan, then South Korea.

“Land readjustment is a technique for the pooling and reallocation of individual land holdings developed in Germany to facilitate the consolidation of fragmented agricultural holdings. At the end of the 19th century attempts were made in some German cities to utilize these

procedures to deal with the development of land on the urban periphery. The object in this case was not only to reapportion holdings but also to facilitate the provision of urban infrastructure - roads and essential services. Despite its inherent attractiveness land readjustment has not been extensively used for urban development in Germany. However, the basic ideas were picked up by Japanese planners at the end of the First World War and incorporated into legislation designed to control urban development (**Masser 1990:28**)

**Masser** did not connect South Korean land readjustment to Japan, however. That embarrassing connection was avoided:

“At the same time, further modifications and adaptations have taken place to meet the needs of neighbouring countries such as Korea which has developed its own particular brand of land readjustment over the last twenty years.” (**Masser: 28**)

The work of **Shultz and Schnidman (1990)**, cited in and **Hong (2007a)** as well as **Heller and Hills (2008)** reviewed later, is the first on in our review that is a sign of the rise of neo-institutional economics by comparing land readjustment with land taking (in connection with urban renewal) as policy options and by taking into account landlord participation as a significant feature, though it is interventionist by accepting the concept of “pre mature subdivision”. It brings up real life US examples of land readjustment from George Washington’s L’Enfant Plan for Washington D.C. It point out that land readjustment requires a substantial rise in land value, pointing to boundary re-delineation as a means to capture development potential. **Siman’s (1990)** work, unlike this joint paper and the aforesaid work by **Schnidman’s (1988)**, does not promote land readjustment as a potential method for addressing land use problems fit also for common law jurisdictions. It positions land readjustment as practised in Japan as a manifestation of a European view of the state that differs much from that in line with the common law.

“Planning is the most important of these areas in terms of legitimising State action, since it infringes on the core element of traditional concepts of civil society and democracy, i.e., property rights, and since it demonstrates practically the degree of legal certainty available to citizens and administrators, legal certainty being the cornerstone of Western democracies, provided either by express administrative law on the Continent (thus giving force of law to land use plans, and adopting Master Planning), or through the wisdom of Common Law judges in England, thus leaving a greater room for flexibility and subsequently adopting non-binding administrative, rather than legal plans (structure plans). These aspects are especially interesting when examining the operation of transferring land readjustment, since this planning instrument infringes on property rights with the specific and concrete aim of furthering the welfare of social groups at large (internalising costs of infrastructure provision) as well as the individuals directly involved (in most cases through betterment); it is also a deliberate action of the administrative system in the belief that part of its duty lies in furthering the welfare of society as it conceives it.” (**Siman’s 1990:20, underline authors’**)

Though it is doubtful if the US urban renewal was backed by taking respects private property in the Lockean sense, Siman’s reference to “property rights” here is symbolic of the rise of neo-institutional economics. In any case, **Siman’s (1990)** approach is completely contradicted by **Liebmann (2000)** and traversed by **Larsson (1997a)** in this period.

**Archer’s** works in this period include a proposal for Thailand (**Archer 1992a**), a case study of a project in Medan, Indonesia (**Archer 1992b**) and a study with some suggestions for Jakarta, Indonesia using the experience of Medan (**Archer 1994**). The second paper here offers two express definitions for land readjustment (“LP/R”):

“LP/R can be defined as a technique by which a group of adjoining land parcels are consolidated for their unified design, servicing and subdivision into a layout of streets, open spaces and building plots, with the sale of some of the plots for cost recovery and the redistribution of the other plots to the landowners. A definition from another perspective is that LP/R is a land management technique, whereby a group of neighbouring landowners in an urban-fringe area are combined in a compulsory partnership for the unified planning, servicing and subdivision of their land, with the project costs and benefits being shared between the landowners.” (Archer 1992b: 156)

The focus is land management from the government’s point of view, not planning or development from owners’ point of view. Like his 1986 and 1988 papers, land readjustment is seen as a matter of land management for urban fringe areas. The map illustrations for Medan are reproduced in Archer (1999).

The paper of Hayashi (1992) on Nagoya shows its famous 1982 drawing for the concept of land readjustment that can be seen in Schnidman (1988:3) and Minerbi *et al.* (eds. 1986:88)). Table 1 shows that Nagoya is the Japanese city with the highest degree (62%) of urban land readjusted.

The paper by Pugh (1992) is significant as it positions land readjustment as a positive planning approach to deal with housing shortage that the World Bank has found beyond the reach of the “site and service” and upgrading approach advocated by John Turner (1968). As the first pro-development work under this review, it does not see land readjustment as a matter of regulation but development.

“If urban development is regarded as positive and to be encouraged, then the development approach to planning - rather than the alternative regulatory approach - has much in its favour. Public sector land banking and land readjustment have this underlying development (i.e.

positive) characteristic. Land supplies are promoted in order to provision housing and other urban investment programmes. This is also enabling in the sense that private actors can respond to opportunities, demands and needs if resources are available and if they do not face excessively restrictive building regulations.” (Pugh 1992: 55, authors’ underlining)

Citing the famous book of Doebele (ed. 1982), the paper by Hannah *et al.* (1993) describes land readjustment in South Korea and praises it for being able to recoup public infrastructural costs and argue that the government under-supplies land due to its monopoly position. It is unclear if readjustment is considered by the authors as a means of regulating supply though they propose a massive rezoning of peri-urban land to urban uses to curb high urban housing prices. The decisive question as to whether the rural property boundaries need readjustment to render the urban zoning effective in practice is not raised.

The work of Larsson (1993) with the Department of Real Estate Planning of the Royal Institute of Technology, Stockholm, is a very useful and handy text book on land readjustment, covering its basic concepts and applications in France, Germany, Sweden, Norway, India, Australia, Taiwan, South Korea, Japan and the USA. The earliest works cited in the bibliography date back to three Swedish works of 1972. It has plentiful illustrative maps (e.g. 2 Swedish examples at pages 5 and 6; 2 Australian examples at pages 14 and 77 (both of Perth used by Archer before); 1 example of Germany at page 38 and on example of Japan page 29). The absence of an index of terms is a drawback. The practice is summarised as:

“Joint development (land readjustment) by land owners...as an important means of achieving urbanisation on a planned basis.” (Larsson 1993: 130, Authors’ underlining)

This book was translated Roger G. Tanner and it is uncertain if the title Land Readjustment was chosen by Larsson or Tanner. In any event,

Larsson's subsequent works (1997a, 1997b) stick to the term.

**Larsson** is explicit about the need to adjust property boundaries as a matter of matching land use and ownership-property structure:

“Land use and property structures are interdependent; sometimes boundaries are adapted, post facto, to new land use, and at other times boundary revisions are necessary in order for a change of land use to be brought about.” (**Larsson 1993: 1-2**)

The paper of **Asami (1995)** on the evaluation of plot shape of private residential lots in land readjustment shows the terms of arts of land readjustment in Japan, which is surely “the most important donor country” (**Sorensen 1988:52**), if not leader, of land pooling in the world.

The work of **Wen (1995)** is probably the first post war reference to rural land readjustment in communist China.

The work of **Hu (1997)** is interesting as it briefly reports grain yield fell more for farm lands upon land readjustment than those not adjusted. Unfortunately, we have no information about the size and boundary patterns of two types of land or any differences in administration. Otherwise, we would have a good empirical application of the corollary of the Coase Theorem.

As expressed in the subtitle of his paper, **Larsson (1997a)** sees land readjustment as a tool for *urban* development and offers a good comparison of four jurisdictions, namely Germany, France, Japan and Western Australia, with good map illustrations, referencing **Archer (1984)** for the Perth example. **Larsson (1997a)** puts a great value on private owner's initiative and questions if the German practice is truly land readjustment like that in France. **Larsson's (1993a)** characterisation of land readjustment in contrast to taking or resumption of land by government or an urban renewal authority makes it clearly an example of libertarian analysis for places under the rule of law.

“Conventional procedures such as the buying up of land, compulsory purchase, expropriation or gradual adjustment to a new plan for the area are often expensive and inefficient in these situations. What is more, they can meet with fierce resistance among the landowners. Land readjustment may ... be a means of achieving better planning and at the same time adapting property boundaries to it. The procedure also opens up the possibility of active participation by the landowners themselves, as well as a more equitable distribution of profit. And, not least, the method can be designed so that the land itself will cover the costs involved. Internationally speaking, this in-built possibility of self-finance is perhaps the most important component of the procedure, creating as it does an economic base for ongoing urbanisation.” **Larsson (1997a: 148-149, underline authors')**

**Agrawal (1999)** treats land readjustment as the same as “urban consolidation.” This is not correct as urban consolidation (like permitting disused godowns to be used as apartments to bring back population to the inner city core in Sydney in the 1980s) can mean densification without any modification to or regularization of preexisting property boundaries. However, like **Larsson (1997a)**, the author appreciates the land readjustment as a mean of urban development rather than merely regulatory management.

The book chapter of **Archer (1999)** aims to connect land readjustment, as “a technique for managing and financing urban land development...in urban fringe areas,” (113) with provision of land for planned low-cost housing, both private and public, sustaining his concern for low-income households in developing countries. Land readjustment for redevelopment of old urban cores is the subject of another work (**Archer 2000**) reviewed below. This work has two case studies with illustrative maps, one on Medan, Indonesia, and the other Kaohsiung, Taiwan.



**Edamura and Tsuchida (1999)** provide a good systematic account of the structure of Japanese town planning, identifying land readjustment of one of the three means of project-based urban improvement of ordinary “redevelopment” and “improvement to the urban environment” in parallel to general zoning control, guidance, taxation and funding. This work contributes to make the Japanese system, as the most accessible non English using jurisdiction to English readers.

**Sorensen (1999)**, echoing and citing **Hebbert’s (1986)** argued from Abercrombie’s planning perspective that land readjustment in Japan actually perpetuates rather than contains urban sprawl as her planners have relied on. He does consider land readjustment has positive contribution in orderly sub-urban development.

The book chapter of **Archer (2000)** is the last work by him covered by this review. It covers the practice of land readjustment in both Japan and Taiwan with a focus no longer in peri-urban or new urban development but urban redevelopment. Archer here points out for the first time the idea that the difference between “land readjustment” and “land pooling” is that the ownership of all land lots affected is legally taken up by the implementing agent, which later allocates readjusted plots to original owners. For land readjustment, land parcels are only “notionally” consolidated and land owners “remain owners of their land parcels throughout the project until they exchange them for their new building plots.” (253) Figure 14.1 in this work is the same as Figure 9.6 of **Minerbi et al. (ed 1986)** which is based on Nagoya Planning Bureau (1982). Figure 14.2, which shows the lot maps (both from a 1988 thesis an AIT student **Ying-shy Lai**) of a project (Fuyei Road) in Kaohsiung before and after completion of readjustment in 1976. A fine distinction in Japan between 2-dimensional land readjustment and 3-dimensional “rights conversion” to cater for owners and occupants of property units was noted. Archer retains the market failure stance in favour of government retaining the power to compulsory purchase of land, echoing **Munoz-Gielen (2014)**, on grounds of title complications in urban redevelopment of multi-storey blocks.

What **Archer** does not appreciate that the government purchase approach in a common law jurisdiction is open to costly post-purchase litigation where developers are resourceful.

**Asami and Ohtaki (2000)** report a sensitivity analysis to predict how lot shape affects building shape. The model is evaluated statistically with real world data from Hiratsuka city in the Kanagawa prefecture in Japan. This empirical study of how lot boundaries affects resource use is can be seen as an application of the corollary of the Coase Theorem.

**Liebmann (2000)** completely rejects ideas, like that held by **Siman (1990)**, that US urban renewal back by *eminent domain* is good. It gives a succinct survey of the laws of land readjustment in eight countries, namely France, Germany, Sweden, India, Australia, Taiwan, South Korea and Japan. It does not cover Indonesia although that has featured in the literature. It draws attention to the fact that a post war discussion of the use of land readjustment in the US died down with the rise of urban renewal based on compulsory land purchase backed by legislation. Cited by **Hong (2007a)** as well as **Heller and Hill (2008)**, it is a well-researched legislative proposal that respects private property rights and addresses concerns with land readjustment in light of legal innovations in various jurisdictions. It connects Korean but not Taiwanese land readjustment to Japanese colonial rule.

The empirical study on the relationship between plot size and prices by **Lin and Evans (2000)** does not actually address land readjustment but draw data from a phase of a land readjustment project in Taipei.

The work of **Sorensen (2000a)** on land readjustment in Japan in the context the United Nations’ Vancouver Habitat Conference in 1976 and most references are post 1970s. The paper of **Turner’s (1968)** on housing for developing countries is cited but **Archer’s** works of the 1970s are not invoked. The leading book edited by **Minerbi et al. (eds. 1986)**, imprecisely cited, is used for a point of detail rather than to relate to the relevance of land readjustment for



pre-war and post-war Japan, Korea and Taiwan, developed countries. It makes an important contribution to relate to the idea in **Doebele's** (1987) edited book and **Larsson's** (1997a) that land readjustment “results in less land owner opposition to projects than in the case of large-scale land expropriation and development, and is less disruptive of the existing community” (54) and thus articulates with the Siman-Liebmann type of debate.

**Sorensen** (2000b), a monograph, has a wider international perspective and refers to the practice in Germany, Sweden, Taiwan, South Korea and Japan. Its main thrust is this:

“Although there is now a large literature on Japanese LR as a result of that project, however, virtually all of that literature focusses on practical aspects of how to implement projects, and on case studies of individual projects. Little attention has been paid to the role of LR in Japanese urban growth and urban planning at a city or regional scale’.”  
**Sorensen** (2000b:217)

Writing in days without advanced electronic literature searching engines, it is hardly surprising that Sorensen has no apparent knowledge of the existence of the meticulous pre-war report of the US Trade Department by **Ehlers** (1928) or early post war work **Oredson's** (1954) paper on Japan mentioned above in this review.

**Viitanen's** (2000) thesis quotes in English a lot from the works of Archer written from 1982 and **Doebele** (ed.1982) and provides a good English summary of Finland's land readjustment with reference to the 1997 *Real Property Formation Act* which modified the practice that was introduced in 1961 but not reported in any of earlier works reviewed above. The author has another work under review (**Viitanen** 2018).

## PERIOD V: 2000 TO 2019 REAL ESTATE DEVELOPMENT ALL OVER THE WORLD

In this period, a real estate revolution occurred and gated communities proliferated globally. The concepts of PPP and value capture became associated with land readjustment. Coasian analysis emerged with the works of **Kung** (2002), **Asano et al.** (2003), **Li** (2003) which are about “land readjustment” of communal farmland in communist China; and **Heller and Hills** (2018). Many books emerged in this period: **Hong and Needham** (eds. 2007), **de Souza et al.** (eds. 2018), **Hong and Tierney** (eds. 2018), **Plimmer and McCluskey** (eds. 2019). **Türk** appeared in the arena as the most prolific author with 7 works in this period.

**Adams et al.** (2001) is an advocacy for introducing land readjustment as part of a “property-led regeneration.” It is an excellent exposition but for its admiration of the colonial Hong Kong government's firm urban renewal corporation, the Land Development Corporation (abbreviated “LDC,” which is the short hand for “less developed country” in development economics). The LDC of Hong Kong infringed private property rights by relying on the *Crown Land Resumption Ordinance* to unilaterally extinguish Crown lease interests obtained by sale prior to lease expiry; refusing owners' own private redevelopment schemes or sharing the development profits with stakeholders. After 30 June 1996 the practice of the LDC and its successor, the Urban Renewal Agency (URA), became *prima facie* unconstitutional under the *Basic Law*, which stands above the *Lands Resumption* and *Town Planning Ordinance* and expressly provides for protection of private property (**Lai** 2002). The focus of this work is alleged difficulties in land assembly under common law, falling under the spell of the interventionist arguments of the consultant report for LDC not to admit owner participation or profit sharing. The level of statutory compensation for LDC projects, deemed as “public purpose” though they can be purely commercial or private use, was the assessed “existing value” of the old buildings

on a renewal site ignoring potential gain from redevelopment due to a larger plot ratio (in US, floor to site ratio) for a larger site fronting on more and/or wider streets. There have never been any authentic urban renewal elements as owners (lessees and tenants whether residents or shop operators) are displaced rather than accommodated in-situ by the project (**Lai et al. 2018**). The *modus operandi* of LDC and its successor URA is completely alien to the spirit of land readjustment as practised in France, Germany, South Korea or Japan as advocated by **Liebmann (2000)** for the USA or Archer for Western Australia not mentioned in this work. The complete lack of sensitivity of politicians, who champion democracy, to government's violation of private property rights (as a dimension of human rights) has a connection with what has happened to Hong Kong on the human rights scene since 1997. A very important point to note in this paper, referencing **Masser (1983)**, draws attention to the idea that land readjustment "acts as a type of betterment levy to recoup some of the capital gains made from comprehensive development." (**Adams et al.: 157, underline authors**). This idea will later merge with the concept of "value capture" now in currency.

The main thrust of **Choe (2002)** is on "cooperative urban renewal" in South Korea rather than land readjustment in Korea or Japan. From his narrative, we can see that "cooperative" urban renewal, which involves residents' associations, is very different from "renewal" by resumption by LDC or URA in Hong Kong. He uses the term land readjustment as the same as replotting and reports the spread of the concept to Indonesia and the Philippines. He makes an important contribution to relate land readjustment to "public-private sector participation" (PPP) and offers a good typology of areas of joint efforts by the government, NGOs and citizens (in Figure 1). The idea of PPP was used by the Hong Kong SAR Government in 2017 as a possible new policy approach for dealing with shortages in urban housing units by utilizing peri-urban land resources. As **Choe (2002)** explains, the idea of PPP was very old indeed and traces it to the Carter administration in the light of de Tocqueville's argument that

*extra governmental associations* are America's legacy to democracy.

The paper by **Evans (2002)** is about *machi-zukuri* or community/neighbourhood planning in Kobe after the 1995 earthquake. His succinct description about the cardinal role of land readjustment in Japan is a useful summary at the turn of the millennium.

"throughout the twentieth century Japan's main planning technique was land readjustment, used in the metropolitan fringes and in the redevelopment of inner urban areas. In the latter case, it has been used particularly in the wake of major urban disasters, such as the 1923 Great Kanto (Tokyo area) Earthquake, the American bombing in the Pacific War and the 1995 Hanshin Earthquake." **Evans (2002:445, underline and brackets authors')**

The paper by **Jun and Ha (2002)** describes the history of development of new employment centres in Seoul and uses a location quotient (LQ) analysis to trace the relative density of the CBD to the two centers of Youngdungpo and Kangnam.

"Active new-town-in-town or sub-center development policies in Seoul have been implemented from the 1960s through land readjustment projects. Land readjustment is one urban development method for facilitating the planned development for an undeveloped area at the urban edge. A land readjustment project has several steps: project area designation and master plan by the government, zoning changes to residential or commercial use, and sale of the land to the public for securing development funds for public facility provision and compensation. In Seoul, this type of project developed nearly 45% of the built-up area." **Jun and Ha (2002: 128)**

From the maps provided, one can see that both centres are very close to the CBD within, rather

than along the fringe, of the metropolis of Seoul. Therefore, it offers another real life example of urban land readjustment.

**Kung's (2002)** work, treating institutional arrangement as a policy variable and citing **Coase (1960)** as the first reference, is the first formal neo-institutional economic account in this review. It uses the term “land readjustment” to describe the reassignment of plots of farm land under rural communal property rights in communist China treating it as a choice variable.

**Schwarzwalder et al. (2002)** is another formal neo-institutional economic account after **Kung (2002)** of rural land readjustment in communist China.

**Asano et al. (2003)** develop for Japan a project management system for land readjustment. They compare the group relocation and direct relocation method and consider the former more effective for reducing the project time because it can relocate several buildings at the same time. However, the cost of group relocation method is generally larger because it requires compensations for building removal and temporal residence, which are not necessary in direct relocation method.

**Home (2003)** in this survey of the land boundary problems in Israel as a legacy of British rule mentions land readjustment thrice without defining or referencing the term. The last time it mentions land readjustment is in the conclusion.

“The only solutions to the present violence, other than genocide or forced expulsion of one or other group, are the territorial partition of Palestine or coexistence within one national territory. Either solution will require a settlement of intercommunal land rights, through a process of land readjustment, probable physical partition, and transfer of population and state territory” (**Home 2003: 307**)

**Li (2003)** describes the issues “frequent land readjustment” of rural land under communal

property rights by administrative measures in communist China and the need for institutional support, including land registration.

The regression analysis by **Zhang and Li (2003)** tests the effects of three factors namely *guanxi*, personal characteristics and local characteristics on non-farm employment. The frequency of land readjustment as a measure of land insecurity is grouped under the second factor and the finding is that it is statistically speaking insignificant.

**Firman (2004)** promotes the role of developers on urban development in Indonesia and mentions land readjustment, along with land consolidation and land pooling as means to enable projects by a partnership of developer and land owners. Reference is made to **Archer (1987, 1989, 1990, 1993, 1994)** without any discussion.

**Karki (2004)** with the Department of Urban Development, Nepal, reports that 11 land readjustment projects to supply serviced plots for housing have been implemented under a “land pooling” scheme, initiated in 1986, in Kathmandu Valley. These projects involve negotiations with landowners. This work has a summary at pages 69 to 70 of experience in land readjustment in Germany, Finland, Sweden, Australia, Taiwan, South Korea and Japan. It is a pity that Figure 3 that shows the plots before and after land pooling in Nepal is schematic without showing property boundaries of the before situation and is not to scale. The works of **Archer (1980, 1984)** and **Doebele (ed.1982)** are cited. **Archer (1989)**'s report on Nepal is not referenced.

**Türk (2004)**, written by the most prolific author on land readjustment after Archer, does not cite any of the work of **Archer** but that of a book by **Larsson (1997b)** and two research papers by **Sorenson (1999, 2000)**. The author was then a doctoral researcher with the Istanbul Technical University and she acknowledges the advice of Celil Türk who has 30 years of experience in land readjustment in Turkey as a surveying engineer (166). This work deals with land readjustment under Article

18 of *Reconstruction Law* as an alternative to compulsory or negotiated acquisition of private land by the state for the supply of land for housing in Turkey. The developed countries cited to have practised land readjustment are “Germany, Japan, Sweden, France, Australia.” Those developing mentioned are “Indonesia, Nepal, Malaysia, Taiwan (**Chou and Shen 1982**), Thailand and South Korea,” followed by some discussion on India. A map illustration of a Turkish case of land readjustment is presented at page 151.

**Kase and Lass (2004)** with the University of Tartu mentions the term “land readjustment” without elaboration or reference to any work mentioned above in connection with planning for Estonia.

The conference paper by **Müller-Jökel (2004)**, cited by **Yau (2009)**, a land surveyor with the Municipal Survey Office of the Department of Land readjustment, Frankfurt am Main, is important for connecting land readjustment and sustainable development as a “win-win” outcome for land owners and the municipalities in development upon re-delineation of plot boundaries. The author summarises well the legal development of land readjustment in Germany:

“More than 100 years ago Franz Adickes, the ... Lord Mayor of Frankfurt am Main, created a law to force landowners to participate in so called land readjustment projects. The basic idea of this instrument is to exchange the plots of the landowners and not to expropriate them. The municipalities get the areas needed for public use, that can be extracted from the whole project area as a kind of land decrease. The net building land will be redistributed to the previous landowners. So they can either build on their building plots or sell those on the free land market.” (**Müller-Jökel 2004: abstract**)

“The law that was enacted in 1902 and amended in 1907 is .... called ‘Lex Adickes’. The actual legal basis is the

*German Federal Building Law Code* (Articles 45 – 79).” (**Müller-Jökel 2004: para. 3.1**)

**Vitikainen (2004)** is a succinct work that outlines the key differences in land readjustment among the Netherlands, Germany, Finland and Sweden in the name of land consolidation:

“to improve land division and to promote the appropriate use of the real estates. The objective is pursued by consolidating land plots through land exchanges to form plots that are better adapted to their proper use (e.g. plots are larger and/or better shaped).” (**Vitikainen 2004: 26**)

The author points out that land consolidation occurs in the France, Belgium, Luxembourg, the Netherlands, Germany, Switzerland, Austria, Finland and Sweden. Spain is not mentioned.

**Lin (2005)**, informed by the works of **Archer (1992)**, **Doebele (ed.1982)** and **Larsson (1993)**, provides statistical evidence that the way of land readjustment in Taiwan allows speculators to buy readjusted sites strategically though it improves the overall layout of sites.

The paper by **Türk (2005)** explains the difficulties of land readjustment in Turkey. This work sites extensively the works of **Archer** published in the 1980s and 1990s (**1982, 1986a, 1986b, 1987, 1992, 1997**) and the first edition of the book by **Larsson (1993)**. The map illustrations of examples of land readjustment are nice and better selected than that in her earlier (**Türk 2004**) work. Of great interest is that the author traces land adjustment to an Ottoman regulation relating to building dated from 1848, a year of revolutions in Europe, and another code in 1986 (at pages 31 to 32) which applied only with respect to dealing with areas affected by fires. This law places Turkey ahead of Japan in land readjustment history. In the conclusion, the role of public participation is stressed.

**Kimura et al. (2006)** shows cost savings in curvilinear vs. rectilinear and angular land readjustment for paddy field in Japan taking into account topography.



**Li and Xi (2006)** talk about “land readjustment” in relation to women’s rights in rural communist China which is really about reallocating communal land rather than redefining boundaries of private property and reassignment of ownership upon such replotting. Note that under the present regime, married women have no freedom to have more births than what the state permits and forced abortion is an established population control policy.

The paper of **Mukhija (2006)** with UCLA deals with land readjustment as “property adjustment” (as the projects are redevelopment-driven) for Mumbai (Bombay) and advocates to take into account the interests of tenants as stakeholders. This work is largely a-spatial in the sense that is not interested on the physical manner of the adjustment in dealing with social equity. Hence it is not strange that it references **Turner (1967)** but not the usual land readjustment, which does not appear in the title or sub-title of the work.

**Thomas (2006)**, a professor with the Upper Land Consolidation Authority of North Rhine – Westphalia, deals with the differences between western and eastern European countries. The legal provisions for voluntary and compulsory land readjustment after German reunification are well compared in a chart at page 157. The year range of references consulted for this practice paper is confined to 5 years from 2002 to 2006. The author treats land consolidation is a wider concept:

“The Land Readjustment component is the core issue of each land consolidation approach: The accompanying post-processing land readjustment makes possible a realization of the physical planning without any respect to the actual land use and ownership of the needed and affected land; in the land consolidation procedure the adjustment of the land tenure to the planned state occurs in the land readjustment segment.” (**Thomas 2006:159**)

The paper of **Muñoz-Gielen and Korthals Altes (2007)** describes land readjustment as

means of reducing the transaction costs of development in Valencia.

Next comes another very important book *Analyzing Land Readjustment: Economics, Law and Collective Action* on the subject edited by **Hong and Needham** (eds. 2007) for the Lincoln Institute of Land Policy, dedicated to William A. Doebele. The foreword, written by **Doebele (2007)** himself, summarises the history of land readjustment with reference to Henry George’s idea and the stance of the Lincoln Institute of Land Policy.

“Land readjustment seemed to be the most ingenious method yet devised for the capture of socially created value for public purposes. Unlike Henry George’s single tax and most other instruments, it executed the recapture while the rural-urban transformation was taking place, eliminating the unpopular task of extracting money from landowners after the process was complete. It seemed that a mechanism capable of operating on a scale commensurate with the pace of urbanization in third world cities and with a built-in self-financing capability had finally been found.” (**Doebele 2007: ix**)

The preface of the book positions itself as another advocacy for land readjustment for US and expresses this opinion:

“Past attempts to introduce land readjustment legislation to the United States were unable to attract much attention from policy makers and practitioners (Liebmann 1998; Minerbi 1987; Shultz and Schnidman 1990). That may have been partly a result of overreliance on law to introduce land readjustment and partly the lack of urgency to search for alternative land assembly methods.” (**Hong and Needham eds. 2007: xvi**)

This book aims to advance the research on land readjustment. Instead of focusing solely on *legal or technical* aspects, it

fills a gap in the literature— focusing on the *institutional settings* in which individuals would be willing to cooperate in land readjustment. In assembling land for redevelopment, property owners and other interested entities must devise a system in which *collective action* can be fostered and the benefits and costs of land assembly shared *equitably* among involved parties. (Hong and Needham eds. 2007: xvii)

The reader may wonder if this book is intended to be a typical libertarian neo-institutional economic treatment of development matters or rather more in tune with “the Institute’s founding objective—to address the links between land policy and social and economic progress—that was identified and analyzed by political economist and author Henry George.” (Hong and Needham eds. 2007: 204) The expression “property rights,” which appear 95 time in the whole book, is not indexed. Instead, it indexes “private property protection,” “property owners,” and “property values.” (Hong and Needham eds. 2007: 201-202) The Great Kanto earthquake of 1923 is mentioned but there is no reference to post disaster literature on land readjustment.

Before dealing with the collected works individually, it is useful to consider Hong’s introductory (Hong 2007a) and the last “summary” chapter Hong (2007b) written by the first editor together as one discourse on land readjustment. Chapter 1 (Hong 2007a) is a competent summary of key ideas of all works (Davy 2007, Alterman 2007, Sorensen 2007, Needham 2007, Li and Li 2007a and Sagalyn 2007) with reference to the Coase Theorem and transaction costs citing various scholars including planning researchers Webster and Lai (2003) and Buitelaar (2004). Chapter 8 (Hong 2007b) certainly shows that a transaction cost approach supported by real community involvement is used:

“What is not obvious is that the land readjustment legislation is believed to be a mechanism for inducing cooperation. Provisions in these laws are mostly

about setting up legal frameworks for minimizing the transaction costs of negotiation between landowners and the land readjustment agency. In Germany, Israel, and The Netherlands, these times proven legal guidelines have functioned so well that even projects with unanimous support from landowners have followed them.” (Hong 2007b: 188)

Alterman (2007), at chapter 3, shows that Israel has a long history of land readjustment across a wide range of land tenure types. It is the second work after Home (2003) identified in this review to have addressed the history and issues land readjustment in the holy land.

The work of Davy (2007) in the second chapter book edited by Hong and Needham (eds. 2007) (which we will cover below) has an interesting title “Mandatory Happiness? Land Readjustment and Property in Germany”. Dwelling on the issue of compulsion in land readjustment in Germany, it is the only chapter that makes (two) references to the term “property boundaries” in the entire book.

“Particularly on urban fringes, property boundaries often fail to conform to the areas designated for development. Without changing the patchwork pattern of these properties, the land cannot be improved swiftly and efficiently. The land has to be readjusted before development commences” (Davy 2007: 37 Underline authors’)

The chapter (6) by Li and Li (2007a) gives an interesting case of what is called “vertical land readjustment” by a developer Hong Kong Land, with legal backing by a law that allows the majority owners to auction the interests of minority owners, with good photo and diagrammatic illustrations. Actually, there is *no adjustment of any property or cadastral boundary* but transfer of rights to floor space from an old apartment block to a redeveloped one. It is more properly a case of TDR. This is different from what they discuss in Li and Li (2007b) about land readjustment in communist China.

**Needham (2007)**, chapter 5, in interpreting land readjustment in Holland expressed his opinion about the meaning of land readjustment:

“Land readjustment can take place in several different ways. The classical way that corresponds with the customary use of the term is when the landowners and users are encouraged *voluntarily* to exchange property rights among themselves... One possibility is that a private developer acquires all the separate ownership rights (land assembly) in the market. Another possibility is that a public developer does this by buying the land amicably or, if necessary, compulsorily.” (**Needham 2007:115**)

**Sagalyn (2007)** at chapter 7 discusses the practical difficulties of land readjustment for New York’s West 42nd Street referencing a variation of land readjustment at the Solidere by a giant joint-stock company, was used with great effectiveness in Beirut, Lebanon. This project is covered also by **Home (2007)**.

**Sorensen (2007)**’s chapter 4 on Japan argues that land readjustment in Japan is mainly propelled by economic interest rather than altruism and local government efforts is a main factor in project success in a context where no other options to supply new land for development are available. The implication is:

“This may be good news for those hoping to introduce the technique to countries in which landowners are assertive in protecting their private property rights, such as the United States and Thailand. (**Sorensen 2007:110**)

**Kigawa et al. (2007)** is important from a planning history view point as an express exposition of the influence of Japanese town planning in Japan, Korea and Taiwan under Japanese rule before the end of the Second World War. It compares of three typical local places, Nishiohji Street, Kyoto; Ximending Taipei and Shinchon Street, Seoul. Our interest is however more in the authors’ understanding

of land readjustment, which is well summarised in the abstract:

“Land readjustment can be interpreted as an indicative methodology in “modern” Japanese city planning. The method provided a homogeneous and “economical” layout for unstructured lands and transformed them into the typical modern standard. This resulted in an increase in land prices and in improved public hygiene; however, cities were monotonously and repetitively produced in the manner of cars on assembly lines.” (**Kigawa et al.: 2007**)

**Li and Li (2007b)** is another work on land readjustment in communist China expressly to be written from an “institutional economic perspective,” treating land readjustment as “a bilateral firm governance structure by incorporating the individual property owners”. This work uses Coasian transaction cost reasoning to interpret a Hong Kong case (Lai Sing Lau) and a Mainland Chinese case, also reported in **Li and Li (2007a)**. **Coase (1960)** is cited along with some papers of Williamson regarding theory of the firm. This work is not informed by US research on property rights with a specific application to land readjustment like **Shultz and Schnidman (1990)**, **Liebmann (2000)** or **Hong (2007b)**.

The book by **Montandon and de Souza (2007)**, cited by **Yau (2009)** reviewed here, compares land readjustment as practised in Japan and Brazil with “joint urban operations.” This book is the fruit of a course organised by the Japan International Cooperation Agency, JICA. By land readjustment, they refer to “Replotting (Exchanging rights from one property to another)” and the latter “granting of urban incentives through legislation and obtaining contributions.” (**Montandon and de Souza 2007: 117**) The coloured aerial photos and maps (say page 15) used are of excellent standards.

“The Portuguese translation for land readjustment – a term applied in several countries and commonly adopted in

international literature on the subject – or its variations in other countries – *kukaku seiri* in Japan, *baulandumlegung* in Germany, land pooling in Australia or *reparcelaciones* in Spain – varies between *reajustede terras*, land assembling, adjusted replotting, or even approximations obtained in other urban instruments such as real estate pooling and urban requests..... Whatever the precise translation of the term in a modern urbanism context, as commented by architect Augusto C. P. Carrillo, we are speaking of management techniques and effective land arrangements, linked to complex urban planning systems that comply with legal and constitutional principles to protect individual and collective property rights.” (Montandon and de Souza 2007: 117, Underlining authors’)

**RICS (2007)** is a short report on a study by Robert Home for RICS is a very useful and handy reference for land readjustment described as a “global land tool.” It explains the reception of the concept in the UK and US and the spread of the concept from German to Japan and France, Lebanon as well as the early application of the concept in Ottoman law.

“...the fundamental review by the UK Department of the Environment, Transport and the Regions (DETR) in 2001 and the subsequent *Planning and Compulsory Purchase Act* 2004 made ‘little investigation of alternative methods for land assembly’. As Rob Home of Anglia Law School, Anglia Ruskin University, reports, suggestions were put forward for assisted land pooling, but this particular review did not take them seriously.” (RICS 2007: 1)

“On the other side of the world in the USA, LR has had limited success. Several states, including Hawaii, California and Florida, have tried to introduce LR. However, while the enabling legislation was promoted, the plans were later blocked by developers

and LR has not significantly established itself.” (RICS 2007: 3)

The Report tells us Home’s idea about the practice which stresses coercion rather than community participation:

“So, what does Rob Home think? Well, he comments that ‘LR offers the potential to re-plan areas without the costs of compulsory land acquisition, combining *a measure of coercion* with the opportunity for land-owners to benefit from the higher land values created by the scheme.’ He continues by adding that while LR can be used in a variety of situations, it is largely used for peri-urban development, as well as for reconstruction after both man-made and natural disasters” (RICS 2007: 6, italics authors’)

**Türk (2007)** expands the literature to cover some works of **Archer (1984, 1989, 1992)** and positions land readjustment in relation to the practice in France, Germany, Indonesia, Nepal, Thailand, Malaysia, Indonesia, Australia, Taiwan, South Korea and Japan. She explains why although Turkey has good knowledge and long experience in land readjustment, the application of the practice to urban areas is less than satisfactory compared to other Asian countries. Of importance is the accuracy of the official cadastral maps. This point will be elaborated by **Çete (2010)**.

The web essay of **Gurumukhi (2009)** is very useful for three reasons. First, it gives very clear account will some illustrative materials how land readjustment is carried out in India. Second, it describes the legislative history of this practice. Above all, it shows that in India, the legal expression is “land pooling.”

“5.18 Development Plan Formulation and Implementation (UDPFI) Guidelines prepared by the Ministry of Urban Development and Poverty Alleviation, the T.P. Scheme termed as Land Pooling Scheme has been included as a technique for assembling land for



planning and development. A separate chapter on Land Pooling Scheme has also been included in the Model Urban and Regional Planning and Development Law.”

“T.P.: stand for “Town Planning.” The Government of India (2015) describes land readjustment, expressed as land pooling, as “acquisition without tears.”

“In Town Planning or Plot Reconstitution Scheme, the land is pooled and its development is financed with the involvement of land-owners without compulsorily acquiring land. This land assembly technique helps to provide plots for basic services in a planned layout from the original haphazard arrangement. Costs incurred by the developmental authority for development and for infrastructure are recovered from the sale of few of the final land plots reserved by the authority and betterment charges levied on land-owners. The reconstituted plots are allotted to the landowners in proportion to their original land holdings.

The scheme was first introduced in the Maharashtra Regional and Town Planning Act, 1966 and later in Gujarat Town Planning and Urban Development Act, 1976 and is now widely appreciated model of land assembly. Another deviation of the land pooling mechanism has been recently introduced by the Delhi Development Authority (DDA), wherein DDA facilitated developers and land-owners to pool land for development.

The town planning scheme is referred as ‘land acquisition without tears’ and has the following key advantages...” (Government of India 2015: 72)

Indian researchers seem to prefer to use the term land readjustment in their works.

**Heller and Hills (2008)** advocate “land assembly districts” (LADs) as a better means to

land readjustment in acquiring private land for development as:

“First, readjustment is not primarily a mechanism for giving landowners the power to bargain over whether or not to sell their neighborhood. [Land] readjustment is *not* really an *allocative* mechanism for determining whether land ought to be assembled. Instead, readjustment is simply a *distributive* mechanism for giving landowners a share of the assembly gains.” (**Heller and Hills 2008:1516- 1517, italics authors’**)

“Second, readjustment does not permit the wholesale transformation of the neighborhood. Instead, readjustment simply “readjusts” the boundaries of the lots, requiring each landowner to contribute a certain percentage of land in exchange for better infrastructure.” (**Heller and Hills 2008:1517**)

“Third, readjustment forces the neighbors to bear some of the risk of the assembly by giving them shares of the project rather than cash. The residents do not sell their neighborhood; instead, they trade their individual lots for shares in a new, improved neighborhood of uncertain value.” (**Heller and Hills 2008:1517**)

“[Land] readjustment forces the neighbors to be long-term partners in land assembly. Far from being a one-shot deal, readjustment creates a *long-term commons* in which the existing landowners contribute the capital, bear the risk, and retain a possessory interest in land assembly. Absent a neighborhood composed entirely of real estate experts, this cumbersome arrangement will frequently be impractical as a method of financing urban redevelopment.” (**Heller and Hills 2008:1517. Italics authors**)

**Heller and Hills (2008)** is not proposing any new idea but a special form of land readjustment according to our definition. What they have done

is to propose a way that avoids the issues of the German or Japanese communal approach. This work is an excellent work on land readjustment informed by neo-institutional economics with attention to private property rights referencing both **Shultz and Schnidman (1990)** and **Liebmann (2000)** reviewed above.

**Kidokoro (2008)** mentions land readjustment in Kanazawa, Japan as a post war method of suburbanisation, not urban renewal.

The study of **Pradhan (2008)** on Nepal gives another report on poor developing countries that local-municipality-driven land readjustment has been found helpful especially in terms of initial financial outlay savings during land assembly. The land value after land readjustment in Nayar Bazar Land Readjustment (Land Pooling) Project, Katmandu, which commenced on 1996 under the *Town development Act* and *Land Acquisition Act*, increased by 82% and supplied some land for the poor. The author recommends some legal restrictions in further subdividing plots in order to avoid resale with higher price, which may jeopardize a land readjustment project. Figure 3 and Figure 5, show, respectively, the layout of the place before and that after land readjustment.

The literature covered by **Türk (2008)** extends to the book of **Doebele (ed.1982)**, the paper by **Liebmann (2000)** but not any chapter in **Hong and Needham (eds. 2007)**. The hypothetical diagrams at page 233 (Figure) two are highly useful in illustrating the layouts of a place before and after land readjustment. The countries covered are France, Germany, Sweden, Turkey, India, Nepal, Indonesia, Australia, Taiwan, South Korea and Japan. Land readjustment in these 11 countries are compared in terms of the legal framework (the relevant legislative provisions), the body which undertakes a project), property owners' participation in a project, cost recovery model and the amount of originally private land dedicated to the community or public. The focus is on urban fringe lands not old urban cores.

“Essentially, LR is used for new development in peripheral areas of the

city rather than urban redevelopment in urban areas.” (**Türk 2008:229**)

**Van der Krabben and Needham (2008)** articulates in terms of property rights interpreted by **Webster and Lai (2003)** and positions land readjustment as a “legal instrument” for “value capturing from related property development.” The Dutch Ministry of Spatial commissioned a study on the possibilities for introducing *urban* land readjustment in the Netherlands and the paper makes use of that study with useful illustrative diagrams and figures to help demonstrate their ideas. They point out that the Netherlands has a long history of rural land readjustment but application to urban land will be a new attempt. Note that value capturing will soon become a theme in land readjustment for land readjustment in urban redevelopment, as in the next paper by **Home (2008)**.

The work of **Wang et al. (2008)** describes and make some suggestions for rural land readjustment in Nanyue District of Hengyang, communist China.

The work of **Home (2009)** discusses the relationship among population, land use and land ownership. It mentions land readjustment, referencing his earlier paper (**Home 2007**) as a less costly policy alternative to compulsory purchase as a means to supply new land because it can recovers costs.

The work of **Kim et al. (2009)** uses factor analysis of opinions collected from a questionnaire survey and reports that the success of depends critically on cooperation in operation capability and financial capability in urban land readjustment projects in South Korea.

**Shen et al. (2009)** discusses a method of simulating land-use patterns in urban space after the implementation of land-readjustment projects using Kanazawa for the exercise.

The paper by **Yau (2009)**, omitted by **Lai et al. (2018a, 2018b)**, is a forerunner of land readjustment research in of post-colonial Hong Kong informed by concern with private property

rights protection in the context of government-led urban renewal by the state owned URA based on compulsory land resumption. In this study, the views of 356 homeowners, living in Kowloon City, Hong Kong towards land readjustment were solicited via a structured questionnaire survey. The most important survey finding is that the respondents prefer land readjustment to cash compensation or non-in-situ re-housing as adopted by URA.

Using a case study in Niigata, Japan, **Arimoto (2010)** mentions the benefit of “farm consolidation” or “farmland readjustment” in allowing farmers to gain more income from their land by facilitating renting the land to core farmers. The study seems to point out a lowering of transaction costs enabling a more efficient rearrangement of agricultural use rights. Farm consolidation is defined as

“a public project that consists of farmland readjustment that reshapes and enlarges small dispersed plots into large plots, and development of infrastructure such as irrigation, drainage and farm road.” (**Arimoto 2010:2-3**)

Two coloured aerial photos, not found in other works under review, before and after farmland consolidation project in Niigata were presented at page 23.

Despite its advantages over expropriation and voluntary application, the institutional arrangements in Turkey make it more difficult to implement land readjustment, **Çete (2010)**, in tune with **Türk (2007)**, mentions technical limitations of the land administration system and inhibitions of landowner to participate due to some political, social, and financing concerns as some factors driving the high transaction cost to implement Turkish land readjustment. Three papers by **Türk (2004, 2005 2007)** are cited.

The historical study of **Hein (2010)** is important as it presents to English readers Japanese urban land readjustment from the 1860s to 1920s. She compares old maps, plans and photos (aerial and street) of three districts in Tokyo, namely Ginza, Marunouchi, and Kanda Misaki-chô, and

describes how land readjustment was utilized to form the modern Tokyo streetscape amid the complicated land ownership arrangements inherited from the Edo-Meiji period. It defines land readjustment as:

“a planning technique characterised by a reduction in lot sizes to create public land and to widen and straighten out streets, plots, and blocks.” (**Hein 2010:450**)

The work uses 31 sets of illustrations: maps, plans and photos (aerial and street). Footnote 24 tells the history and operation of landowner associations that were pivotal in the success of the projects.

**Shen and Kawakami (2010)** use a road extension of a main street in Nanao City, Japan, with readjustment of privately owned land/buildings to show how a virtual reality platform was well-received to lower the transaction costs of getting consensus for the approving the neighbourhood design guidelines.

The work of **Türk and Korthals Altes (2010a)** on land readjustment in Istanbul is another institutional analysis without an express theoretical stance. It shows examples where the central and municipal governments initiated and assembled large numbers of scattered greenfield lands for massive housing projects by expropriation (compulsory purchase) or mandatory land readjustment: both achieved by decree rather than by contract.

In another work, **Türk and Korthals Altes (2010b)** find that even for many instances of inner-city urban renewal, land readjustment may be an appropriate tool to lessen social resistance by preserving the social capital, citing **Li and Li (2007b)**, and ownership rights of the original inhabitants.

In examining responses of Manchester and Osaka in the context of the 2009 recession, **Dixon et al. (2011)** cite land readjustment in Osaka as a useful tool in regenerating brownfields. This practice contributes land assembly and increases its value through infrastructure which they identify as a critical

success factor for hardcore brownfield remediation. The question for Japan is whether there is another other way of TDR for dealing with brownfields.

The paper of **Türk and Türk (2011)** examines the factors the Turkish court considers in annulling land readjustment projects and make suggestions about implications for other countries. Like Germany, the Turkish constitutional court has ruled that land readjustment constitutional: it is not expropriation and does not violate the essence of private property. The paper does not touch any theories of private property.

The theme of the paper by **Van der Krabben and Halleux (2011)** is that new urban regeneration and redevelopment will sooner or later overcome the obstacles to new policy initiatives like land readjustment.

Table 1 summarises the view that the main objectives of expropriation (land taking by the state) is for making land available for (re) development (objective 1); land readjustment for cost recovery of public works (objective 2); impact fees and local taxes for value capturing (objective 3); and land readjustment and land registration for efficient market operation (objective 3).

The opinion survey by **Wang et al. (2011)** shows communist China's farmers' perception on the 2002 land tenure security policy of the central government regarding the so-called land readjustment by village officials of rural land supposedly to deal with demographical changes.

The work of **Alterman (2012)** classifies land readjustment as one of the macro "value capture" tools, which is the least interventionist and now used in many few countries. Alterman lists the major types of "land policy regimes"

"in declining order by degree of intervention with private property:

- 1) Nationalization of all land and direct government control over its use
- 2) Substitution of private property by

long term public leaseholds

- 3) Land banking (compulsory purchase of land by the state)
- 4) Land readjustment.

In all these land-policy regimes, value capture is only one among several motivating rationales and objectives. However, once the new land regime has been in place for a few years, it will likely develop its own economic and political dynamics, and value capture may be eroded away. With time, it may be difficult to determine how much of the plus value in fact reaches the community." (**Alterman 2012: 8, underlining and brackets authors'**)

**Alterman's** schema is not universal because tool no. 3 can be used in no. 2, as in the case of Hong Kong; no. 4 can be practised in either freehold or leasehold land; and no 4 is often a way of implementing no. 1 as in the case of communist Chinese "land reform" of the early 1950s. To what extent the "value capture" thesis in land management was informed by idea of "rent-seeking" in economics is an interesting question.

**Hong and Brain (2012)** report a preliminary case of land readjustment in 2010 in a post-disaster area in Chile in the absence of any existing compulsory land readjustment laws. The authors use a government plan as the context for land readjustment.

"LR often used to re-parcel land when existing parcel boundaries are in conflict with the current land use plan. One important outcome is that a portion of the readjusted land can be retained by the development agency for construction of necessary infrastructure and basic services. If LR is not used, this land would have to be acquired by the local government, which could entail a huge upfront cost." (**Hong and Brain 2012: 3-4**)

**Brain and Mora (2018)** will revisit the attempts by Chile to apply land readjustment another venue.



The study of **Li et al. (2012)** is an index analysis of on Chinese farmland subject various sizes of land readjustment.

**Ma (2012)** discusses the advantages and drawbacks of land readjustment vis-a-vis expropriation in urban fringe areas of the capital city of communist China with good illustrative drawings.

**Schrock's (2012)** MIT doctoral thesis has a good bibliography and makes a hypothetical quantitative net value analysis of the benefits of land readjustment in a district in Boston. Her computation shows a 77% land value increase in all 22 parcels if land readjustment can be successfully carried out in a North American context.

The presentation materials of **Condessa et al. (2013)** to the conference of the Association of European Planning Schools (AESOP) give an idea of how land readjustment is carried out in Portugal. It is considered that the process is more effective in ensuring equity between landowners; promoting quality urban design; availability of land and buildings to the municipality but less in ensuring the economic viability of the urban development process; agility of the execution process; reduction in the financial risk; and reducing municipal funding for the infrastructure, compensation and expropriation costs.

**Kim (2013)** examines urban planning in Korea through a study of the four main urban policies for Seoul from the 1960s to the present: Land Readjustment (LR), Housing Site Development (HSD), Urban Redevelopment (UR), and Housing Reconstruction (HR). While these policies served well during a prolonged period of high economic growth, the author asks whether an alternative urban planning paradigm is needed for Korea in an age of low economic growth, low birth rates and a fossil fuel energy crisis. Through an examination of three residential areas in Seoul developed by LR projects, this paper looks at the possibility of urban regeneration through the sustainment of urban architecture in areas that have not been affected by HSD, UR, or HR. What is

most useful of this paper is the origin of land readjustment in South Korea.

“A LR project was implemented in Seoul for the first time during the colonial period by Japanese civil servants and engineers. It is commonly known that LR was first practiced in the city of Frankfurt to reorganize irregular agricultural plots, to subdivide land into urban parcels, and to get roads and other infrastructure built (SMG, 1996, Vol.6, 857). LR has been widely adopted for both agricultural and urban areas in most developed countries except for the U.S. and England.... Japan learned LR from Germany at the turn of the century and used it for the rehabilitation of Tokyo and Yokohama and later for suburban expansion into Kanagawa, Saitama, and Chiba in the early 1980s. Japan experimented with LR in their colonized territories before they had fully absorbed the technique, Seoul being a prime example...” (**Kim 2013: 135**)

The paper by **Mathur (2013)** mentions one institutional innovation in Gujarat, India is to transfer any ownership dispute on a plot to the newly adjusted plot as this allows the land readjustment preparation to move faster without being disrupted by ownership disputes.

“The major reasons for the success of TP Schemes in Gujarat include the timely development of roads, the transfer of disputes to the newly reconstituted plots, manageable scheme size, a high degree of landowner satisfaction, and the self-financing nature of the TP Scheme mechanism, which increases its political acceptability.” (**Mathur 2013:204**)

“TP Schemes” refer to town planning schemes.

**Mittal (2013)** uses the self-financing case of the 47.2-mile ring road project (77% of which is by land readjustment) in Ahmedabad, Gujarat, India, to point out that a “strong political will,” a “high degree of public acceptance” and above all “strong demand in the local real estate

markets” are necessary of project success. The *Land Acquisition Act* of 1894 of India allows land acquisition in both urban and rural areas but land readjustment is limited to only certain areas. This project is under *Gujarat Town Planning and Urban Development Act* of 1976 (GTPUDA), which allows land readjustment only in urban areas. The work uses a lot of good maps (e.g. Exhibit 3) and aerial photos to show the project. The author holds that strong charismatic political leadership helps deal with public resistance and seemingly win trust from land owners to transfer temporarily land to the government to carry out the readjustment. **Mittal (2013)** refers to a conference paper of **Home** of 2002 to trace the origin of land readjustment in India to 1915 and is correct in saying that land readjustment

“is a technique used for organizing peri-urban land or suburban land for urban development purposes. However, it also is used in denser inner city type settings.” (**Mittal 2013: 63**)

**Monk et al. (2013)** write for the Joseph Roundtree Foundation an extensive international comparison of land supply management experiences with reference to England. The countries surveyed are Australia, Czech Republic, Denmark, France, Germany, the Netherlands, New Zealand, Republic of Ireland, South Korea, Switzerland, and United States of America. It notes that it is more widely applied in the French and German context despite differences in their approaches. The French system is voluntary while the German has some legal binding mechanisms. They highlight the role of land readjustment in providing the very much needed infrastructure in a development project. In this report, no definition of land readjustment is discussed.

**Kim (2013)** explains that historically, the urban fabric of Seoul has been the product of land readjustment (of a total area of 14,000 ha) until the 1980s. With the advent of low economic growth and birth rates in Korea, the return of land readjustment is a promising tool for the regeneration of the urban fabric. Figures 3 to 5 on three land readjustment schemes are of high

quality. The influence of Japan is admitted but it is pointed out that Japan learnt from Germany land readjustment.

**Van der Krabben and Jacobs (2013)**, with reference to **Lefcoe (1977)**<sup>1</sup>, who cautions using US municipalities as property developers upon a comparison of the Dutch and California situations, find that the top-down government-led land readjustment in Holland since the 1990s have certain risks and that private developers are more able to meet demand for housing. Of interest is their distinction of land readjustment from “land banking”:

“As it is applied by Dutch cities a public land development strategy, involves public purchase, ownership and servicing of land and active planning for land use before land is released for actual development to the private sector. This guarantees building developments according to public policies, it realizes full cost recovery of all public works via the sale of building plots and it captures at least part of the surplus value of the land (after a change in use). In this paper we argue that a public land development strategy should be distinguished from the internationally more common strategy of public landbanking. Public land banking involves land assembly by the public sector and the sale of unserviced land to the private sector. Where the Dutch see public land development as a way to implement a local authority driven development program for a whole city, American and other cities around the world make use of land banking strategies to acquire properties mainly on brownfield locations to enable a (re)development program for that specific area. In addition to these two development models two alternative strategies can be distinguished as well, i.e. private land development strategies and urban land readjustment strategies.” (**Van der Krabben and Jacobs 2013: 774**)

---

1 There is a typo in the title of the journal cited.

This joint paper is very clear with institutional details although it is not interested in testing or applying any specific hypothesis based on neo-institutional theories. Note that the work of **Lefcoe (1977)** should not be treated as the impracticability of land readjustment in US but the impracticality of transfer the Dutch model to US.

**Byahut (2014)** in a “planning note” reports land readjustment used in reconstructing the earthquake devastated city of Bhuj, Gujarat, India. This case involves a nonprofit urban planning firm commissioned to make and implement the development plan, well presented in the coloured Figure 1 (441). It is surmised that this may lessen the political and social transaction cost in assembling land from owners of this historical city.

The work by **Chhetri (2014)** shows that for developing countries like Nepal, where land tenure and property right systems are far from perfect, land readjustment/land pooling is one of the possible tools wherein landowners without expertise or capital for development can become partners for developing their sites in a planner manner without losing land ownership.

The research of **Kim and Olshansky (2014)** shows that aside from timing, success in post disaster recovery projects depends on their time-pressured nature. Land readjustment as a post disaster government planning response in India, Japan, and Chile is mentioned in the discussion.

The second paper by **Mittal (2014)**, which informs **Walters (2019)** reviewed here can be treated as a further development of his (2013) paper, which is not cited here. It repeats the key illustrations of the 2013 work on the Ahmedabad project. This paper further discusses the Ahmedabad project and another ring road project in Surat city wherein 44% of it was carried out using land readjustment. These two cases see an appropriate legal framework for land readjustment and favourable real estate market in addition to the inspiring political leadership as prerequisites for land readjustment to work in India (**Mittal 2013, 2014**). The

standard of map presentation in this work is high. Figure 3 reproduces an example of land readjustment (before and after readjustment on the same plan) along the ring road of Ognaj-Charodi, Khodiya and Figure 4 shows the sequence of land readjustment in terms of land boundaries at each stage of land readjustment.

The two-page planning note of **Mukherji (2014)** treats land readjustment (LR) as “a land management technique used to consolidate plots of land for unified planning of infrastructure” that has been applied in several instances of post-disaster construction. It is useful in pointing out technical and institutional constraints for the application of this practice:

“Errors in plot sizes, boundaries, and titles during the reallotment of newly divided plots after LR.” (**Mukherji 2014: 438**)

Based on a study of three urban regeneration projects in the city of Bristol, four Valencian projects and four Dutch cases in the cities of Amsterdam, Eindhoven, Groningen and Breda, the paper of **Muñoz-Gielen (2014)** supports government legal authority (“a land readjustment regulation”) and leadership in land readjustment with compulsory purchase as a fall back option. Landowners speculation, as experienced in Valencia, is taken as a major problem for regulation. Uninformed by the theory or price control (**Cheung 1974**), the treatment of “property rights” is interesting for seeing the severance of “development rights” from private “property rights” to land as desirable.

Comparing the English, Spanish and Dutch institutional regimes with respect to land readjustment, the paper by **Muñoz-Gielen (2014)** lauds the Valencian system of tendering for a development agent to handle a specific land readjustment project because it separates “development right” from land ownership right while getting more the commitment of participating landowners into the project. **Muñoz-Gielen (2014)** also mention how certainty about future obligations from stipulated regulations improves value capture in both the English and Valencian cases.

The aim of the paper by **Hartman and Spit (2015)**, which compares land management in the Netherlands and Germany, is

“to reconsider planning by law and property rights in terms of the relation between planning instruments and their particular context.” (**Hartmann and Spit 2015: 729**)

The former country is treated as “active” and the latter “passive” in land management. The work deals with property rights and institutional idiosyncrasies but is not Coasian, as it does not use any transactions cost concepts. As in **Van der Krabben and Jacobs (2013)**, a reference is made to **Lefcoe (1977)** to compare Dutch municipalities as private developers. In this work, land readjustment is seen as way to implement town planning:

“The purpose of land readjustment is to create suitable building plots for the designated land use according to shape and size.” (**Hartmann and Spit 2015: 732**)

**Magel (2015)** is a practice and not a theoretical paper that analyzes the history of and foundation for rural development in Germany, particularly in Bavaria. It suggests what can be done to facilitate “rural territorial development,” of which rural land readjustment is its very root component. In terms of definition of land readjustment, this work presents in Figure 1 the famous “territorial development onion” of by Professor Joachim Thomas, former head of the rural development administration in North Rhine-Westphalia, which shows “land readjustment” as a subset of “land consolidation,” which is a subset of “rural development,” which in turn “rural territorial development,” then “territorial development.” Land readjustment is the heart of the matter of German development. This practice paper does not use any neo-institutional economic approach in analyzing rural development. Although the legal and financial framework in EU is explained, how the transfer the land rights takes place or what are the key transaction costs associated is untouched. Instead of focusing on economic values, the work is the only paper

reviewed here that expressly affirms the values of human dignity and human values.

The paper of **Mittal and Kashyap (2015)** compares two property development led projects in common law India, the Kundli-Manesar-Palwal Global Corridor (KMPGC) in the national capital region of Delhi and the Sardar Patel Ring Road (SPRR) in the city of Ahmadabad, India. The former is using land readjustment and the other by compulsory purchase. Both are operating in legislations that are legacies of British colonial rule. The authors compare the two different approaches and offer a hybrid model. (Note that the first author reported the KMPGC in his 2013 paper, then without a project name, and again in his 2014 paper already covered above. Here details about the Indian legal framework and goodness of land readjustment are provided:

“This LR technique as practiced in India was originally introduced by the British Colonial Government in 1915, which was modified via legislation updates first in 1954, and then in 1976 when the *Gujarat Town Planning and Urban Development Act, 1976* was prepared and later, amended update in 1999.

Land readjustment is a “market savvy” way of financing infrastructure (Sanyal Deuskar, 2012: 152). LR is used in many countries to reconfigure underperforming land parcels after pooling contiguous land parcels and servicing areas with basic infrastructure to achieve a well-coordinated, planned development. Land readjustment (LR) is a technique for peri-urban or suburban land development that combines several elements, such as pooling of property rights, physical re-organization of land parcels and preparation of a layout plan, all, with an aim to achieve planned urban growth via urban infrastructure provision in a self-financing way.” (**Mittal and Kashyap 2015: 206**)

As regards land acquisition, only the *Land Acquisition Act, 1894* (LAA) is mentioned



with some elaboration on challenge by judicial review and democratic politics:

Compulsory acquisition of property involves expropriation of private rights in the property. The constraints of this methods are resistance from land owners and long drawn process of statutory procedure required to be completed with due diligence. The LAA allows States to acquire land for public purpose, including for private companies to set up large industrial projects that claim to benefit local economy and employment. Landowners have always contested the land acquisition on the grounds of arbitrariness in the process and inadequate compensation, resulting in delays and sometime of scrapping of the land acquisition proceedings in the judicial review. For example, Tata's 'Nano Car Assembly Plant' project in Singur, West Bengal, India gained international media attention in 2008, where state attempted its eminent domain powers via the LAA to acquire circa 1000 acre land for the plant. This land acquisition was opposed by several social activists and political parties in the state ... eventually stalling the project permanently." (Mittal and Kashyap 2015: 207)

In terms of presentation, it produces two concepts maps that are products of the Hirakata-shi Government Office, Osaka (as Figure 1) and the map, in colour, used in Mittal (2013, 2014) for the ring road (Figure 5).

The paper by Yilmaz *et al.* (2015) with the Department of Surveying Engineering, Yildiz Technical University, aims at evaluating the effectiveness of land readjustment in different countries on an objective basis. The paper compares and contrasts the differences in practices in different countries, and evaluated their resulting effects by some objective criteria.

"a wide range of ISI journal articles on LR to establish a framework and a methodology that will help evaluate and compare the national LR processes. The

main contribution of this article is to build an awareness for the establishment of an internationally agreed methodology to evaluate the performance of a country's LR in a systematic [sic] way, which is currently not available in the literature." (Yilmaz *et al.* 2015: 153)

"Considering the good practices derived from 18 ISI journal articles on LR, the proposed evaluation framework identifies performance indicators that have been constituted to measure the extent to which they meet at different evaluation levels and for different aspects of LR." (Yilmaz *et al.* 2015: 153)

This paper is not a full literature review as the eighteen ISI works consulted are too limited to be safe. The earliest work cited, other than a 1935 publication of Henry George, is the book of Doebele (1982). The paper summarises well the practices of land readjustment (LR) in many countries, namely France, Germany, Sweden, Finland, Turkey, Indonesia, Australia, Taiwan, South Korea and Japan:

"Briefly, the LR projects start with a formal decision which can either be a private initiative as is the case in Japan, France, Sweden, and South Korea, or a public initiative as implemented in Germany, Japan, Turkey, Finland, Australia, South Korea and Indonesia. Then, the LR project area is defined by mathematically adding or pooling the parcels, which are located within the project boundaries. In some countries including Japan, Germany, Finland, Australia, South Korea and Turkey where publicly initiated LR projects are implemented, decisions on LR projects may be made directly by local governments without asking the consent of landowners. In such cases, the process is handled as an administrative issue. However, in some cases the support of landowners can still be obtained to a limited extent at the beginning of the publicly initiated LR projects. On the other hand, in privately initiated LR

projects, the main condition is to ensure a consensus between the landowners as applied in France, Sweden and Taiwan. Otherwise, the project cannot be initiated. However, in some countries such as Germany and Japan, the privately initiated projects do not need the approval of all landowners. If two-thirds of the landowners owning two-thirds of the total land area agree to participate in the project, then it becomes compulsory for the others. Following the participation process, the area allocated for public purposes according to the spatial plans are extracted from the project area. In Japan, Germany, France, Sweden, Finland, Australia, South Korea and Taiwan, landowners make more contributions in terms of reducing their land to recover the cost of the project. This land portion is called reserve or cost equivalent land and is sold at the end of the project to pay for costs such as planning, administration and construction. Then, the remaining area is

subdivided into urban parcels according to the masterplan, and allocated to the landowners based on their shares in the project. The calculations in the allocation process could be area or value-based. While some countries have only one allocating base (only land-based in Turkey and Indonesia, and only value-based in Sweden, France and Australia), in some other countries such as Japan, Germany, South Korea and Taiwan, the calculations regarding the allocation can be based on either an area or a value. In Germany, Japan, France, Sweden, Finland, Australia, South Korea, India, and Taiwan, after the allocation of the land, the value difference valued difference between the initial and allocated plots is calculated for each landowner and compensated through money payments.” (Yilmaz *et al.* 2015: 156)

The following table (Table 1) summaries their above findings:

**Table 1: Key information in Yilmaz *et al.* 2015: 156**

	Public initiation (Consent of landowners required?)	Private initiation (Consent of landowners required?)	Basis of reassignment of rights upon readjustment
France	No information	Yes	Land value only
Germany	No	No	Land value or land area
Finland	No information	Yes	No information
Sweden	No	Yes	No information
Turkey	No	No information	Land area only
Indonesia	No	No information	Land area only
Australia	No	No information	Land value only
Taiwan	No information	Yes	Land value or land area
South Korea	No	No information	Land value or land area
Japan	No	No	Land value or land area

Other countries mentioned are the Netherlands, Israel, India, Nepal and communist China. In their analysis, the authors mention “property rights” five times as a constraint in land readjustment but does not articulate private property rights, although it illustrates how rights on land could be distributed and transferred, and how this can affect the process of land readjustment. Yet, “cadastral” is an important keyword, mentioned ten times in the text and illustrations. No literature of neo-institutional economics is cited, nor are relevant ideas and concepts adopted in its ambitious but source-wise constrained attempt.

**Muñoz-Gielen (2016)** refers to the Dutch government move to draft a land readjustment act after an expert report submitted in summer of 2014. This paper develops a framework of analysis that concludes that the proposed Dutch regulation may not fulfill all expectations.

**Kucukmehmetoglu and Geyman (2016)** use a mathematical model to explain the difficulties of practicing land readjustment in Turkey. Most of the difficulties analyzed belong are technological difficulties rather than economical or legal difficulties. Property rights delineation and transaction costs involved in the land readjustment process are not covered.

The paper of **Ragheb et al. (2016)** introduces how land readjustment can be used as a tool to create a better living environment for slums in developing countries. This paper uses SWOT analysis to compare the conditions of a slum in Egypt with another in India with a view for possible sustainable land readjustment. The authors do not touch the institutional foundations for land readjustment in these two countries. They deal with neither the mode of transferring land rights nor the transaction costs involved. Works from the literature on neo-institutional economics or relevant ideas are not mentioned. However, it is a good attempt to develop land readjustment as a tool for sustainable development for the needy. Its UN-informed understanding of land readjustment is:

“Land readjustment is a tool that can support sustainable urban development

by allowing for planned and managed urban extension and densification. This technique brings a group of neighbouring landowners in a partnership for voluntary land contribution or sharing, joint planning and the servicing of their adjoining plots. It includes an equitable sharing of the costs and benefits of projects among public bodies, landowners and developers. The surrender of land for infrastructure and other public space needs, and sometimes also for sale to offset infrastructure costs, is a key characteristic of land readjustment. UN-Habitat believes that there are many potential benefits of land readjustment in terms of managing urban growth via expansion and densification. Landowners also benefit, as land readjustment improves the overall individual and neighborhood property values ...UN-Habitat has proposed a new approach for land readjustment called PILaR – Participatory and Inclusive Land Readjustment.” (**Ragheb 2016: 421, underline authors’.**)

Inclusive land readjustment will come up as a theme in **Cain et al. (2018a, 2018b)** for Angola.

The book *Remaking the Urban Mosaic: Participatory and Inclusive Land Readjustment* was published by **UN Habitat (2016)**. It is a very easy to read organised in 11 chapters. It is unique in that it has a 1 to 2 minute video produced by an expert for each chapter highly useful for teaching purposes. The co-authors named are many: Larry Walters; Maria Buhigas; Rainer Müller-Jökel; Allan Cain; Shirley Ballaney; Paul Mundy; Juan Felipe Pinilla; Yu-Hung Hong; a group of UN Habitat contributors (Clarissa Augustinus; Gianluca Crispi; Oihana Cuesta, Jean du Plessis, Salvatore Fundaro, Solomon Haile, Robert Lewis-Lettington, Rebecca Ochong, Liz Paterson, Melissa Permezel, Remy Sietchiping); and Robin Michael Rajack. (Some works of Müller-Jökel, who also produced a video and Hong were included in this review.) The generic aim of land readjustment is for “unified planning, subdivision or re-parcelling, and development” (**UN Habitat 2016: xiii**) for *higher valued* planned outcome that takes

into account property rights which are not treated as absolute. Respecting sustainability and subsidiarity, a participatory and inclusive approach is stressed.

“Land readjustment involves pooling all the land parcels in a particular area and planning them as a unit: putting in roads, sewerage and other infrastructure, and then dividing up the land again to the original owners. A proportion of the land is used for roads and public space. Each landowner gets a plot back which is usually smaller than the area he or she originally contributed to the common pool. But the plot is now more valuable: it has infrastructure and services, and has formal documentation; the area has been re-zoned, and different types of use are permitted. The municipality may retain part of the area for sale or for other uses (such as affordable housing).” (UN Habitat 2016: xiii, underline authors)

“The PILaR approach is based on a set of principles of good urban governance, including sustainability, subsidiarity (decisions should be taken at the lowest appropriate level), equity, efficiency, transparency and accountability, civic engagement and security. It recognizes that (property) rights to land are rarely absolute; rather, there exists a continuum of land rights. PILaR tries to take the interests and rights of all stakeholders into account – whether landowners, landholders, formal or informal residents, tenants or people with customary rights to the land.” (UN Habitat 2016: xv, underline authors)

“PILaR seeks the maximum consensus of the people affected and with minimum disruption to the local community. It makes special efforts to reach vulnerable stakeholders such as widows, orphans and women household heads, and to ensure that their property rights are not overlooked or misrepresented in the reconfiguration.” (UN Habitat 2016: 26, underline authors)

A total of 12 countries are mentioned in this UN book: Colombia, Germany, Turkey, Angola, Burkina Faso, India, Nepal, Bhutan, Indonesia, Taiwan, South Korea and Japan. The conceptual maps (seven in number) provided to illustrate land readjustment are excellent (especially Figures 1, 4, 11, 13, 14, 14 and 16). three sets of cadastral maps were used. These include two which show the final plots in the Nagpur improvement scheme in India; and maps before and after the land readjustment in Lungtenphu, Thimphu, Bhutan.

**Gozalvo Zamorano and Muñoz-Gielen (2017)** attempts to analyze the effectiveness of land readjustment in capturing land value to facilitate the provision of public infrastructure. The paper refers to Spain’s land readjustment as an example in an attempt to deal with the “active” versus “passive” approach to land development, and land readjustment as a passive “third way” instrument in this process. The paper focuses on how non-negotiable developer obligations function within the Spanish land readjustment and to what extent they succeed in delivering public infrastructure. It concludes that land readjustment in Spain, used in conjunction with non-negotiable developer obligations, has increasingly succeeded in providing a large share of public value capture and thus effectively implement public land use goals. The work focuses on the *de facto* result of land readjustment on public infrastructure with less attention to the cause, paying little attention to the property right delineation and transaction costs involved in the land readjustment process.

**Tan and Herrink (2017)** expressly attempt to use the transaction cost economics paradigm to interpret the adoption of land readjustment. Their work cites several chapters in **Hong and Needham** (eds. 2007) but misses out the pioneering work of **Kung (2002)** or **Schwarzwalder et al. (2002)**. It compares and contrasts the practice of two modes of rural land readjustment in communist China: self-organised and public-organised. Unlike **Kung (2002)**, the understanding of transaction costs is informed by Williamson rather than Coase.



**Abd-Elkawy (2018)** aims to analyze the use land readjustment for redevelopment. It uses Egypt as an example. It first deals with definitions, attempting to draw a distinction among the terms “land readjustment”, “land pooling,” “land consolidation,” “land re-dividing” and “land plot boundary modification.” It then treats the pros and cons, and the procedures of land readjustment in general before switching to six districts in the Giza governorate of Egypt. It explains the roles of different stakeholders and how they interact together in principle and how the parties benefit from such scheme. However, little attention is given to the transferability of rights or the transaction costs involved at different stages of land readjustment, which is summarised as:

“an important tool in the field of urban renewal and the development of new areas which require the intervention of the state, approval of the population and the financial contribution of private sector to achieve a compatible new land plots division with the requirements of sustainable development.” (**Abd-Elkawy 2018:383**)

The work makes good use of maps and aerial photo illustrations.

**Almeida et al. (2018)** report that in Portugal, the principles for the application of LR were established in the 1999 Spatial Planning Legal Framework (Decree-Law no. 380/99 of 22 September). It seeks to explore what can be done to increase the feasibility of land readjustment by a study of three cases of land readjustment in the municipalities of Almada, Coimbra and Lisbon. It discusses the difficulties of land readjustment under public administration and explains how land readjustment can be managed by landowner associations and private companies. It concludes that land readjustment can be more feasible only when legal codes and property-related rights are better defined. Though the Portuguese law requires “the clear definition of the boundaries within which the model is to be applied,” the definition adopted for land readjustment leaves out the property boundaries as an essential element.

“The definition of LR varies across the literature but it can be simply described as an urban development or redevelopment method involving the transformation of an existing property structure and the distribution of the development costs and final property holdings among the original titleholders in accordance with their initial shares.” (**Almeida et al. 2018:1432**)

**Chun (2018)** is a well written work on the connection between German land readjustment law from the nineteenth century and the law and practice of land readjustment (LR) in Japan and colonial and post-colonial Korea. The work begins with a positive characterisation of land readjustment as a modern planning tool.

“a land development technique utilized to reorganize an irregular pattern of agricultural land holdings into regular building plots, and then subsequently to construct the supporting roads and public facilities. It is an efficient method of dealing with world wide urbanization and the subsequent demand for urban lots..... The advantage of using this method is the promotion of urban development without the need for public financial input. On the basis of economic partnership between the private and public sectors, LR projects aim to provide a high level of basic urban infrastructure and, ultimately, to prevent urban sprawl. It is a modern planning strategy used in many countries around the world.” (**Chun 2018: 101**)

This work concludes with a critical appraisal of land readjustment in its socio-economic application to postwar South Korea:

“The ambivalence of land readjustment, between coercion by higher authorities and the voluntary requests made of urban proprietors, between a mildly conservative form of municipal communalism and a purely capitalist modernization, is most clearly revealed in (post)colonial Seoul. But it is also

a broader legacy as well that extends around the globe. In terms of its coercive and developmental rationality, the history of LR gives some indication as to the ambivalence of modernity per se.” (Chun 2018: 119)

This work is indispensable for understanding the legal and political background for South Korean land readjustment.

Finally, we come to the book of **de Souza et al.** (eds. 2018) *Land Readjustment: Solving Urban Problems through Innovative Approach* published by the Japan International Cooperation Agency Research Institute. It has a chapter on the JICA’s global technical cooperation and dissemination of land readjustment information. It is a useful text on land readjustment as it has case studies on Japan (Chapter 2) and 19 other countries (Chapter 3). The nineteen countries are the UK (Home 2018), Netherlands (van den Brink 2018), Germany (Linke, Hans Joachim 2018), Sweden (Österberg 2018), Finland (Viitanen 2018), Turkey (Yomralioglu 2018), Israel (Khamaisi 2018), Angola (Cain et al. 2018a), Afghanistan (Javid 2018), India (Peter and Dave 2018), Nepal (Joshi and Shrestha 2018), Bhutan (Wangmo 2018), Thailand (Tanmanee 2018), Vietnam (Hieu 2018), Mongolia (Bayartuvshin 2018), Indonesia (Supriatna 2018), Taiwan (Lin and Ding 2018), Columbia (Eberhard 2018), Brazil and (Monteiro et al. 2018).

**Bayartuvshin (2018)** covers land readjustment projects and procedures in the ger area of the capital of Mongolia that commenced in 2013. A nine steps procedure involving land owners at each stage has been developed. The country being culturally nomadic, the migration of people to the Mongolian capital of Ulaanbaatar has brought about many urban health and sanitation issues. The author uses cases from Ulaanbaatar to illustrate how land readjustment was implemented in Mongolia. According to the land readjustment handbook of the government’s Housing Project for Ger Area, land readjustment in Mongolia is initiated by the private sector, who with the support of the state forms the project manager. The project manager

is the one who surveys the land whether their owners want exchange their land for land or with apartment units. The land readjustment are normally in less populated suburban areas which makes it challenging to attract private sector investment. “Ulaanbaatar city [also] does not have standards for a land estimation ratio that meets modern requirements.” (Bayartuvshin 2018: 154). This poses an important challenge as a project relies much on the proper estimation of the property value to find out the contribution of and returned land to each participating landowner. In the example given, the property value after land readjustment is 2 to 5-fold of the pre-readjusted; the population density also increases fourfold.

**Cain et al. (2018a)** in their commentary on land readjustment in the Sassonde and Camussamba Land Readjustment Project Huambo, Angola, hold that:

“De facto recognition of ...occupation rights of existing land owners-occupiers is important for the functioning of an inclusive land market.” (Cain et al. (2018a: 102)

Even without the formal legal framework for land readjustment, the Huambo municipality with the Developmental Workshop Angola implemented two readjustment projects—the first one successful and the other not. To cope with the large number of informal settlers in the first project site, the proponents used the *de facto* land boundaries occupied by the informal settlers as the basis of their contribution. This was also a way to gradually formalize the tenure of squatters rendering the readjustment projects more participatory and inclusive. Each participating landowner—formal and informal—contributed around 65% of their land for infrastructure and reserved land for sale. It happened that the property market was robust then, and this led to a 13-fold increase of land value and 14-fold increase of population density on the newly reconfigured and regularized 60-Ha area. The authors point out that the second project failed because the municipality lost their right to benefit from these local developments due to a change in legislation. With no incentive

to gain funds locally, the intended infrastructure projects were not completed.

**De Souza (2018a)** describes land readjustment (土地区画整理 *tochi kukaku seiri*) as a “public-private partnership” instrument, which involves “replotting” (換地 *kanchi*) which means the “change of the format, and area of several plots of land to achieve a project’s final scenario.” **De Souza (2018b)** reports the achievement of land readjustment until 2013 as the “mother of town planning” (都市計画の母 *toshikeikaku no haha*). A total of 10,909 areas covering 329,248 ha. have been readjusted. **De Souza, Felipe Francisco and Takeo Ochi (2018a)** outline the Japanese 1954 Land Readjustment Law (土地区画整理法 *tochi kukakuseiri ho*). **De Souza, Felipe Francisco and Takeo Ochi (2018b)** is a case study of the Misato Chuo land readjustment project with elaboration on the street value assessment method.

**Eberhard (2018: 116)** shows that where specific formal institutional instruments are absent, other tools have been used to apply land readjustment.

“In Columbia, there is no specific law on land readjustment, both development and implementation of land readjustment projects occur using other instruments and legal frameworks...among them, cooperation among stakeholders, the partial plan, urban action units, and the equitable share of cost and benefits.” (**Eberhard 2018: 116-117**).

The “partial plan” is a planning tool formulated by public or private or both entities, whose workings are different depending on who is the actor. Considering public land is scarce in Columbia, partial plan by public actors tend to use a quick form of expropriation to assemble land and get the benefits within the electoral term of the officials. The equitable share of cost and benefits is another tool where the land contribution in land readjustment is implemented. For instance, landowners are required to give 20 to 25% of the land for social housing.

The influence of Japan and legal definition are summarised as”

“In 1989 *Law N° 9* was enacted in Colombia. This law, on urban reform, contained instruments or management and land use planning, conferring to the State the protagonist role as city builder. During the law development process, the Japan International Cooperation Agency’s participation was particularly reflected in the corporation of land readjustment as a mechanism to “encompass several land plots to, as consequence, subdivide them more adequately, providing basic infrastructure, such as roads, parks, water supply network, electricity and telecommunication networks.” (Article 77, *Law N° 9 of 1989*), in areas without proper urbanization and real estate connectivity, designated for undeveloped areas, renewal, renovation or densification.” (**Eberhard 2018: 116**)

The work of **Hieu (2018)** is about the possibilities of land readjustment in Vietnam. Land readjustment in Vietnam has no formalized legal backing and is mainly community initiated with a non-governmental organization coordinating with the local authorities. Interestingly, the valuation of the properties for contribution and reallocation is also done by the community as there is still a lack of transparent professional valuation services. Given the absence of formal legal securities, a strong and trusted community leadership is needed to preserve equity and avoid disputes among the participants. As in the case of communist China, a big conceptual or definitional issue is what really amount to land readjustment under a socialist property rights system.

**Home (2018)** introduces the concept of land readjustment taking British’s former colonies as an example. It introduces the legal history of land readjustment in British’s former colonies in Africa. Then it contrasts the differences between Britain and its former colonies to mentions Britain did not adopt such approach. The paper

refers to “Clause 42 of the model clauses (with origins in 19th century compulsory purchase regulations)” (at page 189) as “empowering local governments to bring about an exchange of land or boundary on an equal and give and take basis but the clause was rarely invoked.” (Home 2018: 189-190). The existence of this clause enables land readjustment.

Two reasons are hinted for not exercising this capability:

“In Britain, with its tradition of large, often aristocratic, estate development ..., the private developer was less concerned with fragmented land ownership, took the profits and assumed the costs of infrastructure within a strong regulatory framework, so there seemed little need for land readjustment.” (Home 2018: 189)

In the crucial period (1905-20) when British town planning legislation was new and changing, land readjustment's German associations made it suspect, for the two countries were at war between 1914 and 1918. Interest in German planning approaches diminished with the rising hostility between the two countries, and the German model of strong municipal power over land was associated in Britain with autocracy and “bureaucratic Germanism”... Later, when the nationalization of development rights was being considered during World War II, the Uthwatt report on betterment returned briefly to land readjustment, referred to as the possibility of “unification by private pooling schemes” (Uthwatt 1942, 24-26), but dismissed it with the lofty words.” (Home 2018: 190)

It defines land readjustment without explicit regarding re-delineation of cadastral boundaries:

“Land readjustment, a technique for land assembly, combines several elements: the physical re-ordering of land parcels, funding of infrastructure, pooling of property rights through some public

agency, and distribution of the financial benefits of development sometimes known as betterment) between landowners and the development agency.” (Home 2018: 189)

It provides a general historical view of the application of the practice:

“It evolved from rural land consolidation as a legal instrument to assist in urban growth situations, and its first application is usually attributed to the Lex Adickes in Frankfurt. While the technique is widely used across the world, it is virtually unknown in the United Kingdom.” (Home 2018: 189)

Hosono (2018) describes the characteristics and relevance of land readjustment for urbanization in developing countries as the main alternative to eminent domain. As for Japan, the use of readjustment under the 1954 *Land Readjustment Law* is broad in functions and extensive in scale. It has been used for controlling urban sprawl, developing new towns, urban rehabilitation, development of complex urban infrastructure, and disaster reconstruction. Known as the ‘mother of urban planning’ in Japan, transforming 10,909 areas, or 329,249 hectares by March 2013, which represents approximately 1/3 of the urban area of Japan.

Javid (2018) discusses the possibilities for Afghanistan to adopt land readjustment. Afghanistan is undergoing rapid urbanization and the government has limited finances to carry out expropriation for land development. Moreover, the social resistance caused by traditional land acquisition methods and the hurdles of many complicated property right institutions make land readjustment an attractive option for the country.

A survey reveals that owners of large plots welcome the concept but those of small lots do not as they fear that the portion reallocated to them may be too small.

Joshi and Shrestha (2018) explain the evolution of planning law in Nepal from the 1988 *Town*



*Development Act*, which enables three types of development, namely guided land development, site-and-services and land pooling. According to the authors, the second type, commenced in the 1970s, is resented by land owners and land pooling is the only form of land readjustment in Nepal. The technique of land pooling was first used in 1975 in the Chipledhunga Land Pooling Project Pokhara but the first official land pooling project was Gongabu that started in 1988. Land readjustment is described this way:

“In land pooling projects, individual plots are combined into one large estate. A new road layout is planned, and the estate is subdivided rationally. Landowners contribute a certain portion of land for open spaces, roads, and reserved plots. New road layouts—often planned in a gridiron pattern—facilitate the provision of other infrastructure such as piped drinking water, drainage, and electricity along the right-of-way and, as a result, the prices of their plots increase significantly. Despite losing some portion of their plots, the original landowners are compensated by an increase in the land price. Moreover the project costs are covered by the sale of reserved plots, thus making land planned urban development and to provide land required for the development of human settlements through environmentally sound planning processes...” (Joshi and Shrestha 2018: 158)

The lot plans before and after the implementation of Gongabu land pooling project (1989-1995) are presented.

Land pooling, as land readjustment is called in Nepal, is initiated by the Town Development Committee with the agreement of 75% of the landowners. There have been numerous projects implemented since 1988. Having no rules for fixed contribution ratio, except for 5% each for roads and reserved land, the authors note that plots originally with no road access has to contribute more compared to those with pre-existing ones. The first successful LR in Gongabu in 1995 increased the land value by

30% and permanent land ownership certificates were issued at end of the projects. Nevertheless, with the current legal framework, the municipal government still does not have the capacity to carry out land pooling on its own and projects still depend on the Town Development Committee.

**Khamaisi (2018)** addresses the issues of “land reparcelization” as part of land readjustment in various cultural and ethnic sectors of Israel. Ninety three percent of the land in Israel is owned by the State. The rest are mainly in private hands under a 49- or 98-year lease. The author discusses issues of land readjustment of land owned by the marginalized Israeli Arabs whose amount to 20% of the population. Aside from the general mistrust with the government, Israeli Arabs also have a system of informally—without registration—subdividing land inherited by the next generation. This informal system and existing clan disputes complicate the process of re-parcelization of land for roads and other facilities. The author shows a 2006 model project which have 3-fold increase of land value and 6-fold increase in real estate value after land readjustment.

**Lin and Ding (2018)** traces urban land readjustment in Taiwan to Japanese colonial period and give very good data on urban land readjustment in Taiwan from 1960 to 2016. The readjustment plan for the Songshan project of Taipei is presented in maps and a table. Since the 1980s, land readjustment in Taiwan has shifted from government initiated to a more privately initiated project. Land readjustment is attractive to the private owners because it can increase the value of their property. The government is attracted to land readjustment because it helps urbanization with minimal financial outlay. Despite its benefits, land readjustment is normally carried out in the urban fringes and this draws away resources from regeneration of urban inner cities. Speculation is also rampant in these readjustment sites which end up having high vacancy rates.

**Linke (2018)** explains that the land readjustment system in Germany is top down. The article is silent about the different reactions of owners

when notified of the land readjustment plan. However, the legal framework ensures that pre-land readjustment contributed plot and post-land readjustment allocated plot by each owner should be equivalent, or else there is a form of financial compensation. In this system, when the original plot has been previously serviced by infrastructure only a maximum of 10% can be deducted as contribution for public development. For plots not previously serviced, they should contribute to as much as 30% of the contributed plot area. Aside from the getting a developed land, owners benefit from land readjustment: “no fees for surveying, administration charges and changes in the land register; and exemption from land transfer tax.” (Linke 2018: 134)

The work of **Monteiro et al. (2018)** reports that land readjustment will be included in the Brazilian Belo Horizonte legislation as a mechanism to be under an instrument called “urban operation.” The work describes the legal development of planning instruments, specifically that of urban operations, where land readjustment can be operationalized in Belo Horizonte, Brazil. Inspired by Spanish and Columbian urban legislations, the policy review opens a legal framework and procedures to bring local plans legally in line with Regional Master Plan in places where boundary readjustment can facilitate public infrastructure development. The proposed 18-ha project in Candelaria is targeted to provide roads to undeveloped land near an important transport hub.

**Österberg (2018)** gives an account of the rise in 1987 and repealing on 2012 of the *Joint Land Readjustment Act*, which enabled land readjustment in urban Sweden, although Sweden has a long history of rural land readjustment. The destruction of the law for urban land readjustment is something that deserves further research. The author explains the reasons for the failure of land readjustment legislation in Sweden. Aside from the low demand in new housing, municipalities—who still have a considerable land bank—and developers found the procedure more cumbersome to carry out the private-led development using land readjustment. There also exists a “strong

policy to avoid direct development on private land, which was believed to lead to higher final cost for new housing and to the creation of unearned land values for private landowners.” (Österberg 2018: 173) Nevertheless, the article still gave a successful example of private-owner-led land readjustment in a rural area for 40 family houses in Skövde.

Peter and Dave (2018) make an important remark, not highlighted by other authors, about land readjustment in India:

“In States that have practiced land readjustment, it has mostly been used for greenfield development (in other words, for planned expansions but not for redevelopment of existing areas, as seen in countries like Japan)...” (Pater and Dave 2018: 139)

The historical implementation of land readjustment since 1915 in India’s Gujarat State has made this practice readily acceptable to the people. Moreover, the value capture strategy of the municipal government is not through betterment taxes, which can be disliked by participating landowners, but through the sales of reserved land. Despite its success in providing housing for the poor, the experience in Gujarat has yet to promote innovations in environmental sustainability and regeneration of existing developed areas.

**Supriatna (2018)** gives an account of the application of land readjustment called land pooling or “land consolidation” in Indonesia. The 1991 *Regulation of the Head of National Agency No.4* on land consolidation defines the practice of land readjustment as:

“A land policy for land tenure and land use restructuring in accordance to the spatial plan as well as on land provision for infrastructure and public facilities development with active participation of community to preserve environment and natural resources.” (Supriatna 2018: 140)

The scale and effect of land readjustment in Indonesia are:

“By 2015, implementation of land consolidation covered 1,010 sites and almost 208,814 rights holders, and encompassed a total area of approximately 174,496 hectares and 242,507 parcels. Land consolidation also promoted the contribution of over 20,761 hectares of land for public development and, in several provinces such as Central and East Java, Bali, and South Kalimantan, it has been prominent not only as a spatial planning tool but also as a land registration program benefiting both community and local governments.” (Supriatna 2018: 143, underline authors’)

Unlike land readjustment in other countries, the infrastructure in Indonesia is built by the local municipalities after the implementation of land readjustment and is not part of the land readjustment process. In some instances, this institutional arrangement has failed to deliver the infrastructure projects desired. The cases in Indonesia are mostly agricultural land being readjusted in Bali and Ruia provinces, but it has yet to be implemented in Jakarta.

**Tanmanee (2018)** describes a land readjustment project in Lampang area, Bangkok, under the 2004 *Land Readjustment Act*. Land readjustment in Thailand is initiated by the government but the system allows the private sector to be involved in development projects sooner in the process. Land readjustment in Thailand has been applied to utilize large unused elongated tracts of agricultural land within the city and to regenerate old parts of the city. It is also useful for forward development like the high-speed rail or post-disaster regeneration. The example in the work shows land value increased to 173% of the originally unused land in Lampang.

**Tahsin et al. (2018)** explains that there are many successful land readjustment projects in Turkey which could increase the original land’s value up to four- to six-fold. In Turkey, land readjustment is initiated by the municipalities without informing the landowners beforehand. This arrangement has caused some landowners not to support and even object to land readjustment. Moreover, the elected councils

of municipalities may be affected by election-related politics in supporting land readjustment or not. Some of these municipalities also do not have the technical capabilities to carry out land readjustment properly. Surveyors do not have the detailed criteria to decide on how to re-allocate land. The system to calculate the land contribution and the eventual land re-allocation is by land area instead of land market value, which may be not equitable at times. The Turkish land readjustment system still does not set aside reserve lots for sale to recover the infrastructure expenses. Lastly, being very lucrative when carried out well, land readjustment sites are prone to land speculation, which can jack up readjusted land prices to the detriment of the low-income people who could not afford it.

**Türk (2018)** is an excellent survey of Turkey’s legal history of land readjustment and reports that most land owners do not favour readjustment especially at the distribution stage.

**Van den Brink (2018)** discusses the application of land consolidation and readjustment for urban-rural fringe area in the Netherlands. With the difference of land value between urban and rural land along the fringes of the urban areas, speculations on rural land divert profits away from the government and leave many rural plots undeveloped. The innovation of the joint urban-rural consolidation and readjustment is that the land price of either type has been fixed to one price. This allows for a “neutral playing field” for the private-public consortium to develop the area. Under this system, however, the landowners sell the land to this consortium for the fixed price and are not directly participating in the actual development of the project. In the long term, the environmental advantages of these urban-rural fringe sites may also incur added environmental and aesthetic value to the properties that would be built. The author does offer any definitions of land consolidation or land readjustment in the Netherlands. The narrative is about a 25 years project that started in 2008. The term land readjustment appears only in the title.

**Viitanen (2018)** on urban land readjustment in Finland explains the weaknesses of the enabling

1995 *Real Property Formation Act* and shows an example of land readjustment on a lot plan that appears to be of 1962! The author describes in detail the process, benefits and disadvantages in Finland's democratic urban land readjustment. The process does not include construction of infrastructure. Participating landowners adjust lot boundaries to the detailed plan and share out building rights. A better-detailed plan is produced by this process. Despite the well-defined structure and organization of the Finnish urban land readjustment, "planners often do not know in practice if the readjustment procedure can be carried out, due to the extensive legal provisions." (Viitanen 2018: 124)

The book chapter of Wangmo (2018) is a good account of land readjustment legally described as land pooling as an urban planning tool in Bhutan. It gives for reasons for its public acceptance, namely preservation of land rights of owners; incentive for landowners who exchange portions of their holdings for better valued configured sites; involvement of stakeholders and capability of accommodating heritage conservation. In contrast with land acquisition, land readjustment has been much more welcomed in Bhutan and has been implemented even without legal support up until 2009. About 93% of Trashigang Dzongkhag owners agreed to implement land readjustment in 2002 and even with a required land contribution of 35%, which is higher than the allowable maximum contribution. This project has provided public infrastructure needed in the vicinity. Attributed to its mountainous terrain, the 30% maximum land contribution of participating landowners was deemed not enough for infrastructure needed and the reserve plot to be auctioned for cost recovery. Therefore, the government had to finance the infrastructure construction. Land readjustment is said to have provided land for conservation purposes in environmental and heritage precincts from the land contributed.

Yanase (2018) traced the attempts to land readjustment in England to the aftermath of the 1666 London Fire and Germany to the 1842 Hamburg Fire and summarised legal development of land readjustment in Japan. In this country, arable land readjustment began

with the 1899 *Arable Land Readjustment Act* and urban land readjustment 1921 *City Planning Act* after the fires of Shinjuku and Asakusa. The Great Kanto Earthquake of 1923 that destroyed triggered the enacted of the *Special City Planning Act*. Interestingly, in valuation of plot assessment by street value, the land parcel correction method developed in Cleveland, Ohio, was applied to Japan for the first time. A *Special City Planning Act* was enacted in September 1946, to be replaced in April 1956, for post-war redevelopment. Two important post war land readjustment projects are mentioned with post readjustment maps without showing the pre-readjusted maps, namely Hiroshima (Figure 2.1) and Nagoya (Figure 2.2). In the latter, the Hisaya Odori Avenue was developed as a street of 100-metre wide. Post-disaster reconstruction and land readjustment projects in the latter half of the 20th Century with the Great Hanshin-Awaji Earthquake are also reported.

Yomralioglu *et al.* (2018) traces the history of land readjustment to Turkey's *Regulation of Roads and Buildings* to 1848 and, like Türk (2018), identifies land owners opposition as an issue of land readjustment in Turkey.

Next comes the book edited by Hong and Tierney (eds. 2018). The publisher has the intention to promote land readjustment in the "Global South" as a land management tool but the book covers also some European states as well. The editors hold that land readjustment is a tool that held achieves five neighbourhood sustainable development principles but the explanation is not clear. They summarise the usefulness of land readjustment as the alternative to voluntary or compulsory purchase of land.

"Land readjustment is needed when existing parcel layout and ownership patterns are prohibitive to desirable development. In such cases, the latent value of land is often reduced by fragmentation, informality, decay and incompatibility with existing uses. Land readjustment creates the opportunity to harness the opportunities of urbanization,



by pooling land together, installing roads, sewerage, and other infrastructure, and then redistributing the land back to the original owners..... Land Readjustment can be used to achieve the five sustainable neighbourhood planning principles as during the land readjustment process, land is reserved for streets and some of it may be set aside for the construction of affordable housing. When carried out within a clear planning framework, it may also promote mixed land use.” (**Hong and Tierney eds. 2018a: 2**)

The disadvantages seen by them are delays and neglect of tenants. They point out that in theory land readjustment is self-financing but cases reviewed show that some projects without external financing (say by international organisations) failed. This begs the question as to why these projects were promoted in the first place.

Chapter 8 by **Balakrishnan (2018)** reports that land readjustment in Magarpatta, India, did not achieve value capture due to property market conditions. It describes land readjustment as a form of property rights exchange.

Chapter 11 by **Brain and Mora (2018)** describes a land readjustment strategy for Chile, mentioned earlier also in **Hong and Brain (2014)**, and details two abortive schemes. One was frustrated by one landowner who wanted to rebuild her house and the other by owners who preferred to sell their properties rather than join the scheme.

Chapter 10 by **Cain et al. (2018b)** is about community land readjustment in Huambo, Angola. Two cases of land readjustment in the absence of legislation that would compel minority dissenters to pool their land and hence the leading agency had to rely solely on persuasion are examined.

“In Fátima, this approach worked well; in Camussamba many landowners could not be persuaded to participate without the weight of stakeholder consensus

from the majority. The alternative, being Government expropriation of land, weighed heavily in achieving their eventual buy-in.” (**Cain et al. 2018b: 150**)

It remarks that “recognition of ....the occupation rights of existing land owners-occupiers is fundamental to the functioning of an inclusive land market.”

In a sense, the Chapter 4 by **English (2018)** is like **Leeruttanawisut and Rabé (2018)** dealing with “land sharing” as a form of land readjustment for slum redevelopment: Nagpur, India. Slum dwellers are offered new housing in a layout by yielding government land they possess within it.

The report by **Korotkova (2018)** at Chapter 9 on land pooling for multi-child families in Russia is obscure as regards what land readjustment means at all. There is no map information either. Figure 3 is not well explained.

Chapter 5 by **Leeruttanawisut and Rabé (2018)** does not refer to land pooling or land readjustment (cf. **Tanmanee (2018)** in its report on “land sharing.” Land sharing may be considered as a special form of land readjustment by agreement under which legal owners surrenders a portion of their land by sale or concession to squatters and or tenants, who thereby become holders of exclusive rights according to a new layout for all.

“The technique of land sharing originated in Bangkok, Thailand during the 1970s and 1980s as an innovative way to resolve land conflicts between legal landowners and informal settlers or “squatters”. The approach involves the partitioning of a parcel of contested land so that both parties are accommodated. Through a land sharing agreement, the landowner regains access to a larger portion of the original parcel, free of squatters, so that he or she can develop the land. At the same time the informal settlers can stay on or near their present site, on another portion of the land, under improved conditions involving

legal tenure and (in most cases) newly built housing.” (Leeruttanawisut and Rabé 2018: 73)

The leading chapter by Lin *et al.* (2018) is entitled “Land readjustment in urbanizing China: Decentralization, profit concession, and redevelopment of village land in Chinese cities” but it is NOT about land readjustment in the usual sense. They make an early declaration:

“It should be clarified at the onset that the concept of land readjustment has its special connotations in China. In rural China, land readjustment refers to the reallocation of the land contracted to farm households in response to demographic changes of the farm households. In urban China, the term land readjustment has seldom been used because of possible confusion with its rural connotations. Instead, a popular and commonly used concept has been “the reutilization or rejuvenation of existing urban construction land”. To avoid any possible confusion, this chapter adopts land redevelopment or land reutilization in lieu of the concept of land readjustment.” (Lin *et al.* 2018: 14)

However, the term “land readjustment” keeps appearing in the rest of the text. The work faithfully communicates the ruling CCP’s terminologies which do not help one to understand if and how *de jure* or *de facto* rights to urban land in China are really “readjusted” and how *de jure* legal or administrative measures to protect those affected apply. A good summary the authors offer is that in communist China, “All institutional arrangements are made not to redefine legally who owns what but instead to reallocate who gets what in the process of land readjustment or land redevelopment.” (Lin *et al.* 2018: 21)

Chapter 7 by Norbu (2018) gives a good account of land readjustment legally called “land pooling” in Thimphu, Bhutan with good map information. Plot size reduction is a characteristic of land pooling under the legal definition”

“...the *Local Government Act* of 2009 which defines land pooling as “a planning technique to redefine ownership of land in such a way that: (1) the shape and configuration of plots is more appropriate for urban structures and uses, and (2) the size of all plots is reduced by an agreed proportion to create sufficient public and planned provision of roads, infrastructure, social facilities, open space and reserve plots.” (Norbu 2018: 103)

The second chapter by Pinilla (2018) is an interesting case of a university Los Andes University, that initiates and promotes a land readjustment scheme in Bogotá, Colombia. The map and project concept illustrations are excellent.

Zeluel (2018) reports a successful project of land readjustment completed in 2014 in the capital of Ethiopia now under a leasehold land system. The report concentrates on the number of families, owners and tenants housing units/land involved with no details as to any land boundary re-delineation.

The editorial by Lai *et al.* (2018a) is about a land bond that is a more liquid method than letter A/B (Pryor 1975) in achieving land readjustment, as elaborated in in Lai *et al.* (2018b) from a transaction cost perspective. The audience of both works are estate surveyors. The later begins with two imaginary dialogues that shed light on the transaction costs of using communal land for urban housing development in Hong Kong according to modern layouts. The dialogues are followed by an account of the historical and institutional background for the present need for land readjustment. This policy is explained as a means to reduce the costs of implementing layouts often hindered by objections from minority owners. Finally, the developer’s scope of obligations and their rationales are elucidated, followed by a justification of the policy. Land readjustment is promoted as “a special way of special way of executing a “transfer of development rights” (TDR) within the existing land administrative framework.” (Lai *et al.* 2018b: 15) The proposal

is market-driven. No legislation or government compulsion is envisaged:

“In our proposal, the developer has the social obligation to survey all cadastral boundaries, acquire most of the private lots, identify minority owners and devise a sound master layout plan for a DD with sites for minority owners to choose as a matter of land readjustment. In the layout, the developer also has the obligation to specify sites and even build housing for the Housing Department as part of a “Public Private Partnership” scheme, as a quid pro quo for government provision of road access and other public utilities. The government as landlord should enable this land readjustment by approving the master layout plan and deeming it also the basis for a land exchange that does not amount to a sale of communal property, merely an adjustment to it.” (Lai *et al.* 2018b: 15)

The paper of Adam (2019) points out that the use of eminent domain in Ethiopia peri-urban development has many problems and suggest the use of land readjustment as an alternative. Adam sees land readjustment as a means to lower transaction costs:

“where users/ owners of land and the government agree so that former can contribute land voluntarily for the public space work such as roads, housing, schools or market places. Part of the contribution will be reallocated back to the land users/owners, and part of it will be sold by the state to reimburse its costs (Sorensen, 2007). Moreover, land readjustment as a new mode of land acquisition that reduces transaction costs involved in the market driven and government driven expropriation and helps to achieve equitable distribution of value gains.” (Adam 2019: 624-625)

This term is however mentioned only once without further explanation. The next work gives more details.

The book chapter by Chau *et al.* (2019) in Muñoz-Gielen and van der Krabben (eds. 2019) proposes to the post-colonial government’s *Task Force on Land Supply* the adoption of the land readjustment concept in rural New Territories of Hong Kong in which private developers must contribute substantial portions of their own land parcels, as non-negotiable developer’s obligations, to public housing and infrastructure development. It starts with an overview of developers’ obligations in Hong Kong, followed by a discussion of the institutional factors that underlie the underutilization of privately owned farmlands for urban development in the New Territories. Then a land readjustment framework is proposed, highlighting major considerations in the institutional design. It is advanced that the proposal would reduce several types of transaction costs:

“This broad-brush approach respects private property rights of all landowners without frustrating good projects approved by the TPB. It saves the transaction costs of the compulsory sale of private land, resumption of private land by government, litigation among parties, and surrenders and regrants of land on a piecemeal basis. This LR process helps release a large amount of land for housing and other suitable uses in the interest of parties involved, achieving a win-win-win outcome.” (Chau *et al.* 2019: 169)

The paper of Go and Lai (2019) makes a passing reference to land readjustment as an alternative means to compulsory resumption of rural Hong Kong land.

Habibi and Ono (2019a) is a cost benefit analysis of a proposed land readjustment project for “Bagh-Ali-Mardan” near the CBD of Kabul. Planned layouts with general land uses and lot arrangement are drawn up and compared with the existing lot arrangement. Land use budgets and lot swapping arrangements are also tabulated. The proposal, backed by JICA consultants, was positioned as superior to the government’s established upgrading and

public infrastructure investment model on the grounds that it is self-financing, preserves most residential lots, historical buildings and the old bazaar site while allowing public participation. **Habibi and Ono (2019b)** is a SWOT analysis of the same proposal.

The book chapter (2) by **Hong and Chen (2019)** in **Plimmer and McCluskey (2019)** debunks five myths about land readjustment. The first is that legislative backing is essential and this is not the case for Angola (**Cain et al. 2018a**), Bhutan (**Norbu 2018**), communist China (**Lin and Li 2018**), Ethiopia (**Zeluel and Hong 2018**) and Vietnam. To this list, we can add Hong Kong (**Pryor 1975**). The second is that “property rights must be clearly delineated,” an idea connected with **Doebele (1982)**. We would say that **Doebele (1982: 119-220)** actually does NOT prescribe this naïve presumption but does specify five prerequisites and eight suggestions. The third prerequisite is “an efficient system of cadastration, tile registration, and, above all, an adequate corps of well-trained and objective property appraisers.” This is sensible. Doebele simply suggests that practically if costs of infrastructure are pressing, then one should try land readjustment with those lands for which all eight factors are present. The first prerequisite is that there is a tradition of collective action for the common good and second “boundaries and titles of properties are clear.” The third myth is that there is a vibrant real estate market. The fourth myth is that the communities must be well organised and the fifth is that stakeholders must trust each other. It is unclear who actually spread myths 3 to 5 which are just various dimensions of transaction costs well covered by that version of Coase Theorem based on **Coase (1959)**. Doebele’s suggestions are sound in the real world of positive transaction costs.

The conclusion of the chapter (14) by **Kashyap and Kashyap (2019)** in **Plimmer and McCluskey (2019)** remarks that land readjustment is distinct from “land pooling” in terms of own participation and continuity of ownership:

“The land readjustment technique involves greater public participation and

distributes financial costs and benefits to share betterment between private landowners and public agency. A pro-rata share of serviced land is given back to the owners after making provisions for roads and other public amenities. Thus, unlike land pooling via direct acquisition such as negotiated purchase or eminent domain, which involves a permanent change in the landownership and the transfer of land parcel from a passive to an active landowner, land readjustment allows continuous landownership and inspires owners to actively participate in the new development....” (**Kashyap and Kashyap 2019: 279**)

Note that **van den Brink (2018)** makes a distinction between land consolidation and land readjustment.

Chapter 5 by **Tiits and Tomson (2019)** in **Plimmer and McCluskey (2019)** presents “land consolidation” (with an example illustrated by two maps at pages 91 to 92) as an alternative to state expropriation and voluntary acquisition for Estonia.

Chapter 22 by **Walters (2019)** in **Plimmer and McCluskey (2019)** is informed by **Mittal (2014)** in tracing the international history of land readjustment. He points out that it is an alternative to eminent domain, which he criticises for, among other things, denying owners displaced any value for place identity. This work is uninformed by the works of **Shultz and Schnidman (1990)** or **Liebmann (2000)**.

## REFERENCES

- Coase, Ronald H. “The nature of the firm.” *Economica* 4, no.16 (1937): 386-405.
- Lai, Lawrence W.C. “A dialogue on town planning and boundary Delineation.” *Planning Practice & Research* 36, no.5 (2021): 483-490.
- Lai, Lawrence W.C. “No property is an island”: the private lot as the basic unit of land use planning & management of a wider world.” *COSMOS + TAXI* 11, no.1 (2022): 71-77.



Lai, Lawrence W.C. and Stephen N.G. Davies. “A Coasian boundary inquiry on zoning and property rights: Lot and zone boundaries and transaction costs.” Progress in Planning 118 (2017): 1-28.

Lai, Lawrence W.C. and Stephen N.G. Davies. “‘Surveying was a kind of writing on the land’: The economics of land division as town planning.” Planning Theory 19, no.4 (2020): 421-444.

Lai, Lawrence W.C. and Stephen N.G. Davies. “Is non-zoning of land impossible? Eight fundamental propositions of zoning.” Journal of Environmental Policy & Planning (2022): 1-16.

Lai, Lawrence W.C., Stephen N.G. Davies, Edwin H.W. Chan, Mark Hansley Chua and C.L. Lin. “The production and consumption of land use planning: A neo-institutional economic perspective & three Taiwan case studies of planning layering.” Land Use Policy 99 (2020): 104910.

Lai, Lawrence W.C., Stephen N.G. Davies, K.W. Chau, H.T. Lennon and Terry K.W. Lam. “A centennial literature review (1919–2019) of research publications on land readjustment from a neo-institutional economic perspective.” Land Use Policy 120 (2022): 106236.

Lai, Lawrence W.C., Stephen N.G. Davies, Frank T. Lorne, K.W. Chau and Lennon H.T. Choy. “A neo-institutional economic analysis of revising informal and formal proprietary boundaries.” Journal of Environmental Policy & Planning 23, no.4 (2021): 414-431.

## APPENDICES

**Appendix 1:** 225 works reviewed by author in alphabetical order of the author’s last name

(\* to acquire, not reviewed)

1. Abd-Elkawy, A.A.M. “Requirements of implementation limited land

readjustment tool in developing informal deteriorated areas (Case study: Daier el Nahea area - Dokki District – Giza governorate)”, International Journal of Development and Sustainability 7, no. 1 (2018): 381-408.

2. Acharya, Ballabh Prasad. “The transferability of the land-pooling/readjustment techniques.” Habitat International 12, no. 4 (1988): 103-117.

3. Adam, Achamyelash Gashu. “Thinking outside the box and introducing land readjustment against the conventional urban land acquisition and delivery method in Ethiopia.” Land Use Policy 81 (2019): 624-631.

4. Adams, David, Alan Disberry, Norman Hutchison, and Thomas Munjoma. “Managing urban land: the case for urban partnership zones.” Regional Studies 35, no. 2 (2001): 153-162.

5. Agrawal, P. “Urban land consolidation: a review of policy and procedures in Indonesia and other Asian countries.” GeoJournal 49, no. 3 (1999): 311-322.

6. Alterman, Rachelle. “More than land assembly: Land readjustment for the supply of urban public services.” In: Ch. 3 Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007, 57-85.

7. Alterman, Rachelle. “Land use regulations and property values: The ‘windfalls capture’ idea revisited.” 2012. In: Ch. 33 Nancy Brooks, Kieran Donaghy and Gerrit-Jan Knapp, eds. Oxford handbook on urban economics and planning, Oxford University Press, 2012, 755-786.

8. Almeida, Joana, José Antunes Ferreira, Beatriz Condessa, and Ricardo Tomé. “Improving land readjustment practice.

- Application of management models to Portugal." European Planning Studies 26, no. 7 (2018): 1431-1449.
9. Anderson, Robert. "Notes on the earthquake and reconstruction in Japan." Bulletin of the Seismological Society of America 15, no. 2 (1925): 100-105.
10. Archer, Raymon Walter. "The leasehold system of urban development: Land tenure, decision-making and the land market in urban development and land use." Regional Studies 8, no. 3-4 (1974): 225-238.
11. Archer, Raymon Walter. "Land pooling for planned urban development in Perth." Western Australia, Metropolitan Research Trust, Canberra (1976a).
12. Archer, Raymon Walter. "Rationalising metropolitan planning and development in Australia." Royal Australian Planning Institute Journal 14, no. 3-4 (1976b): 70-76.
13. Archer, Raymon Walter. "The theory and practice of large-scale land development." Royal Australian Planning Institute Journal 15, no. 2 (1977): 67-72.
14. Archer, Raymon Walter. "Land pooling for planned urban development in Perth, Western Australia." Regional Studies 12, no. 4 (1978): 397-408.
15. Archer, Raymon Walter. "A municipal land pooling project in Perth." Australian Journal of Public Administration 39, no. 1 (1980): 70-88.
16. Archer, Raymon Walter. "Bibliography on land pooling/readjustment/redistribution for planned urban development in Asia and West Germany." (1981).
17. Archer, Raymon Walter. "The use of the land-pooling/readjustment technique to improve land development in Bangkok." Q 10, no. 4 (1986): 155-165.
18. Archer, R. "The possible use of urban land pooling/readjustment for the planned development of Bangkok." Third World Planning Review 9, no. 3 (1987): 235-253.
19. Archer, Raymon Walter. "Land pooling for resubdivision and new subdivision in Western Australia." American Journal of Economics and Sociology 47, no. 2 (1988): 207-221.
20. Archer, Raymon Walter. "Transferring the urban land pooling/readjustment technique to the developing countries of Asia." Third World Planning Review 11, no. 3 (1989): 307-332.
21. \*Archer, Raymon Walter. An outline urban land policy for the developing countries of Asia. Human Settlement Division, Asian Institute of Technology, Bangkok, 1990. (1)
22. Archer, Raymon Walter. "Introducing the urban land pooling/readjustment technique into Thailand to improve urban development and land supply." Public Administration and Development 12, no. 2 (1992a): 155-174.
23. Archer, Raymon Walter. "Lessons from the PB Selayang land consolidation project in Medan, Indonesia." Land Use Policy 9, no. 4 (1992b): 287-299.
24. Archer, Raymon Walter. "Urban land consolidation for metropolitan Jakarta expansion, 1990-2010." Habitat International 18, no. 4 (1994): 37-52.
25. \*Archer, Raymon Walter. "The potential the urban land pooling/readjustment technique to provide land for low-cost housing in developing countries." HSD Working Paper No. 61. Human Settlements Development Program, Asian Institute of Technology, Bangkok, Thailand, 1997. (2)
26. Archer, Raymon Walter. "The potential of land pooling/readjustment to provide

land for low-cost housing in developing countries.” In: G. Payne (ed.) Making common ground: public-private partnerships in land for housing. London: Intermediate Technology Publications, 1999, 113-132.

27. Archer, Raymon Walter. “Urban redevelopment with landowner participation with the land pooling/readjustment technique.” in: G. A. Yeh and M. K. Ng, eds. Planning for a better urban living environment in Asia. Aldershot: Ashgate, 2000, 252-277.
28. Arimoto, Yutaka. “Impact of land readjustment project on farmland use and structural adjustment: The case of Niigata, Japan.” Agricultural and Applied Economics Association (2010).
29. Asami, Yasushi. “Evaluation of the shape of residential lots in land-readjustment projects.” Regional Science and Urban Economics 25, no. 4 (1995): 483-503.
30. Asami, Yasushi, and Tamiki Ohtaki. “Prediction of the shape of detached houses on residential lots.” Environment and Planning B: Planning and Design 27, no. 2 (2000): 283-295.
31. Asano, Makoto, Chikashi Deguchi, Tetsunobu Yoshitake, Hiroshi Yokota, and Takanori Sata. “Development of project management system for minimization of the cost of land readjustment by use of group relocation method.” Journal of Construction Management, JSCE 10 (2003): 61-72.
32. Balakrishnan, Sai. “Land readjustment in western India: New conditions and challenges for the 21st century.” In: Ch.8 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 119-128.
33. Bayartuvshin, Ganbat. “Land readjustment in Mongolia.” In: Ch.3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 152-156.
34. Brain, Isabel and Pía Mora. “Land readjustment as a reconstruction strategy in Chile.” In: Ch.11 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 155-170.
35. Brennan, Ellen M. and Harry W. Richardson. “Asian megacity characteristics, problems, and policies.” International Regional Science Review 12, no. 2 (1989): 117-129.
36. Buitelaar, E. “A transaction-cost analysis of the land development process.” Urban Studies 41, no 13 (2004): 2539–2553.
37. Byahut, Sweta. “Post-earthquake reconstruction planning using land readjustment in Bhuj (India).” Journal of the American Planning Association 80, no. 4 (2014): 440-441.
38. Cain Allan, Beat Weber and Moises Festo. “Participatory and inclusive land readjustment in Huambo, Angola.” In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018a, 99-104.
39. Cain, Allan, Beat Weber and Moises Festo. “Community land readjustment in Huambo, Angola.” In: Ch.10 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018b, 139-153.
40. Cashin, Daniel Joseph. “A study of rural zoning.” Master of Forestry dissertation, University of Michigan, Anne Arbor, 1939.

41. Çete, Mehmet. "Turkish land readjustment: Good practice in urban development." Journal of Urban Planning and Development 136, no. 4 (2010): 373-380.
42. Choe, Sang-Chuel. "The promise and pitfalls of public-private partnerships in Korea." International Social Science Journal 54, no. 172 (2002): 253-259.
43. Chou, T. C. and S. K. Shen. "Urban land readjustment in Kaohsiung, Taiwan." In: Ch.5 William A. Doebele ed. Land readjustment: A different approach to financing urbanization Lexington Books, Lexington, 1982, 65 - 90.
44. Chun, Jin-Sung. "The Lex Adickes in its East Asian contexts: The introduction of land readjustment and its spatio-political effects." In Transnational Encounters between Germany and East Asia since 1900, pp. 101-122. Routledge, 2018.
45. Condessa, Beatriz, Marco Couto Rodrigues, Ana Morais de Sá, and Ricardo Tomé. "Major overview of the Portuguese land readjustment practice in detailed plans." (2013). AESOP 2013.
46. Chhetri, Ram Bhandari. "Land policy instruments in Nepal." Journal of the Institute of Engineering 10, no. 1 (2014): 69-79.
47. Davy, Benjamin. "Mandatory happiness: Land readjustment and property in Germany." In: Ch. 2 Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007, 37-56.
48. De Souza, Felipe Francisco. "Concepts on land readjustment." In: Ch. 1 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018a, 15-33.
49. De Souza, Felipe Francisco. "The successful extensive use of land readjustment in Japan." In: Ch. 1 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018b, 52-57.
50. De Souza, Felipe Francisco and Takeo Ochi. "Land readjustment and the law in Japan." In: Ch. 1 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018a, 33-39.
51. De Souza, Felipe Francisco and Takeo Ochi. "The Japanese procedures and methodology for land readjustment." In: Ch. 1 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018b, 39-51.
52. De Souza, Felipe Francisco, Takeo Ochi and Akio Hosono, eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018.
53. Devas, Nick. "Financing urban land development for low income housing: an analysis with particular reference to Jakarta, Indonesia." Third World Planning Review 5, no. 3 (1983): 209-225.
54. Dixon, Timothy, Noriko Otsuka, and Hirokazu Abe. "Critical success factors in urban brownfield regeneration: an analysis of 'hardcore' sites in Manchester and Osaka during the economic recession (2009-10)." Environment and Planning A 43, no. 4 (2011): 961-980.



55. Doebele, William A. "Land readjustment as an alternative to taxation for the recovery of betterment: the case of South Korea." The taxation of urban property in less developed countries (1979): 163-89.
56. Doebele, William A. ed. Land readjustment: A different approach to financing urbanization. Lexington, Lexington Books, 1982.
57. Doebele, William A. "The evolution of concepts of urban land tenure in developing countries." Habitat International 11, no. 1 (1987): 7-22.
58. Doebele, William A. In: foreword Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007, vii-xiii.
59. Eberhard, María Cristina Rojas. "Land readjustment within the context of partial plans in Colombia." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 116-123.
60. Edamura, T. and T. Tsuchida. "Planning support system for an urban environment improvement project." Environment and Planning B: Planning and Design 26, no. 3 (1999): 381-391.
61. English, Brian. "Land readjustment for slum redevelopment: Nagpur, India." In: Ch.4 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 57-72.
62. Evans, Neil. "Machi-zukuri as a new paradigm in Japanese urban planning: reality or myth?" Japan Forum, 14, no. 3 (2002): 443-464.
63. Firman, Tommy. "Major issues in Indonesia's urban land development." Land Use Policy 21, no. 4 (2004): 347-355.
64. Go, Virginia Khong and Lawrence Wai Chung Lai. "Learning from Taiwan's post-colonial heritage conservation." Land Use Policy 84 (2019): 79-86.
65. Godschalk, David R. Land supply monitoring: A guide for improving public and private urban development decisions, Lincoln Institute of Land Policy, 1986.
66. Gozalvo Zamorano, María Jesús and Muñoz-Gielen, Demetrio. "Non-negotiable developer obligations in the Spanish land readjustment: An effective passive governance approach that 'de facto' taxes development value?" Planning Practice and Research, 32, no. 3 (2017): 274-296.
67. Habibi, Said Mustafa and Hiroko Ono. "An analysis on the sustainability of an adapted land readjustment compared to upgrading model for developing the Kabul old city." International Journal of Technical Research and Applications 7, no. 1 (2019a): 1-7.
68. Habibi, Said Mustafa and Hiroko Ono. "A study on the applicability of an adapted land readjustment model for development the old city of Kabul - A case study of Bagh-Ali-Mardan Area." Journal of Architecture and Planning, AIJ, 84, no. 756 (2019b): 407-414.
69. Hannah, Lawrence, Kyung-Hwan Kim, and Edwin S. Mills. "Land use controls and housing prices in Korea." Urban Studies 30, no. 1 (1993): 147-156.
70. Hartmann, Thomas, and Tejo Spit. "Dilemmas of involvement in land management: Comparing an active (Dutch) and a passive (German) approach." Land Use Policy 42 (2015): 729-737.

71. Hayashi, Kitotaka. "Land readjustment in Nagoya." In: Ch.6 William A. Doebele ed. Land readjustment: A different approach to financing urbanization Lexington Books, Lexington, 1982, 91-106.
72. Hayashi, Kiyotaka. "Nagoya." Cities 9, no. 1 (1992): 18-26.
73. Hebbert, Michael. "Urban sprawl and urban planning in Japan." Town Planning Review 57, no. 2 (1986): 141-158.
74. Hein, Carola. "Shaping Tokyo: Land development and planning practice in the early modern Japanese metropolis." Journal of Urban History 36, no. 4 (2010): 447-484.
75. Heller, Michael, and Rick Hills. "Land assembly districts." Harvard Law Review 121 (2008): 1467-1567.
76. Hewes, Laurence I. "On the current readjustment of land tenure in Japan." Land Economics 25, no. 3 (1949): 246-259.
77. Hieu, Nguyen Ngoc. "Land readjustment possibilities in Vietnam." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 194-203.
78. Home, Robert. "'An irreversible conquest'? Colonial and postcolonial land law in Israel/Palestine." Social and Legal Studies 12, no. 3 (2003): 291-310.
79. Home, Robert. "Land readjustment as a method of development land assembly: A comparative overview." Town Planning Review 78, no 4 (2007): 459-483.
80. Home, Robert. "Land ownership in the United Kingdom: Trends, preferences and future challenges." Land Use Policy 26 (2009): S103-S108.
81. Home, Robert. "Why land readjustment in the British former colonies, but not in the United Kingdom?" in Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono, eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 189-203.
82. Hong Yu-hung. "Assembling land for urban development: Issues and opportunities." In: Ch. 1 Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007a, 3-34.
83. Hong Yu-hung. "Law, reciprocity, and economic incentives." In: Ch. 8 Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007b, 183-193.
84. Hong, Yu-Hung, and Isabel Brain. "Land readjustment for urban development and post-disaster reconstruction." Land Lines 24, no. 1 (2012):2-9. (4)
85. Hong, Yu-hung and Mansha Chen. "Reinventing land readjustment: Implications for eminent domain and land governance," In: Ch. 2 Frances Plimmer and William McCluskey, eds. Routledge handbook of contemporary issues in expropriation, Routledge, Oxon, 2019, 30-48.
86. Hong, Yu-hung, and Barrie Needham, eds. Analyzing land readjustment: Economics, law, and collective action, Lincoln Institute of Land Policy, 2007.
87. Hong, Yu-hung and Julia Tierney. Global Experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018a.

88. Hong, Yu-hung and Julia Tierney eds. "Introduction to land readjustment." In: Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018a, 1-5.
89. Hong, Yu-hung and Julia Tierney eds. "Land readjustment in developing countries: Analyzing common themes and enabling factors." Essay. In: Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018b, 7-12.
90. Hosono, Akio. "Land readjustment: making cities inclusive, safe, resilient and sustainable," In: Introduction Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 1-11.
91. Hu, Wei. "Household land tenure reform in China: its impact on farming land use and agro-environment." Land Use Policy 14, no. 3 (1997): 175-186.
92. Inadomi, Akira. A national theatre for Japan. Master in Architecture dissertation, MIT, 1961.
93. International Union of Local Authorities. "Notes on land property problems in relation to urban renewal in Japan." In: Renewal of Town and Village II. Springer, Dordrecht, 1965, 27-28.
94. Ito, Shigeru. "The outline of Kozoji New Town." Ekistics 17, no. 99 (1964): 115-120.
95. Javid, Habib Ahmad. "Land development and land readjustment possibilities in Afghanistan." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 97-98.
96. Joshi, Kirti Kusum and Sunil Babu Shrestha. "Land readjustment in Nepal." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 157-166.
97. Jun, Myung-jin, and Seong-kyu Ha. "Evolution of employment centers in Seoul." Review of Urban and Regional Development Studies 14, no. 2 (2002): 117-132.
98. Karki, Tej Kumar. "Implementation experiences of land pooling projects in Kathmandu Valley." Habitat International 28, no. 1 (2004): 67-88.
99. Kashyap, Poonam and Anil Kashyap. "Land based infrastructure development and ease of doing business in India." In: Ch. 14 Frances Plimmer and William McCluskey, eds. Routledge handbook of contemporary issues in expropriation, Routledge, Oxon, 2019, 273-281.
100. Khamaisi, Rassem. "The issue of land reparation as part of land readjustment in Israel." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 146-151.
101. Kidokoro, Tetsuo. "Urban regeneration and the shift of planning approaches: the case of Japanese regional cities." In Sustainable City Regions, Springer Japan, 2008, 145-162.
102. Kigawa, Tsuyoshi, Kyung Wook Seo, and Masao Furuyama. "The Significance of Modern Japanese City Planning: a morphological examination of the land readjustment projects in Korea, Taiwan

- and Japan.” In: 6th International Space Syntax Symposium, 12th - 15th June 2007, Istanbul.
103. Kim, Hyoung-Soo, Young-Dai Lee, and Jun-Yong Lee. “Problems analysis and revitalization plan of urban development projects by the land readjustment Method.” Korean Journal of Construction Engineering and Management 10, no. 5 (2009): 37-46.
104. Kim, Ik-Jin, Myong-Chan Hwang, and William A. Doebele. “Land readjustment in South Korea.” In Ch.8 William A. Doebele ed. Land readjustment: A different approach to financing urbanization Lexington Books, Lexington, 1982, 127-174.
105. Kim, Karl, and Robert B. Olshansky. “The theory and practice of building back better.” Journal of the American Planning Association 809, no.4 (2014): 289-292.
106. Kim, Hyoung-Soo, Young-Dai Lee, and Jun-Yong Lee. “Problems analysis and revitalization plan of urban development projects by the land readjustment method.” Korean Journal of Construction Engineering and Management 10, no. 5 (2009): 37-46.
107. Kimura, Y., Matsumori, K. and Kurita, H. (2006). “Introduction of the land readjustment with a curvilinear element along the geographical features in rice terrace: Analysis of the determinants of intentions paid attention to a factor of scene by analytic hierarchy process.” Journal of Rural Planning Association (Japan).
108. Koide, Susumu. “On the land readjustment (I) – The land valuation.” 27, no. 6 Research on Agricultural Engineering (1960): 387-392.
109. Koide, Susumu. “On the land readjustment (II) – The agricultural road.” 2, no. 2 Research on Agricultural Engineering (1961): 1-6.
110. Koide, Susumu. “On the land readjustment (III) – The partition of agricultural land.” 29, no. 2 Research on Agricultural Engineering (1961): 6-11.
111. Koide, Susumu. “On the land readjustment (IV) – Organisation.” 29, no. 2 Research on Agricultural Engineering 29, no. 5 (1961): 195-200.
112. Koide, Susumu. “On the land readjustment (V) – Replotting.” 29, no. 5 Research on Agricultural Engineering (1961): 200-206.
113. Korotkova, Elena. “Land pooling for multi-child families in Russia.” In: Ch.9 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 129-137.
114. Kucukmehmetoglu, Mehmet, and Abdurrahman Geymen. “Optimization models for urban land readjustment practices in Turkey.” Habitat international 53 (2016): 517-533.
115. Kung, James Kai-sing. “Choice of land tenure in China: The case of a county with quasi-private property rights.” Economic Development and Cultural Change 50, no. 4 (2002): 793-817.
116. Lai, Lawrence W.C., K. W. Chau, and Lennon H.T. Choy. “Stock and flow of land: Freeing land from rigidities for urban development in Hong Kong.” Editorial, Surveying and Built Environment 27, no. 1 (2018): 5-9.
117. Lai, Lawrence W.C., KW Chau, Alwin Chan and Lennon, H.T. Choy. “Two dialogues on land readjustment in Hong Kong.” Surveying and Built Environment 27 no. 1 (2018): 5-9.
118. Larsson, Gerhard. Land readjustment:



- A modern approach to urbanization. Aldershot, Hants: Avebury, 1993.
119. Larsson, Gerhard. "Land readjustment: A tool for urban development." Habitat International 21, no. 2 (1997a): 141-152.
  120. \*Larsson, Gerhard. Land readjustment: A modern approach to urbanization. Aldershot, Hants: Avebury, 1997b. (3)
  121. Leeruttanawisut, Kittima and Paul Rabé. "Revisiting land sharing in Bangkok, Thailand: The Sengki case." In: Ch.5 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 73-86.
  122. Li, Can, Zhang Fengrong, Zhu Taifeng, Yuan Yaqin, Gao Yang, and Wu Hao. "Spatial restructuring analysis of land use under planning and control of prime farmland protection area." Transactions of the Chinese Society of Agricultural Engineering (Transactions of the CSAE) 28, no. 16 (2012): 217-224. (In Chinese)
  123. Li, Ling Hin, and Xin Li. "New experiments to solve urban renewal problems in China. In Ch.6 Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007a, 135-158.
  124. Li, Ling Hin, and Xin Li. "Land readjustment: An innovative urban experiment in China." Urban Studies 44, no. 1 (2007b): 81-98.
  125. Li, Ping. "Rural land tenure reforms in China: Issues, regulations and prospects for additional reform." Land Reform, Land Settlement, and Cooperatives 11, no. 3 (2003): 59-72.
  126. Li, Yang, and Xi Yin-Sheng. "Married women's rights to land in China's traditional farming areas." Journal of Contemporary China 15, no. 49 (2006): 621-636.
  127. Lieban, Richard W. "The land system of Kudaka Island." Sociologus 5, no. 2 (1955): 150-156.
  128. Liebmann, George W. "Land readjustment for America: A proposal for a statute." The Urban Lawyer (2000): 1-20.
  129. Lim, Gill-Chin. "Land markets and public policy: A conceptual framework." Habitat International 11, no. 1 (1987): 23-27.
  130. Lin, George C. S., Xun Li, Anthony G. O. Yeh, Shenjing He, Zhiyong Hu and Xingjian Liu. "Land readjustment in urbanizing China: Decentralization, profit concession, and redevelopment of village land in Chinese cities." In: Ch.1 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 13-24.
  131. Lin, Tzu-Chin. "Land assembly in a fragmented land market through land readjustment." Land Use Policy 22, no. 2 (2005): 95-102.
  132. Lin, Tzu-Chin and Hsiu-Yin Ding. "Urban land readjustment in Taiwan." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 175-179.
  133. Lin, Tzu-Chin, and Alan W. Evans. "The relationship between the price of land and size of plot when plots are small." Land Economics (2000): 386-394.
  134. Lin, Jian, and Gang Li. "Developing directions and ways of construction land readjustment in China based on overseas experience." Urban Studies 4 (2007):

- 109-113. (In Chinese)
135. Linke, Hans Joachim. "The land readjustment system in Germany." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 128-136.
136. Ma, Mingfei. "Land readjustment model for the urban fringe area in Beijing and its application." Journal of Urban and Regional Planning 2 (2012): 178-203. (In Chinese)
137. Magel, Holger. "Where is the rural territorial development going? Reflections on the theory and practice." Geomatics, Landmanagement and Landscape (2015).
138. \*Maher, Michael. "Land Pooling in Perth, Western Australia." Ph.D dissertation. Western Australian Institute of Technology, Department of Urban and Regional Planning, 1982. (4)
139. Masser, Ian. "Land readjustment: An overview." Third World Planning Review 9, no. 3 (1987): 205-210.
140. Masser, Ian. "Cross national learning for urban policy making." Cities 7, no. 1 (1990): 25-30.
141. Mathur, Shishir. "Use of land pooling and reconstitution for urban development: Experiences from Gujarat, India." Habitat International 38 (2013): 199-206.
142. Menezes, L. M. "Urban land policy trends in Asia: an overview." Land Use Policy 5, no. 3 (1988): 291-300.
143. Meier, Richard L. "Exploring development in great Asian cities: Seoul." Journal of the American Institute of Planners 36, no. 6 (1970): 378-392.
144. \*Minerbi, Luciano. "Efforts toward land readjustment legislation in Hawaii." Conference paper presented at the Lincoln Institute of Land Policy Workshop on Land Readjustment, Cambridge, USA (March 21-22), 2002. (5)
145. Minerbi, Luciano, Peter Nakamura, Kiyoko Nitz, Jane Yanai, eds. Land readjustment: the Japanese system (A reconnaissance and a digest). Oelgeschlager, Gunn & Hain and Lincoln Institute of Land Policy, 1986.
146. Mirams, A. E. 1919-20. "Town planning in Bombay under the Bombay Town Planning Act, 1915." Journal of the Town Planning Institute 6 (1919/20): 43-62.
147. Mirams, A. E. 1923-24. "Comments." Journal of the Town Planning Institute 10 (1923/24): 195-197.
148. Mittal, Jay. "Extending land readjustment schemes to regional Scale: A case study of regional ring road via Mosaicking Neighborhood Level Plans." Real Estate Finance Fall (2013): 62-73.
149. Mittal, Jay. "Self-financing land and urban development via land readjustment and value capture." Habitat International 44 (2014): 314-323.
150. Mittal, Jay, and Anil Kashyap. "Real estate market led land development strategies for regional economic corridors—A tale of two mega projects." Habitat International 47 (2015): 205-217.
151. Miyazawa, Michio. "Land readjustment in Japan." In: Ch. 6 William A. Doebele ed. Land readjustment: A different approach to financing urbanization Lexington Books, Lexington, 1982, 91-125.
152. Monk, Sarah, Christine ME Whitehead, Connie Pui Yee Tang, Gemma Burgess.

- International Review of Land Supply and Planning Systems. London: Joseph Rowntree Foundation, 2013.
153. Montandon, Daniel Todtmann and Felipe Francisco de Souza. Land readjustment and joint urban operations. Sao Paulo, Romano Guerra Editora, 2007.
154. Monteiro, Livia, Tiago Esteves Gonçalves Da Costa, Thiago Medeiros De Castro Silva and Leonardo Amaral Castro. "Land readjustment and its planning perspectives for Belo Horizonte, Brazil." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 111-116.
155. Mukherji, Anuradha. "Land readjustment during post-disaster urban reconstruction." Journal of the American Planning Association 80, no. 4 (2014): 438-439.
156. Mukhija, Vinit. "Property readjustment and a tenants' cooperative in Mumbai: some lessons and questions." Environment and Planning A 38, no. 11 (2006): 2157-2171.
157. Müller-Jökel, Rainer. "Land readjustment: a win-win strategy for sustainable urban development." FIG Working Week 2004, Athens, Greece, May 22-27, 2004.
158. Mullin, John. "American perceptions of German city planning at the turn of the century." Urbanism Past and Present 35 (1976): 5-15.
159. Muñoz-Gielen, Demetrio. "Urban governance, property rights, land readjustment and public value capturing." European Urban and Regional Studies 21, no. 1 (2014): 60-78.
160. Muñoz-Gielen, Demetrio. "Proposal of land readjustment for the Netherlands: An analysis of its effectiveness from an international perspective." Cities 53 (2016): 78-86.
161. Muñoz-Gielen, Demetrio and Willem K. Korthals Altes. "Lessons from Valencia separating infrastructure provision from land ownership." Town Planning Review 78, no. 1(2007): 61-79.
162. Murota, Masako. "A study on the use of parks in the green matrix system of Kohoku New Town, Japan." Journal of Asian Architecture and Building Engineering 8, no. 1 (2009): 73-79.
163. Nagamine, Haruo. "The land readjustment techniques of Japan." Habitat International 10, no. 1-2 (1986): 51-58.
164. Nakayama, Ichiro. "The Japanese economy and the role of the government." Hitotsubashi Journal of Economics 1, no. 1 (1960): 1-12.
165. \*Needham, Barrie. Land readjustment in the Netherlands. Cambridge, MA: Lincoln Institute of Land Policy, 2002. (6)
166. Norbu, Geley. "Land pooling in Thimphu, Bhutan." In: Ch.7 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 101-117.
167. Oredson, Vincent. "Comparison of planning in the United States and Japan." Journal of the American Planning Association 20, no. 1 (1954): 15-20.
168. Österberg, Tommy. "The failure of land readjustment in Sweden." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency

- (JICA), Tokyo, 2018, 171-175.
169. Pearce, B. J. "Instruments for land policy: a classification." Urban Law and Policy 3, no. 2 (1980): 115-155.
  170. Peter, Jacob Manohar Abraham and Harpal Dave. "Land readjustment in India." In: Ch. 3 Souza, Felipe Francisco, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 136-140.
  171. Pinilla, Juan Felipe. "A new approach to urban renewal in Bogotá, Colombia: The Fenicia project." In: Ch.2 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 25-44.
  172. Pradhan, Tribeni. "Land readjustment in Kathmandu: The Naya Bazar project." 2008.  
<http://www.hdm.lth.se/fileadmin/hdm/alumni/papers/ad2000/ad2000-11.pdf>
  173. Pryor, Edward G. "The acquisition of land for urban development by exchange in Hong Kong and Taiwan." 41 (December 1975) Town Planning Quarterly, Auckland: 27-29.
  174. Pugh, Cedric. "Land policies and low-income housing in developing countries: A review, with reference to Kenya and India." Land Use Policy 9, no. 1 (1992): 47-63.
  175. Ragheb, Ghada, Hisham El-Shimy and Amany Ragheb. "Land for poor: towards sustainable master plan for sensitive redevelopment of slums." Procedia-Social and Behavioral Sciences 216 (2016): 417-427.
  176. Ray, Binayak. Commentary on Archer, R. W.'s "Land pools in Asia?" Australian Planner 20, no. 3 (1982): 123-123.
  177. Renne, Roland R. "Significance of the ownership pattern to land use planning." Journal of Farm Economics 17, no. 3 (1935): 423-432.
  178. Renner, G.T. "The statistical approach to regions." Annals of the Association of American Geographers 25, no. 3 (1935): 137-152.
  179. Rondinelli, Dennis A. "Decentralizing public services in developing countries: issues and opportunities." Journal of Social, Political and Economic Studies 14, no. 1 (1989): 77-97.
  180. Royal Institution of Chartered Surveyors (RICS) "Land readjustment as a global land tool: Focus on the Middle East." London: The Royal Institution of Chartered Surveyors (RICS), 2007.
  181. Sagalyn, Lynne B. "Land assembly, land readjustment and public/private redevelopment." In: Ch. 7 Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007, 159-179.
  182. Schnidman, Frank. "Land readjustment." Urban Land 2 (1988): 2-6.
  183. Schrock, Melissa Melissa Elaine. "The potential use of land readjustment as an urban redevelopment strategy in the United States: Assessing Net Economic Value." Ph.D dissertation, Massachusetts Institute of Technology, 2012.
  184. Schwarzwald, Brian, Roy Prosterman, Ye Jianping, and Jeffrey Riedinger. "An update on China's rural land tenure reforms: Analysis and recommendations based on a seventeen-province survey." Columbia Journal of Asian Law 16 (2002): 144-225.
  185. Seele, Walter. "Land readjustment in the Federal Republic of Germany." In: Ch.9 William A. Doebele ed. Land



- readjustment DC Health and Co., Lexington, Mass., 1982, 175-205.
186. Shen, Zhenjiang, Mitsuhiro Kawakami, and Ippei Kawamura. "Geosimulation model using geographic automata for simulating land-use patterns in urban partitions." Environment and Planning B: planning and design 36, no. 5 (2009): 802-823.
187. Shen, Zhenjiang, and Mitsuhiro Kawakami. "An online visualization tool for Internet-based local townscape design." Computers, Environment and Urban Systems 34, no. 2 (2010): 104-116.
188. Shirai, Yoshihiko. "Some phases of farm-land consolidation in Japan." Geographical Review of Japan 37, no. 8 (1964): 425-449.
189. Shirai, Yoshihiko. "Urbanisation and land readjustment of the case of the lower Basin of the Kiso River." Geographical Review of Japan 40, no. 2 (1967): 66-86.
190. Shultz, Michael M. and Frank Schnidman. "The potential application of land readjustment in the United States." The Urban Lawyer 22, no. 2 (1990): 197-243.
191. Siman, B. B. "Transferring and legitimising planning tools: German planning and Japanese land readjustment in the late 19th century'." Planning History 12 (1990): 21-25.
192. Sorensen, André. "Land readjustment, urban planning and urban sprawl in the Tokyo metropolitan area." Urban Studies 36, no. 13 (1999): 2333-2360.
193. Sorensen, André. "Conflict, consensus or consent: implications of Japanese land readjustment practice for developing countries." Habitat International 24, no. 1 (2000a): 51-73.
194. Sorensen, André. "Land readjustment and metropolitan growth: an examination of suburban land development and urban sprawl in the Tokyo metropolitan area." Progress in Planning 53, no. 4 (2000b): 217-330.
195. Supriatna, Andri. "The application of land consolidation in Indonesia." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 140-146.
196. Stewart, John R. "Japan's strategic settlements in Manchoukuo." Far Eastern Survey 8, no. 4 (1939): 37-43.
197. Tabuchi, Toshio. "On the design of land readjustment of paddy field under joint operation." 22 Transactions of AESJ (1967): 21-26.
198. Tan, Rong and Nico Heerink. "Public and self-organized land readjustment in rural China: A comparison." Journal of Rural Studies 53 (2017): 45-57.
199. Tanmanee, Ittipong. "Land readjustment in Thailand." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 180-188.
200. Taylor, Carl C. "The social aspects of land adjustment problems." Journal of Farm Economics 19, no. 2 (1937): 588-594.
201. Thomas, Joachim. "Attempt on systematization of land consolidation approaches in Europe." Zeitschrift für Vermessungswesen 3 (2006): 156-161.
202. Tiits, Tambet and Aivar Tomson. "Acquisition for public purposes and valuation in Estonia." In: Ch. 5 Frances Plimmer and William McCluskey, eds.

Routledge handbook of contemporary issues in expropriation, Routledge, Oxon, 2019, 82-93.

203. Türk, Sevkiye Şence. "The applicability of urban land acquisition methods for the provision of serviced residential land in the Turkish Case." International Development Planning Review 26, no. 2 (2004): 141-166.
204. Türk, Sevkiye Şence. "An analysis on the efficient applicability of the land readjustment (LR) method in Turkey." Habitat International 31, no. 1 (2007): 53-64.
205. Türk, Sevkiye Şence. "An examination for efficient applicability of the land readjustment method at the international context." Journal of Planning Literature 22, no. 3 (2008): 229-242.
206. Türk, Sevkiye Şence and Willem K. Korthals Altes. "Potential application of land readjustment method in urban renewal: Analysis for Turkey." Journal of Urban Planning and Development 137, no. 1 (2010a): 7-19.
207. Türk, Sevkiye Şence, and Willem K. Korthals Altes. "Institutional capacities in the land development for housing on greenfield sites in Istanbul." Habitat International 34, no. 2 (2010b): 183-195.
208. Türk, Sevkiye Şence and Celil Türk. "The annulment of land readjustment projects: an analysis for Turkey." Town Planning Review 82, no. 6 (2011): 687-707.
209. Türk, Sevkiye Şence. "Could land readjustment be participatory and inclusive in Turkey?" In: Ch.6 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 87-99.
210. Van Den Brink, Adri. "From land consolidation to land readjustment in the Netherlands." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 166-171.
211. Van der Krabben, Erwin and Barrie Needham. "Land readjustment for value capturing: a new planning tool for urban redevelopment." Town Planning Review 79, no. 6 (2008): 651-672.
212. Van der Krabben, Erwin and Jean-Marie Halleux. "Choosing the right land management strategy: innovations in land management tools." Land management for urban dynamics. Innovative methods and practices in a changing Europe (2011): 47-56.
213. Van der Krabben, Erwin and Harvey M. Jacobs. "Public land development as a strategic tool for redevelopment: Reflections on the Dutch experience." Land Use Policy 30, no. 1 (2013): 774-783.
214. Vaughan, Tyson. "Notes from the debris field: "recovery" from Kobe, through New Orleans, to Tohoku." Notes, STS Forum on the East Japan Disaster 11/24/18 (2018), Fukushima Forum, 2012.
215. Viitanen, Kauko. "The Finnish urban land readjustment procedure in an International Context." Ph.D dissertation, Institutionen för fastigheter och byggande, 2000.
216. Viitanen, Kauko. "Urban land readjustment in Finland." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018. 123-128.

217. Vitikainen, Arvo. "An overview of land consolidation in Europe." Nordic Journal of Surveying and Real Estate research 1, no. 1 (2004): 25-43.
218. Walters, Lawrence. "The United States' experience with expropriation and the lessons yet to be learned." In Ch 22: Frances Plimmer and William McCluskey, eds. Routledge handbook of contemporary issues in expropriation, Routledge, Oxon, 2019, 417-432.
219. Wangmo, Tashi. "Land readjustment, an urban planning tool in Bhutan." In: Ch. 3 Souza, Felipe Francisco, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 104-110.
220. Wang, Hui, Juer Tong, Fubing Su, Guoxue Wei, and Ran Tao. "To reallocate or not: Reconsidering the dilemma in China's agricultural land tenure policy." Land Use Policy 28, no. 4 (2011): 805-814.
221. Wang, Ting, Guohua Zhou, and Yan Yang. "Study on the rational distribution of the rural residential land in Nanyue District of Hengyang." Progress in Geography 6 (2008): 25-31. (in Chinese)
222. Wang, Tong-eng. "Structural change and development in Chinese agriculture." Ph.D Thesis, Iowa State University of Science and Technology, Ann Arbor, 1966.
223. Wen, Guanzhong James. "The land tenure system and its saving and investment mechanism: the case of modern China." Asian Economic Journal 9, no. 3 (1995): 233-260.
224. \*Wright, S. Introduction to Land Readjustment (Kukaku Seiri) Practice. City Planning Bureau, City of Nagoya, Japan 1982.
225. Yamazaki, Kenji. "Changes of land tenure and agricultural; and environmental problems in land readjustment projects: A case study of the Horie land readjustment projects in Edogawa-Ku, Tokyo," Geographical Review of Japan 54, no. 5 (1981): 247-265.
226. Yanase, Norihiko. "Land readjustment and post-disaster reconstruction in Japan." In: Ch. 2 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 32-80.
227. Yau, Yung. "A study on the acceptability of land readjustment for urban regeneration in Hong Kong." Urbani izziv 20, no. 2 (2009): 105-114.
228. Yilmaz, Ahmet, Volkan Çağdaş and Hülya Demir. "An evaluation framework for land readjustment practices." Land Use Policy 44 (2015): 153-168.
229. Yomralioglu, Tashin, Bayram Uzun and Recep Nisanci. "The shortcomings of land readjustment application in Turkey." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 183-194.
230. Zhang, Xiaobo and Guo Li. "Does guanxi matter to nonfarm employment?" Journal of Comparative Economics 31, no. 2 (2003): 315-331.
231. Zeluel, Abebe. "Land readjustment for informal settlement upgrading in Addis Ababa, Ethiopia." In: Ch.3 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 45-55.

## Appendix 2: Works reviewed by year of publication from 1919

### 1901-1945

1919 Mirams, A. E. 1919-20. "Town planning in Bombay under the Bombay Town Planning Act, 1915." Journal of the Town Planning Institute 6 (1919/20): 43-62.

1923 Mirams, A. E. 1923-24. "Comments." Journal of the Town Planning Institute 10 (1923/24): 195-197.

1925 Anderson, Robert. "Notes on the earthquake and reconstruction in Japan." Bulletin of the Seismological Society of America 15, no. 2 (1925): 100-105.

1935 Renne, Roland R. "Significance of the ownership pattern to land use planning." Journal of Farm Economics 17, no. 3 (1935): 423-432.

1935 Renner, G.T. "The statistical approach to regions." Annals of the Association of American Geographers 25, no. 3 (1935): 137-152.

1937 Taylor, Carl C. "The social aspects of land adjustment problems." Journal of Farm Economics 19, no. 2 (1937): 588-594.

1939 Cashin, Daniel Joseph. "A study of rural zoning." Master of Forestry dissertation, University of Michigan, Ann Arbor, 1939.

1939 Stewart, John R. "Japan's strategic settlements in Manchoukuo." Far Eastern Survey 8, no. 4 (1939): 37-43.

### 1946-1970

1949 Hewes, Laurence I. "On the current readjustment of land tenure in Japan." Land Economics 25, no. 3 (1949): 246-259.

1954 Oredson, Vincent. "Comparison of planning in the United States and Japan." Journal of the American Planning Association 20, no. 1 (1954): 15-20.

1955 Lieban, Richard W. "The land system of Kudaka Island." Sociologus 5, no. 2 (1955): 150-156.

1960 Nakayama, Ichiro. "The Japanese economy and the role of the government." Hitotsubashi Journal of Economics 1, no. 1 (1960): 1-12.

1960 Koide, Susumu. "On the land readjustment (I) – The land valuation." 27, no. 6 Research on Agricultural Engineering (1960): 387-392.

1961 Inadomi, Akira. A national theatre for Japan. Master in Architecture dissertation, MIT, 1961.

1961 Koide, Susumu. "On the land readjustment (II) – The agricultural road." 29 no. 2 Research on Agricultural Engineering (1961): 1-6.

1961 Koide, Susumu. "On the land readjustment (III) – The partition of agricultural land." 29, no. 2 Research on Agricultural Engineering (1961): 6-11.

1961 Koide, Susumu. "On the land readjustment (IV) – Organisation." 29, no. 2 Research on Agricultural Engineering 29, no. 5 (1961): 195-200.

1961 Koide, Susumu. "On the land readjustment (V) – Replotting." 29, no. 5 Research on Agricultural Engineering (1961): 200-206.

1964 Ito, Shigeru. "The outline of Kozoji New Town." Ekistics 17, no. 99 (1964): 115-120.

1964 Shirai, Yoshihiko. "Some phases of farm-land consolidation in Japan." Geographical Review of Japan 37, no. 8 (1964): 425-449.

1965 International Union of Local Authorities. "Notes on land property problems in relation to urban renewal in Japan." In: Renewal of Town and Village II. Springer, Dordrecht, 1965, 27-28.

1966 Wang, Tong-eng. "Structural change and development in Chinese agriculture." Ph.D Thesis, Iowa State University of Science and Technology, Ann Arbor, 1966.

1967 Shirai, Yoshihiko. "Urbanisation and land readjustment of the case of the lower Basin of



the Kiso River.” Geographical Review of Japan 40, no. 2 (1967): 66-86.

1967 Tabuchi, Toshio. “On the design of land readjustment of paddy field under joint operation.” 22 Transactions of AESJ (1967): 21-26.

1970 Meier, Richard L. “Exploring development in great Asian cities: Seoul.” Journal of the American Institute of Planners 36, no. 6 (1970): 378-392.

### **1971-1982**

1976 Archer, Raymon Walter. “Land pooling for planned urban development in Perth.” Western Australia, Metropolitan Research Trust, Canberra (1976a).

1976 Archer, Raymon Walter. “Rationalising metropolitan planning and development in Australia.” Royal Australian Planning Institute Journal 14, no. 3-4 (1976b): 70-76.

1976 Archer, Raymon Walter. “The leasehold system of urban development: Land tenure, decision-making and the land market in urban development and land use.” Regional Studies 8, no. 3-4 (1974): 225-238.

1976 Mullin, John. “American perceptions of German city planning at the turn of the century.” Urbanism Past and Present 35 (1976): 5-15.

1976 Pryor, Edward G. “The acquisition of land for urban development by exchange in Hong Kong and Taiwan.” 41 (December 1975) Town Planning Quarterly, Auckland: 27-29.

1977 Archer, Raymon Walter. “The theory and practice of large-scale land development.” Royal Australian Planning Institute Journal 15, no. 2 (1977): 67-72.

1978 Archer, Raymon Walter. “Land pooling for planned urban development in Perth, Western Australia.” Regional Studies 12, no. 4 (1978): 397-408.

1980 Archer, Raymon Walter. “A municipal land

pooling project in Perth.” Australian Journal of Public Administration 39, no. 1 (1980): 70-88.  
1980 Pearce, B. J. “Instruments for land policy: a classification.” Urban Law and Policy 3, no. 2 (1980): 115-155.

1981 Archer, Raymon Walter. “Bibliography on land pooling/readjustment/redistribution for planned urban development in Asia and West Germany.” (1981).

1981 Yamazaki, Kenji. “Changes of land tenure and agricultural; and environmental problems in land readjustment projects - A case study of the Horie land readjustment projects in Edogawa-Ku, Tokyo,” Geographical Review of Japan 54, no. 5 (1981): 247-265.

1982 Chou, T. C. and S. K. Shen. “Urban land readjustment in Kaohsiung, Taiwan.” In: Ch.5 William A. Doebele ed. Land readjustment: A different approach to financing urbanization Lexington Books, Lexington, 1982, 65 - 90.

1982 Doebele, William A. “Land readjustment as an alternative to taxation for the recovery of betterment: the case of South Korea.” The taxation of urban property in less developed countries (1979): 163-89.

1982 Doebele, William A., ed. Land readjustment: A different approach to financing urbanization. Lexington, Lexington Books, 1982.

1982 Hayashi, Kitotaka. “Land readjustment in Nagoya.” In: Ch. 6 William A. Doebele ed. Land readjustment: A different approach to financing urbanization Lexington Books, Lexington, 1982, 91 - 106.

1982 Kim, Ik-Jin, Myong-Chan Hwang, and William A. Doebele. “Land readjustment in South Korea.” In: Ch.8 William A. Doebele ed. Land readjustment: A different approach to financing urbanization Lexington Books, Lexington, 1982, 127-174.

1982 \*Maher, Michael. “Land Pooling in Perth, Western Australia.” Ph.D dissertation. Western Australian Institute of Technology, Department

of Urban and Regional Planning, 1982.

1982 Miyazawa, Michio. "Land readjustment in Japan." In William A. Doebele ed. Land readjustment: A different approach to financing urbanization Lexington Books, Lexington, 1982, 91-125.

1982 Ray, Binayak. Commentary on Archer, R. W.'s "Land pools in Asia?" Australian Planner 20, no. 3 (1982): 123-123.

1982 Seele, Walter. "Land readjustment in the Federal Republic of Germany." In: Ch.9 William A. Doebele ed. Land readjustment DC Health and Co., Lexington, Mass., 1982, 175-205.

1982 \*Wright S. Introduction to Land Readjustment (Kukaku Seiri) Practice. City Planning Bureau, City of Nagoya, Japan, 1982.

### **1983-2010**

1983 Devas, Nick. "Financing urban land development for low income housing: an analysis with particular reference to Jakarta, Indonesia." Third World Planning Review 5, no. 3 (1983): 209-225.

1986 Archer, Raymon Walter. "The use of the land-pooling/readjustment technique to improve land development in Bangkok." Habitat International 10, no. 4 (1986): 155-165.

1987 Archer, Raymon Walter. "The possible use of urban land pooling/readjustment for the planned development of Bangkok." Third World Planning Review 9, no 3 (1987): 235-253.

1993 Archer, R. Land management for Jabotabek urban development, 1990/2010: improving the land conversion process for Jakarta's urban expansion. Research Report No. 38. Division of Human Settlement—Asian Institute of Technology, Bangkok.

1986 Godschalk, David R. Land supply monitoring: A guide for improving public and private urban development decisions, Lincoln Institute of Land Policy, 1986.

1986 Hebbert, Michael. "Urban sprawl and urban planning in Japan." Town Planning Review 57, no. 2 (1986): 141-158.

1986 Minerbi, Luciano, Peter Nakamura, Kiyoko Nitz, Jane Yanai, eds. Land readjustment: the Japanese system (A reconnaissance and a digest). Oelgeschlager, Gunn & Hain and Lincoln Institute of Land Policy, 1986.

1986 Nagamine, Haruo. "The land readjustment techniques of Japan." Habitat International 10, no. 1-2 (1986): 51-58.

1987 Doebele, William A. "The evolution of concepts of urban land tenure in developing countries." Habitat International 11, no. 1 (1987): 7-22.

1987 Lim, Gill-Chin. "Land markets and public policy: A conceptual framework." Habitat International 11, no. 1 (1987): 23-27.

1987 Masser, Ian. "Land readjustment: An overview." Third World Planning Review 9, no. 3 (1987): 205-210.

1988 Acharya, Ballabh Prasad. "The transferability of the land-pooling/readjustment techniques." Habitat International 12, no. 4 (1988): 103-117.

1988 Archer, Raymon Walter "Land pooling for resubdivision and new subdivision in Western Australia." American Journal of Economics and Sociology 47, no. 2 (1988): 207-221.

1988 Menezes, L. M. "Urban land policy trends in Asia: an overview." Land Use Policy 5, no. 3 (1988): 291-300.

1988 Schnidman, Frank. "Land readjustment." Urban Land 2 (1988): 2-6.

1989 Archer, R. "Transferring the urban land pooling/readjustment technique to the developing countries of Asia." Third World Planning Review 11, no. 3 (1989): 307-332.

1989 Brennan, Ellen M. and Harry W. Richardson. "Asian megacity characteristics,

problems, and policies.” International Regional Science Review 12, no. 2 (1989): 117-129.

1989 Rondinelli, Dennis A. “Decentralizing public services in developing countries: issues and opportunities.” Journal of Social, Political, and Economic Studies 14, no. 1 (1989): 77-97.

1990 \*Archer, Raymon Walter. An outline urban land policy for the developing countries of Asia. Human Settlement Division, Asian Institute of Technology, Bangkok, 1990.

1990 Masser, Ian. “Cross national learning for urban policy making.” Cities 7, no. 1 (1990): 25-30.

1990 Shultz, Michael M. and Frank Schnidman. “The potential application of land readjustment in the United States.” The Urban Lawyer 22, no. 2 (1990): 197-243.

1990 Siman, B. B. “Transferring and legitimising planning tools: German planning and Japanese land readjustment in the late 19th century’.” Planning History 12 (1990): 21-25.

1992 Archer, Raymon Walter. “Introducing the urban land pooling/readjustment technique into Thailand to improve urban development and land supply.” Public Administration and Development 12, no. 2 (1992a): 155-174.

1992 Archer, Raymon Walter. “Lessons from the PB Selayang land consolidation project in Medan, Indonesia.” Land Use Policy 9, no. 4 (1992b): 287-299.

1992 Hayashi, Kiyotaka. “Nagoya.” Cities 9, no. 1 (1992): 18-26.

1992 Pugh, Cedric. “Land policies and low-income housing in developing countries: A review, with reference to Kenya and India.” Land Use Policy 9, no. 1 (1992): 47-63.

1993 Hannah, Lawrence, Kyung-Hwan Kim, and Edwin S. Mills. “Land use controls and housing prices in Korea.” Urban Studies 30, no. 1 (1993): 147-156.

1994 Archer, Raymon Walter. “Urban land consolidation for metropolitan Jakarta expansion, 1990–2010.” Habitat International 18, no. 4 (1994): 37-52.

1995 Asami, Yasushi. “Evaluation of the shape of residential lots in land-readjustment projects.” Regional Science and Urban Economics 25, no. 4 (1995): 483-503.

1995 Wen, Guanzhong James. “The land tenure system and its saving and investment mechanism: the case of modern China.” Asian Economic Journal 9, no. 3 (1995): 233-260.

1997 \*Archer, Raymon Walter. “The potential the urban land pooling/readjustment technique to provide land for low-cost housing in developing countries.” HSD Working Paper No. 61. Human Settlements Development Program, Asian Institute of Technology, Bangkok, Thailand.

1997 Hu, Wei. “Household land tenure reform in China: its impact on farming land use and agro-environment.” Land Use Policy 14, no. 3 (1997): 175-186.

1993 Larsson, Gerhard. Land readjustment: A modern approach to urbanization. Aldershot, Hants: Avebury, 1993.

1997 Larsson, Gerhard. “Land readjustment: A tool for urban development.” Habitat International 21, no. 2 (1997a): 141-152.

1997 \*Larsson, Gerhard. Land readjustment: A modern approach to urbanization. Aldershot, Hants: Avebury, 1997b.

1999 Agrawal, P. “Urban land consolidation: a review of policy and procedures in Indonesia and other Asian countries.” GeoJournal 49, no. 3 (1999): 311-322.

1999 Archer, Raymon Walter. “The potential of land pooling/readjustment to provide land for low-cost housing in developing countries.” In: G. Payne (ed.) Making common ground: public-private partnerships in land for housing. London: Intermediate Technology Publications,

1999, 113-132.

1999 Edamura, T. and T. Tsuchida. "Planning support system for an urban environment improvement project." Environment and Planning B: Planning and Design 26, no. 3 (1999): 381-391.

1999 Sorensen, André. "Land readjustment, urban planning and urban sprawl in the Tokyo metropolitan area." Urban Studies 36, no. 13 (1999): 2333-2360.

2000 Archer, Raymon Walter. "Urban redevelopment with landowner participation with the land pooling/readjustment technique." In: G. A. Yeh and M. K. Ng, eds. Planning for a better urban living environment in Asia. Aldershot: Ashgate, 2000, 252-277.

2000 Asami, Yasushi, and Tamiki Ohtaki. "Prediction of the shape of detached houses on residential lots." Environment and Planning B: Planning and Design 27, no. 2 (2000): 283-295.

2000 Liebmann, George W. "Land readjustment for America: A proposal for a statute." The Urban Lawyer (2000): 1-20.

2000 Lin, Tzu-Chin, and Alan W. Evans. "The relationship between the price of land and size of plot when plots are small." Land Economics (2000): 386-394.

2000 Sorensen, André. "Conflict, consensus or consent: implications of Japanese land readjustment practice for developing countries." Habitat International 24, no. 1 (2000a): 51-73.

2000 Sorensen, André. "Land readjustment and metropolitan growth: an examination of suburban land development and urban sprawl in the Tokyo metropolitan area." Progress in planning 53, no. 4 (2000b): 217-330.

2000 Viitanen, Kauko. "The Finnish urban land readjustment procedure in an international context." Ph.D dissertation, Institutionen för fastigheter och byggande, 2000.

2001 Adams, David, Alan Disberry, Norman

Hutchison, and Thomas Munjoma. "Managing urban land: the case for urban partnership zones." Regional Studies 35, no. 2 (2001): 153-162.

2002 Choe, Sang-Chuel. "The promise and pitfalls of public-private partnerships in Korea." International Social Science Journal 54, no. 172 (2002): 253-259.

2002 Evans, Neil. "Machi-zukuri as a new paradigm in Japanese urban planning: reality or myth?" Japan Forum, 14, no. 3 (2002): 443-464.

2002 Jun, Myung-jin, and Seong-kyu Ha. "Evolution of employment centers in Seoul." Review of Urban and Regional Development Studies 14, no. 2 (2002): 117-132.

2002 Kung, James Kai-sing. "Choice of Land Tenure in China: The case of a county with quasi-private property rights." Economic Development and Cultural Change 50, no. 4 (2002): 793-817.

2002 \*Minerbi, Luciano. "Efforts toward land readjustment legislation in Hawaii." Conference paper presented at the Lincoln Institute of Land Policy Workshop on Land Readjustment, Cambridge, USA (March 21-22), 2002.

2002 Minerbi, Luciano, Peter Nakamura, Kiyoko Nitz, Jane Yanai, eds. Land readjustment: the Japanese system (A reconnaissance and a digest). Oelgeschlager, Gunn & Hain and Lincoln Institute of Land Policy, 1986.

2002 \*Needham, Barrie. Land readjustment in the Netherlands. Cambridge, MA: Lincoln Institute of Land Policy, 2002.

2002 Schwarzwald, Brian, Roy Prosterman, Ye Jianping, and Jeffrey Riedinger. "An update on China's rural land tenure reforms: Analysis and recommendations based on a seventeen-province survey." Columbia Journal of Asian Law 16 (2002): 144-225.

2003 Asano, Makoto, Chikashi Deguchi, Tetsunobu Yoshitake, Hiroshi Yokota, and



Takanori Sata. “Development of project management system for minimization of the cost of land readjustment by use of group relocation method.” Journal of Construction Management, JSCE 10 (2003): 61-72.

2003 Home, Robert. “‘An irreversible conquest’? Colonial and postcolonial land law in Israel/Palestine.” Social and Legal Studies 12, no. 3 (2003): 291-310.

2003 Li, Ping. “Rural land tenure reforms in China: Issues, regulations and prospects for additional reform.” Land Reform, Land Settlement, and Cooperatives 11, no. 3 (2003): 59-72.

2003 Zhang, Xiaobo, and Guo Li. “Does guanxi matter to nonfarm employment?” Journal of Comparative Economics 31, no. 2 (2003): 315-331.

2004 Firman, Tommy. “Major issues in Indonesia’s urban land development.” Land Use Policy 21, no. 4 (2004): 347-355.

2004 Karki, Tej Kumar. “Implementation experiences of land pooling projects in Kathmandu Valley.” Habitat International 28, no. 1 (2004): 67-88.

2004 Türk, Sevkiye Şence. “The applicability of urban land acquisition methods for the provision of serviced residential land in the Turkish Case.” International Development Planning Review 26, no. 2 (2004): 141-166.

2004 Vitikainen, Arvo. “An overview of land consolidation in Europe.” Nordic Journal of Surveying and Real Estate Research 1, no. 1 (2004): 25-43.

2005 Lin, Tzu-Chin. “Land assembly in a fragmented land market through land readjustment.” Land Use Policy 22, no. 2 (2005): 95-102.

2006 Kimura, Y., Matsumori, K. and Kurita, H. (2006). Introduction of the land readjustment with a curvilinear element along the geographical features in rice terrace: Analysis of

the determinants of intentions paid attention to a factor of scene by analytic hierarchy process. Journal of Rural Planning Association (Japan).

2006 Li, Yang, and Xi Yin-Sheng. “Married women’s rights to land in China’s traditional farming areas.” Journal of Contemporary China 15, no. 49 (2006): 621-636.

2006 Mukhija, Vinit. “Property readjustment and a tenants’ cooperative in Mumbai: some lessons and questions.” Environment and Planning A 38, no. 11 (2006): 2157-2171.

2006 Thomas, Joachim. “Attempt on systematization of land consolidation approaches in Europe.” Zeitschrift für Vermessungswesen 3 (2006): 156-161.

2007 Alterman, Rachelle. “More than land assembly: Land readjustment for the supply of urban public services.” In: Ch. 3 Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007a, 57-85.

2007 Davy, Benjamin. “Mandatory happiness: Land readjustment and property in Germany.” Ch. 2 in Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007, 37-56.

2007 Doebele, William A. In: foreword Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007, vii-xiii.

2007 Home, Robert. “Land readjustment as a method of development land assembly: A comparative overview.” Town Planning Review 78, no 4 (2007): 459-483.

2007 Hong Yu-hung. “Assembling land for urban development: Issues and opportunities.” In: Ch. 1 Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007a, 3-34.

- 2007 Hong Yu-hung. "Law, reciprocity, and economic incentives." In: Ch. 8 Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007b, 183-193.
- 2007 Hong, Yu-hung, and Barrie Needham, eds. Analyzing land readjustment: Economics, law, and collective action, Lincoln Institute of Land Policy, 2007.
- 2007 Kigawa, Tsuyoshi, Kyung Wook Seo, and Masao Furuyama. "The Significance of Modern Japanese City Planning: a morphological examination of the land readjustment projects in Korea, Taiwan and Japan." In: 6th International Space Syntax Symposium, 12th - 15th June 2007, Istanbul.
- 2007 Li, L. H. and Xin Li. "New experiments to solve urban renewal problems in China" In Ch. 6 Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007a, 135-158.
- 2007 Li, Ling-Hin, and Xin Li. "Land readjustment: An innovative urban experiment in China." Urban Studies 44, no. 1 (2007b): 81-98.
- 2007 Lin, Jian, and Gang Li. "Developing directions and ways of construction land readjustment in China based on overseas experience." Urban Studies 4 (2007): 109-113. (In Chinese)
- 2007 Montandon, Daniel Todtmann and Felipe Francisco de Souza. Land readjustment and joint urban operations. Sao Paulo, Romano Guerra Editora, 2007.
- 2007 Muñoz-Gielen, Demetrio Muñoz and Willem K. Korthals Altes. "Lessons from Valencia separating infrastructure provision from land ownership." Town Planning Review 78, no. 1(2007): 61-79.
- 2007 Royal Institution of Chartered Surveyors (RICS) "Land readjustment as a global land tool: Focus on the Middle East." London: The Royal Institution of Chartered Surveyors (RICS), 2007.
- 2007 Sagalyn, Lynne B. "Land assembly, land readjustment and public/private redevelopment." In: Ch. 7 Yu-hung Hong and Barrie Needham, eds. Analyzing land readjustment: economics, law and collective action, Lincoln Institute of Land Policy, 2007, 159-179.
- 2007 Türk, Sevkiye Sence. "An analysis on the efficient applicability of the land readjustment (LR) method in Turkey." Habitat International 31, no. 1 (2007): 53-64.
- 2008 Heller, Michael and Rick Hills. "Land assembly districts." Harvard Law Review 121 (2008): 1467-1567.
- 2008 Kidokoro, Tetsuo. "Urban regeneration and the shift of planning approaches: the case of Japanese regional cities." In Sustainable City Regions, Springer Japan, 2008, 145-162.
- 2008 Pradhan, Tribeni. "Land readjustment in Kathmandu: The Naya Bazar project." 2008. <http://www.hdm.lth.se/fileadmin/hdm/alumni/papers/ad2000/ad2000-11.pdf>
- 2008 Türk, Sevkiye Sence. "An examination for efficient applicability of the land readjustment method at the international context." Journal of Planning Literature 22, no. 3 (2008): 229-242.
- 2008 Van der Krabben, Erwin and Barrie Needham. "Land readjustment for value capturing: a new planning tool for urban redevelopment." Town Planning Review 79, no. 6 (2008): 651-672.
- 2008 Wang, Ting, Guohua Zhou, and Yan Yang. "Study on the rational distribution of the rural residential Land in Nanyue District of Hengyang." Progress in Geography 6 (2008): 25-31. (In Chinese)
- 2009 Home, Robert. "Land ownership in the United Kingdom: Trends, preferences and future challenges." Land Use Policy 26 (2009): S103-S108.
- 2009 Kim, Hyoung-Soo, Young-Dai Lee,

and Jun-Yong Lee. “Problems analysis and revitalization plan of urban development projects by the land readjustment method.” Korean Journal of Construction Engineering and Management 10, no. 5 (2009): 37-46.

2009 Murota, Masako. “A Study on the Use of Parks in the Green Matrix System of Kohoku New Town, Japan.” Journal of Asian Architecture and Building Engineering 8, no. 1 (2009): 73-79.

2009 Shen, Zhenjiang, Mitsuhiro Kawakami, and Ippei Kawamura. “Geosimulation model using geographic automata for simulating land-use patterns in urban partitions.” Environment and Planning B: planning and design 36, no. 5 (2009): 802-823.

2009 Yau, Yung. “A study on the acceptability of land readjustment for urban regeneration in Hong Kong.” Urbani izziv 20, no. 2 (2009): 105-114.

2010 Arimoto, Yutaka. “Impact of land readjustment project on farmland use and structural adjustment: The case of Niigata, Japan.” Agricultural and Applied Economics Association (2010).

2010 Çete, Mehmet. “Turkish land readjustment: Good practice in urban development.” Journal of Urban Planning and Development 136, no. 4 (2010): 373-380.

2010 Hein, Carola. “Shaping Tokyo: Land development and planning practice in the early modern Japanese metropolis.” Journal of Urban History 36, no. 4 (2010): 447-484.

2010 Shen, Zhenjiang, and Mitsuhiro Kawakami. “An online visualization tool for Internet-based local townscape design.” Computers, Environment and Urban Systems 34, no. 2 (2010): 104-116.

2010 Türk, Sevkiye Sence and Willem K. Korthals Altes. “Potential application of land readjustment method in urban renewal: Analysis for Turkey.” Journal of Urban Planning and Development 137, no. 1 (2010a): 7-19.

2010 Türk, Sevkiye Sence and Willem K. Korthals Altes. “Institutional capacities in the land development for housing on greenfield sites in Istanbul.” Habitat International 34, no. 2 (2010b): 183-195.

## **2011-2020**

2011 Dixon, Timothy, Noriko Otsuka, and Hirokazu Abe. “Critical success factors in urban brownfield regeneration: an analysis of ‘hardcore’ sites in Manchester and Osaka during the economic recession (2009–10).” Environment and Planning A 43, no. 4 (2011): 961-980.

2011 Türk, Sevkiye Sence and Celil Türk. “The annulment of land readjustment projects: an analysis for Turkey.” Town Planning Review 82, no. 6 (2011): 687-707.

2011 Van der Krabben, Erwin, and Jean-Marie Halleux. “Choosing the right land management strategy: innovations in land management tools.” Land management for urban dynamics. Innovative methods and practices in a changing Europe (2011): 47-56.

2011 Wang, Hui, Juer Tong, Fubing Su, Guoxue Wei, and Ran Tao. “To reallocate or not: Reconsidering the dilemma in China’s agricultural land tenure policy.” Land Use Policy 28, no. 4 (2011): 805-814.

2012 Alterman, Rachelle. “Land use regulations and property values: The ‘windfalls capture’ idea revisited.” 2012. In: Ch. 33 Nancy Brooks, Kieran Donanghy and Gerrit-Jan Knapp. eds. Oxford handbook on urban economics and planning, Oxford University Press, 2012, 755-786.

2012 Li, Can. Zhang Fengrong, Zhu Taifeng, Yuan Yaqin, Gao Yang, and Wu Hao. “Spatial restructuring analysis of land use under planning and control of prime farmland protection area.” Transactions of the Chinese Society of Agricultural Engineering (Transactions of the CSAE) 28, no. 16 (2012): 217-224. (In Chinese)

2012 Ma, Mingfei. “Land readjustment model for the urban fringe area in Beijing and its

application.” Journal of Urban and Regional Planning 2 (2012): 178-203. (In Chinese)

2012 Schrock, Melissa Melissa Alaine. “The potential use of land readjustment as an urban redevelopment strategy in the United States: Assessing Net Economic Value.” Ph.D dissertation. Massachusetts Institute of Technology, 2012.

2012 Vaughan, Tyson. “Notes from the debris field: “recovery” from Kobe, through New Orleans, to Tohoku.” Notes STS Forum on the East Japan Disaster 11/24/18 (2018), Fukushima Forum, 2012.

2013 Condessa, Beatriz, Marco Couto Rodrigues, Ana Morais de Sá, and Ricardo Tomé. “Major overview of the Portuguese land readjustment practice in detailed plans.” (2013) AESOP 2013.

2013 Hong, Yu-Hung, and Isabel Brain. “Land readjustment for urban development and post-disaster reconstruction.” Land Lines 24, no. 1 (2012): 2-9.

2013 Kim, Sung Hong. “Changes in urban planning policies and urban morphologies in Seoul, 1960s to 2000s.” Architectural Research 15, no. 3 (2013): 133-141.

2013 Mathur, Shishir. “Use of land pooling and reconstitution for urban development: Experiences from Gujarat, India.” Habitat International 38 (2013): 199-206.

2013 Mittal, Jay. “Extending land readjustment schemes to regional Scale: A case study of regional ring road via Mosaicking Neighborhood Level Plans.” Real Estate Finance Fall (2013): 62-73.

2013 Monk, Sarah, Christine ME Whitehead, Connie Pui Yee Tang, Gemma Burgess. International review of land supply and planning systems. London: Joseph Rowntree Foundation, 2013.

2013 Van der Krabben, Erwin, and Harvey M. Jacobs. “Public land development as a strategic tool for redevelopment: Reflections on the

Dutch experience.” Land Use Policy 30, no. 1 (2013): 774-783.

2014 Byahut, Sweta. “Post-earthquake reconstruction planning using land readjustment in Bhuj (India).” Journal of the American Planning Association 80, no. 4 (2014): 440-441.

2014 Kim, Karl, and Robert B. Olshansky. “The theory and practice of building back better.” Journal of the American Planning Association 80, no.4 (2014): 289-292.

2014 Mittal, Jay. “Self-financing land and urban development via land readjustment and value capture.” Habitat International 44 (2014): 314-323.

2014 Mukherji, Anuradha. “Land readjustment during post-disaster urban reconstruction.” Journal of the American Planning Association 80, no. 4 (2014): 438-439.

2014 Muñoz-Gielen, Demetrio. “Urban governance, property rights, land readjustment and public value capturing.” European Urban and Regional Studies 21, no. 1 (2014): 60-78.

2015 Hartmann, Thomas, and Tejo Spit. “Dilemmas of involvement in land management - Comparing an active (Dutch) and a passive (German) approach.” Land Use Policy 42 (2015): 729-737.

2015 Magel, Holger. “Where is the rural territorial development going? Reflections on the theory and practice.” Geomatics, Landmanagement and Landscape (2015).

2015 Mittal, Jay, and Anil Kashyap. “Real estate market led land development strategies for regional economic corridors—A tale of two mega projects.” Habitat International 47 (2015): 205-217.

2015 Yilmaz, Ahmet, Volkan Çağdaş and Hülya Demir. “An evaluation framework for land readjustment practices.” Land Use Policy 44 (2015): 153-168.

2016 Kucukmehmetoglu, Mehmet, and



Abdurrahman Geymen. “Optimization models for urban land readjustment practices in Turkey.” Habitat international 53 (2016): 517-533.

2016 Muñoz-Gielen, Demetrio. “Proposal of land readjustment for the Netherlands: An analysis of its effectiveness from an international perspective.” Cities 53 (2016): 78-86.

2016 Ragheb, Ghada, Hisham El-Shimy, and Amany Ragheb. “Land for poor: towards sustainable master plan for sensitive redevelopment of slums.” Procedia-Social and Behavioral Sciences 216 (2016): 417-427.

2017 Gozalvo Zamorano, María Jesús and Muñoz Gielen, Demetrio. (2017). “Non-negotiable developer obligations in the Spanish land readjustment: An effective passive governance approach that ‘de facto’ taxes development value?” Planning Practice and Research, 32(3), 274-296.

2017 Tan, Rong and Nico Heerink. “Public and self-organized land readjustment in rural China: A comparison.” Journal of Rural Studies 53 (2017): 45-57.

2018 Abd-Elkawy, A.A.M. “Requirements of implementation limited land readjustment tool in developing informal deteriorated areas (Case study: Daier el Nahea area - Dokki District – Giza governorate)”, International Journal of Development and Sustainability 7, no. 1 (2018): 381-408.

2018 Almeida, Joana, José Antunes Ferreira, Beatriz Condessa, and Ricardo Tomé. “Improving land readjustment practice. Application of management models to Portugal.” European Planning Studies 26, no. 7 (2018): 1431-1449.

2018 Balakrishnan, Sai. “Land readjustment in western India: New conditions and challenges for the 21st century.” In Ch.8 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 119-128.

2018 Bayartuvshin, Ganbat. “Land readjustment in Mongolia.” In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 152-156.

2018 Brain, Isabel and Pía Mora. “Land readjustment as a reconstruction strategy in Chile.” In Ch.11 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 155-170.

2018 Cain Allan, Beat Weber and Moises Festo. “Participatory and inclusive land readjustment in Huambo, Angola.” In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018a, 99-104.

2018 Cain, Allan, Beat Weber and Moises Festo. “Community land readjustment in Huambo, Angola.” In Ch.10 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018b, 139-153.

2018 Chun, Jin-Sung. “The Lex Adickes in its East Asian contexts: The introduction of land readjustment and its spatio-political effects.” In Transnational Encounters between Germany and East Asia since 1900, pp. 101-122. Routledge, 2018.

2018 de Souza, Felipe Francisco. “Concepts on land readjustment.” In: Ch. 1 Souza, Felipe Francisco, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018a, 15-33.

2018 de Souza, Felipe Francisco. “The successful extensive use of land readjustment in Japan.” In: Ch. 1 Souza, Felipe Francisco, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through

innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018b, 52-57.

2018 de Souza, Felipe Francisco and Takeo Ochi. "Land readjustment and the law in Japan." In: Ch. 1 Souza, Felipe Francisco, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018a, 33-39.

2018 de Souza, Felipe Francisco and Takeo Ochi. "The Japanese procedures and methodology for land readjustment." In: Ch. 1 Souza, Felipe Francisco, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018b, 39-51.

2018 de Souza, Felipe Francisco, Takeo Ochi, and Akio Hosono, eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018.

2018 de Souza, Felipe Francisco and Takeo Ochi. "Land readjustment and the law in Japan." In: Ch. 1 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018a, 33-39.

2018 Eberhard, María Cristina Rojas. "Land readjustment within the context of partial plans in Colombia." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 116-123.

2018 English, Brian. "Land readjustment for slum redevelopment: Nagpur, India." In: Ch.4 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 57-72.

2018 Hieu, Nguyen Ngoc. "Land readjustment

possibilities in Vietnam." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 194-203.

2018 Home, Robert. "Why land readjustment in the British former colonies, but not in the United Kingdom?" in Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono, eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 189-203.

2018 Hong, Yu-hung and Julia Tierney. Global Experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018a.

2018 Hong, Yu-hung and Julia Tierney eds. "Introduction to land readjustment." In: Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018a, 1-5.

2018 Hong, Yu-hung and Julia Tierney eds. "Land readjustment in developing countries: Analyzing common themes and enabling factors." Essay. In: Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018b, 7-12.

2018 Hosono, Akio. "Land readjustment: making cities inclusive, safe, resilient and sustainable," In: Introduction Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 1-11.

2018 Javid, Habib Ahmad. "Land development and land readjustment Possibilities in Afghanistan." In: Ch. 3 Souza, Felipe Francisco, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 97-98.

2018 Joshi, Kirti Kusum and Sunil Babu Shrestha. "Land readjustment in Nepal." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 157-166.

2018 Khamaisi, Rassem. "The issue of land reparcelization as part of land readjustment in Israel." In: Ch. 3 Souza, Felipe Francisco, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 146-151.

2018 Korotkova, Elena. "Land pooling for multi-child families in Russia." In: Ch.9 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 129-137.

2018 Leeruttanawisut, Kittima and Paul Rabé. "Revisiting land sharing in Bangkok, Thailand: The Sengki case." In: Ch.5 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 73-86.

2018 Lin, George C. S., Xun Li, Anthony G. O. Yeh, Shenjing He, Zhiyong Hu and Xingjian Liu. "Land readjustment in urbanizing China: Decentralization, profit concession, and redevelopment of village land in Chinese cities." In: Ch.1 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 13-24.

2018 Lin, Tzu-Chin and Hsiu-Yin Ding. "Urban land readjustment in Taiwan." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 175-179.

2018 Linke, Hans Joachim. "The land readjustment system in Germany." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach.

Japan International Cooperation Agency (JICA), Tokyo, 2018, 128-136.

2018 Lai, Lawrence W.C., K. W. Chau, and Lennon H.T. Choy. "Stock and flow of land: Freeing land from rigidities for urban development in Hong Kong." Editorial, Surveying and Built Environment 27, no. 1 (2018): 5-9.

2018 Lai, Lawrence W.C. Lai, KW Chau, Alwin Chan and Lennon, H.T. Choy. "Two dialogues on land readjustment in Hong Kong." Surveying and Built Environment 27 no. 1 (2018): 5-9.

2018 Monteiro, Livia, Tiago Esteves Gonçalves Da Costa, Thiago Medeiros De Castro Silva and Leonardo Amaral Castro. "Land readjustment and its planning perspectives for Belo Horizonte, Brazil." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 111-115.

2018 Österberg, Tommy. "The failure of land readjustment in Sweden." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 171-175.

2018 Norbu, Geley. "Land pooling in Thimphu, Bhutan." In: Ch.7 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 101-117.

2018 Peter, Jacob Manohar Abraham and Harpal Dave. "Land readjustment in India." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 136-140.

2018 Pinilla, Juan Felipe. "A new approach to urban renewal in Bogotá, Colombia: The Fenicia project." In: Ch.2 Yu-hung Hong and

Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 25-44.

2018 Supriatna, Andri. "The application of land consolidation in Indonesia." In: Ch. 3 Souza, Felipe Francisco, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 140-146.

2018 Tanmanee, Ittipong. "Land readjustment in Thailand." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 180-188.

2018 Türk, Sevkiye Sence. "Could land readjustment be participatory and inclusive in Turkey?" In: Ch.6 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 87-99.

2018 Van Den Brink, Adri. "From land consolidation to land readjustment in the Netherlands." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 166-171.

2018 Viitanen, Kauko. "Urban land readjustment in Finland." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018. 123-128.

2018 Wangmo, Tashi. "Land readjustment, an urban planning tool in Bhutan." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 104-110.

2018 Yanase, Norihiko. "Land readjustment and post-disaster reconstruction in Japan." In: Ch. 2 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 32-80.

2018 Yomralioglu, Tashin, Bayram Uzun and Recep Nisanci. "The shortcomings of land readjustment application in Turkey." In: Ch. 3 Felipe Francisco de Souza, Takeo Ochi, and Akio Hosono eds. Land readjustment: solving urban problems through innovative approach. Japan International Cooperation Agency (JICA), Tokyo, 2018, 183-194.

2018 Zeluel, Abebe. "Land readjustment for informal settlement upgrading in Addis Ababa, Ethiopia." In: Ch.3 Yu-hung Hong and Julia Tierney eds. Global experiences in land readjustment: Urban legal case studies, UN-Habitat, 2018, 45-55.

2019 Adam, Achamyeleh Gashu. "Thinking outside the box and introducing land readjustment against the conventional urban land acquisition and delivery method in Ethiopia." Land Use Policy 81 (2019): 624-631.  
2019 Go, Virginia Khong, and Lawrence Wai Chung Lai. "Learning from Taiwan's post-colonial heritage conservation." Land Use Policy 84 (2019): 79-86.

2019 Habibi, Said Mustafa and Hiroko Ono. "An analysis on the sustainability of an adapted land readjustment compared to upgrading model for developing the Kabul old city." International Journal of Technical Research and Applications 7, no. 1 (2019a): 1-7.

2019 Habibi, Said Mustafa and Hiroko Ono. "A study on the applicability of an adapted land readjustment model for development the old city of Kabul— A case study of Bagh-Ali-Mardan Area." Journal of Architecture and Planning, AIJ, 84, no. 756 (2019b): 407-414.

2019 Hong, Yu-hung and Mansha Chen. "Reinventing land readjustment: Implications for eminent domain and land governance," In:



Ch. 2 Frances Plimmer and William McCluskey, eds. Routledge Handbook of contemporary issues in expropriation Routledge, Oxon, 2018, 30-48.

2019 Kashyap, Poonam and Anil Kashyap. “Land based infrastructure development and ease of doing business in India.” In: Ch. 14 Frances Plimmer and William McCluskey, eds. Routledge handbook of contemporary issues in expropriation, Routledge, Oxon, 2019, 273-281.

2019 Tiits, Tambet and Aivar Tomson. “Acquisition for public purposes and valuation in Estonia.” In: Ch. 5 Frances Plimmer and William McCluskey, eds. Routledge handbook of contemporary issues in expropriation, Routledge, Oxon, 2019, 82-93.

2019 Walters, Lawrence. “The United States’ experience with expropriation and the lessons yet to be learned.” In: Ch. 22: Frances Plimmer and William McCluskey, eds. Routledge handbook of contemporary issues in expropriation, Routledge, Oxon, 2019, 417-432.

# Planning for Official Rest Time in Borrowed Official Space: An Exploratory Survey of the Use of Formal and Informal Open Spaces for Foreign Domestic Helpers in Hong Kong

\*# Lawrence W.C. Lai, \* Stephen N.G. Davies, + Daniel C.W. Ho, \*# K.W. Chau,  
@ Mark Hansley Chua, ^ James Caswang, \* Nixon T.H. Leung, \* Locinda M.L. Kwan

---

## ABSTRACT

This paper seeks to make a contribution to planning theory and practice by explaining the need, focus, local context, originality, design and findings of a survey of the rest day open space needs of “foreign domestic helpers” (FDHs) in Hong Kong, who are from the Philippines, through street interviews in their own language. It assesses their open space needs based on an original field questionnaire survey a to a sample of 125 Filipina domestic servants who occupied formal and informal open spaces in Hong Kong’s central business district (CBD); and discusses key findings.

## KEYWORDS

town planning, public health, foreign domestic helpers; open space; social justice

## 1. INTRODUCTION

This paper seeks to make a contribution to planning theory and practice by explaining the need, focus, local context, originality, design and findings of a survey of the rest day open space needs of “foreign domestic helpers” (FDHs) from the Philippines in Hong Kong through a street interview of them

---

\*# Professor Lai, Lawrence W.C. [wclai@hku.hk](mailto:wclai@hku.hk), \*Professor Davies, Stephen N. G. [daiwaisi@hku.hk](mailto:daiwaisi@hku.hk), + Professor Ho, Daniel C.W. [danielho@vtc.edu.hk](mailto:danielho@vtc.edu.hk), \*# Chair Professor Chau, K.W. [hrrbckw@hku.hk](mailto:hrrbckw@hku.hk), @ Dr. Chua, Mark Hansley [markchua@ln.edu.hk](mailto:markchua@ln.edu.hk), ^ Mr. Caswang, James [James.caswang@uap.asia](mailto:James.caswang@uap.asia), \* Mr. Leung, Nixon T.H. [leungdei@connect.hku.hk](mailto:leungdei@connect.hku.hk), \* Miss Kwan, M.L. Locinda [Lmlkwan@gmail.com](mailto:Lmlkwan@gmail.com),

# HKUrban Lab, Ronald Coase Centre for Property Rights Research,

\* Department of Real Estate and Construction University of Hong Kong,

+ Department of Environment Technological and Higher Education Institute of Hong Kong

@ Institute of Policy Studies, Lingnan University,

^ University of Asia and the Pacific, The Philippines.

using Tagalog, the base of the official national language, Filipino, and the most widely spoken of the nation's 120 to 187 languages, depending on how those are classified.

### 1.1 Organisation of this paper

The planning research focus of this paper is open space planning and provision as this impacts on and is implicated in public health (Cherry 1979, Freestone & Wheeler 2015, Walker & John 2021) and, more fundamentally, with social justice. This emphasis on equity, (Walster & Walster 1975), or fairness (Rawls 2001) as applied to living space for human beings in the light of the health impact of global pandemics (Lam *et al.* 2005, Wong *et al.* 2009, Tang 2017, Yeung *et al.* 2020, Wong 2021), is presented in Section 2. In this paper, accordingly, spatial equity or a fairness in the provision of a specific element of living space – public space to spend time in company with others during free time – is articulated in relation to the *Hong Kong Planning Standards and Guidelines* (HKPSG).

Section 3 then follows up with a narrative that seeks to analyze the use of *de facto* open space by FDHs in terms of the Hong Kong planning context as that is determined by the HKPSG. This analysis is achieved through a typology of open space predicated on concepts of property rights as *de jure* and *de facto* rules of access. This is a way to deal with urban space as clearly delineated zones. Thus contextualised, in Section 4 the need for and originality of this work are revealed by a review of the literature representing past endeavours to articulate the open space needs of FDHs in terms of planning, social justice and property rights (Baglet *et al.* 1997, Yeoh & Huang 1998, Holroyd *et al.* 2001, Law 2002, Leung 2003, Salminen 2002,

Peralta 2004, Keezhangatte 2006, Lee & Peterson 2006, Toyota 2006, Mckay & Brady 2007, Franck & Stevens 2007, Lau *et al.* 2009, Yu 2009, Hou 2010, Delgado 2012, UCLA School of Public Affairs 2012, Malhotra *et al.* 2013, Erni & Leung 2014, Hou 2016, Tam 2016, Tam 2017, Crowley 2018, Lai *et al.* 2021, Wong 2021, Yeung *et al.* 2020, Mok & Ho 2021, Wong 2021, Chan & Latham 2022). It points out a hitherto rather neglected research need, namely to show the value of open space planning as characterised, by asking the views of the FDHs who were actually using the open spaces for their rest day recreation.

Section 5 deals with the design and findings of the survey. Section 6 interprets the findings and Section 7 concludes the paper and points out the limitations and some directions of further research.

### 1.2 Nature of this paper

This work is a first attempt to systematically collect opinions of FDHs about the open spaces they are using in their own language. The findings should have planning implications. However, while health and justice are invoked as values, and though statistics are collected, presented and interpreted, the survey of FDHs should not be taken as a means to empirically verify any refutable hypothesis pertaining to public health, social justice or property rights. That was not, nor could have been the aim of a pilot survey.

## 2. TOWN PLANNING<sup>1</sup> CONTEXT: OPEN SPACE IN RELATION TO PUBLIC HEALTH & SOCIAL JUSTICE AS EQUITY OR FAIRNESS

---

1 We might identify an evolving set of rationales underpinning the layout of any urban settlement as of the first known towns some 9,000 years BP. In time these became explicit rather than implicit, and with that shift conscious town planning could be said to have been born, though exactly where and when is moot. Certainly in the Epic of Gilgamesh, c.2100-1200 BCE, something like a plan of Uruk, an ancient city of Sumer, is given (Dalley 2000, p.50). In other ancient cities of that era we can see key rationales – defence, provision of public and public ritual spaces, sanitation, balancing residential and commercial land use, water supplies, traffic management, etc.

A *raison d'être* of modern town planning, as the old world underwent the Industrial Revolution and the problems of modern, densely populated towns multiplied, was public health. Initially a stress was hygiene and sanitation associated with potable water supply, drains and sewage (Cherry 1979, Freestone & Wheeler 2015). Much planning was thus characterised by infrastructural development driven by civil engineering works for the constructing reservoirs and water supply systems. However, the role of open space, specifically in the form of urban parks, whether relics that had been preserved, or newly planned and designed zones, remained one of the most important planning concerns for the welfare of the public as it had been for centuries. Today in developed countries, with hygiene and sanitation an assumed given, public health in planning is now seen more in light of a broader conception of well-being (Walker & John 2011) that raises the profile of open space provision.

## 2.1 Planned allocation of open space

Today, usually, local open spaces on government land or private development are reserved and/or assessed for adequacy with reference to government planning standards. These standards are normally predicated on the population to be planned for being composed only of permanent full residents; those, in short, who are statistically and legally countable and predictable. The tendency is thus to ignore such categories of any city's transient population as tourists, foreign workers and refugees.

In a globalizing context of the international movement of labour, this may raise issues of social justice, i.e., equity (Walster & Walster 1975) and fairness (Rawls 2001), because the well-being of non-resident aliens is no less important, especially if they make a substantial contribution to society. One basic measure of equity and fairness is that FDHs serving Hong Kong in Hong Kong should be included as part of the Hong Kong population for the application of population-based government planning standards. As explained in the next section, the HKPSG for public open space provision fails in this regard.

## 2.2 Open space studies for FDHs as racial minorities

While social science research on open space provision for racial minorities (Rishbeth 2001) is mushrooming, studies on spatial equity for aliens, as minority or marginal groups treated as "outsiders", is still in its infancy. In this paper spatial equity is measured by reference to the HKPSG. From a public health zoning angle, it is within this context that the empirical survey of FDHs from the Philippines, is potentially of both practical and theoretical town planning importance. For the FDHs are a conspicuous racial minority group whose history in Hong Kong and whose contribution to Hong Kong's economic success goes back over 45 years. The study is thus practical in terms of public health and theoretical in terms of property rights and social justice.

## 2.3 Open space research in light of pandemics

The outbreak of the "Severe Acute Respiratory Syndrome" (SARS) in 2003 that hit Hong Kong and several Asian countries hard has destroyed local researchers' complacency with respect to high density, high rise development. SARS shifted their attention back to buildings and generated much well-cited research on Hong Kong's indoor environments and health (Wong *et al.* 2009). Health risks posed by pollution (Lam *et al.* 2005) in or around such open spaces and the quantitative spatial distribution of open space pockets and zones have attracted the research by local researchers (Tang 2017). Yet, whilst such research on healthy outdoor facilities and spaces is still in its infancy, the current has accelerated with the far more contagious and lethal COVID 19 that reached Hong Kong in January 2020.

The experience in Hong Kong under the strict and inflexible COVID prevention measures was bad for the FDHs. There were severe restrictions on the number of persons gathering at any public space and all formal group recreation facilities, like BBQ pits and swimming pools, were a closed down. Yeung *et al.* (2020) attempted to assess the negative psychological



impacts of such measures in terms of anxiety of getting infected and fired on FDHs. **Wong (2021)** interviewed some FHDs

### 3. LAND USE PLANNING FOR FDHS' GATHERING PLACES IN HONG KONG

On Saturdays, Sundays, and public holidays, periods legally prescribed under Hong Kong's labour law for time off, and thus mandatory to employers many FDHs in Hong Kong congregate on the streets and pedestrian walkways of its CBDs, as well as in some public parks. The gather to form or cement friendships, re-unite people from the same home places, share food, sing, dance, trade, cut hair, rest, etc. For a while each week, FDHs borrow public routes that become communal places.

#### 3.1 Contribution of the underprivileged FDHs of Hong Kong

The presence of FDHs in Hong Kong, often at the cost of their marriages and families (like examples from Singapore (**Asis et al. 2004**), is a significant component in the city's functions. The FDHs relieve many local married women of domestic duties, freeing them to go out and find work in the formal economy. Although, at 50.8%, Hong Kong has a lower female workforce participation rate than many comparable economies, the number of females working has doubled from under one million in 1986 to nearly two million in 2018. The Census and Statistics Department specifically denies that this 100% increase in female participation rate between 1986 and 2018 is primarily attributable to FDHs<sup>2</sup>. However, according to a 2017 study of FDHs by the Legislative Council Secretariat's Research Office, it was admitted

that FDHs allowed a large number of local married women to join the workforce, as the FDHs could assume most of their housework (**Census and Statistics Department 2015**), and it is established that Hong Kong's labour participation rate for women rose from 47.8% to 55.1% from 1996 to 2019 (**Census and Statistics Department 2019**).

The first group of Filipina FDHs arrived in Hong Kong in 1973 (**Nuqui 1987; Toro-Morn & Alicea 2004**). According to a government (**Legislative Council 2017**) study, they comprise the largest pool of foreign domestic labour supply: a total of 189,000 in 2016 representing 54% of Hong Kong's FDHs. Another 154,000 FDHs are Indonesian, who constitute 44% of FDHs. The number of FDHs rose from 164,000 in 1996 to 399,320<sup>3</sup> in 2019 – a percentage increase of 143%. The ratio of FDHs to Hong Kong's overall workforce rose from 5.3% to 9.3% between 1996 and 2016.

There is little doubt that the FDHs in Hong Kong are underprivileged. FDHs have no opportunity within the terms of their visas to become citizens and no right to vote in local elections, despite their long stays in Hong Kong and contributions to local society. They are treated by the government as merely imported labour (an "input" to Hong Kong's economy), rather than people, who should count as ordinary citizens in terms of the planning of social infrastructure.

This is separable for other aspects of the welfare of FDHs working in Hong Kong. As workers they are protected by the *Employment Ordinance* (Cap.57) and *Employees' Compensation Ordinance* (Cap.282), which cover weekly rest days, statutory holidays, and

---

2 It states, "although a portion of the growth in the female labour force was attributable to the increase in female foreign domestic helpers, the increase was mainly due to increase in participation of local women in the labour force." Given the nonsensical circularity of the argument – more women participated in the labour force because more women participated in the labour force – it would seem that even at the level of raw data government is anxious to deny, or at least hide Hong Kong's debts to its FDHs and, hence, any need to take responsibility for their welfare. (**Census and Statistics Department 2015**)

3 Source: [data.gov.hk/en-data/dataset/hk-immmd-set4-statistics-fdh](https://data.gov.hk/en-data/dataset/hk-immmd-set4-statistics-fdh)

annual leave. Moreover, employers are required to sign Standard Employment Contracts, which provide additional benefits such as a minimum allowable wage of HK\$4,630 and complimentary food, accommodation, medical care, and a roundtrip ticket to/from the helper's home country. Because the Standard Employment Contract entails the provision of board and lodging, the minimum allowable wage is not comparable to Hong Kong's Statutory Minimum Wage (Cap 608, sect 7(3)).

However, the FDH Minimum Allowable Wage of HK\$ 4,630 (**HK Labour Department 2019**) is higher than the HK\$4,200 minimal wage received by domestic helpers in Taiwan (**Ministry of Labor of Taiwan 2017**) and HK\$3,200 in Singapore (**Ministry of Manpower of Singapore 2017**). But, as with most such forms of hired in foreign labour in the world, FDHs do not have the right to vote in District or Legislative Council elections and, irrespective of the lengths of their stays in Hong Kong, they have no right to apply for permanent residence in Hong Kong. Other than some foreign human rights fighters, few scholars (none of whom was Chinese) have written about them.

### 3.2 Neglect of open space needs of FDHs

As noted, legally FDHs are formally differentiated from other residents in Hong Kong in a way that makes them, via their form of employment, not merely second-class citizens of Hong Kong, but not citizens at all. The normal Hong Kong rule that would accord

them the right to apply for permanent residency after seven years work and residence in the territory does not apply to them. Such rights as they have are narrowly prescribed by the visa conditions and the consequent employment contract under which they are permitted to enter Hong Kong and work.<sup>4</sup> Thus, unlike other economically important minority groups in Hong Kong, such as Europeans, Eurasians, Indians and Portuguese, the government has not granted land to Filipina or Indonesian organisations to establish recreational clubs to allow them to enjoy their days off in a more homely atmosphere. Instead, in 1994, the colonial Government leased a former school site in Kennedy Town to the Hong Kong Bayanihan Trust to establish the "Overseas Domestic Helpers' Centre" for foreign domestic helpers of different ethnicities to gather and organise activities on their rest days.<sup>5</sup>

In consequence, the places FDHs occupy during weekends include public parks and squares and even "inhospitable" niches such as pedestrianised roads closed off to accommodate them, footbridges, staircases, and spaces under flyovers. On average, based on common knowledge<sup>6</sup>, they spend 6 to even 8 or more hours in such spaces and many engage in an informal economy of trading currencies and goods, and giving lessons in hairdressing and other basic skills. Often, they dress well for their deserved one-day weekly vacations. Nonetheless this is an entirely informal, even Hayekian solution. Bar the ODHC there is no sign of an active government programme that caters to FDHs. One rationale for the neglect

4 It is indicative that, in tandem with the visa application and its conditions (ID988B), the employment contract for Foreign Domestic Helpers is in an Immigration Department document series (ID407) and not a Labour Department document series

5 This off centre site (1,305 m<sup>2</sup>) is small in size compared with the Indian Recreation Club (2,910 m<sup>2</sup>) or Club de Recreio (21,580 m<sup>2</sup>), with lawns and large open play areas, let alone more privileged enclaves like the many private club premises that enjoy privileged lease terms on large spaces. On its 1305 m<sup>2</sup> site, including entrance and outside stairways, the Overseas Domestic Helpers' Centre (ODHC) is a three storey building with a 620 m<sup>2</sup> footprint, thus by inference offering at a maximum about 2,545 m<sup>2</sup> of space for some 399,320 domestic helpers: or 0.006 m<sup>2</sup> per capita. Even assuming that only one per cent of helpers ever wished to use the centre at any one time, the area offers each of them at the absolute maximum, 0.6 m<sup>2</sup> each.

6 The lead author's household had he assistance of FDHs from 1989 to 2020.

possibly being that, Filipinas, who are mostly Catholic, can use the parish facilities of the Roman Catholic Church.

In light of the generally harsh work environment for FDHs, who mostly have to sleep on bunk beds or even on the floors of their employers' small flats, and the government's strong financial status, it is hardly social justice for the latter to neglect the former's open space needs.<sup>7</sup> Therefore, public investment in better open spaces for FDHs as proper places for rest and leisure needs no elaborated justification because it is a form of indirect support (as a kind of fringe benefit) to the households they serve.

### 3.3 Planned allocation of property rights according to HKPSG and social justice

There can be an infinite number of possible approaches to the question of public health or social justice as a matter of town planning for open space for every resident. One useful approach focuses on the property rights aspect because in principle it should articulate well with human rights. The point is that property rights are often disconnected from human rights (to well-being) in relation to planning and land management. Planning and land management often apply to the disadvantage of the socially marginalized, because property rights are *de jure* rules regarding inter-personal entitlements to use resources.

Without any form of property rights to land, any declaration of human rights protection for an occupier or a user of land is little more than rhetoric (Lai *et al.* 2018). The recognition of indigenous land rights under Australia's *Marbo Act*, for instance, is the first step to addressing the various human rights issues of its indigenous population. In Hong Kong, while there is a *Bill*

*of Rights Ordinance*, the protection of property rights over land has seldom been discussed as a dimension of human rights, as in the case of profit-seeking, government-led urban renewal, which displaces proprietors without rehousing them (Lai *et al.* 2018).

In the case of open space planning in Hong Kong, the HKPSG is pivotal in rationing property rights to open space ONLY to Hong Kong residents. The HKPSG, which stems from the *Colony Outline Plan* (COP) (later Hong Kong Outline Plan (HKOP) to get rid of its colonial stigma) of the 1960s and 1970s, provides that every "person" is entitled to one square metre of "local open space". However, district open space provision, presumably in some way connected with this stated entitlement, is not, as one would assume it would be, directly based on actual population, i.e. numbers of 'persons'.

For as far as the HKPSG is concerned "population" means "permanent population" and FDHs are not counted as "permanent", even though many have worked for over seven years in Hong Kong that, for anyone else, constitutes the legal basis for permanent residency.

Accordingly, no specific planning guideline or policy paper has addressed the FDH open space needs or, bar a change in their legal status or a change in the planning guidelines, is ever likely to. In other words, FDHs, who constitute almost 6% of the total population of Hong Kong, do not matter in Hong Kong's town planning, even as Hong Kong advertises itself as an international city.

It is not just a question of whether the actual, though by definition at least 6% *undersupplied* planned local open spaces are or are not *available* to FDHs per se, but rather also whether the spaces available *meet the FDHs needs* when

---

7 Article 24 of the Universal Declaration of Human Rights holds that "Everyone has the right to rest and leisure, including reasonable limitation of working hours and periodic holidays with pay." The Hong Kong Government complies to the strict letter of Article 24, assuming that the rights to rest and leisure do not entail proper resting and leisure spaces, which of course by inference they do.

they go there. This is exactly why the FDHs own assessment in this survey is important.

### 3.4 Use of spaces for recreation by FDHs under various legal constraints

As noted, the FDHs began to appear in Hong Kong during the early 1970s, when Hong Kong took off economically (Chen 1979). Statue Square, as a public open space, assumed its present form during the 1960s, while the footbridge and underpass system that links the CBD (and much of the rest of urban Hong Kong) together took root during the late 1970s and continues to expand to this day. The footbridges and underpasses were fairly obviously not intended to be a place for rest and recreation by FDHs, but rather as all-weather, vehicular traffic-free passages for office workers and others from building to building or CBD area to CBD area, as well as to and from the residential areas in the Mid-Levels.

The overcrowding of such happened-upon spaces for FDH recreational use eventually led to sections of Chater Road and Ice House Street, totalling about 7,500m<sup>2</sup>, being closed to traffic on Sundays and public holidays in the early 1980s for the convenience of the FDHs.

A quick exercise in basic arithmetic shows how grossly inadequate it is for accommodating all of them. Even assuming only ten per cent of the 399,320 FDHs used the pedestrianized areas,

that would enable them to have 0.18m<sup>2</sup> each and simultaneously prevent access to anyone else. Not surprisingly, those FDHs, who do not take advantage of parish church premises, have colonized, as *de facto* open spaces, any available district open spaces from Victoria Park three kilometres away in Causeway Bay, to the Central footbridge system and innumerable spaces in between.

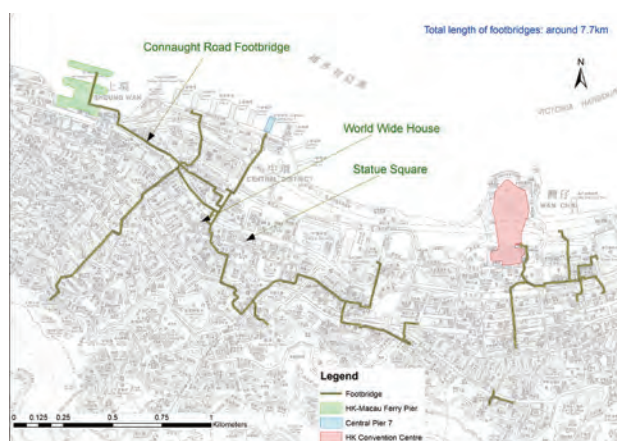
Focussing solely on the CBD footbridge system (Figure 1)<sup>8</sup>, the FDHs are, in legal terms, *squatting* temporarily on it. Local residents generally accept this and many sympathise with the FDHs for occupying less-than-healthy passageways as their recreational outlets. The FDHs, therefore, have defined *de facto* property rights along the footbridge system during their rest days, which practice is by and large respected by the community. However, as a public road and as passageways, Chater Road and the footbridge system have no seating or other public facilities like toilets. Because the space is only temporarily squatted on, there is no permanent improvisation by users, as could be observed in “fools’ paradises” (Hung 2017) developed in the countryside by Hong Kong’s morning hikers. The FDHs are not “rich squatters”<sup>9</sup> (Lai 2015) who can gain *de jure* rights to space, other than those tolerated as *de facto* and recognized by the state, as the government could not determine their needs via Hong Kong’s political system.

---

8 The footbridge system (as shown in Figure 5), more extensive than the study area of Kwok (2019) which sometimes weaves its way through building interiors, is fully covered and has escalator and elevator access. The sections in which FDHs stay are part of the original system, which has evolved intermittently since the 1960s, when some commercial buildings were already connected. In time, the system branched off to the Macau ferry terminal in the west; as far as Star and Arsenal Streets on the fringes of the district of Wan Chai in the east; to the Central Piers in the north; and, via the innovative Bridge Street Central-to-Mid-Levels escalator system, to Robinson Road in the south. On Saturdays and Sundays, the Central core of this system, as depicted in Figure 1, is occupied mainly by FDHs. Research on this system has paid almost no attention to this socially marginalised group of Saturday and Sunday users.

9 A term of Australian origin to describe squatters who were as a group of colonial settlers (like their counterparts in North America) powerful and eventually gained *de jure* rights to space by actual possession of land.





**Figure 1:** The Central-Wanchai footbridge system

We can summarize this sub-section in terms of property rights with respect to the *de facto* and *de jure* availability of open spaces for FDHs to use on their days off by using a helpful matrix (**Figure 2**).

Space available for FDH use	<i>De jure</i>	<i>De facto</i>
Legally defined public pleasure grounds	N.A.	Parks, rest gardens, sitting out areas
Other spaces open to the public	Church premises	Footbridges, underpasses, walkways, unoccupied other public spaces (e.g. below flyovers)
Private open spaces	Overseas Helpers' Centre	

**Figure 2:** A typology of open spaces for foreign domestic helpers in Hong Kong

In principle all public spaces used by FDHs should be either *de jure* available to them or spaces they occupy *de facto*. As the matrix shows, it would seem necessary to define all uses of public open spaces by FDHs, whether in public parks or footbridges, etc., as *de facto*.

The point is simple and can be seen by a look at the law that applies to uses of public open spaces. Let us consider first the formally statutorily designated public open spaces which, in Part X, sections 106 to 111, of Cap 132: *Public Health and Municipal Services Ordinance*, are

identified as “Public Pleasure Grounds”. The ordinance confers on the authority (in general the Leisure and Cultural Services Department) the power to regulate the use of such spaces, such that “Where any person is found by a keeper of any public pleasure ground to be contravening the provisions of any regulation, rule or order relating to such public pleasure ground, such keeper may arrest such person and deliver him into the custody of a police officer or take him to the nearest police station, whereupon the provisions of sections 51 and 52 of the *Police Force Ordinance* (Cap. 232) or of section 52 of that ordinance, as the case may be, shall apply.”

Section 109 of Cap 132, *Pleasure Grounds Regulation*, has two sections, 20 and 21, which quite expressly seem to forbid many of the practices of the FDHs on their days off. Not only do they often informally trade with each other, they also, to create small havens of sub-group privacy, build temporary small enclosures using cardboard boxes and other materials. Their sheer numbers almost guarantee that, should someone ungenerously see fit, they could be claimed to “obstruct, disturb or annoy any other person in the proper use of the playground.” It is a testimony to the good sense and thoughtful awareness of the overwhelming majority of Hong Kong people that such complaints would seem to be exceedingly rare.

On these grounds, therefore, we have identified the right of the FDHs to their access and use of the formally gazette “public pleasure grounds” as *de facto*.<sup>10</sup> It is not *de jure* because, although in using the “public pleasure grounds” the FDHs are fully within their statutory rights, the actual use they make of them does not conform to the expected ‘normal’ use of such spaces. As with the general public’s acceptance of the way the FDHs use such spaces on their day off because the FDHs have no alternative, so the authorities would seem to be turning a ‘blind eye’ to use of a public facility that, were such use to be generally resorted to by the public at large, would almost certainly result in a crack-down.

10 A full list of such public open spaces appears Fourth Schedule to Cap 132.

There is no exact equivalent legislative ‘one stop shop’ for identifying what rights FDHs exactly have in respect of their use of such public spaces as pavements, footbridges, underpasses, etc. Such legal constraints as obtain are scattered through innumerable pieces of legislation.<sup>11</sup>

In short, seeking to get together to enjoy their one day off a week, Hong Kong’s 399,320 FDHs find themselves unavoidably at odds with any narrow construction of such laws and regulations of Hong Kong as have been enacted to protect those normal goals in planned public spaces, such as public health, hygiene and orderliness.<sup>12</sup>

#### 4. LITERATURE REVIEW: NEGLECT OF PUBLIC HEALTH IN FDHS “TRANSLATED” IN TERMS OF PLANNED OPEN SPACE

The body of literature on FDHs is not large but we managed to identify about 30 works, covering 4 thematic research areas. They are (a) public health and FDHs as an academic subject; (b) research on FDH lives in Hong Kong, (c); research on minority rights interpretation; and

(d) research on FDHs in relation to open space, as presented below.

**4.1 Public health & FDHs as a subject** Public health as a basic and simple human (and hence social justice) matter has eluded the gaze of researchers specializing on foreign domestic helpers as a subject. They have been more interested in “strategies” (Yeoh & Huang 1998), “power” (Law 2002), emotional connections (McKay 2007), and “place making” (McKay & Brady 2007) as a paradigmatic rather than an immediate health issue when they tackled “public space.” No one other than Yu (2009) actually asked the helpers about the open space in which they take rest when off duty. None of the authors of such studies is a town planner by profession or disciplinary specialization.

This research landscape will likely be disrupted by the high incidence of COVID 19 among migrant workers in Singapore, whose legal status is very much the same as those of Hong Kong’s FDHs.<sup>13</sup> In fact, during the height of infections in Hong Kong, some employers debarred their helpers from going out on their day off using threats of terminating their contracts.<sup>14</sup> There

- 
- 11 Cap 228: *Summary Offences Ordinance*, in the definitions section of which we find: “public place (公眾地方) includes all piers, thoroughfares, streets, roads, lanes, alleys, courts, squares, archways, waterways, passages, paths, ways and places to which the public have access either continuously or periodically, whether the same are the property of the Government or of private persons” offers a good starting point. Reading through the myriad summary offences listed in the ordinance, it is clearly only by official forbearance and acceptance that the activities of FDHs on their day off in the public places so defined are not defined as “nuisances” that constitute offences.
  - 12 It is accordingly a curious irony that, in order to permit the FDHs the use of public pleasure grounds and public spaces the better to satisfy their own human needs, because the government has not and does not provide what is required for such comparative ‘non-persons’ to get together to tend to their own needs for human contact, recreation, relaxation and other essential components of human well-being, the government of Hong Kong finds itself conniving in the breach of its own laws relating to the planned intention of public spaces to be conducive to public health and hygiene!
  - 13 “Singapore Was a Coronavirus Success Story—Until an Outbreak Showed How Vulnerable Workers Can Fall Through the Cracks.” Time, 29 April 2020. <https://time.com/5825261/singapore-coronavirus-migrant-workers-inequality/> [Accessed 28 June 2020]
  - 14 Alcohol baths, reused masks, and lonely Sundays: Hong Kong domestic helpers feel ‘singled out’ amid coronavirus outbreak. 5 February 2020. <https://www.scmp.com/news/hong-kong/health-environment/article/3049226/alcohol-baths-reused-masks-and-lonely-sundays> [Accessed 6 July 2020]

have also been reports of employers requiring FDHs on return home after their day off to perform a full body cleansing as if, necessarily, they are likely to be a health risk.<sup>15</sup>

**Malhotra et al. (2013)** reviewed the studies of FDHs and their adverse work conditions and related health problems, mental health, infectious diseases, and health knowledge. The previous literature on FDHs' public health issues mainly focused on health-related behaviors, the health locus of control and social support for FDHs (**Holroyd et al. 2001**), their acute psychiatric disorders (**Lau et al. 2009**), and their stress factors and mental health adjustments (**Bagley et al. 1997**). How open spaces and public holiday gatherings are related to the above physiological and mental behaviors and parameters of FDHs is something worth probing. The excellent work of **Kwok (2019)** about reclamation of FDHs in Hong Kong, using the Central footbridge system as a study area, mentioned health but her interest was in social resistance, not better open space for better health.

The two recent studies by interviewing on the negative impacts of COVID related by **Yeung et al. (2020)** and **Wong (2021)**, conducted respectively in open spaces and unspecified places, did not deal with open spaces.

#### 4.3 Research on minority rights interpretation: in what language etc.

This review has the benefit of being informed by the idea of **Leung (2003)** that the rights to

be heard are mediated via interpretation. **Leung** addressed social justice for migrants in terms of the common law rights in trials, and in that context "interpretation" referred to professional translation to overcome a *language barrier*.

Urging for an empowerment rather than a protectionist approach for FDH, an NGO RESPECT<sup>16</sup> refers to migrant domestic workers' "rights to be heard." (**Briones 2009, p.7**) As **Salminen (2003)** notes, "Universities interpret, create and transfer knowledge." This work in a sense translates the opinions of FDHs collected in their ordinary national language into advocacy for government provision of better open space facilities for them. That is because, as social group, they are politically unfranchised, "voiceless" and hence "unheard" in local politics. This is an example of the potential social function of universities as an "interpreter" for the government for a natural right of the administered to be heard by the administrator.

The review also recognizes, if reluctantly, that from the perspective of critical race theory (**Delgado 2012**), even this idea of the possibility of the university acting as an interpreter in the sense intended is problematic. For what it does not and cannot address are the built-in institutional biases at all levels such that, "racism is engrained in the fabric and system of...society. The individual racist need not exist to note that institutional racism is pervasive in the dominant culture." (**UCLA School of Public Affairs 2012**).<sup>17</sup>

---

15 <https://www.scmp.com/news/hong-kong/health-environment/article/3049226/alcohol-baths-reused-masks-and-lonely-sundays> reports recent statements by FDHs of the way some of their employers treated them when they returned home after their day's off, requiring them to do a full body cleansing.

16 <http://www.respectnetwork.eu/about-respect/> [Assessed 13 July 2020]

17 This draws attention to the fundamental language with which the whole issue here addressed begins and its incorporation of the word "foreign" as the key qualifier of the people whose rights are in question. The Hong Kong Government refers to this hard-working, cheerful underclass as 家庭傭工 (domestic workers) "of foreign nationality" (外籍家庭傭工) or "recruited from abroad" (從香港以外地區聘用家庭傭工). The key character is 外 (wai) that denotes the outsider/not of us, someone categorically not belonging within our system and way of life.

A recent paper (**Lai et al. 2021**) reported a survey of user perceptions of public open spaces supplied by government and developers, conducted prior to the present study, that revealed that Hong Kongers (more than 60% of respondents) considered footbridges unfit for FDHs due to poor environmental conditions.

#### 4.4 Research on FDH lives in Hong Kong

Critical social theorists have focused on the “structural conditions of deceit and exploitation” (**Erni & Leung 2014**) experienced by FDHs in Hong Kong to draw attention to the situation of “forced labour” and “debt bondage,” as informed by the research of **Lee & Peterson (2006)** regarding high payment fees of HK\$6,000-HK\$21,000, as well as the loans FDHs owed to their employment agencies. In a study of Indian FDHs by **Keezhangatte (2006)**, he addressed the pain of separation as central to the trans-national relationship between mothers working in Hong Kong and their children in India. In a study applying the framework of **Derrida’s** hospitality (**2005**) and **Serres’ (1980)** parasite, **Tam (2017)** discussed the case of Miss Erwiana Sulistyaningsih to reflect on the exploitative conditions, including prolonged work schedules, malnutrition, denial of statutory days off, physical punishment, and even threats to helper’s families, that FDHs face. These conditions have sometimes led

to protests by FDHs that have been joined by local employer groups, Legislative Councilors, and labor unions. **Tam (2017)** also quoted the challenges advocacy groups face, as Cap 115A, the *Conditions of Stay Regulations*, as applicable to FDHs, increases the cost to the FDH if she leaves a job, in which case she must leave Hong Kong within two weeks after her contract ends.<sup>18</sup>

In addition to discussions of self-identity, benefits, and the difficulties FDHs face, the weekly gatherings in open spaces have also been a focus of academic studies. That of **Keezhangatte (2006)** revealed that Indian FDHs drew strength from their memberships in small groups, which echoed the ethnographic study of **Peralta (2004)** on Filipina FDHs that examined the weekly assemblies at Statue Square on weekends and public holidays. **Peralta (2004: viii)** indicated that these gatherings were “characterized by a special camaraderie of sisterhood.”

**Tam (2016)** examined the “messiness” of gathering in open spaces in Central, arguing that the contradictions in the established meanings of central business districts and private social and cultural activities caused “the informal, but empowering exchanges of the Filipino workers to dominate the meticulously planned structures,” as per the review of **Crowley (2018)**.

---

17 (Continued) In short someone, in some fundamental and important way, so different that our system as a whole excludes treatment that is our right from being theirs. With this exclusion enshrined in public consciousness as well as in law and regulation, how Hong Kong’s FDHs must spend their days off is thus no surprise. It is extremely unlikely that the arrangements would or could have been otherwise. It is also difficult to structure arguments and marshal facts, whether at university level or otherwise, that would change that fundamental way of seeing as long as FDHs are FDHs.

For FDHs to have even the small rights to which they aspire that we elicited from their answers to the questionnaire, they would have to cease being “outsiders” 外 (wai) and become plain “domestic workers” (家庭傭工). In a society like Hong Kong’s, that despite its boast of being Asia’s World City, has a deeply ingrained and probably ineradicable sense of the difference between the “descendants of the dragon” (龍的傳人: Cantonese: Lung dick chuen yan; Mandarin Lóng de chuán rén) and the rest, change will be slow at best.

18 It is indicative that a search of Hong Kong’s e-legislation system (<https://www.elegislation.gov.hk/>) finds no specific reference at all to Foreign Domestic Helpers or the laws and regulations that apply to them and only to them.



Some earlier studies (**Franck & Stevens 2007; Hou 2010; 2016**) also examined the appropriation of public spaces by the FDHs. Health or open space design was not mooted as an issue.

#### 4.4 Research on FDHs in relation to open space

The authors' literature review did not find any published research on the issue of FDH public health in relation to open space facilities. Most papers were on medical services (**Toyota 2006**) rather than amenities. **Yu's (2009)** study on local Filipinas in open space pockets was to seek information regarding their cultures, religions and faiths rather than health.

**Lai et al. (2021)** asked non FDHs about open space and health. Their interviewees expressed an interest in the open space conditions of the FDHs. The work of **Mok & Ho (2021)** interviewed 9 non FDHs (either vice principals or secretaries of six schools plus two government officials) using Cantonese & English and 9 FDHs who were making use of social space at the time of the interview. "The use of this group was to cross-check certain claims and accusations laid by the first group of interviewees, as well as making the voice of foreign domestic workers more profound and robust."

In the study by **Chan & Latham (2022)**, eight migrant domestic workers from a Filipino Protestant church were asked to write a one-week time-space diary of their workday outings. Neither study, though highly useful, is NOT a direct study of FDHs' open space needs by asking them in one of their popular national languages. The interview works by **Yeung et al. (2020)** and **Wong (2021)**, dealing with 295 and 9 FDHs, were all conducted in English and not native languages. In the light of the above, this pioneering study at the same scale, asking directly Filipino FDHs in one of their national languages, should contribute to the knowledge of Hong Kong's FDHs from a public health perspective as a matter of academic advocacy as translation.

## 5. THE SURVEY AND ITS DESIGN

To properly appreciate the open space needs of FDHs, the authors designed a questionnaire that targeted Filipina helpers who congregated in Statue Square (**Figure 3**) in the vicinity of Chater Road and the pedestrian footbridge system (**Figure 4, Figure 5**) in Central, both of which are in the heart of Hong Kong's CBD, on a Sunday afternoon from 11:30 AM to 5:00 PM.

### 5.1 Choice of Filipina FDHs, time, locality and rationale of survey

This ethnic group was selected because its members had a better command of English than Indonesians and Thais. The time slot was selected so as to not interfere with the helpers' church services. The day and hours of the survey were thus chosen because they are when the FDHs are most available as they are enjoying their rest day breaks.

The choice of the 2 places for the interviews was based on the high concentration of the FDHs in those places.



**Figure 3:** Filipina ladies congregating at Statue Square (14 October 2018 by Nixon T.H. Leung)



**Figure 4:** Filipina ladies congregating along a section of the Central footbridge system (14 October 2018 by Nixon T.H. Leung)



**Figure 5:** Filipina ladies under the Central footbridge system at the junction of Pedder Street (Taken on 14 October 2018 by Nixon T.H. Leung)

## 5.2 The number of interviewees

This study, given resource limitations, surveyed 125 Filipinas in Central District. This is the second reported social survey of a large number of Filipinas after the work of Yu (2009), who interviewed 100 maids, but while the former was to collect opinion data on cultures, religion and faith from interviewees at open spaces, this study was focused on facilities at the open spaces and the concomitant public health issues.

## 5.3 The questionnaire

The questionnaire, shown in **Appendix 1**, is in English and Tagalog, but was administered in Tagalog. The interviewers were females and two of them were Filipinas. The interview took place on a Sunday in March 2018. Two interview places at the heart of the CBD of Hong Kong were selected.

The questionnaire was cleared by the ethics committee of the institution of the researchers. Before an interview, each interviewee had to sign a consent form which informed her that the data collected would be used and released only for academic purposes. After the interview, the interviewee also signed receipt of a supermarket gift coupon for her participation in the survey. Before the survey, the questionnaire used was tested by interviewing from around 11am to 1230pm during a weekday, using Tagalog, a group of 17 drivers (all Pilipino) retained by Hong Kong employers taking a rest near their

employers' cars parking under the flyover outside Saint Joseph Church, Garden Road, Central.

The first interview place was the informal *de facto* open space in the Connaught Road elevated footbridge system, where most interviewees sat on the floor in groups. The second was the *de jure* open space of Statue Square in front of the former Supreme Court (now the Court of Final Appeal).

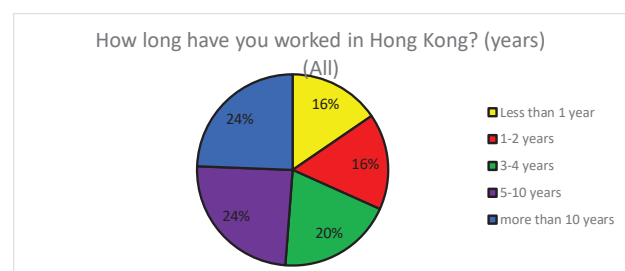
The two groups of interviewees were roughly identical in number: 60 along the elevated covered walkway and 65 in Statue Square. The first locale was open air with some sheltered sitting areas, while the second was covered and better-protected from the elements.

It was estimated that the former group represented about 20 percent of the FDHs sitting along a 50-metre stretch of the bridge system and the latter were about the same percentage of those at the square. The response rate was 100 percent for both FDH groups.

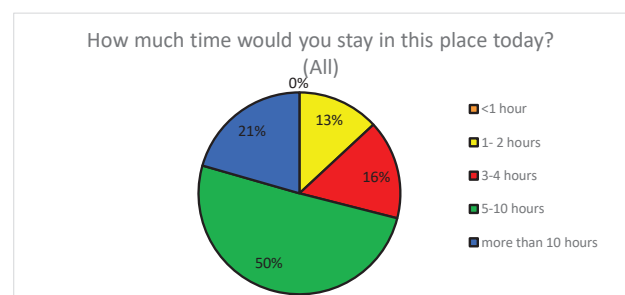
## 5.4 The findings

The answers for each question, as graphically summarised in the form of a pie chart, are shown clearly in Figure 6, are as follows.

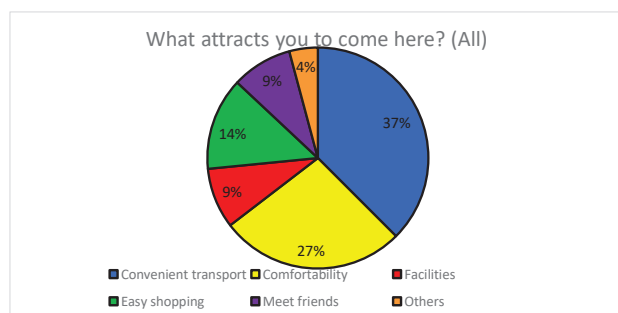
**Figure 6.1:** Answers to Q2



**Figure 6.2:** Answers to Q3



**Figure 6.3: Answers to Q4**



**Figure 6: A summary of answers to interview questions in diagrams**

### 5.4.1 Findings for all respondents

Nearly all of the interviewees were domestic servants (Question 1) and over 67% had lived in Hong Kong for over three years, with some having stayed for over ten years (Question 2). Over 70% (71%) of the respondents spent over five hours in the places where we interviewed them on their days off (Question 3).

Generally, the most important factors that attracted them to these places were convenience and comfort (Question 4).

The main drawbacks of these places are overcrowdedness and a lack of facilities (Question 5).

The facilities they desired most were better toilets, shade, and refuse collection. The respondents hoped that the government would provide (Question 6) such amenities.

Ideally speaking, the FDHs preferred sports complexes, parks, shelters, and low-cost boarding homes as vacation places. (Question 7) Obviously, this had to do with the greater privacy and shelter these facilities provide against the elements

Still, they were generally satisfied with Central as a gathering place and few had any serious complaint about it (Question 8).

What they considered as most significant for their open space needs were more land areas designated as open spaces for them followed by

better shelters (from the elements), toilets, and free Wi-Fi (Question 9).

Regarding the facilities that they wanted to remain in place, they listed the shelters, toilets, catering, shops, availability of police help, religious facilities, desks and chairs, and medical facilities.

Most respondents considered the places where they were interviewed to be healthy for them (Question 11).

If their usual gathering places were closed, they preferred to go to churches, other parks, and shopping malls (Question 12).

### 5.4.2 Comparison of findings: footbridge vs. Statue Square

The respondents stayed five hours or longer along the footbridges (71%) than at Statue Square (51%). More of them considered “convenient transport” as the attracting factor (43%) of footbridges compared to that of Statue Square (32%).

## 6. DISCUSSION: DIFFICULTIES AND PLANNING SOLUTIONS

The high (100%) response rate was likely due to the fact that the questionnaire was administered by nationals of the Philippines in the respondents’ major common dialect, **Tagalog**, as well as the incentive of supermarket coupons.

Although most domestic servants considered the places where they gathered during their breaks were generally adequate, they noted their deficiencies, especially a shortage of toilets. In fact, as an earlier study by **Lai et al. (2018)** confirmed, Hong Kongers did not think that the footbridges were healthy places for them to congregate. Nevertheless, the footbridges (whether on them or below) are convenient choices even on rainy days.

The 7-km long covered footbridge system offers an attractive option to camp during their rest day. Its covered areas are shaded and wide

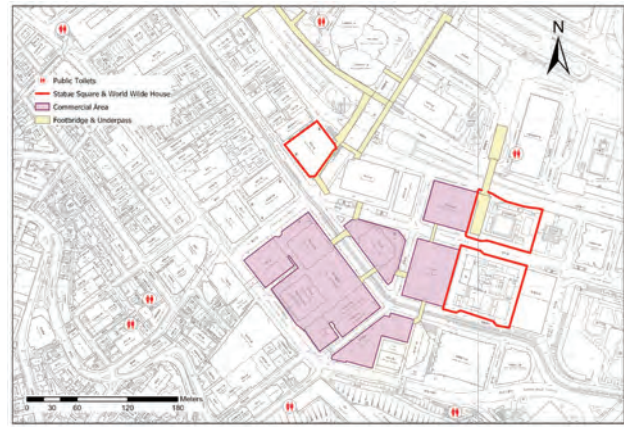


enough. On rainy days, they provide dry places to sit or lie down. In Central, it is observable that the greatest concentration of Filipino FDHs is the area near the World Wide House.

This place has shops that sell many products from the FDHs' countries of origin and establishments that provide tailor-made services like remittances and couriers. On a Sunday there, the line to the Filipino-owned banks and remittance establishments can often snake around the footbridge with people waiting to do their transactions or remit money to their loved ones. As one moves away from this building, the density of FDHs camped on the walkway becomes less as it reaches the ferry piers to the North and Sheung Wan to the West.

The improvements the domestic helpers hoped for in terms of facilities such as toilets and shelters are low-cost and relatively easy to provide. Currently, of the 32 public toilets counted within a kilometer radius of Statue Square Gardens in Central only 6 are within 300m. Fortunately, there are other privately-owned shopping mall-office/hotel areas which one can enter and go to a different floor of the mall or building in order to access the toilets. These high-class malls form part of the air-conditioned sections of the footbridge system (**Figure 2**). They provide quick relief for the humid summer heat and chilly winds in winter. There are security personnel roaming around inside these malls to preempt any camping activity in the premises.

There are also instances of FDHs camping out around public transport terminals or underground pathways or shaded edges/corners of buildings where they are sheltered from the elements and enjoy some form of privacy. For many of these bus terminals in the city the toilet facilities are not as suitable for FDHs' needs, with respect to distance and cleanliness (**Cheung et al. 2020**), as most of them are females. (**Figure 7**)



**Figure 7:** Public toilets near the places of survey

During the pandemic, many of the facilities have been temporarily closed by property managers for fear of the spread of the virus, an attitude consonant with that of employers requiring their FDHs to body cleanse when they return home.

As additional planned open spaces are hard to find in Central, they have to be designed as add-ons to the existing assembly areas. The provision of medical services is the real, but important, challenge that requires government or NGO assistance. While FDHs need to pass medical checks before being hired and are often dismissed by their employers if they become sick, the availability of health counselling services near their usual recreational spaces is certainly something that would improve their quality of life.

That the perceptions of interviewees seemed indifferent to the suitability of either formal or informal space suggested that they did not expect the government to improve their rest areas. This did not mean that they did not want the government to cater to their desires for improvements, it merely reflects their awareness that, to Hong Kong's government, their needs have no salience. Why FDHs are using public open spaces in such ways or why they still choose to stay there despite the lack of different facilities is a question to be answered by further and better research. Some ideas for further investigation is offered below.

From a spatial perspective informed by the



typology of space depicted in **Figure 1**, the most interesting finding is that FDHs were more content with *de facto* spaces of the elevated walkways as with the *de jure* spaces of public gardens (Statue Square), while all expected any space to be more spacious. They provided a reason: accessibility. For the planner in an ideal world where all are really treated equal (before planning standards) and detailed action plans for specific communities can come into being without policy constraints, open space planning for FDHs should anchor to access to public transport connection points, catering, and shelter from the elements. Shelter, as pointed out above, is arguably decisive. *De jure* open space are generally mainly open air but Hong Kong elevated walkways in Central are “all weather” as they are covered, hence more homely as “places” in a subtropical city. In recent years, more and more FDHs bring small tents to *de jure* or *de facto* open spaces and take rest and eat inside.

Given budget and labour (interviewers) constraints, this quantitative survey data based on 125 sets of answers was not complemented by qualitative interviews with the FDHs themselves, whose lived experiences of these constrained public spaces could provide textured data to support the survey. Why Hong Kong town planners fail to provide adequate spaces for FDHs on their days off still linger is another interesting question to ponder though it is unlikely to be answered by a formal survey.

## 7. CONCLUSION

This paper has a modest but significant aim: finding out by a small scale survey of 125 maids on the same day using the FDHs own language their public health related open space needs in Hong Kong (a major employer) as a planning matter in terms of social justice. In the light of the finding of a review of the literature about FDHs that no similar study has been attempted from a social justice point of view, this modest planning study is clearly original. This theoretically important finding justifies our exploratory study that yields results with practical implications as indicated in the Section 6. Social justice in terms of equity and fairness

is a core normative value, not a theory to verify or concept to argue about.

Gone were the days up to the 1960s when, in the absence of any employment protection law, Chinese family employers provided life-long care for their domestic servants and public utilities organised employees into football teams. Present employers operating under labour legislation have shifted many responsibilities owed to employees to the government, which appears to be just too busy for those, especially FDHs, who have no political say.

The town planner has not catered to the recreational needs of FDHs in spite of their sixty-year long, steadily increasing presence in the city, their sheer multitude and visibility during public holidays, and their economic and social contributions to a globalised Hong Kong. They squat along footbridges and treat many open spaces as recreational rest places because proper facilities are lacking.

This pioneering study, with some interesting findings from the mouths of Filipina FDHs in their major common dialect, is predicated on social justice concerns for holiday recreational outlets for foreign domestic workers. This is an exploratory survey rather than an empirical study that verifies any refutable hypothesis. That no study has been done on FDHs (to the best of our knowledge after researching on the FDH literature) is itself of interest in terms of social justice.

Local researchers have yet to focus on public health aspects – perhaps because FDHs are a social minority and politically disenfranchised. Nevertheless, this should not distract one from developing research on public health grounds, as it is a matter of social justice for a group of people who have helped Hong Kong prosper. This paper seeks to interpret and record something in words for many who have helped Hong Kong a lot for very little, but whose voice has ignored in local politics.

## ACKNOWLEDGMENTS

We thank Ms. Irene C.K. Chow, Shan Shan

Kwok, Frances Marie Lai and several Pilipina sisters for administering the questionnaire to female FDHs and Dr. Kenneth Dy to a test group of male Pilipino drivers.

## REFERENCES

1. Asis, Maruja Milagros B., Shirlena Huang, and Brenda SA Yeoh. "When the light of the home is abroad: Unskilled female migration and the Filipino family." Singapore Journal of Tropical Geography 25, no. 2 (2004): 198-215.
2. Bagley, Christopher, Susan Madrid, and Floyd Bolitho. "Stress factors and mental health adjustment of Filipino domestic workers in Hong Kong." International Social Work 40, no.4 (1997): 373-382.
3. Ball, Rochelle, and Nicola Piper. "Globalisation and regulation of citizenship—Filipino migrant workers in Japan." Political Geography 21, no.8 (2002): 1013-1034.
4. Briones, Leah. Empowering migrant women: Why agency and rights are not enough? Ashgate Publishing, Ltd., 2009.
5. Chan, Henry Hin-yan & Alan Latham. "Working and dwelling in a global city: going-out, public worlds, and the intimate lives of migrant domestic workers in Hong Kong." Journal of Ethnic and Migration Studies 48, no 15 (2022): 3524-3543.
6. Chen, Edward K.Y. Hyper-Growth in Asian economies: a comparative study of Hong Kong, Japan, Korea, Singapore, and Taiwan, New York: Holmes & Meier Publishers, 1979.
7. Cherry, Gordon E. "The town planning movement and the late Victorian city." Transactions of the Institute of British Geographers (1979): 306-319.
8. Cheung Alwin P. C. W., Anson Yu and Kenny Law. "Provision of public toilet facilities at bus terminals: an initial study." Surveying & Built Environment 29, no. 1 (2020): 39-77.
9. Census and Statistics Department. Thematic Household Survey on Sharing of Housework, 2015. Available from: [http://www.statistics.gov.hk/pub/B\\_11302562015XXXXB0100.pdf](http://www.statistics.gov.hk/pub/B_11302562015XXXXB0100.pdf) [Accessed June 2020].
10. Census and Statistics Department. Annual Digest of Statistics 2016. Available from: <http://www.statistics.gov.hk/pub/B10100032016AN16B0100.pdf> [Accessed June 2020].
11. Census and Statistics Department. Women and Men in Hong Kong Key Statistics 2019. Available from: <https://www.statistics.gov.hk/pub/B11303032019AN19B0100.pdf> [Accessed 6 July 2020]
12. Constable, Nicole. "Migrant workers and the many states of protest in Hong Kong." Critical Asian Studies 41, no.1 (2009): 143-164.
13. Crowley, Julia C. "Review: Messy urbanism: Understanding the "other" cities of Asia." Journal of Planning Education and Research 38, No.3 (2018): 387-89.
14. Dalley, Stephanie. Myths from Mesopotamia Creation, the Flood, Gilgamesh, and Others, (revised edition). Oxford, Oxford University Press, 2000.
15. Delgado, Richard. Critical race theory: An introduction. Critical America (2nd ed.). New York, New York University Press, 2012.
16. Derrida, Jacques. "The principle of hospitality." Parallax 11, no. 1 (2005): 6-9.
17. Dwyer, Chris, "Sunday ritual for 300000 women." BBC, 16 November 2016. <http://www.bbc.com/travel/story/20161109-a-sunday-ritual-for-300000-women>
18. Erni, John Nguyet, and Lisa Yuk-ming Leung. Understanding South Asian Minorities in Hong Kong. Hong Kong University Press, 2014.

19. Freestone, Robert, and Andrew Wheeler. "Integrating Health into Town Planning." Ch. 2 in Barton, Hugh, Susan Thompson, Sarah Burgess, Marcus Grant eds. The Routledge Handbook of Planning for Health and Well-being: Shaping a Sustainable and Healthy Future. Routledge 2015, p.17.
20. Franck, Karen and Quentin Stevens. Loose space: possibility and diversity in urban life. Routledge, 2006.
21. Gietel-Basten, Stuart. "Can Hong Kong attract more foreign domestic workers to meet its growing elderly and child care needs?" South China Morning Post, 7 November 2017.
22. Grange, Kristina. "In search of radical democracy: the ideological character of current political advocacies for culture change in planning." Environment and Planning 46, no. 11 (2014): 2670-2685.
23. Hansen, Eric, and Martin Donohoe. "Health issues of migrant and seasonal farmworkers." Journal of Health care for the Poor and Underserved 14, no.2 (2003): 153-164.
24. Hou, Jeffrey, ed. Insurgent public space: guerrilla urbanism and the remaking of contemporary cities. Routledge, 2010.
25. Hou, Jeffrey. "Making public, beyond public space." in R. Shiffman, R. Bell, L.J. Brown, and L. Elizabeth (eds.), Beyond Zuccotti Park: Freedom of Assembly and the Occupation of Public Space, New Village Press, California (2012): pp.89-98.
26. Holroyd, E.A., Molassiotis, A. and Taylor-Pilliae, R.E. "Filipino domestic workers in Hong Kong: health related behaviors, health locus of control and social support." Women & Health, 33 (2001):181-205.  
<http://www.scmp.com/comment/insight-opinion/article/2118727/can-hong-kong-attract-more-foreign-domestic-workers-meet-its>
27. Home, Robert. "Legal histories of planning and colonialism." In edited by Susan Parnell, Sophie Oldfield eds. The Routledge Handbook on Cities of the Global South London and New York, Routledge 2014, pp. 75-85.
28. Hung, Holvert. "Formation of new property rights on government land through informal co-management: Case studies on countryside guerilla gardening." Land Use Policy 63 (2017): 381-393.
29. Keezhangatte, James Joseph. Indian Household Workers in Hong Kong: Residence and Transnational Family Relationships. Saarbruecken: VDM Verlag Dr. Müller, 2007.
30. Kwok, Evelyn. "Little Manila: An unlikely crowd of resistance in Hong Kong." Architectural Theory Review, 23, no. 2 (2019): 287-314.
31. Lai, Lawrence W.C. "Squatting by the privileged? A Hong Kong study on the Innovations and ambiguity of property rights of irregular development." Habitat International 50 (2015): 317-325.
32. Lai, Lawrence W.C., K. W. Chau, and Polycarp Alvin C.W. Cheung. "Urban renewal and redevelopment: Social justice and property rights with reference to Hong Kong's constitutional capitalism." Cities 74 (2018): 240-248.
33. Lai, Lawrence W.C., Daniel C.W. Ho, K. W. Chau, Esther Y.T. Yu, Cindy L.K. Lam, Nixon, T.H. Leung, and Stephen, N.G. Davies. "Property rights and the perceived health contribution of public open space in Hog Kong," Land Use Policy (2021): .
34. Lee, Peggy W.Y., and Carole J. Petersen. "Forced labour and debt bondage in Hong Kong: A study of Indonesian and Filipina migrant domestic workers." Centre for Comparative and Public Law, The University of Hong Kong, Occasional Paper 16 (2006).

35. Lam, Kin-Che, Sai-Leung Ng, Wing-Chi Hui, and Pak-Kin Chan. "Environmental quality of urban parks and open spaces in Hong Kong." Environmental Monitoring and Assessment 111, no. 1 (2005): 55-73.
36. Lam, T.H., B. Chan, S.Y. Ho, and S.K. Chan. "Report on healthy living survey 1999." Hong Kong: Department of Health (1999).
37. Lau, Phyllis W.L., Judy G.Y. Cheng, Dickson L.Y. Chow, Gabor S. Ungvari, and C.M. Leung. "Acute psychiatric disorders in foreign domestic workers in Hong Kong: A pilot study." International Journal of Social Psychiatry 55, no.6 (2009): 569-576.
38. Law, Lisa. "Defying Disappearance: Cosmopolitan Public Spaces in Hong Kong." Urban Studies 39, no.9 (2002): 1625-1645.
39. Legislative Council. "Foreign domestic helpers and caring services in Hong Kong," Research Brief No.4, Research Office, Legislative Council, 2017.
40. Leung, Ester SM. "Rights to be heard and the rights to be interpreted." Babel 49, no. 4 (2003): 289-301.
41. McKay, D. "Sending dollars shows feeling: Emotions and economies in Filipino migration." Mobilities 2, no. 2 (2007): 175-194.
42. McKay, D. and C. Brady. "Practices of place-making: Globalization and locality in the Philippines." Asia Pacific Viewpoint 46, no. 2 (2005): 89-103.
43. Malhotra, Rahul, Chandima Arambepola, Samiksha Tarun, Vijitha de Silva, Jugal Kishore, and Truls Østbye. "Health issues of female foreign domestic workers: a systematic review of the scientific and gray literature." International journal of occupational and environmental health 19, no.4 (2013): 261-277.
44. Ministry of Labor of Taiwan. Foreign Workers in Productive Industries and Social Welfare by Industry. 2017 Available from: <http://statdb.mol.gov.tw/html/mon/212020.pdf> [Accessed July 2017].
45. Ministry of Manpower of Singapore. Foreign domestic worker levy. 2017 Available from: <http://www.mom.gov.sg/passes-and-permits/work-permitfor-foreign-domestic-worker/foreign-domestic-worker-levy> [Accessed July 2017]
46. Mok, King Him and Hung Chak Ho. "Finding a home away from home: an explorative study on the use of social space with the voices of foreign domestic workers in Hong Kong." Annals of the American Association of Geographers 111, no 5 (2021): 1403-1419.
47. Moss, "'That one day is all you have': how Hong Kong's domestic workers seized Sunday." The Guardian <https://www.theguardian.com/cities/2017/mar/10/sunday-sit-in-inside-hong-kong-weekly-domestic-worker-resistance>
48. Peralta, Maria Theresa S. "From where are You Back Home? Ethnography of Filipina Domestic Workers Spending Sundays at Statue Square." Ph.D dissertation, University of Southern California, 2004.
49. Rishbeth, Clare. "Ethnic minority groups and the design of public open space: an inclusive landscape?" Landscape Research 26, no. 4 (2001): 351-366.
50. Salminen, Ari. "New public management and Finnish public sector organisations: The case of universities." In The Higher Education Managerial Revolution pp. 55-69. Springer, Dordrecht, 2003.
51. Serres, Michel. The Parasite. Baltimore, MD: Johns Hopkins University Press, 1980.
52. Sim, Amy. "Organising discontent: NGOs for Southeast Asian migrant workers in



- Hong Kong.” Asian Journal of Social Science 31, no.3 (2003): 478-510.
53. Stronks, Martijn. “Re-reading: Of Hospitality. Anne Dufourmantelle invites Jacques Derrida to respond.” Amsterdam Law Forum 1, no. 1 (2008): 127-130.
  54. Tam, Daisy Dic-sze. “Little Manila: The other Central of Hong Kong.” In M. Chalana & J. Hou (eds.), Messy Urbanism: Understanding the Other Cities of Asia, Hong Kong University Press, Hong Kong (2016), 119–135.
  55. Tam, Daisy Dic-sze. “Derrida’s hospitality and Serres’ parasitism: The case of Hong Kong.” In Hong Kong Culture and Society in the New Millennium, pp.179-192. Springer, Singapore, 2017.
  56. Tang, Bo-sin. “Explaining the inequitable spatial distribution of public open space in Hong Kong.” Landscape and Urban Planning (2017).
  57. Toyota, Mika. “Health concerns of ‘invisible’ cross-border domestic maids in Thailand.” Asian Population Studies 2, no.1 (2006): 19-36.
  58. UCLA School of Public Affairs. “What is critical race theory?” <https://spacrs.wordpress.com/what-is-critical-race-theory/> [Accessed 13-07-2020]
  59. Walker, Paul, and Marie John, eds. From Public Health to Wellbeing: The New Driver for Policy and Action. Macmillan International Higher Education, 2011.
  60. May, Wong Mei Ling. “The impacts of Covid-19 on foreign domestic workers in Hong Kong.” Asian Journal of Business Ethics 10, no. 2 (2021): 357-370.
  61. Wong, Siu-Kei, Lawrence Wai-Chung Lai, Daniel Chi-Wing Ho, Kwong-Wing Chau, Cindy Lo-Kuen Lam, and Chris Hung-Fai Ng. “Sick building syndrome and perceived indoor environmental quality: A survey of apartment buildings in Hong Kong.” Habitat International 33, no. 4 (2009): 463-471.
  62. Xu Xinjian, “The Chinese identity in question: ‘descendants of the dragon’ and ‘The wolf totem’.” Revue de Littérature Comparée 337, no.1, (2011): 93-105.
  63. Yeung, C. Y. Nelson, Bishan Huang, Christine Y.K. Lau and Joseph T.F. Lau. “Feeling anxious amid the COVID-19 pandemic: Psychosocial correlates of anxiety symptoms among Filipina domestic helpers in Hong Kong.” International Journal of Environmental Research and Public Health 17, no. 21 (2020): 8102.
  64. Yu, Xiaojiang. “Influence of intrinsic culture: Use of public space by Filipina Domestic Helpers in Hong Kong.” Journal for Cultural Research 13, no. 2 (2009): 97-114.
  65. Yeoh, Brenda S. A. and Shirlena Huang. “Negotiating public space: strategies and styles of migrant female domestic workers in Singapore.” Urban Studies 35, no.3 (1998): 583-602.

## APPENDIX 1

UNIVERSITY OF HONG KONG  
OPEN SPACE SURVEY

Questionnaire No: \_\_\_\_\_

Name of administrator: \_\_\_\_\_

Day of administration: \_\_\_\_\_

Time of administration: \_\_\_\_\_

Place of administration: Please circle

Central (Chater Street area/footbridge); Victoria  
Park; North Point Pier praya/access road to St  
Joseph's Church

## Privacy statement:

The interviewee is given a [name of institution  
suppressed for reviewing] approved privacy  
statement to assure her of data protection.

## Questions:

Q1: Are you a domestic helper/driver?

(YES/NO)

Kayo po ba ay kasalukuyang nagtratabaho  
bilang isang domestic helper (DH) sa Hong  
Kong?

Q2: How long have you worked in Hong Kong?  
(      years)

Ilang taon na po kayong nagtratabaho bilang  
isang DH sa Hong Kong?

Q3: How much time would you stay in this  
place today? (      hours)

Gaano po katagal kayo naglalagi sa lugar na ito?

Q4: What attracts you to come here?  
(Convenient transport/comfortability/facilities/  
easy shopping)

Anu-ano po ang mga bagay na sa inyong  
palagay ay naghihikayat sa inyo na pumunta  
dito sa lugar na ito?

---

---

---

---

---

---

Q5: What are the main drawbacks of this place?  
Please elaborate:

Anu-ano naman po ang mga hindi kaaya-ayang  
bagay na inyong na-obsorbahan sa lugar na ito?

---

---

---

---

---

---

Q6: What improvements to this place as a rest  
or recreational area for you would hope the  
government to provide? Please say three or  
more suggestions.

Anu-ano po ang mga bagay na gusto niyong  
baguhin o ayusin ng gobyerno patungkol sa  
kasalukuyang kalagayan/kondisyon ng lugar na  
ito?

---

---

---

---

---

---

Q7: Ideally, what kind of Saturday/Sunday  
vacation place you like to be offered?

Sa inyong palagay, ano pong klaseng lugar ang  
gusto niyong gawin o ipatayo ng gobyerno na  
pwede niyong puntahan at mapapakinabangan  
lalo na sa inyong araw ng bakasyon o day-off?

---

---

---

---

---

---

**Q8:** Do you think places like this one (Central/Victoria Park and North Pont Pier) are generally fit for your vacation?

Sa tingin niyo po ba ay naayon at natutugunan ng lugar kagaya nito (Central/Victoria Park annd North Point Pier) ang inyong mga pangagailangan upang kayo ay makapagpahinga at malibang sa inyong araw ng bakasyun o day-off?

---

---

---

---

---

---

**Q9:** What would you say the government should do to cater for your open space needs?

Ano po sa inyong palagay ang pwedeng gawin ng gobyerno upang kayo ay mabigyan ng kaukulang “pampublikong espasyo” (open-space) o “lugar pang-libangan o pahinga-an” (place for rest and recreation) na naayon sa inyong mga kaukulang pangangailangan?

---

---

---

---

---

**Q10:** What facilities you consider to be the most essential for you here?

Anu-anong mga pasilidad and inyong hinahanap sa lugar na ito at sa tingin niyo ay mahalaga at naaayon sa inyong mga kaukulang pangangailangan?

- (a) Shelter from the sun, rains and wind  
(Silong sa init ng araw, ulan at hangin)
- (b) Toilets (Banyo)
- (c) Catering (Kainan)
- (d) Shops (Tindahan/pamilihan)
- (e) Police (Pulis himpilan/estasyon ng pulis)

- (f) Religious (lugar para makapagdasal, e.g., kapilya/chapel, prayer room, etc.)
- (g) Desks and chairs (mga mesa at upuan)
- (h) Medical (klinika/dispensaryo, lugar panggamutan)

**Q11:** Do you find this place environmentally healthy for you?

Sa tingin niyo po ba ay hindi nakakapinsala o nakakasama sa inyong kalusugan ang kapaligiran dito sa lugar na ito kung saan kayo nagpapahinga at naglilibang sa araw ng inyong bakasyon or day-off?

YES \_\_\_\_\_ NO \_\_\_\_\_

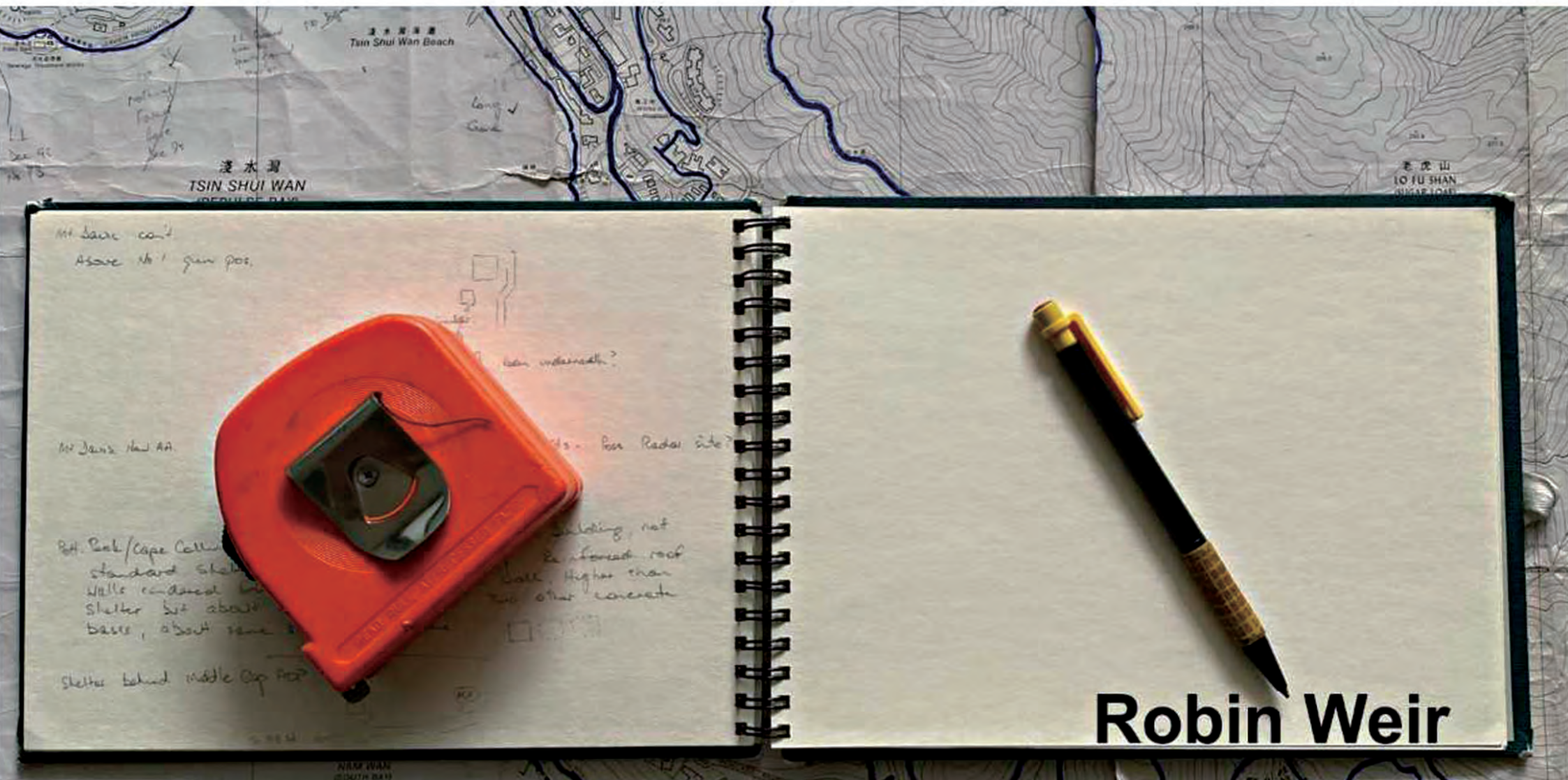
**Q12:** If this place is closed, where would you go instead, can you name three places in order of preferences? (First named place most preferred)

Kung sarado po ngayon sa publiko at hindi pwedeng gamitin ang lugar na ito, saang lugar po kayo pupunta bilang alternatibo? Magbigay ng tatlong lugar na inyong pupuntahan bilang alternatibo sa panahong sarado ang lugar kung nasaan kayo ngayon. I-ayon ang inyong sagot ayon sa sa inyong personal na adhikain o preperensya.

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



# Field Notes and Photos of Pillboxes on Hong Kong Island in the Era of World War II



**Robin Weir**



# Foreword to Field Notes and Photos of Pillboxes on Hong Kong Island in the Era of World War II by Robin Weir

Davies, S.N.G., Lai, L.W.C & Y.K. Tan  
22 November 2022

This set of field notes and photos was put together by Robin “Rob” Weir during his visits to the sites of World War II pillboxes (PBs) on Hong Kong Island in the last half of the 20<sup>th</sup> century and the first decades of the 21<sup>st</sup>. It is quite certainly an invaluable and pioneering contribution to research on Hong Kong’s World War II defences.

This work forms a good companion to the recent HKIS book on the subject (**Lai, Tan & Davies 2021**), produced in commemoration of the 80<sup>th</sup> anniversary of the outbreak of the Battle of Hong Kong in December 1941.

As a pioneer of PB (and other forms of military structure) search and research in Hong Kong, hitherto Rob has been sharing the knowledge gathered and so carefully recorded here with his friends by private communication. It follows that this consolidated documentation of his field findings should help to promote interest in WWII field defences in Hong Kong, not least by showing so clearly in its meticulously recorded notes, the system and method necessary for good fieldwork.

Rob is a Hong Konger, who resided in Hong Kong during his career as a Cathay Pacific flight engineer and has frequently visited UK and Hong Kong since his retirement to continue his research on Hong Kong military history.

His visits to various PBs recorded here were undertaken over the near quarter of a century between 1994 and 2018. They covered 23 coastal PBs and/or their accompanying search light shelters (LLs), and 13 hillside PBs. Quite a number of these, indicated with asterisks below, were destroyed after he had visited them in the course of Hong Kong’s heritage heedless development, which makes his record even more valuable and important. The only PB missed by Rob is the ruins of one below the water supply conduit above Pokfulam Road at Kennedy Town Gap, which was only discovered by a University of Hong Kong team in early 2022 (**Lai, Chan & Leung 2022**).

The 23 coastal PBs/LLs annotated below are \*PB4 & LL4, \*PB5 & \*LL5, PB6 & LL6, LL8, PB14 & LL14, LL16, PB17, \*PB19, LL20, PB21, PB22 & LL22, \*LL23, \*PB24 & LL24, base of PB27, PB29 & LL29, PB30 & LL30, PB31 & LL31, PB32 & LL32, PB33 & LL33, PB33a & LL33a, PB34 & LL34, PB35 (in ruins) & LL35, fragments PB36 & base of LL36.

The 13 hillside PBs are those along Stanley Gap Road (2), at Windy Gap, Shek O Road (\*1), at & near Tai Tam Gap (2), at Jardine’s Lookout (JLO PB1 & JLO PB2), in Wong Nai Chung Gap (1), along Lady Clementi’s Ride (2), in the Aberdeen Reservoir area (1), and Kennedy Town Gap (2).

The 5 PBs and 2 LLs reported here but destroyed after Rob had visited were PB4 and PB5 & LL5 in the present Cyberport area; PB19 at Middle Bay; LL23 in the present Murray House (Stanley) area; PB24 on the site of the present Sea Cadet Corps Jubilee Centre; and the PB along the re-aligned Shek O Road at Windy Gap.

Rob’s field notes are accompanied by hand drawn sketches of the layouts of individual PBs and LLs and of some special features (like the appearance of PB and LL roofs), as well as coloured photos. The photos, taken in the 1990s, are themselves time capsules containing images of structures and their settings that in some cases have ceased to exist, are now in changed surroundings or may at some future point be destroyed. Y.K. Tan has made the old pencil sketches legible using computer software enhancement, and has added recent 3D scans of some of some surviving PBs and LLs.

Rob has also surveyed PBs of the Gin Drinker's Line (**Weir 2020**), and various defence structures like observation posts and coastal gun batteries, and it is hoped that a similar work based on those records can be compiled soon.

Hong Kong owes a marked debt to Robin Weir and other gifted amateurs like him. Without their enthusiasm and dedication, our knowledge of the built structures that played a vital part in one of the most significant episodes in Hong Kong's recent history would be immeasurably the poorer. To adapt Laurence Binyon's famous poem, thanks to Rob and others, for much of Hong Kong's lost and disappearing built military heritage structures we can say today, if age has wearied them, and the years have condemned, now, at the going down of the sun and in the morning, we can still remember them.<sup>1</sup>

## Surveying & Built Environment

### Personal Reflections

Until the late 1930's the military considerations for the defence of Hong Kong Island were based mainly on the assumption that any attack from outside would be by land down the Kowloon Peninsula. A large-scale naval assault was considered unlikely, the probable form being a bombardment of the harbour and civilian infrastructure, with possibly small landing parties on selected beaches to cause local damage. The Royal Navy fleet was considered the primary defence against warships getting close enough for a bombardment, and small defence positions were set up at favourable landing sites<sup>1</sup>. (**Figure 1**)

All this changed with a review of defence once the Japanese had established themselves in southern China. The New Policy of 1938<sup>2</sup> confirmed that a Japanese attack on the Colony could not be repulsed with available British forces, and planned for a retreat to Hong Kong Island, which would be held to deny the use of the harbour to the Japanese. To this end, the Island defences were strengthened and as the Japanese had shown improved landing capabilities, all beaches were now considered possible assault landing sites and were to be defended strongly, with backup at the gaps in the line of hills across the Island, thereby isolating any landings which may occur<sup>3</sup>. To deter any attacks from the Peninsular across the harbour to the Island, further defences were built along the north side of the Island amongst the infrastructure.

---

1 Laurence Binyon, "For The Fallen", *The Times*, 21 September 1914. Interestingly, Binyon was in charge of the sub-department of Oriental prints and drawings at the British Museum 1913-1933 and an expert in Chinese painting, see **Huang (2015)**.

---

1 TNA CAB 5/5 (458).  
2 TNA CAB 21/2427.  
3 TNA WO 106/2380.

Part of these defences were concrete Pillboxes (PBs) (**Figure 2**) supported by a Lyon Light (LL) (**Figure 3**) (a small searchlight) in an adjacent concrete shelter above and behind, or in limited cases, integrated into the roof, to illuminate the landing area in the event of a night attack. The combination was known as a Beach Defence Unit, although a small number of sites had no Lyon Lights, for reasons that can only be guessed at now. The PBs were sited to cover beaches and landing areas with several firing loopholes to suit the area. This varied from one to five, two or three being the vast majority. All were to use the Vickers .303 Medium Machine Gun and contained a crew whose size depended on the number of gun positions. They were surrounded by barbed wire entanglements both on land and in the water. Originally 72 were planned but, after a defence exercise showed gaps, a further seven were to be added. There were nearly 20 more around the various Gaps, varying from two to four loopholes, but without associated Lyon Lights<sup>4</sup>.



**Figure 2:** Unidentified camouflaged Beach PB and LL Shelter. (TNA WO 106/2380)



**Figure 3:** Unidentified damaged PB and LL (possibly at Braemar Point) on Hong Kong Island North Shore.

The PBs were of a lighter construction in comparison to Mainland PBs, 30cm (12 in) walls and roof against 90cm (36in) on the Mainland and had a Commanders Turret and air ventilation shaft with ducts on the roof. A block of concrete 5.5m (18ft) wide and 2.13m (7ft) high sitting on a beach would have been hard to miss visually so different methods of camouflage were used, the most common being local stones and rocks rendered to the external surfaces to break up the sharp edges

<sup>4</sup> TNA 106/2379.



**Figure 1:** Two Machine Gun positions on rocks at Red Hill. (By author, 2007)

as they became easily identified targets<sup>5</sup>.

When the invasion took place along the north shore in December 1941, the PBs had mixed success. Many had been rendered unusable by artillery fire from the Kowloon side, others were overrun by attackers and many, along the south and east of the Island particularly, were abandoned unused during the withdrawal of forces to the Stanley peninsular<sup>6</sup>.

### Searching<sup>7</sup>

I had learnt quite a lot about the Mainland PBs over several years and had found documents at The National Archives (TNA) at Kew in London that mentioned Island PBs, but the former had been my main interest, so there was not a lot of follow up for some time. Eventually time and curiosity won out and I decided to see what I could find “over there”, Hong Kong Island being a heavily overcrowded and overbuilt spot to me, and not somewhere I would usually venture from the safety of Kowloon. Fortunately, one document from the TNA had been a large pre-war map<sup>8</sup> which had the coastal positions marked

<sup>5</sup> TNA CAB 106/21.

<sup>6</sup> TNA WO 106/2401A.

<sup>7</sup> Weir (2020).



and numbered. Simple task, go there and see a PB.

Naivety was thinking things hadn't changed since 1939. **(Figure 4)** That was soon overridden when the growth of the Central area now extended both east and west, to become the most densely occupied real estate on the Island. To permit this, old wreckage from the war had to disappear rapidly. Contracts for removal of PBs had appeared as early as 1947<sup>9</sup>, and had been accomplished with vigour, hence PBs 40 to 70, with only three exceptions, had disappeared. That simplified the list considerably. The next impediment was learning the post war history had involved a massive influx of people from Mainland China, seeking refuge from the new Communist Government. This created a huge housing requirement, which initially produced uncontrolled villages being set up by squatters, using any available land and materials. Well built concrete PB's were very desirable housing, and many were incorporated into these villages. In later years, when the Government housing started catching up with demand, the villages were bulldozed. There went more PBs from my list.

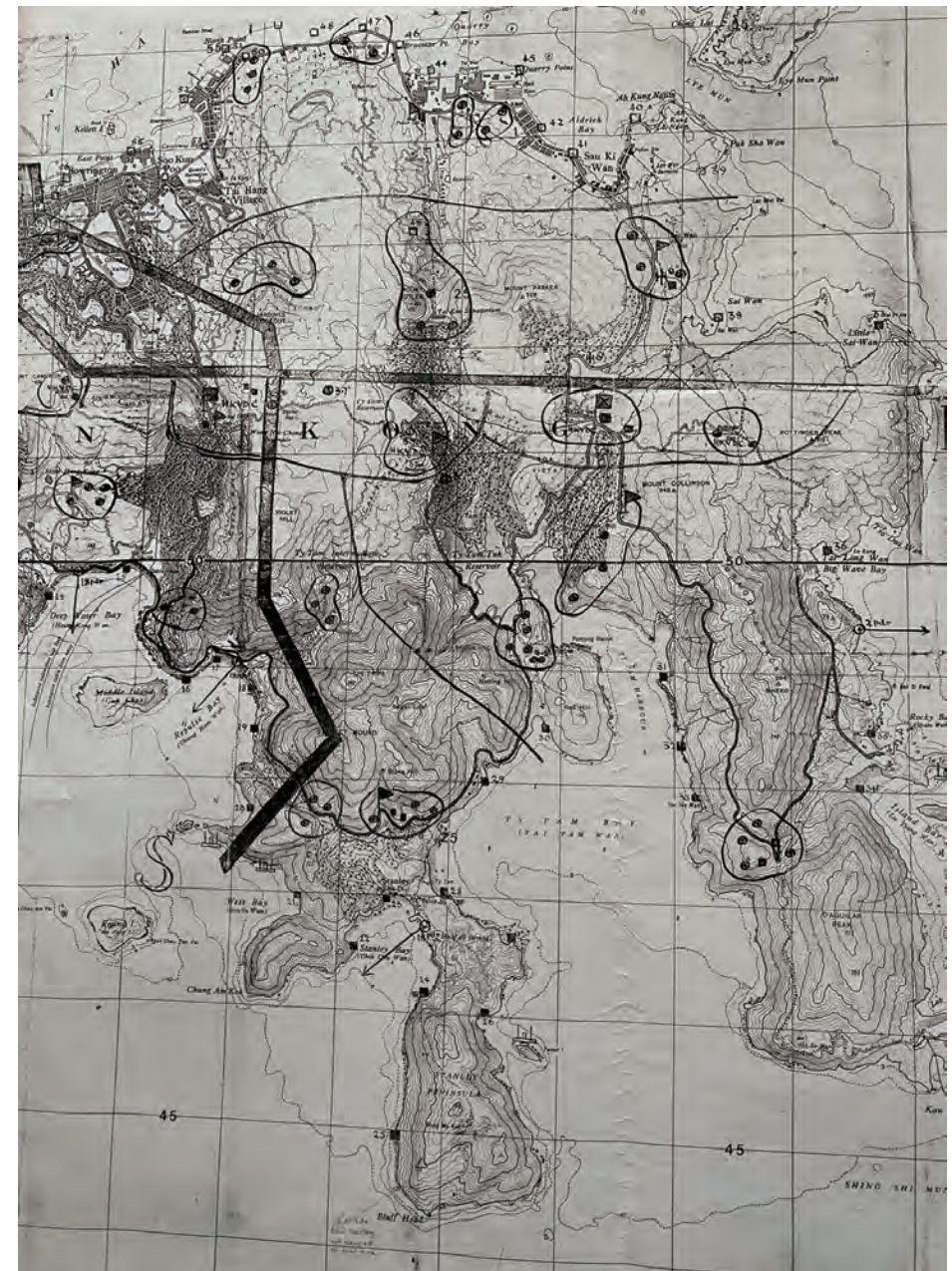
The map from TNA and maps and aerial photos from The Hong Kong Government Lands Department were particularly useful in locating the remaining PBs. All had their handicaps but could at least give a search starting point for those from West through South to East. What soon became apparent was that vegetation grew as thickly and landscape disturbed by urban development **(Figure 5)** on Hong Kong Island as it did on the Kowloon side, and there were also many other military ruins to create a distraction, this is best illustrated when I found a PB at Tai Tam Rd junction. On a subsequent visit, attempting to find a second PB known to be in the – heavily overgrown – area, I followed a path surrounded by the remains of concrete shelters downhill into a valley, which lead to a tunnel entrance of an underground series of rooms originally the Fortress Plotting Room for the coastal defence batteries, and later the HQ for a section of the Island defence force at the time of the invasion<sup>10</sup>.

As on the Mainland, finding the PBs and LLs involved a lot of walking and

8 TNA WO 106/2379

9 HKPRO HKRS 156-1-776.

10 TNA WO 172/1686.



**Figure 4:** 1939 Defence Scheme Map of Eastern Hong Kong Island. PBs are marked as numbered squares. (TNA WO 106/2379)





**Figure 5:** LL 8 well hidden. (By author, 2005)

Nai Chung area turned up two large PBs which were heavily involved in the fighting and, having read the report by the Commander of one, seeing the damage caused by Japanese weapons brought home the real purpose of these lumps of concrete<sup>11</sup>.

In the jigsaw to fit all these bits into a reasonable picture I sometimes found pieces missing. Having found a LL Shelter sitting by itself (LL 16) I could not find its PB, even though it was close to the water's edge. Subsequently, on an earlier edition of that area map I found the PB marked, where it should have been. Revisiting the site, I found that the walled walkway along the beach edge covered the area of the PB. Looking over the edge showed the partial outline of the PB wall still in place. Box ticked. Whilst there, and looking across the bay, my attention was drawn to a large rock formation in the water which seemed vaguely familiar. Some years previously I had purchased a pre-war Army PR photo from the Imperial War Museum in London. It was marked as a group of soldiers going to their position at a PB in Hong Kong. The position could be seen as being an unknown LL Shelter but, to the side, was what appeared to be the previously mentioned rocks. After much rock scrambling and being warned off by an electronic voice attached to a boat landing ramp, I found both the LL Shelter and its accompanying PB 14 (**Figure 6**), which was partly buried by a landslide. Again, knowing the story of both positions, and seeing the

searching, as they were often not exactly where the map indicated, had disappeared, were sealed closed, or were occupied as living quarters. This necessitated return visits over several years before they were found vacated, and then deciding between what was PB and domestic addition/renovation.

Finding missing PBs was a personal exercise, but sometimes I was made stop and think about what I was seeing. An early visit to the Wong

shrapnel marks inside the LL Shelter from Japanese hand grenades, it was a sobering experience<sup>12</sup>.

Missing PBs still frustrate me, but sometimes you win. I had been trying to find PB 36 for roughly 20 years, the only success being to know where it had been at Big Wave Bay from the defence map and some early aerial photos, but after many visits I had decided it was a lost cause. Being back in Hong Kong after a typhoon in 2018, and for no reason other than to get out of the house, I went to Big Wave Bay, which had suffered some disruption. Walking across the beach I was avoiding debris strewn about when I was drawn to an odd shaped object projecting from the sand. Clearing it I found I was inside the walls of the ruined PB, which had been demolished years earlier and then covered by the shifting beach sand.

My searching for PBs, and other remaining or ruined military sites, came from personal curiosity, and was never intended too, but did, take over my life. After finding the mainland PBs I still did not have a full understanding of them, as all but three were piles of concrete debris, and even those remaining did not enable sizes, shapes or what was missing to be fully determined. When I started on the Island PBs I was determined to get as much detail as possible whenever it was available. Too much rather than not enough.

Over the years that I have been searching I have been assisted in many ways by friends T. K. Ko and Y. K. Tan and particularly in overcoming my abject failure to understand the Cantonese language. I'm also appreciative of Professor Lawrence W.C. Lai and his team at HKU in providing the initiative to use the notes for other than myself.



**Figure 6:** LL 14 Shelter – and rocks in water at left. (Imperial War Museum, London.)

11 TNA WO 106/2401B.

12 TNA WO 172/1686.

**Appendix 1** points out some salient features of the PBs and/or LLs that I have reported here. The page references are those in the pictorial by Lai, Tan & Davies (2021).

Robin Weir

December 2022

## REFERENCES

Lai, Lawrence W.C., Y.K. Tan & Stephen N.G. Davies. Pillboxes on Hong Kong Island in the Era of World War II, Special Issue of Surveying & Built Environment, December 2021. Hong Kong Institute of Surveyors, Hong Kong, 2021.

Tan, Y.K., Stephen N.G. Davies & Lawrence W. C. Lai. Pillboxes along the Gin Drinker's Line: 80 Years after World War II. Hong Kong Institute of Surveyors, Hong Kong, 2022.

Weir, Robin. "Researching Hong Kong pillboxes: the hard way." Surveying & Built Environment. 30 (2020): 107-119.

### Appendix 1: Features of PBs and LLs examined

<b>Pillbox (PB) / Lyon Light (LL)</b> (page references in Lai, Tan & Davies 2021)	<b>Features</b>
Aberdeen Upper Reservoir Dam PB (160-161)	4 loophole PB. Intact but sealed closed and surrounded by vegetation.
Aberdeen Upper Reservoir East PB (158-159)	4 loophole PB. Intact but sealed closed.
Kennedy Town Gap Chiu Yuen Cemetery PB (167-169)	4 loophole PB. Intact. Apparently used by Japanese during their occupation.

Kennedy Town Gap QM PB (165-166)	3 loophole PB. Intact, in an abandoned squatter area, but locked up and used for storage.
Pok Fu Lam PB (162-163)	3 loophole PB. Intact, entrance sealed, access through open loophole. Unusually, has the third loophole in the rear wall.
Stone Hill East PB (125-126)	3 loophole PB. Interior intact and used as storeroom, with secondary entrance cut through wall. Roof and back buried.
Stone Hill West PB (123-124)	2 (?) loophole PB. Completely buried. Little examination possible.
Tai Tam Gap East PB (131-132)	4 loophole PB. Locked and used as housing with some changes. Loopholes now glass windows and additional structure added around entrance.
Tai Tam Gap West PB (133-135)	3 loophole PB. Intact but previously used for housing. Set into side of steep hillside.
Wanchai Gap PB (156-157)	2 loophole PB. Intact but sealed closed.
Windy Gap PB (128-129)	3 loophole PB. Completely intact, in excellent condition. Direct access from roadside. It was demolished for a road realignment.
WNC Gap PB 1 & 2 (139-147, 154)	Both 4 loophole PBs. PB 1 sealed closed, but obvious battle damage to exterior. PB 2 open but partly obscured by vegetation.
WNC Gap PB 3 (148-154)	3 loophole PB. Only PB on Hong Kong Island known to have an entrance tunnel normally seen on Mainland PBs. Some exterior battle damage.
PB 4 & LL 4 (19-20)	2 loophole PB. Apparently intact, but in fenced compound adjacent to village houses. Heavily overgrown. LL shelter intact but with additions.

PB 5 & LL 5 (21-22)	2 loophole PB. Intact but in poor condition with concrete collapsing and rebar exposed externally and internally. First speaking tube found. Overgrown. LL Shelter intact, sitting on high concrete base.
PB 6 & LL 6 (23-24)	2 loophole PB. Intact and set at water's edge backed by cliff. Had been used as housing at some time with loopholes converted to windows. LL Shelter on high concrete base, intact but some parts crumbling. Apparent access by ladder from PB.
LL 8 (26-27)	2 loophole PB. By map, it was originally on waterfront in front of the LL. Now demolished and waterfront reclaimed by road and buildings. LL Shelter intact, set against hillside in remains of squatter huts. Had been used as housing.
PB 14 & LL 14 (34-35)	2 loophole PB. Intact but partly buried. Unusual in having additional wall on side and back to possibly form an airshaft. Had been used for housing. LL Shelter to the side with access being by steps and protected wall. Interior showing damage from grenade shrapnel.
PB 16 & LL 16 (38-39)	Originally a 2 loophole PB, now demolished. LL Shelter intact, sits on high concrete base accessed by steps from PB area.
PB 17 & LL 17 (40-41)	3 loophole PB. Largely buried in sand, particularly at back, preventing any access to interior. LL Shelter across the road at the rear, but completely covered by earth used to build up a playing field.

PB 19 (44-45)	3 loophole PB. Had been converted into a swimming pool pump housing for a new housing estate. LL Shelter apparently demolished for the estate.
PB 20 & LL 20 (46-47)	2 (?) loophole PB. Apparently demolished. LL Shelter well to rear and above PB probable position. Intact although in poor condition and overgrown by vegetation.
PB 21 (48-49)	2 loophole PB. On beach and mostly covered by sand and rubbish, no internal access possible. Large cement drains across the front and up one side. No LL Shelter found.
PB 22 & LL 22 (50-51)	2 loophole PB. Sitting on rocky shoreline. Intact and in good condition. LL Shelter behind and above against hillside. Intact, but with no obvious path to PB. Area heavily overgrown by vegetation.
LL 23 (52)	2 (?) loophole PB. Apparently demolished. LL Shelter still intact within a squatter village, which was in the process of being demolished.
PB 24 & LL 24 (53-54)	2 loophole PB. When found had been converted into a two-storey block with additional windows. LL Shelter on headland above and behind PB. Intact but had been used for housing. Part of protected pathway to PB still in place.
PB 27 (59-60)	2 (?) loophole PB. Almost completely demolished except for back wall. Set on high concrete base at the bottom of steep hillside. No LL Shelter found.

PB 29 & LL 29 (63-65)	3 loophole PB. On rocky shoreline. Intact and in good condition. LL Shelter above and behind. Intact, but partly covered by landslide. Whole area heavily overgrown with vegetation.
PB 30 & LL 30 (66-67)	2 loophole PB. At back of beach, intact but locked closed and used as store for beach cleaning equipment. LL Shelter intact and on rocks above and to the side. Protected pathway between PB and LL in good condition.
PB 31 & LL 31 (68-69)	4 loophole PB. Intact and set among houses in a village. Not accessed as in use as a house. LL Shelter adjacent and had been incorporated into a house.
PB 32 & LL 32 (70-71)	2 loophole PB. Intact, but modified for housing with windows in loopholes and a new doorway cut in back wall. LL Shelter behind, on a high concrete platform. Intact, but modified for housing with glass windows replacing the opening metal shutters.
PB 33 & LL 33 (72-73)	2 loophole PB. Intact, but in use for sail board storage, and enclosed by a fence. LL Shelter at opposite end of beach. Intact. The whole area heavily overgrown with vegetation.
PB 33a & LL 33a (74-75)	3 loophole PB. Intact, set on rocks and in poor condition. Only known remaining PB with LL Shelter set on roof. Elaborate use of shaped concrete walls to break up PB outline.

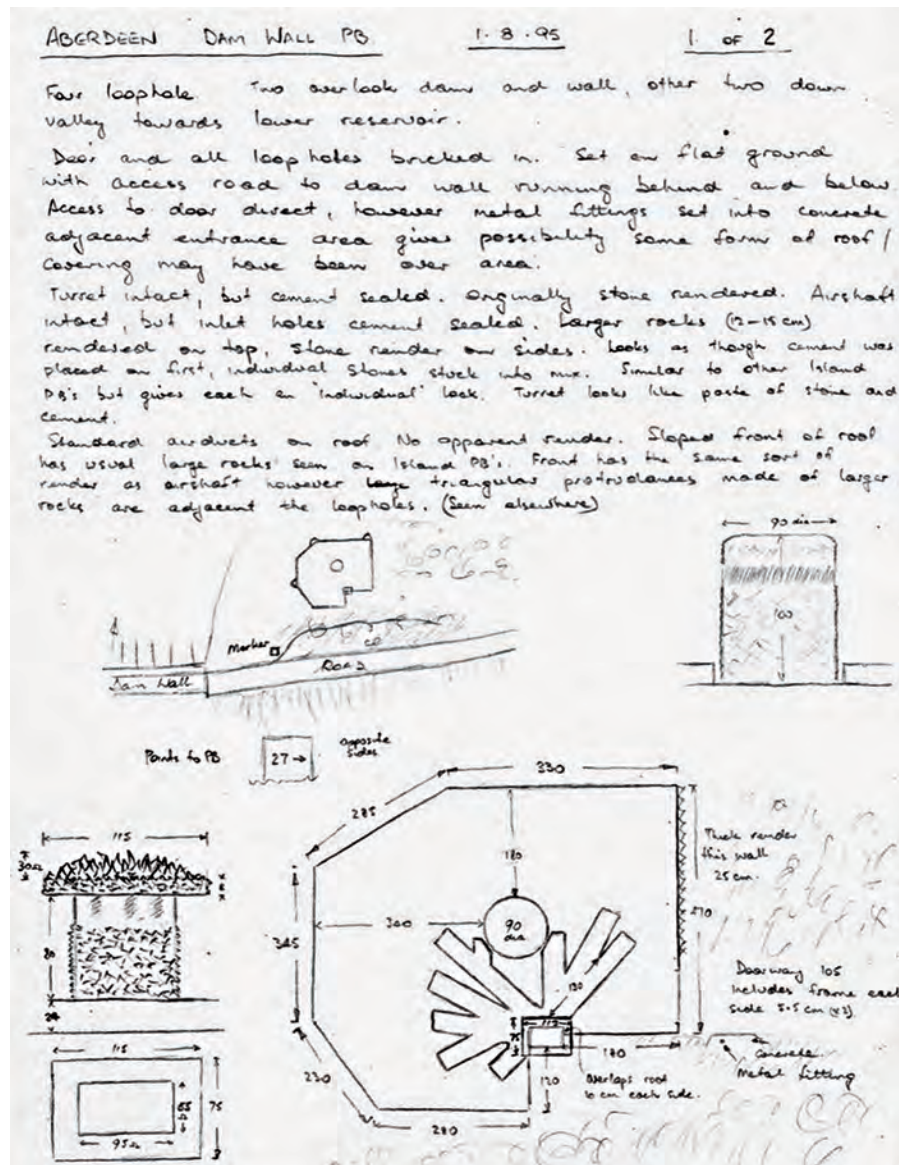
PB 34 & LL 34 (76-77)	2 loophole PB. Intact but buried almost to roofline. In use as a sitting area for a beach restaurant. LL Shelter to one side, intact but incorporated into the extension of the restaurant.
PB 35 & LL 35 (78-79)	2 (?) loophole PB. Demolished during construction of a large drain. Only parts of walls remain. LL Shelter to side and above, on concrete base set onto rocks. Intact, but closed and locked as a storeroom.
PB 36 (80-81)	2 loophole PB. At back of beach. Demolished. LL Shelter behind and above on hillside. Demolished. Remains of both only found after a typhoon had damaged the beach.



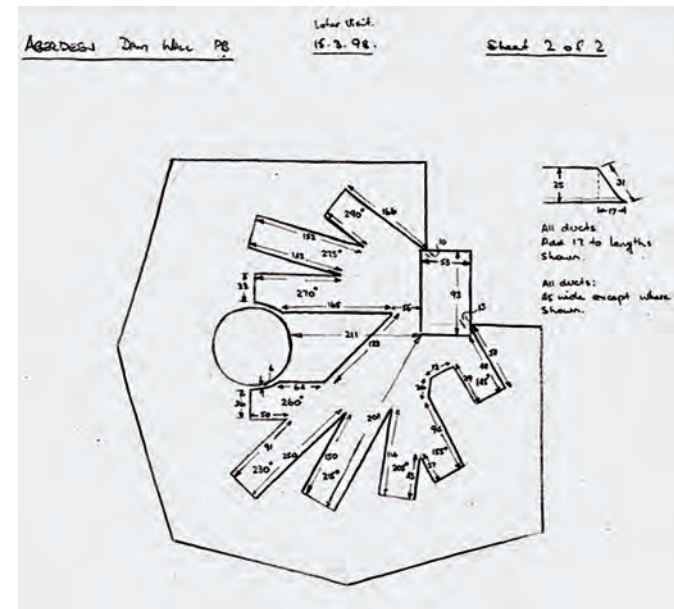
## PB near dam wall of Aberdeen Upper Reservoir

**LOCATION:** Aberdeen Upper Reservoir

### Sketch



**YEAR SURVEYED: 1995 (August)**

**YEAR SURVEYED: 1998 (March)**

PB near dam wall  
of Upper Aberdeen  
Reservoir (July 1993)



Entrance of PB near  
dam wall of Upper  
Aberdeen Reservoir  
(July 1993)



Front view of PB near  
dam wall of Upper  
Aberdeen Reservoir  
(After 1995)



Side view of PB  
(loophole facing the dam)  
near dam wall of  
Upper Aberdeen  
Reservoir (August 1995)



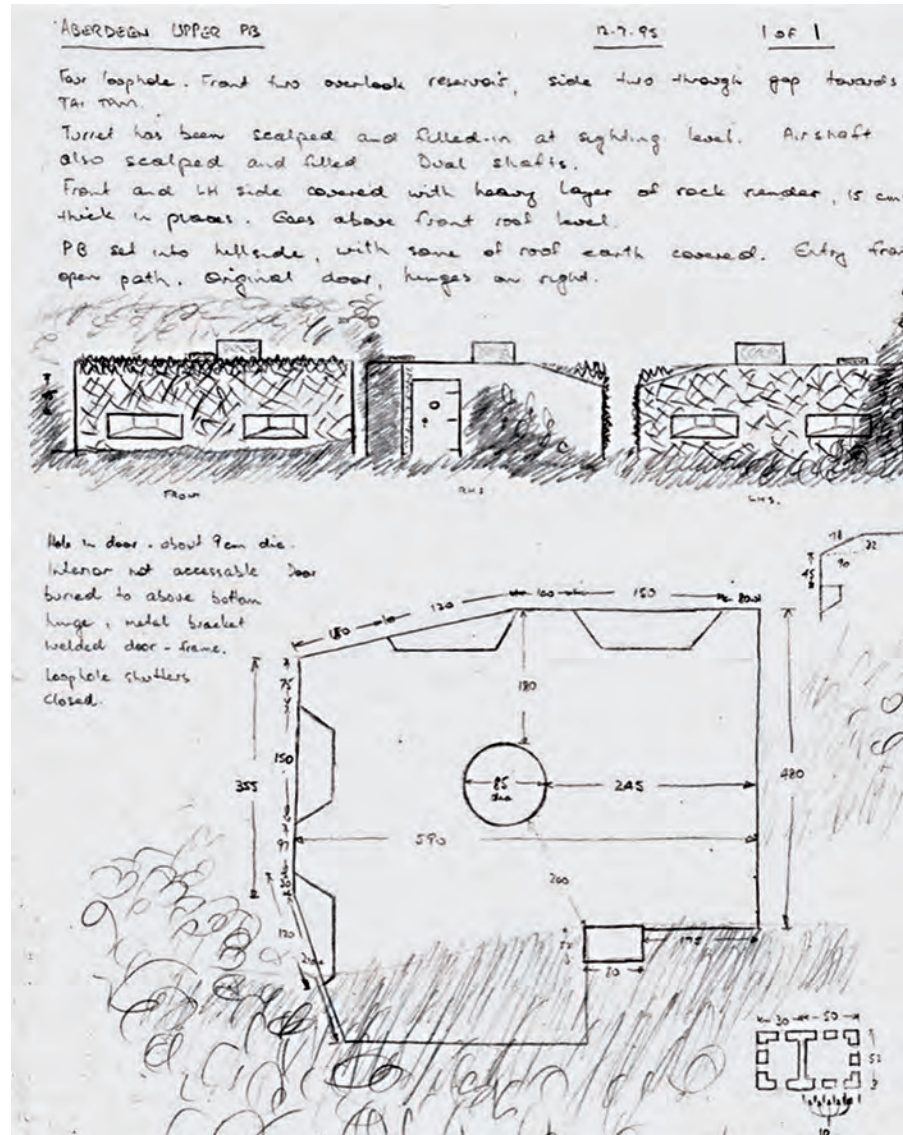
Front view of PB near  
dam wall of Upper  
Aberdeen Reservoir  
(August 1995)



## Aberdeen Upper Reservoir East PB

**LOCATION:** Aberdeen Upper Reservoir

### Sketch

**YEAR SURVEYED: 1995 (July)**

Front view of Aberdeen Upper  
Reservoir East PB (August 1995)



Roof of Aberdeen Upper Reservoir  
East PB with ventilation shaft  
(April 1994)



Front and left side of Aberdeen Upper  
Reservoir East PB (April 1994)

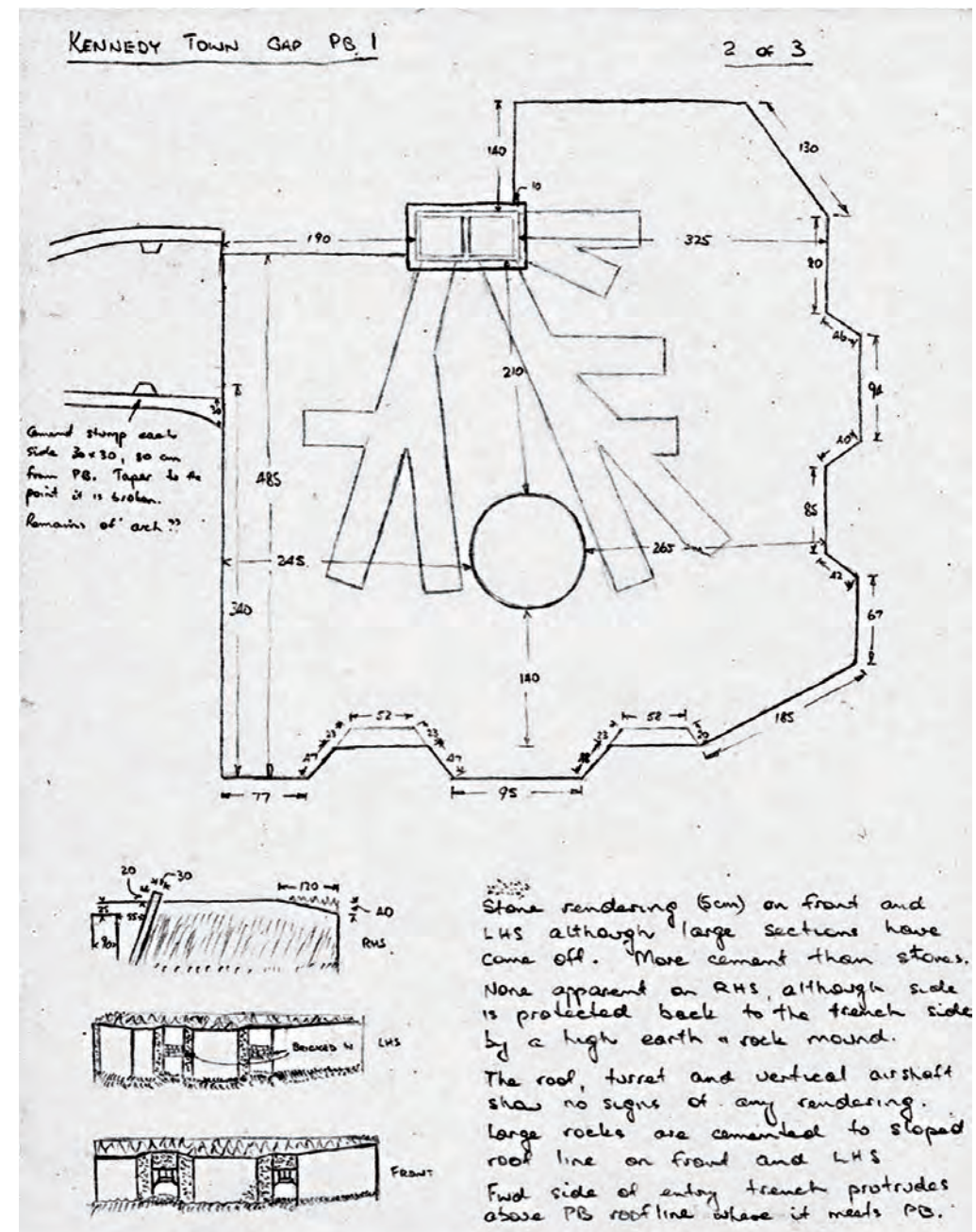
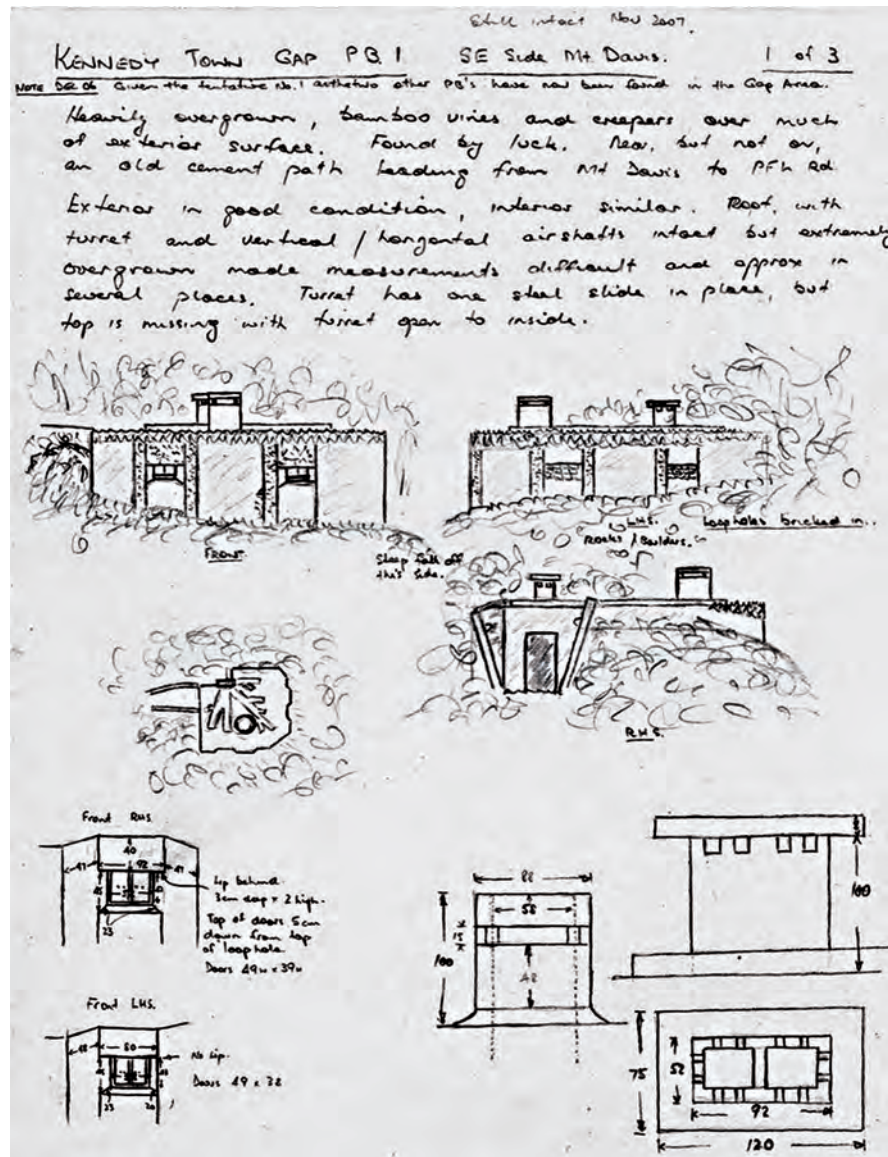


Entrance of Aberdeen Upper Reservoir  
East PB (August 1995)

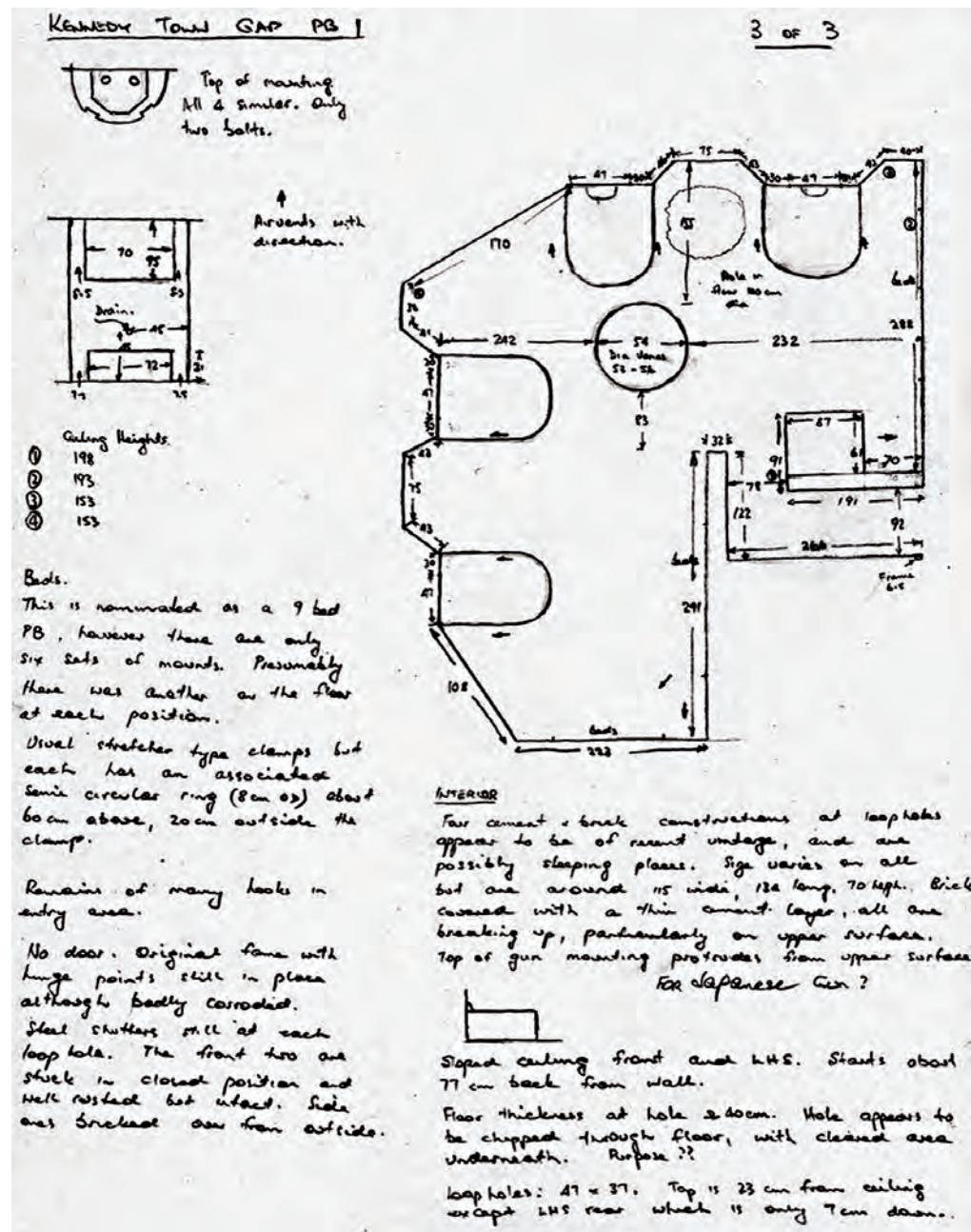


PB inside Chiu Yuen Cemetery  
**LOCATION:** Kennedy Town Gap

Sketch







**YEAR SURVEYED: 1995 (November)**



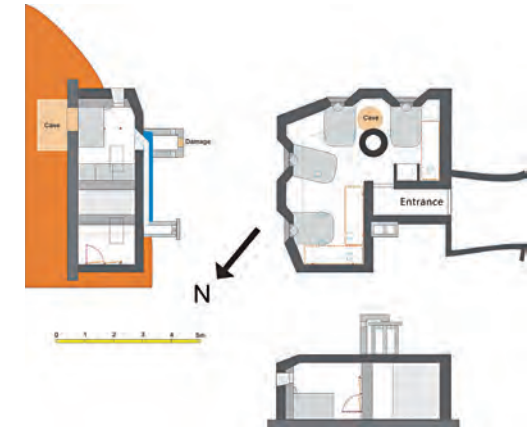
Weaponry platform behind loophole  
likely added by the Japanese  
(November 1995)



Ceiling: note the commanders turret to the left (November 1995)



A possible Japanese tunnel portal on  
PB floor (November 1995)



**MEASURED DRAWING  
BY YK TAN**

## NOTES

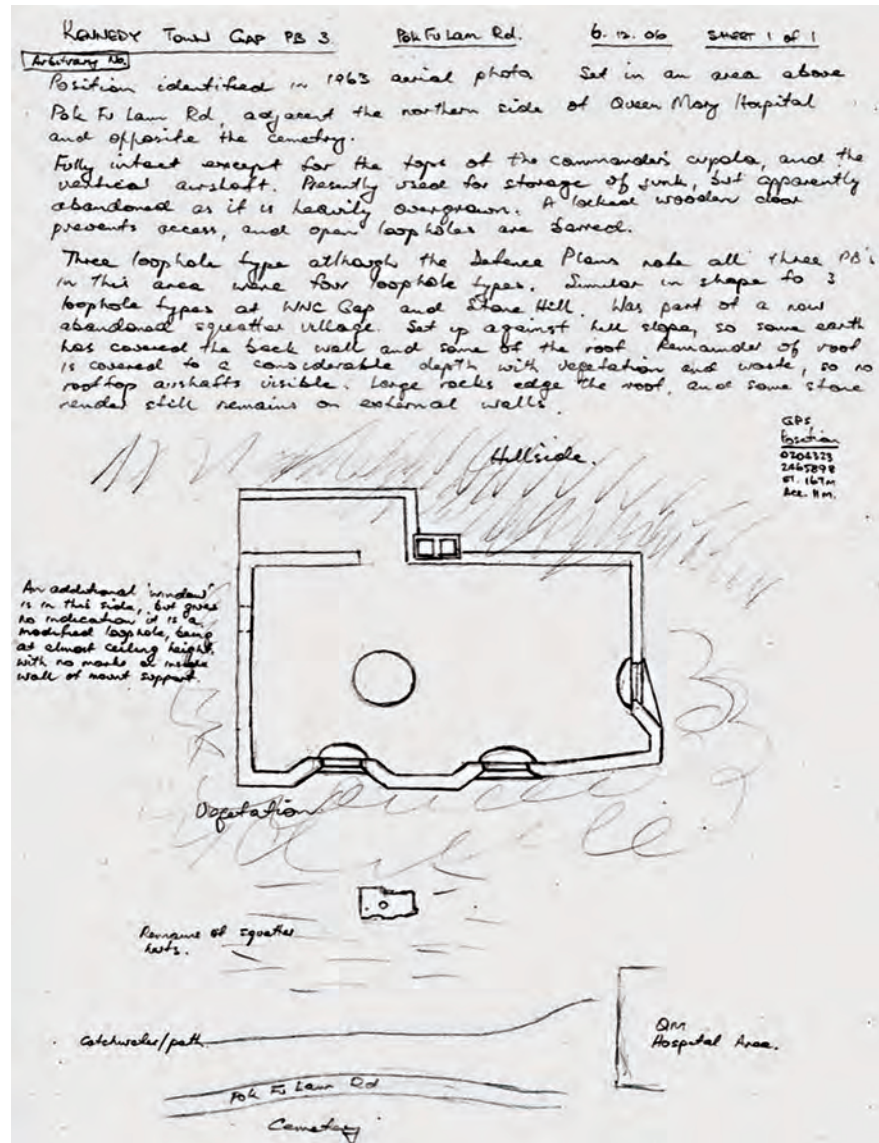
Japanese MG platforms & a tunnel can be found inside the PB.



## PB on the eastern slope of High West near HKU Pathology Building

**LOCATION:** Kennedy Town Gap

Sketch

**YEAR SURVEYED: 2006 (December)**

Right side wall (with entrance) &amp; part of front wall of PB

(Lawrence W C Lai, March 2022)



Left side and front wall of the PB

(Y K Tan, April 2011)



Left side and front wall of the PB



Interior of the PB showing three loopholes and commander cupola

(Y K Tan, December 2006)

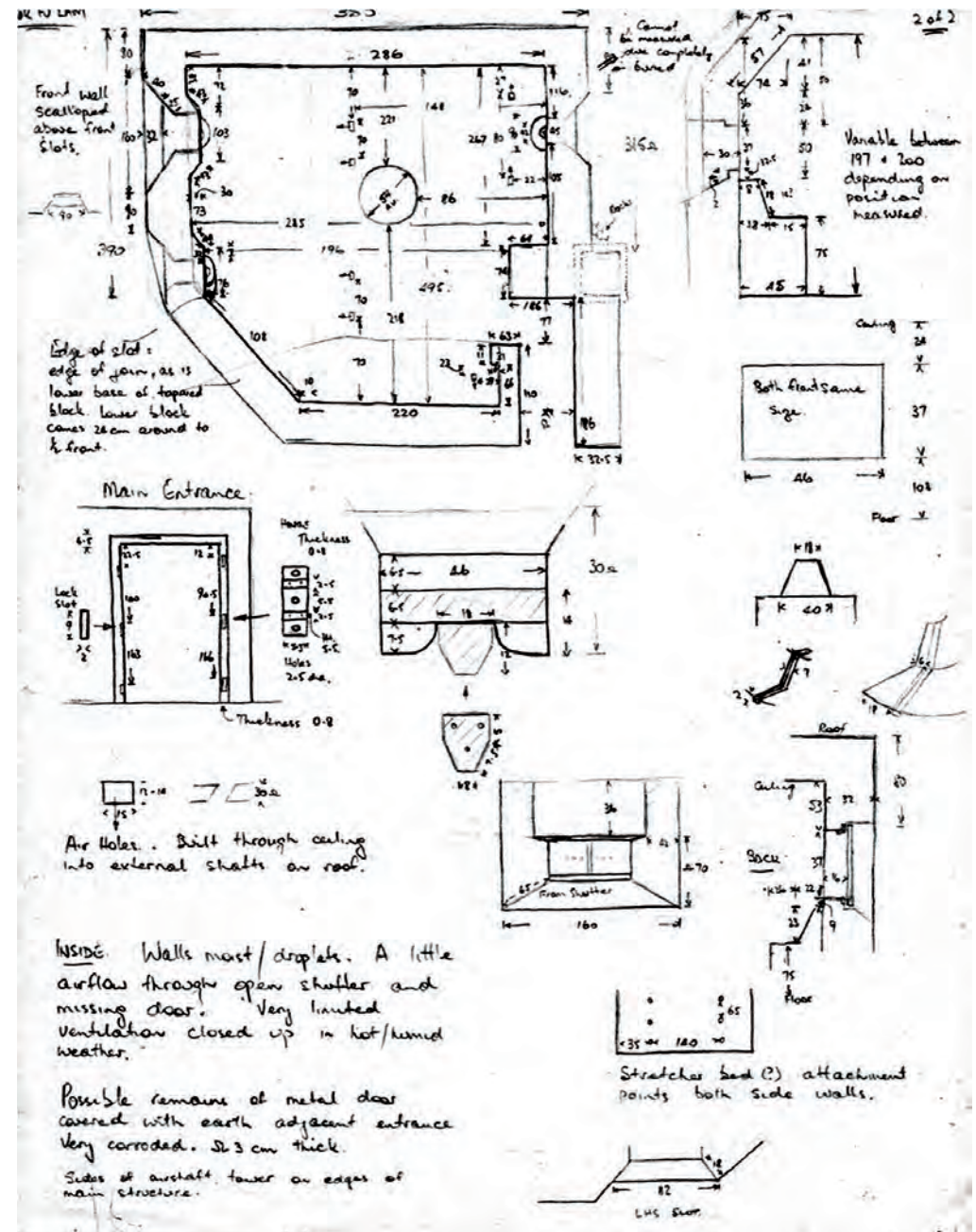
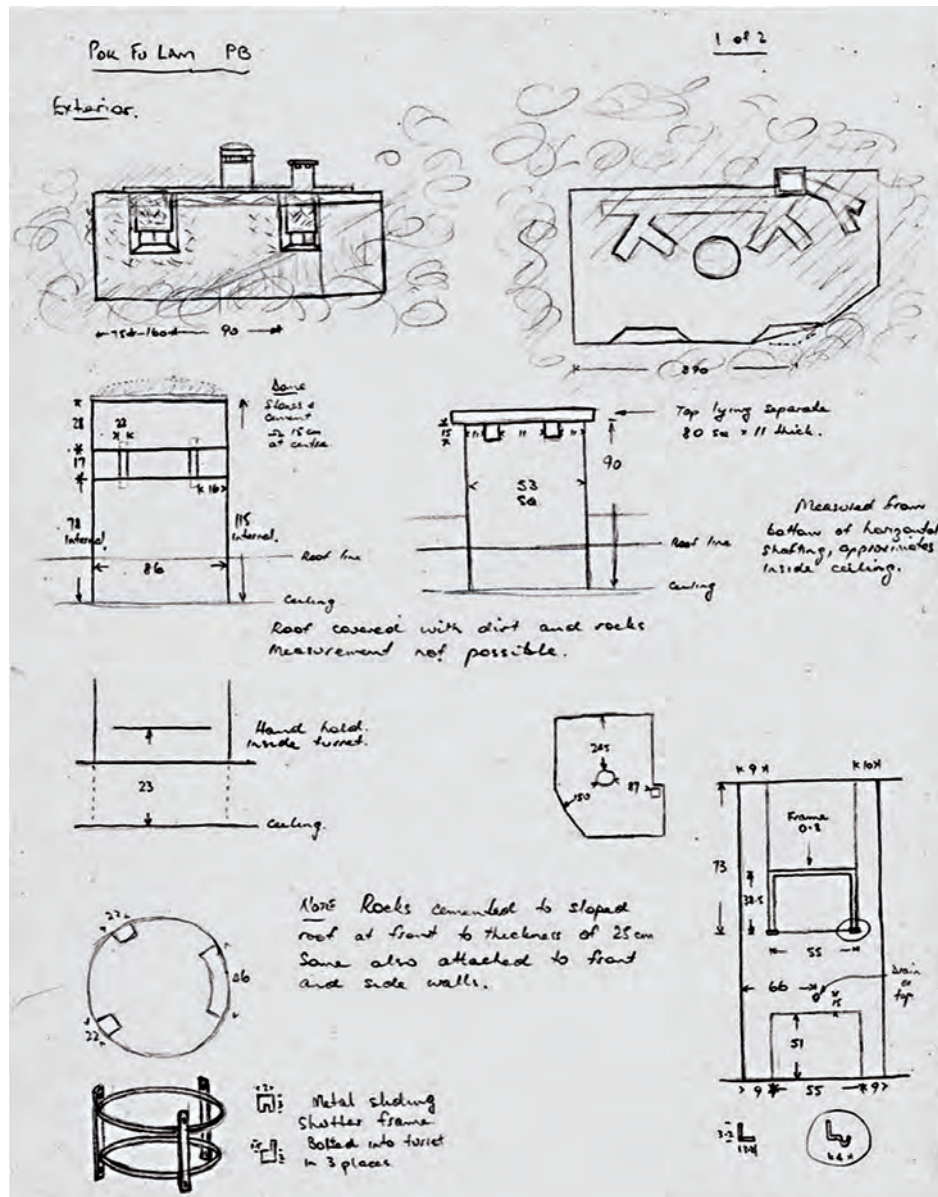
**NOTES**

PB has been occupied &amp; converted by squatters who cultivate the adjoining land.



PB below Pok Fu Lam No.1 Fresh Water Service Reservoir  
**LOCATION:** Pok Fu Lam

### Sketch



**YEAR SURVEYED: 1994 (December)**





Queen Mary Hospital facing loophole, with storage rack and water tank compartment in the foreground.



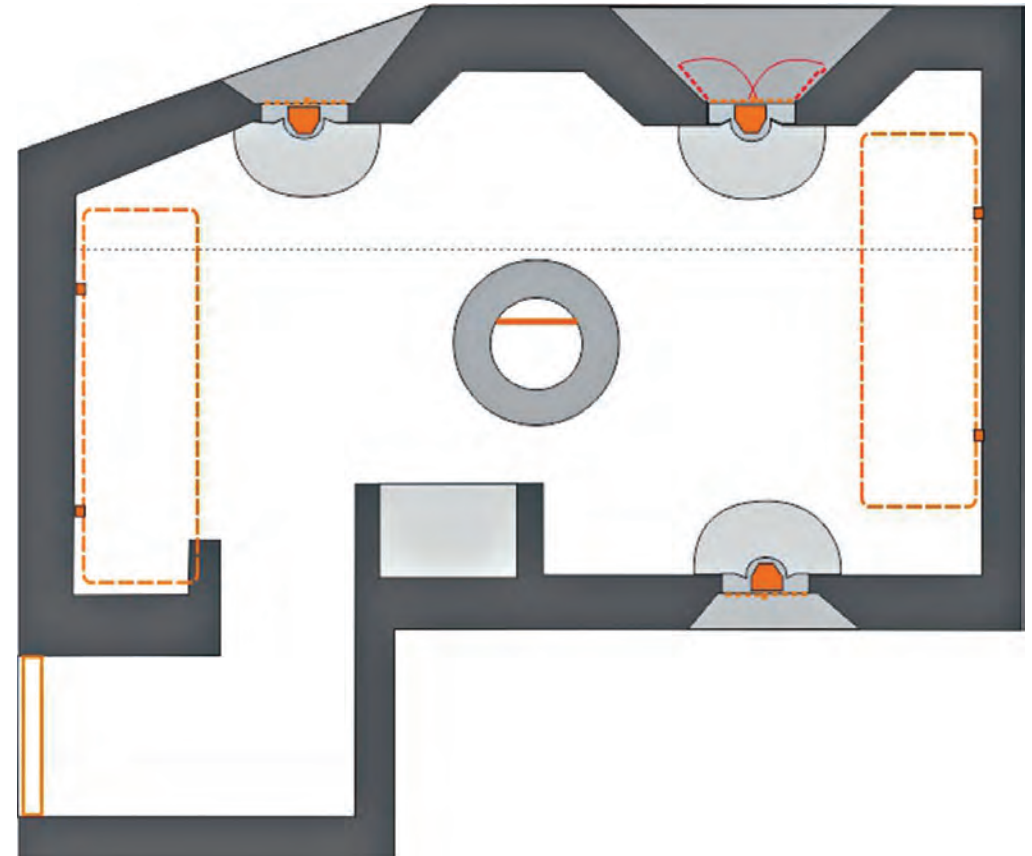
Inside view of Commander cupola with handhold (December 1994)



Back to back loopholes facing University Hall and Queen Mary Hospital and pipe cot mounts (December 1994)



Commander cupola (December 1994)

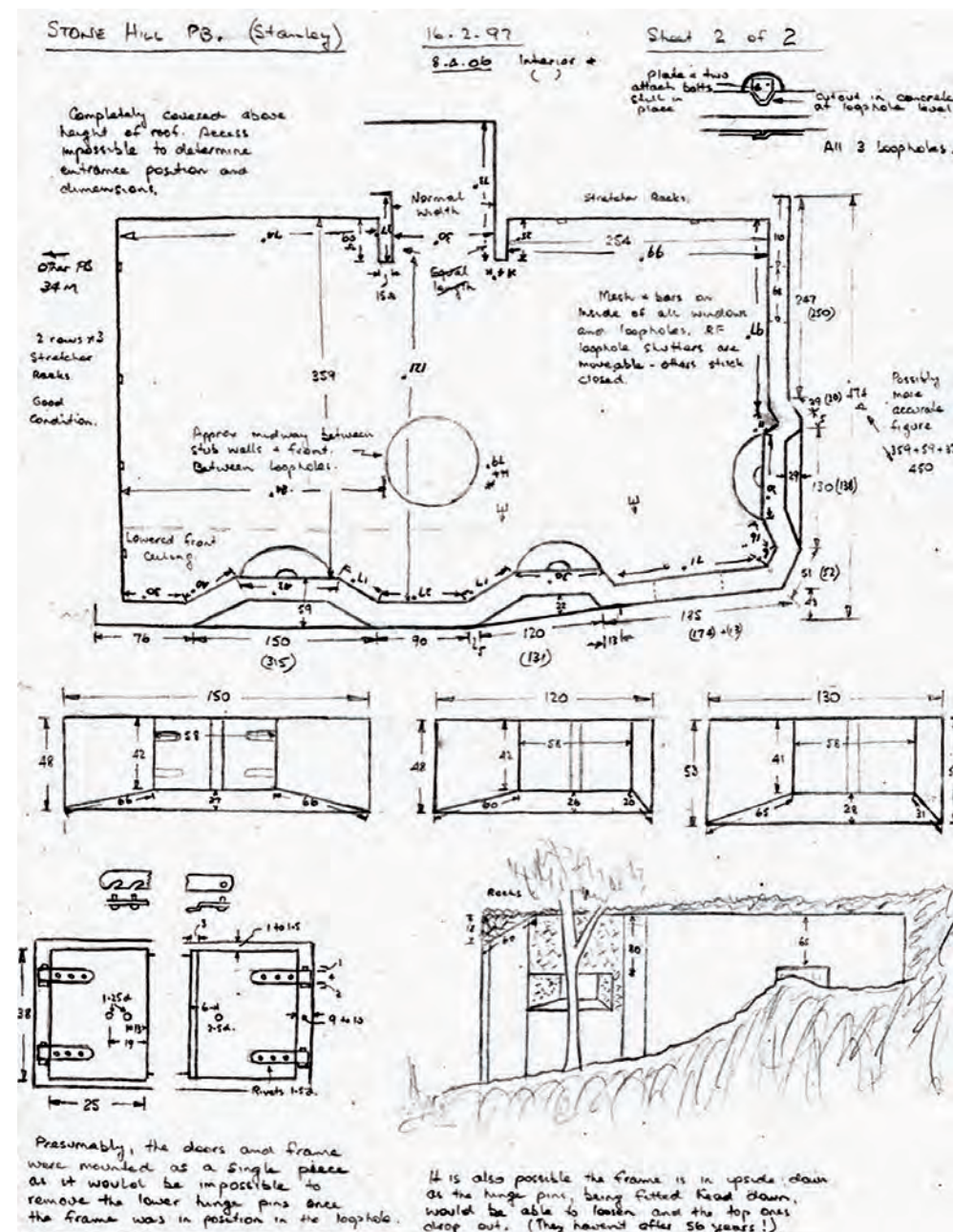
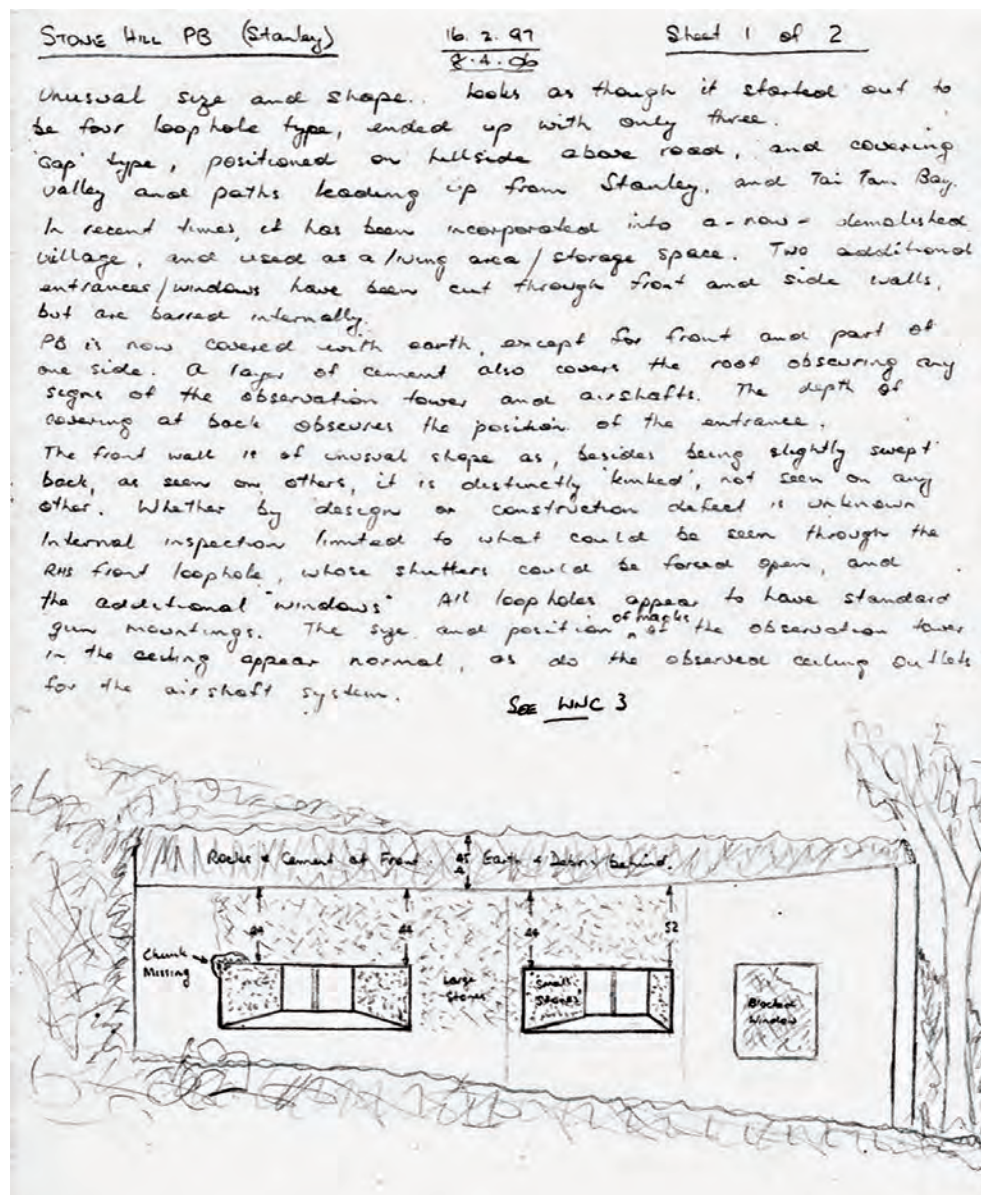


**NOTES**  
MEASURED DRAWING BY YK TAN



PB on the eastern slope below Stanley Mound Fresh Water Service Reservoir  
**LOCATION:** Stone Hill

### Sketch

**YEAR SURVEYED: 1997 (February)**





Front wall from left corner of the PB  
(February 1997)



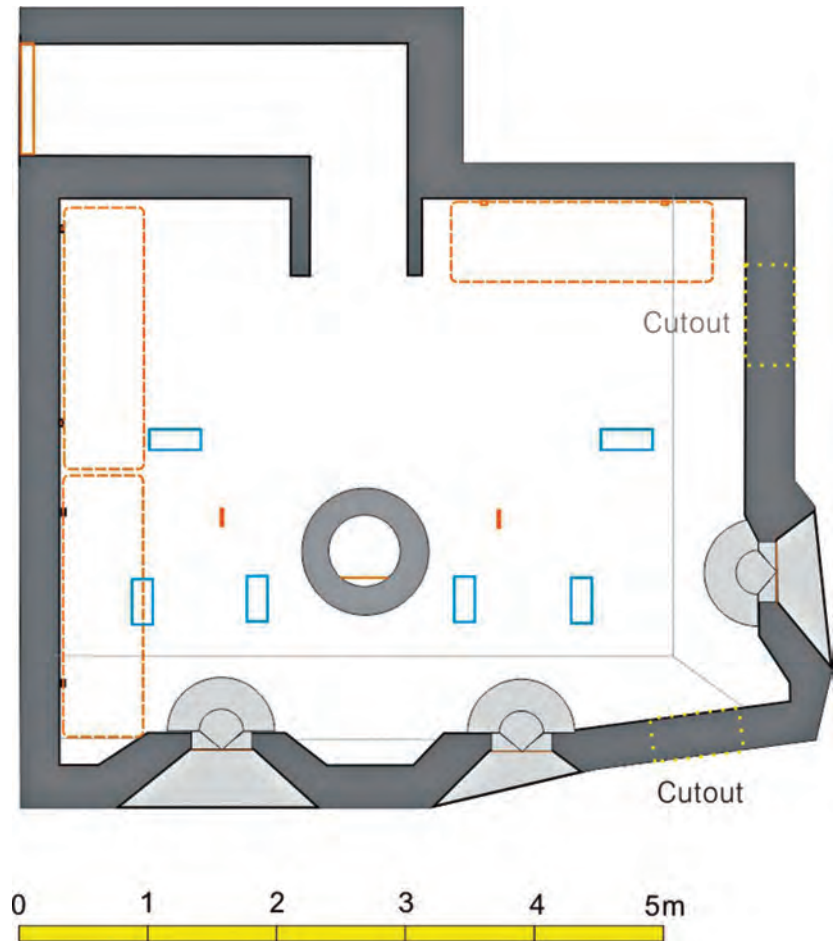
Left side wall of the PB  
(February 1997)



Loophole along the left side wall of  
the PB (February 1997)



Front wall from right corner of the PB  
(February 1997)



MEASURED DRAWING BY YK TAN

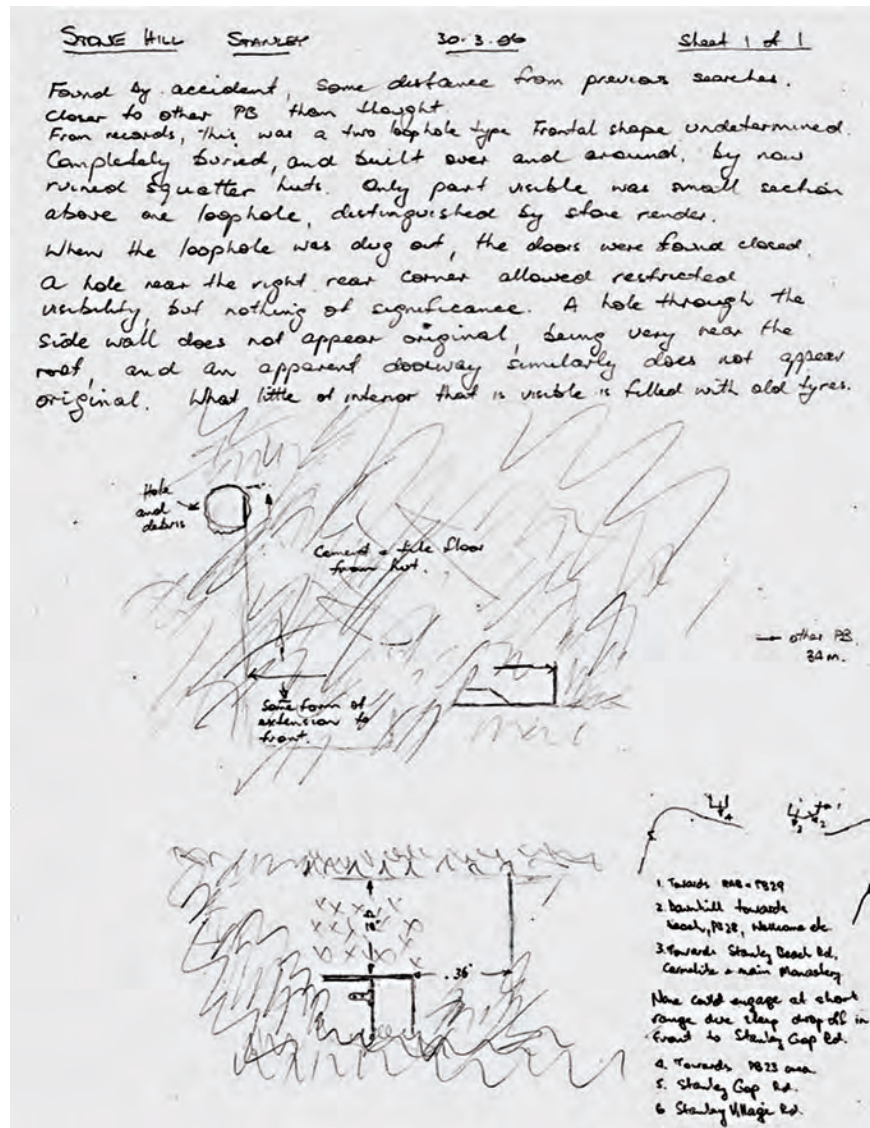
#### NOTES

PB was once occupied & converted by squatters.



PB on the west slope below Stanley Mound Fresh Water Service Reservoir  
**LOCATION:** Stone Hill

Sketch



**YEAR SURVEYED: 2006 (March)**



Right loophole of the PB  
 (YK Tan, April 2006)



PB entrance (YK Tan, April 2006)



Front of covered PB (YK Tan, April 2006)

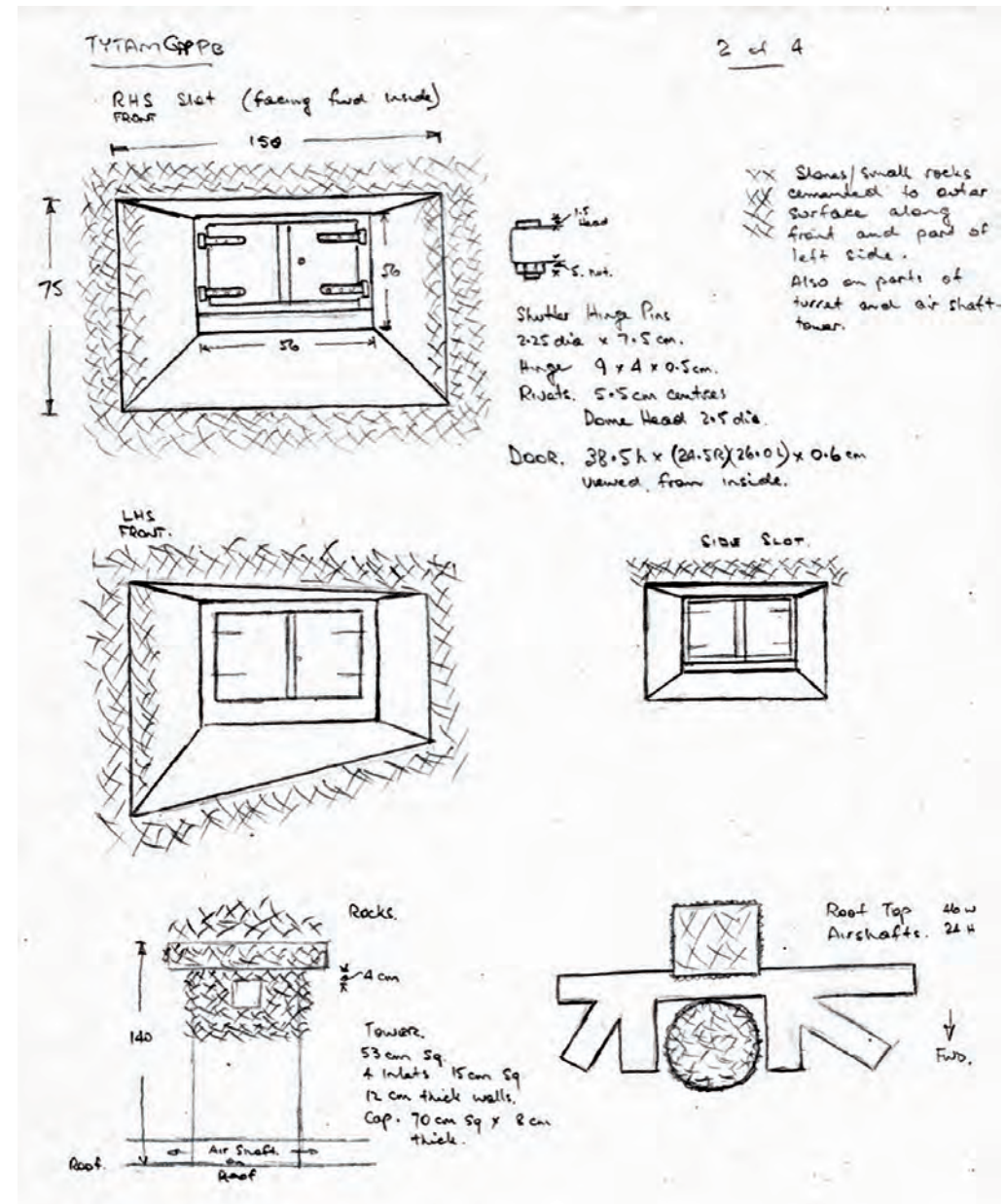
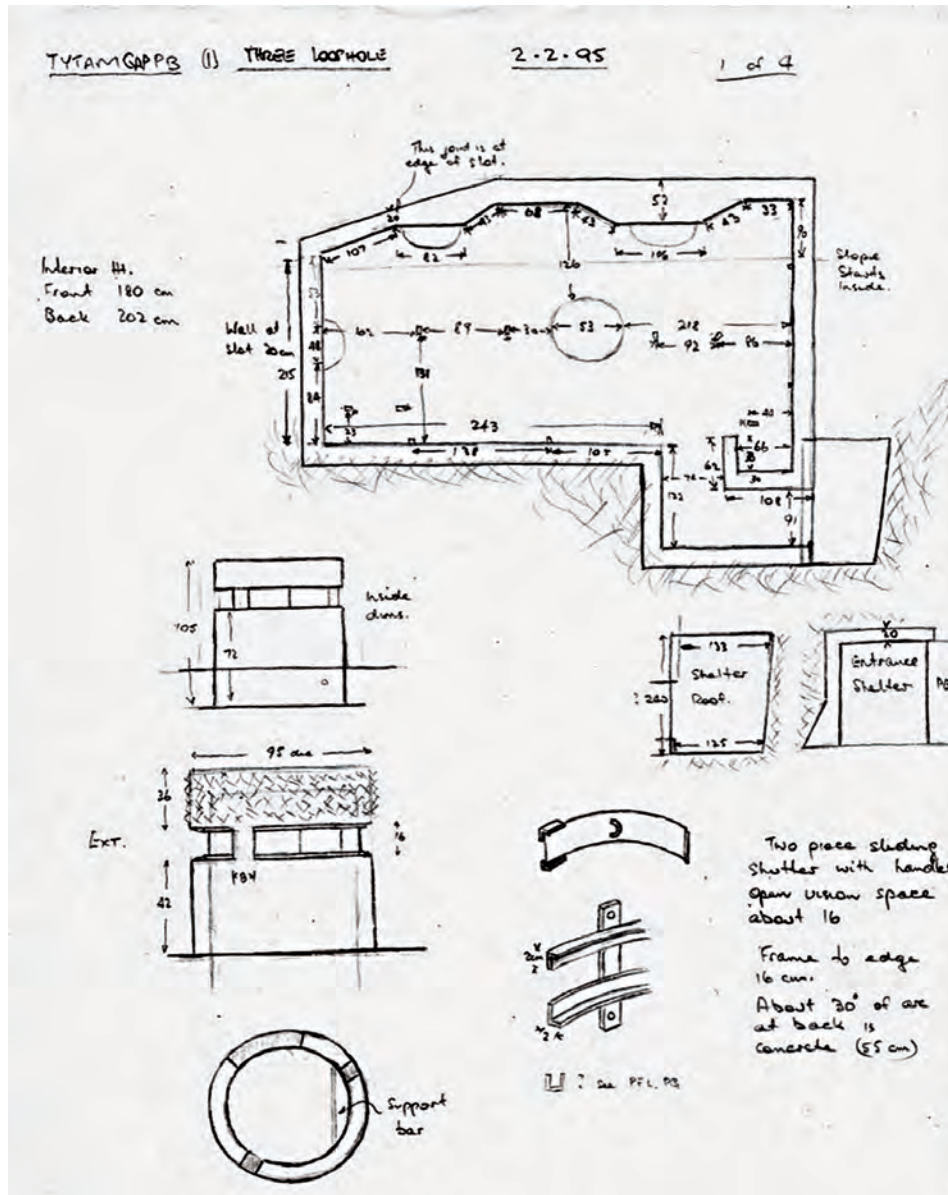
## NOTES

PB was converted by squatters and then completely buried. Survey of the PB practically impossible without high-tech tools.

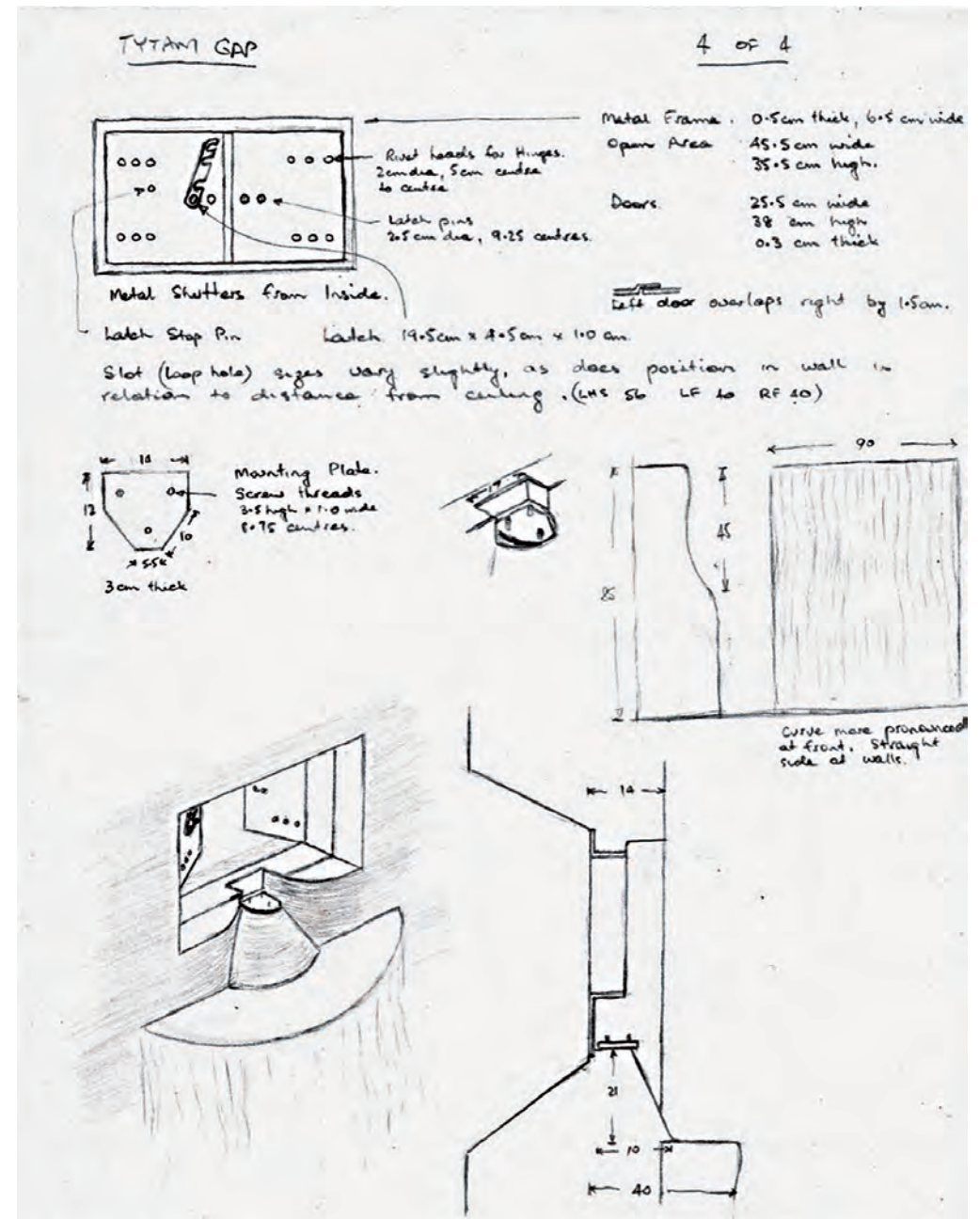
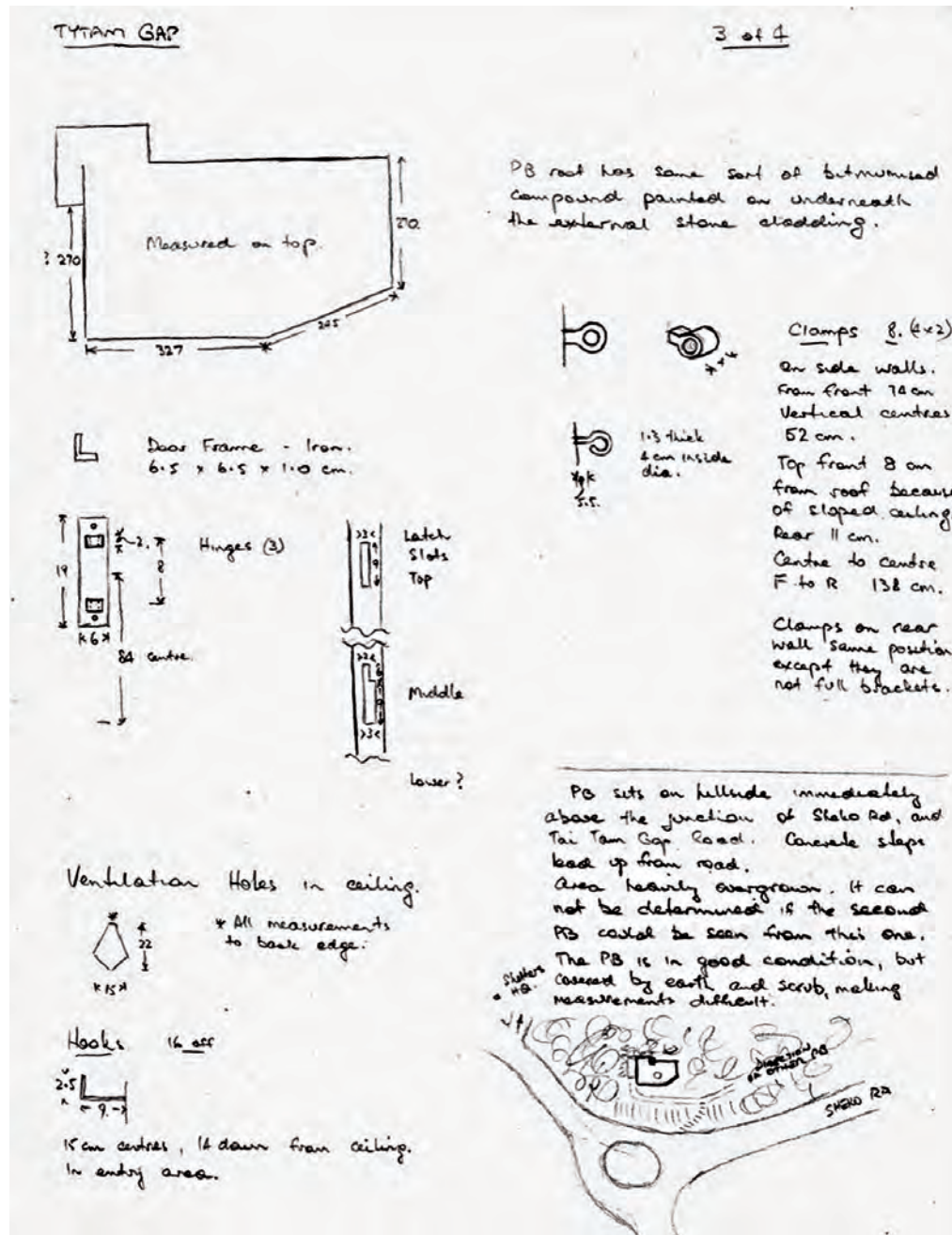


PB above junction of Tai Tam Road & Shek O Road.  
**LOCATION:** Tai Tam Gap

Sketch







YEAR SURVEYED: 1995 (February)





Front loopholes of PB (March 1994)



Protected entry of PB (March 1994)



Interior of PB flooded (March 1994)



Left front corner and roof of PB (March 1994)



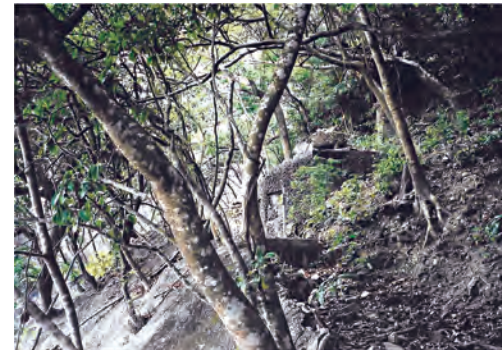
Roof top of PB (March 1994)



Left front corner of PB (July 2002)



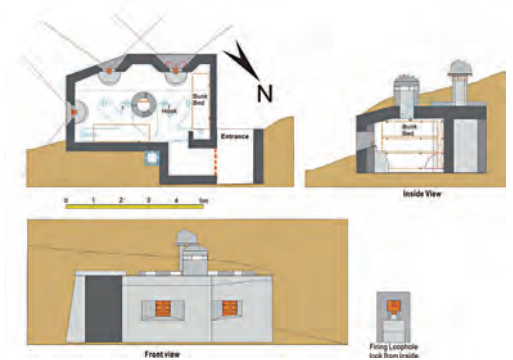
Roof top of PB (July 2002)



PB built into hillside, with cement spraying (July 2002)



Protected entry of PB (July 2002)



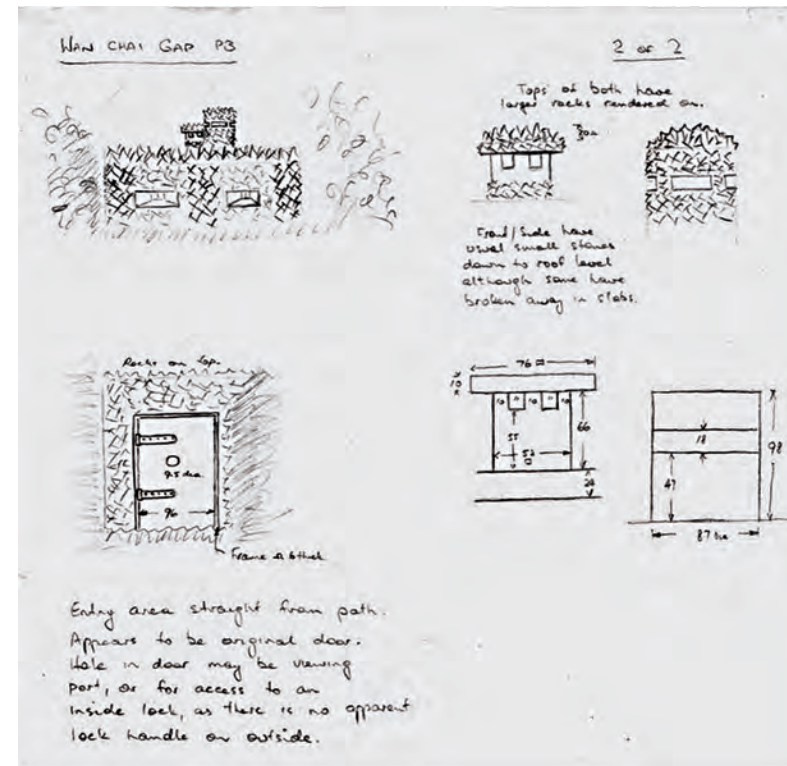
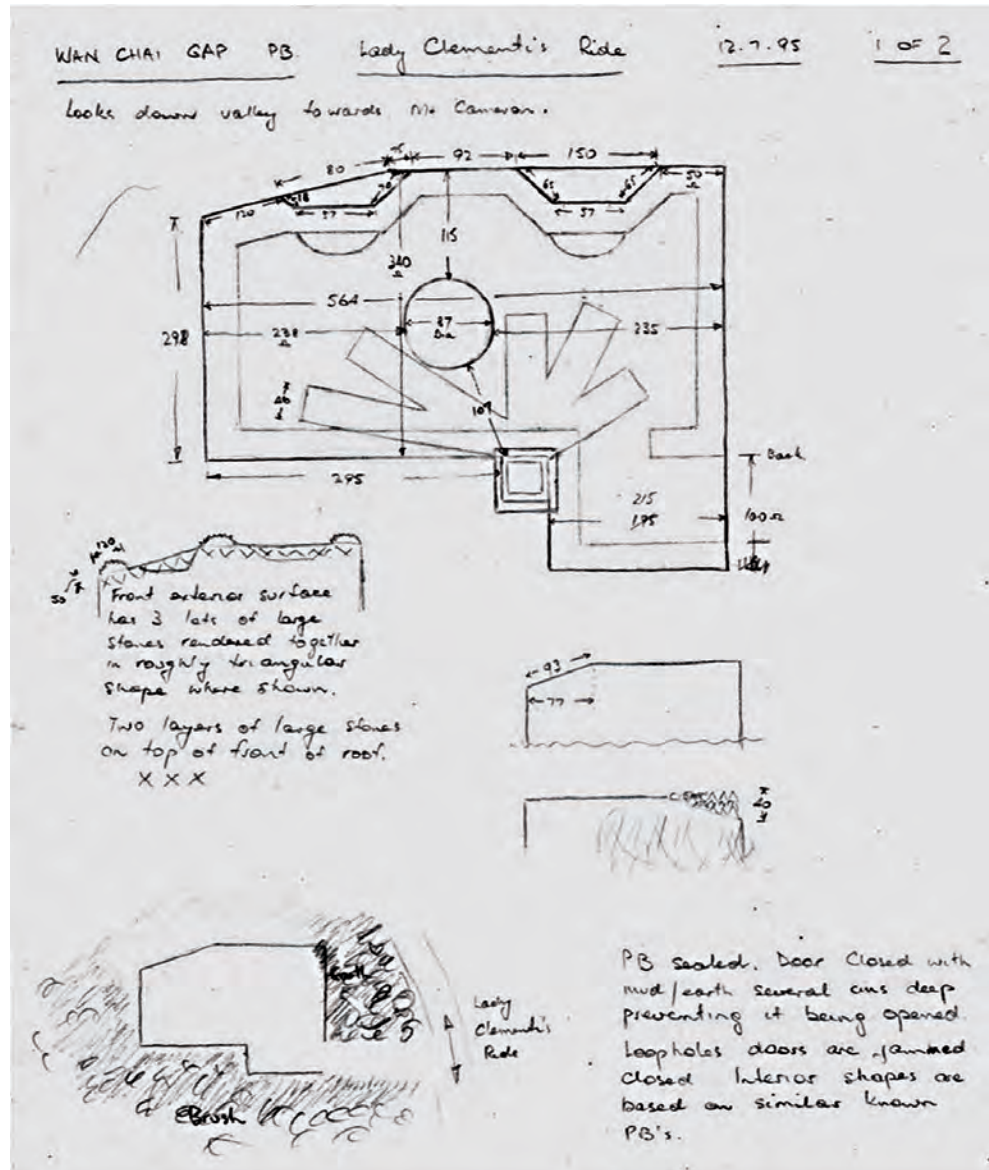
**MEASURED DRAWING  
BY YK TAN**



## PB along Lady Clementi's Ride

LOCATION: Wanchai Gap

Sketch



YEAR SURVEYED: 1995 (July)



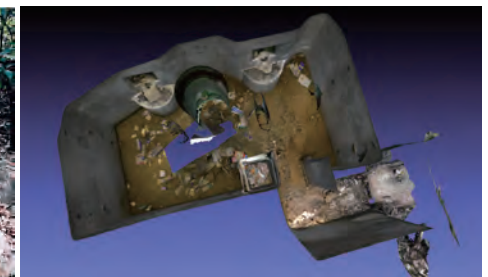
The left loophole and commander turret (April 1994)



The ventilation shaft and air ducts above roof (April 1994)



PB entrance with a steel gate (April 1994)



3 D Scan of the inside of PB by Y.K. Tan, October 2021

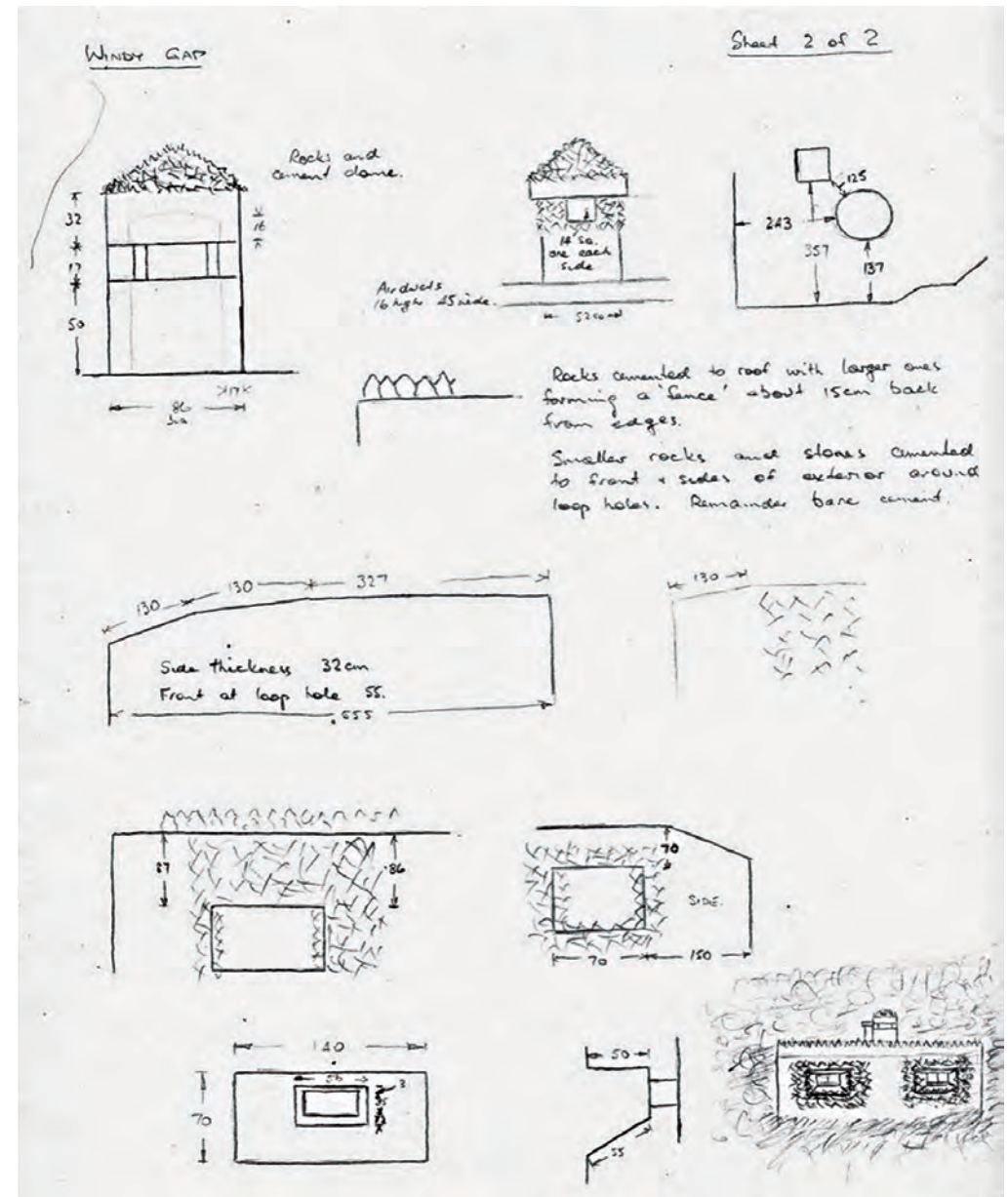
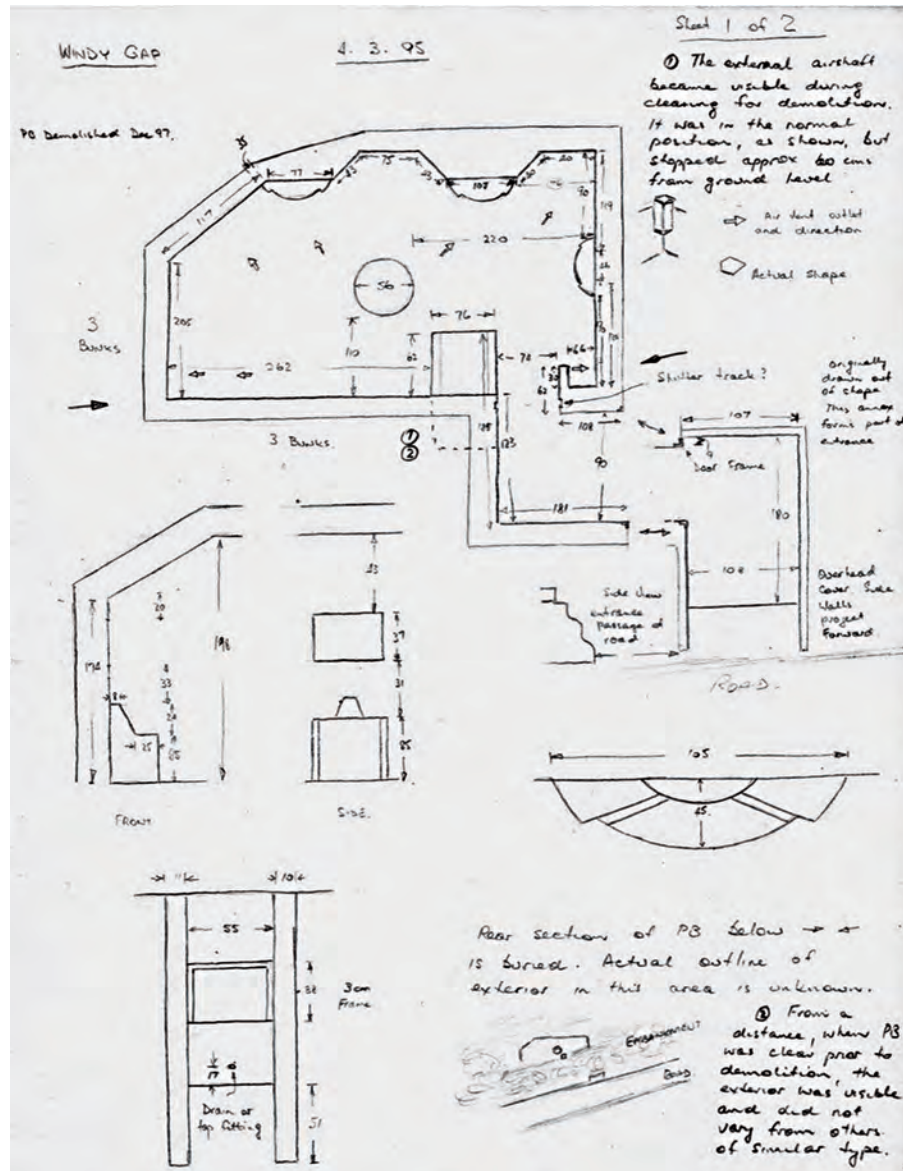
## NOTES

The entrance gate fell off around year 2000.



PB along Shek O Road (prior to realignment)  
**LOCATION:** Windy Gap

Sketch



YEAR SURVEYED: 1995 (March)





Windy Gap PB (August 1996)



Silhouette of Windy Gap PB along Shek O Road (3 December 1995)



Windy Gap PB (July 1997, Tim Ko)



Right side and front walls of Windy Gap PB (December 1993)



A loophole of Windy Gap PB (December 1993)



Inside view of Windy Gap PB (December 1993)

## NOTES

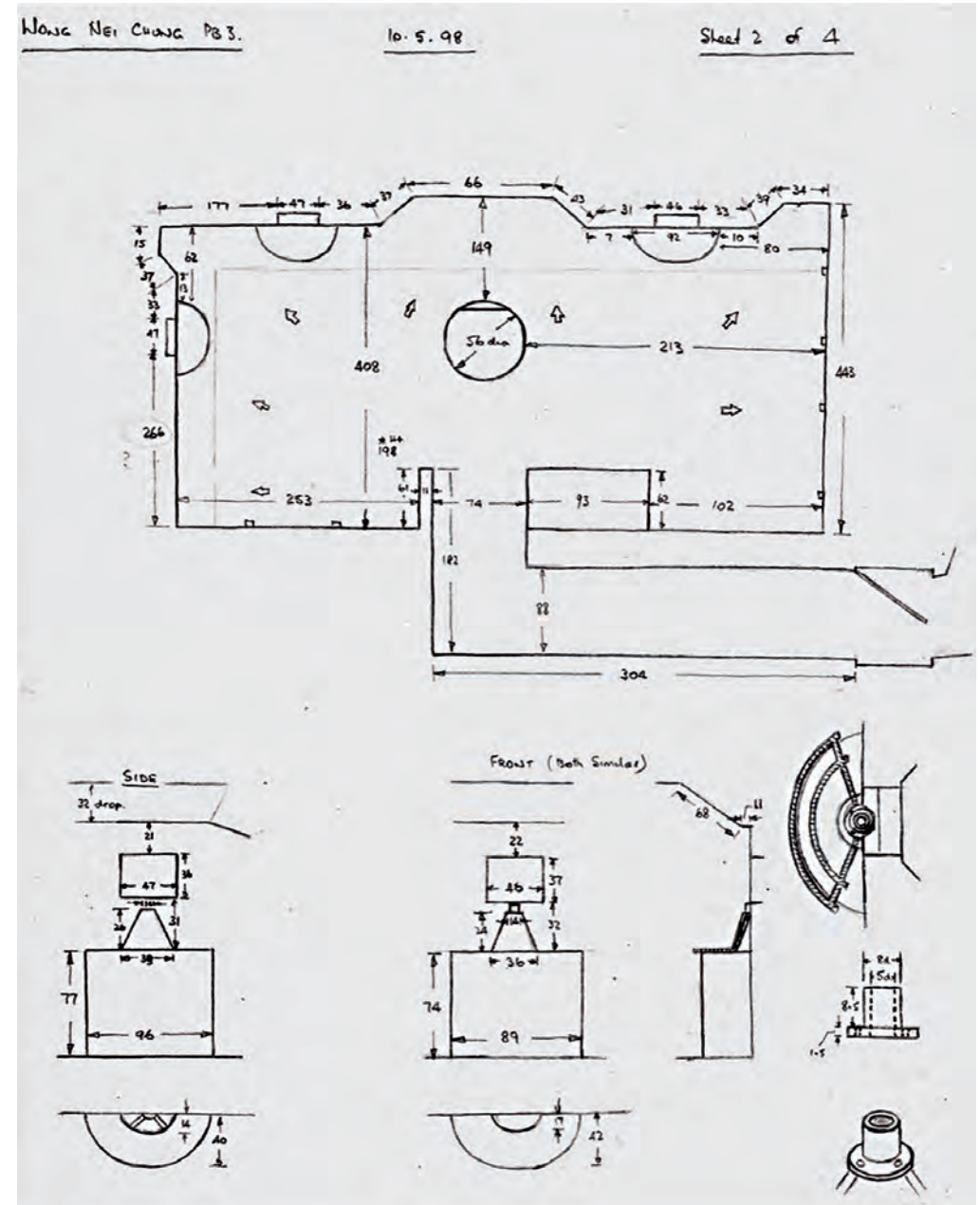
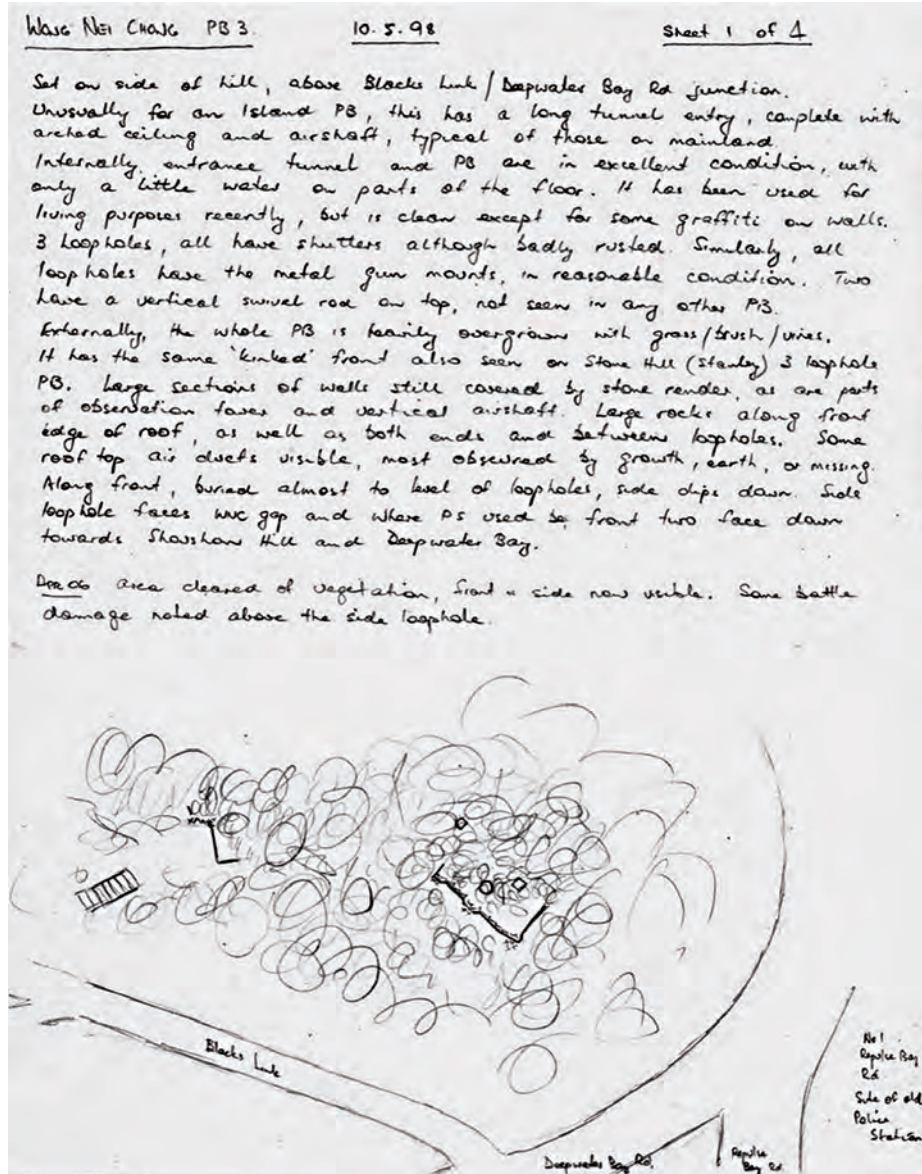
PB destroyed after 1997 road construction.



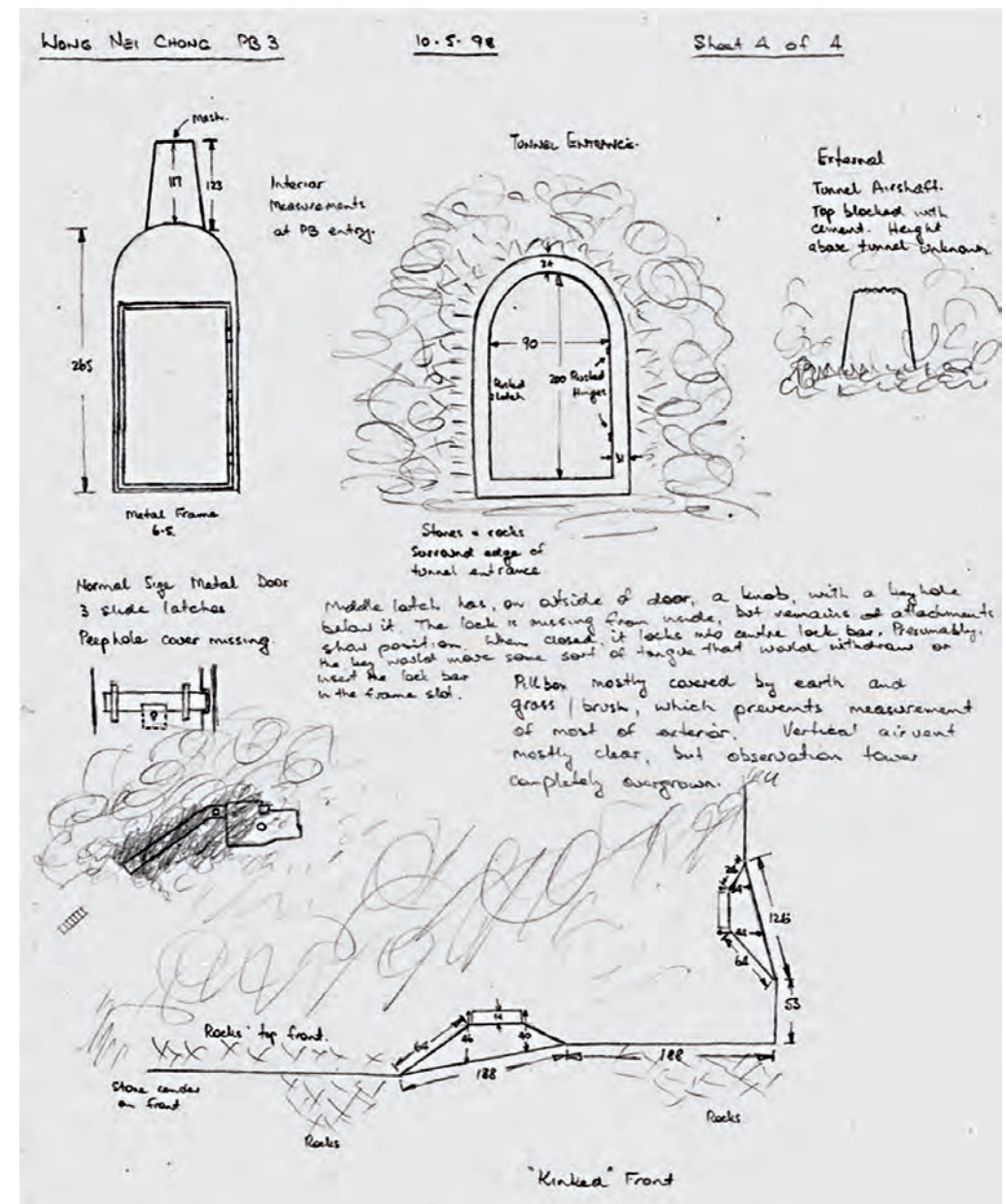
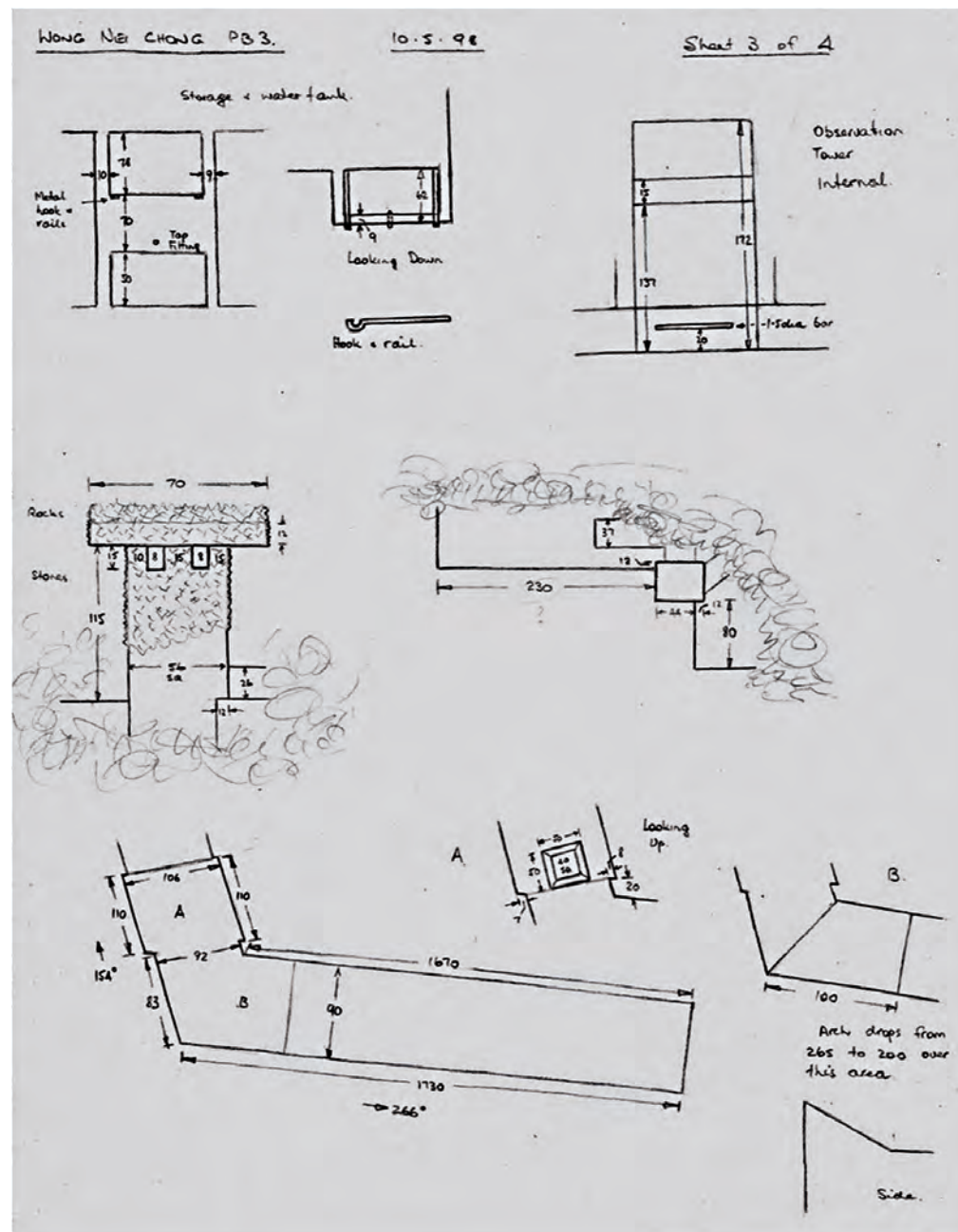
# Wong Nei Chung (WNC) Gap PB 3

## LOCATION: Wong Nei Chung Gap

### Sketch







**YEAR SURVEYED: 1998 (May)**





Tunnel entrance (May 1998)



The entrance and door from the tunnel into the PB (There was once another door/gate at the entrance shown in the previous photo, but was missing) (May 1998)



Exterior left front corner of WNC Gap PB3 (May 1998)



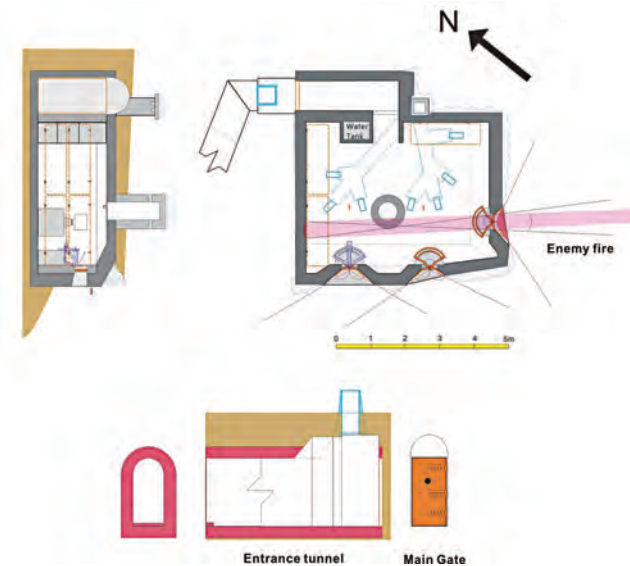
Interior left & front walls (May 1998): unsightly graffiti on PB walls suppressed



Ventilation shaft of WNC Gap PB3 (May 1998)



Interior front wall (May 1998): unsightly graffiti on PB walls suppressed



MEASURED DRAWINGS  
BY YK TAN

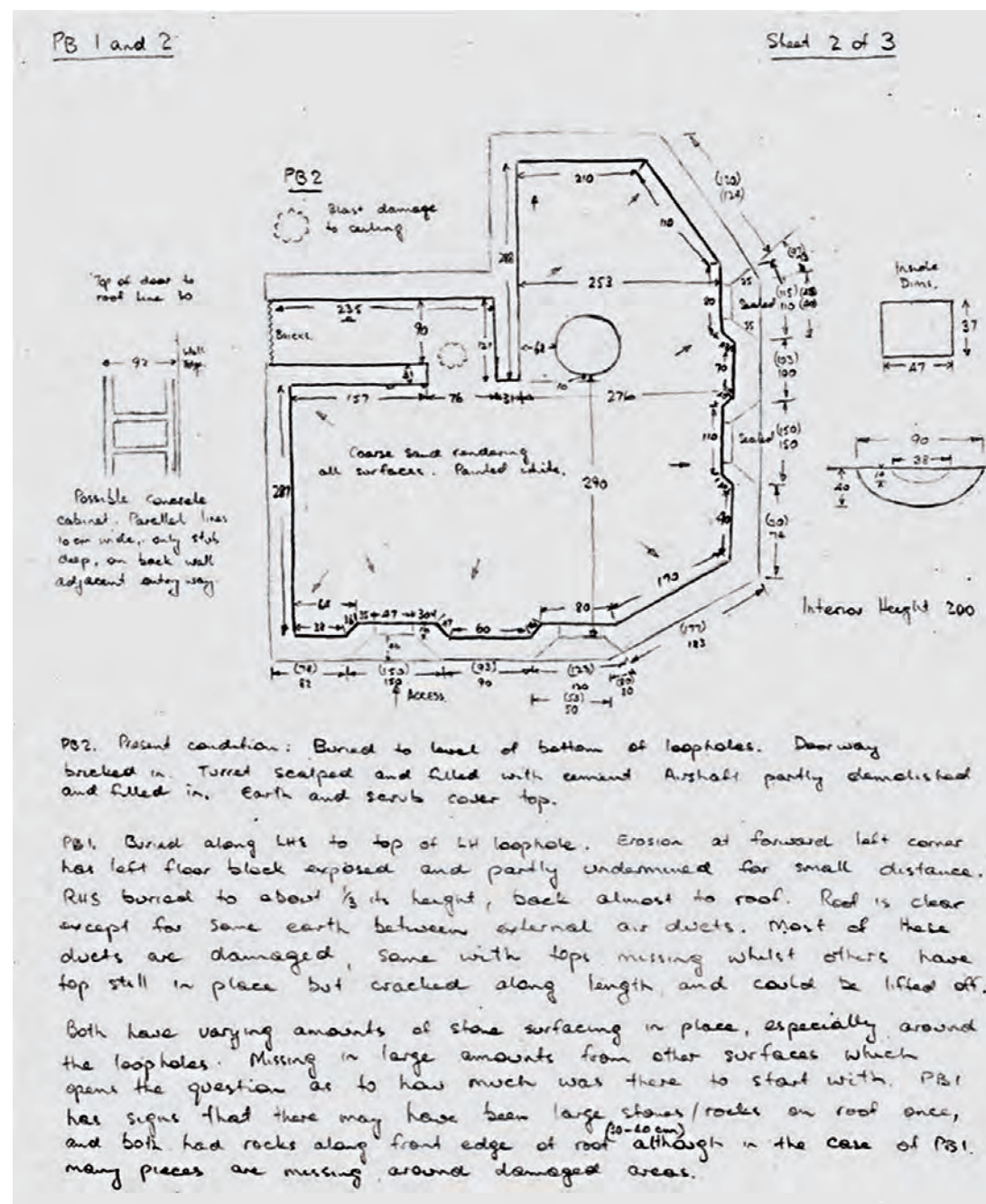
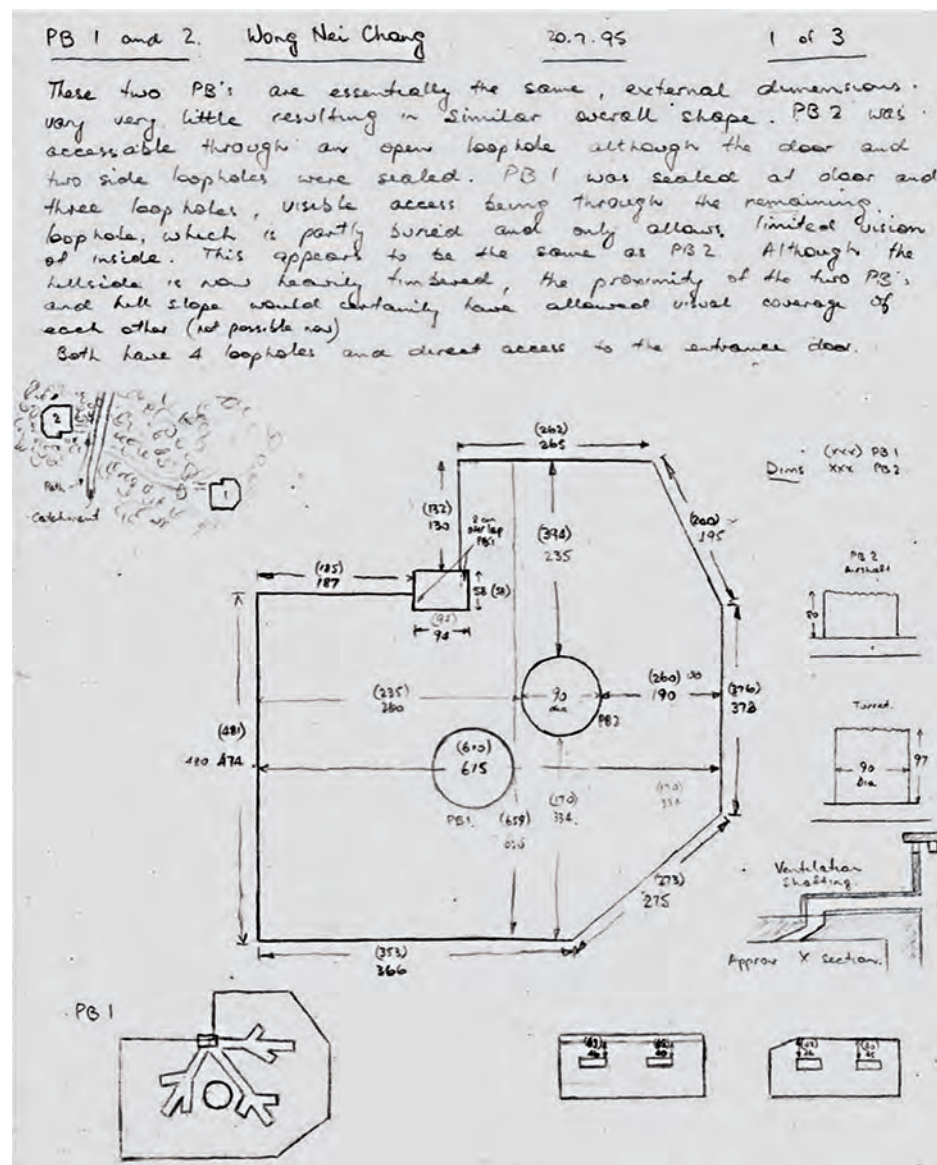
**NOTES**  
PB largely intact.



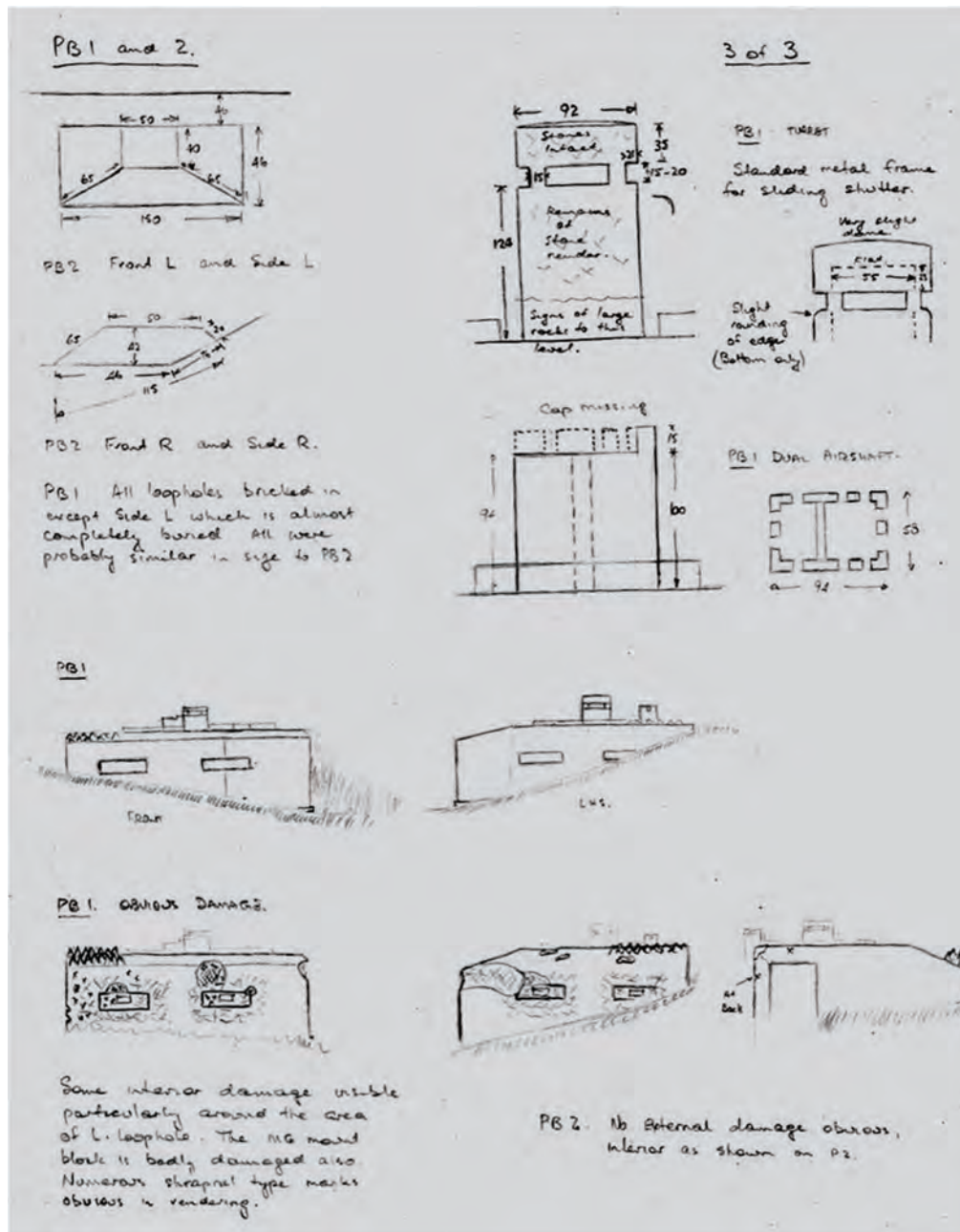
## Wong Nei Chung Gap PB 1 and 2 (JLO PB1 PB2)

**LOCATION:** Jardine's Lookout water catchment area

## Sketch







YEAR SURVEYED: 1995 (July)



Roof of JLO PB1  
(June 1994)



Roof of PB2  
(June 1994)



Hit marks on wall of PB1  
(June 1994)



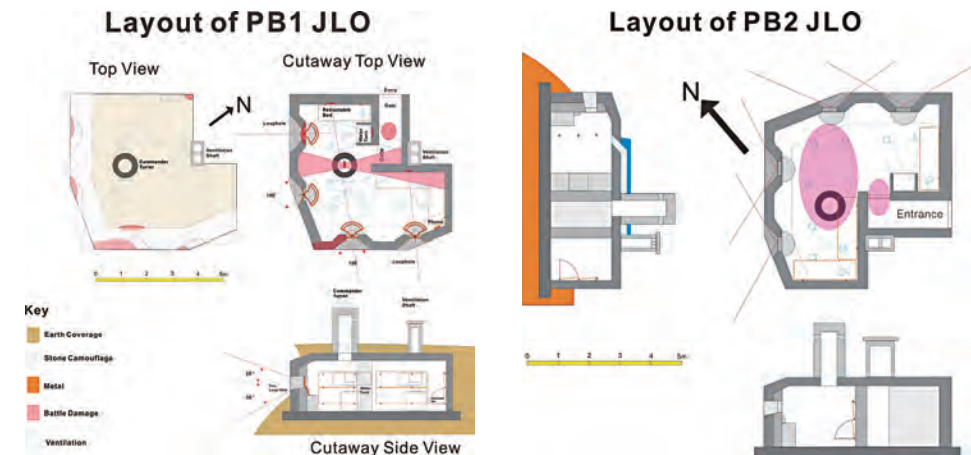
PB2 much covered by  
undergrowth (June 1994)



Battle damage on surface  
of PB1 (June 1994)



A loophole of PB2  
(June 1994)



MEASURED DRAWINGS  
BY YK TAN

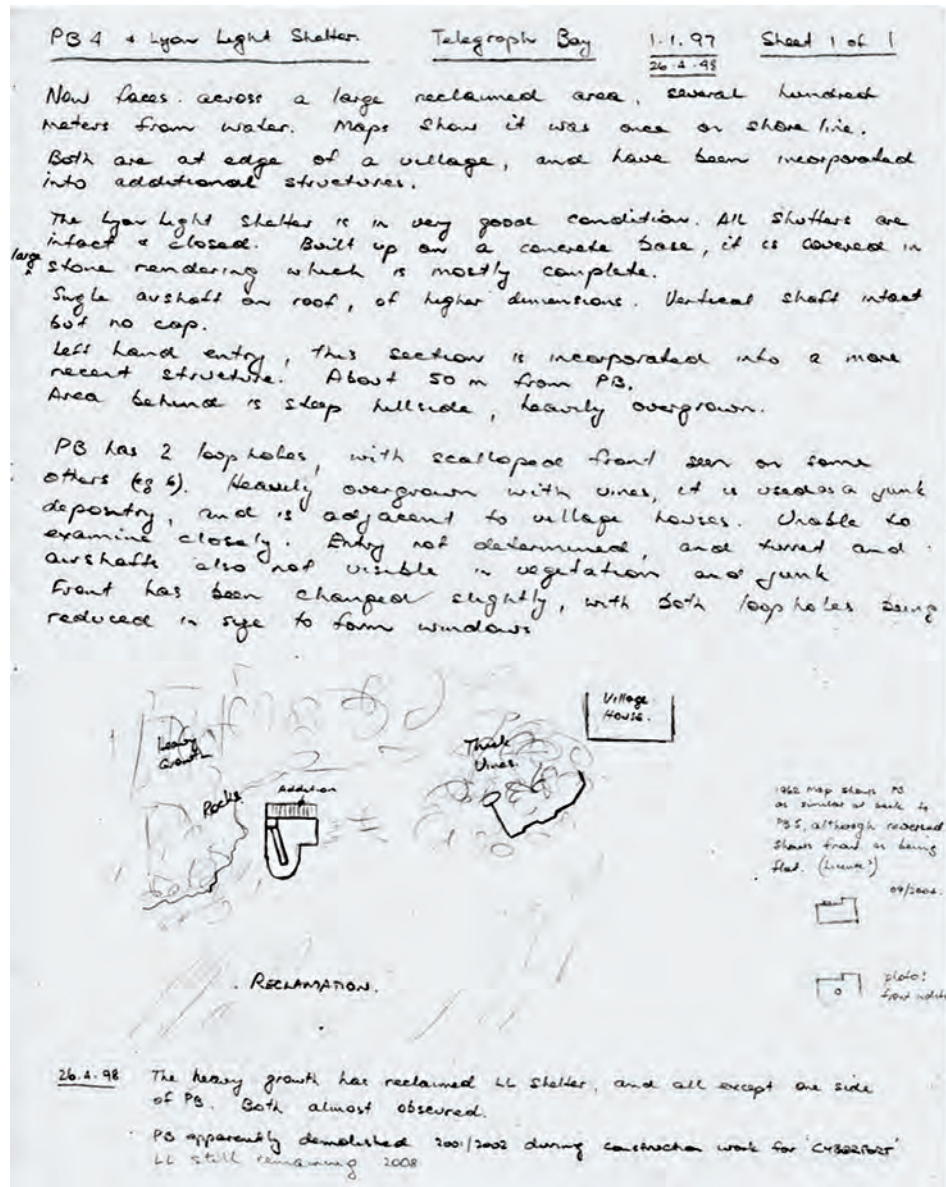
## NOTES

Both PBs saw action in the Battle of Hong Kong.



**PB NO.: 4 LOCATION: Telegraph Bay**

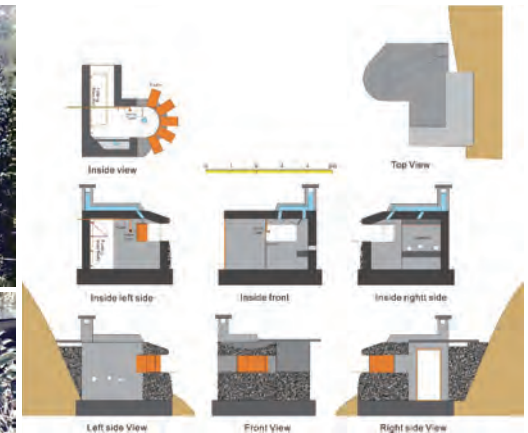
## Sketch

**YEAR SURVEYED: 1997 (January)**

PB4 (January 1997)



LL4 (January 1997)

**MEASURED DRAWINGS OF LL4  
BY YK TAN**



**PB NO.: 5 LOCATION: Telegraph Bay**

## Sketch

PB 5 + Lyon Light Shelter Telegraph Bay 8.3.98 Sheet 1 of 3  
26.4.98

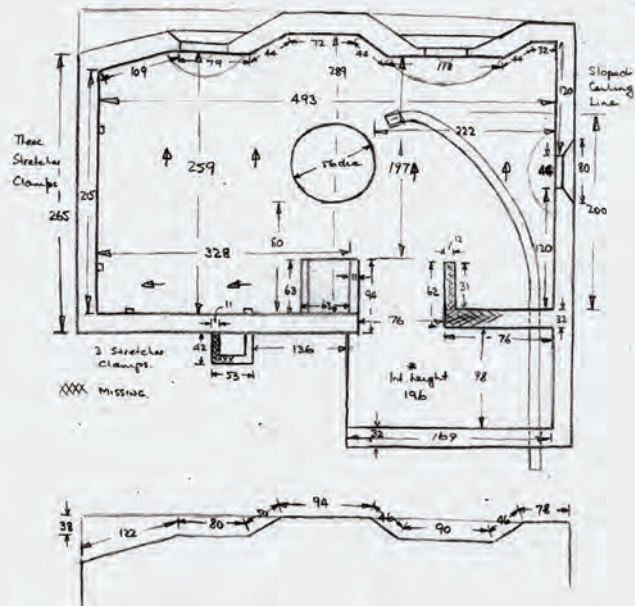
3 loophole pullbox, built right on water edge. Mostly intact although parts have broken through cement rat.  
Back airstuff 50% missing, part of one interior wall similar.  
Some metal shutters remain, as does original door. Considerable amount of silt on floor.  
Set against rock face. Access appears to have been between PB and LL at back.

Obs. tower intact, metal frame, no shutters. No rooftop airducts although vent holes in roof. Remains of duct in one place.  
Front loophole areas scalloped, ground to roof.

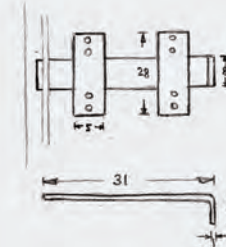
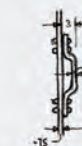
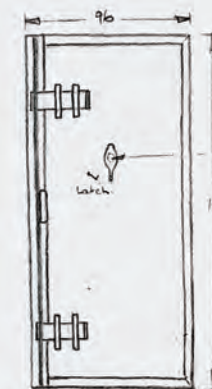
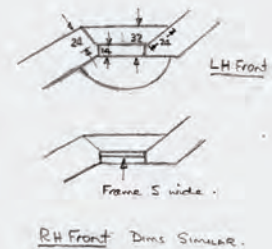
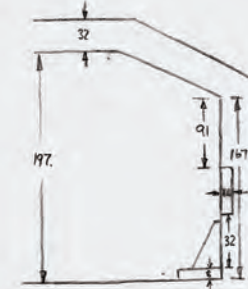
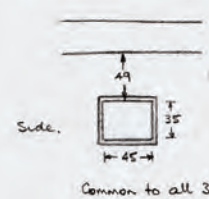
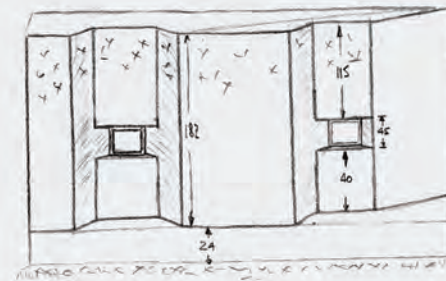
This PB has a pipe similar to that seen on LL shelters, apparently original, ~~purpose unknown~~. Goes through back wall into main area, at roof level although now hanging loose.

Loopholes set unusually low in front wall. The 'water tank' on interior back wall does not have usual support wall on both sides.  
Some 'glob' render and rock/stones still attached in a few places along front wall.

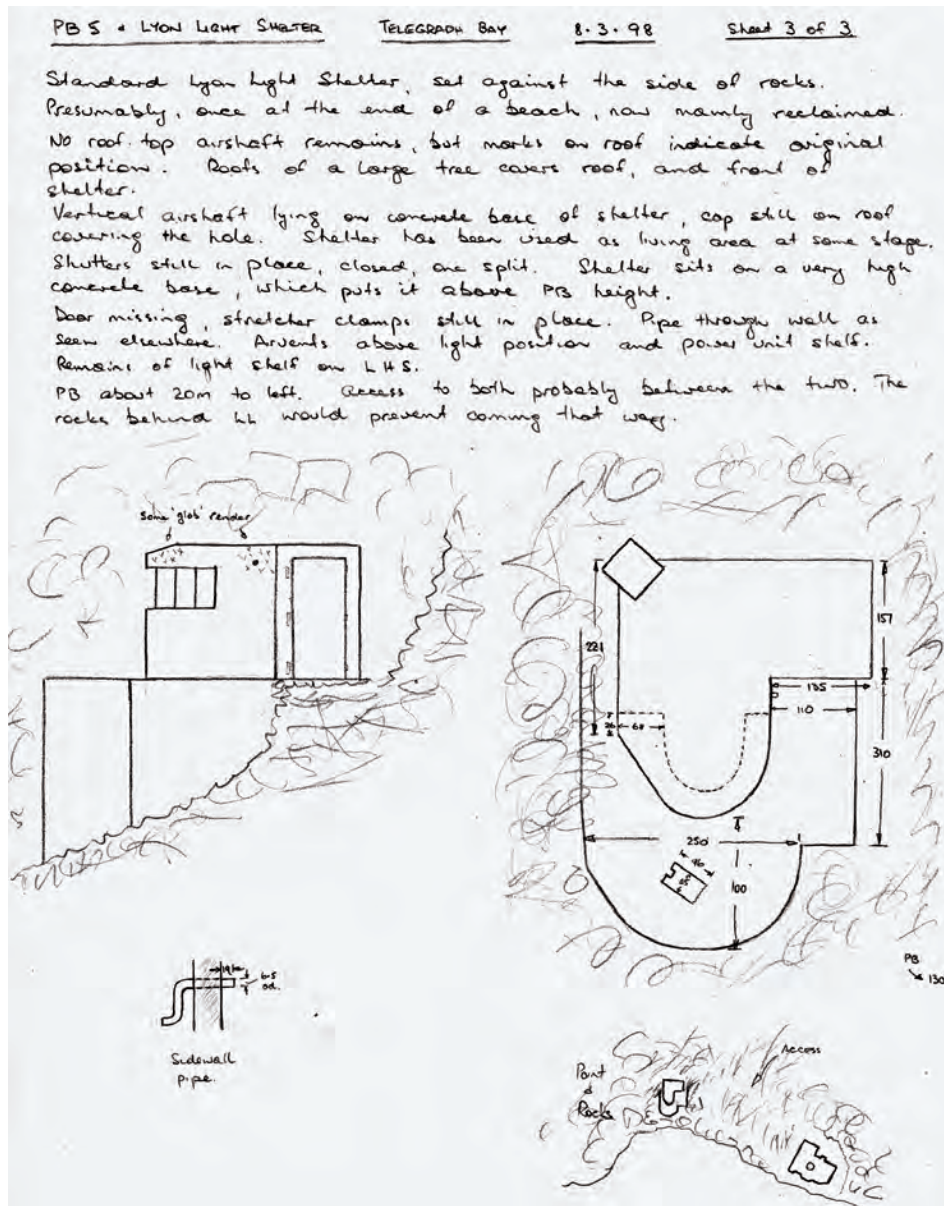
Both PB & Lyon Light Shelter demolished 2001/2002 during construction of 'CRABPARK'.



PB 5 + Lyon Light Shelter Telegraph Bay 8.3.98 Sheet 2 of 3







**YEAR SURVEYED: 1998 (March)**

## NOTES

Both PB5 and LL5 were demolished in late 2001 for the building of Cyberport Road.



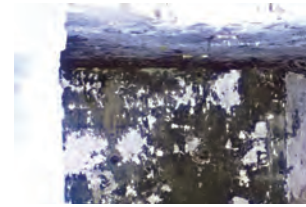
PB5 (March 1999)



Right side wall of PB5 with a loophole (March 1998)



View of PB5 from the hillside behind it (March 1998)



Inside view of PB5 (March 1998)



Exterior view of the left side of PB5 (March 1998)



Inside view of PB5 showing a loophole, a MG mount below it and the speaking tube (March 1998)



Entrance of LL5 (March 1998)



LL5 looking from above and behind (March 1998)



Inside view of LL5 showing its shutters closed. Note the speaking tube which connects to rear of PB 5 (March 1998)



Entrance of PB5 (March 1998)



View of the steel door of PB5 (March 1998)

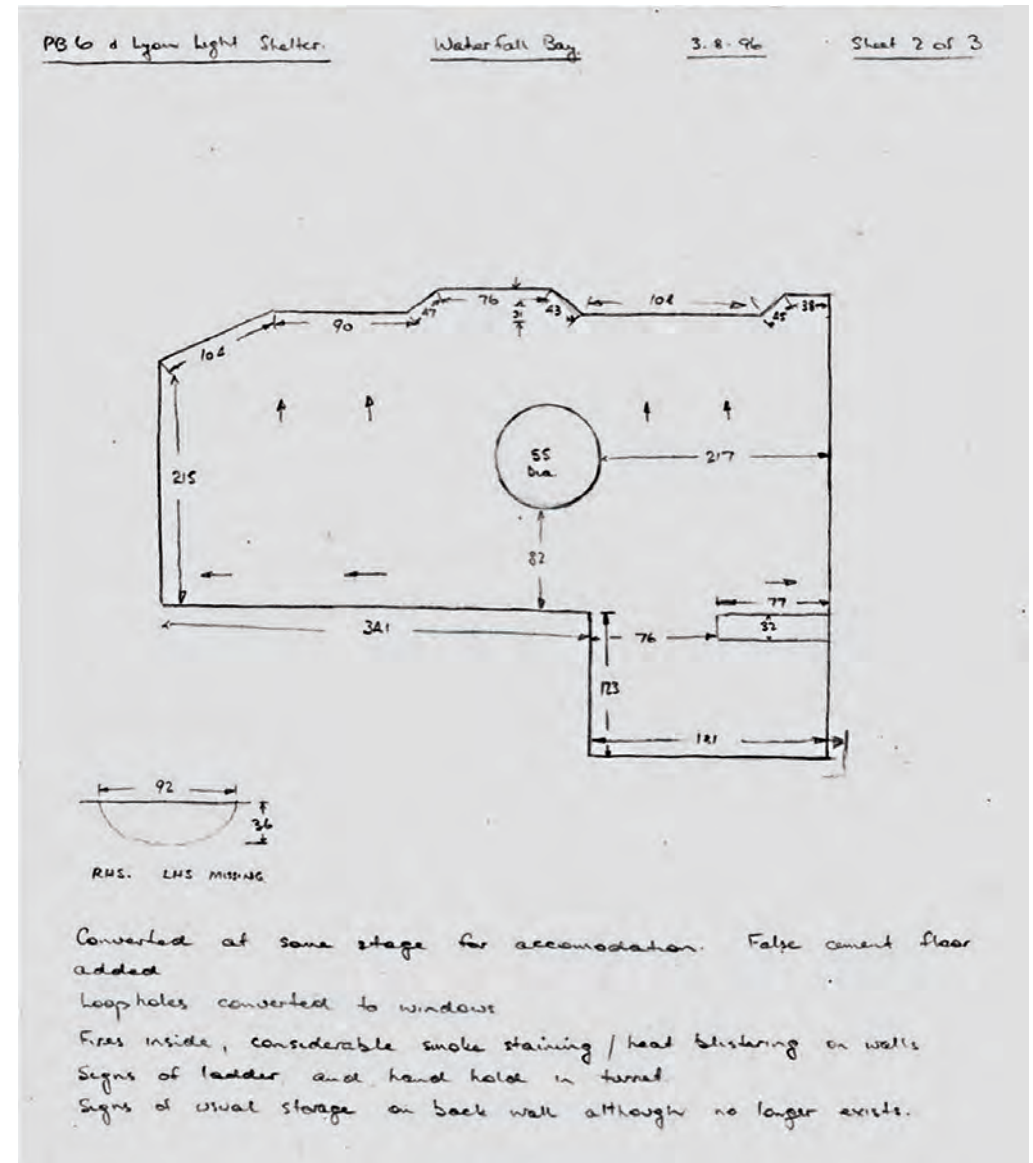
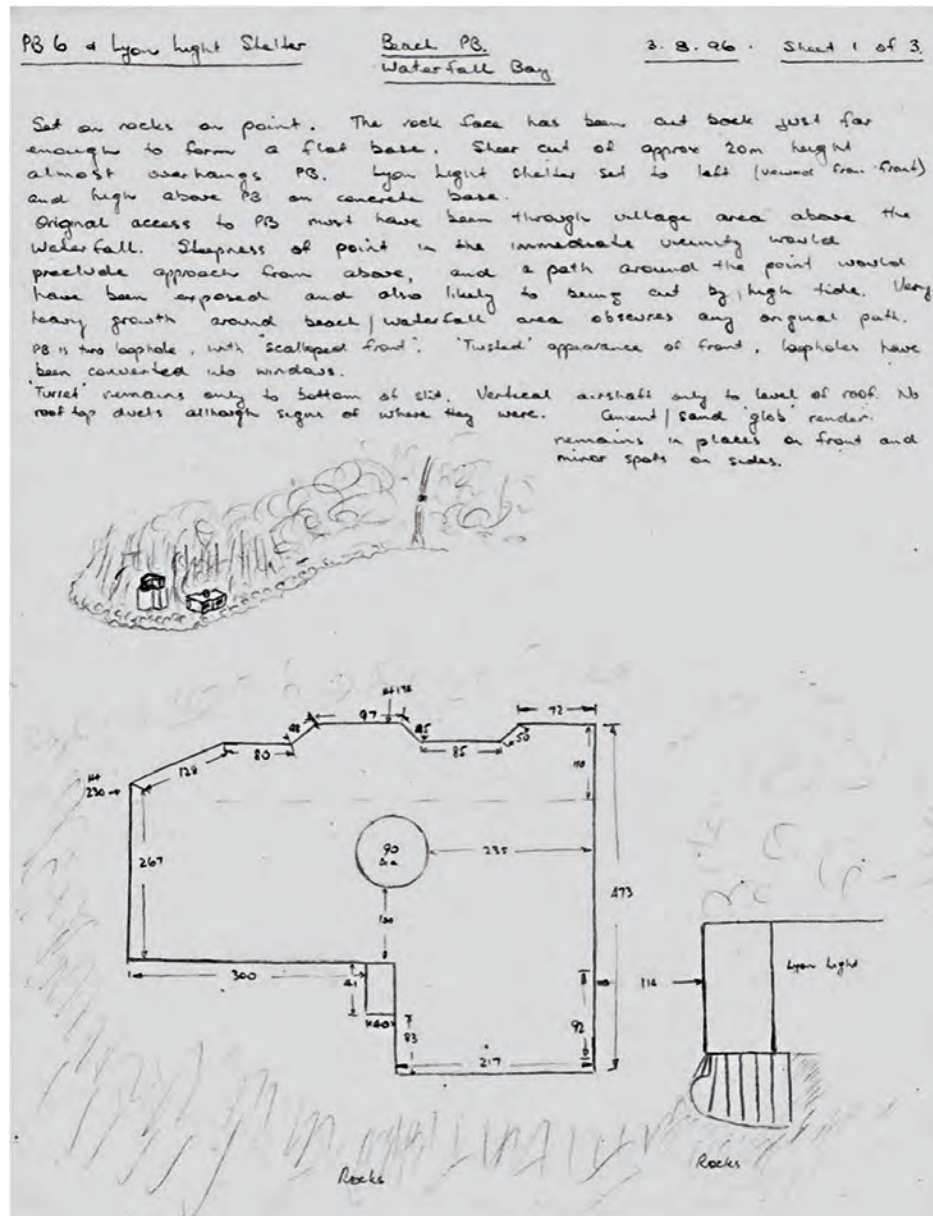


Close up of the same loophole of PB5 (March 1998)

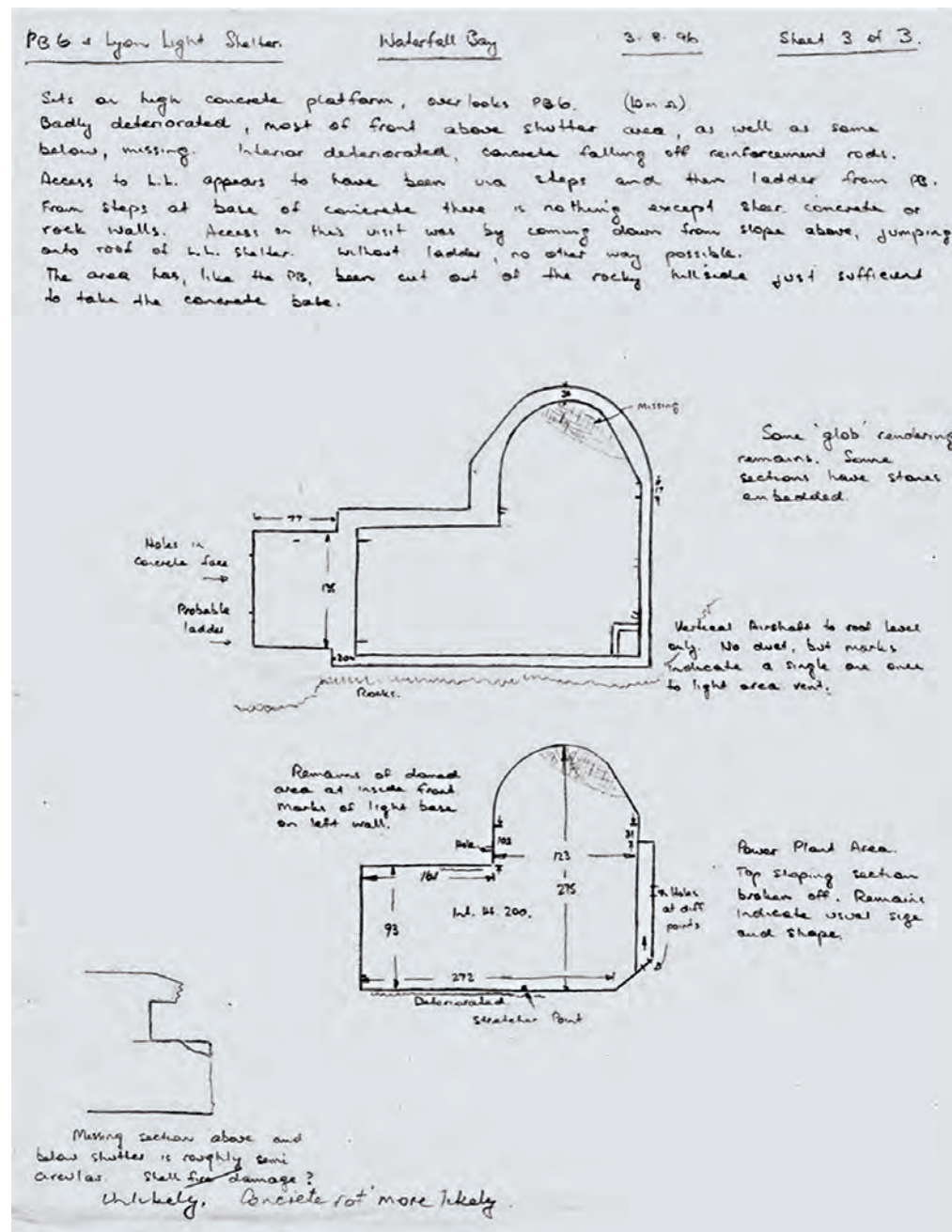


**PB NO.: 6 LOCATION: Waterfall Bay**

## Sketch







LL6 and PB6 at Waterfall Bay during a high tide (August 1996)



Looking down to roof of PB6 from LL6 (August 1996)



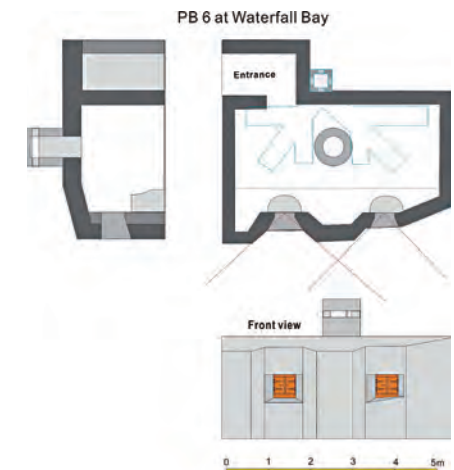
Probable position of steel ladder for access between PB and LL (August 1996)

## NOTES

Changes around the loopholes probably from squatters. Deteriorated concrete has caused considerable damage to LL Shelter.



LL6 on a high base (August 1996)



MEASURED DRAWINGS OF PB6 BY YK TAN

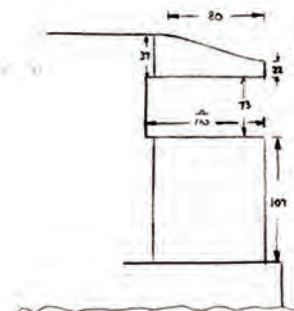
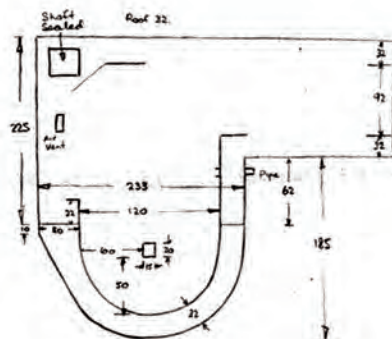


**PB NO.: 8 LOCATION: Tin Wan**

Sketch

Low Light Shelter PB9 Aberdeen Pkwa 1.1.98 Sheet 1 of 2

Probably associated with PB 8 (not found)  
At base of cliff, and beside modern road. In midst of old squatter area. Shelter has been converted into living quarters, and an additional section added around entrance.  
Reasonable condition, most of shelter area blanketed in, no sign of airshaft or roof ducts. Stone rambling above shelter area and entrance area, with signs of same on various walls. Usual airvents (2) inside of shelter filled with rubbish to level of shutters.  
No sign of PB. Area overgrown and a large earthlip has occurred in area to left of shelter.



In 2008, from photo's, this is almost certainly PB 9 1959 aerial photo shows a PB+LL in this position with the PB to the E on the water's edge. This area now reclaimed for roadways and buildings.

Cliff

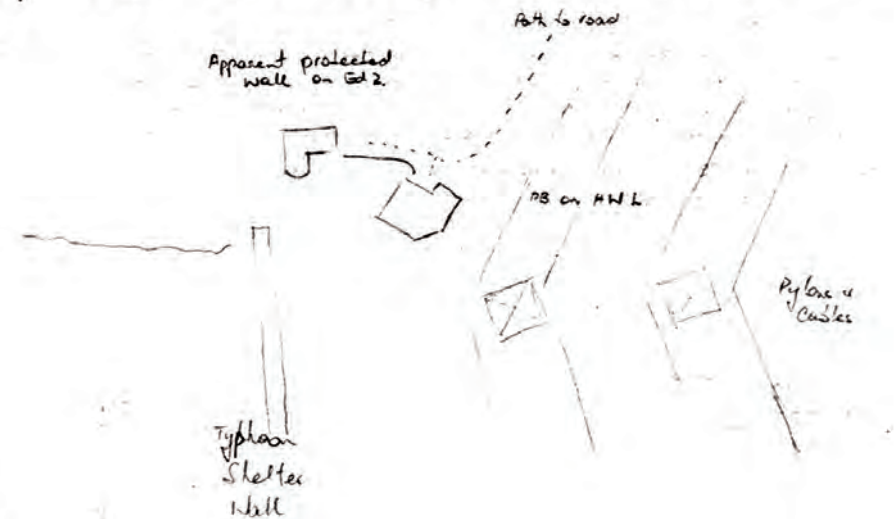


Large landlip.

Continued over.

Aug 2013

Maps 212 SE 16 Ed 1 1966 and Ed 2 1977 show both PB and LL.



Ed 3 1974 does not show PB, LL still shown.

**YEAR SURVEYED: 1998 (January)**



LL8 (January 2008)



The site of LL8 (January 2008)

## NOTES

PB8 was demolished around late 1970s. LL8 and parts of the protective wall remain.

**PB NO.: 14 LOCATION: Brick Hill**

## Sketch

PB 14 Beach Hill Beach 17.4.06 Sheet 1 of 3

Historical interest because of known lighting to PB. 12.1.1958 1st  
At southern end of small beach on eastern side of Brick Hill, adjacent  
to buildings of Ocean Park.

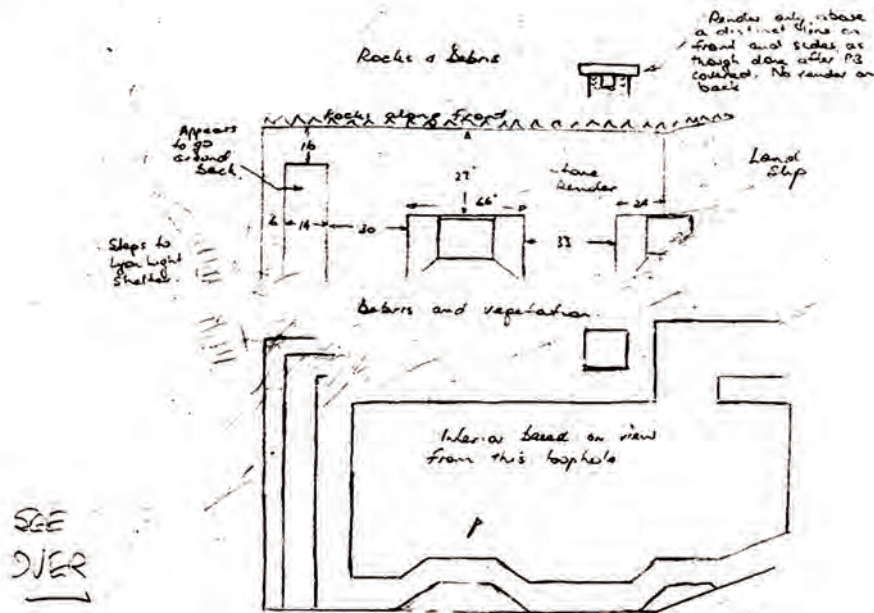
Steep slope behind, however access along beach from SWB 0d easy.

PB is mostly covered by a landslip from left back, which covers  
entry and most of roof. The vertical airstair is still in position,  
with cap in place, but commander's tower is missing.

Earth, debris and vegetation up to the bottom of the right loophole,  
which is open, at front. Left loophole partially blocked by the slip.  
Interior indicates it has been used as squatter's hut, and contains  
much rubbish. Back wall fire-blackened, but more likely from  
recent occupants.

Some chipping on one interior wall could be from shrapnel. There is  
no obvious battle damage on the visible exterior walls.

This PB varies from others found in that it has what amounts to  
an air tunnel down the right side, which may extend around the  
back. Cannot be determined if similar on left.



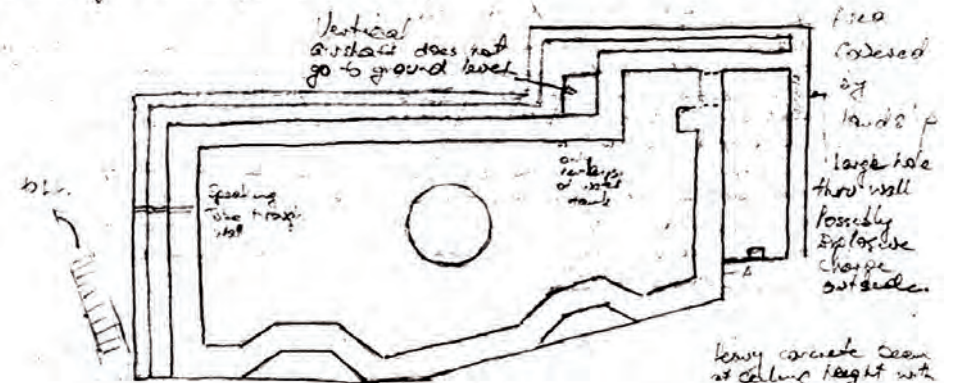
YEAR SURVEYED 2006 (April)

Sheet 2 of 3

Nov 2012.

Interior recessed as a result of gopher cleaning some  
sand from front although fallen trees and other vegetation  
still make for difficult movement.

This PB is different to any other visited in that there is the  
surrounding airstair but also an extended entry area extending  
to around the front of the left side. All this area is  
covered by landslip so cannot be accessed from outside.



This side entrance similar to  
PB25 except opposite side of PB.  
On that PB it obviously extends  
to the front of PB, with frame and  
hinges for metal door. Similar  
air vent which extends through  
roof.



PB 14    Beach Hill    Beach    17.1.06    Sheet 3 of 3

Lyon Light Shelter.

Sits above, behind, and to the right of The PB. Connected to the PB by concrete steps and a chest high protective front wall of rocks. Set slightly into the side of the slope, and partly covered by vegetation.

The shelter area has been filled with rocks, leaving only a small opening as a window. The interior contains much junk and rubbish. Appears to be standard size and shape. Considerable shrapnel scarring noticeable on interior walls, particularly just behind shutter area.



Interestingly, because PB entry is on opposite side to LL Shelter, and there is no access behind because of the hillside, crew access to LL would have to be across the front of PB. Difficult enough if attackers were behind, but more so if they were landing from the sea.



Front view (2006)



Entrance (2006)



Interior view (2006)

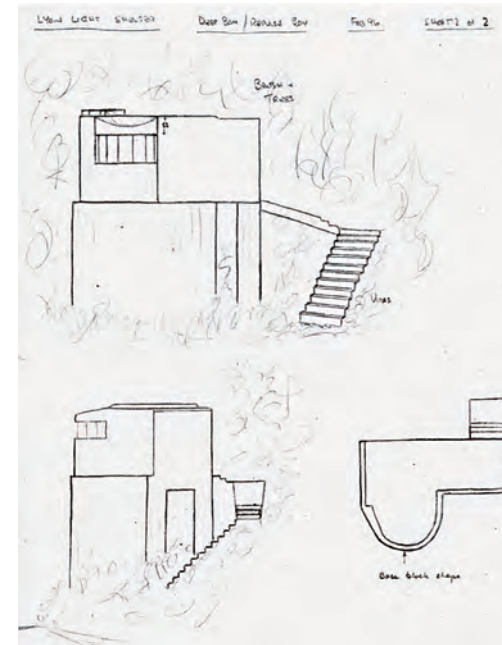
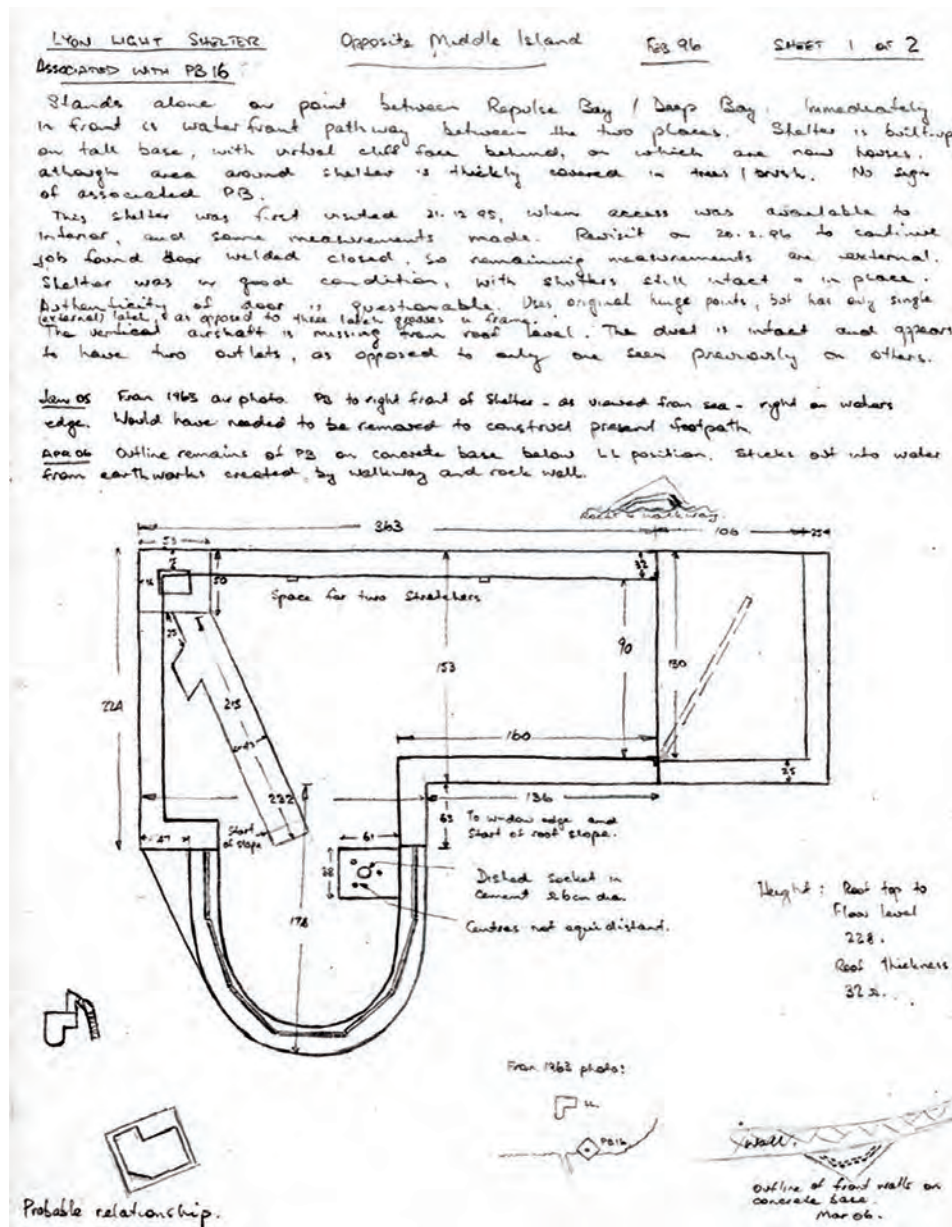


3 D Scan of PB14  
by Y K Tan, March 2021



**LL NO.: 16**      **LOCATION:** East of Deep Water Bay

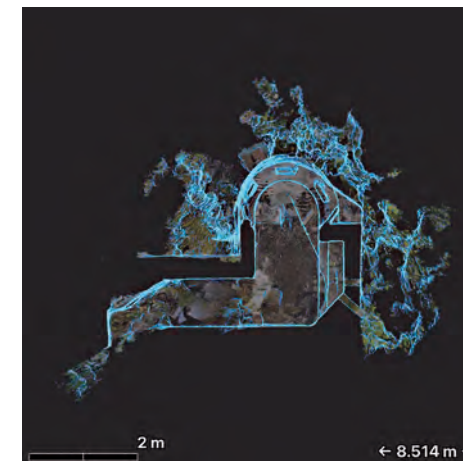
### Sketch



**YEAR SURVEYED: 1996**



Front and side view (1996)



**3 D Scan of LL16**  
by Y K Tan, October 2022

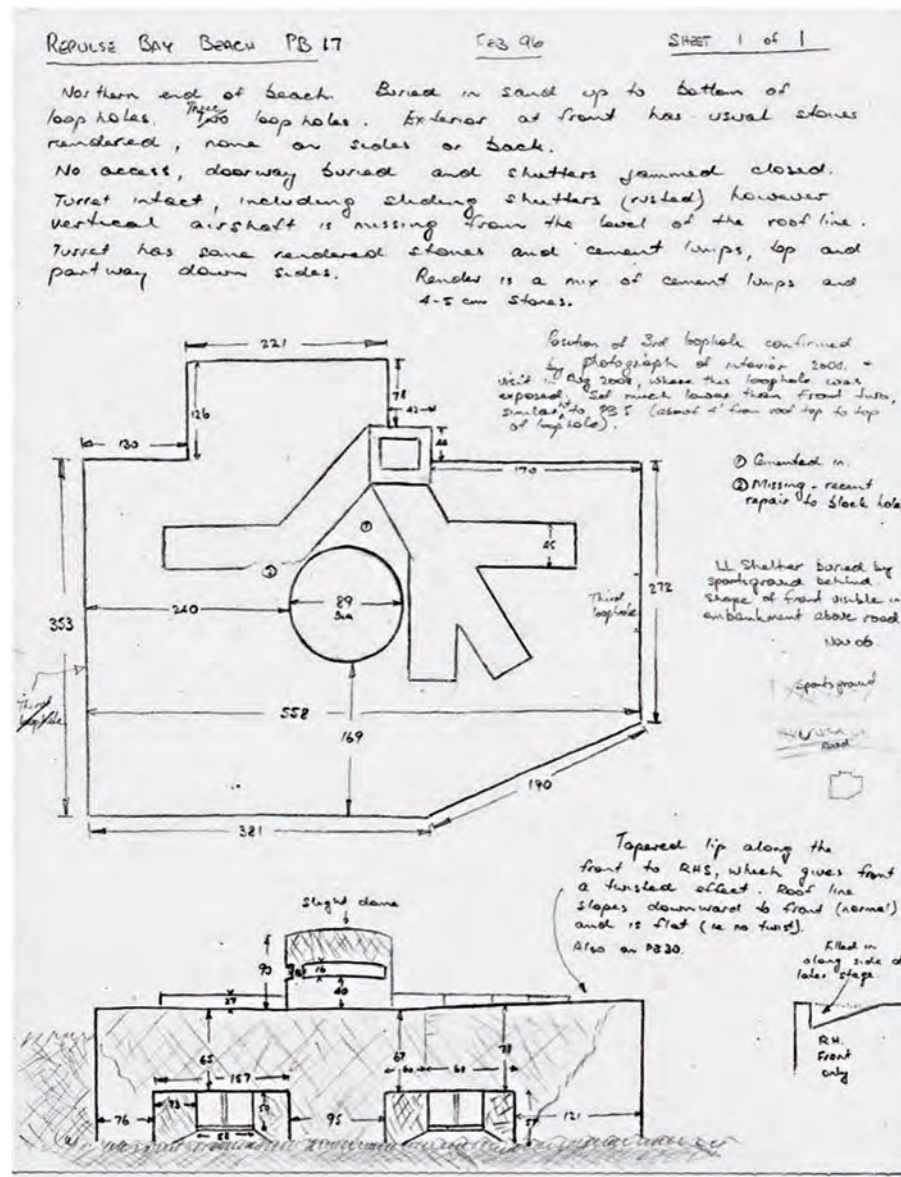
## NOTES

PB16 was demolished for the building of Seaview Promenade.



**PB NO.: 17 LOCATION: Repulse Bay**

Sketch



YEAR SURVEYED: 1996 (February)



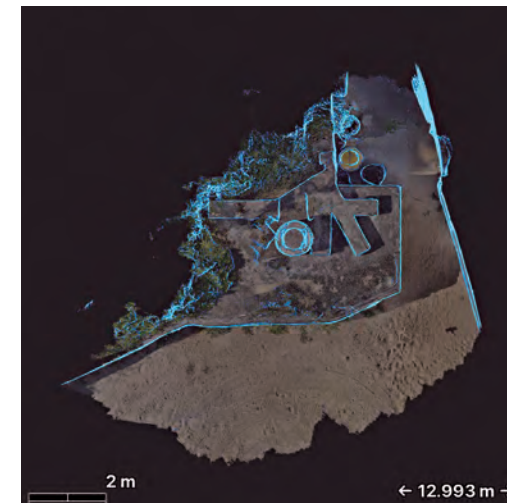
PB17 (February 1996)



PB17 (August 2003)



PB17 (August 2003)

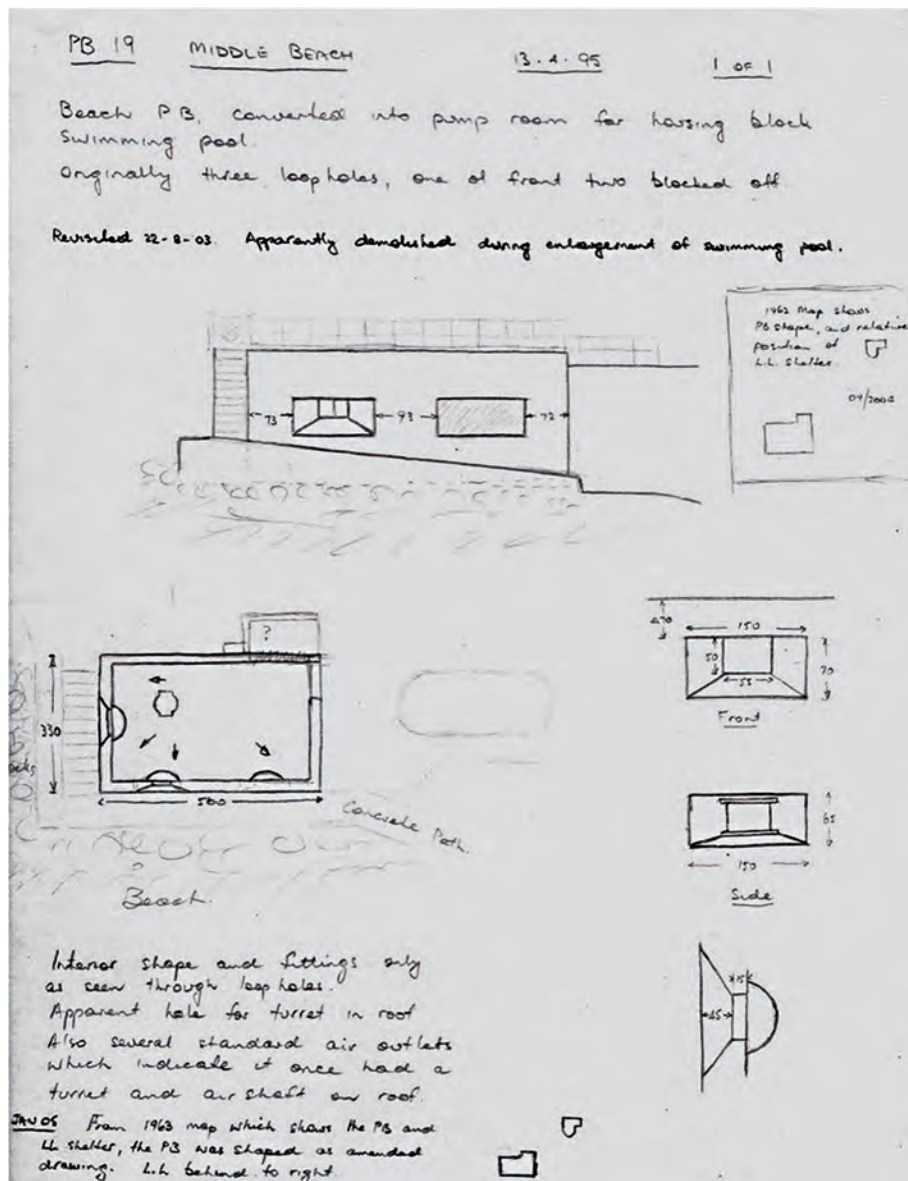


3 D Scan of PB17  
by Y.K. Tan, October 2022



**PB NO.: 19**      **LOCATION:** Middle Bay

Sketch



**YEAR SURVEYED: 1995 (April)**



PB19 (December 1997)



PB19 site (August 2003)

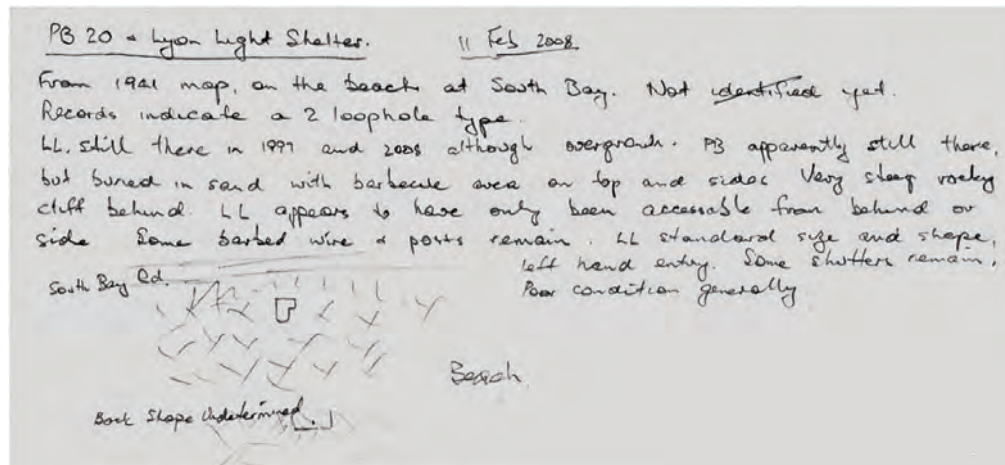
## NOTES

The site of PB19 and LL19 is now inside Nos 16 & 18 South Bay Road. Both structures were demolished around 2000.



**LL NO.: 20 LOCATION: South Bay**

### Sketch



**YEAR SURVEYED: 2008 (February)**



LL20 (February 2008)



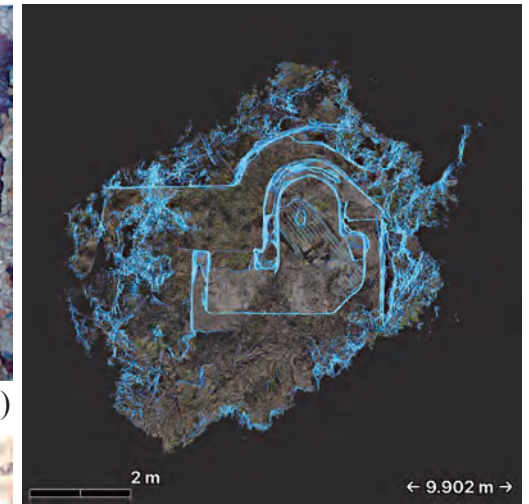
LL20 (February 2008)



Interior view of LL20 (February 2008)



Remains of a barbed wire stand (February 2008)



3 D Scan of LL20 by Y K Tan, November 2022

### NOTES

PB20 was demolished and no remains can be spotted now. The area with bricks in the photo above might be the site of the PB.

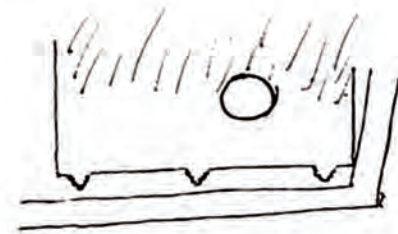
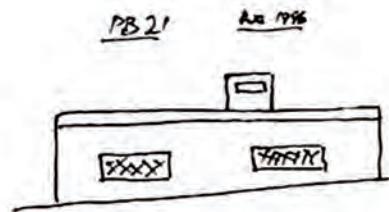


Possibly location of PB 20 (February 2008)



**PB NO.: 21**      **LOCATION:** West Bay (Chung Hom Kok Beach)

Sketch



Map 1:600 248 NW3 1968  
Aerial photo some year shows the same shape.

Concrete drain in front and side.  
Top covered with debris, branches and rubbish,  
no entry visible.

No LL shelter but concrete debris in the  
approximate area shown on map.

I measured this at roughly 50cm side to side. Most  
two loophole types are about 18cm which converts  
to about 54cm, so not noticeably narrower.



PB 21 (March 1996)



3 D Scan of PB21  
by Y K Tan, October 2021

## NOTES

Lyon Light Shelter for PB 21 destroyed.

PB 21

CHUNG AM KOK MAIN BEACH

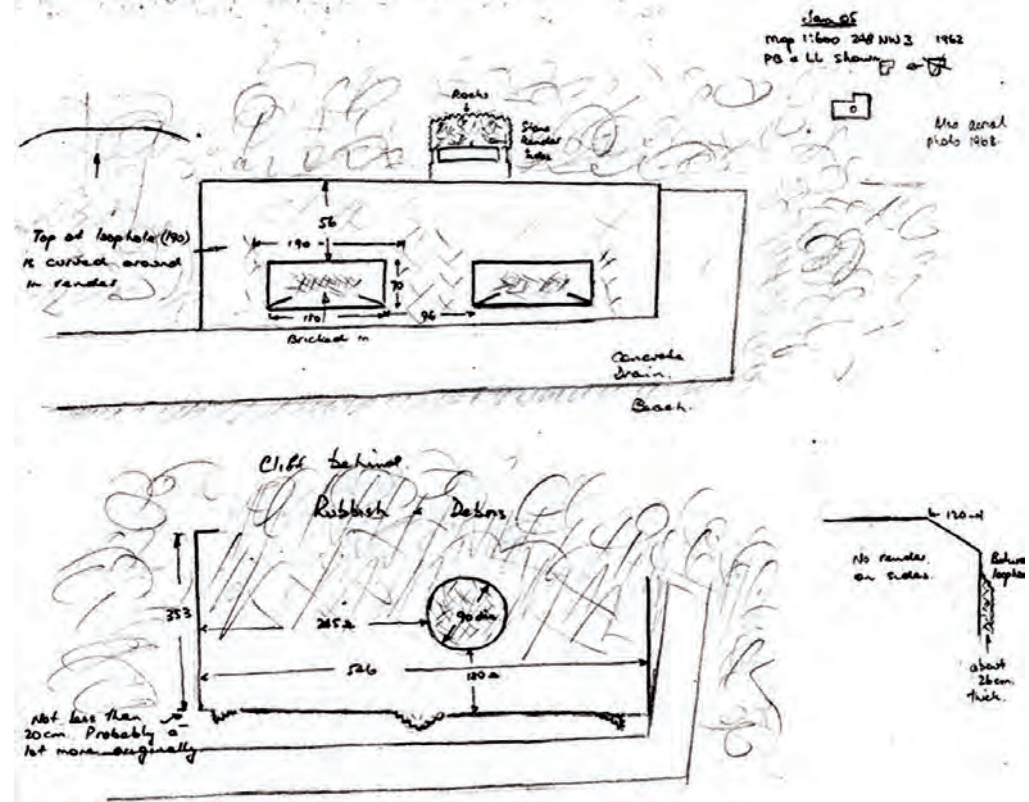
17.3.96

SHEET 1 of 1

Right hand side of beach - (facing water). At base of steep cliff.  
Two loophole, very thick stone / cement rendering at front.  
Area between loopholes has large rocks in rendering to create  
a noticeable triangular shape. This was once probably the  
same at both ends although this has broken away.

PB semi covered: a large amount of earth / sand with top covering  
of dead vegetation and assorted junk / rubbish from beach.  
This prevents access to most of top and back of PB. A large  
concrete drain runs along the front & left side, with concrete  
pierre area adjacent. The tunnel is accessible, however the  
debris prevents any views of airshafts or entry way.

No signs of LL shelter although there is a concrete base of  
something to right of PB.

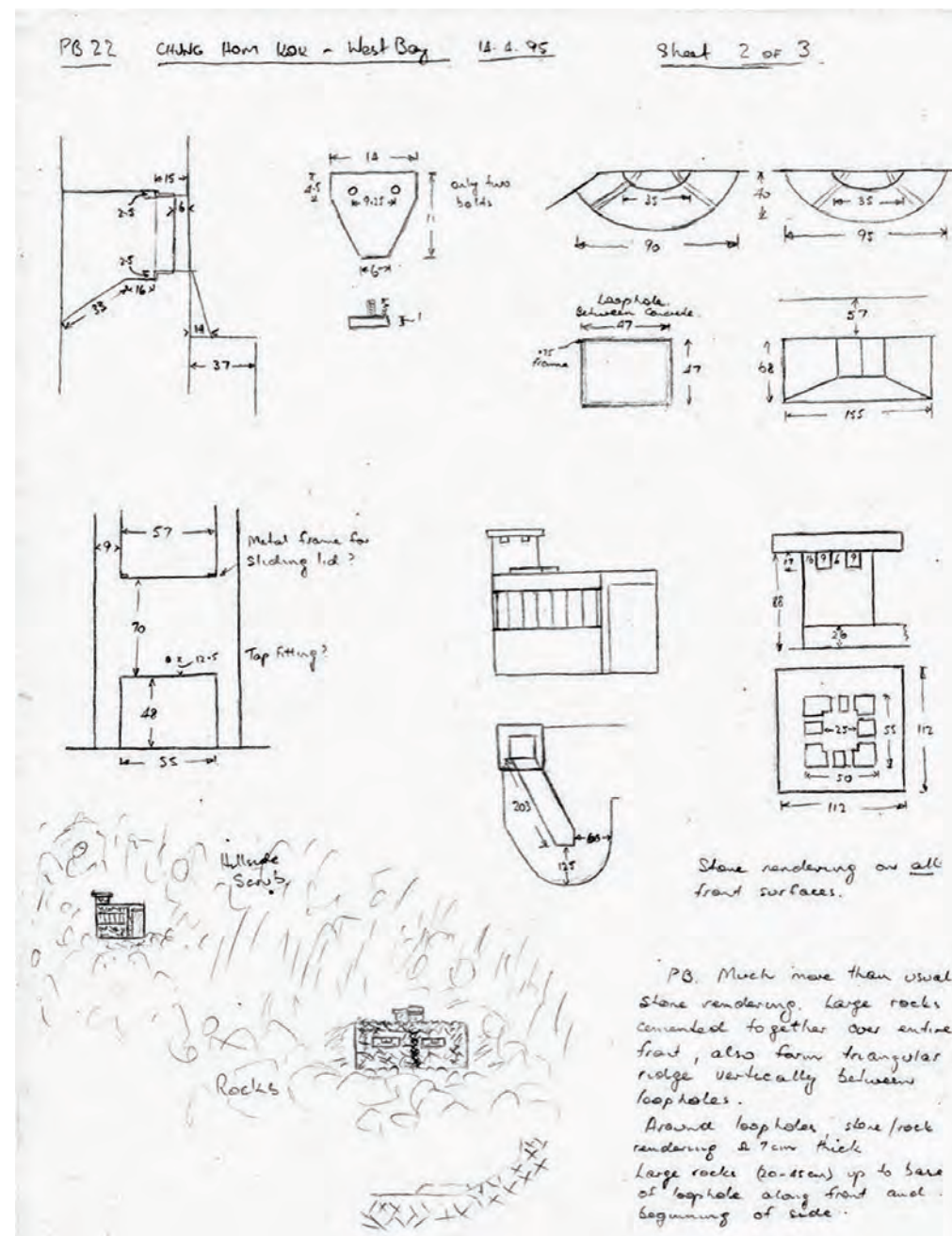
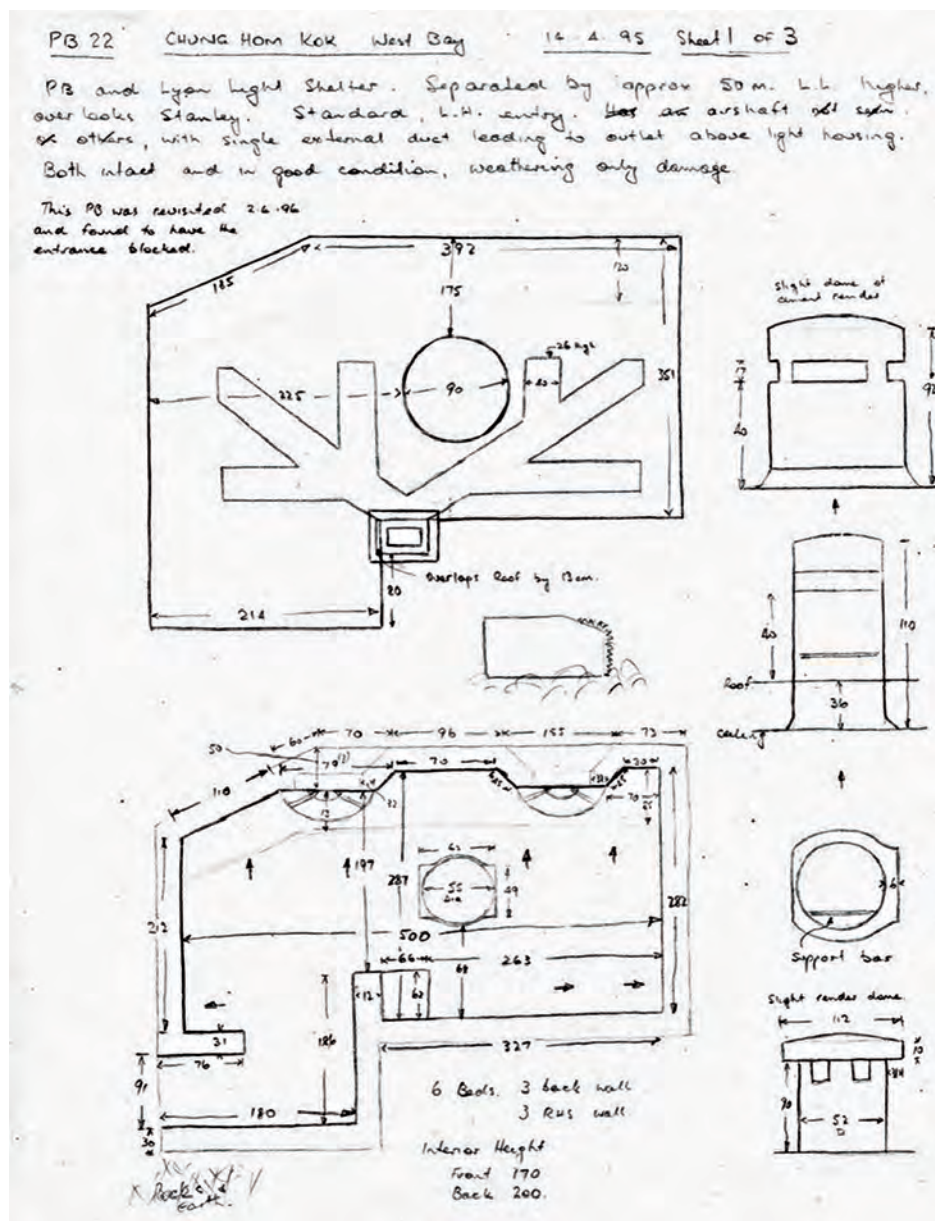


YEAR SURVEYED 1996 (August)

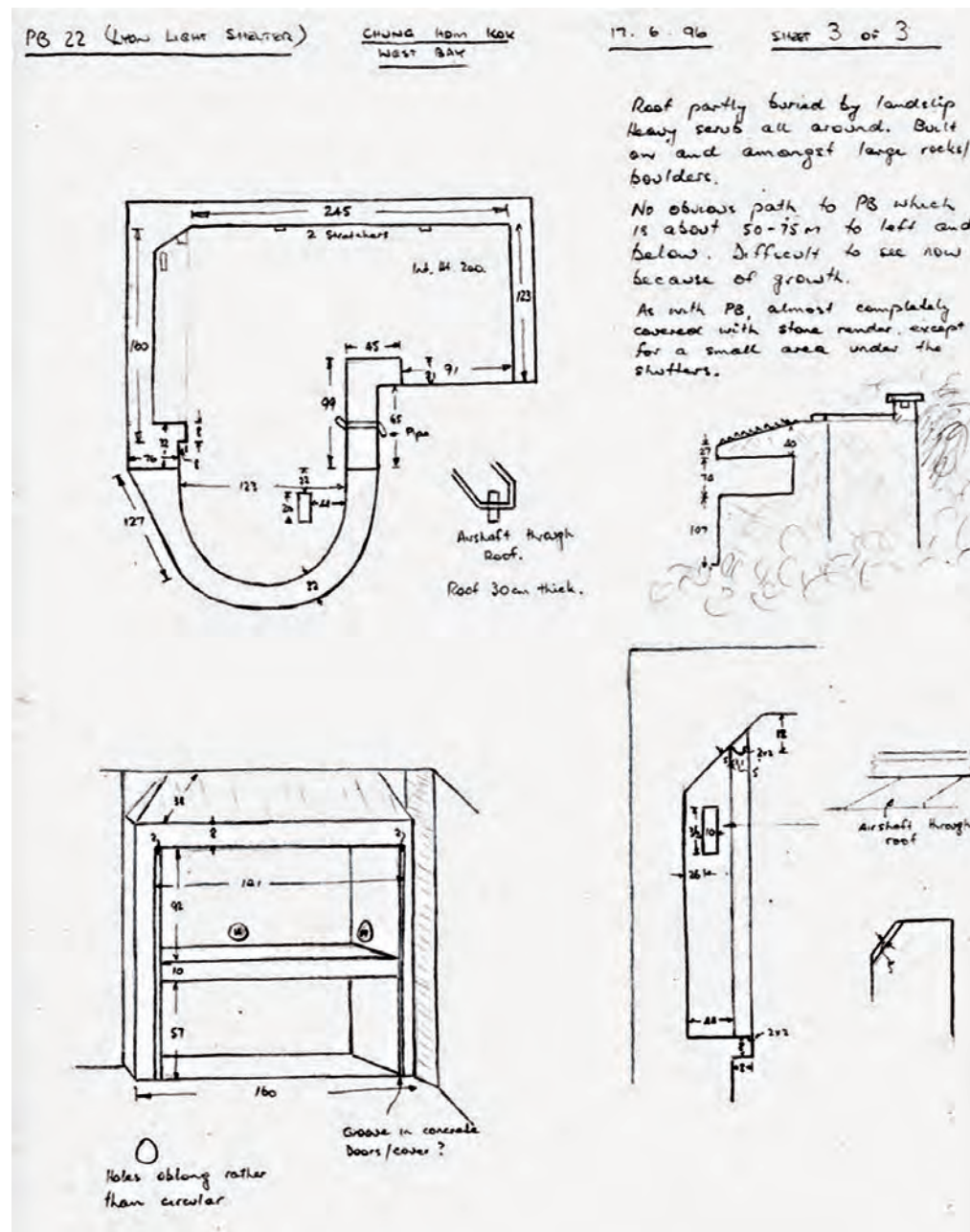


PB NO.: 22 LOCATION: Sha Shek Tan

### Sketch







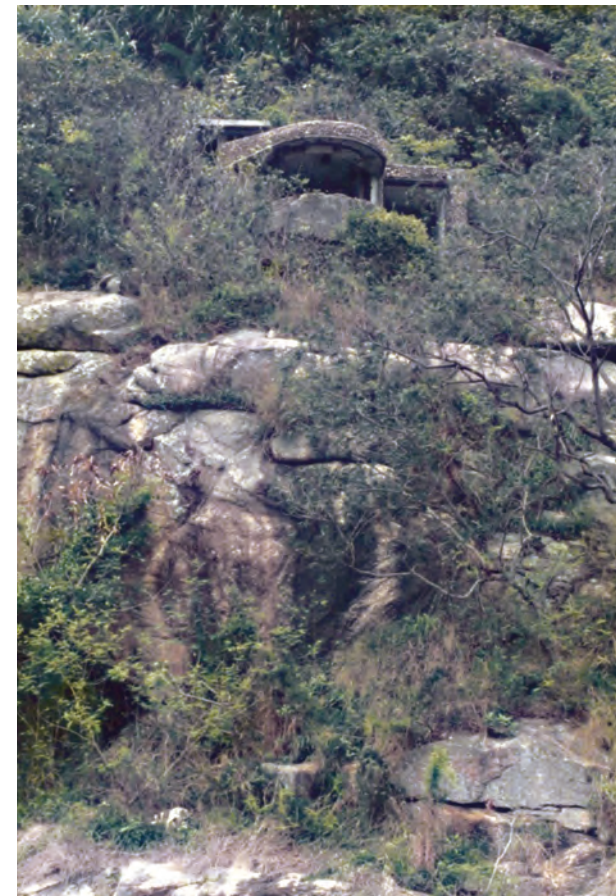
YEAR SURVEYED: 1996 (June)



PB22 and LL22 (April 1995)



PB22 (April 1995)

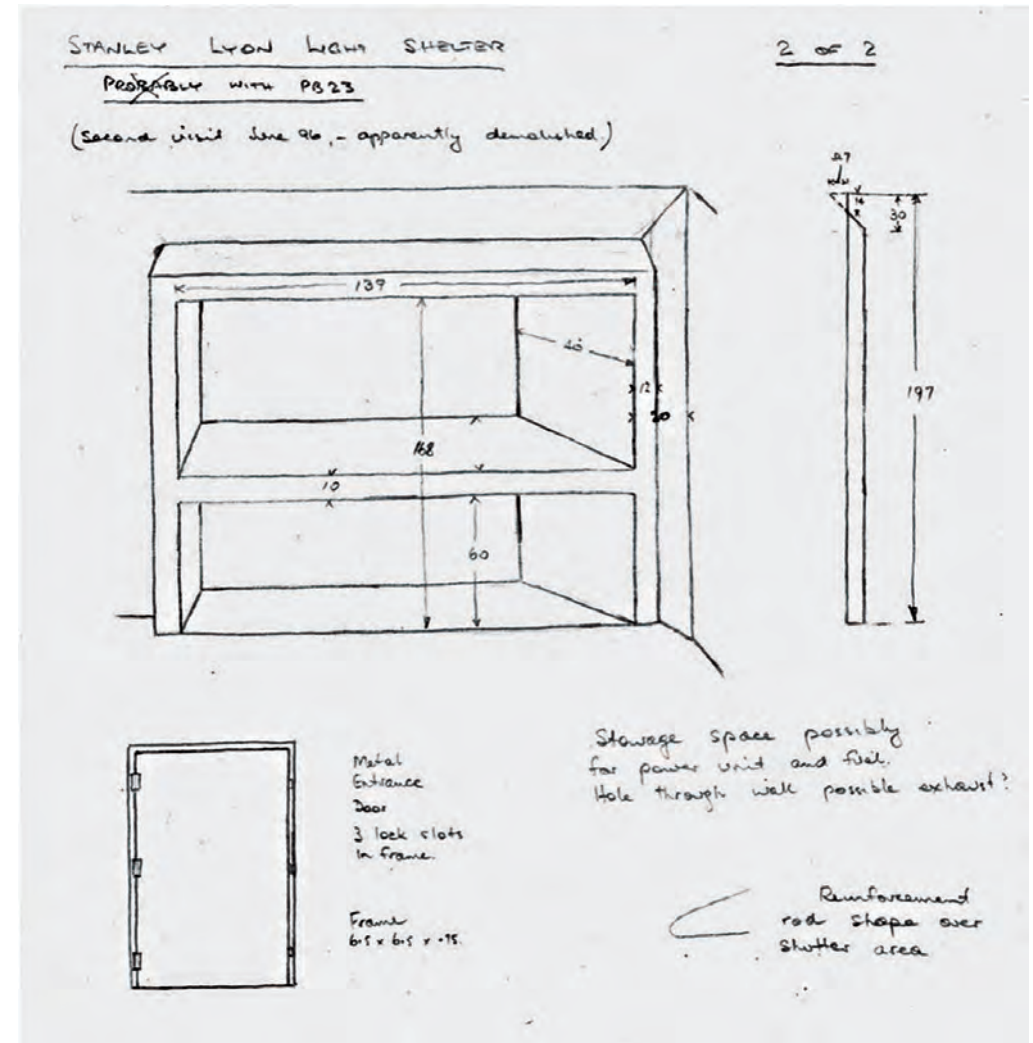
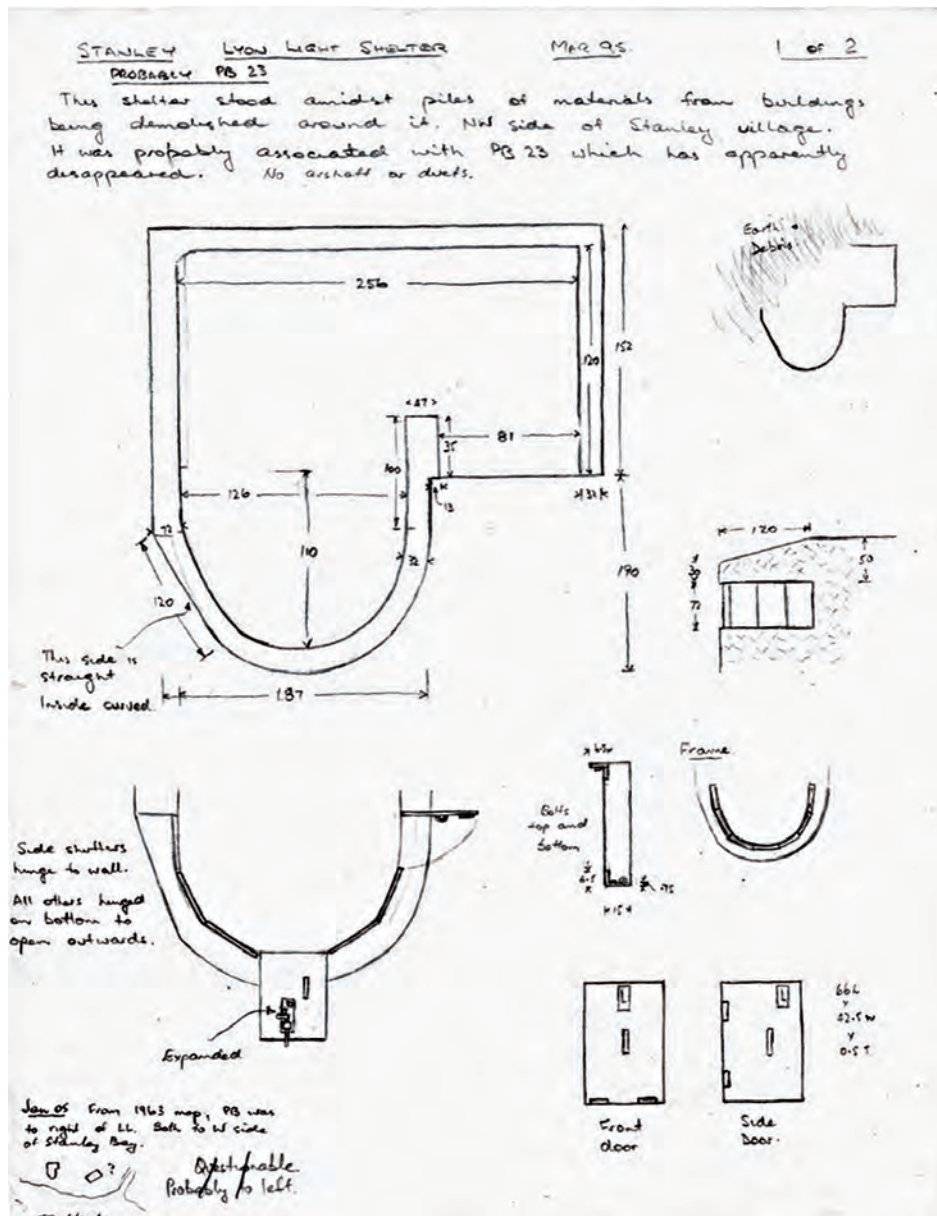


LL22 (June 1996)



LL NO.: 23 LOCATION: Ma Hang

### Sketch



**YEAR SURVEYED: 1995 (March)**

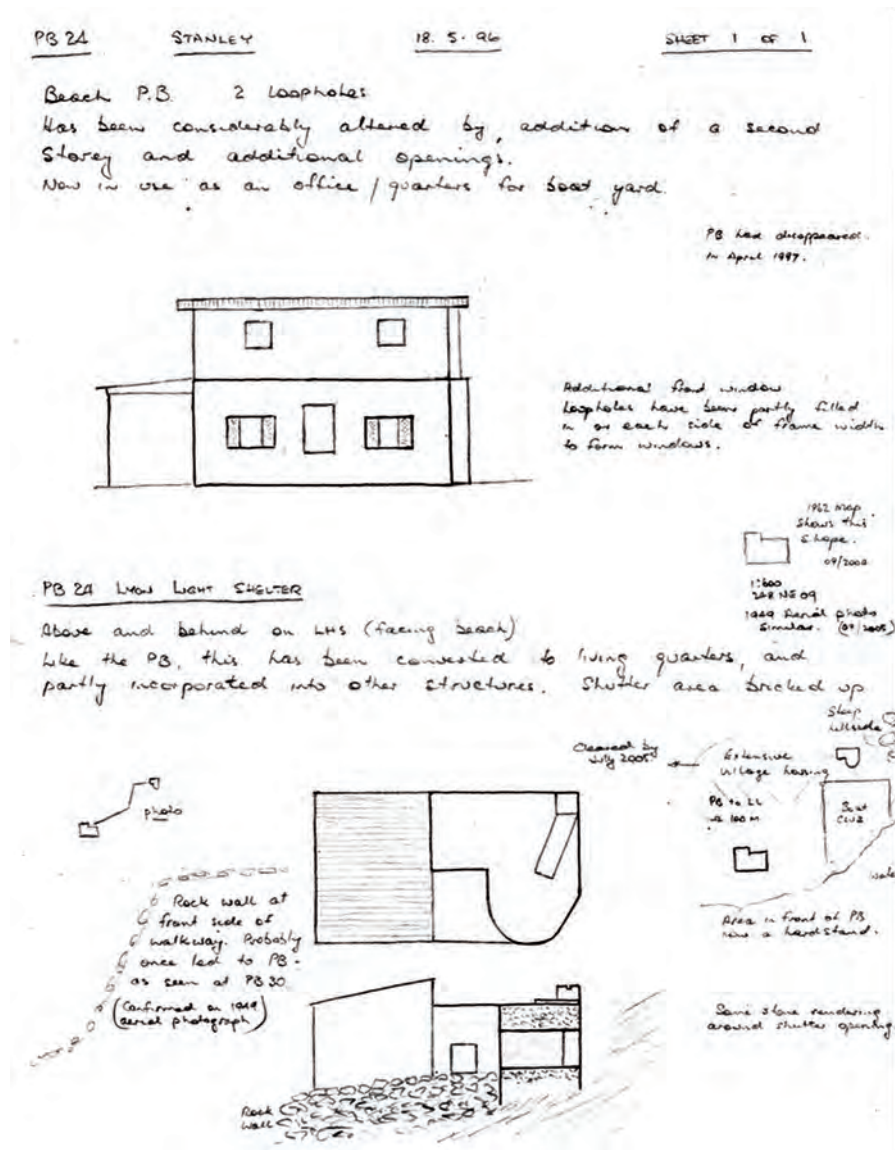
## NOTES

No remains of PB23 could be found. The LL23 was demolished after 1995.



**PB NO.: 24**    **LOCATION:** St. Stephen Beach (Tong Yan Pai)

Sketch



**YEAR SURVEYED: 1996 (May)**



PB24 was converted to a 2-storey structure inside the sea cadet center in 1996 and the whole structure was eventually demolished (May 1996)



LL24: Outside view of LL converted to a bathroom (May 1996)



Remnants of the protective wall connecting PB24 to LL24 (May 1996)

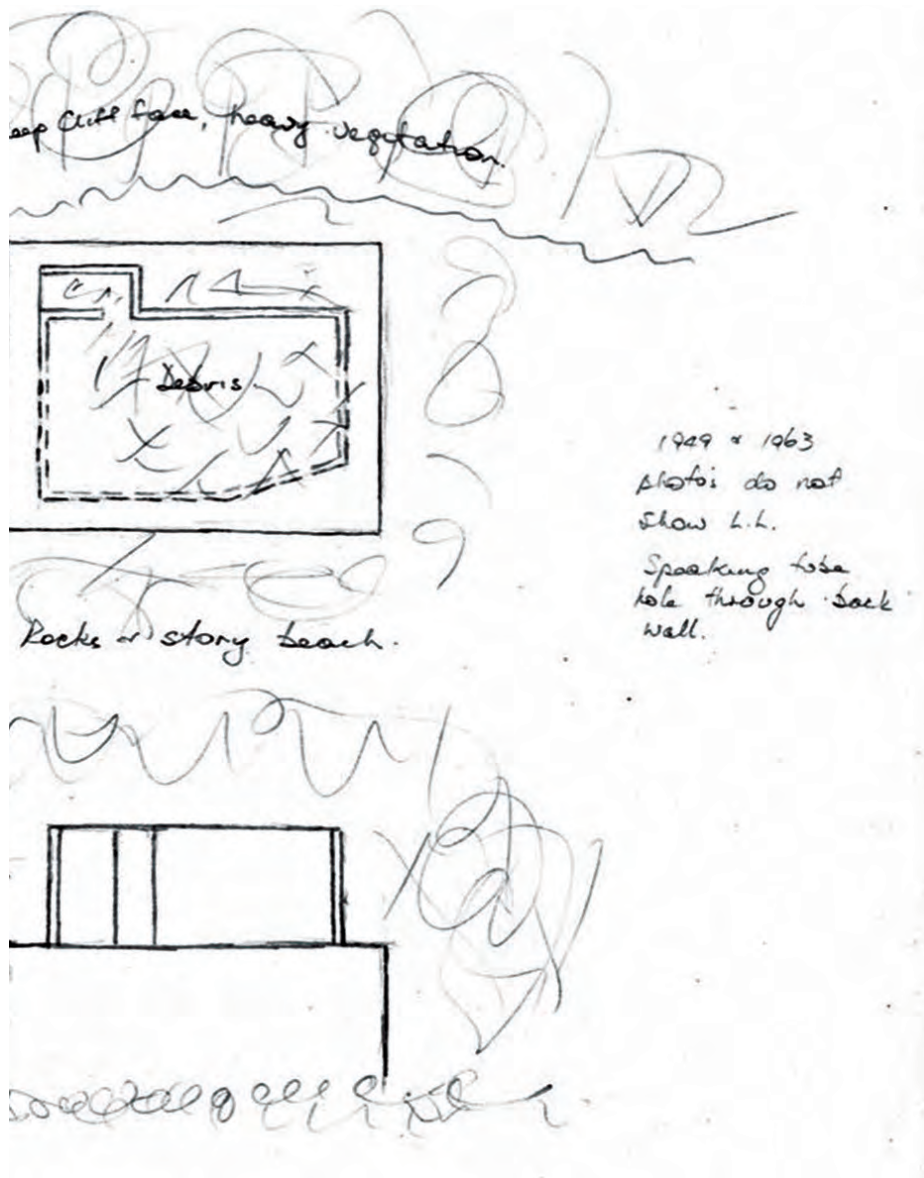
## NOTES

PB24 inside the sea cadet center was long demolished. Parts of the protective wall connecting to LL24 still survive. LL shelter, once converted into a bathroom, still exists.



**PB NO.: 27**    **LOCATION:** Stanley Prison (North)

Sketch



**YEAR SURVEYED:** 2006 (March)



Base of PB27 (March 2006)

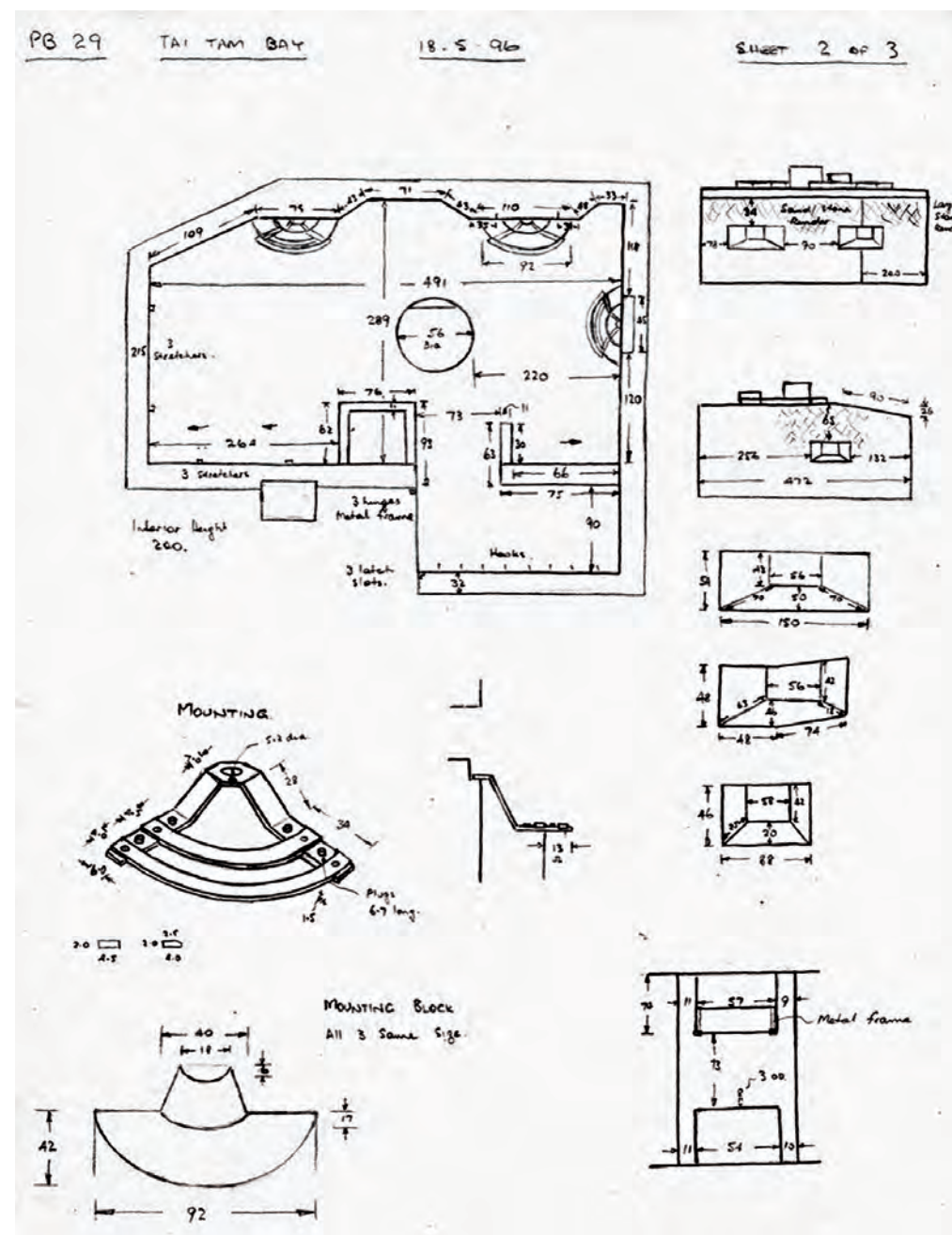
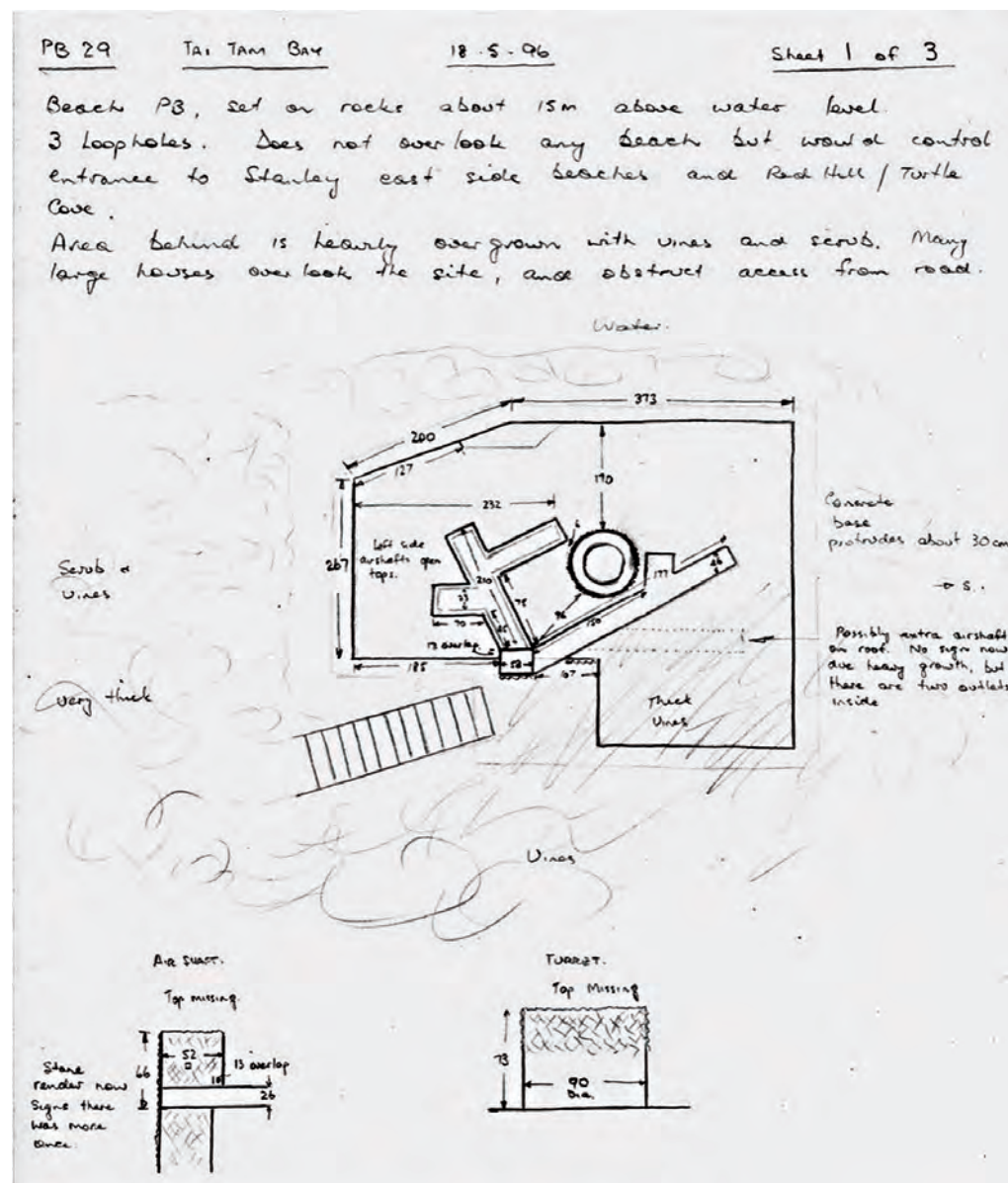
#### NOTES

PB27 was almost fully destroyed. Its base and some lower parts of its walls remain. Remains of LL27 not yet found.

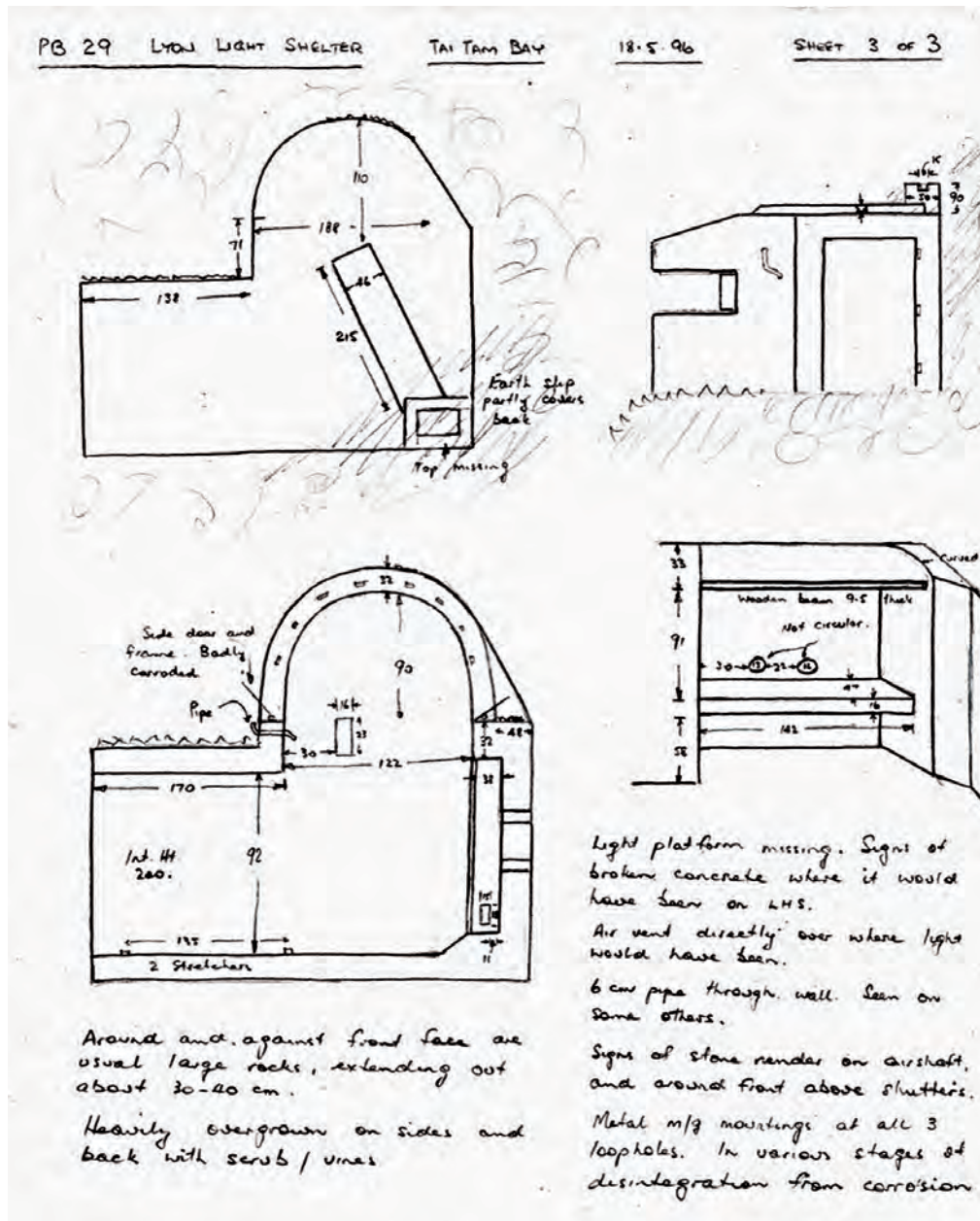


**PB NO.: 29**      **LOCATION:** Tai Tam Bay

### Sketch







YEAR SURVEYED: 1996 (May)



PB29 (May 1996)



PB29 (May 1996)



LL29 with surface camouflage paints (May 1996)

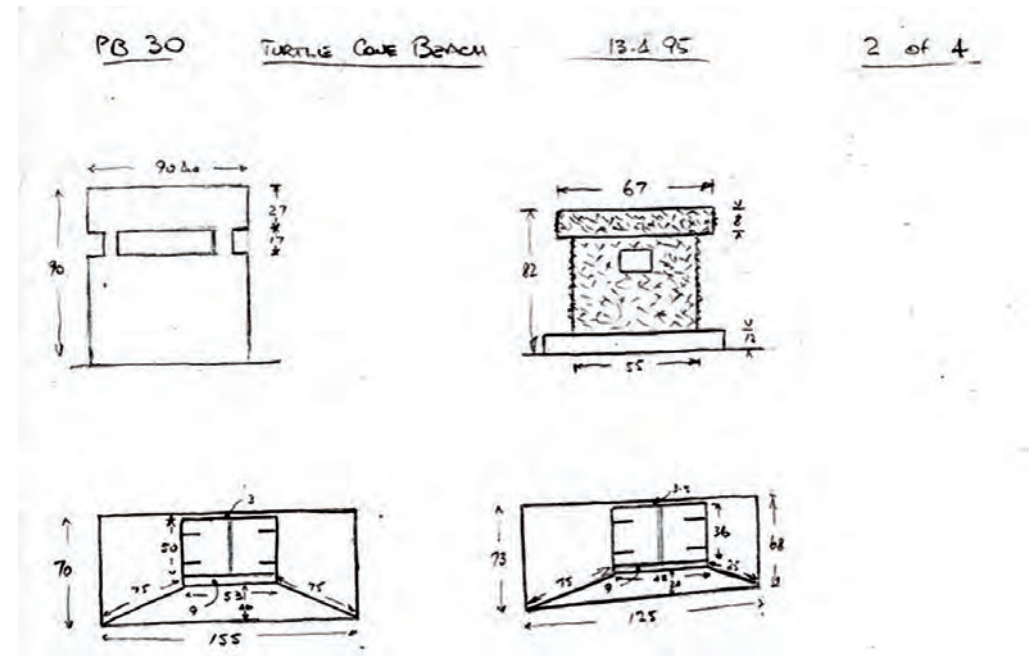
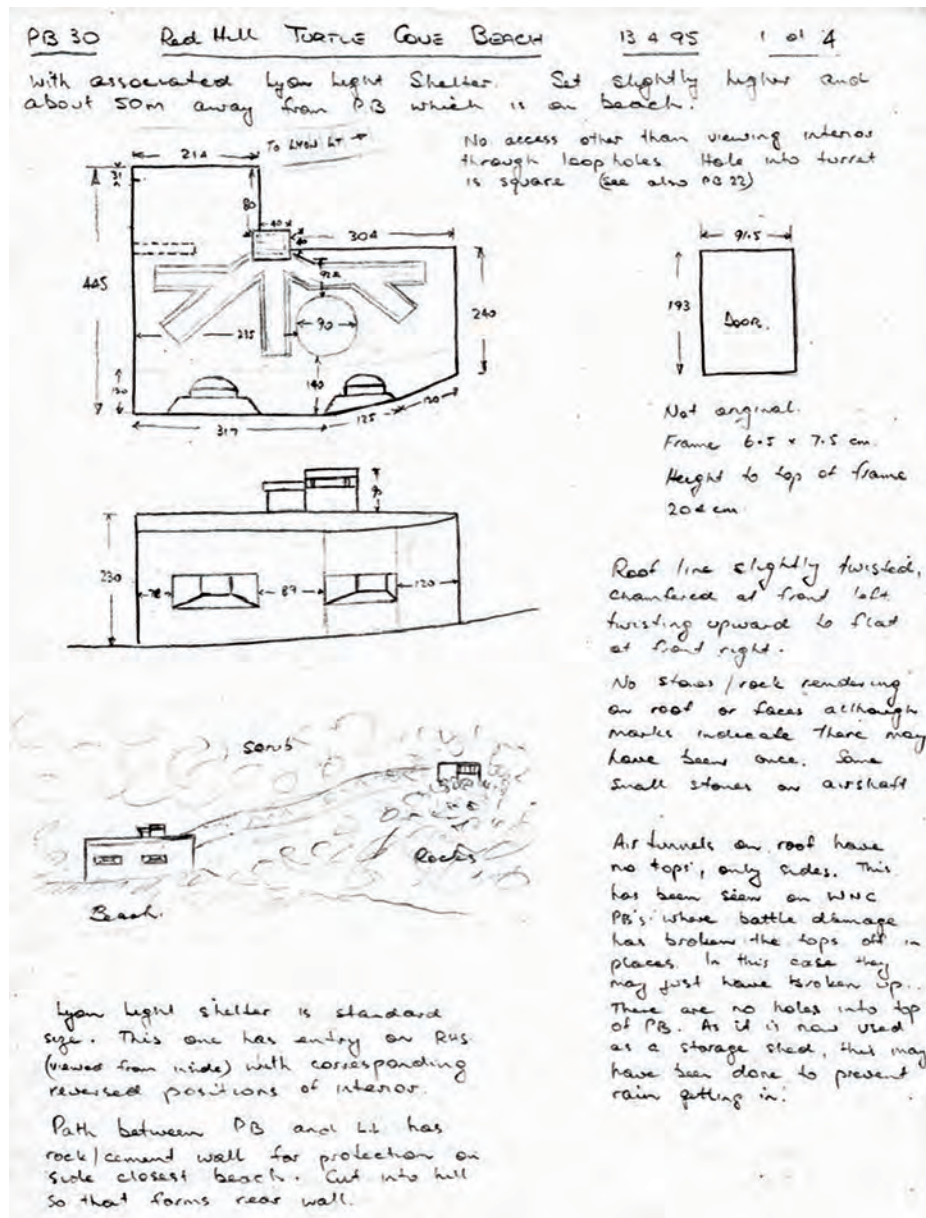


Remains of a M/G mount below a loophole of PB29 (May 1996)



PB NO.: 30 LOCATION: Turtle Cove Beach

### Sketch



**YEAR SURVEYED: 1995 (April)**




LL30 (April 1995)



PB30 (April 1995)

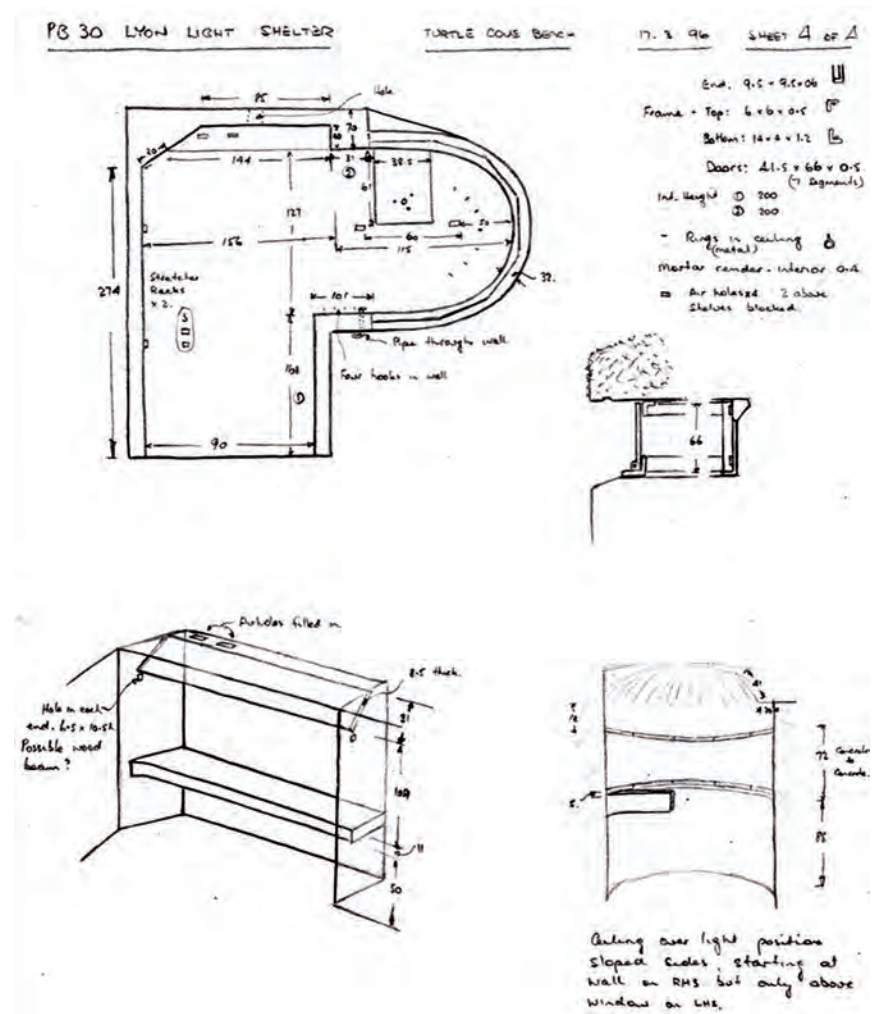
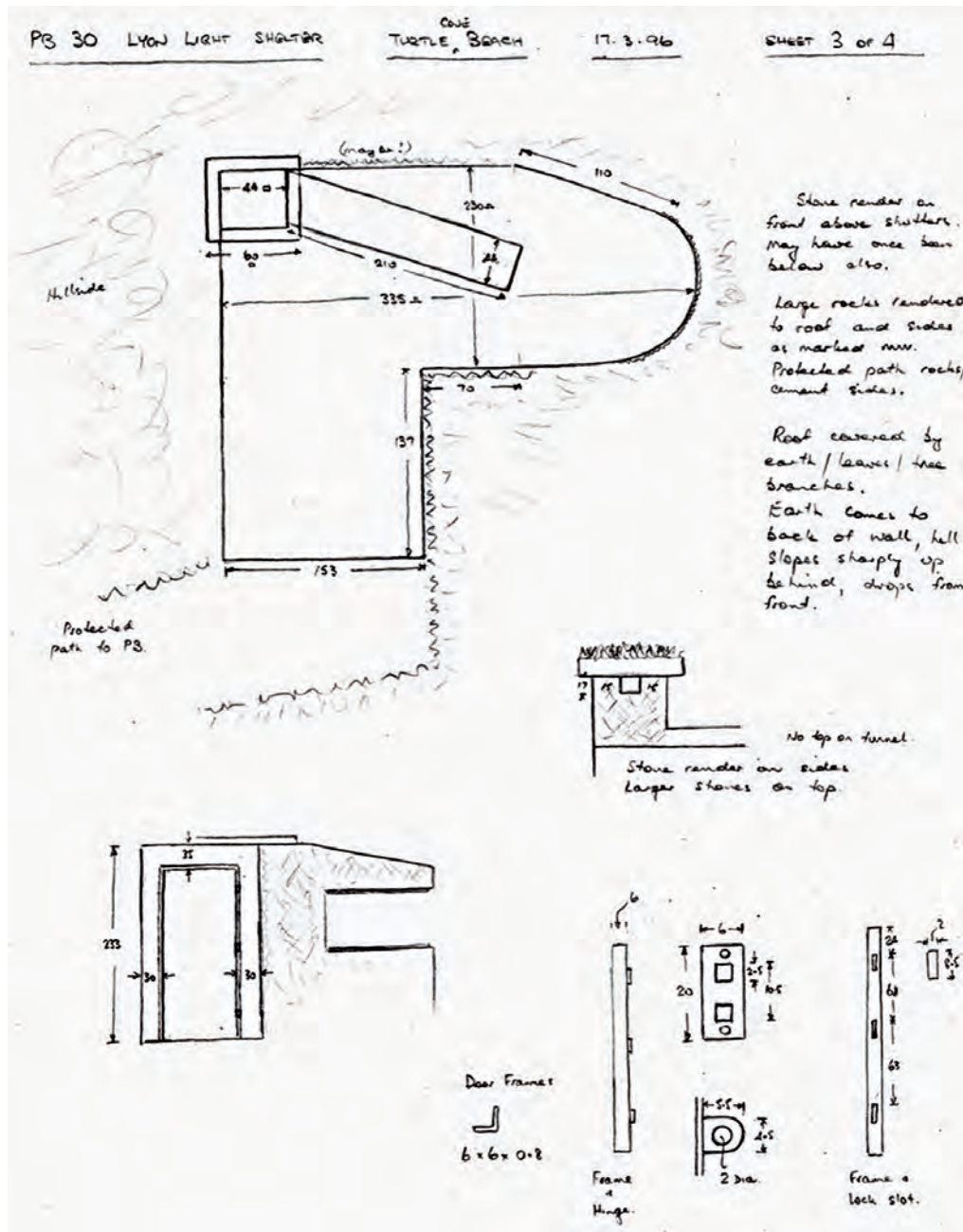


Inside protective pathway looking towards LL30 (March 1996)



Protective pathway passing over a creek connecting PB30 and LL30 (March 1996)



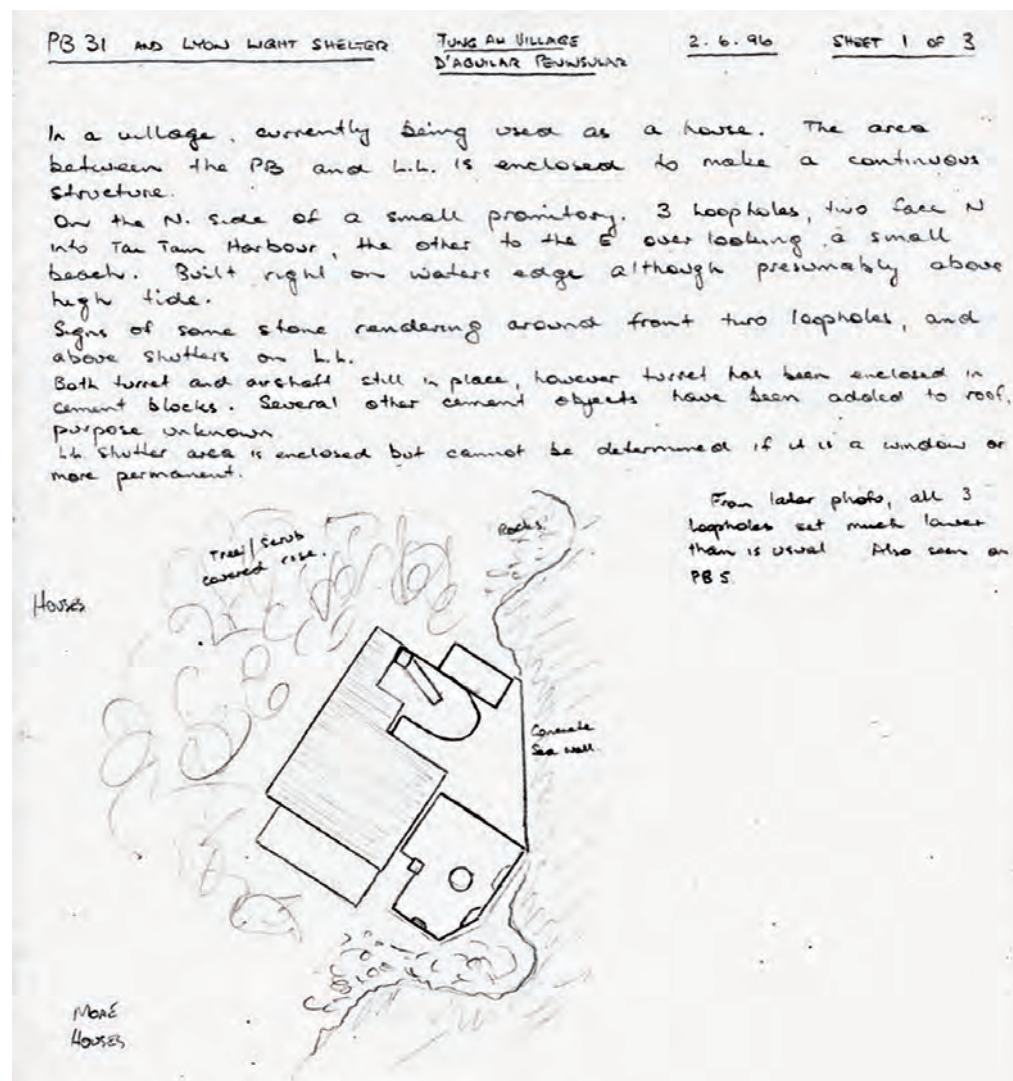
**YEAR SURVEYED: 1996 (March)**

### 3 D Scan of PB30 and LL30 by Y K Tan, April 2021



**PB NO.: 31 LOCATION: Tung Ah**

## Sketch



YEAR SURVEYED: 1996 (June)

(Author's note: 3 loophole should read 4 loophole)

PB 31 and Lyon Light Shelter Tung Ah Village 20.8.03 Sheet 2 of 3

The village is now abandoned, and full access to PB available. Turns out to be a 4 loophole type, slightly larger than other Beach PB's.

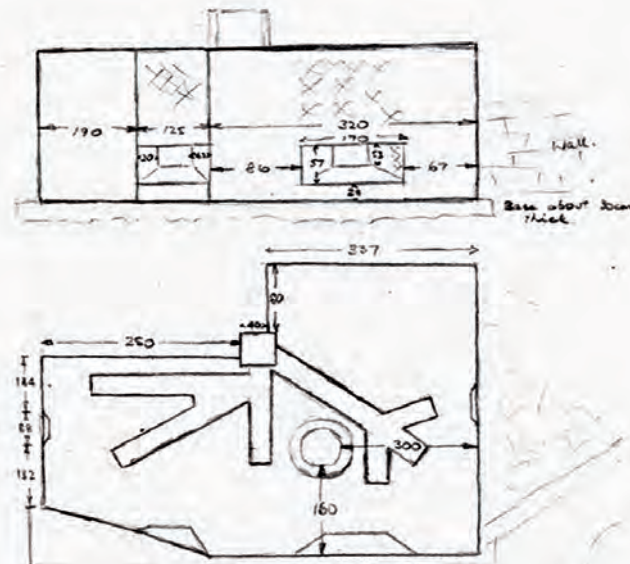
Reasonable condition, considering it is almost on the water line. Probable that high tides or windy conditions would bring water to the loopholes. No shutters remain although rusted frames still in place. The fourth loophole is completely covered by earth at the side of PB, probably to backup a small sea wall. Only noticeable from inside PB, so external dimension not known.

The front loopholes are low set, as seen in PB 5. The floor was covered by a coating of bituminous substance, but whether original is not known. The front of the PB has a 'reverse' link to all others known, however the interior front wall is straight.

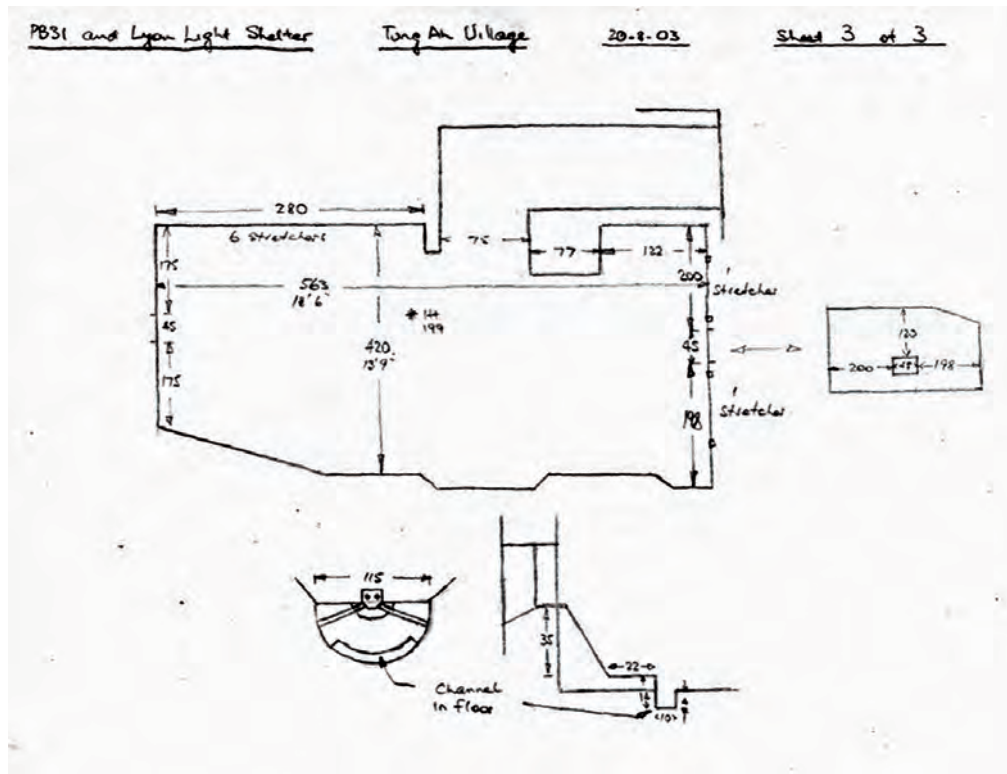
The Lyon Light shelter is normal right hand entry type. Some rusted shutters remain, as does the light mounting, from the left side. The commanders turret has been 'scalped', not far above level of roof, and is enclosed by cement panels.

There are an additional two stretcher positions on the left wall, mounted above the level of the loophole.

Vertical airstair intact, with square cap. Some 'glob' rendering still adheres to it, as well as above the two front loopholes.







YEAR SURVEYED: 2003 (February)



Right side of PB31 (1996)



PB31 at Tung Ah Village (1996)



Front view of PB31 (1996)



LL31 (1996)



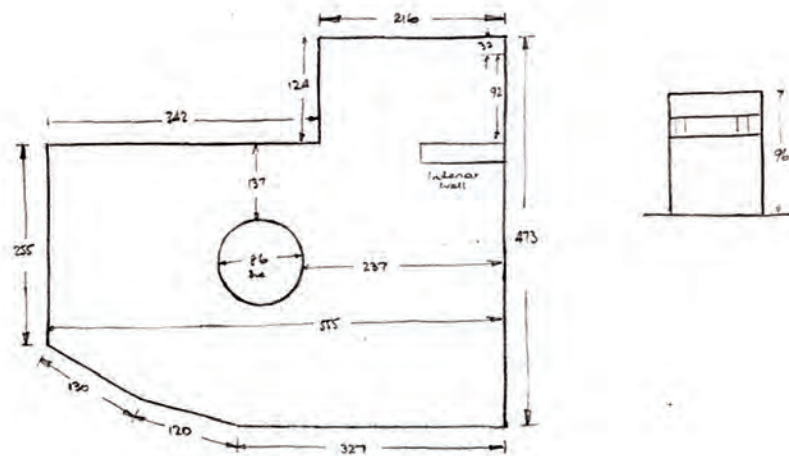
**PB NO.: 32 LOCATION: Ngan Hang****Sketch**

PB 32 and Lvon Lvon Shutter TUNG AN PUI VILLAGE  
SAGUINAW PENINSULAR 2.6.96 SHEET 1 of 2

Beach PB, set just at water's edge although built up on concrete base above rocks. L.H. to left and rear, high mounted on concrete. Backed by heavily wooded slope although once above slope land levels out.

Has been used for accommodation. loopholes filled in and new windows cut. Similarly original side door filled in, a new one being cut in the back. The airshaft and roof top shafts have been removed and glass bricks inserted in roof where duct outlets were.

No rendering on walls or roof, no signs there ever was. L.H. has some remaining around entrance and above shutters.



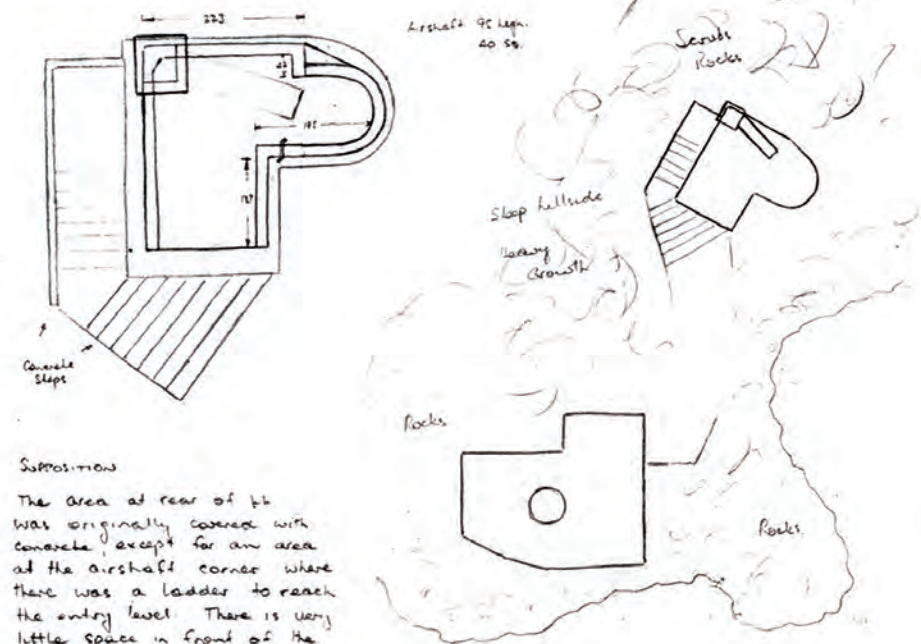
PB32 and LL32 (1996)



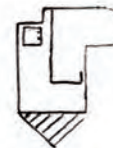
PB32 and LL32 (2005)

PB 32 and Lvon Lvon Shutter TUNG AN PUI VILLAGE 2.6.96 SHEET 2 of 2

Lvon Lvon Shutter behind and above PB, separated by approx 25m. Built on concrete base, 3m high. Surprisingly, the shutter points in a different direction to the PB. It has an arc mainly cut across the main bay towards Stanley and only at extreme right direction would the light point in the general direction of the PB. Like the PB, it has been used for accommodation. The shutters have been replaced by glass windows (now broken), most of the shutter removed, an inside painted.

**Supposition**

The area at rear of L.L. was originally covered with concrete, except for an area at the airshaft corner where there was a ladder to reach the entry level. There is very little space in front of the entrance, but broken reinforcement rods indicate there may have been more concrete floor in this area.

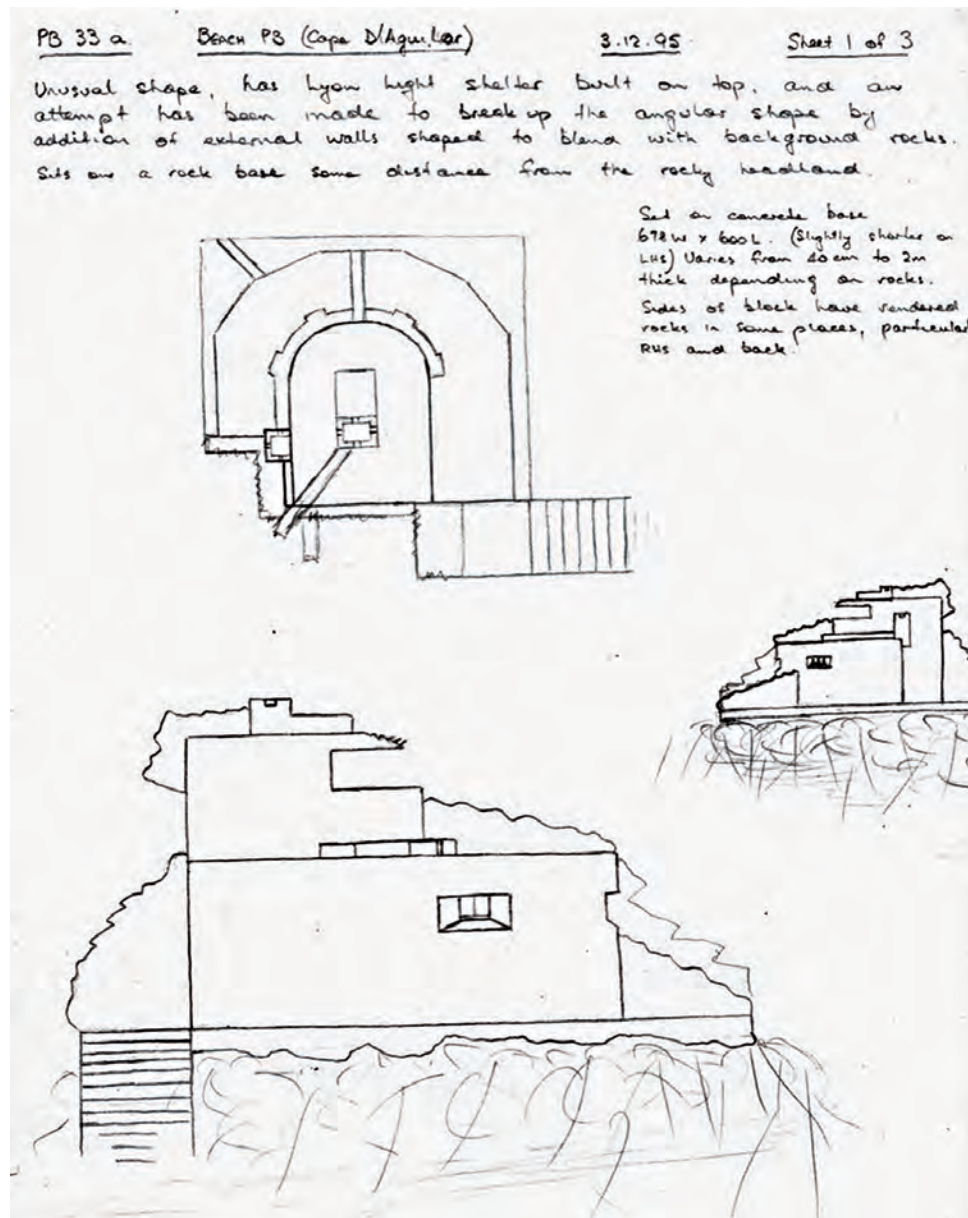
**YEAR SURVEYED: 1996 (June)****NOTES**

PB32 and LL32 converted by squatters as a house causing some damage.



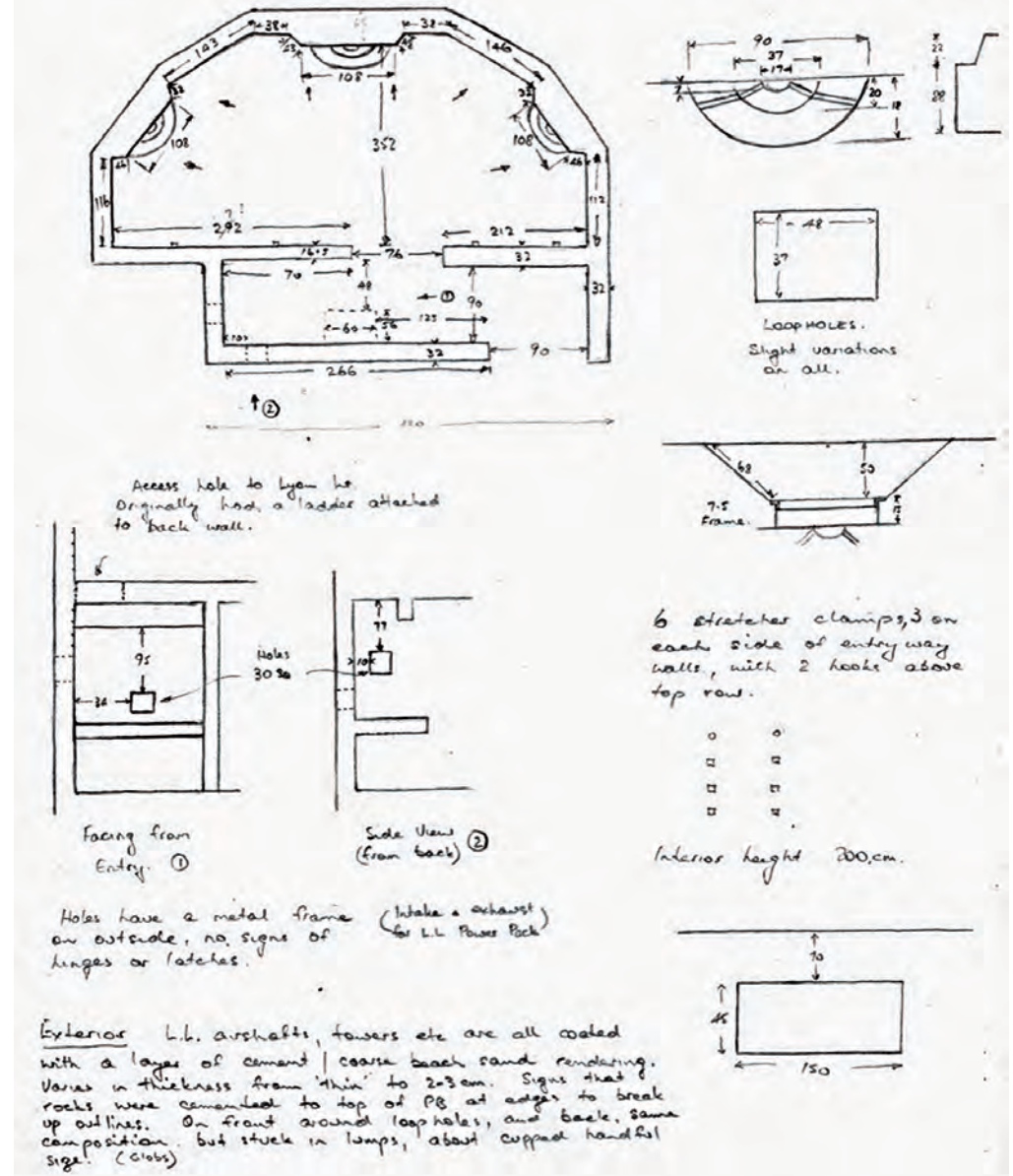
**PB NO.: 33a LOCATION: Cape D'Aguilar**

Sketch

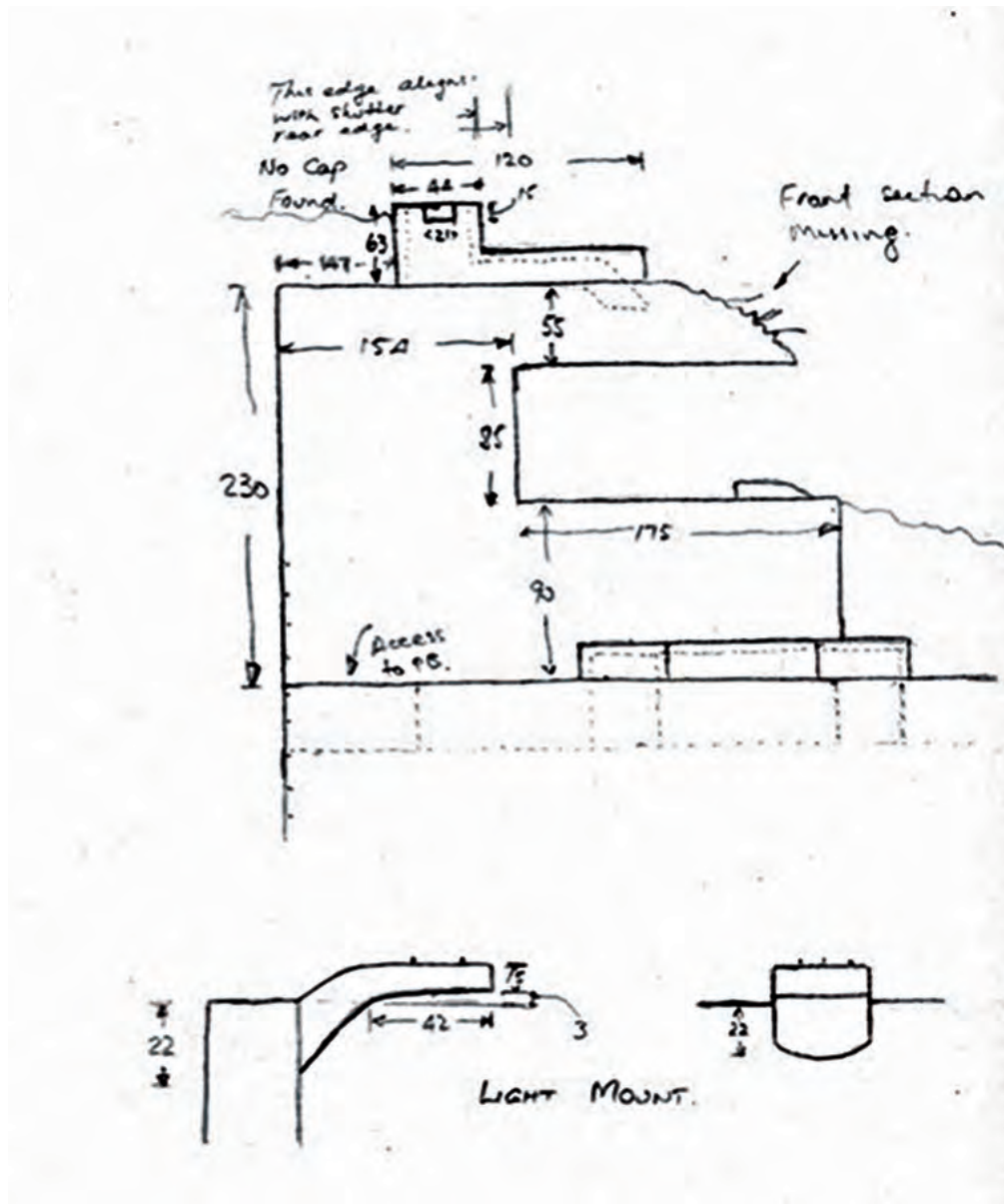


PB 33 a

Sheet 2 of 3







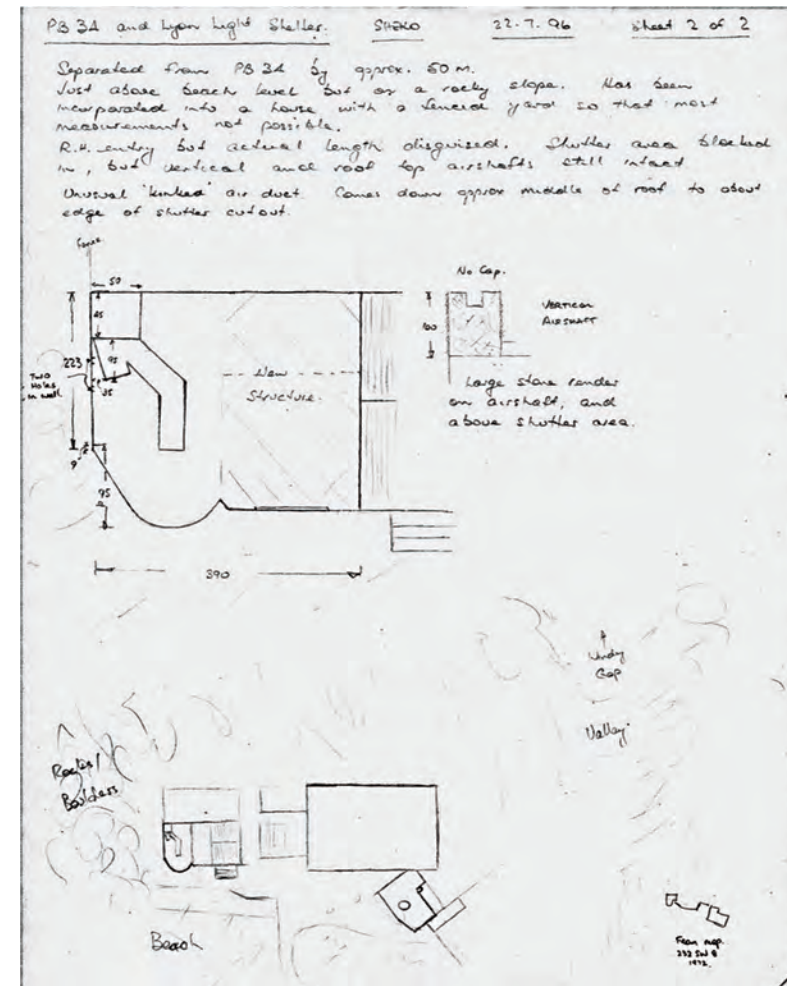
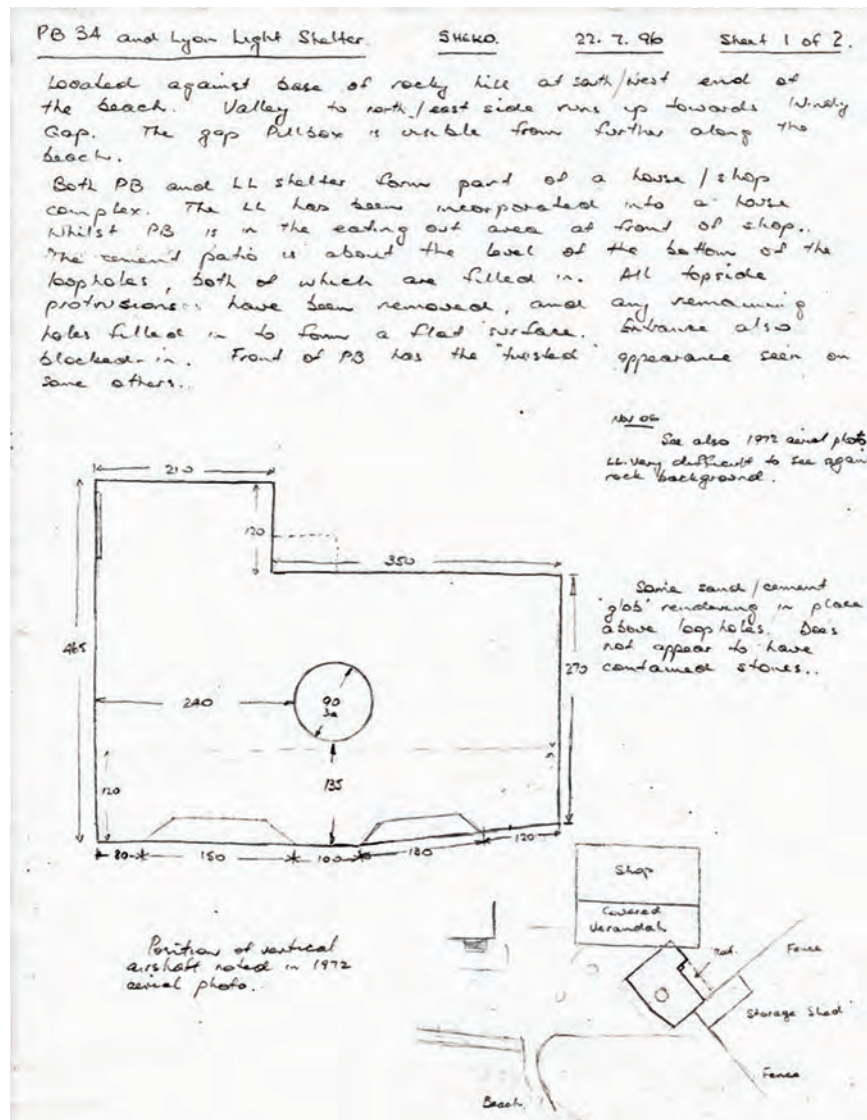
YEAR SURVEYED: 1995 (December)



Different exterior views of PB33a (December 1995)

**PB NO.: 34 LOCATION: Island Bay (Shek O Beach)**

Sketch



**YEAR SURVEYED: 1996 (July)**



LL34 and PB34 (July 1996)



LL34 and PB34 (July 1996)

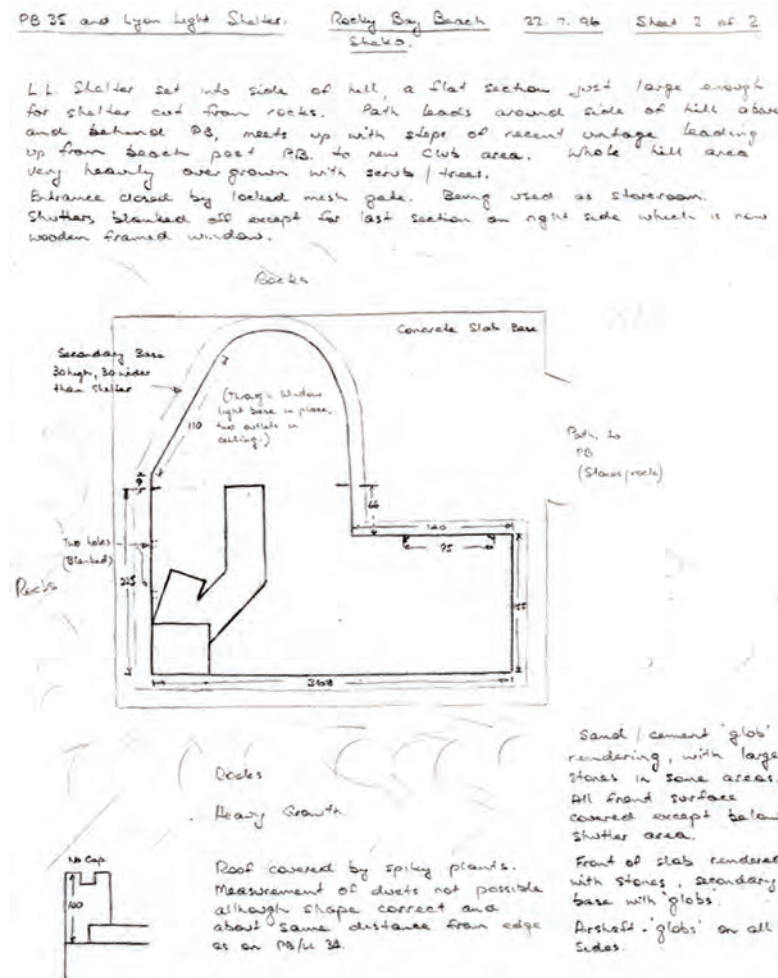
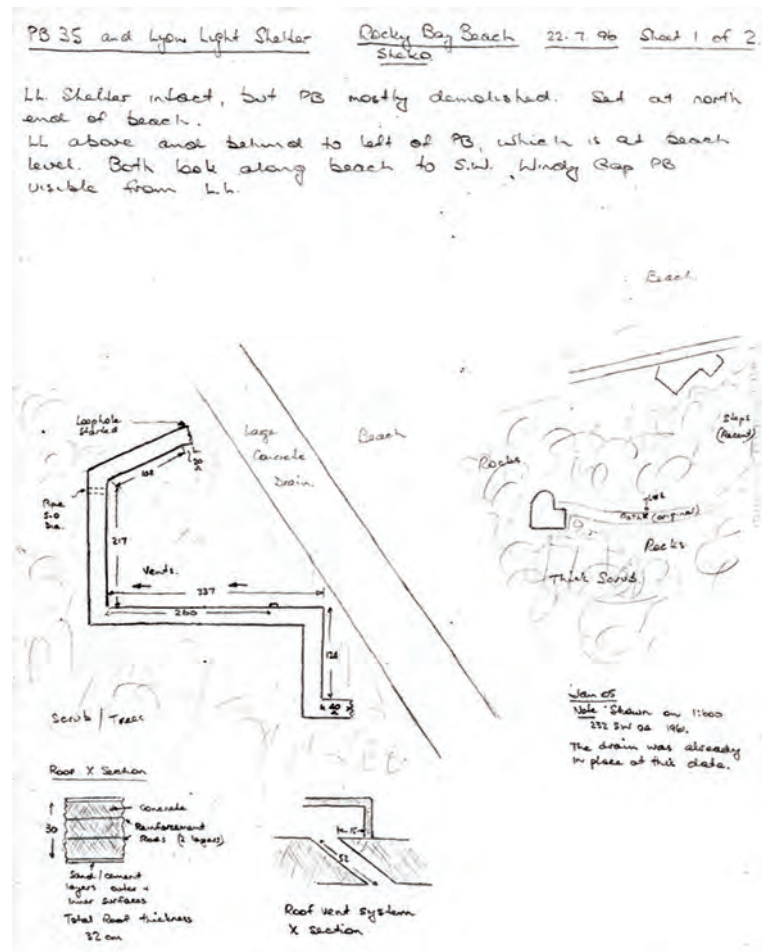
## NOTES

PB34 and LL34 were converted into part of a shop premises.



PB NO.: 35 LOCATION: Rocky Bay Beach

### Sketch

**YEAR SURVEYED: 1996 (July)**

## NOTES

PB35 substantially destroyed by drainage work before survey.

PB35 and LL35  
(March 2010)

LL35 (1996)



PB35 in ruins  
(July 1996)



PB35's demolished roof  
(March 2010)

**PB NO.: 36 LOCATION: Big Wave Bay**

## Sketch

PB 36 and L.L. Shelter Big Wave Bay 30.9.05 sheet 1 of 1

Identified from 1949 aerial photo

Adjacent stream to beach, at NW end of beach.

Shapes indistinct, but protected walkway between the two is apparent.

Search of area in 1946 and 2005 found nothing, although area overgrown. (Data Oct 2005.)



Dec 2018 Beach damaged by typhoon earlier in year, resulting in remains of PB becoming exposed. Apparent two loop hole, flat front type. Only the remains of front wall to level of bottom of loop holes exposed. Some other walls may still exist, but would be buried and not above this level. Site covered in sand & debris.



OVER

PB 36 L.L. Shelter:

Base remains on hillside behind PB however the rest of it appears to have been carried down to the beach by a landslide. Several large concrete pieces can be identified as parts of the walls. An access track can still be seen as it stands down towards the beach = PB, but area heavily overgrown, and not accessed.



**YEAR SURVEYED: 2005 (September)**



Remains of PB36 and LL36  
(December 2018)



Remains of the  
front wall of PB36  
(December 2018)



Remaining base  
slab of LL36  
(December 2018)



The base of a MG mount and remains of a  
wall of PB36 (December 2018)

**NOTES**

PB36 and its LL shelter were blown up on 6 March 1956. The base slab of LL36 and some ground parts of PB36 have survived.