Agreement No. SLO 03/2020

Study for Enhancement of Trails and Connectivity in Lantau

Task 7b
研究摘要 (Rev.4)
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土木工程拓展署
Civil Engineering and Development Department

DEVELOPMENT and CONSERVATION of LANTAU
發展及保育大嶼山

翱翔顧問工程師有限公司
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1 背景介紹

1.1 研究背景

1.1.1 翱翔顧問工程師有限公司 (WINGS) 作為土木工程拓展署(CEDD) 的顧問公司，進行了協議研究「SLO 03/2020 – 改善大嶼山郊遊徑連貫性研究」。跟據指引條列 6.8，最終報告及研究摘要須由顧問公司撰寫。

1.2 研究描述

1.2.1 大嶼山近年瞬息萬變，北大嶼山正在規劃建設多項重大經濟及房屋發展項目。與此同時，大嶼山以其風景優美的郊遊徑而聞名，這些郊遊徑連接了自然、文化遺產和生態景點。為進一步加強這些郊遊徑以供市民享用，並提升市民對自然和文化保育的意識，土木工程拓展署與民政事務處及漁農自然護理署（「漁護署」）合作，將附近的康樂、文化及生態資源與配套設施連接起來，以改善郊遊徑。

1.2.2 本研究有 3 大目標：

i. 開發一套預製組件（作為土木工程拓展署的標準）改善香港現有的郊遊徑和有助興建新的郊遊徑。

ii. 識辨及建議路線以組成「環大嶼山郊遊徑」及「地區環徑」，以改善大嶼郊遊徑的連貫性。

iii. 識辨現有行郊遊徑的缺陷，並提議如何使用預製組件作為示範工程。

1.3 研究範圍

1.3.1 是次研究範圍包含以下郊遊徑：

1. 深水角
2. 羌山
3. 梅窩
4. 花瓶頂
5. 鹿頸 / 陰仔
6. 大澳
7. 貝澳
8. 芝麻灣半島
9. 沙螺灣
10. 二澳

2 大嶼山郊遊徑的現況

2.1 現時郊遊徑維護方法

2.1.1 目前香港郊野公園範圍內的郊遊徑維護方法是遵循稱為「手作步道」的自然方法。這意味著維護工作由人手進行，無需借助重型機械。材料是天然並就地取材，主要是小道上倒下的樹木、石塊和泥沙。設計沒有絕對的標準，是根據經驗豐富的工人現場決定的。因此，施工時間難以預料。

Fig. 2.1.1 現時郊遊徑維護方法

Fig. 2.1.2 現時路郊遊徑維護方法

2.1.2 這種方法的主要好處是它通過保留原始輪廓和特徵來尊重自然。此外，保留柔軟的土壤地面，與水泥路面相比，對腳踝的傷害較小。

2.1.3 這種方法的顯著缺點是施工時間長。基於(1)缺乏當地材料、(2)運輸外來天然材料和(3)參差的手藝這三個因素，施工時間通常很長。另外，「手作郊遊徑」主張不安裝欄杆，故此安全性成疑。再者，由於這種維修方法主要由志願者進行，所以手藝是一個隱憂。

3 BIM 應用

3.1 BIM 應用流程

3.1.1 本報告的工作流程如下：

1) 實地勘察
2) 決定測量範圍
3) 三維掃描
4) 點雲數據採集
5) 利用 Civil 3D 軟件進行數據合併
6) 利用 BIM 進行郊遊徑設計
7) 可行性測試
8) 設計評審

3.1.2 實地勘察工作結束後，採集點雲數據。原始的點雲數據 (.las) 將運用在 ReCap 和 Civil 3D 等軟件進一步應用 BIM。

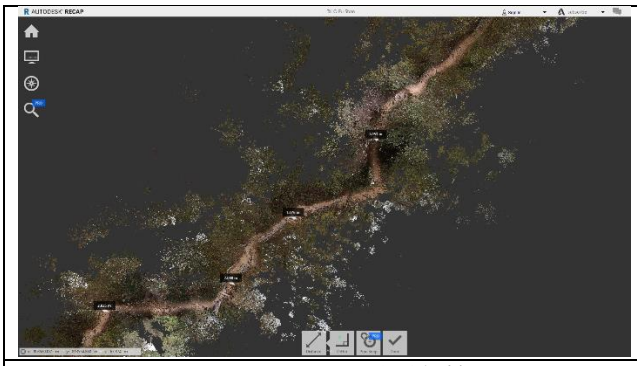


Fig. 3.1.1 ReCap 點雲數據

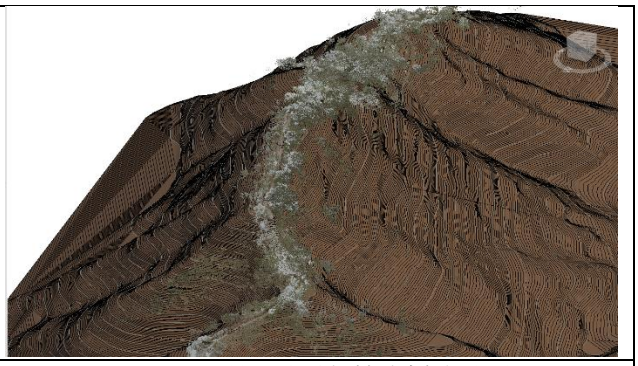


Fig. 3.1.2 利用點雲數據合拼成地形

3.1.3 將點雲數據轉化入 Civil 3D 後，便可根據坐標在相應地點合拼成地形。於 Revit 模擬安裝預製組件，並重現郊遊徑的特徵和輪廓。

3.1.4 當 Revit 中的模擬地形準備好後，預製組件的 BIM 族群將被安裝到地形模型中。預製組件的安裝將根據郊遊徑的坡度和寬度從而保持郊遊徑原始輪廓和特徵。

Fig. 3.1.3 轉化成Enscape 擬真模型

4 測量工程

4.1 測量工程背景

4.1.1 按照是次研究的 BIM 應用流程，測量工程是郊遊徑設計的基礎步驟。測量目的是收集坡度、寬度等地形信息，從而可以鎖定關鍵位置並進行改善工程。測量方法有兩種，分別是陸地三維激光掃描和航空測量。

4.2 陸地三維激光掃描

4.2.1 陸地三維激光掃描範圍包括以下 12 個位置：

1) 大澳郊遊徑
2) 羌山郊遊徑
3) 梅窩（南）郊遊徑
4) 花瓶頂與大山郊遊徑
5) 芝麻灣半島郊遊徑（第一部分）
6) 芝麻灣半島郊遊徑（第二部分）
7) 梅窩（北）郊遊徑
8) 鹿頸與陰仔郊遊徑
9) 深水角郊遊徑
10) 二澳與煎魚灣郊遊徑
11) 東涌市鎮公園
12) 沙螺灣郊遊徑

4.2.2 測量公司準備 .las 格式的點雲數據和 .jpg 格式的全景圖像。然後顧問公司將點雲數據傳輸為 .rcs 格式以輸入到 BIM。

4.3 航空測量

4.2.3 航空測量範圍包括以下個 4 位置：

1) 二澳與煎魚灣郊遊徑
2) 芝麻灣半島郊遊徑
3) 大澳郊遊徑
4) 東灣頭郊遊徑

4.3.2 航空測量有兩種方法，包括攝影測量和激光雷達。攝影測量是一種通過影像來重建物體空間位置和三維形狀的技術，模型相對逼真和仔細。而激光雷達是一種穿透樹木的掃描技術，以獲得更準確的郊遊徑地形。

5 郊遊徑改善工程

5.1 識辨現有行郊遊徑的缺陷

5.1.1 本部分旨在展示郊遊徑現有環境的一般情況。該部分的工程設計於淺層地面進行。本部分的重點在郊遊徑的地面狀況，突顯現時郊遊徑有問題的關鍵位置，並簡要說明改善工程。

<u>大澳</u>

5.1.2 大澳被優先選作進行示範工程。除了涼亭附近的混凝土道路外，這條郊遊徑很陡峭。工程地點位於虎山，地表被嚴重侵蝕，充滿了小石塊。郊遊徑頗寬，沿著路徑的輪廓清晰。

Fig. 5.1.1 虎山環境

Fig. 5.1.2 近大澳軍營環境

5.1.3 大澳需要安裝預製組件 – 梯級、樓梯、 欄杆、截水溝及木板路。 設計目標為改善郊遊徑地面，尤其於東面被嚴重侵蝕的位置。現時環境頗為危險，因為只有綑綁在樹枝上的幼繩索作為支撐，故此興建欄杆最為急切。木板路建議安裝在郊遊徑的北方以連接樓梯並開寬路面。樓梯及梯級只安裝在坡度 20° 至 30° 的位置。截水溝會安裝在樓梯的頂部以防止地面被水流進一步侵蝕。

5.1.4 現時軍營附近的部分被茂密的植被覆蓋，只有經驗豐富的行山人士透過「爆林」的方式才可穿越雜亂的路徑。該路段的建議工程是清除植被以拓寬郊遊徑並釐清路徑以吸引一般水平的行山人士。

5.2 建議改善工程

5.3.1 建議工程將以英文字母標示，以方便參閱表格：

a) 恢復/重建受侵蝕郊遊徑；
b) 穩定/重建鬆動梯級；
c) 局部擴大狹窄的郊遊徑；
d) 為過度陡峭的郊遊徑提供替代路線；
e) 為過高的梯級提供踏腳點；
f) 提供/改善排水系統；
g) 提供具主題性的被植於郊遊徑；及
h) 修復因遊客過度踐踏而加寬的郊遊徑。

5.3.2 下表總結了每個地點的建議工程：

行郊遊徑地點	優先級	建議工程	工程描述	建議材料
深水角	中	a, b, e, f, h	➢ 優化行郊遊徑路面	預製組件－梯級、欄杆、截水溝
羌山	中	a, b, c, e	➢ 擴闊行郊遊徑; ➢ 修剪樹木	預製組件－梯級、欄杆、截水溝
梅窩	中	a, b, c, d, e, f	➢ 形成「地區環徑」; ➢ 優化蝴蝶山行郊遊徑路面; ➢ 擴闊行郊遊徑	預製組件－梯級、欄杆、截水溝
花瓶頂	高	a, b, e, h	➢ 優化「地區環徑」的侵蝕路面;	預製組件－梯級、欄杆、截水溝、木板路
鹿頸 / 陰仔	中	a, c, d, f	➢ 提供新的行郊遊徑; ➢ 優化近水塘行郊遊徑路面; ➢ 修剪樹木	預製組件－梯級、欄杆、木板路
大澳	高	a, b, e, f	➢ 優化行郊遊徑路面; ➢ 提供行山人士支援及保護措施	預製組件－樓梯、梯級、欄杆、截水溝、木板路
貝澳	低	/	➢ 清理雜草	預製組件－梯級、欄杆、截水溝
芝麻灣半島	低	/	➢ 清理雜草	/
沙螺灣村	中	c, d	➢ 提供近海岸行郊遊徑岔路; ➢ 清理雜草	預製組件－梯級
二澳	中	a, b, c, d, f	➢ 提供近雞公山行郊遊徑岔路; ➢ 清理雜草	預製組件－梯級、欄杆、截水溝及柱

6 預製組件

6.1 預製組件種類

6.1.1 下列為是次研究將會開發的預製組件的種類：

1) 梯級
2) 樓梯
3) 欄杆
4) 木板路
5) 截水溝
6) 扶手柱

6.1.2 基於上述六大種類，總共有 22 種預製組件款式。其中有 3 款梯級，1 款樓梯，11 款欄杆，3 款木板路，2 款截水溝 及 2 款扶手柱。

6.1.3 預製組件的設計態度遵循 2 大元素，分別是安全性及可持續性。以下章節將會講述安全性及可持續性如何體現在不同的設計部分。

6.2 材料

「木材塑膠複合材料」

6.2.1 為滿足土木工程拓展署的摘要要求，顧問公司聯絡了本地生產商 - 恆木環保科技有限公司 (恆木)。恆木是現時香港第一並唯一一間以本地木廢料為原料的「木材塑膠複合材料」產品 (WPC) 供應商。這間公司在上水設有回收本地木材廢料的工廠。產品的尺寸和形狀通過新模具度身定造。

Fig. 6.3.1「木材塑膠複合材料」樣本

6.2.2 材料選擇的著重點是外觀和表面防滑性。材料表面的木紋特徵看起來極為逼真。木紋面可以為接觸面提供更大的摩擦力，從而減少滑倒的機會。恆木提供了一些不同類型的木紋圖案和顏色的樣品，並確定「木材塑膠複合材料」可以達到 R11 的防滑數值要求。根據德國規範標準 DIN 51130，R11 防滑指數足夠在塗滿機油、斜度約 19 至 27 度的表面上行走而不滑倒。它適用於偶有水漬及油漬等較易滑倒的商業地區或戶外地方。在潮濕環境下的滑倒風險亦會降至中等水平。

6.2.3 三種配色方案分別是桃花心木，紅橡木及酸枝木； 而木紋圖案有粗雪松及手鑿木紋。這種配搭提供了更加靈活和更加自然的外觀。

Fig. 6.3.2 桃花心木

Fig. 6.3.3 紅橡木

Fig. 6.3.4 酸枝木

6.2.4 總而言之，與其他現有的材料相比，採用「木材塑膠複合材料」有以下好處。首先是「木材塑膠複合材料」是現成的，並不需要如天然枯木般預留時間收集。其次是「木材塑膠複合材料」允許自定訂形狀、圖案和顏色，與水泥鋪路相比，它更靈活，更貼近自然環境。第三是它能達到 R11 防滑數值要求，與石級相比，安全性在雨天下更為顯著。第四是木材塑膠材料重量較輕，因爲部件形狀小及其中空設計，與石材相比更加適合運輸。第五是「木材塑膠複合材料」的可回收特性，由於「木材塑膠複合材料」是通過回收木材廢料生產的，損壞或老化的「木材塑膠複合材料」可以再次回收並生產新的「木材塑膠複合材料」。

6.2.5 下表總結了與其他常用材料的比較：

	材料隨時就緒	自製圖案及顏色	輕便， 容易運輸	表面防滑	回收再造
「木材塑膠複合材料」	✓	✓	✓	✓	✓
水泥鋪路	✓	✓	×	✓	×
天然木材	×	×	×	×	✓
天然石材	×	×	×	×	×

「DP 天然疏水布」

6.2.6 避免水土流失的其中一個緩和方法是疏水布。疏水布的主要目的為將水分排出，以保護及攔擋土壤。

6.2.7 普遍在建築工程中運用的疏水布的顏色以黑為主，以及由人造聚丙烯的物料所構成，但這違反本協議研究的設計要求。

6.2.8 為採取環保措施，本協議研究選擇「DP 天然疏水布」。它由一層具有營養價值的自然棕色夾層及一層人造灰色疏水布所組成。總而言之，此產品含有約六至七成的天然物料而組成。

6.2.9 此產品適合在現場應用，原因包括以下：

i. 在疏水布之間有更大的孔隙，增加土壤顆粒之間的黏附力

ii. 可彎曲的特性能承受地形變動

iii. 良好的排放及保護能力

iv. 能夠長期地提供緩釋性肥料，幫助植物增長

Fig. 6.3.5 具有營養價值的自然棕色夾層

Fig. 6.3.6 人造灰色疏水布

6.3 可持續設計注意事項

排水系統

6.3.1 截水溝是避免水土流失的解決方案。截水溝的設計目的是將水流引離郊遊徑，通常設置在坡頂。出水口引流至由石頭搭建的渠溝，以減少水流侵蝕的影響。

6.3.2 建議的緩解措施是採用 DP 天然疏水布於預製組件的設計中，允許水通過但防止土壤經預製組件底部流失。

運輸

6.3.3 預製組件的運輸過程不得擾亂郊野環境。 因此，不建議使用重型施工車輛進行地盤工程，預製組件由人手搬運。

6.3.4 設計考量一是預製組件的尺寸應限制在 1.2 米左右。 二是整個預製組件的重量限制在 20 公斤以內，並採用中空設計，減少接頭插筋的使用。運輸時間和現場施工時間皆能縮短 。

6.4 安裝

6.4.1 讓預製組件更貼近自然的方法是利用當地挖掘出的材料作為回填材料。這種方法可以減少開挖過程中材料的浪費，回填也有助於穩固預製組件。 此外，DP 天然疏水布將安裝在預製組件的底部，以防止進一步的水土流失。 預製組件 - 梯級的安裝除了有穩固和保留土壤的作用，亦能保存郊遊徑的自然輪廓，提高了可持續性和穩定性。

6.4.2 為簡化現場施工，故此採用了簡單的安裝設計。 首先，螺栓和螺母用於連接部件。此外，接頭插筋的長度控制在 40 厘米，因此可以輕鬆地用錘子敲打入泥。 第三是灌漿材料是簡單的現場手拌水泥。再者，預製組件的尺寸靈巧，挖掘量小。所以鏟和手持式鑿巖機等方便的手提工具已經足夠進行挖掘工作。

6.5 安全注意事項

6.5.1 於梯級和樓梯採用的木材塑料複合材料須有一定的防滑要求。參照「土木工程一般規格」(2006 年版第 1 卷)第 11.87(4)章，在人行道和自行車道上的樣品的平均防滑值不應低於 45 防滑值。通過轉換防滑值，它相當於斜度測試的 R11 值。 該值亦是「木材塑膠複合材料」的要求，以確保預製組件在潮濕條件下仍滿足安全要求，因而改善郊遊徑濕滑地面的狀況。

6.5.2 沿著郊遊徑陡峭地形，欄杆會根據地形和坡度設置。 因此，行山人士會到更多的安全保障，避免誤闖例如懸崖等危險區域。

7 大澳虎山示範工程

7.1 選址

7.1.1 預製組件的示範工程將會在大澳進行。除了驗證預製組件設計的實用性外，另一個目的是響應公眾要求，改善從寶珠潭至虎山被侵蝕嚴重的郊遊徑。

7.2 預計數量

7.2.1 預計郊遊徑總長 420 米，其中 220 米為施工範圍 。

7.2.2 現場將安裝 11 種預製組件，種類分為梯級，樓梯，欄杆，木板路和截水溝。下表列舉了款式和數量：

款式		數量
預製組件 - 梯級	款式1	12件
	款式2	190件
	款式3	200件
預製組件 - 樓梯	款式1	5件
	款式2A	50件
	款式3	12件
預製組件 - 欄杆	款式1	4米
	款式2	46米
	款式3	290米
預製組件 - 截水溝		18件
預製組件 - 木板路		4件

7.3 設計審查

7.3.1 預製組件的示範工程已經於二零二二年十月底大致完成。詳細圖則可參考附件 A。

7.3.2 用作示範工程的郊遊徑總長 520 米，其中 250 米為工程竣工範圍 。

7.3.3 下表將列舉已更新的預製組件款式和數量：

款式		數量
預製組件 - 梯級	款式1	12件
	款式2	141件
	款式3	181件

款式		數量
預製組件 - 樓梯	款式 1	29件
	款式2A	25件
	款式3	45件
預製組件 - 欄杆	款式1	63米
	款式2	96米
	款式3	219米
預製組件 - 截水溝		10件
預製組件 - 木板路		4件
預製組件 -觀景台		2件

7.3.4 從 7.3.3 部分的表格可見，預製組件 - 梯級的款式 2 和 3，預製組件 - 樓梯的款式 3 及預製組件 - 欄杆的款式 3 為示範工程中最常被安裝的組件。

7.3.5 下表將列舉已更新的預製組件款式和數量：承建商在安裝預製組件時曾遇到困難，所以在預製組件設計上提出改善建議。下文則詳細列出承建商對預製組件設計提出的改善建議：

一. 預製組件 - 截水溝 (尺寸為 100 毫米乘 100 毫米)可由一個尺寸為 200 毫米乘 100 毫米的組件取替。
二. 預製組件 - 樓梯 (尺寸為 180 毫米乘 100 毫米)建議被預製組件 - 梯級(尺寸為 200 毫米乘 100 毫米) 取替。
三. 預製組件 - 欄杆款式 3 中的部件建議使用由繩索款式 (跟欄杆的款式 2 設計類似) 取替，以及使用直徑為 150 毫米的圓形扶手柱部件。
四. 為改善環境美觀及保持成本效益，承建商建議可安裝端蓋。
五. 預製組件 - 欄杆的尺寸可減少。
六. 預製組件 - 梯級的部件建議尺寸為 180 毫米乘 100 毫米。

7.3.6 有關的優化設計圖則可參考**附件 C**。

7.3.7 翱翔顧問工程師有限公司亦在預製組件 - 欄杆設計上提出改善建議。然而，這些改善仍需要進一步的評估及與各持分者的互相交流及意見。接手的顧問設計公司可將改善建議整合於其設計中。有關的優化草圖可參考**附件 D**。

8 大嶼山郊遊徑連貫性

8.1 「環大嶼山郊遊徑」

8.1.1 改善郊遊徑連貫性的主要任務是構建「環大嶼郊遊徑」。作為香港最大的島嶼，大嶼山以其繁多種類和數量的遠足郊遊徑而聞名。「環大嶼郊遊徑」的構想，是連接現有的郊遊徑及新建的路線讓行山人士享受大嶼山近海濱的郊遊徑。「環大嶼郊遊徑」的長度最初約為 100 公里，包含沿海地區和「地區環徑」後延長至 150 公里。詳情請參閱**附件 B** - 「環大嶼山郊遊徑」地圖。

8.1.2 由於整條「環大嶼山郊遊徑」全長約 150 公里，本研究提供了「一日遊」建議，讓一家大小分次暢遊不同部分的環大嶼郊遊徑。

8.1.3 整條「環大嶼山郊遊徑」建議分 6 次「一日遊」完成。 每段路線的長度約為 15 公里，一般需要 5 小時才能完成。「一日遊」的難度容易，適合一家大小同遊。

路綫	包含的郊遊徑	長度	需時	交通
1	東澳古道	13.6 公里	4 小時	地鐵、巴士及渡輪
2	鳳凰徑第七、八段	15.3 公里	4 小時	巴士及渡輪
3	鳳凰徑第九、十、十一段	16.8 公里	5.5 小時	巴士
4	鳳凰徑第十二段及離島自然歷史徑 - 梅窩段	15.3 公里	5.5 小時	巴士及渡輪
5	深水角徑及花瓶頂與大山之間的行郊遊徑	13.3 公里	5 小時	巴士及渡輪
6	P1公路	12 公里	4 小時	地鐵及巴士

8.2 「地區環徑」

8.2.1 除了整體的「環大嶼山郊遊徑」設計外，一些「地區環徑」亦會被推薦給遠足者，讓他們進一步探索大嶼山的美景。「地區環徑」範圍包括以下地點：

1. 花瓶頂
2. 東灣頭
3. 芝麻灣半島
4. 大澳
5. 昂坪
6. 彌勒山
7. 梅窩
8. 鹿頸

9 改善郊遊徑及連貫性

9.1 工程範圍

9.1.1 郊遊徑的改善工程應在完成示範工程並取得評估結果後再進一步推行，改善工程目的在於測試預製組件的可行性及耐用性。完成第一階段的改善工程後，土木工程拓展署會收集評估結果並決定是否執行餘下的階段。

9.2 分階段計劃

9.2.1 研究範圍內的工程分為 4 部分。部分 A 為大澳虎山示範工程。部分 B 為於花瓶頂第一階段郊遊徑改善工程。部分 C 為於梅窩、二澳和沙螺灣村第二階段郊遊徑改善工程。部分 D 為於鹿頸、大澳(近軍營)和深水角第三階段郊遊徑改善工程。

9.2.2 下表顯示了位置和相關資訊。

部分	位置	工程	目的	郊野公園範圍
A	大澳	示範工程	預製組件可行性測試	外
B	花瓶頂	行郊遊徑改善工程 (第一階段)	構建「環大嶼山郊遊徑」	外
C	梅窩	行郊遊徑改善工程 (第二階段)	構建地區循環郊遊徑	外
	二澳	行郊遊徑改善工程 (第二階段)	構建海傍郊遊徑	內
	沙螺灣村	行郊遊徑改善工程 (第二階段)	構建海傍郊遊徑	外
D	鹿頸	行郊遊徑改善工程 (第三階段)	構建地區循「地區環徑」	外
	大澳 (近軍營)	行郊遊徑改善工程 (第三階段)	構建地區循「地區環徑」	外
	深水角	行郊遊徑改善工程 (第三階段)	構建「環大嶼山郊遊徑」	內

9.2.3 部分 A 至部分 D 的次序是按優先度排列。最優先的部分 A 和 B 將於研究時期內進行。 評估部分 A 和 B 後，土木工程拓展署會決定是否執行餘下較少規模部分 C 和 D。 部分 C 和 D 主要是清除植被和安裝少量預製組件。

10 常見問題

10.1 本節目的

10.1.1 此部分的目的旨在回答大眾對「木材塑膠複合材料」的疑問。

10.2 環保塑木在野外環境之耐用程度

10.2.1 環保塑木的預計壽命為約 10 年。從塑木老化前後的彎曲強度測試可得知，其材料規格在老化後仍符合標準。此外，環保塑木已經於兩年前應用於太古廣場三座及園林廢物回收中心 Y·PARK「林·區」。另外，環保塑木有約 15 至 20 年的歷史，現在已發展成一種成熟的技術。所以環保塑木在戶外環境中的耐用程度相當之高。

10.3 環保塑木的使用壽命

10.3.1 詳細檢查及部件更換的時期建議在材料應用後約 10 年才進行。在正常使用及沒有任何外部損害時，因塑木老化所產生的碎膠粒的機會不大。

10.4 環保塑木的回收方法

10.4.1 塑木部件可在生命週期結束後把它們歸還給恆木環保科技有限公司。老化的塑木部件能夠被回收及作為新產品原材料之一。

10.5 環保塑木的抗火能力

10.5.1 塑木材料中有加入滑石粉，以增強物料的阻燃能力。物料經明火燃燒後形狀呈現焦黑的塊狀、出白煙，氣味與燃燒木材分別不大。煙頭或者會在材料表面留下痕跡，可以用砂紙去除。測試報告亦顯示產品物料中特定化學元素之遷移狀態。

10.6 清洗塗鴉的方法

10.6.1 砂紙(60 號至 80 號)可用來消除污漬。能去除污漬的油脂亦可清洗塗鴉。

11 建議和結論

11.1 建議

11.1.1 為了改善大嶼山交遊徑的連貫性，本研究製作了「環大嶼山郊遊徑」地圖，分別推薦「一日遊」和「地區環徑」給行山人士。行山人士可按照景點、長度、時間、中離點和交通方式選擇心儀路線。

11.1.2 下表顯示預製組件的種類及型號：

種類	款式
1) 梯級	3
2) 樓梯	1
3) 欄杆	11
4) 木板路	3
5) 截水溝	2
6) 扶手柱	2
總數	**22**

11.1.3 預製組件的材料建議使用回收本地木材廢料的「木材塑膠複合材料」，同時建議使用「DP 天然疏水布」來避免水土流失。3 種配色方案是桃花心木、紅橡木及酸 枝木；而木紋圖案為粗雪松及手鑿木紋。這種靈活的配搭造成更自然的外觀。

11.1.4 本研究亦建議了工程分階段計劃，大澳虎山示範工程及花瓶頂郊遊徑改善工程的預算均涵蓋於研究期內，土木工程拓展署會根據上述工作的結果和評估，決定實施餘下階段的改善工程與否。

11.2 結論

11.2.1 構建 100 公里「環大嶼山郊遊徑」及 50 公里「地區環徑」可以讓遠足者進一步享受大嶼山的海濱路徑。設計取向是盡可能地保持原始輪廓和特徵。因此，工程主要是連接現有的郊遊徑以及採用預製組件改善地面狀況。

11.2.2 改善工程的設計運用了 BIM 的最新技術。通過開展陸地三維掃描和航空測量來獲取郊遊徑的激光雷達和攝影測量數據。有缺陷的關鍵位置可以在模型中鎖定。採用 Revit、Civil 3D、Recap、Enscape 等 BIM 軟件設計預製組件和模擬安裝。這種設計方法可以縮短施工週期，更準確地控製材料的數量，減少浪費和對行山人士和環境的干擾。

11.2.3 設計在安全性和可持續性之間取得平衡。預製組件讓行山人士可以更安全地遊覽大嶼山的郊遊徑，而材料選擇和施工方法亦能推廣木料回收和環境保育。

完

附件 **A**

大澳虎山示範工程竣工圖則

TRAIL IMPROVEMENT WORKS IN TAI O (FROM FU SHAN TO PO CHUE TAM)

Drawing No.	Rev.	Drawing Title
WAC/20222/MUW/CS/001	-	CONTENT SHEET OF TRAIL IMPROVEMENT WORKS IN TAI O
WAC/20222/MUW/GN/001	-	GENERAL NOTES OF TRAIL IMPROVEMENT WORKS IN TAI O
WAC/20222/MUW/C/006	-	LAYOUT PLAN OF TRAIL IMPROVEMENT WORKS IN TAI O (FROM FU SHAN TO PO CHUE TAM)
WAC/20222/MUW/C/101	-	SCOPE OF TRAIL IMPROVEMENT WORKS IN TAI O (FROM FU SHAN TO PO CHUE TAM) (SHEET 1 OF 5)
WAC/20222/MUW/C/102	-	SCOPE OF TRAIL IMPROVEMENT WORKS IN TAI O (FROM FU SHAN TO PO CHUE TAM) (SHEET 2 OF 5)
WAC/20222/MUW/C/103	-	SCOPE OF TRAIL IMPROVEMENT WORKS IN TAI O (FROM FU SHAN TO PO CHUE TAM) (SHEET 3 OF 5)
WAC/20222/MUW/C/104	-	SCOPE OF TRAIL IMPROVEMENT WORKS IN TAI O (FROM FU SHAN TO PO CHUE TAM) (SHEET 4 OF 5)
WAC/20222/MUW/C/105	-	SCOPE OF TRAIL IMPROVEMENT WORKS IN TAI O (FROM FU SHAN TO PO CHUE TAM) (SHEET 5 OF 5)
WAC/20222/C/PPM/002	-	TYPICAL DETAILS OF PRECAST MODULES - STAIRS (TYPE 1)
WAC/20222/C/PPM/002-1	-	TYPICAL DETAILS OF PRECAST MODULES - STAIRS (TYPE 2A)
WAC/20222/C/PPM/002-3	-	TYPICAL DETAILS OF PRECAST MODULES - STAIRS (TYPE 3)
WAC/20222/C/PPM/003	-	TYPICAL DETAILS OF PRECAST MODULES - STEP (TYPE 1)
WAC/20222/C/PPM/004	-	TYPICAL DETAILS OF PRECAST MODULES - STEP (TYPE 2)
WAC/20222/C/PPM/005	-	TYPICAL DETAILS OF PRECAST MODULES - STEP (TYPE 3)
WAC/20222/C/PPM/006	-	TYPICAL DETAILS OF PRECAST MODULES - RAILING (TYPE 1)
WAC/20222/C/PPM/007	-	TYPICAL DETAILS OF PRECAST MODULES - RAILING (TYPE 2)
WAC/20222/C/PPM/008	-	TYPICAL DETAILS OF PRECAST MODULES - RAILING (TYPE 3)
WAC/20222/C/PPM/009	-	TYPICAL DETAILS OF PRECAST MODULES - WATERBAR
WAC/20222/C/PPM/010	-	TYPICAL DETAILS OF PRECAST MODULES - BOARDWALK
WAC/20222/C/PPM/011	-	FIXING DETAILS OF GEOTEXTILE AND DETAILS OF BACKFILLING
WAC/20222/C/PPM/012	-	COLOR CODE & WOOD GRAIN PATTERN DRAWING
WAC/20222/C/PPM/013	-	TYPICAL DETAILS OF PRECAST MODULES - VIEWING PLATFORM
WAC/20222/MUW/C/009	-	TEMPORARY STORAGE AREAS
WAC/20222/TS/C/003	-	LAYOUT PLAN OF TREE PRUNING AT TAI O FU SHAN
WAC/20222/TS/C/101	-	SCOPE OF TEE PRUNING AT TAI O FU SHAN (SHEET 1 OF 6)
WAC/20222/TS/C/102	-	SCOPE OF TEE PRUNING AT TAI O FU SHAN (SHEET 2 OF 6)
WAC/20222/TS/C/103	-	SCOPE OF TEE PRUNING AT TAI O FU SHAN (SHEET 3 OF 6)
WAC/20222/TS/C/104	-	SCOPE OF TEE PRUNING AT TAI O FU SHAN (SHEET 4 OF 6)
WAC/20222/TS/C/105	-	SCOPE OF TEE PRUNING AT TAI O FU SHAN (SHEET 5 OF 5)

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVEL ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOWN		
CAD FILE:	WAC_20222_MUW_CS_001		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
CONTENT SHEET OF
TRAIL IMPROVEMENT WORKS IN TAI O

DRAWING NO:	REV:
WAC/20222/MUW/CS/001	–

和翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.

GENERAL:

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVELS ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).
3. THIS DRAWING CONTAINS ONLY GENERAL NOTES. SPECIFIC NOTES PERTAINING TO PARTICULAR ELEMENTS OF WORK ARE SHOWN ON EACH DRAWING.
4. ALL COORDINATES ARE IN ACCORDANCE WITH H.K.(1980) GEOMETIC DATUM.
5. THE LATEST REVISIONS OF ALL STANDARD GOVERNMENT DRAWINGS SHALL BE USED.
6. ALL WORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GENERAL SPECIFICATION FOR CIVIL ENGINEERING WORKS 2020 EDITION OR PARTICULAR SPECIFICATION.
7. THE CONTRACTOR SHALL EXERCISE DUE CARE DURING THE WORK ON SITE TO AVOID DAMAGE TO ADJACENT STRUCTURES, ROADS, FOOTWAYS, UTILITIES AND SERVICES.
8. TEMPORARY SHORING FOR EXCAVATED TRENCHES SHALL BE DESIGNED WITH DUE CONSIDERATION SITE.
9. ALL WORKS AND MATERIALS SHALL CONFORM TO CURRENT BUILDING REGULATIONS AND HONG KONG STANDARDS. IN PARTICULAR THE FOLLOWING REGULATIONS AND STANDARDS SHALL BE AS PART OF THESE GENERAL NOTES.
   - BUILDING (CONSTRUCTION) REGULATIONS, 1990
   - CODE OF PRACTICE FOR STRUCTURAL USE OF DEAD AND IMPOSED LOAD 2011
   - CODE OF PRACTICE FOR PRECAST CONCRETE CONSTRUCTION 2016
   - CODE OF PRACTICE FOR STRUCTURAL USE OF CONCRETE 2013
   - CODE OF PRACTICE ON WIND EFFECTS IN HONG KONG 2004
   - CODE OF PRACTICE FOR STRUCTURAL USE OF STEEL 2011
10. PROPOSED HIKING TRAIL AND STAIRCASE ALIGNMENT SHOWN ON DRAWINGS ARE INDICATIVE ONLY. DETAILED INITIAL SITE SURVEY SHOWING THE EXISTING GROUND LEVELS, EXISTING TREES, PLANTS, FENCE, POSTS, FEATURES, GRAVES, URNS, ELEMENTS AND ETC., SHALL BE CONDUCTED BY THE CONTRACTOR AND SUBMITTED TO THE SUPERVISOR FOR REVIEW WITHOUT COMMENT AT LEAST 2 WEEKS PRIOR TO COMMENCEMENT OF WORKS AND THE EXACT ALIGNMENT OF THE PROPOSED HIKING TRAIL AND STAIRCASE TO BE DETERMINED ON SITE AFTER REVIEW WITHOUT COMMENT ON THE INITIAL SITE SURVEY BY THE SUPERVISOR.
11. THESE DRAWINGS DO NOT PURPOSE TO INCLUDE ANY NECESSARY PRECAUTIONS. ITEMS OR COMPONENTS REQUIRED FOR CONSTRUCTION SAFETY. ALL SUCH PRECAUTIONS ITEMS OR COMPONENTS MUST BE SUPPLIED BY THE CONTRACTOR.
12. THE CONTRACTOR SHALL SUBMIT CONSTRUCTION METHOD. MATERIAL SPECIFICATION AND CONSTRUCTION PROGRAMME TO THE SUPERVISOR FOR APPROVAL PRIOR TO COMMENCEMENT OF WORKS.
13. ALL STRUCTURAL STEELWORKS ARE DESIGNED IN ACCORDANCE WITH THE CODE OF PRACTICE FOR THE STRUCTURAL USE OF STEEL 2011.
14. THE STRENGTH OF NON-SHRINK STRUCTURAL GROUT SHALL BE 30MPa.

NOTES FOR WOOD PLASTIC COMPOSITE (WPC):

1. THE MATERIAL PROPERTIES OF PPMS SHALL COMPLY AS FOLLOWS TABLE.

PROPERTIES		TESTING STANDARD OR EQUIVALENT	TARGET VALUES
(1)	DENSITY	ASTM D792	1.2 TO 1.4 G/CM^3
(2)	WATER ABSORPTION	ASTM D1037	NOT MORE THAN 1.5%
(3)	SHORE A HARDNESS	ASTM D2240	NOT LESS THAN 95
(4)	TENSILE STRENGTH	ASTM D638	NOT LESS THAN 7MPA
(5)	FLEXURAL STRENGTH	ASTM D6109	NOT LESS THAN 25MPA
(6)	COMPRESSIVE STRENGTH	ASTM D695	NOT LESS THAN 27MPA IN LENGTH DIRECTION & 13MPA IN WIDTH DIRECTION
(7)	SHEAR STRENGTH	ASTM D6435	NOT LESS THAN 6.1MPA
(8)	COEFFICIENT OF LINEAR THERMAL EXPANSION	ASTM D696	NOT MORE THAN 70X10^{-6}K^{-1}
(9)	SHELF LIFE	AGING TEST	NOT LESS THAN 10 YEARS (FOR ITEM 3 TO 8)
(10)	FASTENERS WITHDRAWAL	ASTM D6117	ASTM D6117
(11)	CREEP RECOVERY	ASTM D7032	NOT LESS THAN 75%
(12)	FORMALDEHYDE LEVEL	ASTM D5582	NOT MORE THAN 0.1MG/L
(13)	ANTI-SLIP PROPERTIES	DIN 51130:2014	NOT LESS THAN CATEGORY R11 IN OUTDOOR(WET) CONDITION

2. THE CONTRACTOR SHALL BE RESPONSIBLE TO CARRY OUT RELEVANT TESTING TO DEMONSTRATE THE COMPILATION WITH THE REQUIREMENTS.
3. THE CONTRACTOR SHALL REFER TO THE ATTACHED PARTICULAR SPECIFICATION FOR THE MATERIAL SUBMISSIONS.
4. THE CONTRACTOR SHALL REQUIRE THE WPC MANUFACTURER TO PROVIDE AT LEAST 10 YEARS GUARANTEE AGAINST THE FOLLOWING DAMAGE IN OUTDOOR ENVIRONMENT IF THE INSTALLATION SEQUENCE AND DETAILS ARE FULLY COMPLIED WITH THE MANUFACTURER RECOMMENDATIONS.
   - CRACKING
   - OIL DAMAGE
   - UV DEGRADATION
   - COLOUR FADE
   - FROST DAMAGE
   - ANTI-FUNGI AND ANTIMICROBIAL
5. THE PPMS SHALL BE ECO-FRIENDLY AND SUSTAINABLE MATERIAL MADE BY COMBINING LOCAL RECYCLED WOOD WASTE, LOCAL RECYCLED PLASTIC WASTE.
6. THE CONTRACTOR SHALL CONDUCT RELEVANT TESTING TO ENSURE THEIR WPC MATERIAL COMPLY WITH THE SPECIFIED VALUES OF MATERIAL.
7. THE CONTRACTOR SHALL PROPOSE TESTING TO ENSURE THEIR WPC MATERIAL IS AN ENVIRONMENT FRIENDLINESS MATERIAL AND WILL NOT EMIT HARMFUL CHEMICAL DURING THE WEATHERING SUCH AS SUNLIGHT AND HEAVY RAINING OVER THE 10 YEARS OF GUARANTEE PERIOD.
8. THE WPC PRODUCTS SHALL BE WEATHER-RESISTANT, SHALL NOT BE ROT IN WET ENVIRONMENT AND SHALL NOT EMIT ANY HARMFUL MATERIAL IN OUTDOOR ENVIRONMENT.
9. THE COMPOSITION OF WPC PRODUCTS SHALL NOT INCLUDE HEAVY METAL, FORMALDEHYDE, NOR OTHER CARCINOGENIC SUBSTANCE.
10. THE WPC PRODUCTS SHALL BE NON-FLAMMABLE. THE CONTRACTOR SHALL CARRY OUT TESTING TO DEMONSTRATE THE WPC PRODUCTS ARE NON-FLAMMABLE.
11. FOR PPM STEP, STAIR AND BOARDWALK, THE SLIP RESISTANCE OF WPC PRODUCT SHALL BE R11 OR BETTER IN OUTDOOR (WET) CONDITION.
12. THE SLIP RESISTANCE (R11 OR BETTER) ON THE SURFACE SHALL BE MAINTAINED THROUGHOUT THE GUARANTEE PERIOD UNDER NORMAL WEAR AND TEAR USAGE.
13. THE CONTRACTOR SHALL PROVIDE TESTING CERTIFICATES TO DEMONSTRATE THE SLIP RESISTANCE FOR THE PPMS STAIRS AND STEPS BE R11 OR BETTER ON THE SURFACING OF PEDESTRIAN USE.
14. THE MANUFACTURER OF WPC PRODUCTS SHALL DEMONSTRATE THAT THEIR PRODUCTS CAN RESIST OF THE FOLLOWING:
   - RESISTING ANY PUNCHING BY SHARP OBJECTS WITHOUT ANY DAMAGE;
   - DRILLED BY HAND DRILL WITHOUT ANY DAMAGE;
   - SAWED WITHOUT ANY DAMAGE; AND
   - NAILED BY HAMMER WITHOUT ANY DAMAGE.
15. CAPPING PLATES SHALL BE PROVIDED FOR BOTH END OF HOLLOWED WPC PRODUCTS. THE CAPPING PLATE SHALL BE DEMONSTRATED THAT THEY ARE NOT EASILY TO BE REMOVED DUE TO VANDALISM THROUGHOUT THE GUARANTEE PERIOD UNDER NORMAL WEAR AND TEAR USAGE. THE APPEARANCE AND TEXTURE OF CAPPING PLATE SHALL BE MATCHED WITH THE PROPOSED PPM TEXTURES AND COLOR.
16. PLUG COVERS SHALL BE PROVIDED FOR HOLES ON WPC PRODUCTS FOR PREVENTING WATER SEEPAGE AND AESTHETIC. THE PLUG COVER SHALL BE DEMONSTRATED THAT THEY ARE NOT EASILY TO BE REMOVED UNDER NORMAL WEAR AND TEAR AND VANDALISM THROUGHOUT THE GUARANTEE PERIOD. THE APPEARANCE AND TEXTURE OF PLUG COVER SHALL BE MATCHED WITH THE PROPOSED PPM TEXTURES AND COLOR.
17. A TRIAL PRODUCTION FOR VERIFYING THE PATTERNS AND COLOR CODES SHALL BE CARRIED AND BE ACCEPTANCE BY THE GOVERNMENT REPRESENTATIVE / SUPERVISOR PRIOR TO THE FORMAL PRODUCTION.
18. EACH TYPE OF PPM SHALL BE ASSEMBLED IN THE LOCAL FACTORY IN THE TRIAL PRIOR TO THE FORMAL INSTALLATION ON SITE.
19. THE TOLERANCE OF DIMENSIONS (LENGTH X WIDTH X HEIGHT) FOR EACH PPM SHALL NOT EXCEED +/- 2MM.
20. ACCORDING TO CLAUSE 6 OF THE SPECIAL CONDITIONS OF CONTRACT, THE STEEL MOULDS OF PROTOTYPE PRECAST MODULES SHALL BECOME THE GOVERNMENT PROPERTY AFTER THE COMPLETION OF WORKS.

NOTES FOR DOWEL BARS:

1. TESTING FOR DOWEL BARS SHALL COMPLY WITH CONSTRUCTION STANDARD CS2 : 2012 OF HONG KONG.
2. THE DOWEL BAR SHALL BE STAINLESS STEEL GRADE 1.4301 (304) IN ACCORDANCE WITH BS EN 10088-2:2005.

NOTES FOR MESH FABRIC:

1. THE SPECIFIED CHARACTERISTIC STRENGTH (fy) OF A252 MESH FABRIC SHALL BE 500N/mm^2.

NOTES FOR STANDARD MIX CONCRETE:

1. THE STANDARD MIX CONCRETE SHALL BE GRADE 30/20S UNLESS OTHERWISE STATED.
2. THE STANDARD MIX CONCRETE SHALL COMPLY WITH CLAUSE 16.15 OF GENERAL SPECIFICATION FOR CIVIL ENGINEERING WORKS (2020 EDITION).
3. THE REQUIRED SLUMP VALUE OF THE STANDARD MIX CONCRETE SHALL BE 75mm.
4. THE SAMPLING REQUIREMENT FOR SLUMP TEST AND COMPRESSIVE STRENGTH TEST SHALL COMPLY WITH CLAUSE 2.24 IN QUOTATION SPECIFICATION.

NOTES FOR THE ROPE FOR THE HANDRAIL OF PROTOTYPE PRECAST PRECAST MODULES – RAILING (TYPE 2):

1. THE ROPE FOR THE HANDRAIL OF PRECAST MODULES – RAILING (TYPE 2) SHALL BE POLYPROPYLENE ROPE.
2. THE DIAMETER OF THE POLYPROPYLENE ROPE SHALL BE 24mm.
3. THE MINIMUM TENSILE STRENGTH (BREAKING STRENGTH) OF THE ROPE SHALL BE 30kN.
4. THE ROPE SHALL BE UV RESISTANT.
5. THE TESTING METHOD OF THE ROPE'S TENSILE STRENGTH SHALL COMPLY WITH ASTM D4268.

NOTES FOR STEELWORKS:

1. THE STEELWORKS SHALL COMPLY WITH BS EN 1090:PART 2 AND THE SECTION 18 OF THE GENERAL SPECIFICATION FOR CIVIL ENGINEERING WORKS (2020 EDITION).
2. EXCEPT SPECIFIED OTHERWISE, ALL STRUCTURAL STEEL GRADE SHALL BE S275J0 (CLASS 1), IN ACCORDANCE WITH BS EN 10025-1:2004.
3. EXCEPT SPECIFIED OTHERWISE, ALL STEEL BOLT SHALL BE GRADE 4.6, IN ACCORDANCE WITH BS4190:2014.
4. ALL STEEL SHALL BE GALVANIZED TO BS EN ISO 1461 WITH A MINIMUM THICKNESS OF 85 μm.
5. THE COLOR OF PAINT SHALL FOLLOW DRAWING NO. WAC/20222/C/PPM/012.
6. PAINT SYSTEM OF STEELWORKS SHALL FOLLOW CLAUSE 16.4 OF THE STRUCTURES DESIGN MANUAL FOR HIGHWAYS AND RAILWAYS.

   PAINT SYSTEM II

TO BE APPLIED TO:	STRUCTURAL STEELWORKS
LIFE TO FIRST MAINTENANCE:	MORE THAN 15 YEARS, HIGH DURABILITY AS DEFINED IN BS EN ISO 12944 PART 5
PRETREATMENT:	TWO-PACK ETCH PRIMER
PRIMER:	TWO-PACK EPOXY ZINC PHOSPHATE PRIMER, 80 μm MINIMUM TOTAL DRY-FILM THICKNESS
UNDERCOAT:	TWO-PACK MICACEOUS IRON OXIDE EPOXY UNDERCOAT, 140 μm MINIMUM TOTAL DRY-FILM THICKNESS
FINISH:	TWO-PACK POLYURETHANE FINISH COAT, 100 μm MINIMUM TOTAL DRY-FILM THICKNESS

7. TESTING FOR STRUCTURAL STEELWORK SHALL BE CARRIED OUT IN ACCORDANCE WITH SECTION 18 OF THE GENERAL SPECIFICATION FOR CIVIL ENGINEERING WORKS (2020 EDITION).

NOTES FOR STAINLESS STEEL WORKS:

1. ALL STRUCTURAL STEELWORKS ARE DESIGNED IN ACCORDANCE WITH THE CODE OF PRACTICE FOR THE STRUCTURAL USE OF STEEL 2011.
2. ALL STAINLESS STEELWORKS SHALL BE X5CrNi18-10 GRADE 1.4301(304) OR EQUIVALENT AND TO BS EN 10088-2:2005

NOTES FOR GEOTEXTILE:

1. THE FABRIC MATERIAL FOR GEOTEXTILE SHALL BE AN UV-STABILIZED NONWOVEN POLYPROPYLENE GEOTEXTILE WITH A MINIMUM TENSILE STRENGTH OF 4.5KN/m AND PERMEABILITY GREATER THAN 50 l/m^2/sec AND LESS THAN 160 l/m^2/sec FOR A 100mm HEAD OF WATER.

B.D. REF.	/ /
F.S.D. REF.	/ /

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

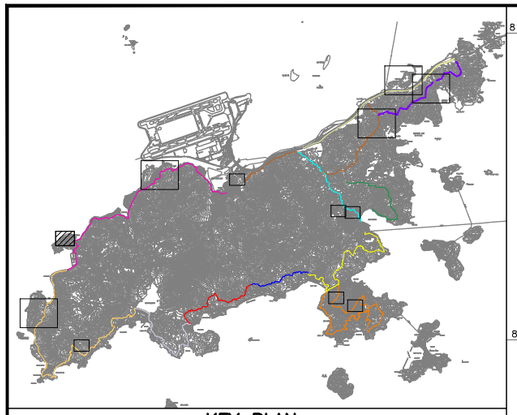
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:			
CAD FILE:	WAC_20222_MUW_GN_001		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
GENERAL NOTES FOR TRAIL IMPROVEMENT WORKS IN TAI O

DRAWING NO: **WAC/20222/MUW/GN/001**
REV: **–**

威雅顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



KEY PLAN
SCALE 1 : 300000

813750 N
813625 N
813500 N
813375 N
813250 N
813125 N
803250 E
803375 E
803500 E
803625 E
803750 E
803000 E
803125 E

803537.3556 N
813512.0209 E

813560.7148 N
803785.5601 E

MUW/C/101
MUW/C/102
MUW/C/103
MUW/C/104
MUW/C/105

FU SHAN
PO CHUE TAM

TYPE	QUANTITY
TOTAL LENGTH OF TRAIL	420m
TOTAL LENGTH OF WORKS	220m
PPM STEP TYPE 1	12nr.
PPM STEP TYPE 2	134nr.
PPM STEP TYPE 3	178nr.
PPM STAIRS TYPE 2A	25nr.
PPM STAIRS TYPE 3	18nr.
PPM RAILING TYPE 1	63m
PPM RAILING TYPE 2	96m
PPM RAILING TYPE 3	219m
PPM WATER BAR	9nr.
PPM BOARDWALK	4nr.
PPM VIEWING PLATFORM	1nr.

0 25 50 75 100 125m
SCALE 1 : 2500 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

LEGEND:

- EXISTING HIKING TRAIL
- CONCERNED SECTION OF HIKING TRAIL TO BE IMPROVED
- BOUNDARY OF COSTAL PROTECTION AREA
- PPM STEP TYPE 1
- PPM STEP TYPE 2
- PPM STEP TYPE 3
- PPM RAILING TYPE 1
- PPM RAILING TYPE 2
- PPM RAILING TYPE 3
- PPM WATER BAR
- PPM BOARDWALK
- PPM STAIRS TYPE 1A
- PPM STAIRS TYPE 2A

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_MUW_C_006_101_102_103_104		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
LAYOUT PLAN OF TRAIL
IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)

DRAWING NO:	REV:
WAC/20222/MUW/C/006	–

WINGS & ASSOCIATES
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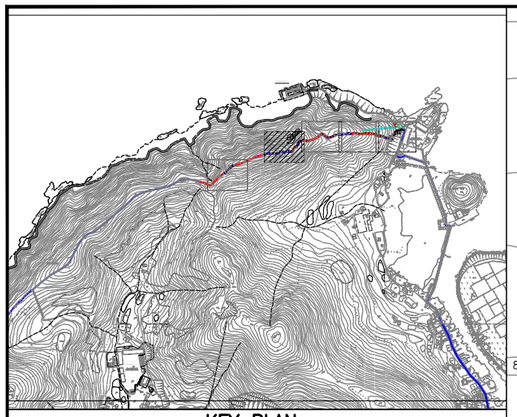

KEY PLAN
SCALE 1 : 300000

803560 E
803570 E
803590 E
813540 N
813520 N
813500 N

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/102

67.5
8503
7626
1220
A 67.8
42967
2205
40

0 2 4 6 8 10m
SCALE 1 : 200 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

LEGEND:

- EXISTING HIKING TRAIL
- CONCERNED SECTION OF HIKING TRAIL TO BE IMPROVED
- PPM STEP TYPE 1
- PPM STEP TYPE 2
- PPM STEP TYPE 3
- PPM RAILING TYPE 1
- PPM RAILING TYPE 2
- PPM RAILING TYPE 3
- PPM WATER BAR
- PPM BOARDWALK
- PPM STAIRS TYPE 1
- PPM STAIRS TYPE 2A

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

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HOP TAI CONSTRUCTION CO. L.T.D.

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APPROVED BY:	VT		
SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_MUW_C_006_101_102_103_104		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
SCOPE OF TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)
(SHEET 1 OF 4)

DRAWING NO:	REV:
WAC/20222/MUW/C/101	–

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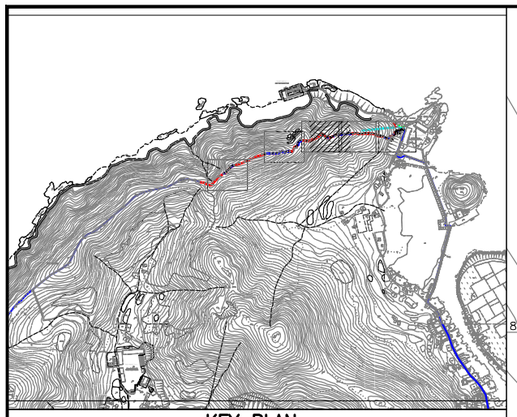
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



KEY PLAN
SCALE 1 : 300000

803630 E
803650 E
803670 E
803610 E
813560 N
813540 N
813520 N

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/103

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/101

12549
14227
8503
14413
64945
1200
1200
1200
1200
526
51.4
A
A

0 2 4 6 8 10m
SCALE 1 : 200 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

LEGEND:

- EXISTING HIKING TRAIL
- CONCERNED SECTION OF HIKING TRAIL TO BE IMPROVED
- PPM STEP TYPE 1
- PPM STEP TYPE 2
- PPM STEP TYPE 3
- PPM RAILING TYPE 1
- PPM RAILING TYPE 2
- PPM RAILING TYPE 3
- PPM WATER BAR
- PPM BOARDWALK
- PPM STAIRS TYPE 1
- PPM STAIRS TYPE 2A

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

PROJECT NO:	20222		
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APPROVED BY:	VT		
SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_MUW_C_006_101_102_103_104		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
SCOPE OF TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)
(SHEET 2 OF 4)

DRAWING NO:	REV:
WAC/20222/MUW/C/102	–

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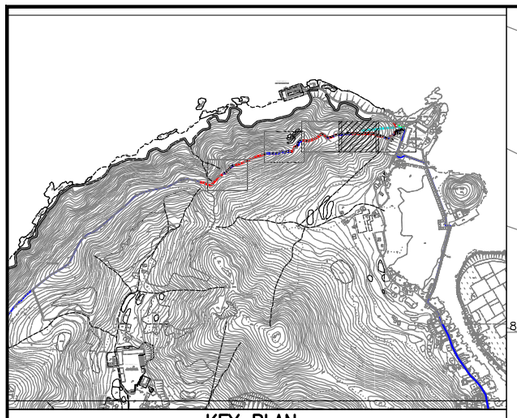

KEY PLAN
SCALE 1 : 300000

803690 E
803710 E
803730 E
803670 E
813560 N
813540 N
813520 N

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/104

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/102

64945
28501
1200
1300
C009
6
FP

0 2 4 6 8 10m
SCALE 1 : 200 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

LEGEND:

- EXISTING HIKING TRAIL
- CONCERNED SECTION OF HIKING TRAIL TO BE IMPROVED
- BOUNDARY OF COASTAL PROTECTION AREA
- PPM STEP TYPE 1
- PPM STEP TYPE 2
- PPM STEP TYPE 3
- PPM RAILING TYPE 1
- PPM RAILING TYPE 2
- PPM RAILING TYPE 3
- PPM WATER BAR
- PPM BOARDWALK
- PPM VIEWING PLATFORM
- PPM STAIRS TYPE 1
- PPM STAIRS TYPE 2A

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

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SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_MUW_C_006_101_102_103_104		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
SCOPE OF TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)
(SHEET 3 OF 4)

DRAWING NO:	REV:
WAC/20222/MUW/C/103	–

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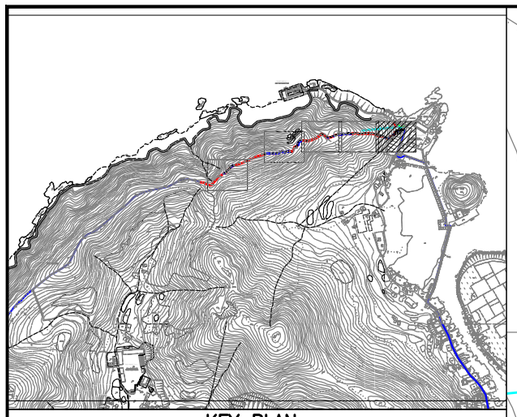

KEY PLAN
SCALE 1 : 300000

803760 E
803780 E
803800 E
803740 E
813560 N
813540 N
813520 N

T001 T002 T003 T004 T005 T006 T007 T008 T009 T010 T011 T012 T013 T014 T015

TREE LOCATION
(INDICATIVE ONLY)

TREE LOCATION
(INDICATIVE ONLY)

EXISTING U-CHANNEL AND CATCHPIT

TYPE 3

TYPE 2A

C001 C002 C003 C004 C005 C006 C007 C008 C009

1200

28501

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/103

基督教正生會
男性成人
Christian
Sheng Asso

0 2 4 6 8 10m
SCALE 1 : 200 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

LEGEND:

- EXISTING HIKING TRAIL
- CONCERNED SECTION OF HIKING TRAIL TO BE IMPROVED
- BOUNDARY OF COASTAL PROTECTION AREA
- PPM STEP TYPE 1
- PPM STEP TYPE 2
- PPM STEP TYPE 3
- PPM RAILING TYPE 1
- PPM RAILING TYPE 2
- PPM RAILING TYPE 3
- PPM WATER BAR
- PPM BOARDWALK
- TREE
- EXISTING CATCHPIT
- EXISTING U-CHANNEL
- PPM STAIRS TYPE 1
- PPM STAIRS TYPE 2A

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
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SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_MUW_C_006_101_102_103_104		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
SCOPE OF TRAIL IMPROVEMENT
WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)
(SHEET 4 OF 4)

DRAWING NO:	REV:
WAC/20222/MUW/C/104	–

WINGS & ASSOCIATES
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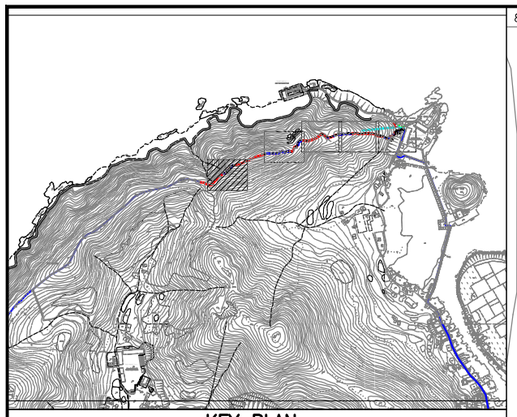

KEY PLAN
SCALE 1 : 300000

813500 N
813480 N
813460 N
803430 E
803450 E
803470 E
803490 E

80.8
79.6
70.1
71.3

TYPE	QUANTITY
TOTAL LENGTH OF WORKS	30m
PPM STEP TYPE 2	7nr.
PPM STEP TYPE 3	3nr.
PPM STAIR TYPE 1	29nr
PPM RAILING TYPE 3	27m
PPM WATER BAR	1nr.
VIEWING PLATFORM	1nr.

0 2 4 6 8 10m
SCALE 1 : 200 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

LEGEND:

- EXISTING HIKING TRAIL
- CONCERNED SECTION OF HIKING TRAIL TO BE IMPROVED
- PPM STEP TYPE 2
- PPM STEP TYPE 3
- PPM RAILING TYPE 3
- PPM WATER BAR
- PPM VIEWING PLATFORM
- PPM STAIRS TYPE 1

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

PROJECT NO:	20222		
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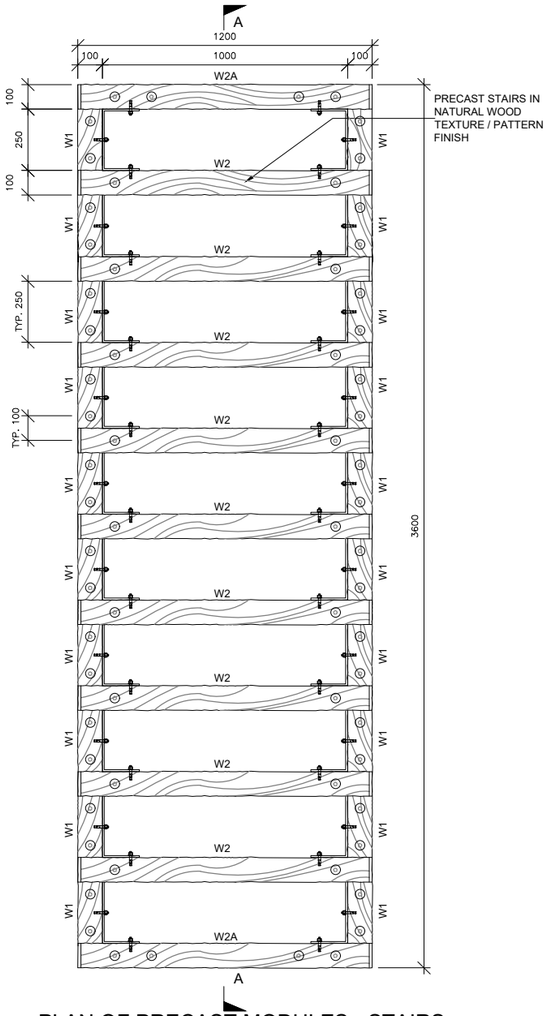
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_MUW_C_006_101_102_103_104		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
SCOPE OF TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)
(SHEET 5 OF 5)

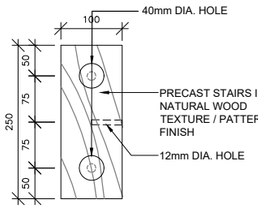
DRAWING NO:	REV:
WAC/20222/MUW/C/105	–

和翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



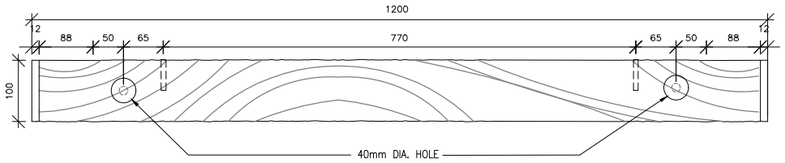
PLAN OF PRECAST MODULES - STAIRS

SCALE 1:25 (A3)



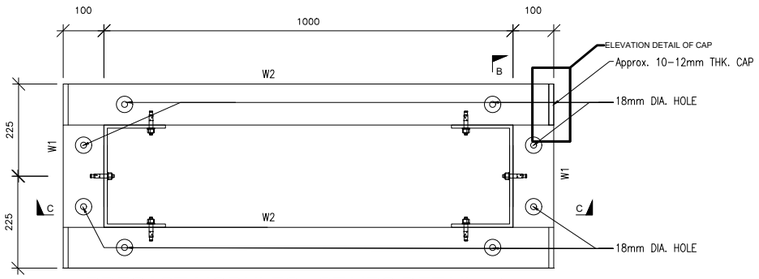
PLAN OF W1

SCALE 1:10 (A3)



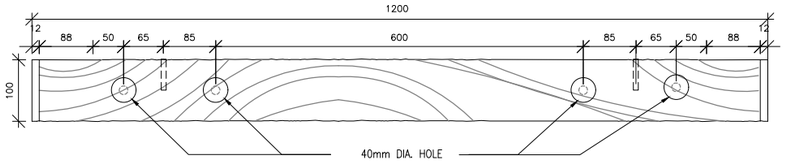
PLAN OF W2

SCALE 1:10 (A3)



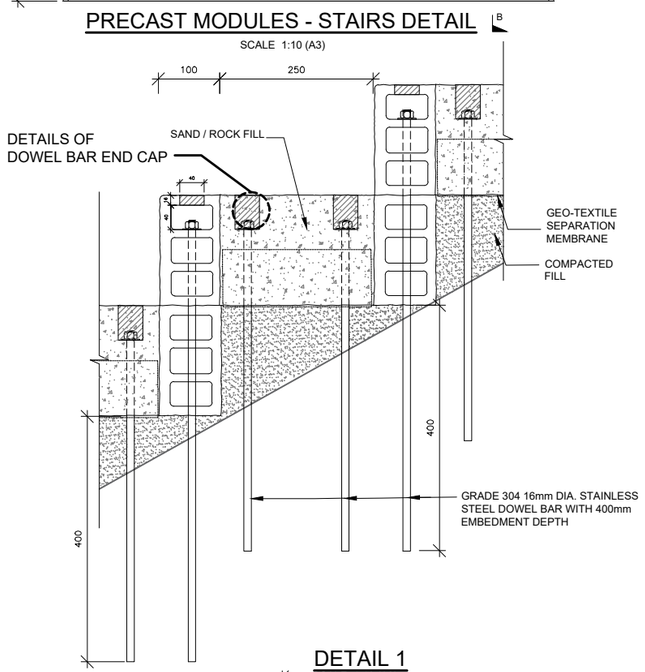
PRECAST MODULES - STAIRS DETAIL

SCALE 1:10 (A3)



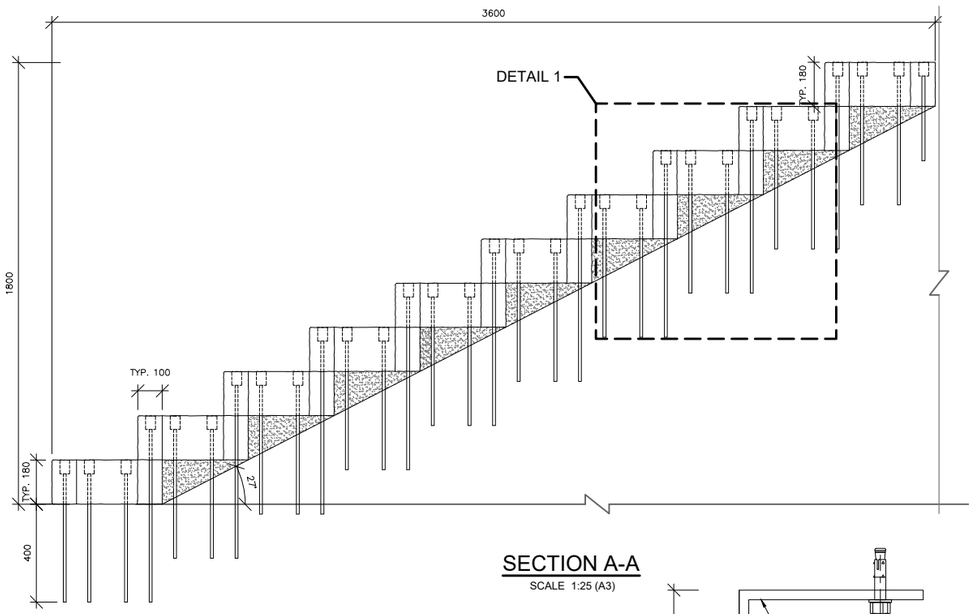
PLAN OF W2A

SCALE 1:10 (A3)



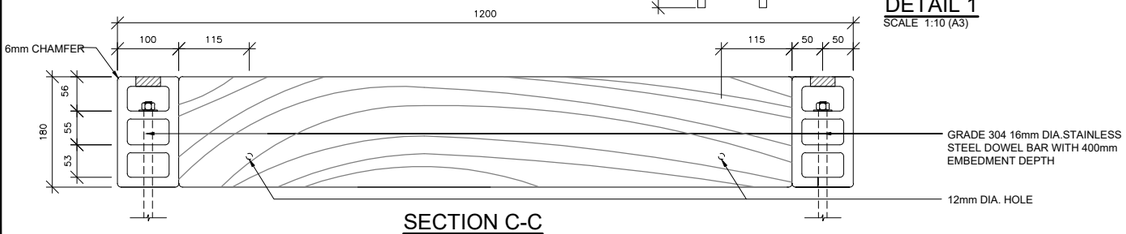
DETAIL 1

SCALE 1:10 (A3)



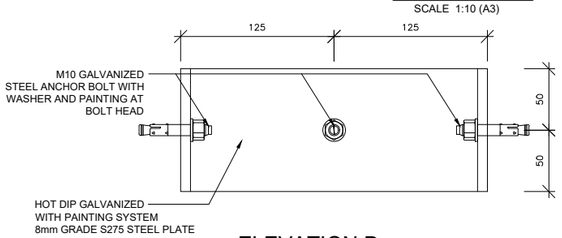
SECTION A-A

SCALE 1:25 (A3)



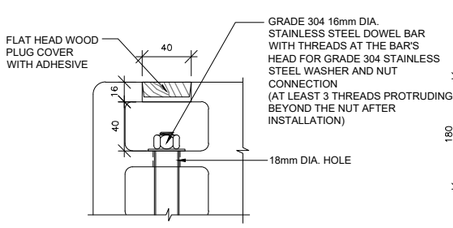
SECTION C-C

SCALE 1:10 (A3)



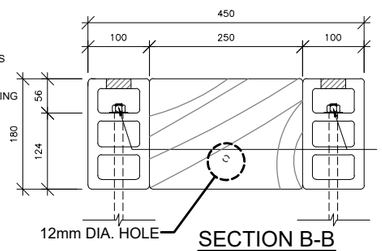
ELEVATION D

SCALE 1:5 (A3)



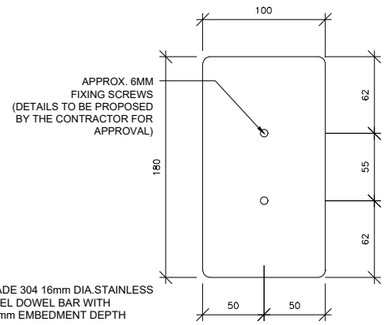
DETAILS OF DOWEL BAR END CAP

SCALE 1:5 (A3)



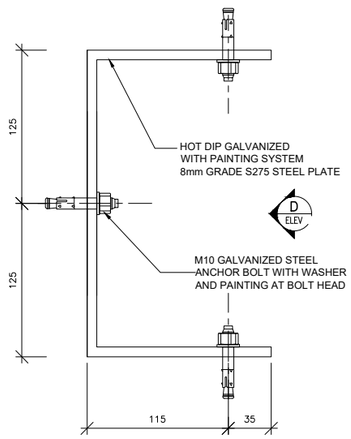
SECTION B-B

SCALE 1:10 (A3)



ELEVATION DETAIL OF CAP

SCALE 1:5 (A3)



DETAILS OF CORNER CONNECTING PLATE

SCALE 1:5 (A3)

B.D. REF.	/ /		
F.S.D. REF.	/ /		

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVEL ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).
3. FOR GENERAL NOTES, REFER TO DRAWING NO. WAC/20222/MUW/GN/001 AND SPECIFICATION FOR THE WPC MATERIAL'S PROPERTIES.
4. PRE-ASSEMBLY TRIAL OF THE PRECAST MODULES SHALL BE CARRIED OUT AT MANUFACTURING FACTORY BEFORE DELIVERING TO THE SITE.
5. EACH PRECAST STEP SHALL NOT BE OVERLAPPING WHEN CONSTRUCTED IN SERIES.
6. COLOR AND PATTERN OF PPMs SHALL REFER TO DRAWING NO. WAC/20222/PPM/C/012.
7. FOR ALL RECTANGULAR PPMs, 6mm CHAMFER SHALL BE PLACED ON THE EDGE.
8. ON-SITE MODIFICATION, SUCH AS TRIMMING, INSITU CONCRETE MIXING, HOLE DRILLING AND ADJUSTING ANGLE, SHALL BE CARRIED OUT BY THE CONTRACTOR. SO THAT THE PPMs WILL FIT INTO THE ACTUAL SITE CONDITION.
9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

PROJECT NO:	20222		
DRAWN BY:			
DESIGNED BY:			
CHECKED BY:			
APPROVED BY:	VT		
SCALE:			
CAD FILE:	WAC_20222_C_PPM_002_TYPE1		

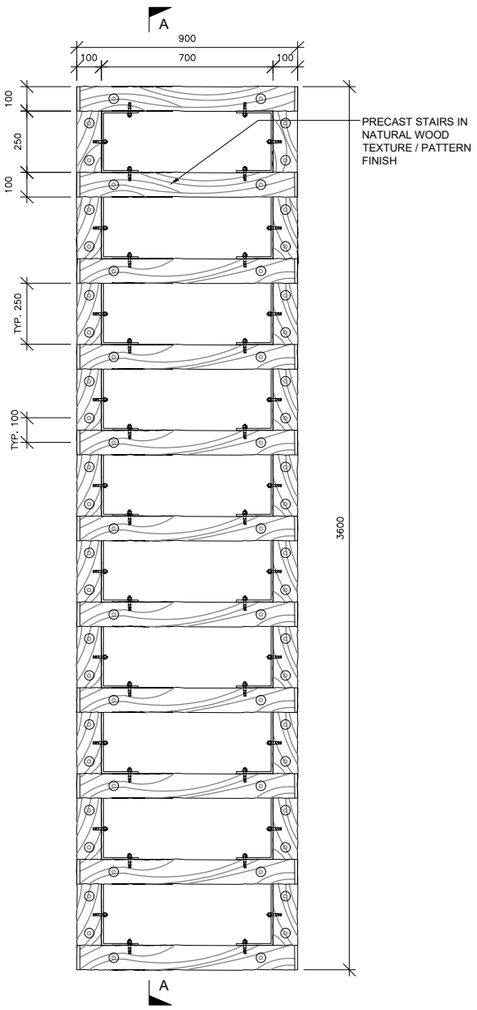
PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
TYPICAL DETAILS OF PRECAST MODULES – STAIRS (TYPE 1)

DRAWING NO: WAC/20222/C/PPM/002

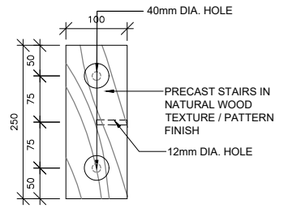
REV: –

WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.
和雅顧問工程師有限公司



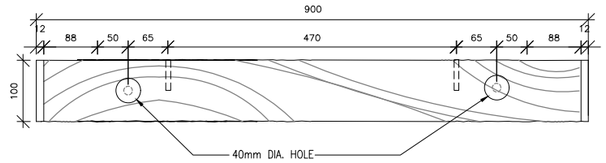
PLAN OF PRECAST MODULES - STAIRS

SCALE 1:25 (A3)



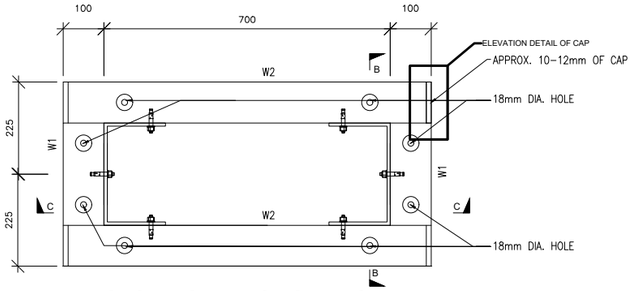
PLAN OF W1

SCALE 1:10 (A3)



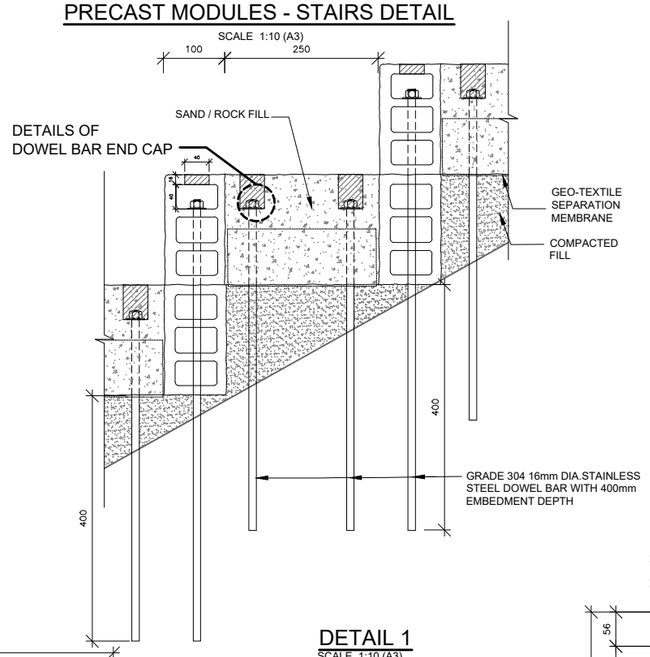
PLAN OF W2

SCALE 1:10 (A3)



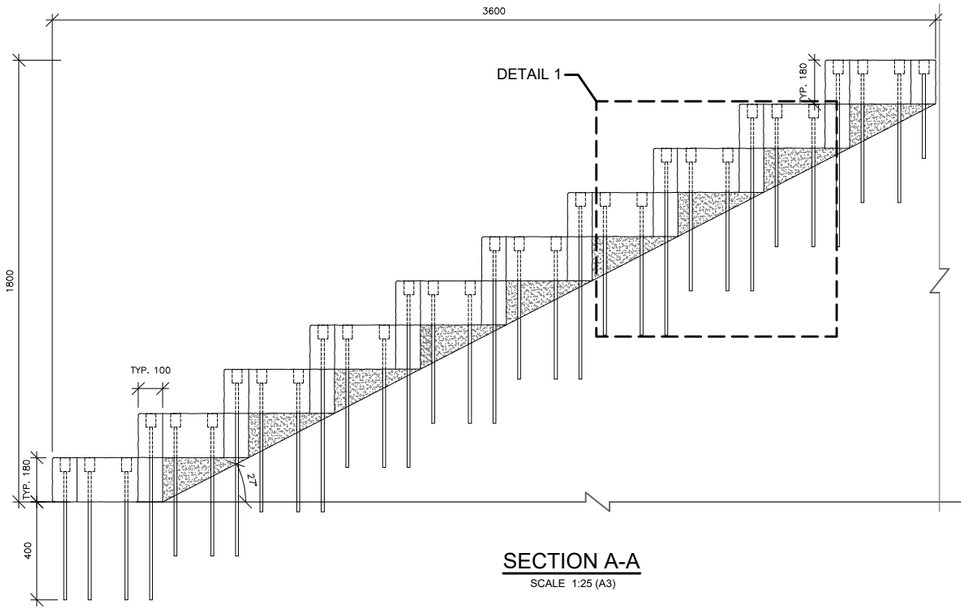
PRECAST MODULES - STAIRS DETAIL

SCALE 1:10 (A3)



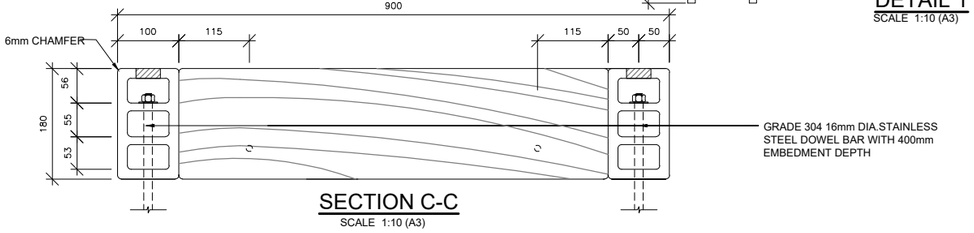
DETAIL 1

SCALE 1:10 (A3)



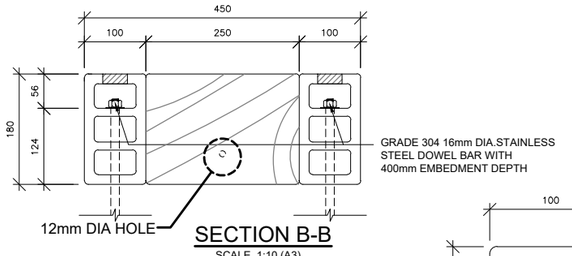
SECTION A-A

SCALE 1:25 (A3)



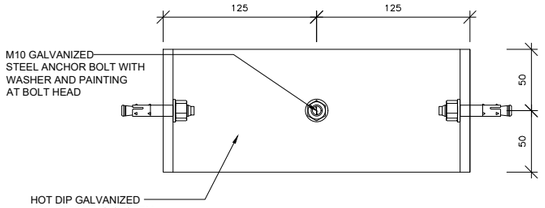
SECTION C-C

SCALE 1:10 (A3)



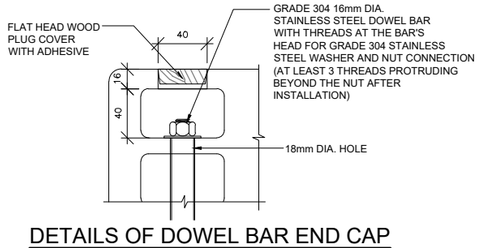
SECTION B-B

SCALE 1:10 (A3)



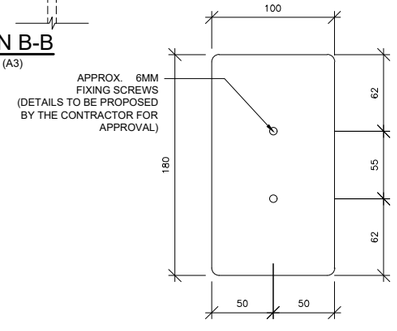
ELEVATION D

SCALE 1:5 (A3)



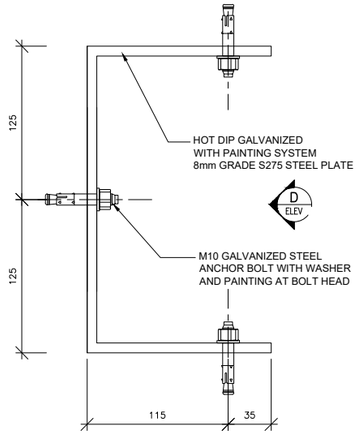
DETAILS OF DOWEL BAR END CAP

SCALE 1:5 (A3)



ELEVATION DETAIL OF CAP

SCALE 1:5 (A3)



DETAILS OF CORNER CONNECTING PLATE

SCALE 1:5 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
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9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

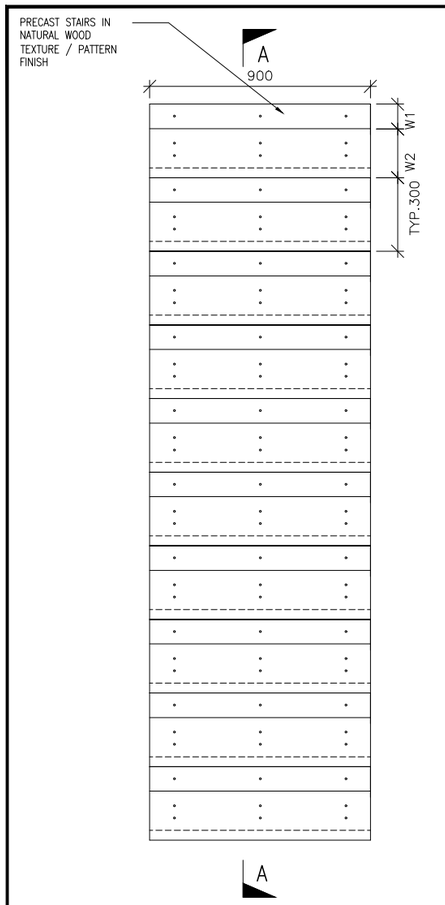
PROJECT NO:	20222		
DRAWN BY:			
DESIGNED BY:			
CHECKED BY:			
APPROVED BY:	VT		
SCALE:			
CAD FILE:	WAC_20222_C_PPM_002-1_TYPE2A		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
TYPICAL DETAILS OF PRECAST MODULES - STAIRS (TYPE 2A)

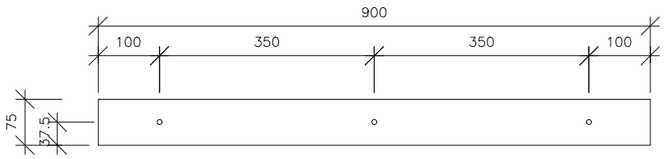
DRAWING NO:	REV:
WAC/20222/C/PPM/002-1	-

WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.



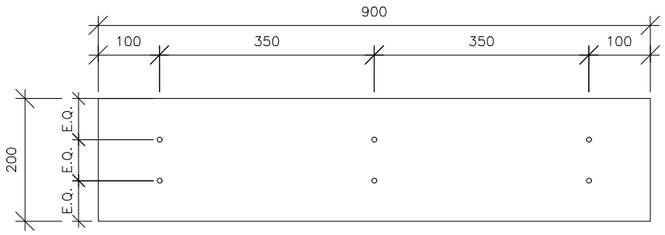
PLAN OF PRECAST MODULES – STAIRS

SCALE 1:25 (A3)



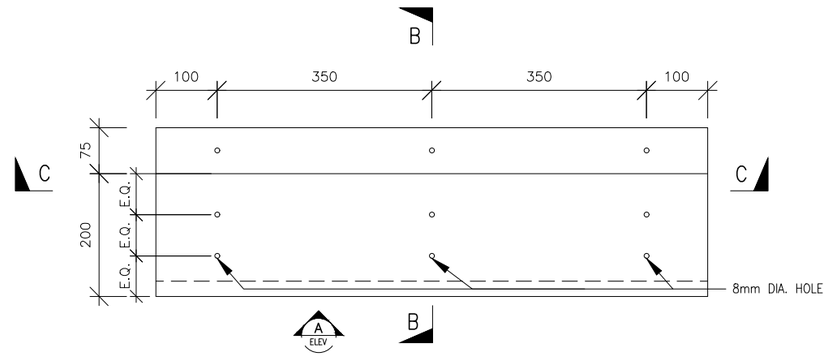
PLAN OF W1

SCALE 1:10 (A3)



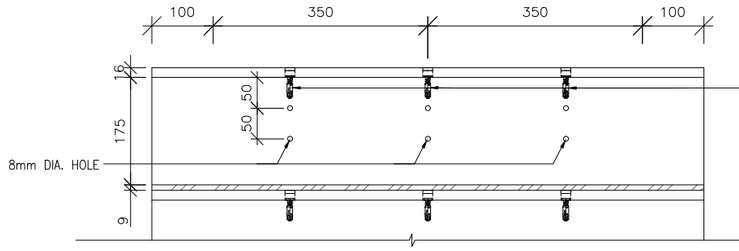
PLAN OF W2

SCALE 1:10 (A3)



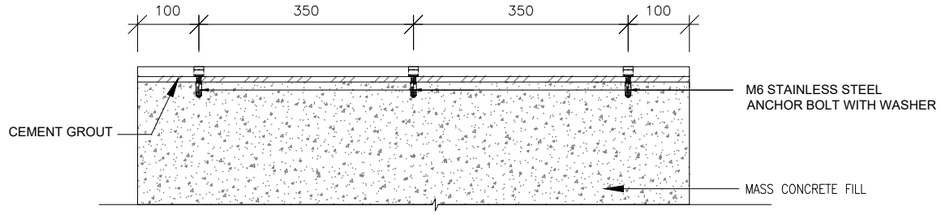
PLAN OF STAIRS DETAIL

SCALE 1:10 (A3)



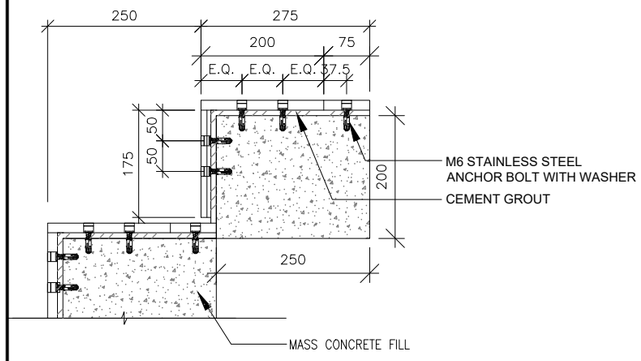
ELEVATION A

SCALE 1:10 (A3)



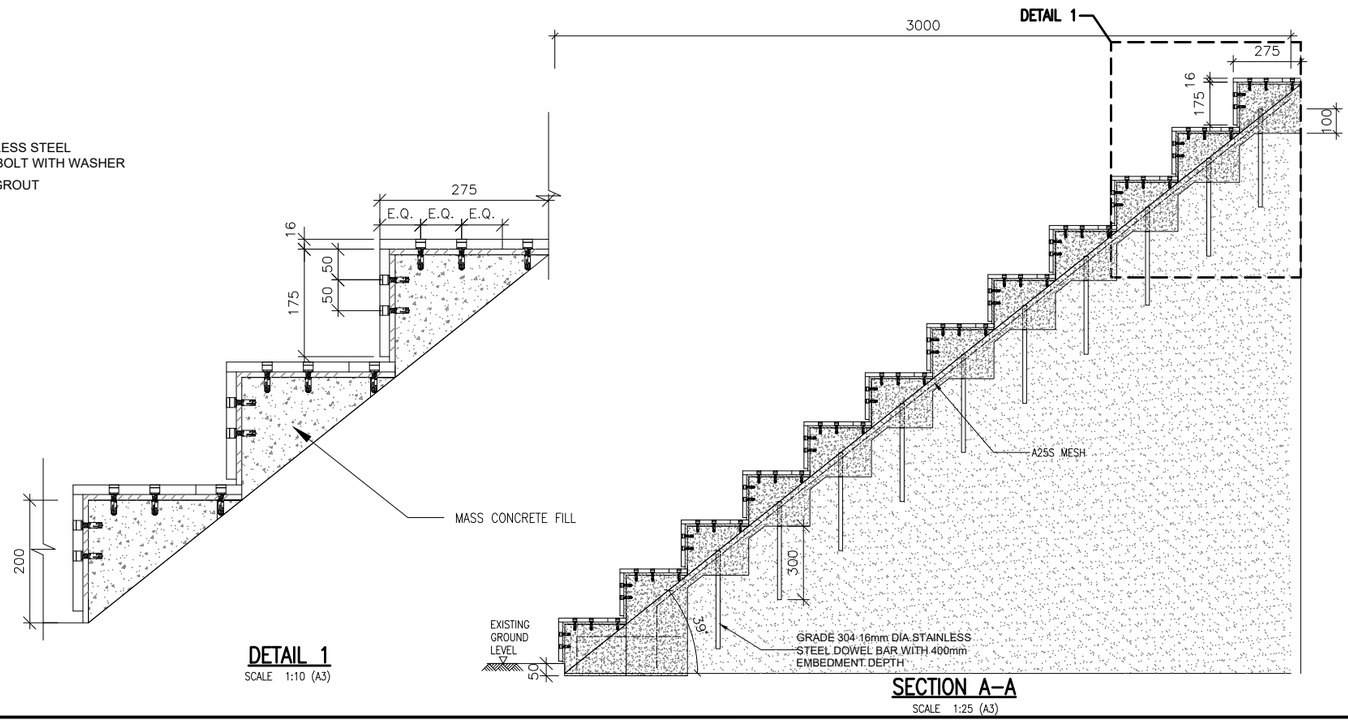
SECTION C–C

SCALE 1:10 (A3)



SECTION B–B

SCALE 1:10 (A3)

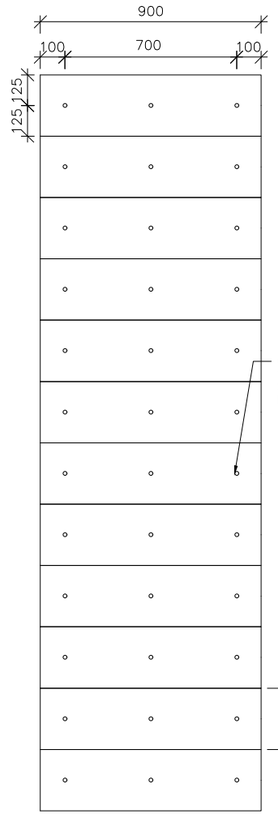


DETAIL 1

SCALE 1:10 (A3)

SECTION A–A

SCALE 1:25 (A3)



PLAN OF DOWEL BAR ARRANGEMENT

SCALE 1:25 (A3)

B.D. REF.	/	/
F.S.D. REF.	/	/

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
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AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

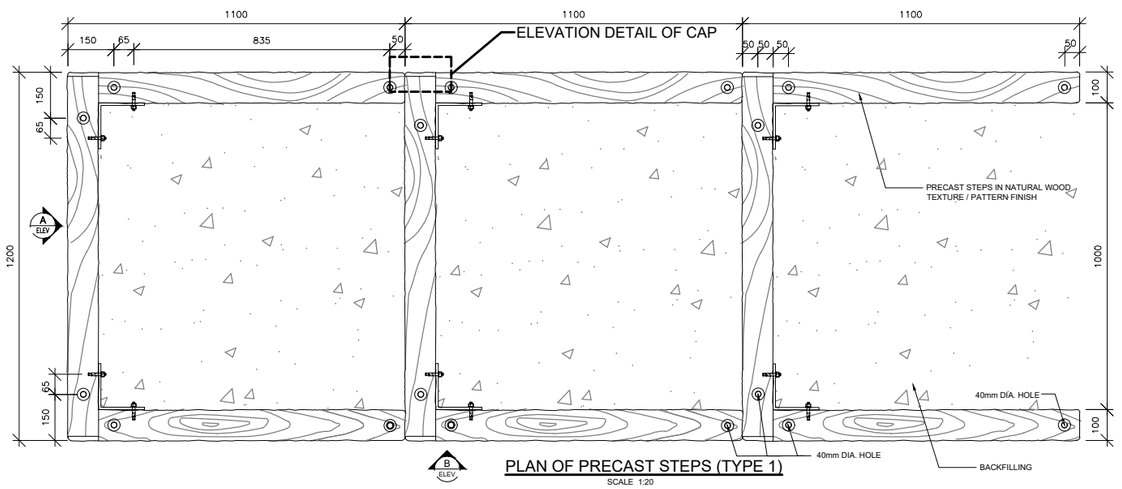
PROJECT NO:	20222		
DRAWN BY:			
DESIGNED BY:			
CHECKED BY:			
APPROVED BY:	VT		
SCALE:			
CAD FILE:	WAC_20222_C_PPM_002-3_TYPE3		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
TYPICAL DETAILS OF PRECAST MODULES – STAIRS (TYPE 3)

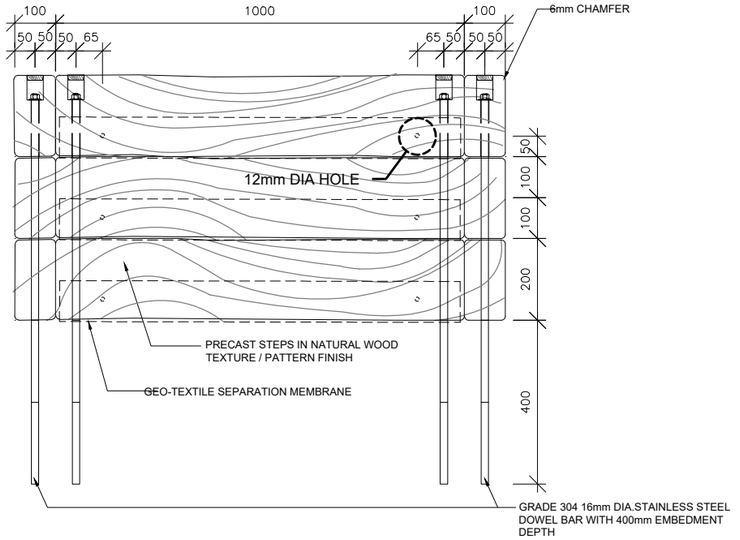
DRAWING NO:	REV:
WAC/20222/C/PPM/002-3	–

WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.



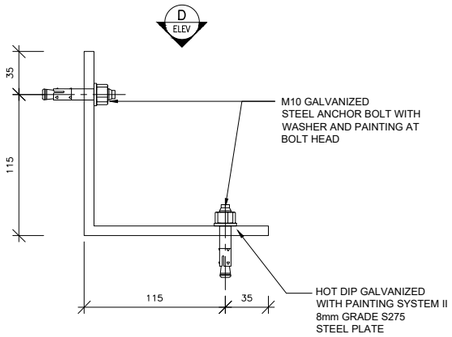
PLAN OF PRECAST STEPS (TYPE 1)

SCALE 1:20



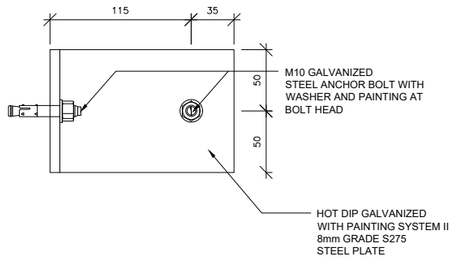
ELEVATION A OF PRECAST STEPS

SCALE 1:20



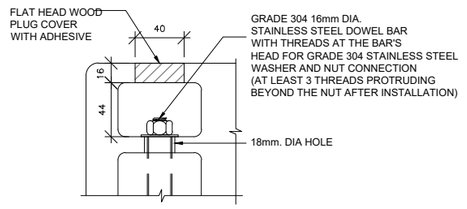
DETAILS OF CORNER CONNECTING PLATE

SCALE 1:5 (A3)



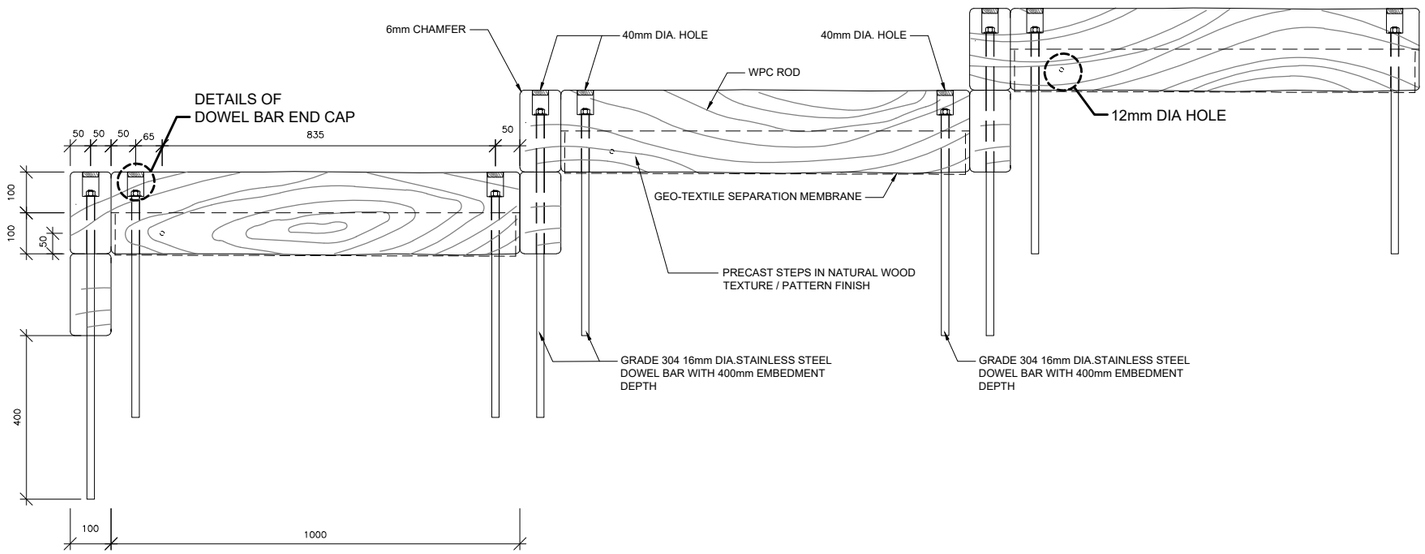
ELEVATION D OF CORNER CONNECTING PLATE

SCALE 1:5 (A3)



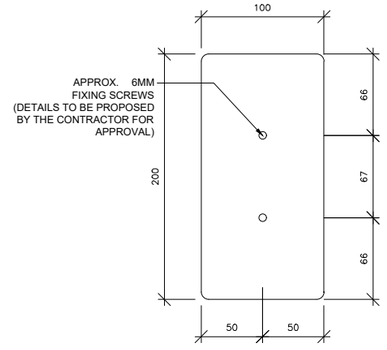
DETAILS OF DOWEL BAR END CAP

SCALE 1:5 (A3)



ELEVATION B OF PRECAST STEPS

SCALE 1:20



ELEVATION DETAIL OF CAP

SCALE 1:5 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVEL ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).
3. FOR GENERAL NOTES, REFER TO DRAWING NO. WAC/20222/MUW/GN/001 AND SPECIFICATION FOR THE WPC MATERIAL'S PROPERTIES.
4. PRE-ASSEMBLY TRIAL OF THE PRECAST MODULES SHALL BE CARRIED OUT AT MANUFACTURING FACTORY BEFORE DELIVERING TO THE SITE.
5. EACH PRECAST STEP SHALL NOT BE OVERLAPPING WHEN CONSTRUCTED IN SERIES.
6. COLOR AND PATTERN OF PPMs SHALL REFER TO DRAWING NO. WAC/20222/PPM/C/012.
7. FOR ALL RECTANGULAR PPMs, 6mm CHAMFER SHALL BE PLACED ON THE EDGE.
8. ON-SITE MODIFICATION, SUCH AS TRIMMING, INSITU CONCRETE MIXING, HOLE DRILLING AND ADJUSTING ANGLE, SHALL BE CARRIED OUT BY THE CONTRACTOR. SO THAT THE PPMs WILL FIT INTO THE ACTUAL SITE CONDITION.
9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

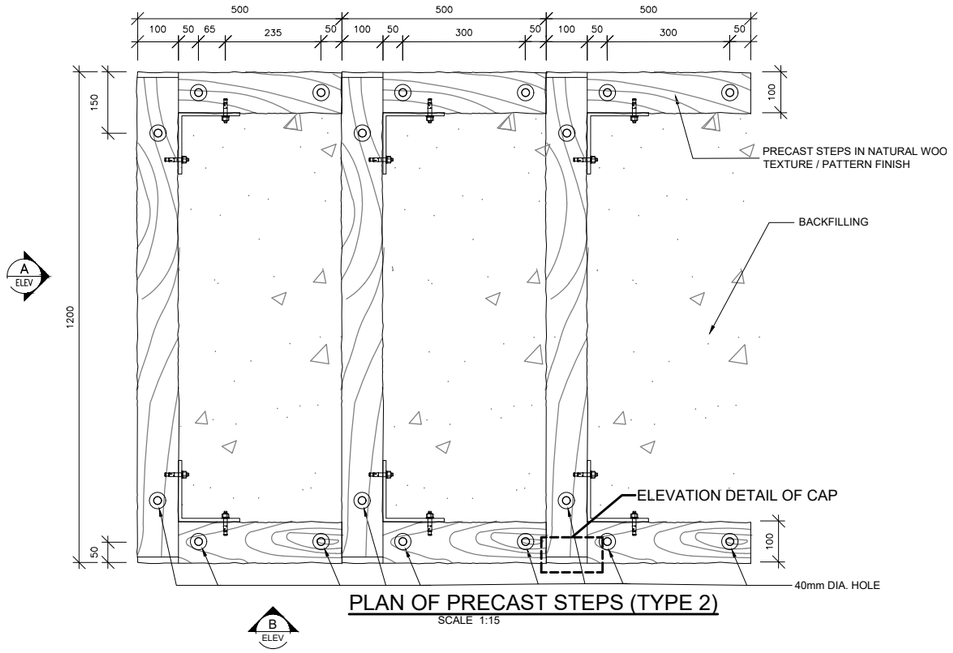
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOW		
CAD FILE:	WAC_20222_C_PPM_003		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

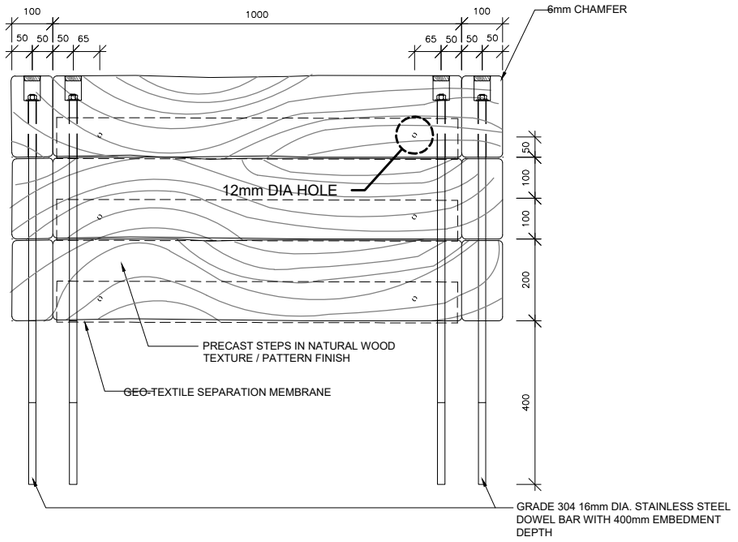
DRAWING TITLE:
TYPICAL DETAILS OF PRECAST MODULES – STEPS (TYPE 1)

DRAWING NO:	REV:
WAC/20222/C/PPM/003	–

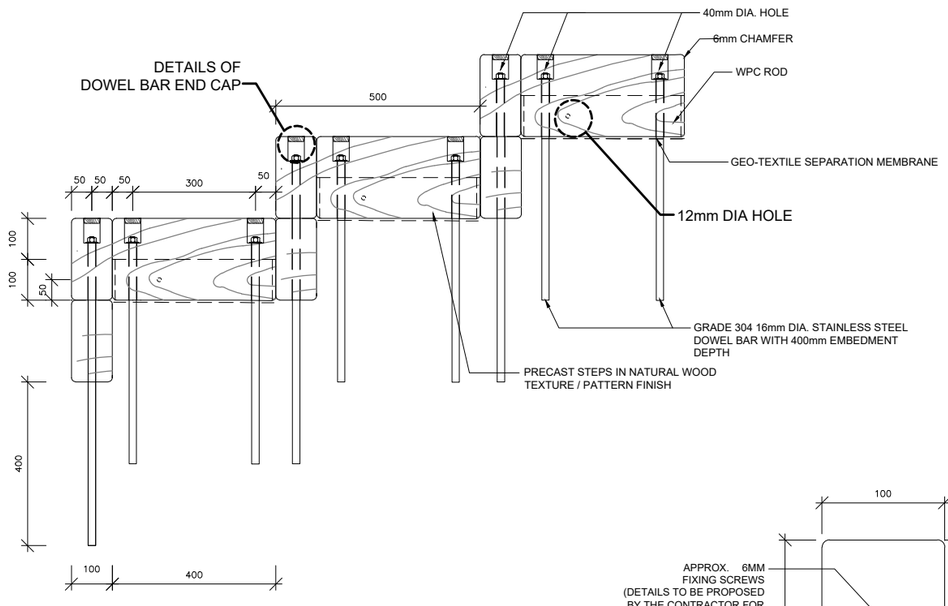
WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.



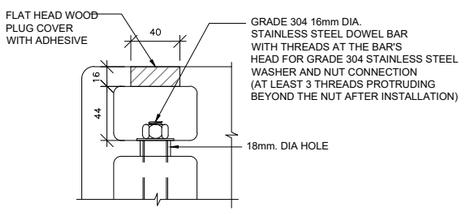
PLAN OF PRECAST STEPS (TYPE 2)
SCALE 1:15



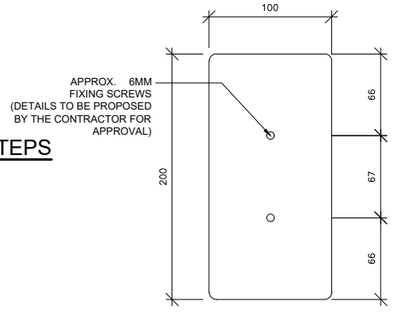
ELEVATION A OF PRECAST STEPS
SCALE 1:20



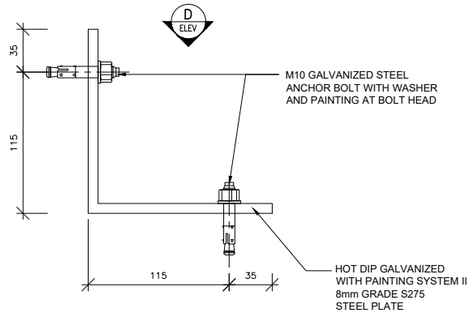
ELEVATION B OF PRECAST STEPS
SCALE 1:20



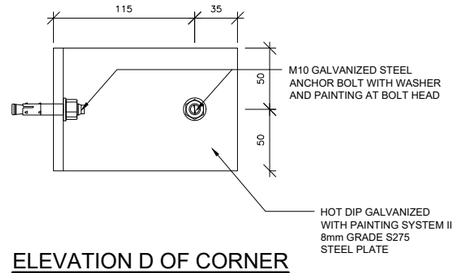
DETAILS OF DOWEL BAR END CAP
SCALE 1:5 (A3)



ELEVATION DETAIL OF CAP
SCALE 1:5 (A3)



DETAILS OF CORNER CONNECTING PLATE
SCALE 1:5 (A3)



ELEVATION D OF CORNER CONNECTING PLATE
SCALE 1:5 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVEL ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).
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6. COLOR AND PATTERN OF PPMs SHALL REFER TO DRAWING NO. WAC/20222/PPM/C/012.
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9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

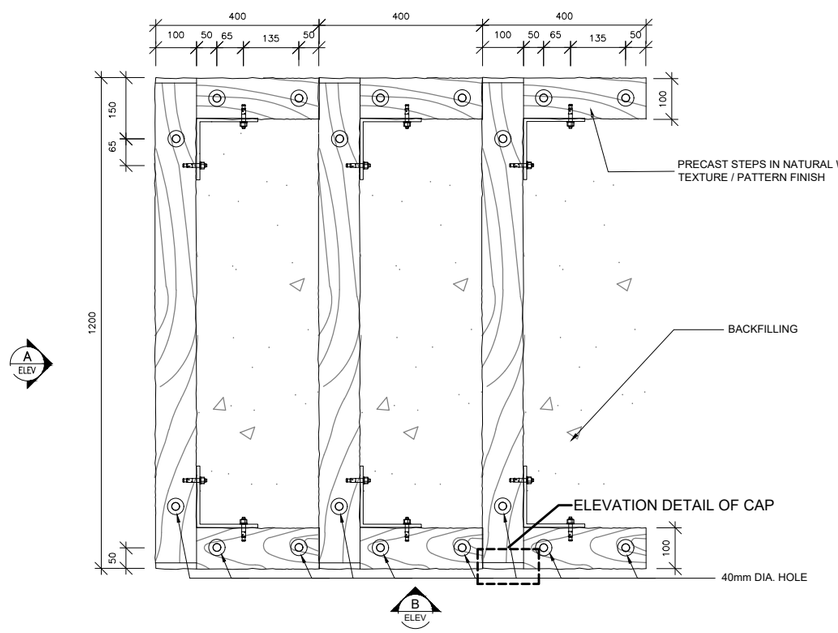
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOW		
CAD FILE:	WAC_20222_C_PPM_004		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
TYPICAL DETAILS OF
PRECAST MODULES –
STEPS (TYPE 2)

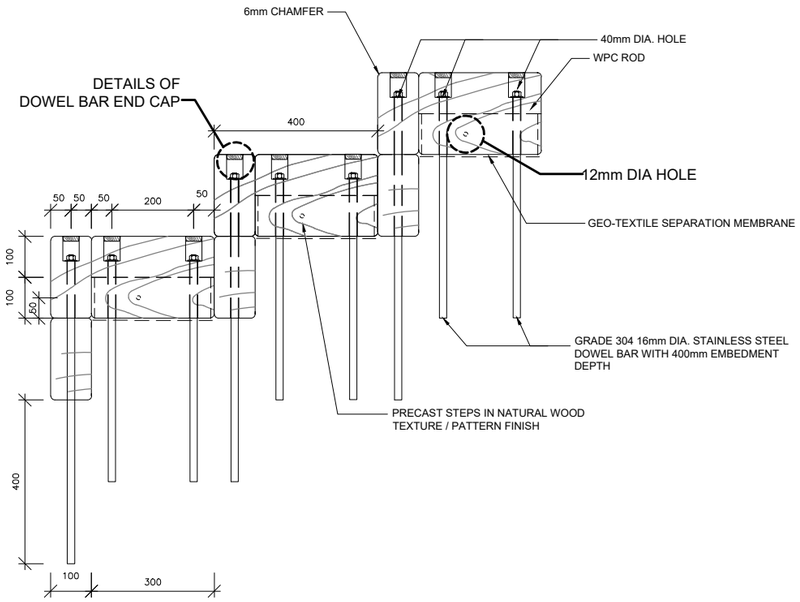
DRAWING NO:	REV:
WAC/20222/C/PPM/004	–

華翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



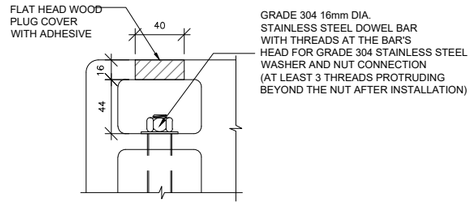
PLAN OF PRECAST STEPS (TYPE 3)

SCALE 1:15



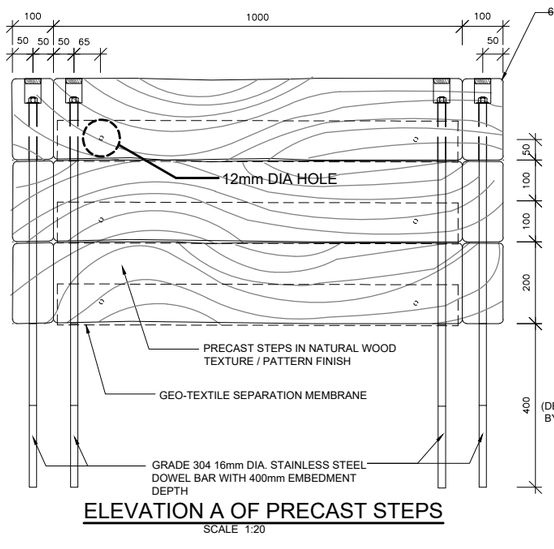
ELEVATION B OF PRECAST STEPS

SCALE 1:20



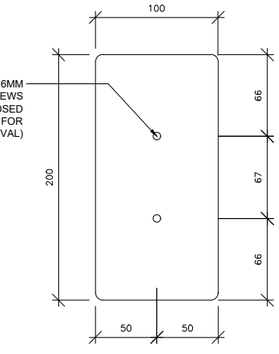
DETAILS OF DOWEL BAR END CAP

SCALE 1:5 (A3)



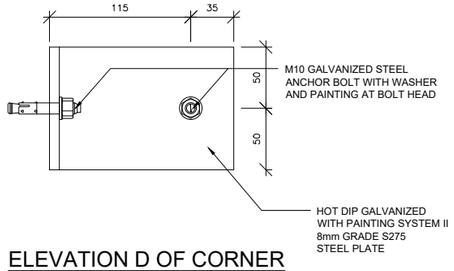
ELEVATION A OF PRECAST STEPS

SCALE 1:20



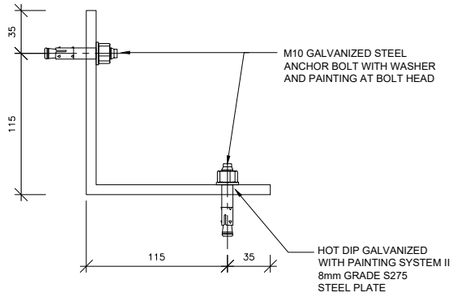
ELEVATION DETAIL OF CAP

SCALE 1:5 (A3)



ELEVATION D OF CORNER CONNECTING PLATE

SCALE 1:5 (A3)



DETAILS OF CORNER CONNECTING PLATE

SCALE 1:5 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

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AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

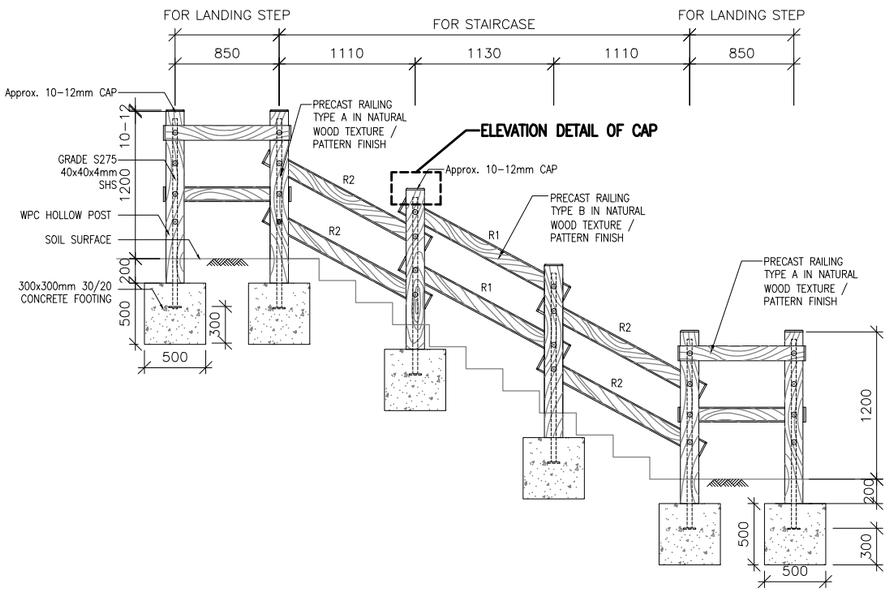
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOW		
CAD FILE:	WAC_20222_C_PPM_005		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
TYPICAL DETAILS OF PRECAST MODULES – STEPS (TYPE 3)

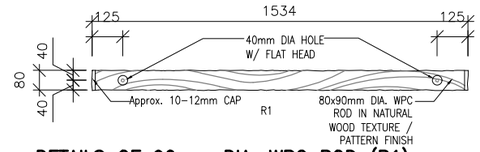
DRAWING NO:	REV:
WAC/20222/C/PPM/005	–

偉翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



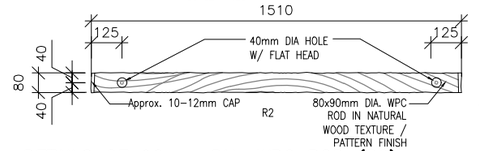
TYPICAL ELEVATION OF RAILING FOR STAIRCASE

SCALE 1:50



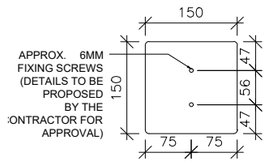
DETAILS OF 90mm DIA. WPC ROD (R1)

SCALE 1:25



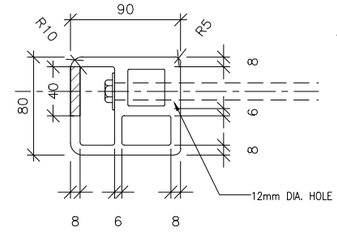
DETAILS OF 90mm DIA. WPC ROD (R2)

SCALE 1:25



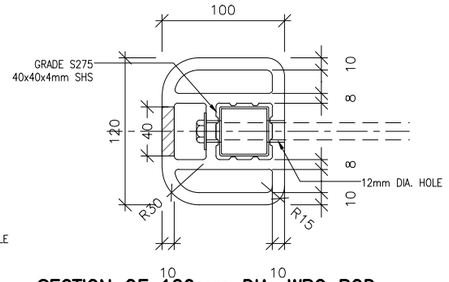
DETAIL OF CAP (150X150mm WPC HOLLOW POST)

SCALE 1:10



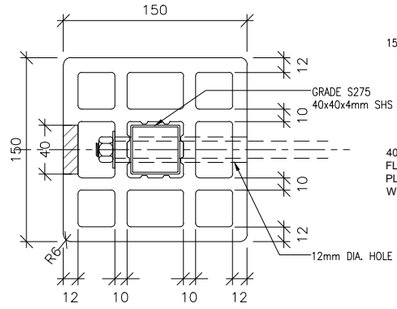
SECTION OF 90mm DIA. WPC ROD (R1)

SCALE 1:5



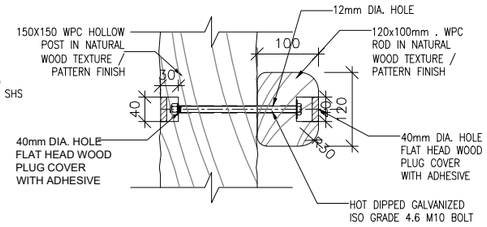
SECTION OF 120mm DIA. WPC ROD

SCALE 1:5



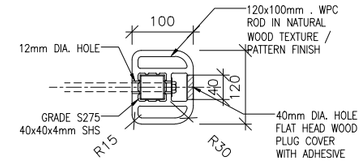
SECTION OF 150X150mm WPC HOLLOW POST

SCALE 1:5



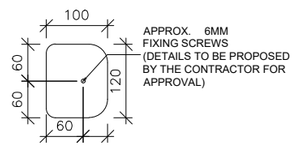
CONNECTION DETAILS BETWEEN THE WPC ROD (120x100mm.) AND THE HOLLOW POST

SCALE 1:10



DETAILS OF 120x100mm . WPC ROD

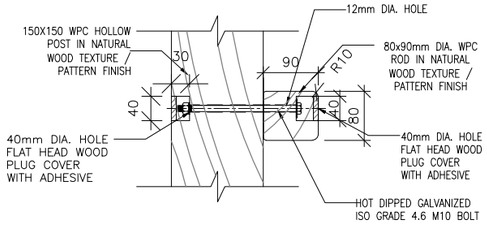
SCALE 1:10



40

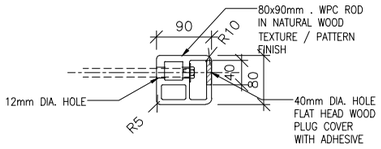
DETAILS OF CAP (120x100mm WPC ROD)

SCALE 1:10



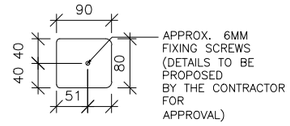
CONNECTION DETAILS BETWEEN THE WPC ROD (80x90mm.) AND THE HOLLOW POST

SCALE 1:10



DETAILS OF 80x90mm . WPC ROD

SCALE 1:10



39

DETAILS OF CAP (80x90mm WPC ROD)

SCALE 1:10

DETAILS OF PRECAST RAILING TYPE B

SCALE 1:25

DETAILS OF PRECAST RAILING TYPE A

SCALE 1:25

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
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9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.
10. THE RAILING IS NOT DESIGNED AS A PROTECTIVE BARRIER. THEREFORE, THE HORIZONTAL IMPOSED LOAD IS NOT CONSIDERED.

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

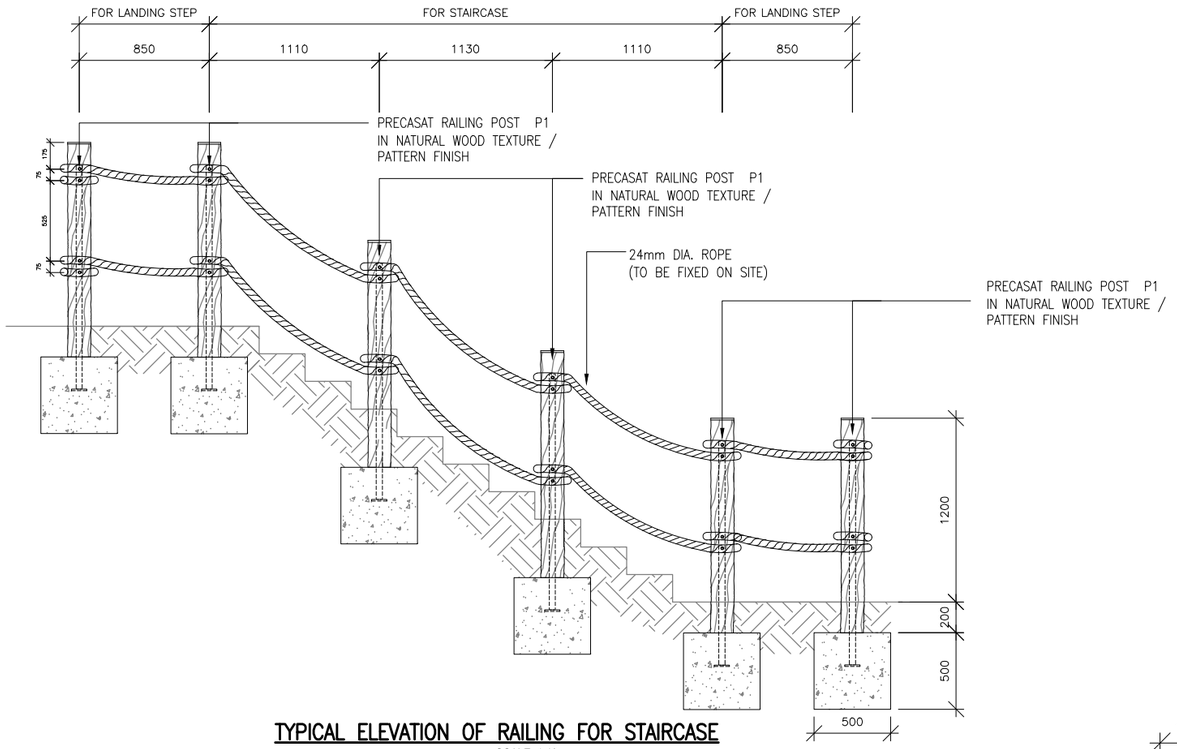
PROJECT NO:	20222		
DRAWN BY:			
DESIGNED BY:			
CHECKED BY:			
APPROVED BY:	VT		
SCALE:			
CAD FILE:	WAC_20222_C_PPM_006		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
TYPICAL DETAILS OF PRECAST MODULES – RAILING (TYPE 1)

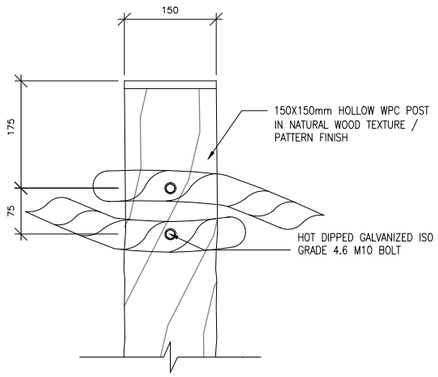
DRAWING NO:	REV:
WAC/20222/C/PPM/006	–

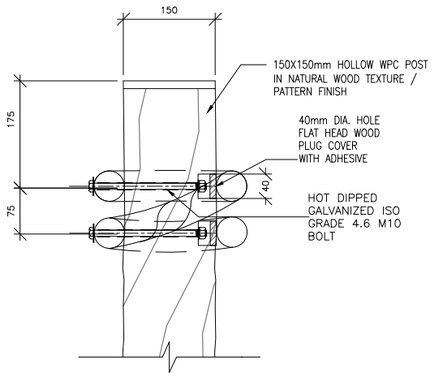
WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.

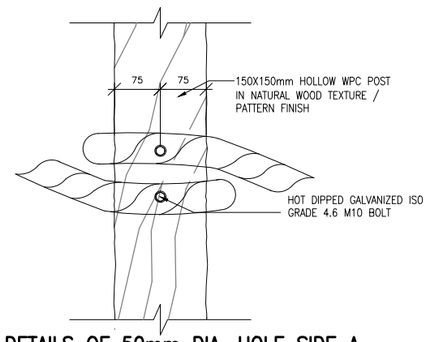


TYPICAL ELEVATION OF RAILING FOR STAIRCASE

SCALE 1:40

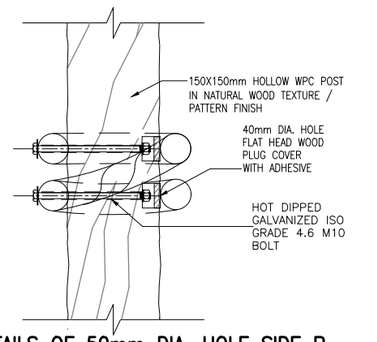






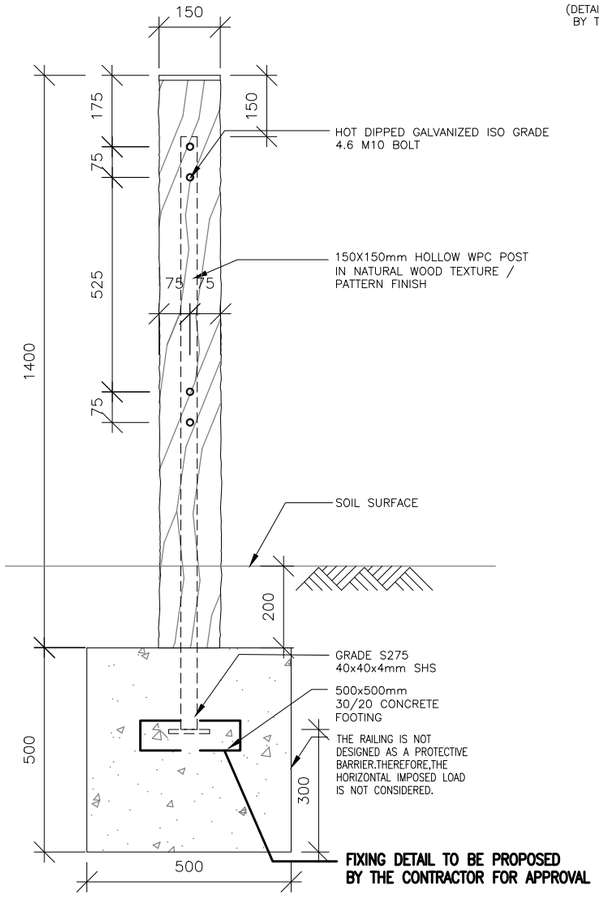
DETAILS OF 50mm DIA. HOLE SIDE A

SCALE 1:10



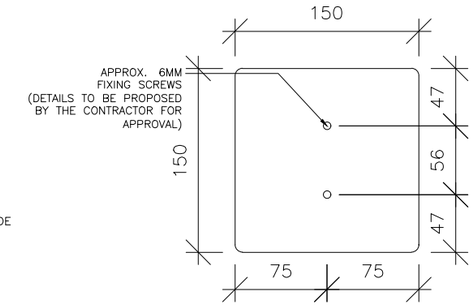
DETAILS OF 50mm DIA. HOLE SIDE B

SCALE 1:10



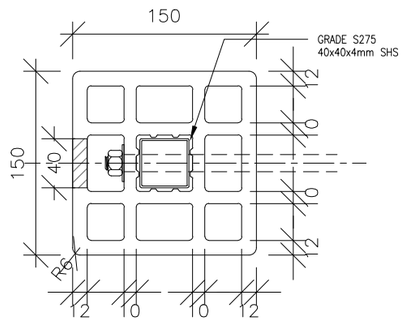
DETAILS OF PRECAST RAILING POST P1

SCALE 1:16



DETAIL OF CAP
(150X150mm WPC HOLLOW POST)

SCALE 1:5 (A3)



SECTION OF 150X150mm WPC HOLLOW POST

SCALE 1:15

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVEL ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).
3. FOR GENERAL NOTES, REFER TO DRAWING NO. WAC/20222/MUW/GN/001 AND SPECIFICATION FOR THE WPC MATERIAL'S PROPERTIES.
4. PRE-ASSEMBLY TRIAL OF THE PRECAST MODULES SHALL BE CARRIED OUT AT MANUFACTURING FACTORY BEFORE DELIVERING TO THE SITE.
5. EACH PRECAST STEP SHALL NOT BE OVERLAPPING WHEN CONSTRUCTED IN SERIES.
6. COLOR AND PATTERN OF PPMs SHALL REFER TO DRAWING NO. WAC/20222/PPM/C/012.
7. FOR ALL RECTANGULAR PPMs, 6mm CHAMFER SHALL BE PLACED ON THE EDGE.
8. ON-SITE MODIFICATION, SUCH AS TRIMMING, INSITU CONCRETE MIXING, HOLE DRILLING AND ADJUSTING ANGLE, SHALL BE CARRIED OUT BY THE CONTRACTOR. SO THAT THE PPMs WILL FIT INTO THE ACTUAL SITE CONDITION.
9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.
10. THE RAILING IS NOT DESIGNED AS A PROTECTIVE BARRIER. THEREFORE, THE HORIZONTAL IMPOSED LOAD IS NOT CONSIDERED.

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

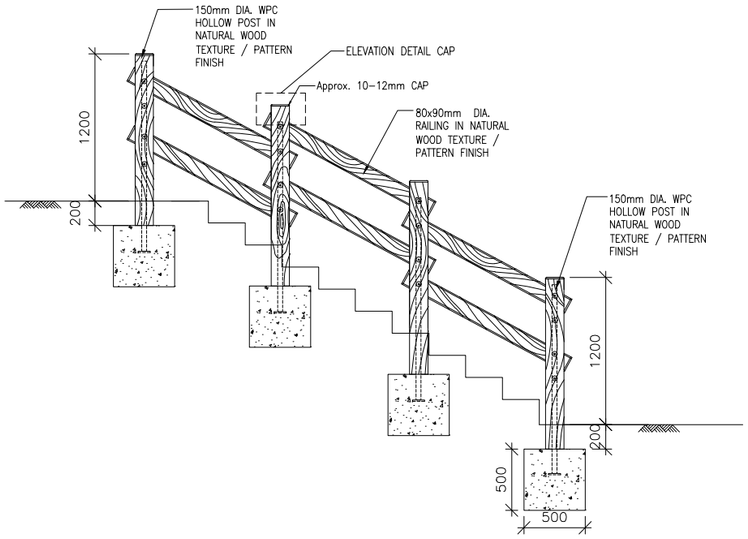
PROJECT NO:	20222		
DRAWN BY:			
DESIGNED BY:			
CHECKED BY:			
APPROVED BY:	VT		
SCALE:			
CAD FILE:	WAC_20222_C_PPM_007		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
TYPICAL DETAILS OF
PRECAST MODULES –
RAILING (TYPE 2)

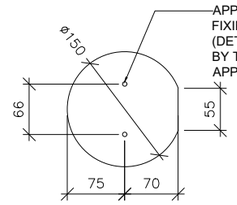
DRAWING NO:	REV:
WAC/20222/C/PPM/007	–

翱翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



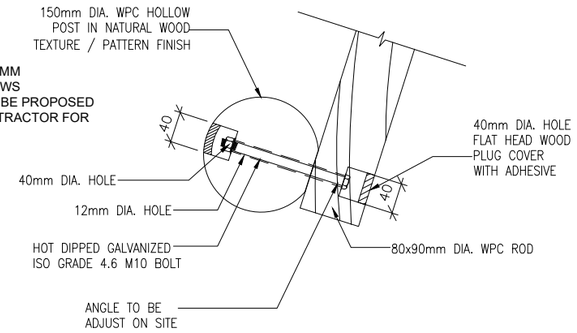
TYPICAL ELEVATION OF RAILING FOR STAIRCASE

SCALE 1:50



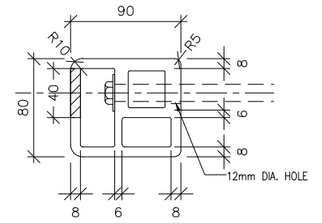
DETAIL OF CAP
150mm DIA. WPC HOLLOW POST

SCALE 1:8



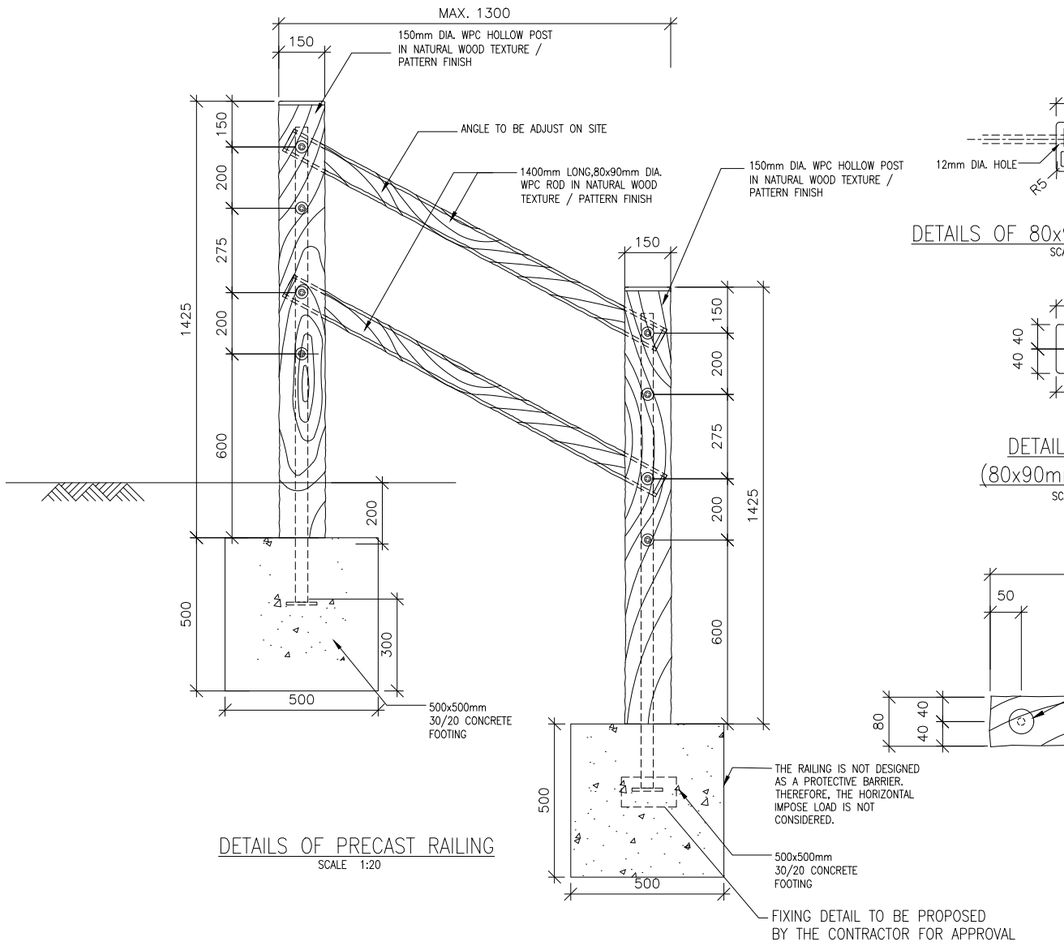
PLAN VIEW OF CONNECTION DETAILS BETWEEN THE WPC ROD (80x90mm.) AND THE HOLLOW POST

SCALE 1:8



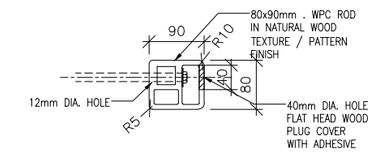
SECTION OF 90mm DIA. WPC ROD (R1)

SCALE 1:5



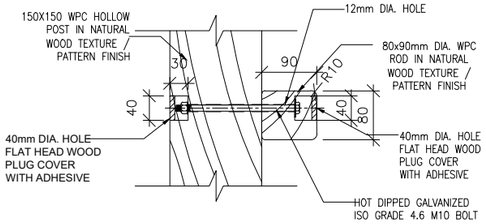
DETAILS OF PRECAST RAILING

SCALE 1:20



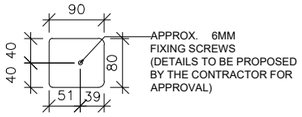
DETAILS OF 80x90mm . WPC ROD

SCALE 1:10



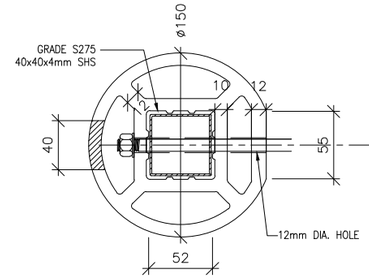
CONNECTION DETAILS BETWEEN THE WPC ROD (80x90mm.) AND THE HOLLOW POST

SCALE 1:10



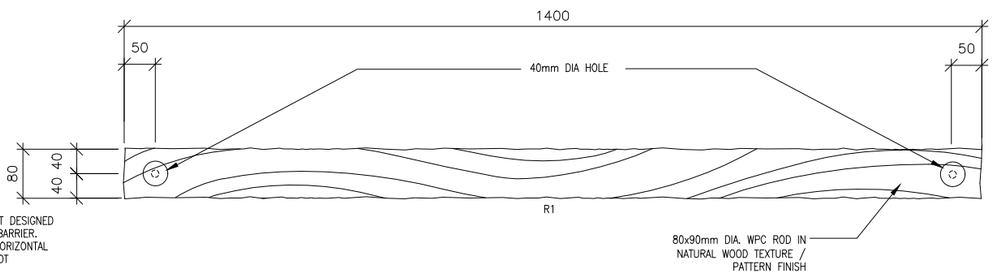
DETAILS OF CAP
(80x90mm WPC ROD)

SCALE 1:10



SECTION OF 150mm DIA. WPC HOLLOW POST

SCALE 1:5



DETAILS OF 90mm DIA. WPC ROD

SCALE 1:10

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

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10. THE RAILING IS NOT DESIGNED AS A PROTECTIVE BARRIER. THEREFORE, THE HORIZONTAL IMPOSE LOAD IS NOT CONSIDERED.

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

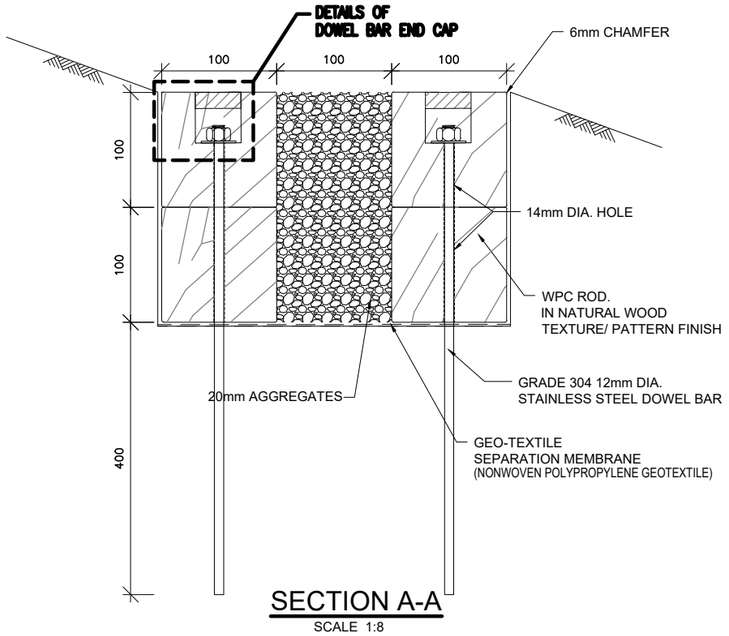
PROJECT NO:	20222		
DRAWN BY:			
DESIGNED BY:			
CHECKED BY:			
APPROVED BY:	VT		
SCALE:			
CAD FILE:	WAC_20222_C_PPM_008		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

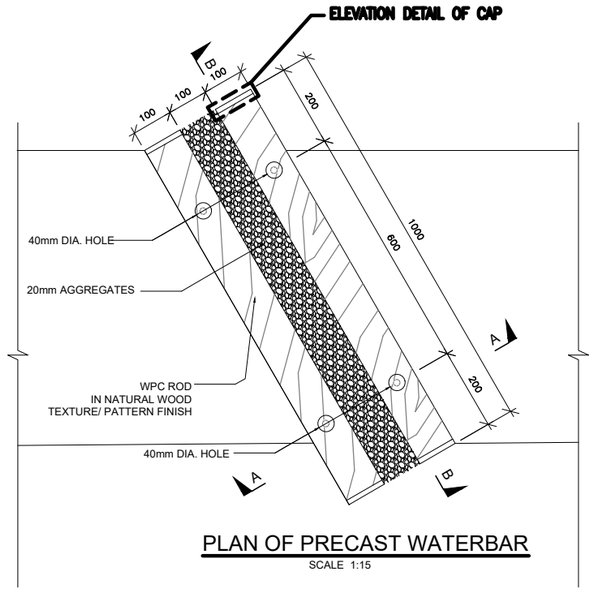
DRAWING TITLE:
TYPICAL DETAILS OF PRECAST MODULES – RAILING (TYPE 3)

DRAWING NO:	REV:
WAC/20222/C/PPM/008	–

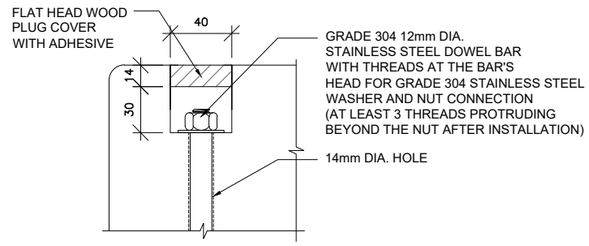
WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.
和雅顧問工程師有限公司



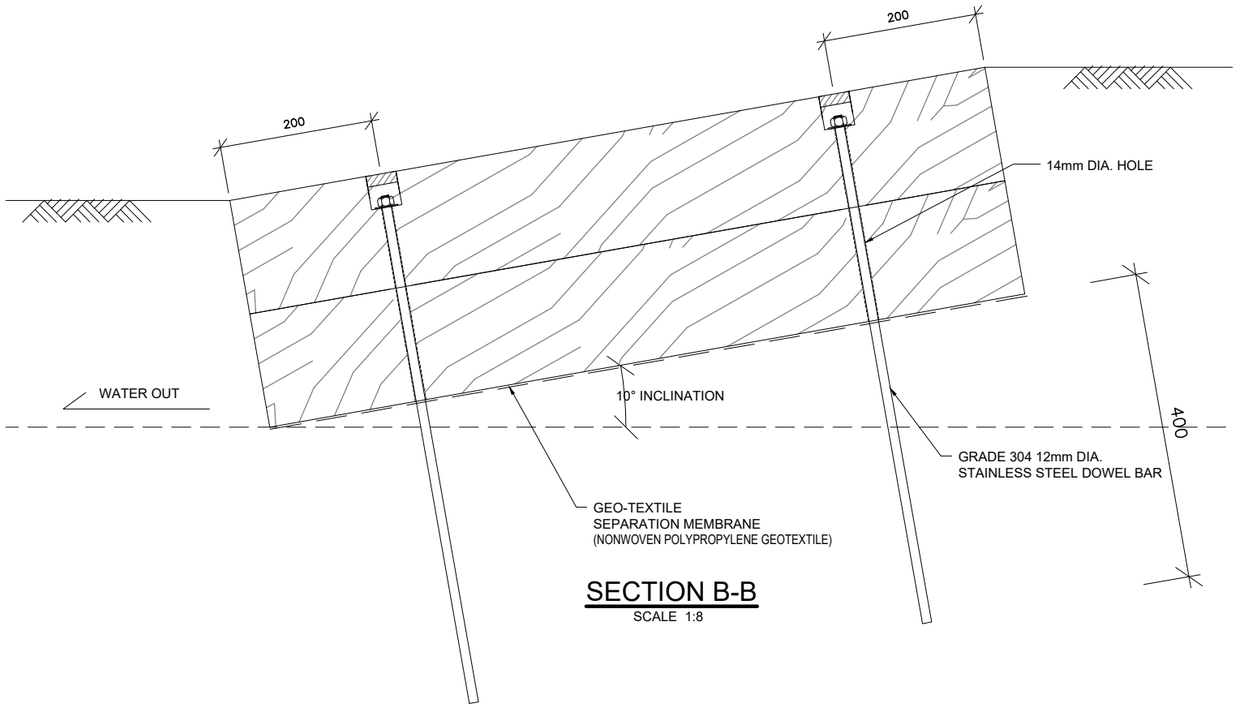
SECTION A-A
SCALE 1:8



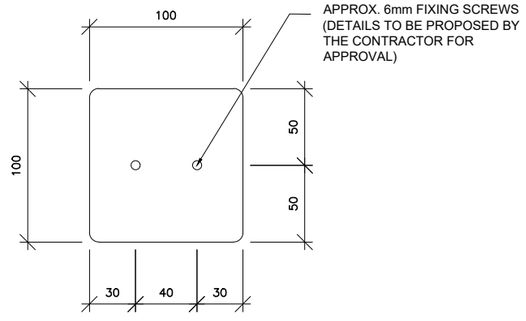
PLAN OF PRECAST WATERBAR
SCALE 1:15



DETAILS OF DOWEL BAR END CAP
SCALE 1:4 (A3)



SECTION B-B
SCALE 1:8



ELEVATION DETAIL OF CAP
SCALE 1:4 (A3)

B.D. REF.	/	/
F.S.D. REF.	/	/

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9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.
10. THE LENGTH OF WATERBAR SHALL BE ADJUSTED BASED ON SITE CONDITION.

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

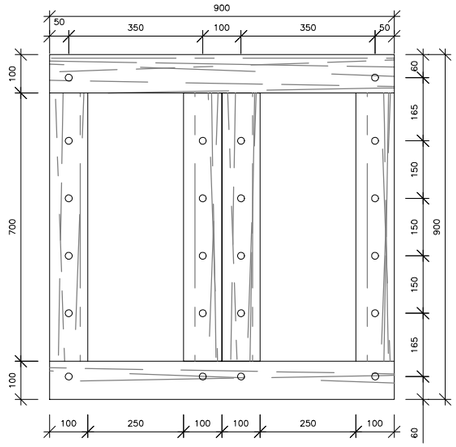
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOWN		
CAD FILE:	WAC_20222_C_PPM_009		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
TYPICAL DETAILS OF PRECAST MODULES – WATERBAR

DRAWING NO:	REV:
WAC/20222/C/PPM/009	–

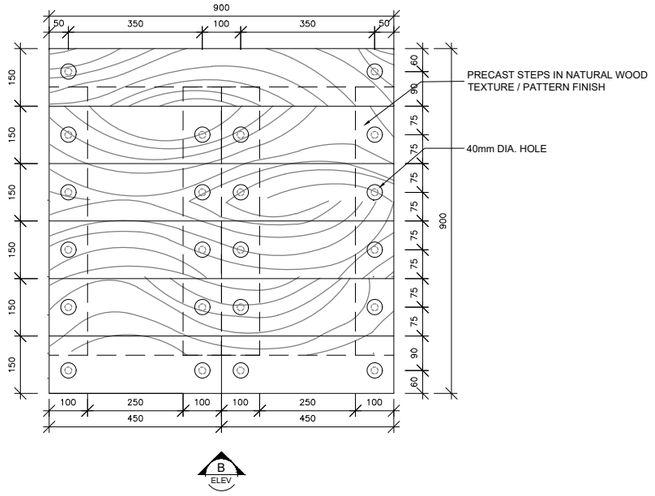
翱翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



PLAN OF PRECAST BOARDWALK
(WITHOUT TOP WPC STRIPES)

SCALE 1:16

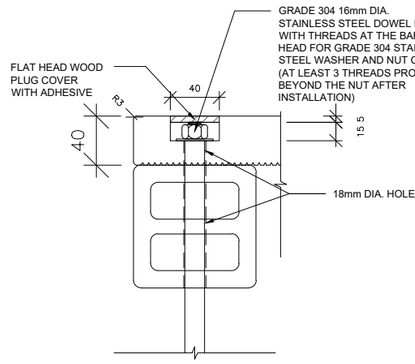
A
ELEV



B
ELEV

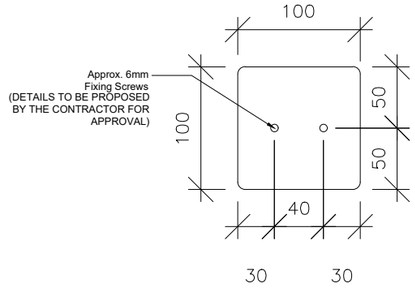
PLAN OF PRECAST BOARDWALK

SCALE 1:16



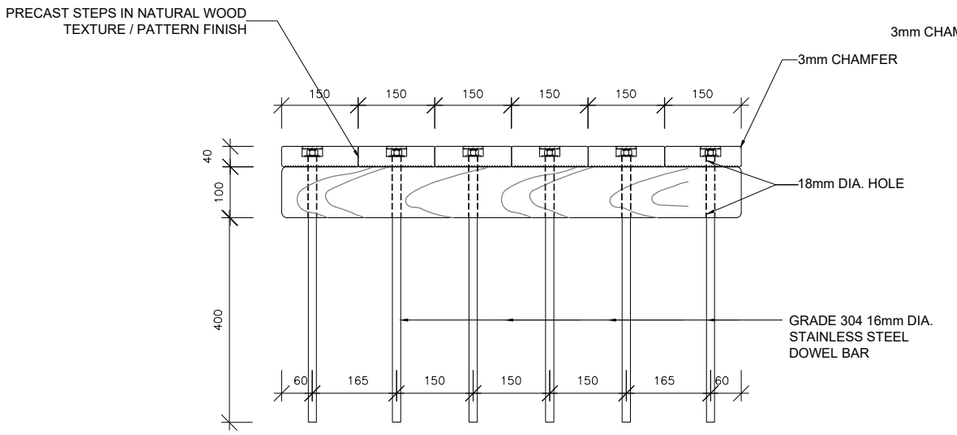
DETAILS OF DOWEL BAR END CAP

SCALE 1:5 (A3)



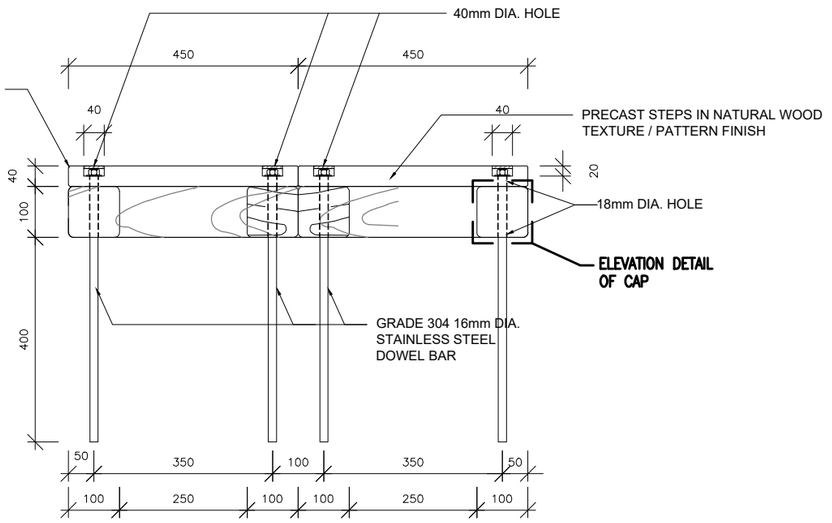
ELEVATION DETAIL OF CAP

SCALE 1:5 (A3)



ELEVATION A OF PRECAST BOARDWALK

SCALE 1:12



ELEVATION B OF PRECAST BOARDWALK

SCALE 1:12

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

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AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

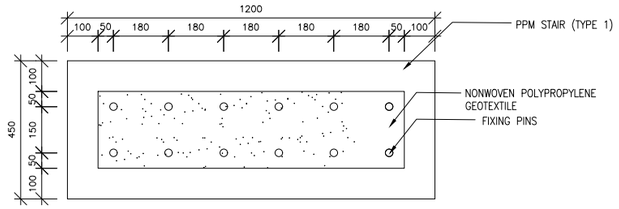
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOWN		
CAD FILE:	WAC_20222_C_PPM_010		

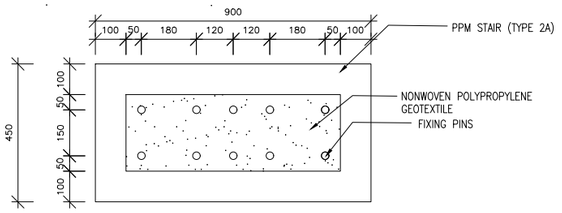
PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)

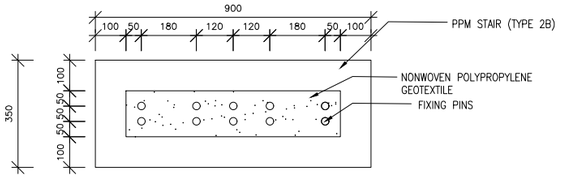
DRAWING TITLE:
TYPICAL DETAILS OF
PRECAST MODULES –
BOARDWALK

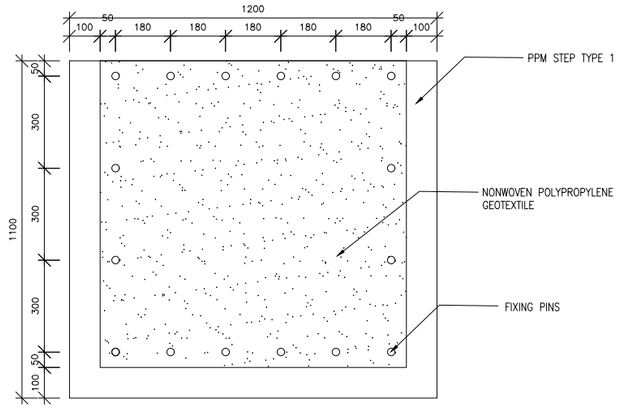
DRAWING NO:	REV:
WAC/20222/C/PPM/010	–

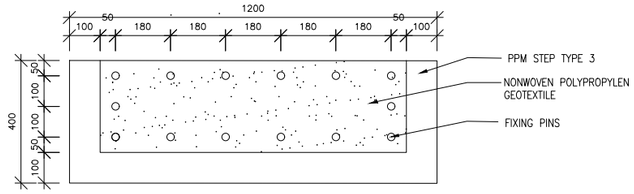
輝灣顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.

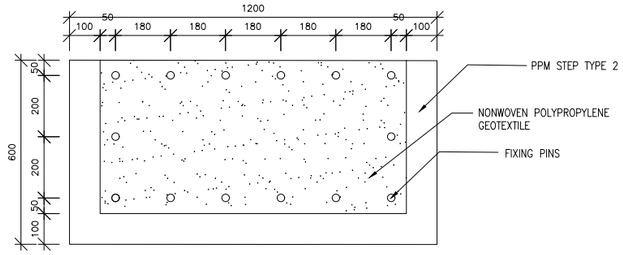






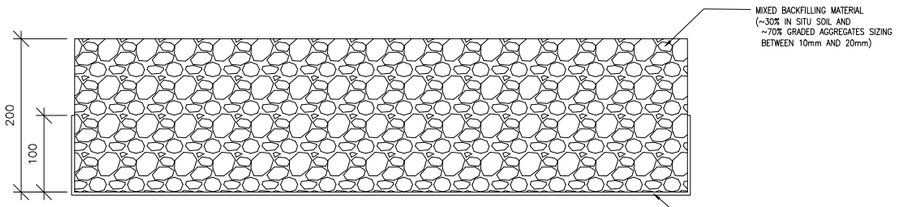






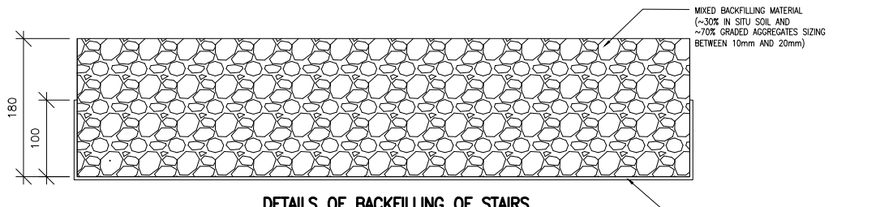
FIXING DETAILS OF GEOTEXTILE

SCALE 1:20



DETAILS OF BACKFILLING OF STEP

N.T.S.



DETAILS OF BACKFILLING OF STAIRS

N.T.S.

B.D. REF.	/ /
F.S.D. REF.	/ /

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AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOW		
CAD FILE:	WAC_20222_C_PPM_011		

PROJECT:

SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:

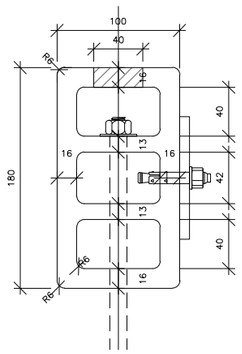
FIXING DETAILS OF GEOTEXTILE AND DETAILS OF BACKFILLING

DRAWING NO:	REV:
WAC/20222/C/PPM/011	–

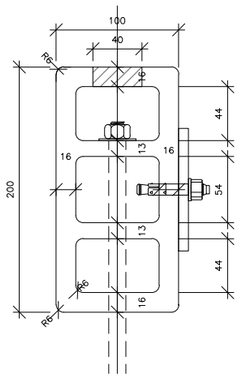
WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.
翱翔顧問工程師有限公司

DIMENSIONS OF MOULDS

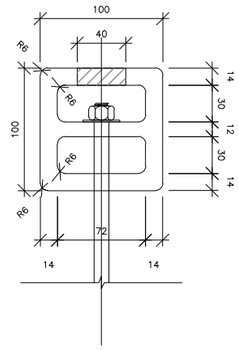
NOTES: TRIAL PANEL OF WPC MATERIAL FOR OPTIMIZING THE SOLIDITY RATIO AND LABORATORY TESTING FOR MATERIAL PROPERTIES AND SLIP RESISTANCE ON MATERIAL SURFACE.



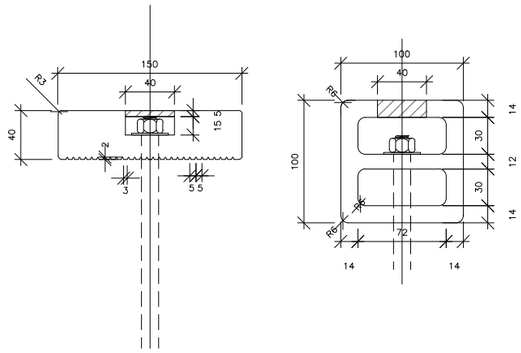
STAIR
SCALE 1:10



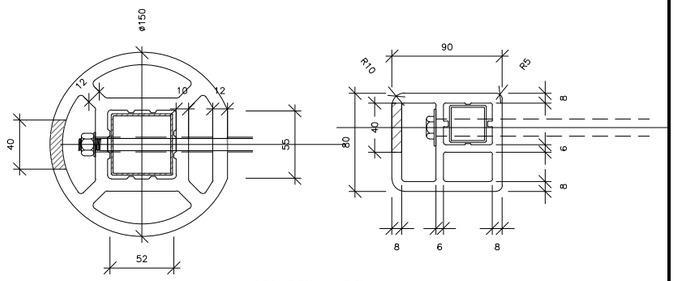
STEP TYPE 1-3
SCALE 1:10



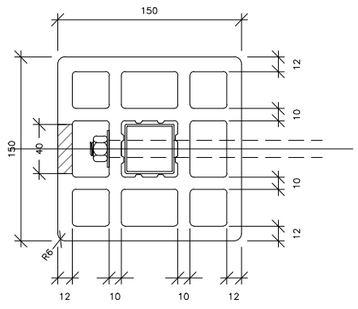
WATER BAR
SCALE 1:10



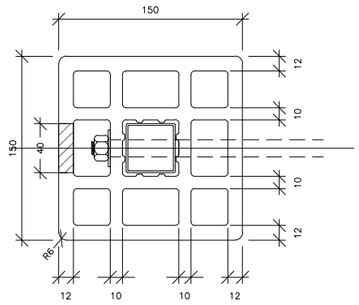
BOARDWALK
SCALE 1:10

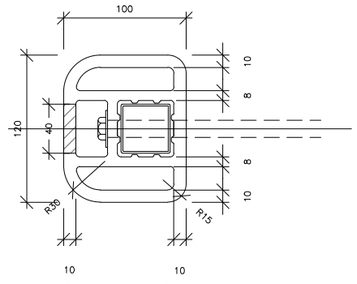


RAILING TYPE 3
SCALE 1:10

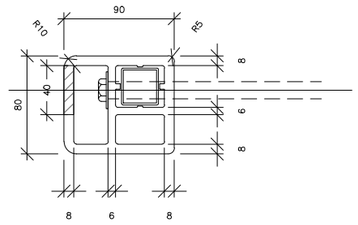


RAILING TYPE 2
SCALE 1:10





RAILING TYPE 1
SCALE 1:10



B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVEL ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).
3. FOR GENERAL NOTES, REFER TO DRAWING NO. WAC/20222/MUW/GN/001 AND SPECIFICATION FOR THE WPC MATERIAL'S PROPERTIES.
4. PRE-ASSEMBLY TRIAL OF THE PRECAST MODULES SHALL BE CARRIED OUT AT MANUFACTURING FACTORY BEFORE DELIVERING TO THE SITE.
5. EACH PRECAST STEP SHALL NOT BE OVERLAPPING WHEN CONSTRUCTED IN SERIES.
6. COLOR AND PATTERN OF PPMs SHALL REFER TO DRAWING NO. WAC/20222/PPM/C/012.
7. FOR ALL RECTANGULAR PPMs, 6mm CHAMFER SHALL BE PLACED ON THE EDGE.
8. ON-SITE MODIFICATION, SUCH AS TRIMMING, INSITU CONCRETE MIXING, HOLE DRILLING AND ADJUSTING ANGLE, SHALL BE CARRIED OUT BY THE CONTRACTOR. SO THAT THE PPMs WILL FIT INTO THE ACTUAL SITE CONDITION.
9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.
10. THE CAPPING DETAIL SHALL BE PROVIDED BY THE CONTRACTOR FOR THE ENGINEER'S APPROVAL.
11. THE BOLT CONNECTIONS AND STRUCTURAL STEEL SECTIONS ARE INDICATIVE ONLY.

LEGEND:

FLAT HEAD WOOD PLUG COVER WITH ADHESIVE

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

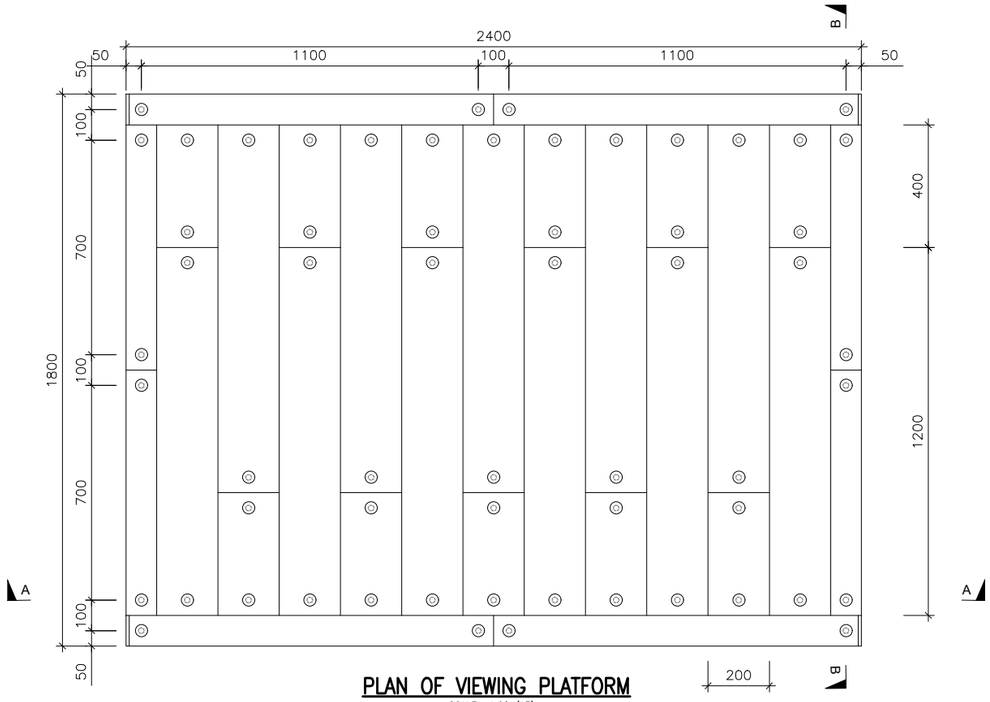
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOW		
CAD FILE:	WAC_20222_C_PPM_012		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
COLOR CODE & WOOD GRAIN PATTERN DRAWING

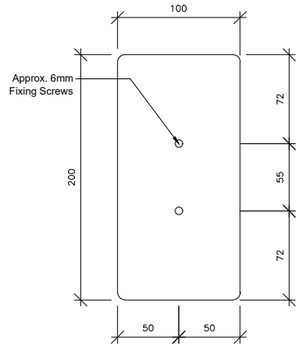
DRAWING NO:	REV:
WAC/20222/C/PPM/012	–

和翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



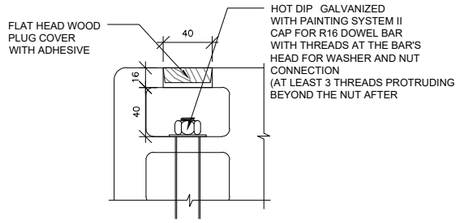
PLAN OF VIEWING PLATFORM

SCALE 1:20 (A3)



ELEVATION OF DETAILED CAP

SCALE 1:5 (A3)



DETAILS OF DOWEL BAR END CAP

SCALE 1:5 (A3)

SECTION A–A

SCALE 1:20 (A3)

SECTION B–B

SCALE 1:20 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVEL ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).
3. FOR GENERAL NOTES, REFER TO DRAWING NO. WAC/20222/MUW/GN/001 AND SPECIFICATION FOR THE WPC MATERIAL'S PROPERTIES.
4. PRE–ASSEMBLY TRIAL OF THE PRECAST MODULES SHALL BE CARRIED OUT AT MANUFACTURING FACTORY BEFORE DELIVERING TO THE SITE.
5. EACH PRECAST STEP SHALL NOT BE OVERLAPPING WHEN CONSTRUCTED IN SERIES.
6. COLOR AND PATTERN OF PPMs SHALL REFER TO DRAWING NO. WAC/20222/PPM/C/012.
7. FOR ALL RECTANGULAR PPMs, 6mm CHAMFER SHALL BE PLACED ON THE EDGE.
8. ON–SITE MODIFICATION, SUCH AS TRIMMING, INSITU CONCRETE MIXING, HOLE DRILLING AND ADJUSTING ANGLE, SHALL BE CARRIED OUT BY THE CONTRACTOR. SO THAT THE PPMs WILL FIT INTO THE ACTUAL SITE CONDITION.
9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

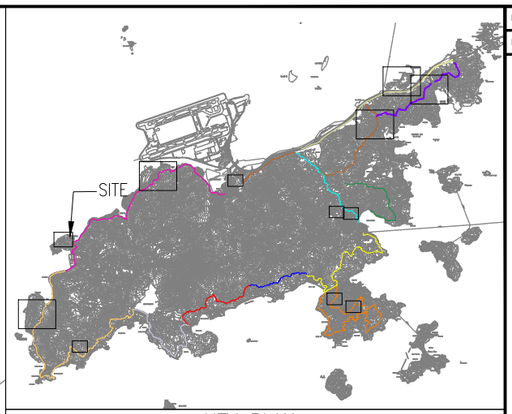
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOWN		
CAD FILE:	WAC_20222_C_PPM_010		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
TYPICAL DETAILS OF PRECAST MODULES – VIEWING PLATFORM

DRAWING NO:	REV:
WAC/20222/C/PPM/013	–

輝翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



KEY PLAN
SCALE 1 : 300000

平岩
Flat Rock

HWM

狗伸地
KAU SAN TEI

813577.5335 N
803834.6922 E

MAINTAIN ACCESS FOR PEDESTRIAN

813575.7642 N
803837.1149 E

TEMPORARY STORAGE
(3 x 15=45m²)

813565.4198 N
803825.8459 E

813563.6505 N
803828.2686 E

基督教正生會有限公司－大澳狗伸地
男性成人戒毒及康復中心
Christian Zheng Sheng Association Ltd

TEMPORARY STORAGE AREA
(SUBJECT TO EXCISION FOR HANDING OVER TO THE CONTRACTOR)

SCALE 1 : 1500 (A3)

SCALE 1 : 400 (A3)

NOTES:

1. THE CONTRACTOR SHALL BE FULLY RESPONSIBLE TO THE SECURITY OF THE TEMPORARY STORAGE AREA. ANY LOST OF MATERIAL IN THE ABOVE MENTIONED LOCATION SHALL BE COVERED BY THE CONTRACTOR.
2. THE CONTRACTOR SHALL BE RESPONSIBLE TO KEEP THE MATERIAL PROTECTED IN GOOD CONDITION FOR CONSTRUCTION.
3. THE CONTRACTOR SHALL MAINTAIN ACCESS FOR PEDESTRIAN TO THE PAVILION IN KAU SAN TEI.

B.D. REF.	/ /
F.S.D. REF.	/ /

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

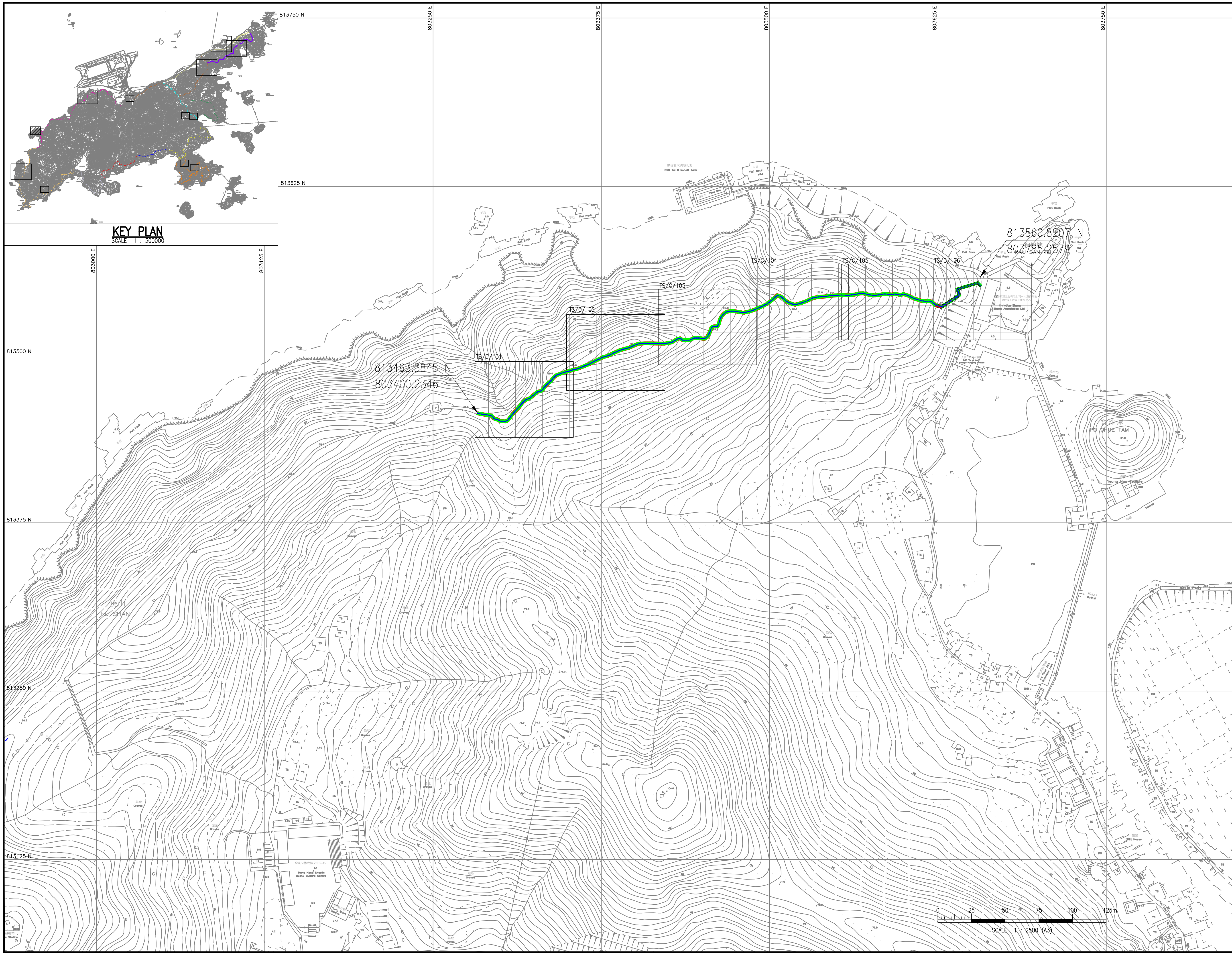
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_MUW_C_009		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
TEMPORARY STORAGE AREA

DRAWING NO:	REV:
WAC/20222/MUW/C/009	–

威翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



B.D. REF.	/ /
F.S.D. REF.	/ /

LEGEND:

- TREE PRUNING AREA
- HYDROSEEDING AND MAKE GOOD OF THE SOIL PROFILE TO MATCH WITH THE EXISTING GROUND LEVEL

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

ALL MEASUREMENTS MUST BE CHECKED AT THE SITE – DO NOT SCALE DRAWING – ALL DRAWING SPECIFICATIONS AND THEIR COPY RIGHT ARE THE PROPERTY OF ENGINEERS, ARCHITECTS, DESIGNERS AND SHALL BE RETURNED AT THE COMPLETION OF THE WORK – THIS DRAWING IS NOT VALID FOR FOR CONSTRUCTION PURPOSES UNLESS EXPRESSEDLY CERTIFIED.

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

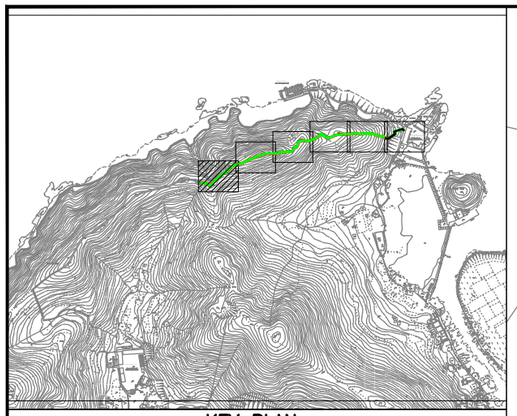
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_TS_C_003		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
LAYOUT PLAN OF TREE PRUNING AT TAI O FU SHAN

DRAWING NO:	REV:
WAC/20222/TS/C/003	–

翱翔顧問工程師有限公司
WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.



KEY PLAN
SCALE 1 : 300000

803420 E
803440 E
803460 E
803480 E
813480 N
813460 N
79.6
MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/102

0 2 4 6 8 10m
SCALE 1 : 200 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

LEGEND:

TREE PRUNING AREA

HYDROSEEDING AND MAKE GOOD OF THE SOIL PROFILE TO MATCH WITH THE EXISTING GROUND LEVEL

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

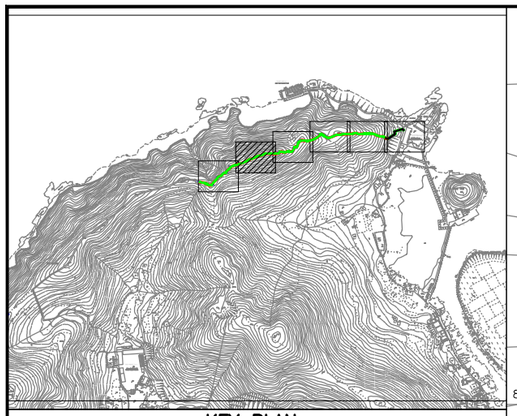
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_TS_C_003		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
SCOPE OF TREE PRUNING AT TAI O FU SHAN
(SHEET 1 OF 6)

DRAWING NO:	REV:
WAC/20222/TS/C/101	–

WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



KEY PLAN
SCALE 1 : 300000

803480 E
803500 E
803520 E
803540 E
813520 N
813500 N
813480 N

80
80.8
85.4

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/101

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/103

0 2 4 6 8 10m
SCALE 1 : 200 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

LEGEND:

TREE PRUNING AREA

HYDROSEEDING AND MAKE GOOD OF THE SOIL PROFILE TO MATCH WITH THE EXISTING GROUND LEVEL

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

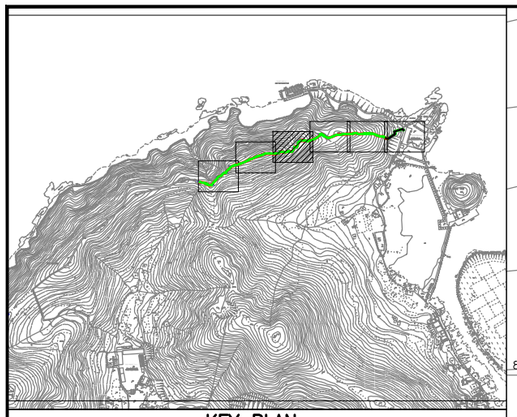
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_TS_C_003		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
SCOPE OF TREE PRUNING AT TAI O FU SHAN
(SHEET 2 OF 6)

DRAWING NO:	REV:
WAC/20222/TS/C/102	–

WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.
和翔顧問工程師有限公司



KEY PLAN
SCALE 1 : 300000

803560 E
803580 E
803600 E
813540 N
813520 N
813500 N
67.5
67.8

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/104

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/102

0 2 4 6 8 10m
SCALE 1 : 200 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

LEGEND:

TREE PRUNING AREA

HYDROSEEDING AND MAKE GOOD OF THE SOIL PROFILE TO MATCH WITH THE EXISTING GROUND LEVEL

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

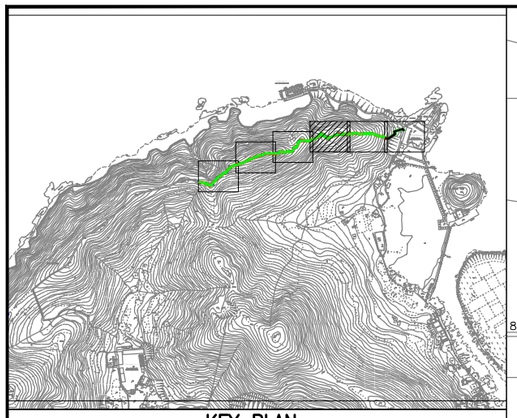
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_TS_C_003		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
SCOPE OF TREE PRUNING AT TAI O FU SHAN
(SHEET 3 OF 6)

DRAWING NO:	REV:
WAC/20222/TS/C/103	–

偉翔園境工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



KEY PLAN
SCALE 1 : 300000

803640 E
803660 E
803680 E
803620 E
813560 N
813540 N
813520 N

52.6
FP
A
51.4
A

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/105

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/103

0 2 4 6 8 10m
SCALE 1 : 200 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

LEGEND:

TREE PRUNING AREA

HYDROSEEDING AND MAKE GOOD OF THE SOIL PROFILE TO MATCH WITH THE EXISTING GROUND LEVEL

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

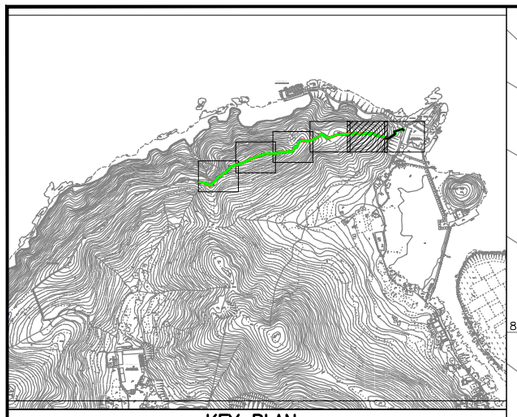
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_TS_C_003		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
SCOPE OF TREE PRUNING AT TAI O FU SHAN
(SHEET 4 OF 6)

DRAWING NO:	REV:
WAC/20222/TS/C/104	–

和翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



KEY PLAN
SCALE 1 : 300000

803700 E
803720 E
803740 E
813560 N
813540 N
813520 N

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/106

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/104

0 2 4 6 8 10m
SCALE 1 : 200 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

LEGEND:

TREE PRUNING AREA

HYDROSEEDING AND MAKE GOOD OF THE SOIL PROFILE TO MATCH WITH THE EXISTING GROUND LEVEL

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

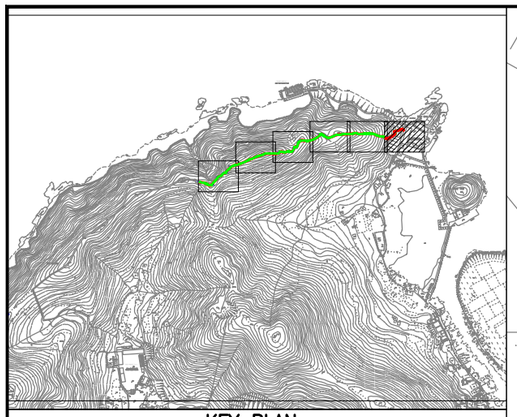
PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_TS_C_003		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
SCOPE OF TREE PRUNING AT
TAI O FU SHAN
(SHEET 5 OF 6)

DRAWING NO:	REV:
WAC/20222/TS/C/105	–

和翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



KEY PLAN
SCALE 1 : 300000

803760 E
803780 E
803800 E
803820 E
813560 N
813540 N
813520 N

FP
5.7 Á
5.8 Á
4.3 Á
3.6 Á
10

MATCH LINE
SEE DRAWING:WAC/20222/MUW/C/105

0 2 4 6 8 10m
SCALE 1 : 200 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

LEGEND:

TREE PRUNING AREA

HYDROSEEDING AND MAKE GOOD OF THE SOIL PROFILE TO MATCH WITH THE EXISTING GROUND LEVEL

AS-BUILT

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

L.T. HUNG
HOP TAI CONSTRUCTION CO. L.T.D.

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	A3 1:2500		
CAD FILE:	WAC_20222_TS_C_003		

PROJECT:
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O
(FU SHAN TO PO CHUE TAM)

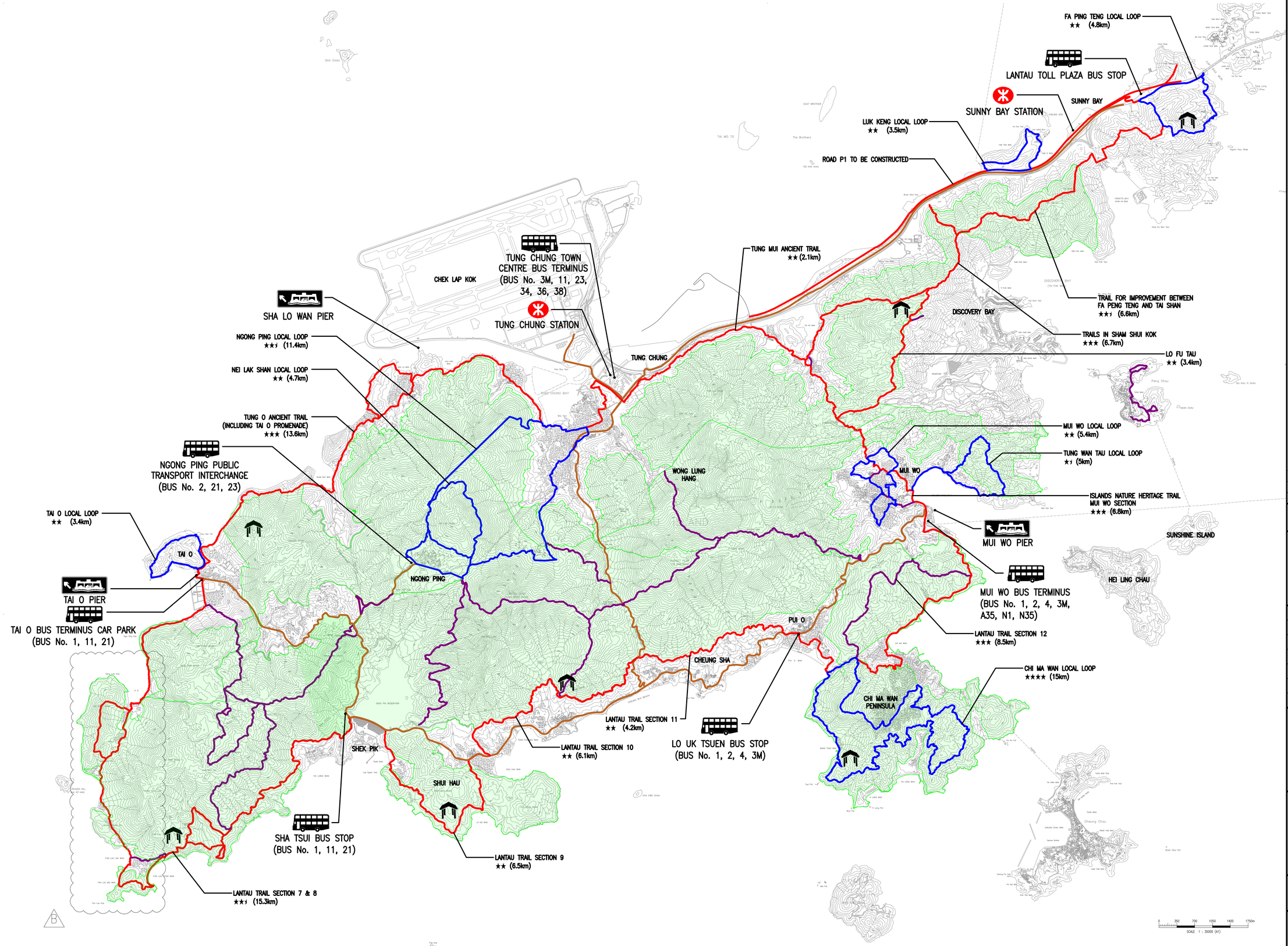
DRAWING TITLE:
SCOPE OF TREE PRUNING AT
TAI O FU SHAN
(SHEET 6 OF 6)

DRAWING NO:	REV:
WAC/20222/TS/C/106	–

輝翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.

附件 **B**

「環大嶼山郊遊徑」地圖



B.D. REF.	/ /
F.S.D. REF.	/ /

LEGENDS:

- PROPOSED ROUND THE LAUTAU TRAIL
- PROPOSED LOCAL LOOP
- EXISTING CARRIAGEWAY
- EXISTING HIKING TRAILS
- AREA OF COUNTRY PARK
- PROPOSED LOCATION OF HUBS

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
B	04/23	2ND AMENDMENT	KC	TC	DF
A	05/22	1ST AMENDMENT	KC	TC	DF

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	1:35000 (A1)		
CAD FILE:	WAC_20222_RTLT_C_001_B		

PROJECT:
SLO 03/2020
STUDY FOR ENHANCEMENT OF TRAILS AND CONNECTIVITY IN LANTAU

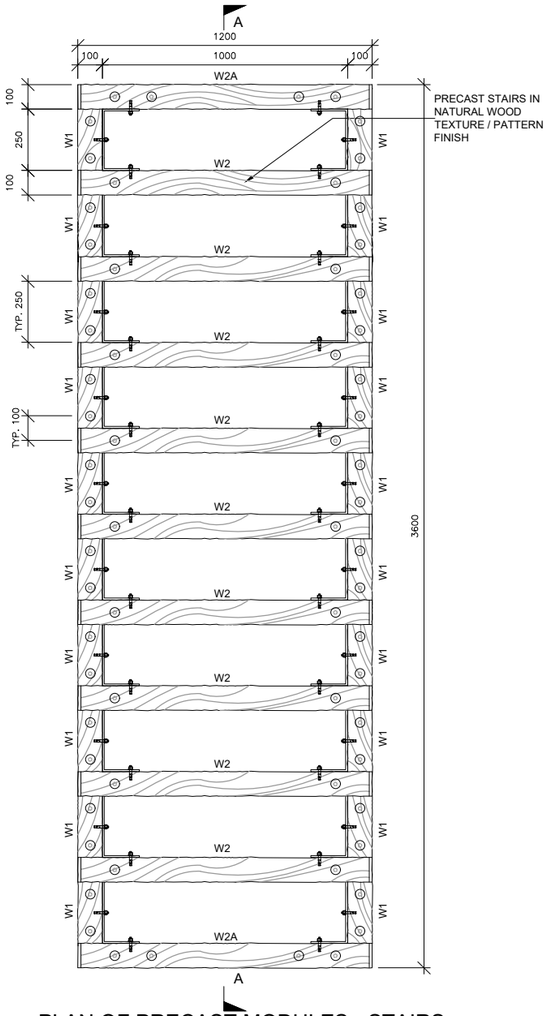
DRAWING TITLE:
MASTER PLAN OF "ROUND THE LANTAU" TRAIL

DRAWING NO:	REV:
WAC/20222/RTLT/C/001	B

翱翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.

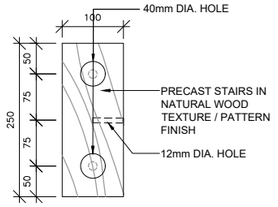
附件 C

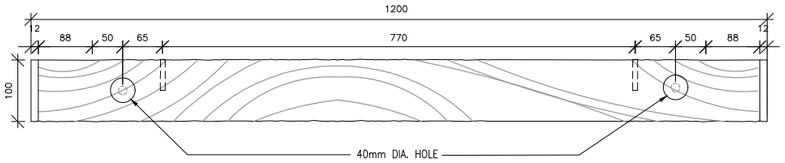
預製組件 - 梯級、樓梯、欄杆、截水溝、木板路優化設計圖則



PLAN OF PRECAST MODULES - STAIRS

SCALE 1:25 (A3)





PLAN OF W2

SCALE 1:10 (A3)

PLAN OF W1

SCALE 1:10 (A3)

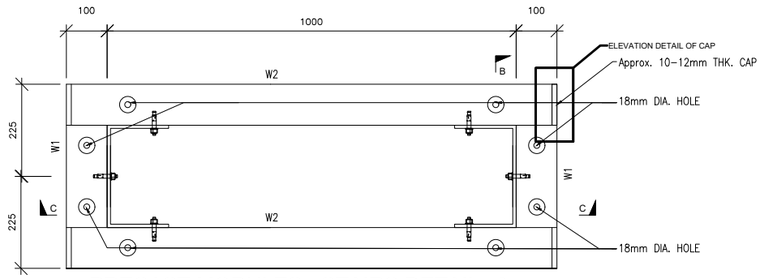
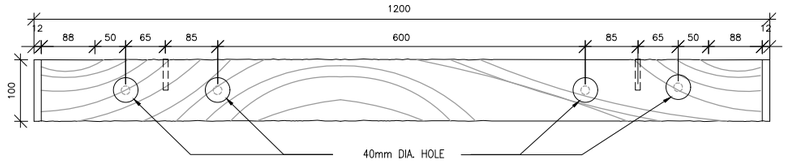


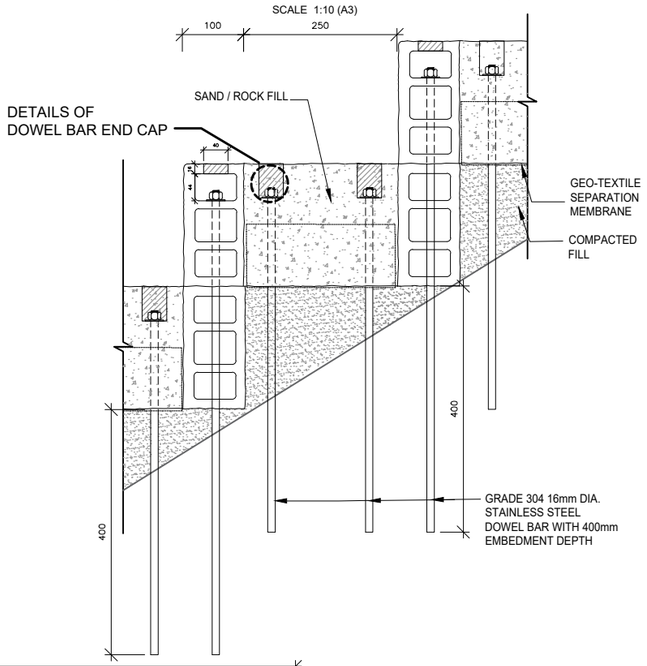
IMAGE REFERENCE

SCALE NTS



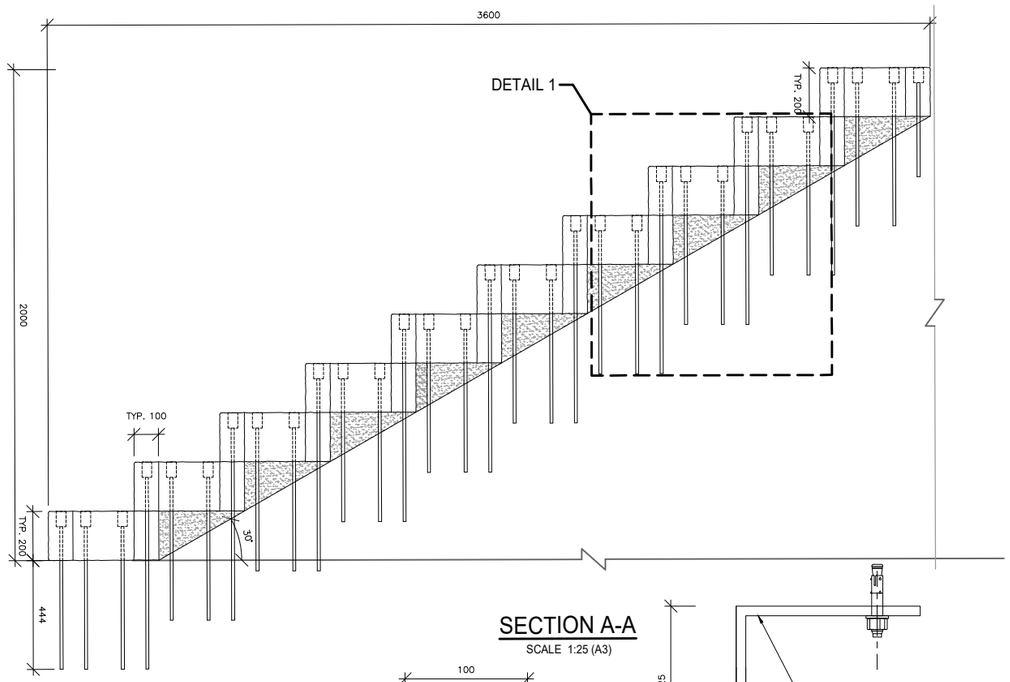
PRECAST MODULES - STAIRS DETAIL

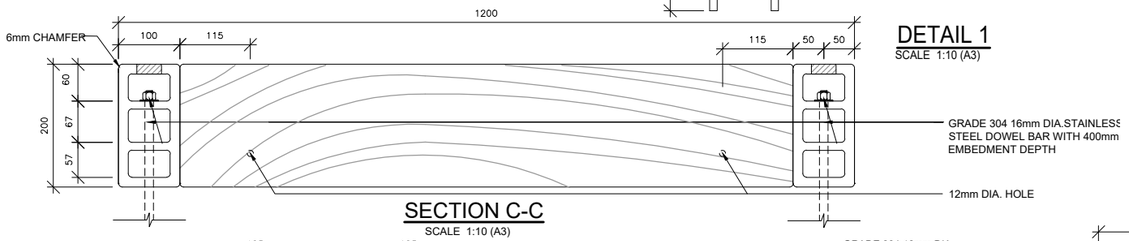
SCALE 1:10 (A3)



PLAN OF W2A

SCALE 1:10 (A3)



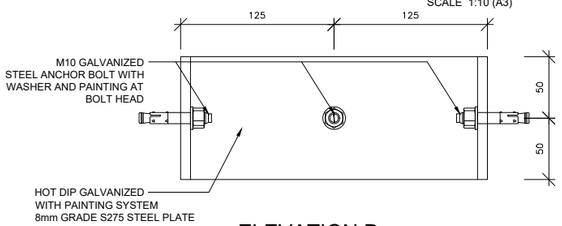


SECTION C-C

SCALE 1:10 (A3)

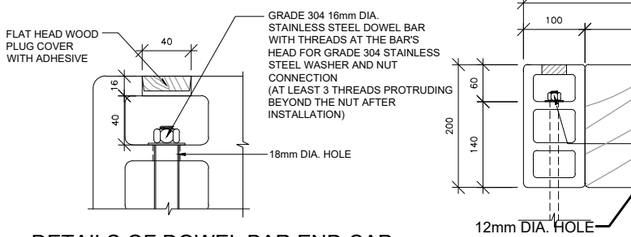
DETAIL 1

SCALE 1:10 (A3)



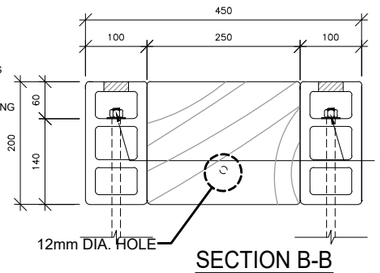
ELEVATION D

SCALE 1:5 (A3)



DETAILS OF DOWEL BAR END CAP

SCALE 1:5 (A3)

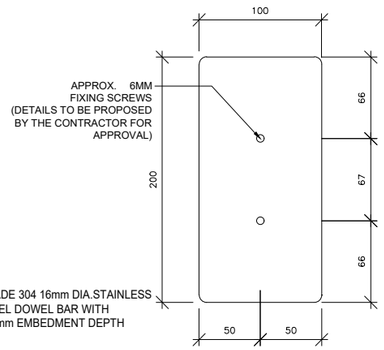


SECTION B-B

SCALE 1:10 (A3)

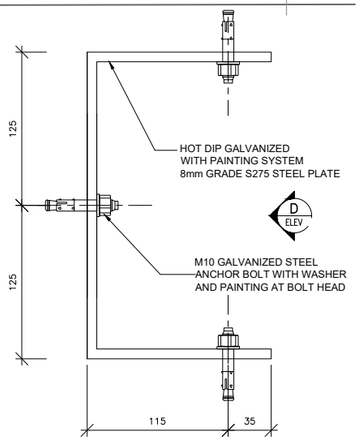
SECTION A-A

SCALE 1:25 (A3)



ELEVATION DETAIL OF CAP

SCALE 1:5 (A3)



DETAILS OF CORNER CONNECTING PLATE

SCALE 1:5 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVEL ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).
3. FOR GENERAL NOTES, REFER TO DRAWING NO. WAC/20222/MUW/GN/001 AND SPECIFICATION FOR THE WPC MATERIAL'S PROPERTIES.
4. PRE-ASSEMBLY TRIAL OF THE PRECAST MODULES SHALL BE CARRIED OUT AT MANUFACTURING FACTORY BEFORE DELIVERING TO THE SITE.
5. EACH PRECAST STEP SHALL NOT BE OVERLAPPING WHEN CONSTRUCTED IN SERIES.
6. COLOR AND PATTERN OF PPMs SHALL REFER TO DRAWING NO. WAC/20222/PPM/C/012.
7. FOR ALL RECTANGULAR PPMs, 6mm CHAMFER SHALL BE PLACED ON THE EDGE.
8. ON-SITE MODIFICATION, SUCH AS TRIMMING, INSITU CONCRETE MIXING, HOLE DRILLING AND ADJUSTING ANGLE, SHALL BE CARRIED OUT BY THE CONTRACTOR. SO THAT THE PPMs WILL FIT INTO THE ACTUAL SITE CONDITION.
9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	AS SHOWN		
CAD FILE:	WAC_20222_C_PPM_002B_TYPE1		

PROJECT:

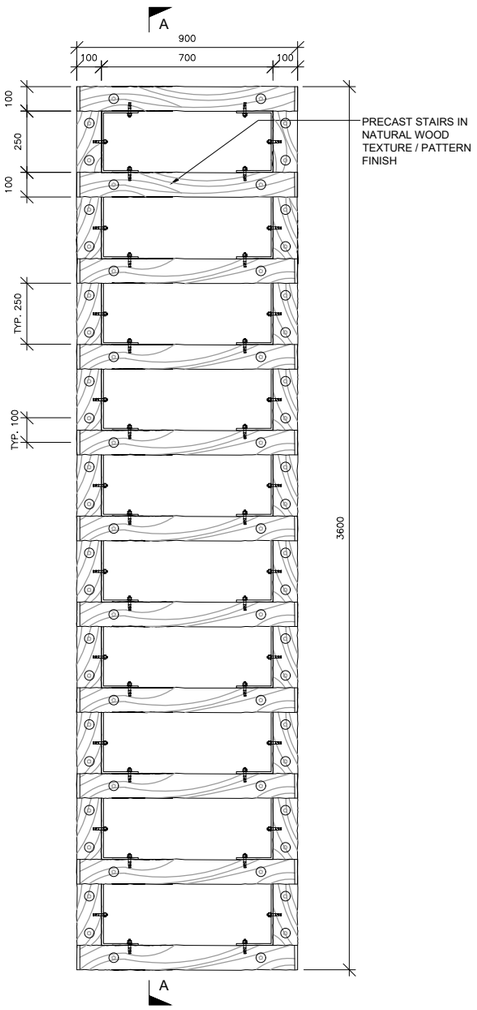
SLO 03/2020
STUDY FOR ENHANCEMENT OF TRAILS AND CONNECTIVITY IN LANTAU

DRAWING TITLE:

TYPICAL DETAILS OF PRECAST MODULES – OPTIMIZED DESIGN OF STAIRS (TYPE 1)

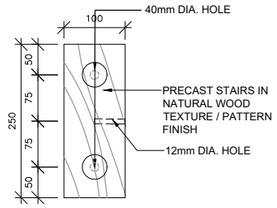
DRAWING NO:	REV:
WAC/20222/C/PPM/002a	–

WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.
和雅顧問工程師有限公司



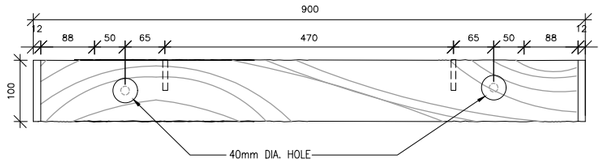
PLAN OF PRECAST MODULES - STAIRS

SCALE 1:25 (A3)



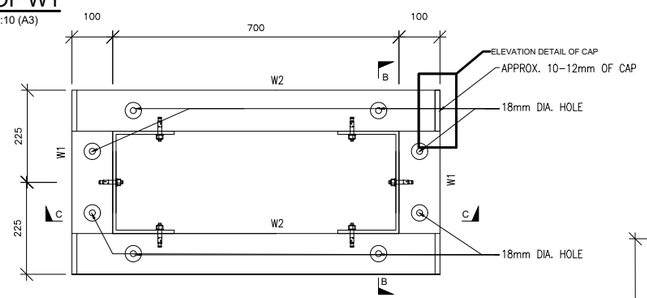
PLAN OF W1

SCALE 1:10 (A3)



PLAN OF W2

SCALE 1:10 (A3)

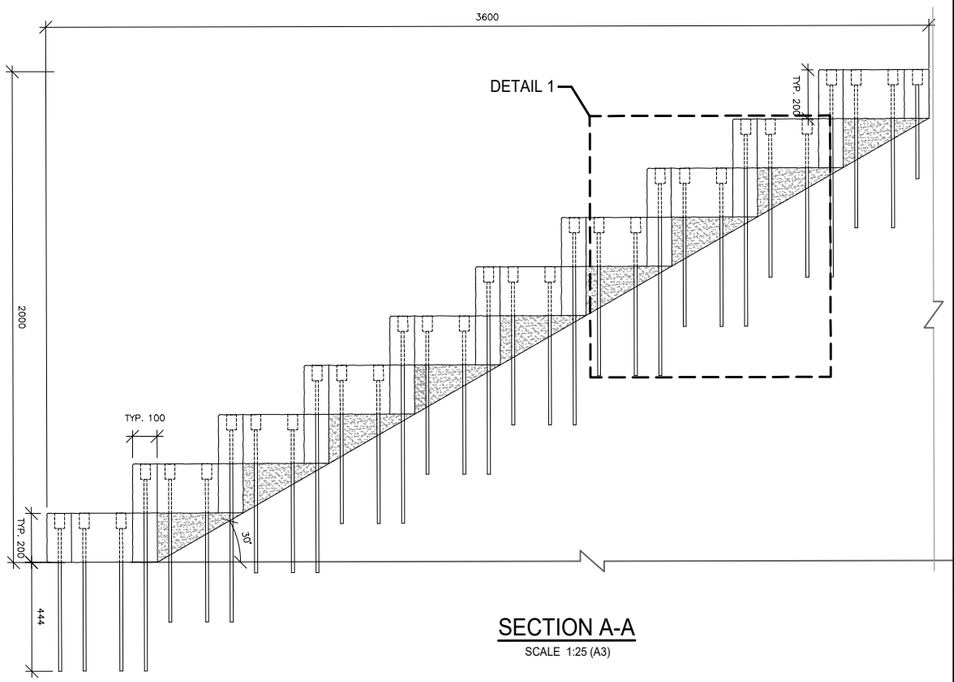


PRECAST MODULES - STAIRS DETAIL

SCALE 1:10 (A3)

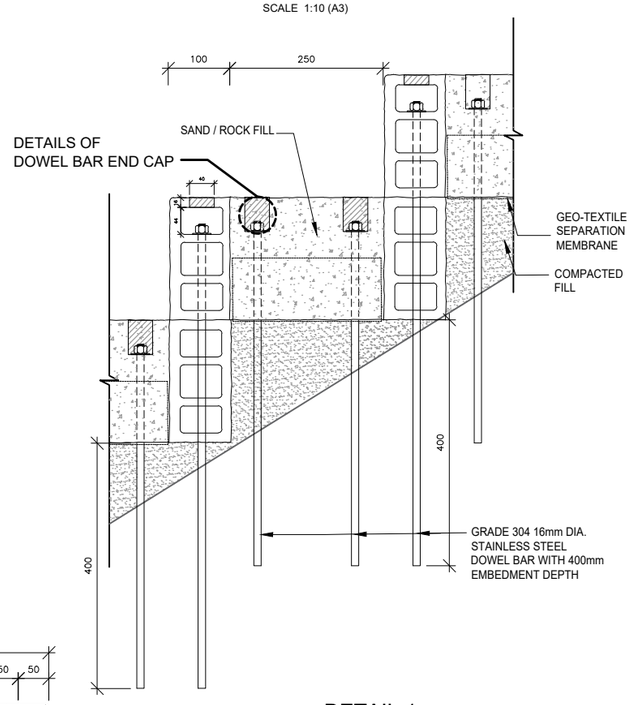
IMAGE REFERENCE

SCALE NTS



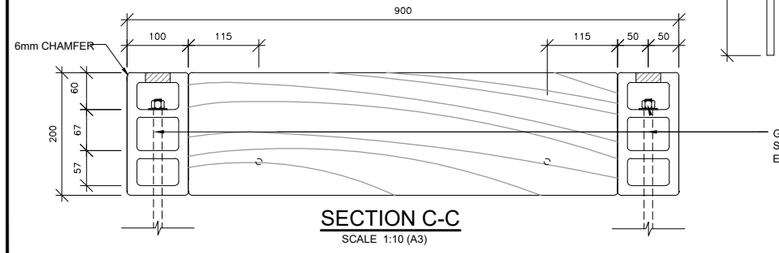
SECTION A-A

SCALE 1:25 (A3)



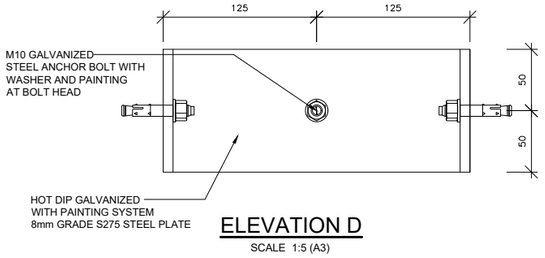
DETAIL 1

SCALE 1:10 (A3)



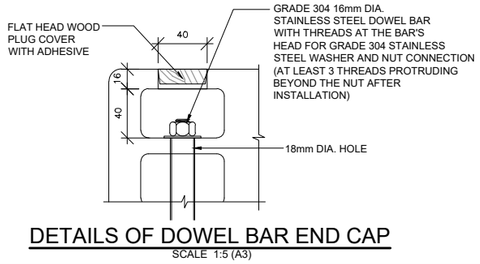
SECTION C-C

SCALE 1:10 (A3)



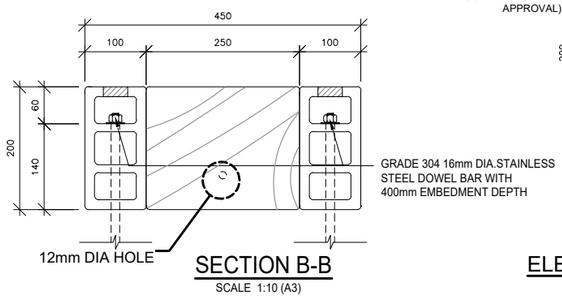
ELEVATION D

SCALE 1:5 (A3)



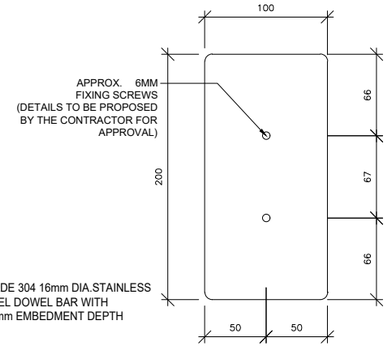
DETAILS OF DOWEL BAR END CAP

SCALE 1:5 (A3)



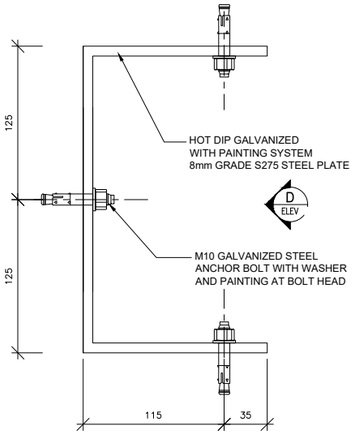
SECTION B-B

SCALE 1:10 (A3)



ELEVATION DETAIL OF CAP

SCALE 1:5 (A3)



DETAILS OF CORNER CONNECTING PLATE

SCALE 1:5 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
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REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	AS SHOWN		
CAD FILE:	WAC_20222_C_PPM_002-1_TYPE2A		

PROJECT:

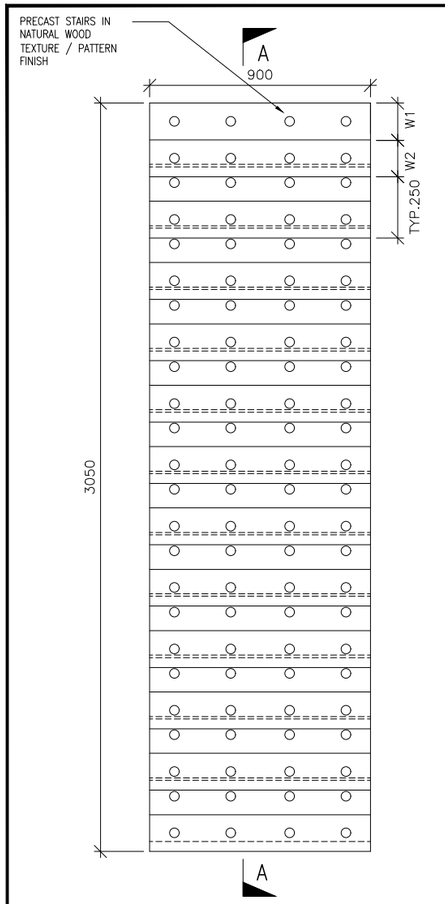
SLO 03/2020
STUDY FOR ENHANCEMENT OF TRAILS AND CONNECTIVITY IN LANTAU

DRAWING TITLE:

TYPICAL DETAILS OF PRECAST MODULES – OPTIMIZED DESIGN OF STAIRS (TYPE 2A)

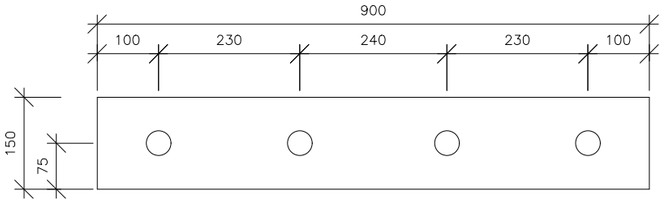
DRAWING NO:	REV:
WAC/20222/C/PPM/002-1a	–

威翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



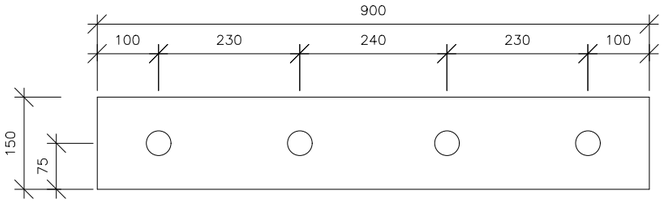
PLAN OF PRECAST MODULES – STAIRS

SCALE 1:25 (A3)



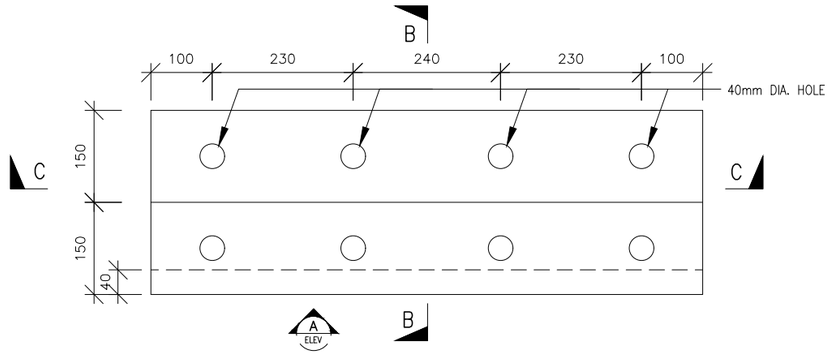
PLAN OF W1

SCALE 1:10 (A3)



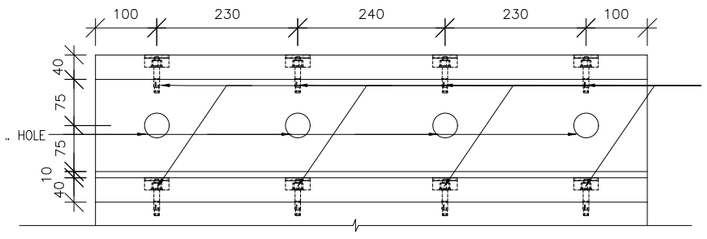
PLAN OF W2

SCALE 1:10 (A3)



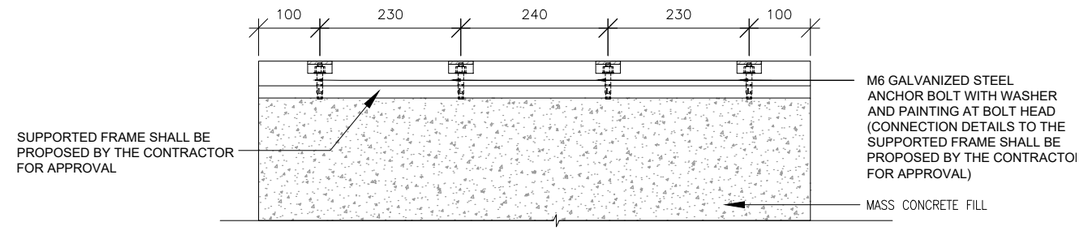
PLAN OF STAIRS DETAIL

SCALE 1:10 (A3)



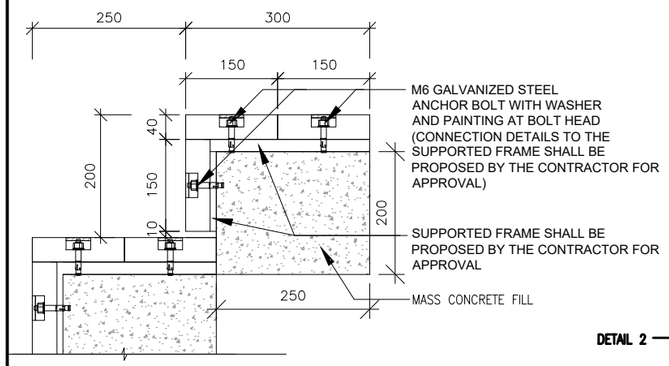
ELEVATION A

SCALE 1:10 (A3)



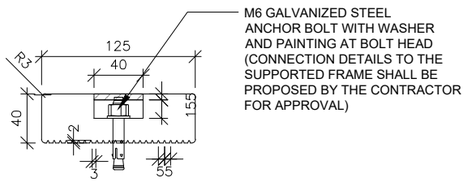
SECTION C–C

SCALE 1:10 (A3)



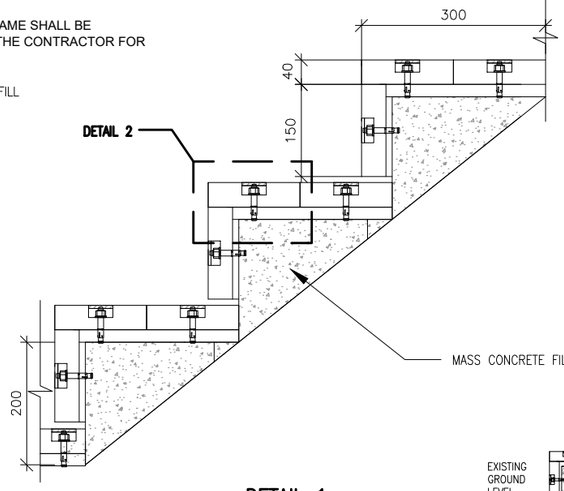
SECTION B–B

SCALE 1:10 (A3)



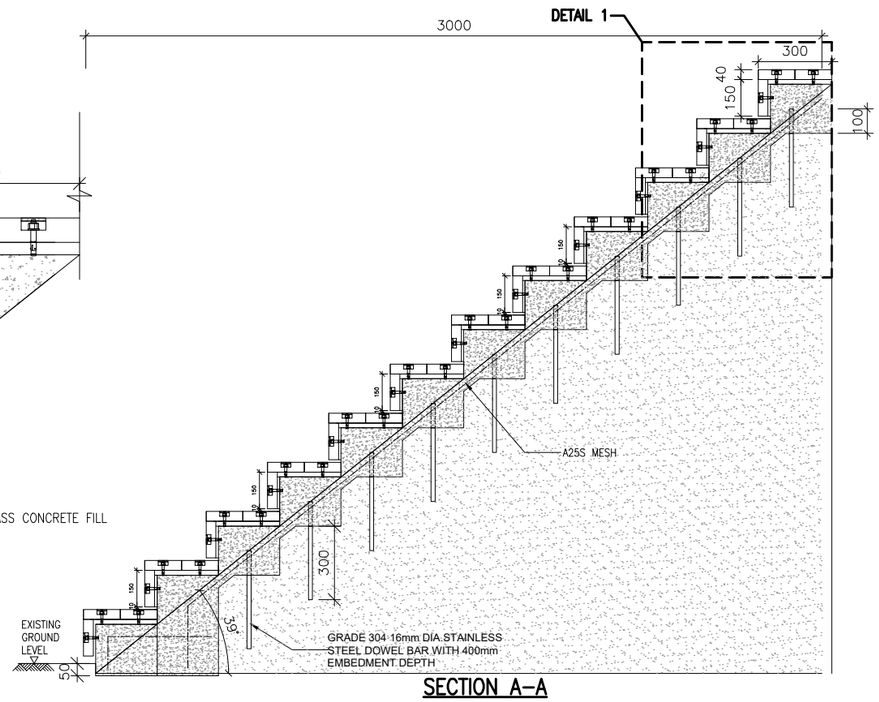
DETAIL 2

SCALE 1:5 (A3)



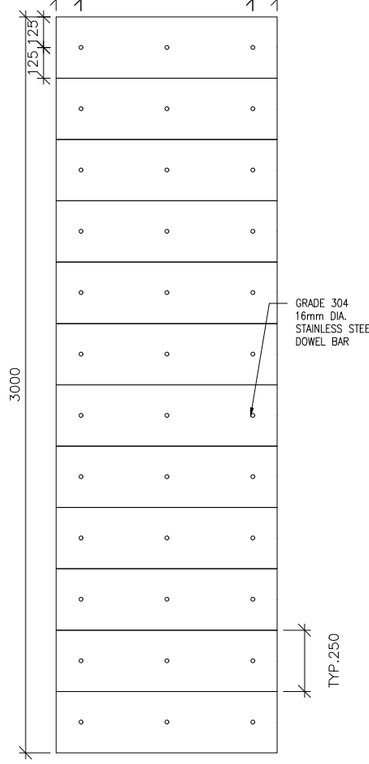
DETAIL 1

SCALE 1:10 (A3)



SECTION A–A

SCALE 1:25 (A3)



PLAN OF DOWEL BAR ARRANGEMENT

SCALE 1:25 (A3)

B.D. REF. / /

F.S.D. REF. / /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVEL ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).
3. FOR GENERAL NOTES, REFER TO DRAWING NO. WAC/20222/MUW/GN/001 AND SPECIFICATION FOR THE WPC MATERIAL'S PROPERTIES.
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5. EACH PRECAST STEP SHALL NOT BE OVERLAPPING WHEN CONSTRUCTED IN SERIES.
6. COLOR AND PATTERN OF PPMs SHALL REFER TO DRAWING NO. WAC/20222/PPM/C/012.
7. FOR ALL RECTANGULAR PPMs, 6mm CHAMFER SHALL BE PLACED ON THE EDGE.
8. ON–SITE MODIFICATION, SUCH AS TRIMMING, INSITU CONCRETE MIXING, HOLE DRILLING AND ADJUSTING ANGLE, SHALL BE CARRIED OUT BY THE CONTRACTOR. SO THAT THE PPMs WILL FIT INTO THE ACTUAL SITE CONDITION.
9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	AS SHOWN		
CAD FILE:	WAC_20222_C_PPM_002–3_TYPE3		

PROJECT:

SLO 03/2020
STUDY FOR ENHANCEMENT OF TRAILS AND CONNECTIVITY IN LANTAU

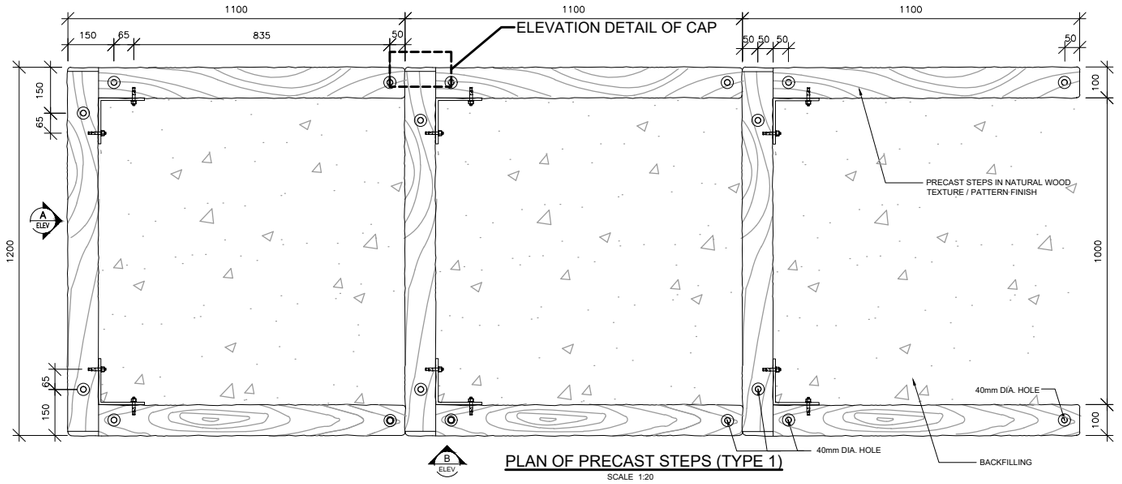
DRAWING TITLE:

TYPICAL DETAILS OF PRECAST MODULES – OPTIMIZED DESIGN OF STAIRS (TYPE 3)

DRAWING NO: WAC/20222/C/PPM/002–3a

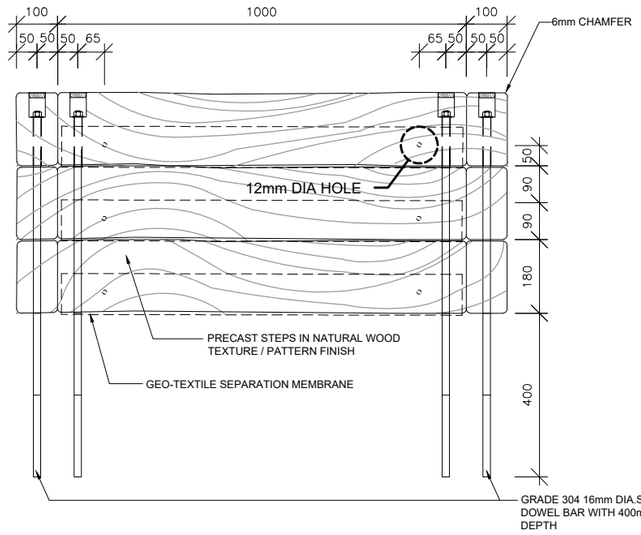
REV: –

WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.



PLAN OF PRECAST STEPS (TYPE 1)

SCALE 1:20



ELEVATION A OF PRECAST STEPS

SCALE 1:20

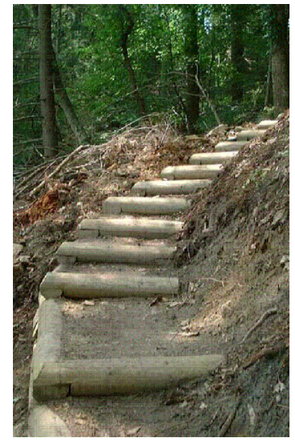
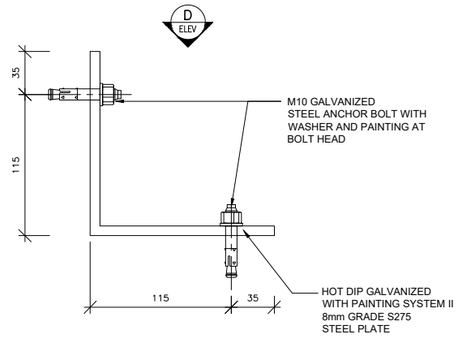


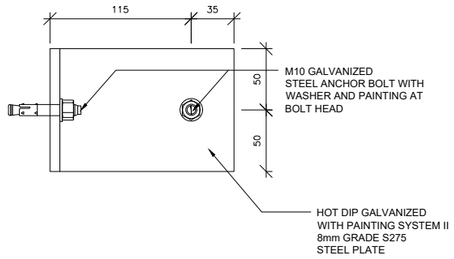
IMAGE REFERENCE

SCALE NTS



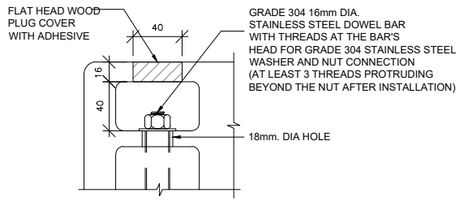
DETAILS OF CORNER CONNECTING PLATE

SCALE 1:5 (A3)



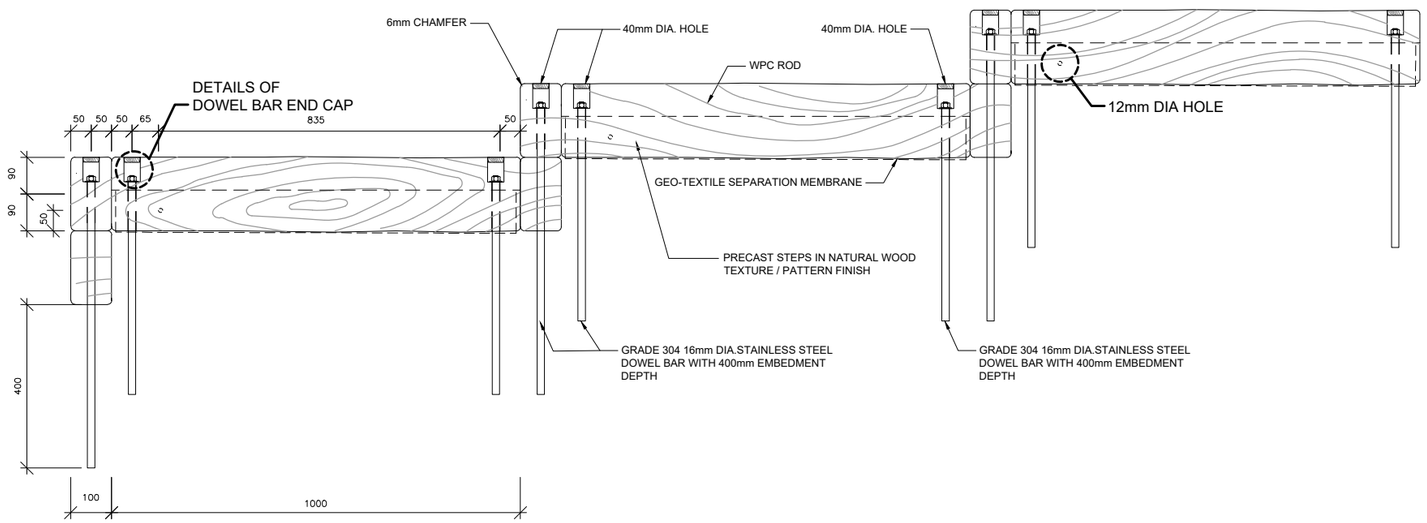
ELEVATION D OF CORNER CONNECTING PLATE

SCALE 1:5 (A3)



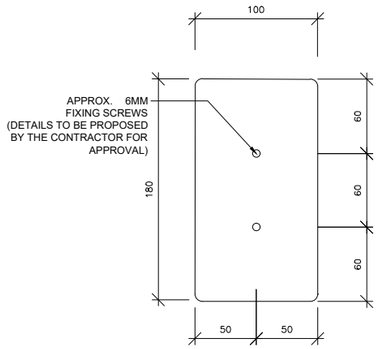
DETAILS OF DOWEL BAR END CAP

SCALE 1:5 (A3)



ELEVATION B OF PRECAST STEPS

SCALE 1:20



ELEVATION DETAIL OF CAP

SCALE 1:5 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVEL ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).
3. FOR GENERAL NOTES, REFER TO DRAWING NO. WAC/20222/MUW/GN/001 AND SPECIFICATION FOR THE WPC MATERIAL'S PROPERTIES.
4. PRE-ASSEMBLY TRIAL OF THE PRECAST MODULES SHALL BE CARRIED OUT AT MANUFACTURING FACTORY BEFORE DELIVERING TO THE SITE.
5. EACH PRECAST STEP SHALL NOT BE OVERLAPPING WHEN CONSTRUCTED IN SERIES.
6. COLOR AND PATTERN OF PPMs SHALL REFER TO DRAWING NO. WAC/20222/PPM/C/012.
7. FOR ALL RECTANGULAR PPMs, 6mm CHAMFER SHALL BE PLACED ON THE EDGE.
8. ON-SITE MODIFICATION, SUCH AS TRIMMING, INSITU CONCRETE MIXING, HOLE DRILLING AND ADJUSTING ANGLE, SHALL BE CARRIED OUT BY THE CONTRACTOR. SO THAT THE PPMs WILL FIT INTO THE ACTUAL SITE CONDITION.
9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOWN		
CAD FILE:	WAC_20222_C_PPM_003B		

PROJECT:

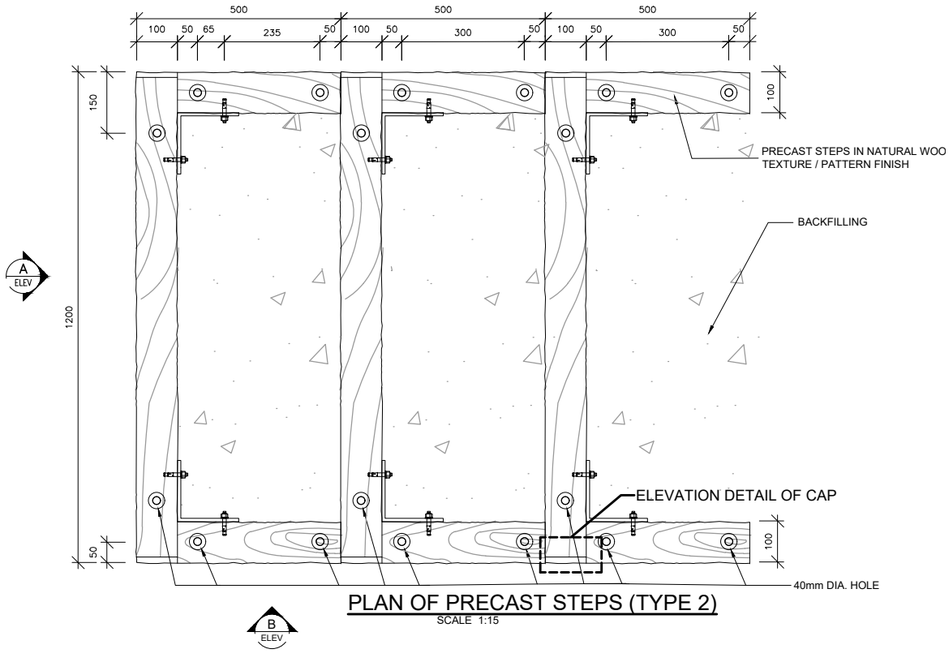
SLO 03/2020
STUDY FOR ENHANCEMENT OF TRAIL AND CONNECTIVITY IN LANTAU

DRAWING TITLE:

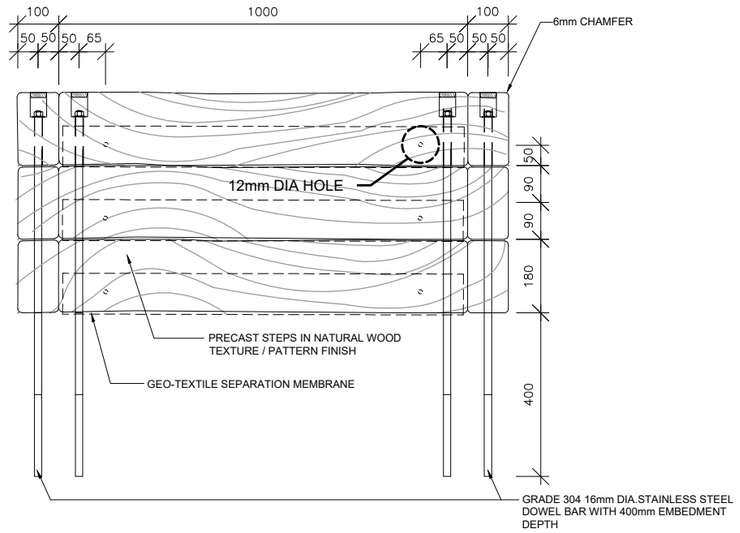
TYPICAL DETAILS OF PRECAST MODULES – OPTIMIZED DESIGN OF STEPS (TYPE 1)

DRAWING NO:	REV:
WAC/20222/C/PPM/003a	–

WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.
和翔顧問工程師有限公司



PLAN OF PRECAST STEPS (TYPE 2)
SCALE 1:15



ELEVATION A OF PRECAST STEPS
SCALE 1:20

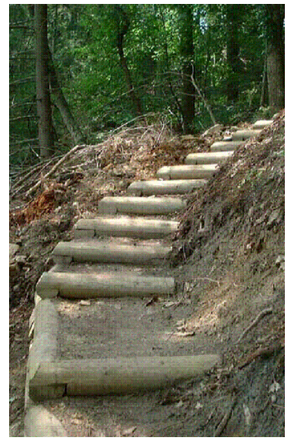
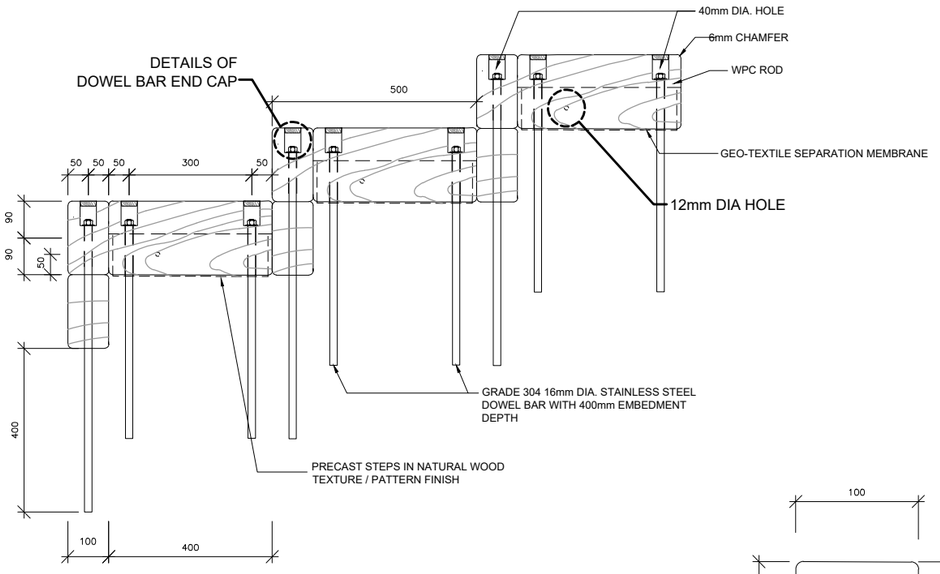
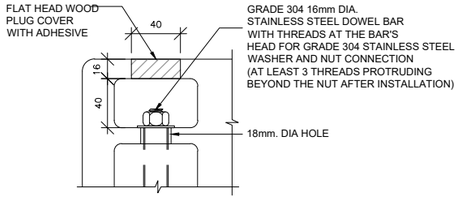


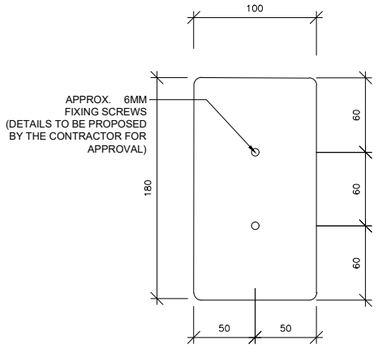
IMAGE REFERENCE
SCALE NTS



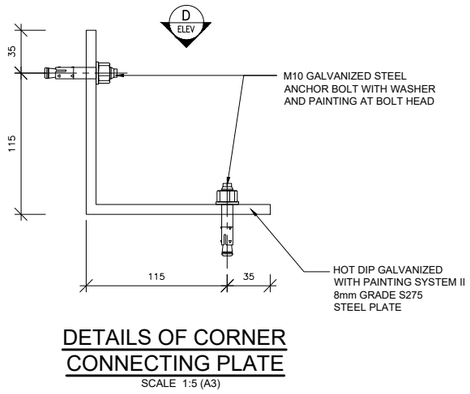
ELEVATION B OF PRECAST STEPS
SCALE 1:20



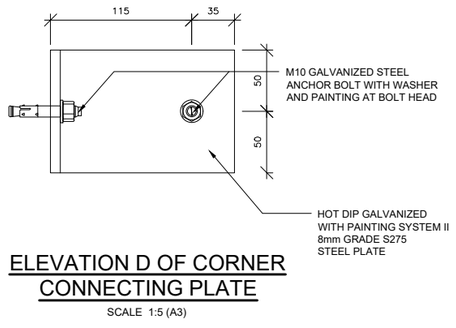
DETAILS OF DOWEL BAR END CAP
SCALE 1:5 (A3)



ELEVATION DETAIL OF CAP
SCALE 1:5 (A3)



DETAILS OF CORNER CONNECTING PLATE
SCALE 1:5 (A3)



ELEVATION D OF CORNER CONNECTING PLATE
SCALE 1:5 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVEL ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).
3. FOR GENERAL NOTES, REFER TO DRAWING NO. WAC/20222/MUW/GN/001 AND SPECIFICATION FOR THE WPC MATERIAL'S PROPERTIES.
4. PRE-ASSEMBLY TRIAL OF THE PRECAST MODULES SHALL BE CARRIED OUT AT MANUFACTURING FACTORY BEFORE DELIVERING TO THE SITE.
5. EACH PRECAST STEP SHALL NOT BE OVERLAPPING WHEN CONSTRUCTED IN SERIES.
6. COLOR AND PATTERN OF PPMs SHALL REFER TO DRAWING NO. WAC/20222/PPM/C/012.
7. FOR ALL RECTANGULAR PPMs, 6mm CHAMFER SHALL BE PLACED ON THE EDGE.
8. ON-SITE MODIFICATION, SUCH AS TRIMMING, INSITU CONCRETE MIXING, HOLE DRILLING AND ADJUSTING ANGLE, SHALL BE CARRIED OUT BY THE CONTRACTOR. SO THAT THE PPMs WILL FIT INTO THE ACTUAL SITE CONDITION.
9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOWN		
CAD FILE:	WAC_20222_C_PPM_004B		

PROJECT:
SLO 03/2020
STUDY FOR ENHANCEMENT OF TRAIL AND CONNECTIVITY IN LANTAU

DRAWING TITLE:
TYPICAL DETAILS OF PRECAST MODULES – OPTIMIZED DESIGN OF STEPS (TYPE 2)

DRAWING NO:	REV:
WAC/20222/C/PPM/004a	–

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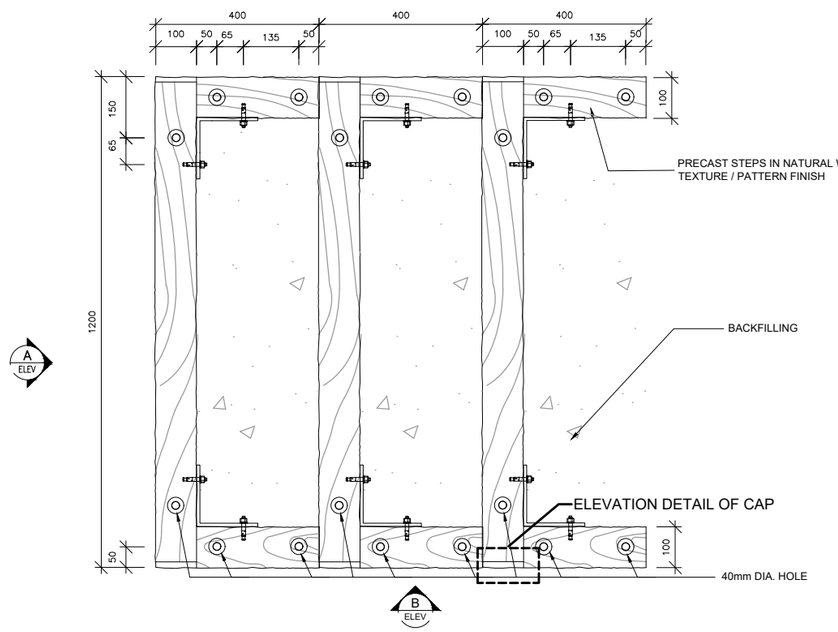
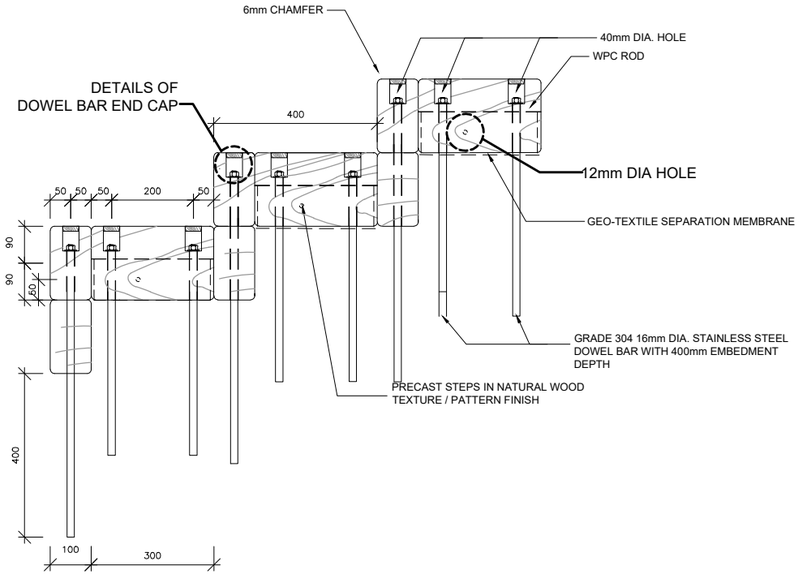
和雅顧問工程師有限公司



PLAN OF PRECAST STEPS (TYPE 3)

SCALE 1:15



ELEVATION B OF PRECAST STEPS

SCALE 1:20

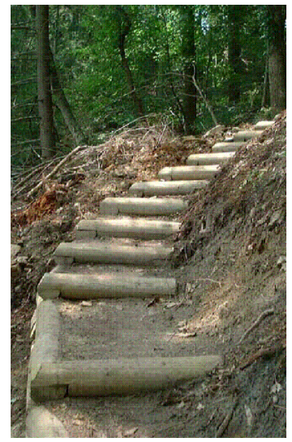
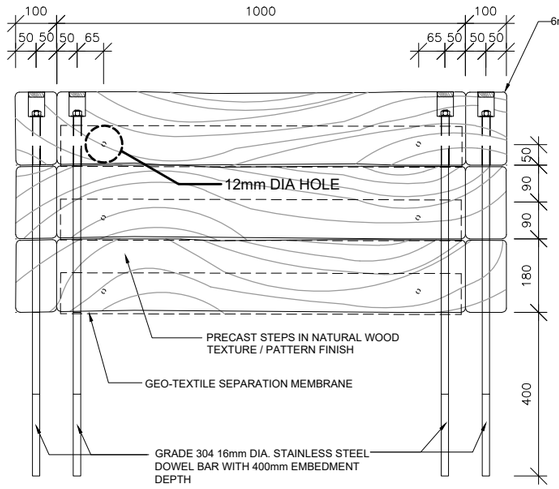


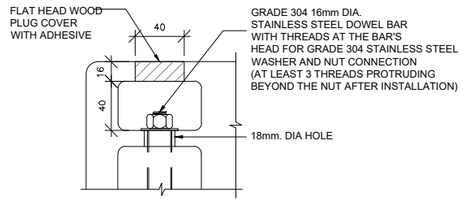
IMAGE REFERENCE

SCALE NTS



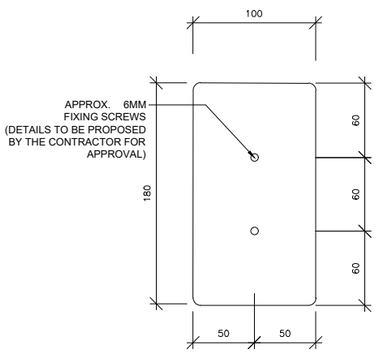
ELEVATION A OF PRECAST STEPS

SCALE 1:20



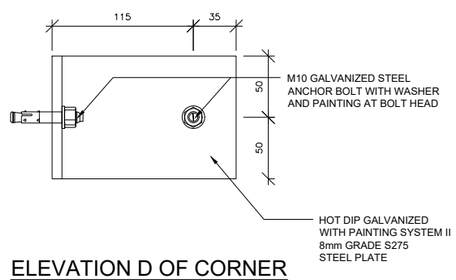
DETAILS OF DOWEL BAR END CAP

SCALE 1:5 (A3)



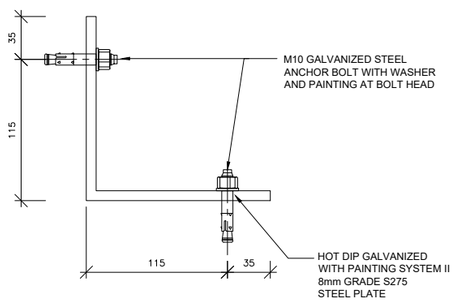
ELEVATION DETAIL OF CAP

SCALE 1:5 (A3)



ELEVATION D OF CORNER CONNECTING PLATE

SCALE 1:5 (A3)



DETAILS OF CORNER CONNECTING PLATE

SCALE 1:5 (A3)

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
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6. COLOR AND PATTERN OF PPMs SHALL REFER TO DRAWING NO. WAC/20222/PPM/C/012.
7. FOR ALL RECTANGULAR PPMs, 6mm CHAMFER SHALL BE PLACED ON THE EDGE.
8. ON-SITE MODIFICATION, SUCH AS TRIMMING, INSITU CONCRETE MIXING, HOLE DRILLING AND ADJUSTING ANGLE, SHALL BE CARRIED OUT BY THE CONTRACTOR. SO THAT THE PPMs WILL FIT INTO THE ACTUAL SITE CONDITION.
9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED
A	12/21	1ST AMENDMENT	KL	TC	DF

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOWN		
CAD FILE:	WAC_20222_C_PPM_005B		

PROJECT:

SLO 03/2020
STUDY FOR ENHANCEMENT OF TRAIL AND CONNECTIVITY IN LANTAU

DRAWING TITLE:

TYPICAL DETAILS OF PRECAST MODULES - OPTIMIZED DESIGN OF STEPS (TYPE 3)

DRAWING NO:	REV:
WAC/20222/C/PPM/005a	-

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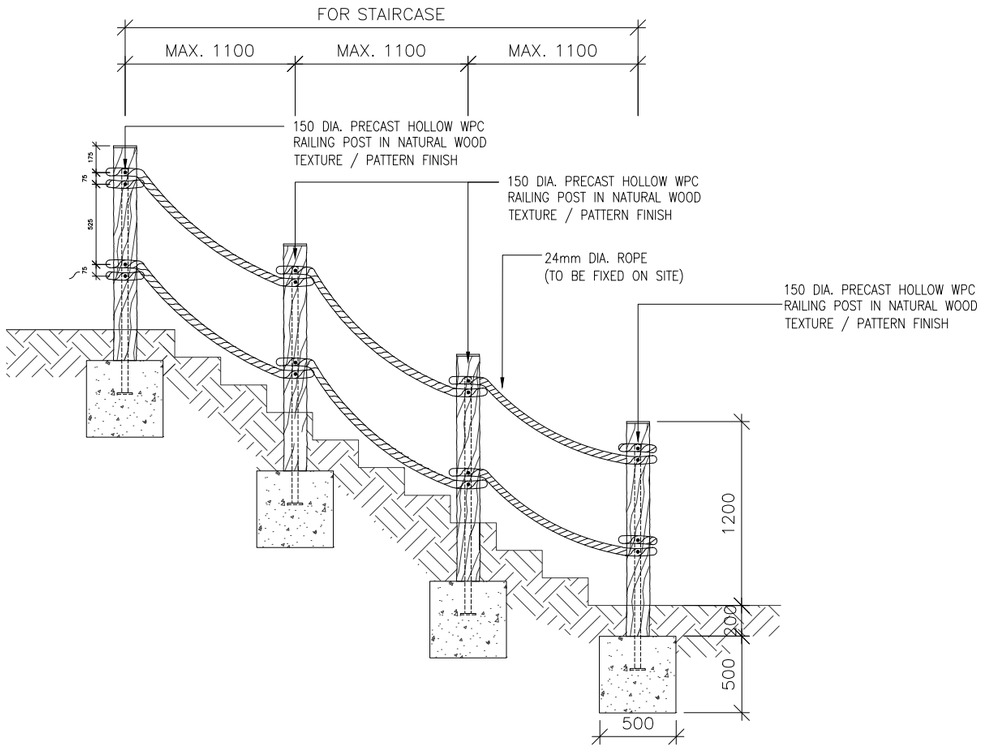
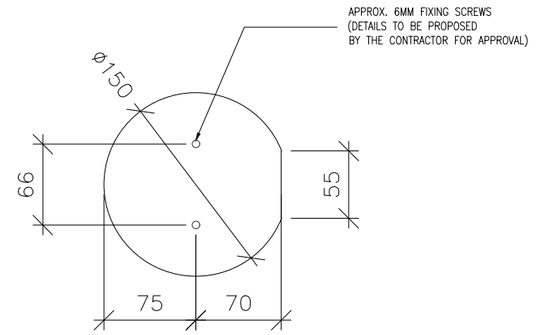
WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.



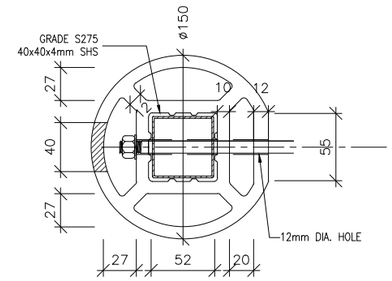
TYPICAL ELEVATION OF RAILING FOR STAIRCASE

SCALE 1:40



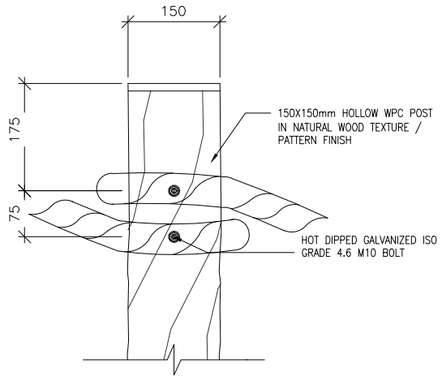
DETAIL OF CAP FOR 150mm DIA. WPC HOLLOW POST

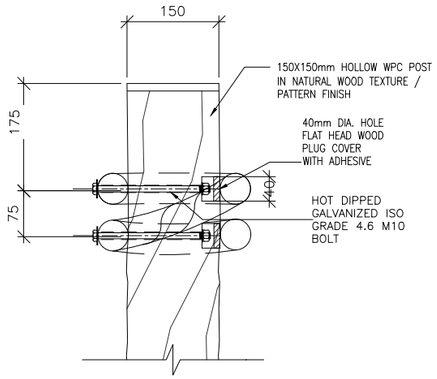
SCALE 1:5

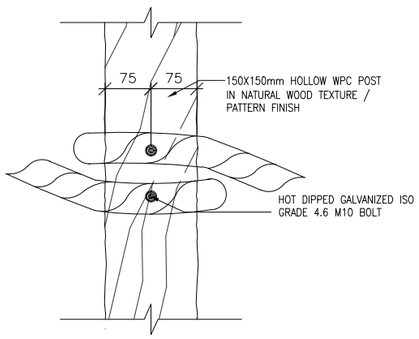


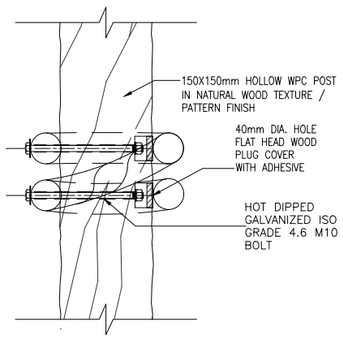
SECTION OF 150mm DIA. WPC HOLLOW POST

SCALE 1:5







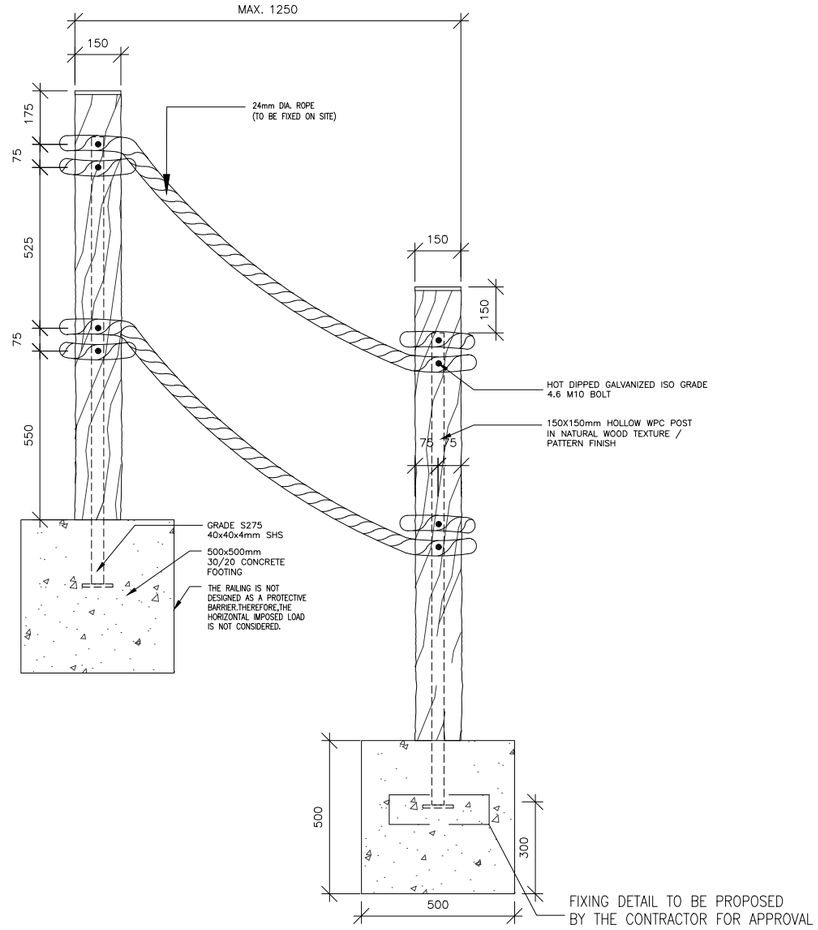


DETAILS OF 50mm DIA. HOLE SIDE A

SCALE 1:10

DETAILS OF 50mm DIA. HOLE SIDE B

SCALE 1:10



DETAILS OF PRECAST RAILING

SCALE 1:20

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVEL ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).
3. FOR GENERAL NOTES, REFER TO DRAWING NO. WAC/20222/MUW/GN/001 AND SPECIFICATION FOR THE WPC MATERIAL'S PROPERTIES.
4. PRE-ASSEMBLY TRIAL OF THE PRECAST MODULES SHALL BE CARRIED OUT AT MANUFACTURING FACTORY BEFORE DELIVERING TO THE SITE.
5. EACH PRECAST STEP SHALL NOT BE OVERLAPPING WHEN CONSTRUCTED IN SERIES.
6. COLOR AND PATTERN OF PPMs SHALL REFER TO DRAWING NO. WAC/20222/PPM/C/012.
7. FOR ALL RECTANGULAR PPMs, 6mm CHAMFER SHALL BE PLACED ON THE EDGE.
8. ON-SITE MODIFICATION, SUCH AS TRIMMING, INSITU CONCRETE MIXING, HOLE DRILLING AND ADJUSTING ANGLE, SHALL BE CARRIED OUT BY THE CONTRACTOR. SO THAT THE PPMs WILL FIT INTO THE ACTUAL SITE CONDITION.
9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.
10. THE RAILING IS NOT DESIGNED AS A PROTECTIVE BARRIER. THEREFORE, THE HORIZONTAL IMPOSE LOAD IS NOT CONSIDERED.

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	DF	TC	
APPROVED BY:	VT		
SCALE:	AS SHOWN		
CAD FILE:	WAC_20222_C_PPM_008C		

PROJECT:

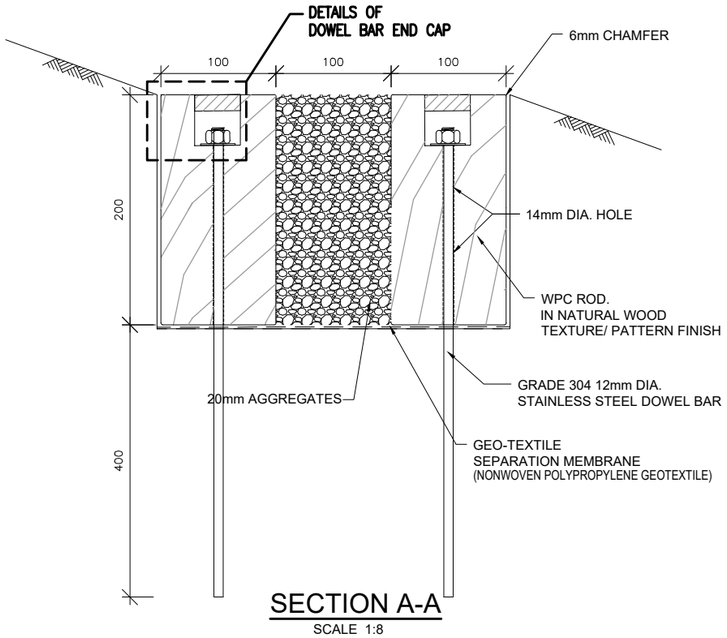
SLO 15/2020
TRAIL IMPROVEMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:

TYPICAL DETAILS OF PRECAST MODULES – OPTIMIZED DESIGN OF RAILING (TYPE 3)

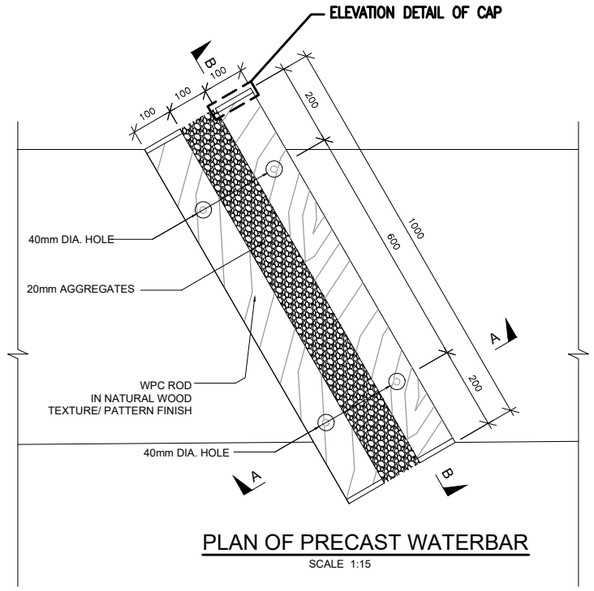
DRAWING NO:	REV:
WAC/20222/C/PPM/008a	–

偉雅顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.



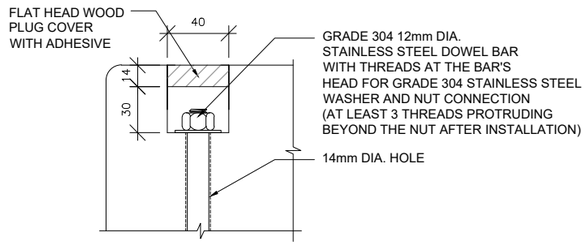
SECTION A-A

SCALE 1:8



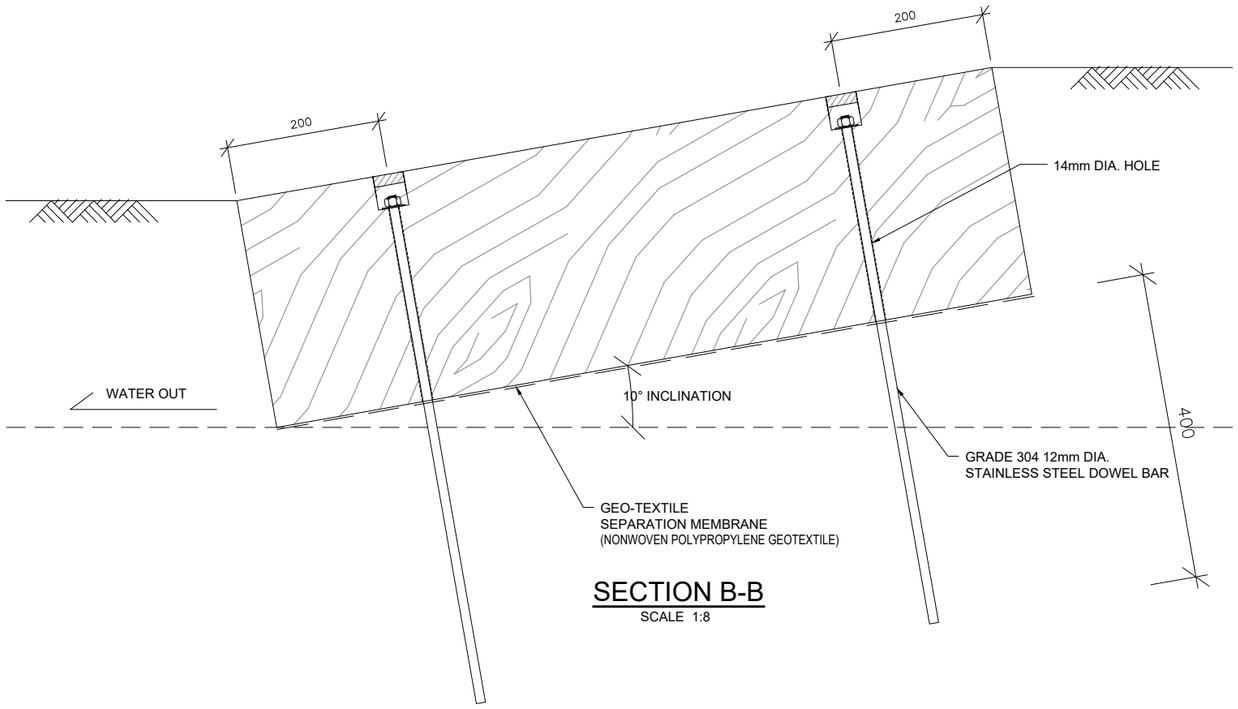
PLAN OF PRECAST WATERBAR

SCALE 1:15



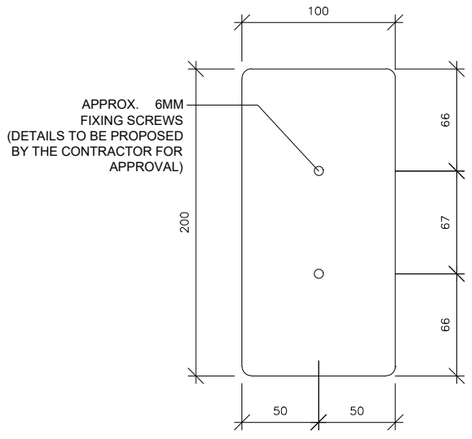
DETAILS OF DOWEL BAR END CAP

SCALE 1:4 (A3)



SECTION B-B

SCALE 1:8



ELEVATION DETAIL OF CAP

SCALE 1:4 (A3)

B.D. REF.	/	/
F.S.D. REF.	/	/

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
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9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.
10. THE LENGTH OF WATERBAR SHALL BE ADJUSTED BASED ON SITE CONDITION.

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOWN		
CAD FILE:	WAC_20222_C_PPM_009B		

PROJECT:

SLO 03/2020
STUDY FOR ENHANCEMENT OF
TRAILS AND CONNECTIVITY IN LANTAU

DRAWING TITLE:

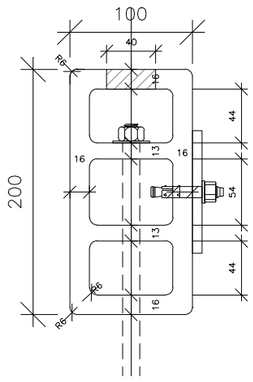
TYPICAL DETAILS OF
PRECAST MODULES –
OPTIMIZED DESIGN OF WATERBAR

DRAWING NO:	REV:
WAC/20222/C/PPM/009a	–

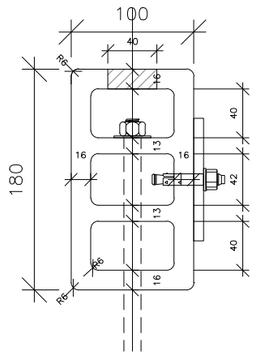
輝翔顧問工程師有限公司
WINGS & ASSOCIATES
CONSULTING ENGINEERS LTD.

DIMENSIONS OF MOULDS

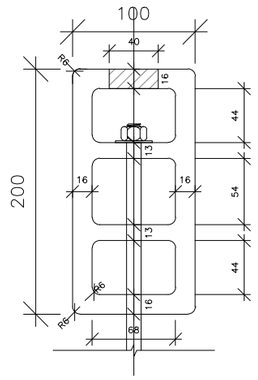
NOTES: TRIAL PANEL OF WPC MATERIAL FOR OPTIMIZING THE SOLIDITY RATIO AND LABORATORY TESTING FOR MATERIAL PROPERTIES AND SLIP RESISTANCE ON MATERIAL SURFACE.



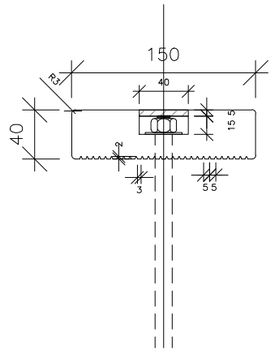
STAIR
SCALE 1:5

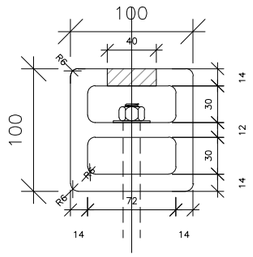


STEP
SCALE 1:5

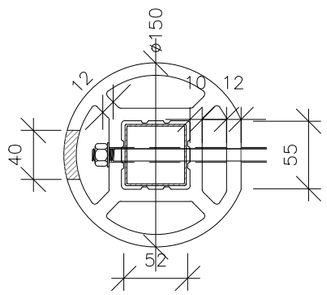


WATER BAR
SCALE 1:5

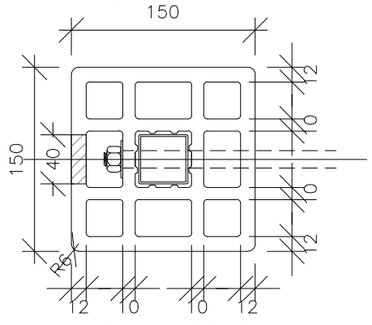




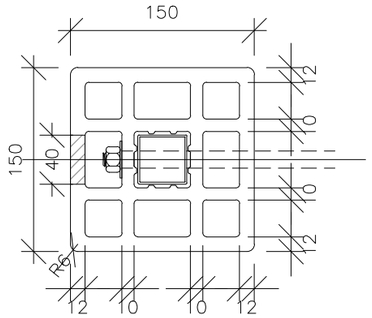
BOARDWALK
SCALE 1:5

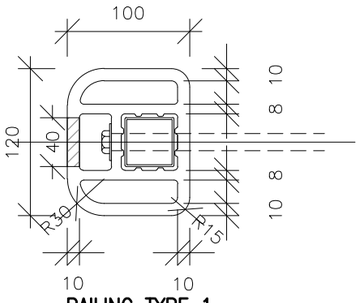


RAILING TYPE 3
SCALE 1:5

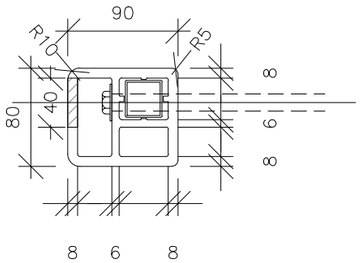


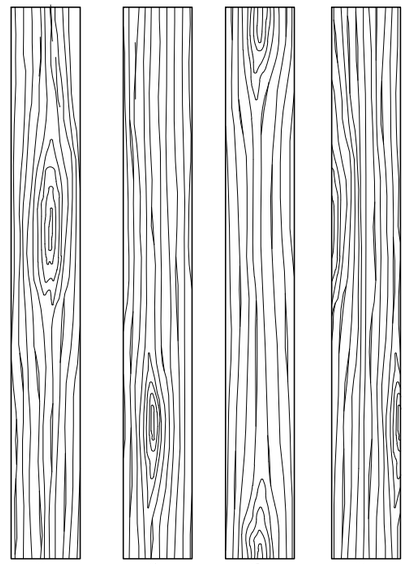
RAILING TYPE 2
SCALE 1:5





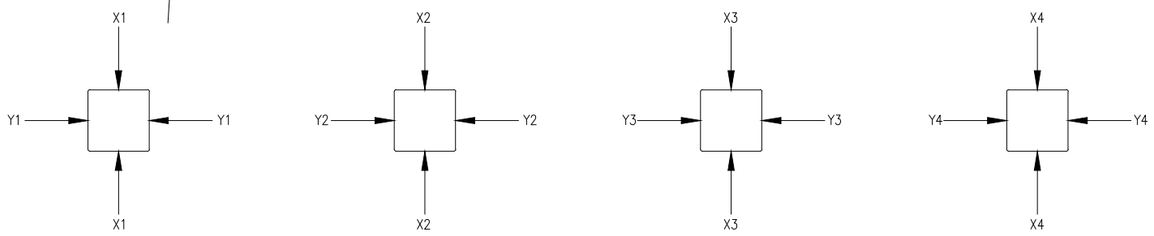
RAILING TYPE 1
SCALE 1:5





PATTERN X ROUGH CEDAR
SCALE NTS

COMBINATIONS OF COLOR & PATTERN



COLOR 1 MAHOGANY
SCALE NTS

COLOR 2 RED OAK
SCALE NTS

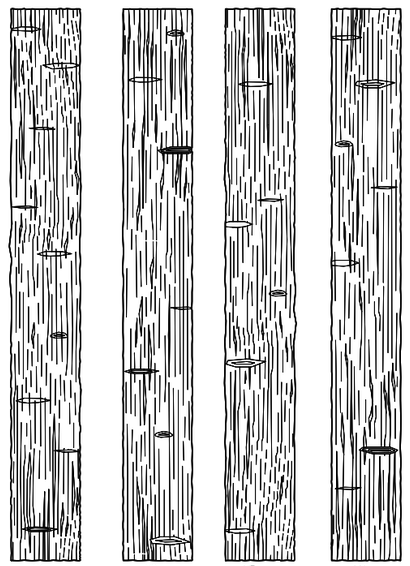
COLOR 3 PROVINCIAL
SCALE NTS

(EXACT COLOR CODE SHALL BE AGREED WITH THE ENGINEER AND ARCHITECT)

STEEL MOULD TO BE HANDED OVER TO CEDD:

PPM-TYPE	PPM MOULD ID NO.	SIZE (mm)	REMARKS
PPM-STAIR	A	100x180	SAME SIZE AS ORIGINAL CONTRACT DRAWING
PPM-STEP TYPE 1-3	B	100x200	SAME SIZE AS ORIGINAL CONTRACT DRAWING
PPM-WATER BAR	C	100x100	SAME SIZE AS ORIGINAL CONTRACT DRAWING
PPM-BOARDWALK	C	100x100	SAME SIZE AS ORIGINAL CONTRACT DRAWING
	D	150x40	CHANGED FROM 200x180mm TO 150x40mm (DUE TO THE DESIGN CHANGE OF BOARDWALK)
PPM-RAILING TYPE 1	E	150x150	SAME SIZE AS ORIGINAL CONTRACT DRAWING
	F	100x120	CHANGED FROM Ø75mm TO 100x120mm (DUE TO THE DESIGN CHANGE OF RAILING TYPE1)
	G	80x90	CHANGED FROM Ø50mm TO 80x90mm (DUE TO THE DESIGN CHANGE OF RAILING TYPE1)
PPM-RAILING TYPE 2	E	150x150	SAME SIZE AS ORIGINAL CONTRACT DRAWING
PPM-RAILING TYPE 3	G	80x90	CHANGED FROM Ø50mm TO 80x90mm (DUE TO THE DESIGN CHANGE OF RAILING TYPE3)
	H	Ø150	SAME SIZE AS ORIGINAL CONTRACT DRAWING

*THERE ARE 8 TYPES OF STEEL MOULD IN TOTAL
(THE TOTAL NUMBER OF STEEL MOULD REMAIN UNCHANGED)



PATTERN Y HAND HEWN
SCALE NTS

B.D. REF.	/ /
F.S.D. REF.	/ /

NOTES:

1. ALL DIMESIONS ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
2. ALL LEVEL ARE IN METRES WITH REFERENCE TO HONG KONG PRINCIPAL DATUM (mPD).
3. FOR GENERAL NOTES, REFER TO DRAWING NO. WAC/20222/MUW/GN/001 AND SPECIFICATION FOR THE WPC MATERIAL'S PROPERTIES.
4. PRE-ASSEMBLY TRIAL OF THE PRECAST MODULES SHALL BE CARRIED OUT AT MANUFACTURING FACTORY BEFORE DELIVERING TO THE SITE.
5. EACH PRECAST STEP SHALL NOT BE OVERLAPPING WHEN CONSTRUCTED IN SERIES.
6. COLOR AND PATTERN OF PPMs SHALL REFER TO DRAWING NO. WAC/20222/PPM/C/012.
7. FOR ALL RECTANGULAR PPMs, 6mm CHAMFER SHALL BE PLACED ON THE EDGE.
8. ON-SITE MODIFICATION, SUCH AS TRIMMING, INSITU CONCRETE MIXING, HOLE DRILLING AND ADJUSTING ANGLE, SHALL BE CARRIED OUT BY THE CONTRACTOR. SO THAT THE PPMs WILL FIT INTO THE ACTUAL SITE CONDITION.
9. FORMATION FOR STAIRS & STEP, SUCH AS CUT AND FILL OF THE GROUND SURFACE IN MINIMAL EXTENT, SHALL BE CARRIED OUT BY THE CONTRACTOR.
10. THE CAPPING DETAIL SHALL BE PROVIDED BY THE CONTRACTOR FOR THE ENGINEER'S APPROVAL.
11. THE BOLT CONNECTIONS AND STRUCTURAL STEEL SECTIONS ARE INDICATIVE ONLY.

LEGEND:

FLAT HEAD WOOD PLUG COVER WITH ADHESIVE

REV	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

SIGNATURE FOR SUBMISSION/ CONSTRUCTION

PROJECT NO:	20222		
DRAWN BY:	KL		
DESIGNED BY:	JC		
CHECKED BY:	TC	DF	
APPROVED BY:	VT		
SCALE:	AS SHOWN		
CAD FILE:	WAC_20222_C_PPM_012C		

PROJECT:
SLO 15/2020
TRAIL IMPROVMENT WORKS IN TAI O (FU SHAN TO PO CHUE TAM)

DRAWING TITLE:
COLOR CODE & WOOD GRAIN PATTERN DRAWING FOR PPM OPTIMIZED DESIGN

DRAWING NO:	REV:
WAC/20222/C/PPM/012a	–

WINGS & ASSOCIATES CONSULTING ENGINEERS LTD.

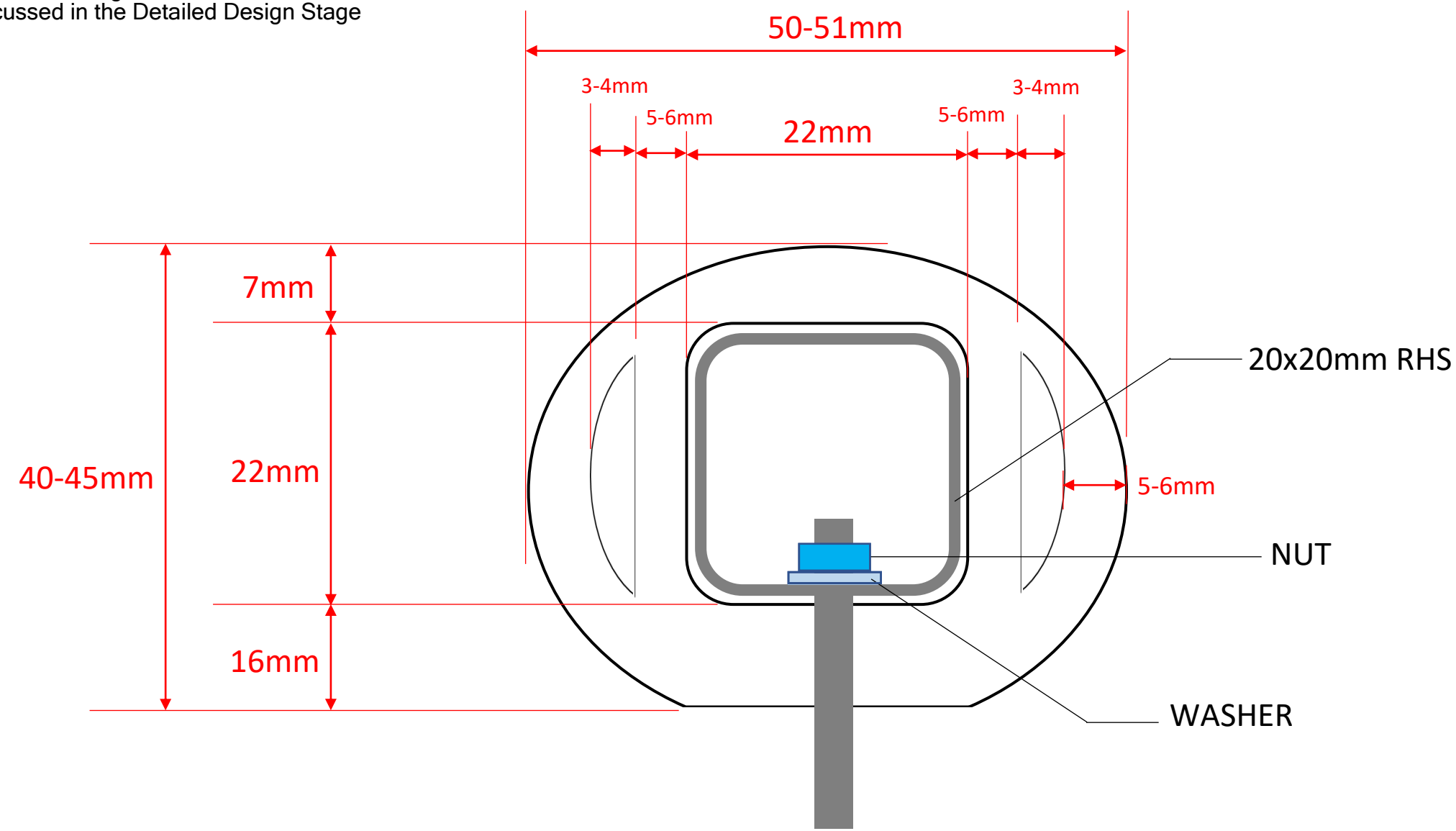
附件 D

預製組件 - 欄杆款式一、二、三優化草圖

Suggestion for the Optimization of PPM for Railing

Railing Type 1 - Rod

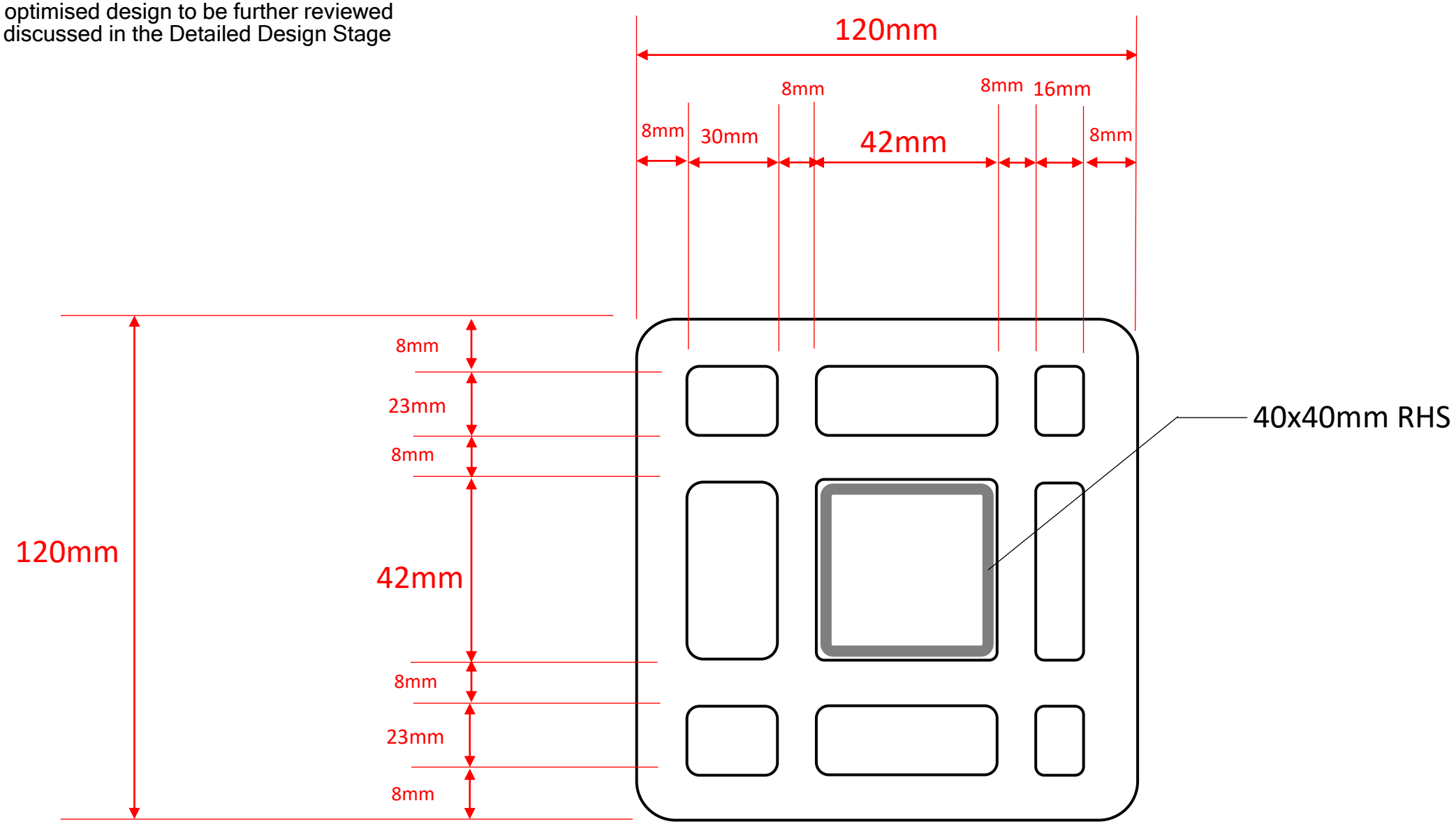
The optimised design to be further reviewed and discussed in the Detailed Design Stage



Suggestion for the Optimization of PPM for Railing

Railing Type 1 - Post

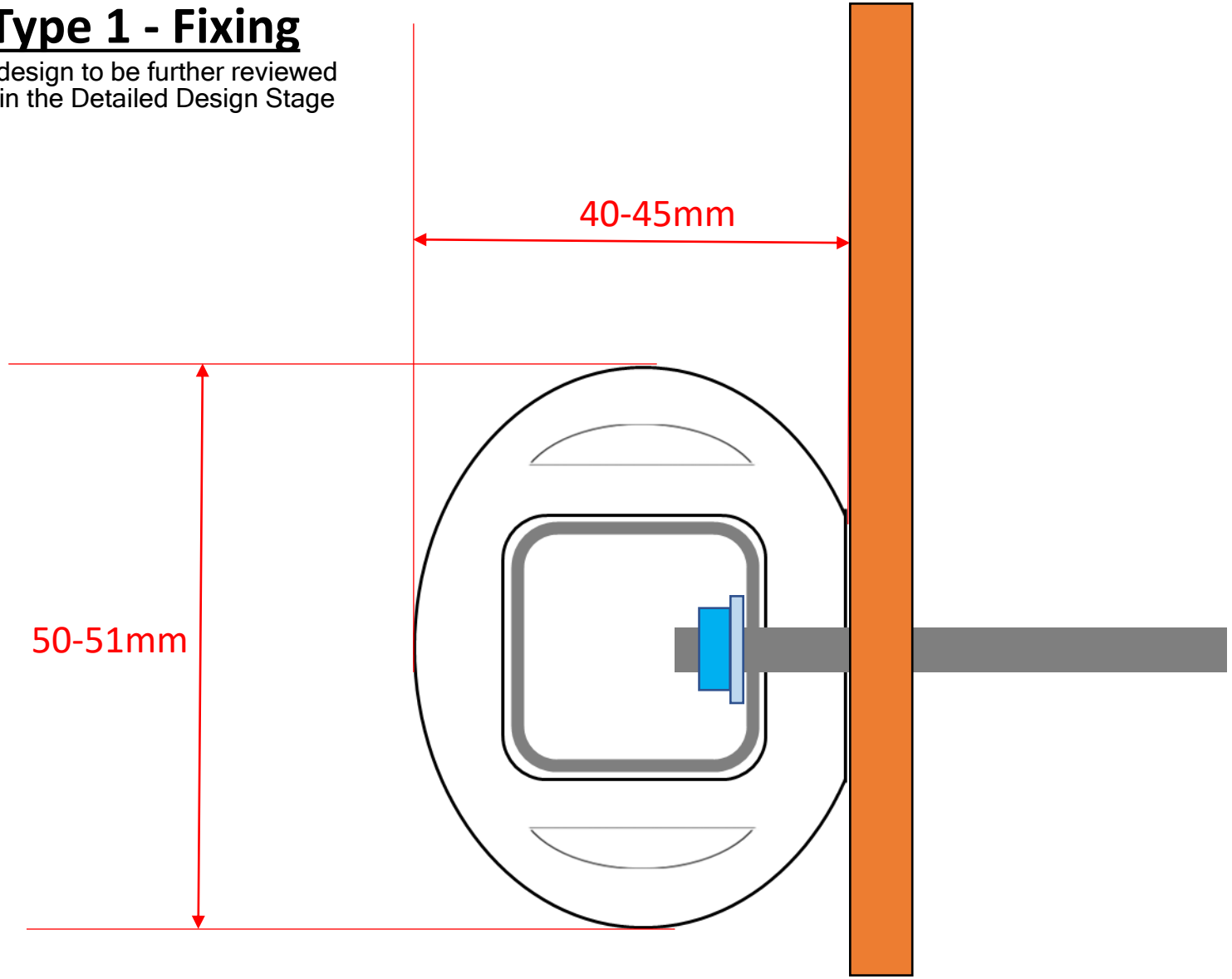
The optimised design to be further reviewed and discussed in the Detailed Design Stage



Suggestion for the Optimization of PPM for Railing

Railing Type 1 - Fixing

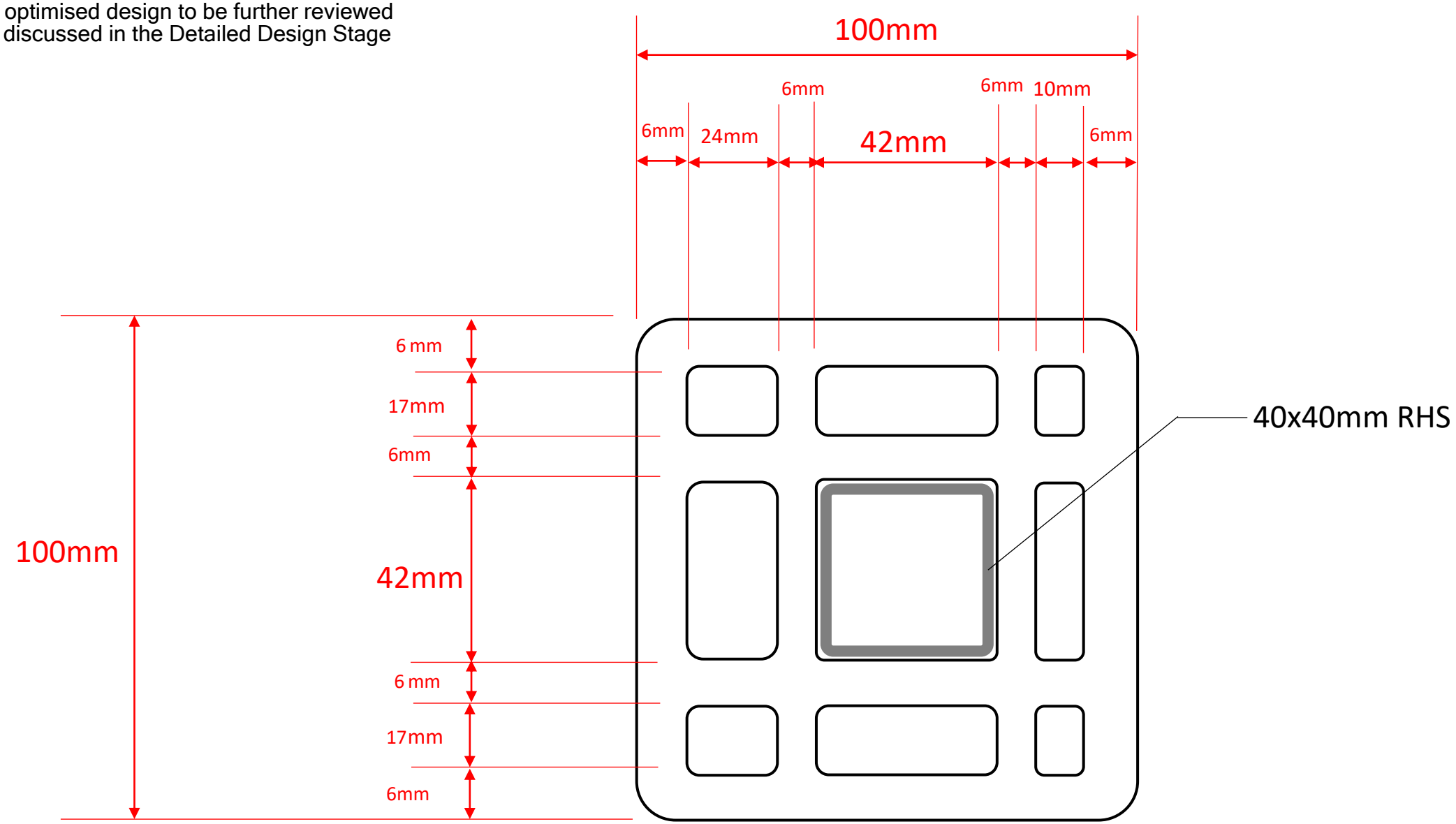
The optimised design to be further reviewed and discussed in the Detailed Design Stage



Suggestion for the Optimization of PPM for Railing

Railing Type 2 - Post

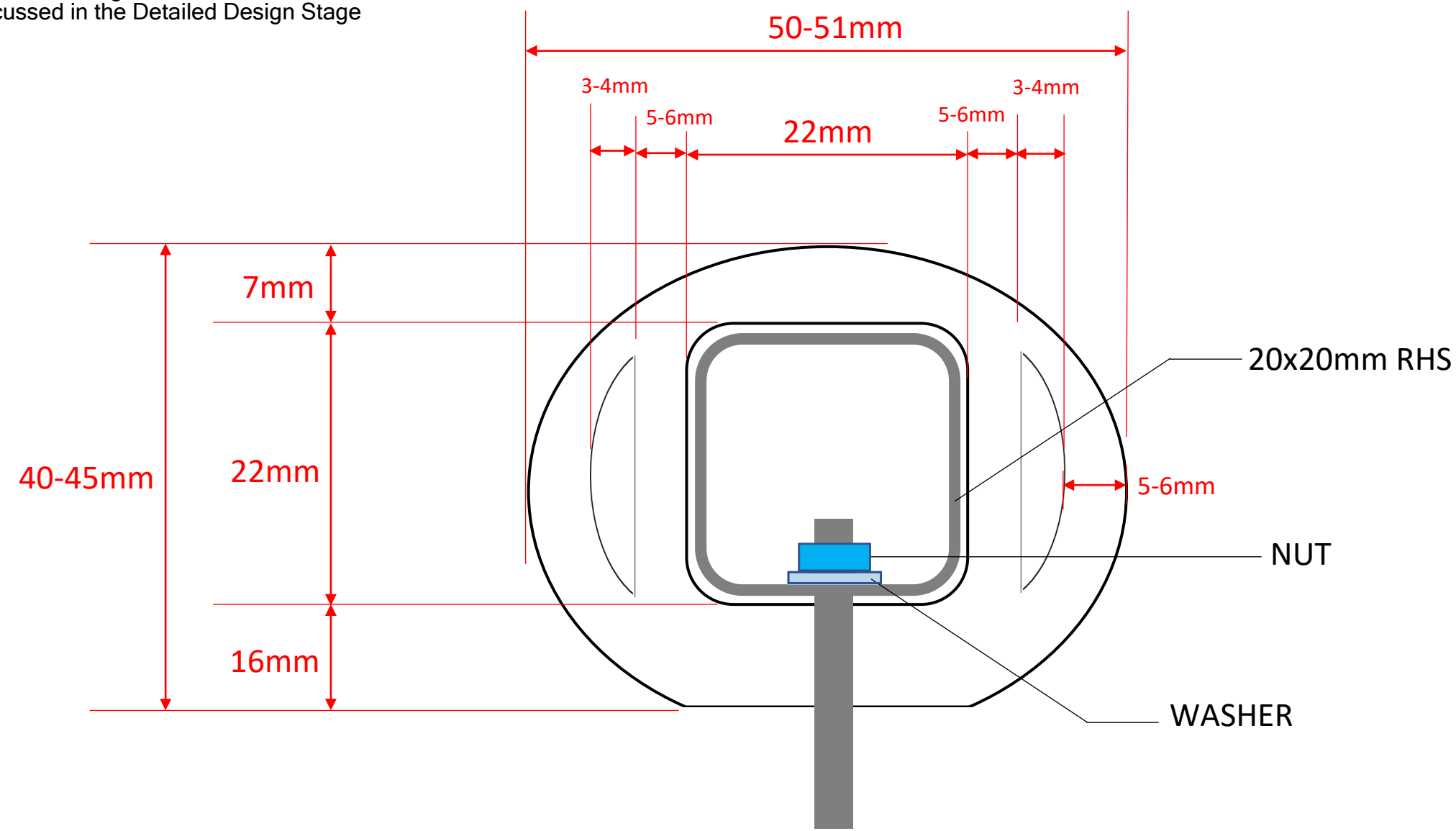
The optimised design to be further reviewed and discussed in the Detailed Design Stage



Suggestion for the Optimization of PPM for Railing

Railing Type 3 - Rod

The optimised design to be further reviewed and discussed in the Detailed Design Stage



Suggestion for the Optimization of PPM for Railing

Railing Type 3 - Fixing

The optimised design to be further reviewed and discussed in the Detailed Design Stage