APPENDIX FOUR
STORMWATER DISCHARGE REPORT + PLANS

ENVELOPE ENGINEERING
LAND
STRUCTURE
MANAGE

SHELLY BAY STORMWATER DESIGN

Stormwater Discharge Report

DOCUMENT CONTROL RECORD

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PROJECT	SHELLY BAY TAIKURU
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APPENDICES

DRAWINGS

1.0 INTRODUCTION

This Stormwater Design report has been prepared in support of an application to Greater Wellington Regional Council ("the Regional Council"), for Consent to discharge operational stormwater to land where it may enter water, from a new urban development associated with earthworks exceeding 3,000m^2. The consent also seeks approval for the stormwater infrastructure including raingardens, tree pits, pipework, and inlets.

The stormwater design detailed in this report has been prepared based on the Masterplan development concept and sufficient information has been included to assess the likely stormwater runoff from the site and to make provision for the infrastructure required to properly manage it.

Water Sensitive Urban Design ("WSUD") measures such as rain gardens and tree pits have been incorporated into the stormwater design for water quality purposes.

The site extends over 12.4 Ha, and its legal description is Lots 1 – 8 DP 515825, Lot 100 DP 515825, Section 3 – 6 SO 339948, Section 10 SO 339948, Section 100 SO 528811, Lot 906 DP 548924, Lots 13 – 24 DP 548924 and Section 1 SO 419545.

The current Stormwater network is aged and of inadequate capacity for its current role, and insufficient in scope to cope with the demands of more intensive development such as that proposed. Currently no treatment is provided and the outfalls do not include adequate protection against erosion.

2.0 PRELIMINARY STORMWATER DESIGN

A stormwater design concept was prepared by Envelope Engineering Limited ("Envelope") and consented as part of the Masterplan Resource Consent for the project. Wellington Water Limited reviewed the design and provided conditions and advice notes that were included in the granted consent.

The design includes a gravity system, incorporating drainage for the wider upland catchment as well as for the development site itself. The stormwater design including the extent of services required and likely runoff rates is based on the Masterplan plans guidelines and the Masterplan resource consent conditions.

As part of the design, the inclusion of WSUD measures has been provided for and these have been included as part of the landscaping design and provisions.

These have been specifically detailed as part of the Public Domain (road and esplanade) area of the project and will be required to be included in the hard stand areas of the development lots (by condition).

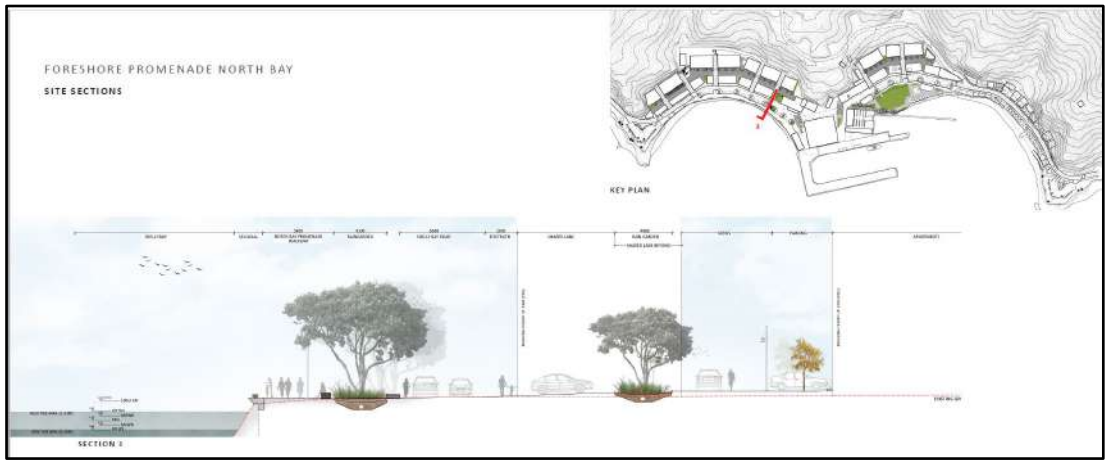


Fig 2.1: Development Concept

2.1 OVERALL CONCEPT DETAILS

The overall stormwater concept is summarised in the following points:

- Any areas of existing road (i.e. Shelly Bay Rd between Miramar cutting and main Shelly Bay development area) that are upgraded and/ or provided with a shared pathway will remain as is. That means few catchpits or treatment, and stormwater generally sheds off the road through vegetation, towards the Coastal Management Area (CMA) (including outflows from the catchpits);

- Road runoff within the Shelly Bay Development will drain away from the CMA to raingardens as illustrated on the stormwater plans.

- Treatment is proposed for most trafficable areas, and as much of the non-trafficable areas as is practicable. Given the nature of the non-trafficable areas (being predominantly pedestrian areas), contaminant generation levels will be low and are not considered to generate environmental effects that would necessitate stormwater treatment mitigation.

- No roof materials will be zinc or copper in accordance with the conditions of the Masterplan resource consent conditions and therefore it is not necessary to treat runoff from the buildings;

- The private areas of roadway and hard stand (i.e. those in and around the buildings) will have coarse sediment traps installed (for example 'Litta Traps' or 'Enviropods') within catchpits and, where practicable, the majority of these areas will be treated. Treatment is not likely to be provided for small areas of the laneway because flows are not able to be directed to the roadway without amending the masterplan concept. The specific areas include short sections of laneway between the vehicle crossing and the internal parking zones which are required to be separately drained and not permitted to discharge onto the road (where they would otherwise have been collected by proposed rain garden features). The project engineers are confident that the discharge will not contain more than 15 milligrams per litre of total petroleum hydrocarbons prior to release (refer condition (ii) of Rule R48).

- The carpark areas at South and North Bay which existed but are upgraded will remain gravel and semi permeable. Refer application drawing 1098-01-GW805 that notes that *'flows from carpark will drain towards rocky coastal planting that will act as filter traps for sediment control prior to runoff entering the coastal management area'*.

- Upstream surface stormwater flows will be passed through/ between the development out to the CMA in designated overland flowpaths; (generally will be collected into the proposed stormwater system and discharged) and,

- No stormwater detention is proposed due to proximity to the discharge point and that no watercourses will be affected.

2.2 STORMWATER DISCHARGE

Stormwater design has been designed to the Wellington Water "*Regional Standard for Water Services 2019*", with the general design to a 10% AEP rainfall level including 20% increase for climate change. This has resulted in a design rainfall intensity (for Tc=10 minutes) of 84.5 mm/hr, based on HIRDS v4.0, RCP6.0.

There are significant upland catchments in the escarpments above the sites. These in turn however do not result in permanent water flows, but in one gully an intermittent water course has been identified (catchment E2). Refer map of upland catchments in Fig 2.1.1 below.

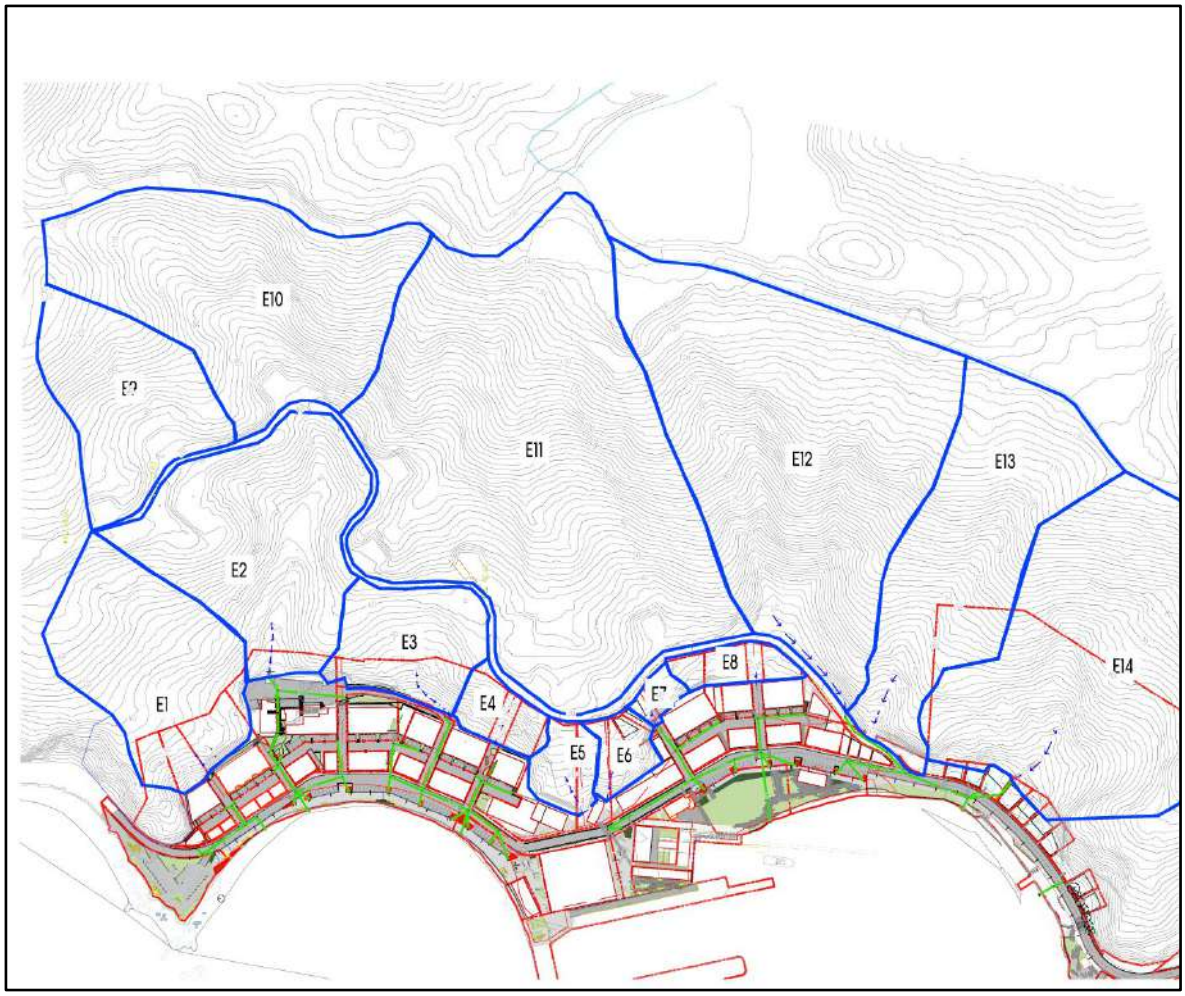


Fig 2.1.1: Upland catchments

Anticipated runoff for the various catchments has been assessed as follows:

i. For the upland catchments a HEC-HMS analysis has been undertaken utilising the recommendations of "Reference Guide for Design Storm Hydrology" prepared for Wellington Water by Cardno; 2019. This has included a CN number of 54 applying to the total area, as recommended in the report, and an Initial Abstraction of 21.6mm based on 10% St.
ii. For the development lots and public realm catchments a Rational Analysis utilising a C value of 0.95 for impermeable areas.

All contributing catchments are currently managed with an outdated stormwater system, that does not fit with the form of the proposed development.

A new network feeding to six outfalls has been proposed, with pipe sizes ranging from 300mm to 675mm diameter as indicated on the plans appended. As the designs for the development lots have not yet been finalised, details relating to private connections (including building and hardstand drainage connections) may vary.

The outfalls discharge at rates ranging from 52.17 L/s to 339.25 L/s (refer appendix) for the 10% AEP Event.

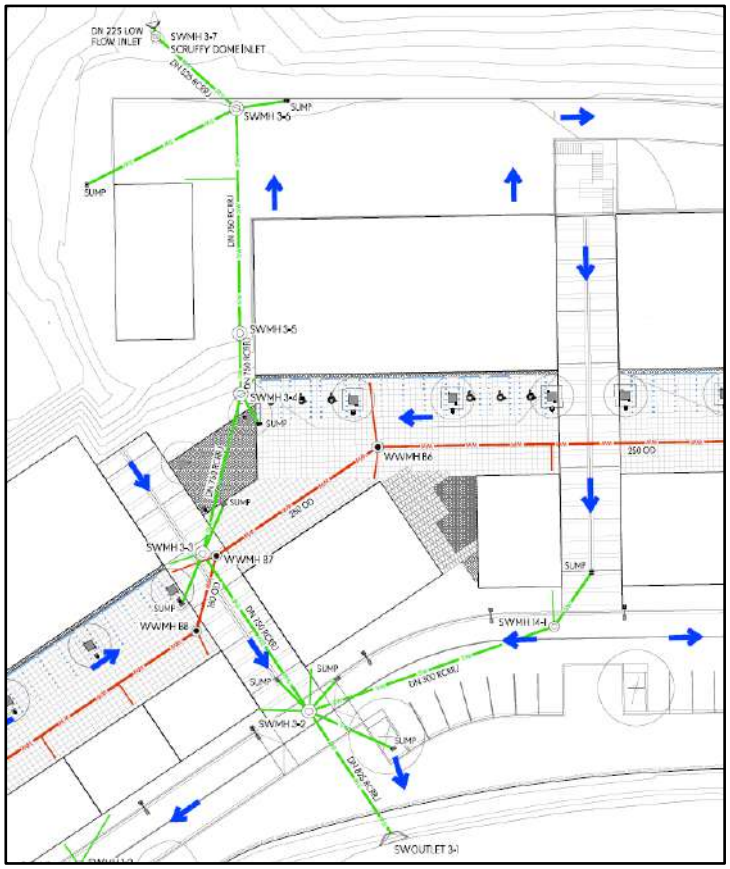


Fig 2.1.2: Proposed Stormwater Drainage Detail

Due to the proximity of the site to the coast, and in accordance with pre-application discussions, hydraulic neutrality has not been adopted.

2.3 EPHEMERAL STREAM OVERFLOW STRUCTURE

The outlet to the ephemeral stream which discharges from catchment E2, incorporates a pipe and headwall with capacity for a 10% AEP storm event (with climate change). Behind this a riser weir with scruffy dome will have a capacity for 1% AEP events to avoid erosion of the stream bank.

The 1% AEP event increases runoff from 217 L/s to 510 L/s. This has resulted in the stormwater line to the outfall increasing in capacity to manage this additional flow.

The scruffy dome intake will be able to cater for this flow with a water level at 50mm above the top of the manhole.

This form of intake minimises the extent of encroachment into the stream bed to no more than 3-5m.

2.4 STORMWATER OUTFALLS

New stormwater lines are to be constructed with coastal outfalls, either replacing existing mains or construction of new lines to accommodate the additional runoff generated. Within the site the construction will be managed by the erosion and sediment control provisions described in the draft Earthworks and Construction Management Plan. Additional measures will be required to accommodate the specific requirements of the outfall structures.

These will be integral with the upgraded seawall structures and therefore will be included in the seawall upgrade resource consent. While these works are not covered in the GWRC discharge permit for operational stormwater, the following information has been provided for reference.

2.4.1 OUTFALL CONSTRUCTION

The current intention is to construct the seawalls as flexible structures, incorporating rip rap, which adjusts to settlement; it also serves to trap sediment and reduce flow velocities.

The nature of the stormwater runoff will include a combination of upland runoff from undeveloped vegetated hills above the site, and to a lesser extent treated stormwater runoff from the development lots and the road below. As a result we can confirm that the nature of the discharge will be in accordance with the Permitted Activity rules.

Riprap aprons should be constructed, where possible, at zero percent grade for the specified length. In general, ungrouted, properly sized riprap provides better assurance of long-term performance. Filter cloth laid between the soil and riprap to minimise the likelihood of soil erosion at the interface.

Construction of the outfall protection must be done at the same time as construction of the pipe outfall itself.

Generally, it is best to construct the outfall unit from the bottom up, to prevent concentrated flows from being discharged into an unstabilised location. Where the outfall is part of a replacement system, the existing outfall may be able to be utilised during the construction phase, If construction of the outfall system is done from the top end first, the entrance to the system should be blocked off to prevent flow from travelling through the pipe until the outfall protection is completed.

It is important that a sequence of construction be established and followed, such as, for example:

1. The foundation area will be cleared of trees, stumps, roots, grass, loose rock, or other unsuitable material.

2. The cross-section will be excavated to design with over-excavated areas backfilled with moist soil compacted to the density of the surrounding material.

3. Abrupt deviations from the design grade or horizontal alignment will be avoided.

4. Filter cloth and riprap will be laid line and grade and, in the manner specified. Sections of fabric should overlap at least 300 mm and extend 300 mm beyond the rock. The filter cloth will be secured at the edges via secure pins or a key trench.

5. The construction operations will be carried out to minimise erosion or water contamination, with all disturbed areas vegetated or otherwise protected against soil erosion. Rip Rap to be clean metal without included silt or clay. Temporary access to the coastal area should be constructed of similar material to avoid silt contamination.

6. Construction will be carried out at periods of low tide with progressive stabilisation at each stage to avoid erosion.

Fig 2.3.1: Typical Coastal Outfall Under Construction.

3.0 WATER SENSITIVE URBAN DESIGN

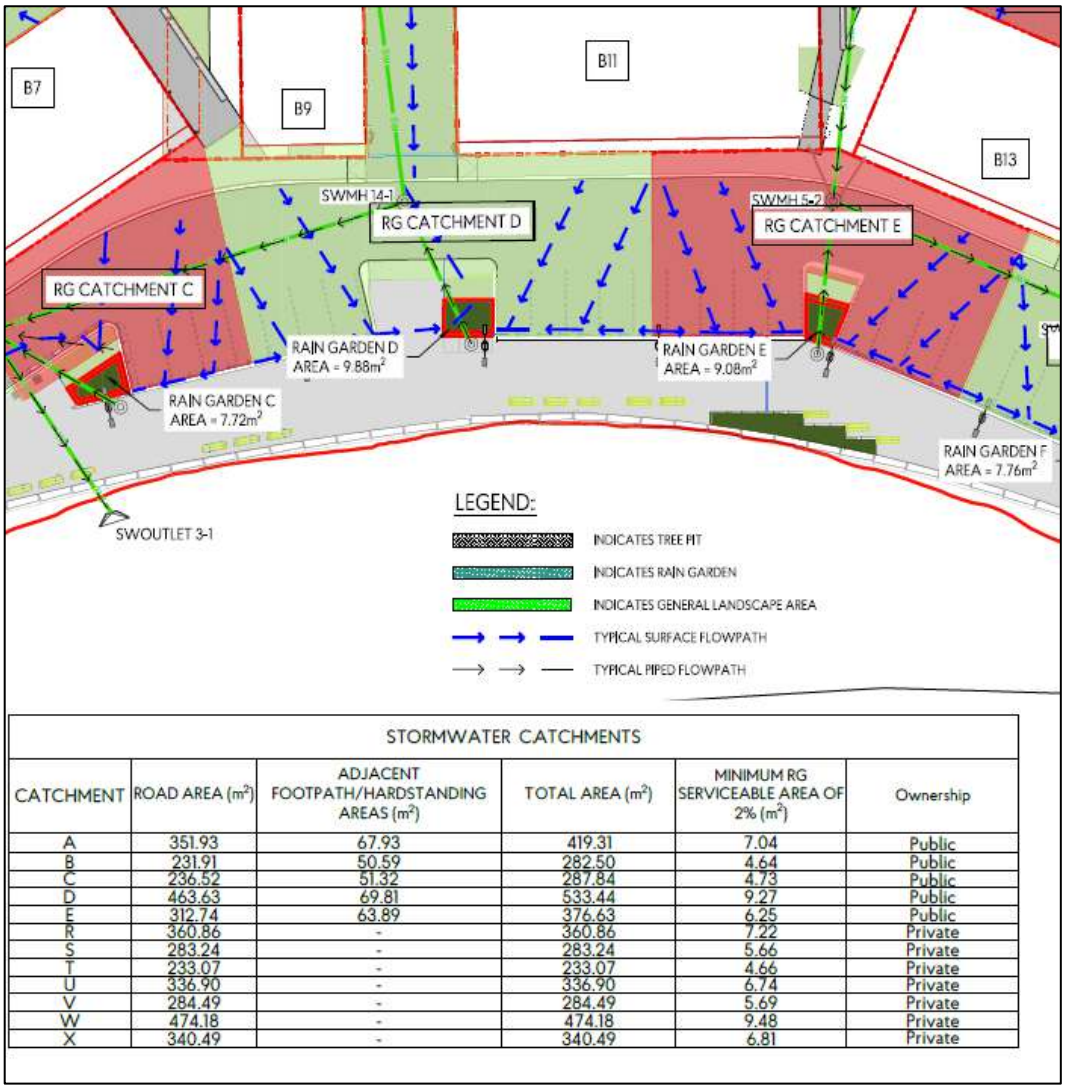
3.1 GENERAL

The Masterplan identifies the use of WSUD features to be adopted throughout the project.

Specifically, Raingardens and Tree Pits have been proposed for installation within the Public Realm and in the hardstand areas within the Development lots.

Raingarden Design is to be in accordance with "Water Sensitive Design for Stormwater: Treatment Device Design Guidelines", produced by Wellington Water, December 2019. This requires devices with a minimum area of 2% of the impervious area under treatment. The stormwater design proposed provides a treatment area more than this for the publicly trafficked area for the modified Shelly Bay Road, and the concept satisfies the WSUD provisions for the Development Lots despite building design not yet being finalised. This concept for the Development Lots is based on the current proposed building designs and the development and activities identified in the consented Master Plan.

Figure 3.1.1 below is an extract from the stormwater design plans and illustrates surface and piped flows within each of the catchments extending to the WSUD devices.



STORMWATER CATCHMENTS

CATCHMENT	ROAD AREA (m²)	ADJACENT FOOTPATH/HARDSTANDING AREAS (m²)	TOTAL AREA (m²)	MINIMUM RG SERVICEABLE AREA OF 2% (m²)	Ownership
A	351.93	67.93	419.31	7.04	Public
B	231.91	50.59	282.50	4.64	Public
C	236.52	51.32	287.84	4.73	Public
D	463.63	69.81	533.44	9.27	Public
E	312.74	63.89	376.63	6.25	Public
R	360.86	-	360.86	7.22	Private
S	283.24	-	283.24	5.66	Private
T	233.07	-	233.07	4.66	Private
U	336.90	-	336.90	6.74	Private
V	284.49	-	284.49	5.69	Private
W	474.18	-	474.18	9.48	Private
X	340.49	-	340.49	6.81	Private

Fig 3.1.1: Raingarden Locations and Stormwater Flowpaths within the North Bay Public Realm

3.2 WSUD DESIGN PROVISIONS

The nature of the WSUD features has evolved in response to the desire to provide suitable water quality treatment focussing on the removal of contaminants, while responding to the constraints of the site which included:

- Limitations of a brownfield development site.
- Flat contours, including in the road reserve and parking areas where limited drainage gradients were possible.
- A desire to minimise earthworks and retain existing landforms as much as possible.

The flat grades and the intended layout with a carparking area adjacent to the existing road has driven the need to propose small individual devices to fit within the carparks and to be fed from localised minor contouring within the relatively small resulting catchments.

The proposed aggregate area of raingardens (excluding tree pits) within the Public Realm (road and esplanade) is 159m^2 for a hardstand area of 5,909m^2, giving a treatment area of 2.69%. In one low lying location a proprietary "Stormfilter" has been included due to difficulties in providing a raingarden successfully, and this is sized to treat an area of 929.69m^2.

In addition to treatment via raingardens, tree pits are also proposed that will bring treatment to approximately 4% of the impervious area. Typical tree-pit details are included in Section 3 of the Stormwater Report.

The treated area is limited to the principal trafficked area (both public and private) and Eastern footpaths but does not include much of the seaward pedestrian areas due to practical limitations of existing contours, which tend to fall to the coast. The drawings submitted with this report include illustrations of the defined individual catchments applying to the respective raingardens (refer to plans 1098-01 GW801 – GW807). In all cases the 2% area is achieved for trafficable areas and in all but a few catchments it is achieved for the full area. It is also noted that in most cases areas of sections of the laneway have been included although as noted previously they are not expected to be approved as draining across the road. Generally the capacity is there should approval be granted.

The Public areas have been designed fully designed and proposed details are attached in the stormwater design plans. The effective treatment area provided by each raingarden is in accordance with the Wellington Water "Water Sensitive Design for Stormwater: Treatment Device Design Guideline", 2019 ("WSD Guideline"). Specific design details of the raingardens now include full depth concrete surrounds to maximise the effective areas where possible.

While it is proposed to comply with the minimum provision of 2% for the private Development lots including the commercial area, as noted these have not yet been confirmed due to the designs still being developed. Therefore, it is proposed that the provision of suitable treatment for the private development lots be a condition of the Resource Consent, in accordance with e options provided in the WSD Guideline.

Currently the tree pit area attached to individual raingardens, has not been included due to there not currently being a provision for their inclusion within the WSD Guideline. Because of this the tree pit areas have not been included in achieving the minimum 2% area required. We do understand however that the beneficial use of tree pits is recognised and that their inclusion will be looked on favourably by WWL and will provide effective treatment for an additional area. They would typically increase the effective treatment area by approximately 4m^2 per combination device.

With the proposed layout and extent of the devices we are confident that a significant benefit will be achieved due to the associated contaminant removal.

As the Public area raingardens are also designed to provide primary stormwater drainage for events larger than the Water Quality Flow, a Splay Catchpit has been designed to be included to ensure higher flow rates, that could otherwise cause damage to the raingardens, are diverted away from the raingardens to the stormwater network. The required Water Quality raingarden inflow in this instance will be directed to the device utilising a lower-level apron with erosion protection and ensure that the required 200mm minimum storage is provided before diversion occurs.

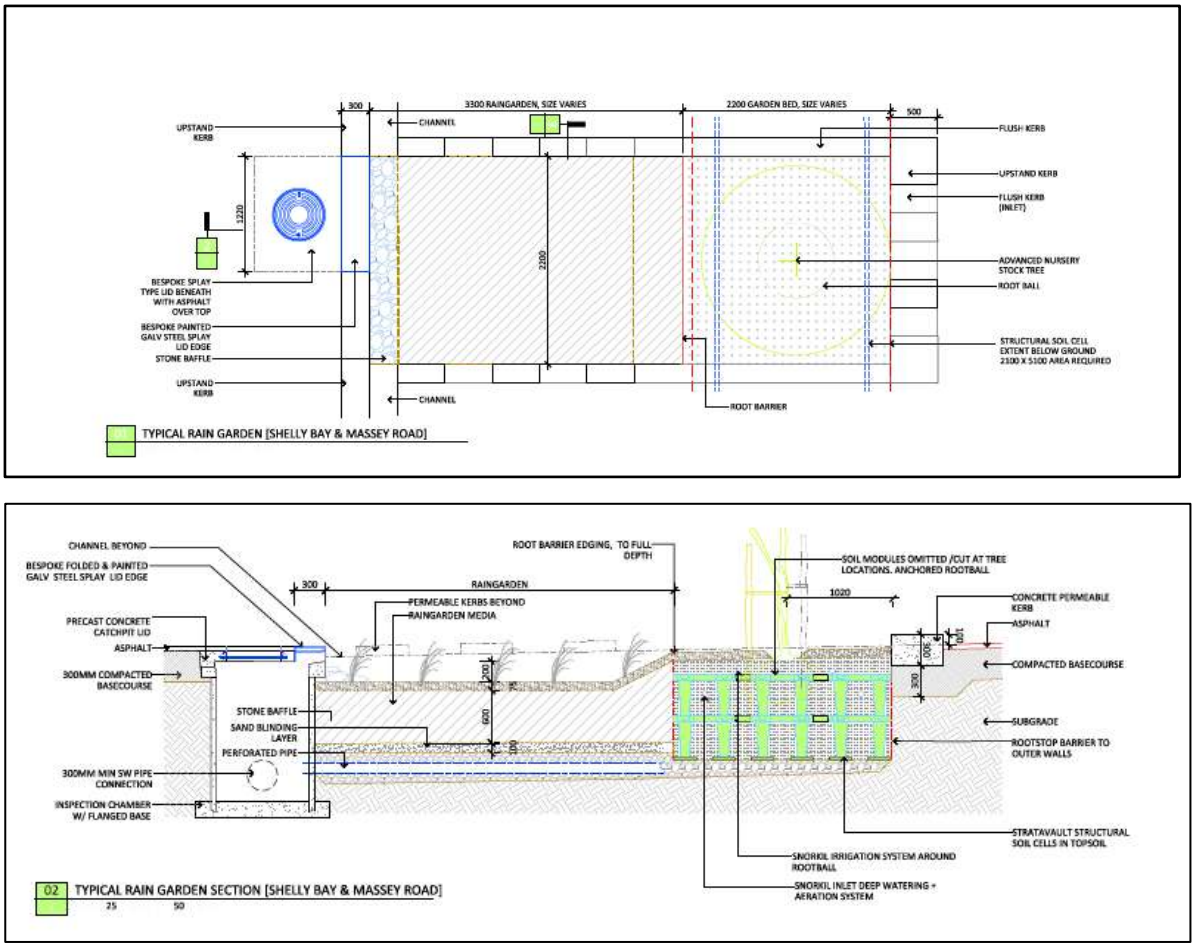


Fig 3.2: Raingarden Details

3.3 SUMMARY AND CONCLUSION

In recognition of the importance of improving the quality of stormwater runoff, and with consideration also of the added importance of the receiving coastal environment, the development has embraced the adoption of Water Sensitive Urban Design to contribute to the improvement of the water quality of fresh and coastal waters.

There are often limitations imposed by working within a "brownfields" site however these have been largely overcome to achieve compliance with the Wellington Water WSD Guideline.

The inclusion of specifically designed bioretention devices such as raingardens, and a commitment to avoiding construction materials and forms of cladding that contribute to contamination by metals such as untreated Copper and Zinc will ensure best practice for stormwater management is achieved.

4.0 LIMITATIONS

4.1 GENERAL

This report has been prepared for Shelly Bay Taikuru and Egmont Dixon in respect of the Shelly Bay Development and its extent is limited to the scope of work agreed between the client and Envelope Engineering Limited. No responsibility is accepted by Envelope Engineering Limited or its directors, servants, agents, staff, or employees for the accuracy of information provided by third parties and/or the use of any part of this report in any other context or for any other purposes.

APPENDICES

APPENDIX 1 CALCULATIONS

SHELLY BAY TAIKURU

STORMWATER PIPE SIZE CALCUATIONS - 1 IN 10 YEAR EVENT

ENVELOPE | **Project Name: SHELLY BAY** | **Project No: 1098-01**
Stormwater Design Chart - Mannings Formula | **Location:SHELLY BAY ROAD, WELLINGTON** | **Date: 20/08/21**

DRAIN SECTION	SUB-CATCHMENT DETAILS	SUBCATCHMENT AREA (A)	COEFF OF RUNOFF (C)	EFFECTIVE AREA (CA)	TIME OF CONC (tc)	RAINFALL INTENSITY (I) (Including 16% Climate)	EFFECTIVE AREAS (CA)	DESIGN DISCHARGE Qs 21.70CA	TOTAL DISCHARGE	PIPE LENGTH	PIPE CROSS SECTIONAL AREA	PIPE MATERIAL	'n' FACTOR	PIPE SIZE	ACTUAL SLOPE OF SECTION	VELOCITY	CAPACITY	SPARE CAPACITY
SW LINE 1		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
To SWMH 1-4	Existing Northern SBR	0.0408	0.95	0.0388	10	84.5	0.0388	**9.12**										
SWMH 1-4 to 1-3	RG Catchment A	0.0419	0.95	0.0398	10	84.5	0.0398	**9.36**										
	B1	0.0098	0.95	0.0093	10	84.5	0.0093	**2.18**										
	B3	0.0145	0.95	0.0138	10	84.5	0.0231	**5.43**	**16.97**	35.8	0.071	RCRRJ	0.013	**300**	1.50	2.55	**118.4**	**101.5**
SWMH 1-3 to 1-2	Line 2							**90.87**	**107.83**	10.0	0.071	RCRRJ	0.013	**300**	2.00	2.98	**136.8**	**28.9**
			0.52															
SWMH 1-2 to OUTLET 1-1	B5	0.0280	0.95	0.0266	10	84.5	0.0266	**6.25**	**114.08**	10.5	0.110	RCRRJ	0.013	**375**	1.50	2.94	**214.7**	**100.7**

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SW LINE 2		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
SWMH 2-1 to 1-3	RG Catchment R	0.0361	0.95	0.0343	10	84.5	0.0343	**8.05**										
	RG Catchment S	0.0283	0.95	0.0269	10	84.5	0.0269	**6.32**										
	B2	0.0378	0.95	0.0359	10	84.5	0.0359	**8.43**										
	B4	0.0630	0.95	0.0599	10	84.5	0.0599	**14.06**										
	E1	**1.53**						**54.00**	**90.87**	16.2	0.071	RCRRJ	0.013	**300**	1.00	2.05	**96.7**	**5.8**

*Values highlighted yellow have been determined via HEC-HMS analysis
atchment E11 has been distributed proportionately amongst E3, E4, E5, E6, E7 and

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SW LINE 3		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
SWMH 3-8 to 3-7	Stream (E2 + E9 + E10)	5.8950						**217.00**	**217.00**	10.0	0.110	RCRRJ	0.013	**375**	7.15	6.75	**468.8**	**251.8**
SWMH 3-7 to 3-6	Upper Carpark	0.1101	0.95	0.1046	10	84.5	0.1046	**24.58**	**241.58**	15.5	0.110	RCRRJ	0.013	**375**	5.37	5.80	**406.3**	**164.7**
SWMH 3-6 to 3-5	B6	0.0250	0.95	0.0237	10	84.5	0.0237	**5.57**	**247.15**	14.7	0.110	RCRRJ	0.013	**375**	28.81	13.98	**941.1**	**693.9**
SWMH 3-5 to 3-4	B8	0.0412	0.95	0.0391	10	84.5	0.0391	**9.19**	**256.34**	14.7	0.110	RCRRJ	0.013	**375**	16.90	10.59	**720.8**	**464.4**
						84.5												
SWMH 3-4 to 3-3	B4	0.0630	0.95	0.0599	10	84.5	0.0599	**14.06**	**270.40**	10.5	0.159	RCRRJ	0.013	**450**	1.00	2.65	**285.1**	**14.7**
SWMH 3-3 to 3-2	RG Catchment T	0.0233	0.95	0.0221	10	84.5	0.0221	**5.20**										
	RG Catchment U	0.0337	0.95	0.0320	10	84.5	0.0320	**7.52**	**283.12**	22.0	0.159	RCRRJ	0.013	**450**	1.59	3.40	**359.5**	**76.4**
SWMH 3-2 to OUTLET 3-1	RG Catchment B	0.0283	0.95	0.0268	10	84.5	0.0268	**6.30**										
	RG Catchment C	0.0288	0.95	0.0273	10	84.5	0.0273	**6.42**										
	B5	0.0280	0.95	0.0266	10	84.5	0.0266	**6.25**										
	B7	0.0248	0.95	0.0236	10	84.5	0.0236	**5.53**										
	Line 14							**31.62**	**339.25**	17.0	0.283	RCRRJ	0.013	**600**	0.70	2.63	**513.7**	**174.5**

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SW LINE 4		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
To SWMH 4-3	RG Catchment Y	0.0516	0.95	0.0490	10	84.5	0.0490	**11.62**										
	RG Catchment Z	0.0388	0.95	0.0368	10	84.5	0.0368	**8.65**										
	B14	0.0504	0.95	0.0479	10	84.5	0.0479	**11.25**										
	B16	0.0378	0.95	0.0359	10	84.5	0.0359	**8.44**										
	E4	0.2458						**10.00**	**49.85**									
SWMH 4-3 to 4-2	B15	0.0392	0.95	0.0372	10	84.5	0.0372	**8.74**										
	B17	0.0505	0.95	0.0480	10	84.5	0.0480	**11.27**										
	B19	0.0276	0.95	0.0262	10	84.5	0.0262	**6.16**	**76.02**	21.5	0.071	RCRRJ	0.013	**300**	3.00	3.70	**167.5**	**91.5**
SWMH 4-2 to OUTLET 4-1	RG Catchment G	0.0233	0.95	0.0221	10	84.5	0.0221	**5.20**										
	RG Catchment H	0.0337	0.95	0.0320	10	84.5	0.0320	**7.52**										
	Line 5							**134.99**										
	Line 15							**52.17**	**275.90**	18.2	0.283	RCRRJ	0.013	**600**	0.80	2.82	**549.2**	**273.3**

ENVELOPE | **Project Name: SHELLY BAY** | **Project No: 1098-01**
Stormwater Design Chart - Mannings Formula | **Location:SHELLY BAY ROAD, WELLINGTON** | **Date: 20/08/21**

DRAIN SECTION	SUB-CATCHMENT DETAILS	SUBCATCHMENT AREA (A)	COEFF OF RUNOFF (C)	EFFECTIVE AREA (CA)	TIME OF CONC (tc)	RAINFALL INTENSITY (I) (Including 16% Climate)	EFFECTIVE AREAS (CA)	DESIGN DISCHARGE Qs 21.70CA	TOTAL DISCHARGE	PIPE LENGTH	PIPE CROSS SECTIONAL AREA	PIPE MATERIAL	'n' FACTOR	PIPE SIZE	ACTUAL SLOPE OF SECTION	VELOCITY	CAPACITY	SPARE CAPACITY
SW LINE 5		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
To SWMH 5-3	RG Catchment X	0.0340	0.95	0.0323	10	84.5	0.0323	**7.60**										
	B10	0.0629	0.95	0.0598	10	84.5	0.0598	**14.04**										
	B12	0.0376	0.95	0.0357	10	84.5	0.0357	**8.38**	**30.02**									
SWMH 5-3 to 5-2	No additional flow							**0.00**	**30.02**	23.0	0.071	RCRRJ	0.013	**300**	1.00	2.05	**96.7**	**66.7**
SWMH 5-2 to 5-1	RG Catchment E	0.0377	0.95	0.0358	10	84.5	0.0358	**8.41**										
	B11	0.0364	0.95	0.0346	10	84.5	0.0346	**8.12**										
	B13	0.0248	0.95	0.0236	10	84.5	0.0236	**5.54**	**52.09**	24.0	0.071	RCRRJ	0.013	**300**	1.00	2.05	**96.7**	**44.6**
SWMH 5-1 to 4-2	RG Catchment F	0.0422	0.95	0.0401	10	84.5	0.0401	**9.42**										
	B13	0.0248	0.95	0.0236	10	84.5	0.0236	**5.54**										
	B15	0.0392	0.95	0.0372	10	84.5	0.0372	**8.74**										
	Line 6							**59.20**	**134.99**	35.0	0.159	RCRRJ	0.013	**450**	1.00	2.65	**285.1**	**150.1**

ENVELOPE | **Project Name: SHELLY BAY** | **Project No: 1098-01**
Stormwater Design Chart - Mannings Formula | **Location:SHELLY BAY ROAD, WELLINGTON** | **Date: 20/08/21**

DRAIN SECTION	SUB-CATCHMENT DETAILS	SUBCATCHMENT AREA (A)	COEFF OF RUNOFF (C)	EFFECTIVE AREA (CA)	TIME OF CONC (tc)	RAINFALL INTENSITY (I) (Including 16% Climate)	EFFECTIVE AREAS (CA)	DESIGN DISCHARGE Qs 21.70CA	TOTAL DISCHARGE	PIPE LENGTH	PIPE CROSS SECTIONAL AREA	PIPE MATERIAL	'n' FACTOR	PIPE SIZE	ACTUAL SLOPE OF SECTION	VELOCITY	CAPACITY	SPARE CAPACITY
SW LINE 6		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
SWMH 6-1 to 5-1	Ramp to Upper Carpark	0.0384	0.95	0.0365	10	84.5	0.0365	**8.58**										
	B12	0.0376	0.95	0.0357	10	84.5	0.0357	**8.38**										
	B14	0.0504	0.95	0.0479	10	84.5	0.0479	**11.25**										
	E3	0.7503						**31.00**	**59.20**	50.0	0.110	RCRRJ	0.013	**375**	1.00	2.36	**175.3**	**116.1**

ENVELOPE | **Project Name: SHELLY BAY** | **Project No: 1098-01**
Stormwater Design Chart - Mannings Formula | **Location:SHELLY BAY ROAD, WELLINGTON** | **Date: 20/08/21**

DRAIN SECTION	SUB-CATCHMENT DETAILS	SUBCATCHMENT AREA (A)	COEFF OF RUNOFF (C)	EFFECTIVE AREA (CA)	TIME OF CONC (tc)	RAINFALL INTENSITY (I) (Including 16% Climate)	EFFECTIVE AREAS (CA)	DESIGN DISCHARGE Q= 2.78CIA	TOTAL DISCHARGE	PIPE LENGTH	PIPE CROSS-SECTIONAL AREA	PIPE MATERIAL	'n' FACTOR	PIPE SIZE	ACTUAL SLOPE OF SECTION	VELOCITY	CAPACITY	SPARE CAPACITY
SW LINE 7		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
SWMH 7-6 to 7-5	RG Catchment K	0.0930	0.95	0.0883	10	84.5	0.0883	**20.75**										
	B20	0.1886	0.95	0.1792	10	84.5	0.1792	**42.09**										
	B21	0.0099	0.95	0.0094	10	84.5	0.0094	**2.21**										
	B22	0.0755	0.95	0.0717	10	84.5	0.0717	**16.84**										
	B23	0.0275	0.95	0.0261	10	84.5	0.0261	**6.13**										
	E6	0.2006						**8.20**	**96.22**	33.5	0.159	RCRRJ	0.013	**450**	0.50	1.83	**201.6**	**105.4**
SWMH 7-5 to 7-4	B27	0.0143	0.95	0.0136	10	84.5	0.0136	**3.20**	**99.42**	34.5	0.216	RCRRJ	0.013	**525**	0.40	1.79	**272.0**	**172.6**
SWMH 7-4 to 7-3	RG Catchment L	0.0561	0.95	0.0533	10	84.5	0.0533	**12.52**										
	Line 8							**34.29**	**146.22**	31.5	0.283	RCRRJ	0.013	**600**	0.30	1.66	**336.3**	**190.1**
SWMH 7-3 to 7-2	RG Catchment M	0.0550	0.95	0.0522	10	84.5	0.0522	**12.27**										
	B29	0.0362	0.95	0.0344	10	84.5	0.0344	**8.07**	**166.57**	19.2	0.283	RCRRJ	0.013	**600**	0.30	1.66	**336.3**	**169.7**
SWMH 7-2 to OUTLET 7-1	RG Catchment N	0.0214	0.95	0.0203	10	84.5	0.0203	**4.77**										
	RG Catchment O	0.0369	0.95	0.0351	10	84.5	0.0351	**8.24**										
	B31	0.0269	0.95	0.0255	10	84.5	0.0255	**6.00**										
	B33	0.0335	0.95	0.0318	10	84.5	0.0318	**7.48**										
	B36	0.0168	0.95	0.0159	10	84.5	0.0159	**3.74**										
	Line 9							**59.56**	**256.37**	48.5	0.358	RCRRJ	0.013	**675**	0.30	1.79	**460.4**	**204.0**

ENVELOPE | **Project Name: SHELLY BAY** | **Project No: 1098-01**
Stormwater Design Chart - Mannings Formula | **Location:SHELLY BAY ROAD, WELLINGTON** | **Date: 20/08/21**

DRAIN SECTION	SUB-CATCHMENT DETAILS	SUBCATCHMENT AREA (A)	COEFF OF RUNOFF (C)	EFFECTIVE AREA (CA)	TIME OF CONC (tc)	RAINFALL INTENSITY (I) (Including 16% Climate)	EFFECTIVE AREAS (CA)	DESIGN DISCHARGE Q= 2.78CIA	TOTAL DISCHARGE	PIPE LENGTH	PIPE CROSS-SECTIONAL AREA	PIPE MATERIAL	'n' FACTOR	PIPE SIZE	ACTUAL SLOPE OF SECTION	VELOCITY	CAPACITY	SPARE CAPACITY
SW LINE 8		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
SWMH 8-2 to 8-1	B24	0.0100	0.95	0.0095	10	84.5	0.0095	**2.24**										
	B25	0.0100	0.95	0.0095	10	84.5	0.0095	**2.23**										
	E7	0.0880						**3.50**	**7.97**	21.0	0.071	RCRRJ	0.013	**300**	1.29	2.35	**109.8**	**101.9**
SWMH 8-1 to 7-4	RG Catchment AA	0.0551	0.95	0.0523	10	84.5	0.0523	**12.29**										
	B28	0.0629	0.95	0.0597	10	84.5	0.0597	**14.03**	**34.29**	23.2	0.071	RCRRJ	0.013	**300**	3.50	4.02	**180.9**	**146.6**

ENVELOPE | **Project Name: SHELLY BAY** | **Project No: 1098-01**
Stormwater Design Chart - Mannings Formula | **Location:SHELLY BAY ROAD, WELLINGTON** | **Date: 20/08/21**

DRAIN SECTION	SUB-CATCHMENT DETAILS	SUBCATCHMENT AREA (A)	COEFF OF RUNOFF (C)	EFFECTIVE AREA (CA)	TIME OF CONC (tc)	RAINFALL INTENSITY (I) (Including 16% Climate)	EFFECTIVE AREAS (CA)	DESIGN DISCHARGE Q= 2.78CIA	TOTAL DISCHARGE	PIPE LENGTH	PIPE CROSS-SECTIONAL AREA	PIPE MATERIAL	'n' FACTOR	PIPE SIZE	ACTUAL SLOPE OF SECTION	VELOCITY	CAPACITY	SPARE CAPACITY
SW LINE 9		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
SWMH 9-2 to 9-1	RG Catchment AC	0.0247	0.95	0.0235	10	84.5	0.0235	**5.52**										
	RG Catchment AD	0.0278	0.95	0.0264	10	84.5	0.0264	**6.21**										
	B34	0.0136	0.95	0.0129	10	84.5	0.0129	**3.03**										
	B35	0.0312	0.95	0.0296	10	84.5	0.0296	**6.95**	**21.72**	33.0	0.071	RCRRJ	0.013	**300**	1.00	2.05	**96.7**	**76.0**
SWMH 9-1 to 7-2	RG Catchment AB	0.0328	0.95	0.0312	10	84.5	0.0312	**7.33**										
	B30	0.0475	0.95	0.0451	10	84.5	0.0451	**10.59**										
	B32	0.0503	0.95	0.0478	10	84.5	0.0478	**11.23**										
	E8	0.2090						**8.70**	**59.56**	23.5	0.071	RCRRJ	0.013	**300**	4.80	4.75	**211.9**	**152.3**

ENVELOPE | **Project Name: SHELLY BAY** | **Project No: 1098-01**
Stormwater Design Chart - Mannings Formula | **Location:SHELLY BAY ROAD, WELLINGTON** | **Date: 20/08/21**

DRAIN SECTION	SUB-CATCHMENT DETAILS	SUBCATCHMENT AREA (A)	COEFF OF RUNOFF (C)	EFFECTIVE AREA (CA)	TIME OF CONC (tc)	RAINFALL INTENSITY (I) (Including 16% Climate)	EFFECTIVE AREAS (CA)	DESIGN DISCHARGE Q= 2.78CIA	TOTAL DISCHARGE	PIPE LENGTH	PIPE CROSS-SECTIONAL AREA	PIPE MATERIAL	'n' FACTOR	PIPE SIZE	ACTUAL SLOPE OF SECTION	VELOCITY	CAPACITY	SPARE CAPACITY
SW LINE 10		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
SWMH 10-4 to 10-3	RG Catchment P	0.0320	0.95	0.0304	10	84.5	0.0304	**7.15**										
	RG Catchment Q	0.0173	0.95	0.0164	10	84.5	0.0164	**3.86**										
	B35	0.0312	0.95	0.0296	10	84.5	0.0296	**6.95**										
	B37	0.0083	0.95	0.0078	10	84.5	0.0078	**1.84**	**19.80**	41.5	0.071	RCRRJ	0.013	**300**	0.50	1.40	**68.4**	**48.6**
SWMH 10-3 to 10-2	B38	0.0096	0.95	0.0092	10	84.5	0.0092	**2.15**										
	SBR 1	0.0511	0.95	0.0486	10	84.5	0.0486	**11.41**										
	SBR 2	0.0478	0.95	0.0454	10	84.5	0.0454	**10.66**										
	Line 11							**268.00**	**312.03**	46.0	0.283	RCRRJ	0.013	**600**	0.74	2.71	**528.2**	**216.2**
SWMH 10-2 to OUTLET 10-1	B39	0.0120	0.95	0.0114	10	84.5	0.0114	**2.68**										
	B40	0.0128	0.95	0.0121	10	84.5	0.0121	**2.85**										
	B41	0.0158	0.95	0.0150	10	84.5	0.0150	**3.52**										
	B42	0.0106	0.95	0.0101	10	84.5	0.0101	**2.37**										
	B43	0.0114	0.95	0.0108	10	84.5	0.0108	**2.55**										
	B44	0.0109	0.95	0.0103	10	84.5	0.0103	**2.43**										
	Line 12							**165.37**	**493.79**	9.5	0.358	RCRRJ	0.013	**675**	1.00	3.43	**840.6**	**346.8**

ENVELOPE | **Project Name: SHELLY BAY** | **Project No: 1098-01**
Stormwater Design Chart - Mannings Formula | **Location:SHELLY BAY ROAD, WELLINGTON** | **Date: 20/08/21**

DRAIN SECTION	SUB-CATCHMENT DETAILS	SUBCATCHMENT AREA (A)	COEFF OF RUNOFF (C)	EFFECTIVE AREA (CA)	TIME OF CONC (tc)	RAINFALL INTENSITY (I) (Including 16% Climate)	EFFECTIVE AREAS (CA)	DESIGN DISCHARGE Q= 2.78CIA	TOTAL DISCHARGE	PIPE LENGTH	PIPE CROSS-SECTIONAL AREA	PIPE MATERIAL	'n' FACTOR	PIPE SIZE	ACTUAL SLOPE OF SECTION	VELOCITY	CAPACITY	SPARE CAPACITY
SW LINE 11		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
SWMH 11-3 to 11-2 to 11-1 to 10-3	E12	4.2200						**176.00**						**(minimum values)**				
	E13	3.7930						**92.00**	**268.00**	-	0.110	RCRRJ	0.013	**375**	7.58	6.96	**482.7**	**214.7**
										-	0.159	RCRRJ	0.013	**450**	3.00	4.77	**493.8**	**225.8**

ENVELOPE					Project Name: SHELLY BAY										Project No: 1098-01				
Stormwater Design Chart - Mannings Formula					Location:SHELLY BAY ROAD, WELLINGTON										Date: 20/08/21				
DRAIN SECTION	SUB-CATCHMENT DETAILS	SUBCATCHMENT AREA (A)	COEFF OF RUNOFF (C)	EFFECTIVE AREA (CA)	TIME OF CONC (tc)	RAINFALL INTENSITY (I) (Including 16% Climate)	0	DESIGN DISCHARGE Q= 2.78CIA	TOTAL DISCHARGE	PIPE LENGTH	PIPE CROSS-SECTIONAL AREA	PIPE MATERIAL	'n' FACTOR	PIPE SIZE	ACTUAL SLOPE OF SECTION	VELOCITY	CAPACITY	SPARE CAPACITY
SW LINE 12		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
SWMH 12-2 to 12-1	B40	0.0128	0.95	0.0121	10	84.5	0.0121	**2.85**										
	E14	3.7930						**159.00**	**161.85**	12.7	0.071	RCRRJ	0.013	**300**	20.00	10.08	**432.5**	**270.6**
SWMH 12-1 to 10-2	B41	0.0158	0.95	0.0150	10	84.5	0.0150	**3.82**	**165.37**	22.5	0.110	RCRRJ	0.013	**375**	5.00	5.58	**392.1**	**226.7**

ENVELOPE					Project Name: SHELLY BAY										Project No: 1098-01				
Stormwater Design Chart - Mannings Formula					Location:SHELLY BAY ROAD, WELLINGTON										Date: 20/08/21				
DRAIN SECTION	SUB-CATCHMENT DETAILS	SUBCATCHMENT AREA (A)	COEFF OF RUNOFF (C)	EFFECTIVE AREA (CA)	TIME OF CONC (tc)	RAINFALL INTENSITY (I) (Including 16% Climate)	0	DESIGN DISCHARGE Q= 2.78CIA	TOTAL DISCHARGE	PIPE LENGTH	PIPE CROSS-SECTIONAL AREA	PIPE MATERIAL	'n' FACTOR	PIPE SIZE	ACTUAL SLOPE OF SECTION	VELOCITY	CAPACITY	SPARE CAPACITY
SW LINE 13		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
SWMH 13-2 to OUTLET 13-1	B45	0.0151	0.95	0.0144	10	84.5	0.0144	**3.37**										
	B46	0.0118	0.95	0.0112	10	84.5	0.0112	**2.63**										
	SBR3	0.0417	0.95	0.0396	10	84.5	0.0396	**9.30**	**15.30**	11.5	0.110	RCRRJ	0.013	**375**	1.84	3.28	**237.8**	**222.5**

ENVELOPE					Project Name: SHELLY BAY										Project No: 1098-01				
Stormwater Design Chart - Mannings Formula					Location:SHELLY BAY ROAD, WELLINGTON										Date: 20/08/21				
DRAIN SECTION	SUB-CATCHMENT DETAILS	SUBCATCHMENT AREA (A)	COEFF OF RUNOFF (C)	EFFECTIVE AREA (CA)	TIME OF CONC (tc)	RAINFALL INTENSITY (I) (Including 16% Climate)	EFFECTIVE AREAS (CA)	DESIGN DISCHARGE Q= 2.78CIA	TOTAL DISCHARGE	PIPE LENGTH	PIPE CROSS-SECTIONAL AREA	PIPE MATERIAL	'n' FACTOR	PIPE SIZE	ACTUAL SLOPE OF SECTION	VELOCITY	CAPACITY	SPARE CAPACITY
SW LINE 14		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
SWMH 14-1 to 13-2	RG Catchment D	0.0533	0.95	0.0507	10	84.5	0.0507	**11.90**										
	RG Catchment V	0.0284	0.95	0.0270	10	84.5	0.0270	**6.35**										
	RG Catchment W	0.0474	0.95	0.0450	10	84.5	0.0450	**10.58**										
	B9	0.0125	0.95	0.0119	10	84.5	0.0119	**2.79**	**31.62**	33.6	0.071	RCRRJ	0.013	**300**	0.89	1.92	**91.2**	**59.6**

ENVELOPE					Project Name: SHELLY BAY										Project No: 1098-01				
Stormwater Design Chart - Mannings Formula					Location:SHELLY BAY ROAD, WELLINGTON										Date: 20/08/21				
DRAIN SECTION	SUB-CATCHMENT DETAILS	SUBCATCHMENT AREA (A)	COEFF OF RUNOFF (C)	EFFECTIVE AREA (CA)	TIME OF CONC (tc)	RAINFALL INTENSITY (I) (Including 16% Climate)	EFFECTIVE AREAS (CA)	DESIGN DISCHARGE Q= 2.78CIA	TOTAL DISCHARGE	PIPE LENGTH	PIPE CROSS-SECTIONAL AREA	PIPE MATERIAL	'n' FACTOR	PIPE SIZE	ACTUAL SLOPE OF SECTION	VELOCITY	CAPACITY	SPARE CAPACITY
SW LINE 15		ha		ha	min	mm/hr	ha	l/s	l/s	m	m			mm	%		l/s	l/s
SWMH 15-1 to 4-2	RG Catchment I	0.0270	0.95	0.0256	10	84.5	0.0256	**6.02**										
	RG Catchment J	0.0587	0.95	0.0558	10	84.5	0.0558	**13.10**										
	B17	0.0505	0.95	0.0480	10	84.5	0.0480	**11.27**										
	B18	0.0252	0.95	0.0239	10	84.5	0.0239	**5.61**										
	B19	0.0276	0.95	0.0262	10	84.5	0.0262	**6.16**										
	E5	0.23991						**10.00**	**52.17**	25.1	0.110	RCRRJ	0.013	**375**	1.00	2.36	**175.3**	**123.2**

Rainfall intensities (mm/hr) :: RCP6.0 for the period 2081-2100

ARI	AEP	10m	20m
1.58	0.633	48.8	33.5
2	0.500	53.8	36.9
5	0.200	71.2	48.7
10	0.100	84.5	57.7
20	0.050	98.5	67.1
30	0.033	107	72.9
40	0.025	113	77.0
50	0.020	118	80.4
60	0.017	122	83.1
80	0.012	129	87.5
100	0.010	134	90.9
250	0.004	155	105

SHELLY BAY TAIKURU

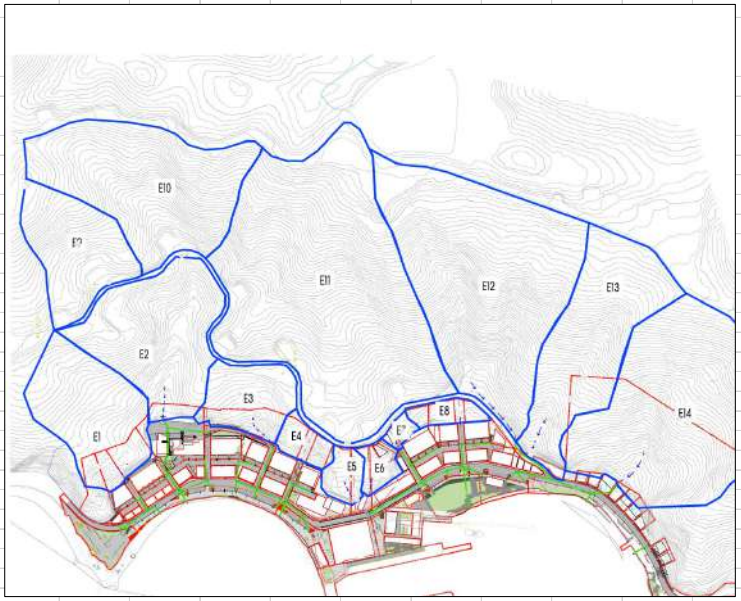
HEC OUTPUT

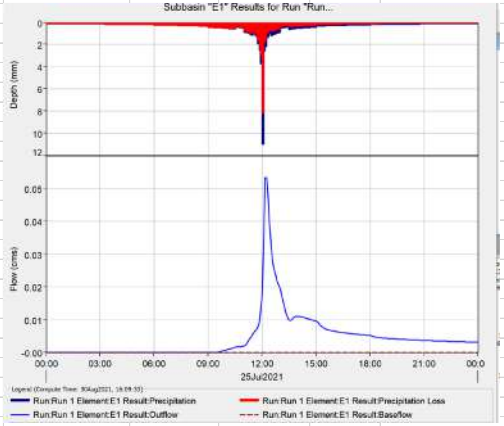
EXTERNAL STORMWATER CATCHMENTS

HEC-HMS RESULTS

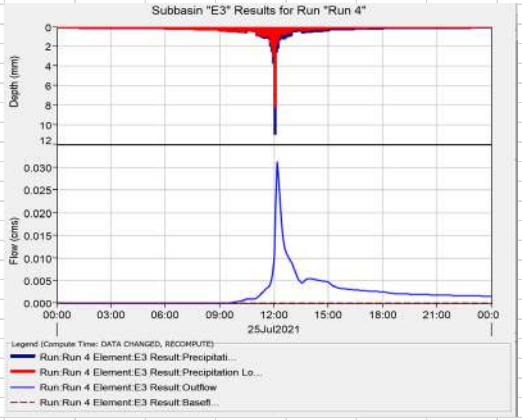
CATCHMENT	AREA (KM2)	PEAK DISCHARGE M3/S	VOL (M3)	
E1	0.0085	0.054	400	
E9	0.15	0.046	300	
E2	0.02615	0.081	500	
E10	0.0129	0.09	700	Combined Stream Catchments
STREAM	0.18905	0.217	1500	
E11	0.28	0.24	1500	Combined Track Catchments with outflow to be proportioned
E13	0.28	0.092	500	
E12	0.28	0.176	1100	
TRACK INTAKE	0.84	0.52	3100	
E3	0.0075	0.031	200	
E4	0.00246	0.01	100	
E5	0.0024	0.01	100	
E6	0.0021	0.0082	100	
E7	0.00088	0.0035	0	
E8	0.00209	0.0087	100	
E14	0.00379	0.159	900	

EXTERNAL STORMWATER CATCHMENTS	
CATCHMENT	AREA (m^2)
E1	15345.41
E2	19596.03
E3	7503.29
E4	2457.67
E5	2399.08
E6	2005.81
E7	880.06
E8	2090.49
E9	12738.77
E10	26621.58
E11	58247.22
E12	42188.18
E13	21897.28
E14	37929.72

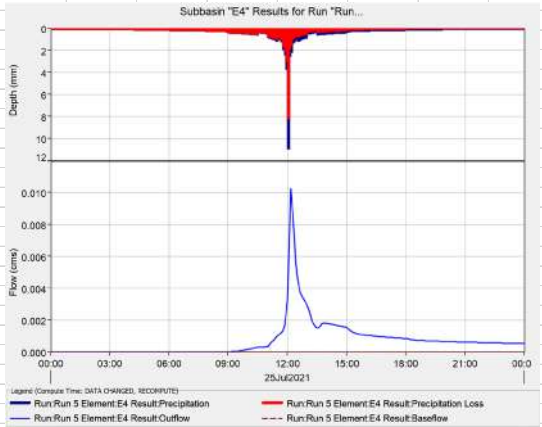




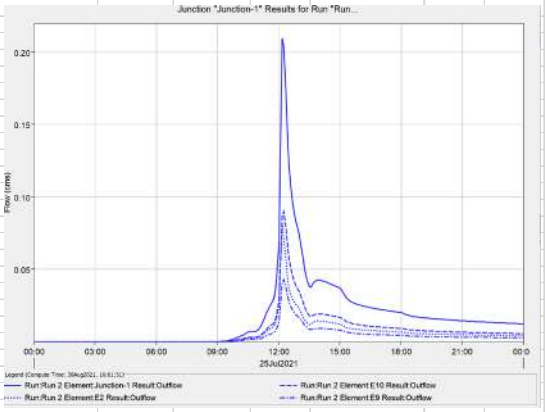
E1



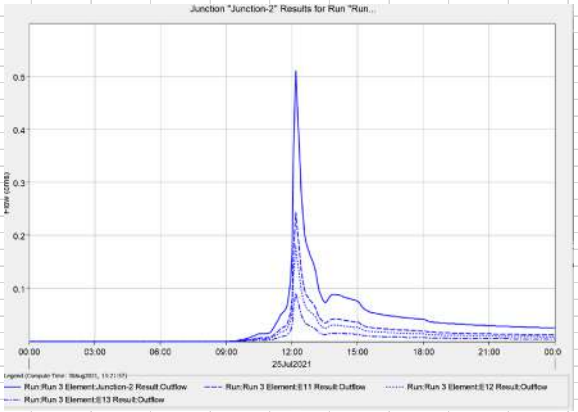
E3



E4



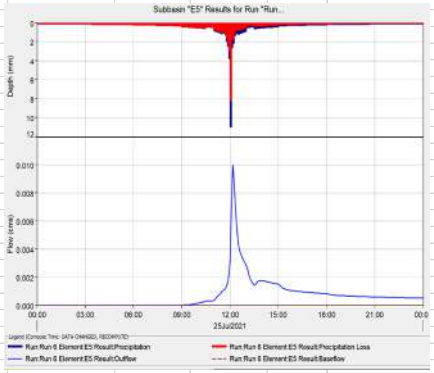
E2, E9, E10



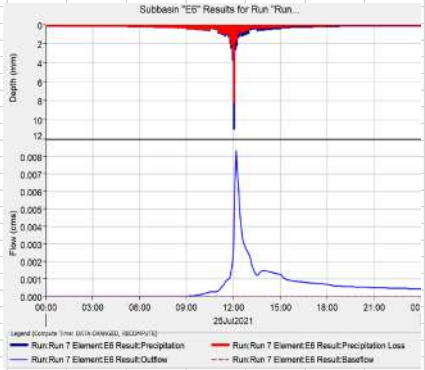
E11, E12, E13

NOTE; E9 AND E10 ASSUME TO BE DRAINED INTO CATCHMENT E2 (EPHEMERAL STREAM)

NOTE: ALL CATCHMENTS INTERCEPTED BY ACCESS TRACK SWALE DRAIN.



E5



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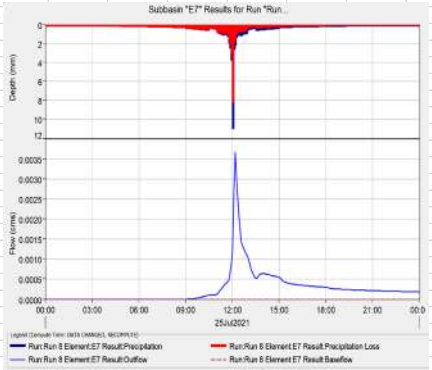
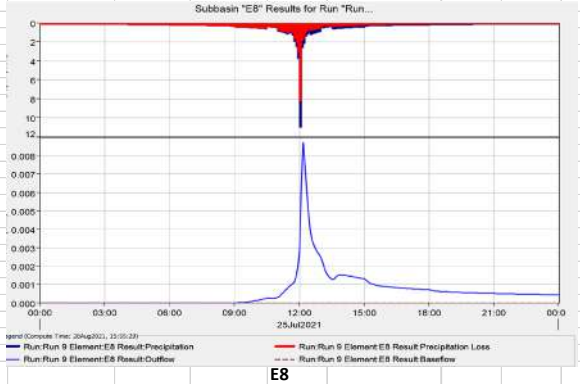
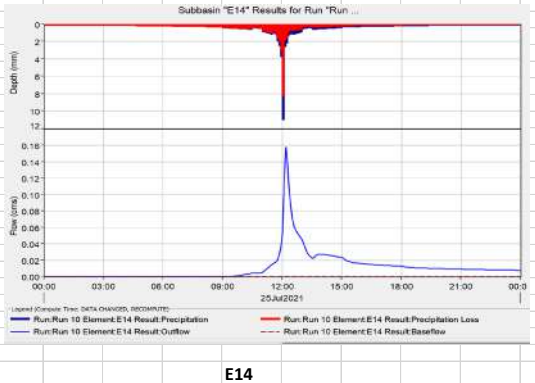


E7



E8



E14

DRAWINGS

APPENDIX 2 DRAWINGS

ENVELOPE

LAND
STRUCTURE
MANAGE

CLIENT:
THE WELLINGTON COMPANY

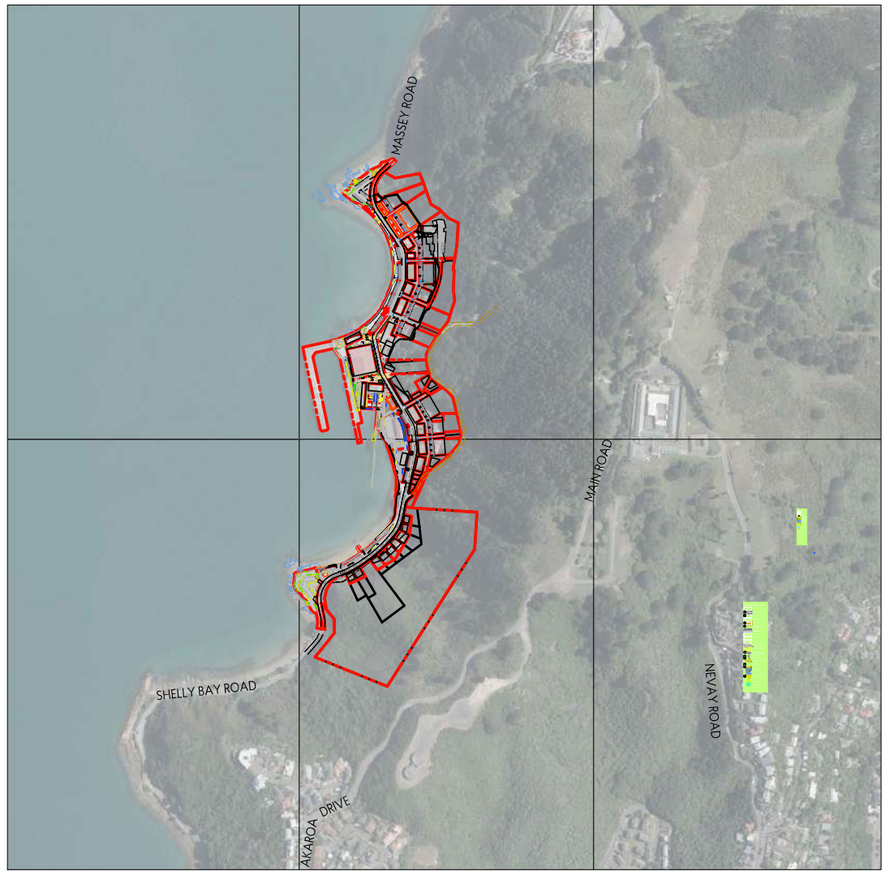
PROJECT:
SHELLY BAY
SHELLY BAY ROAD
WELLINGTON

PALN SET:
CIVIL ENGINEERING DRAWINGS

ISSUE:
GWRC CONSENT ISSUE

DATE:
6th SEPTEMBER 2021

REFERENCE:
1098-01



LOCATION PLAN
SCALE A1 - 1:5000, A3 - 1:10000

L1, 125 VINCENT STREET
AUCKLAND CITY 1010
PO BOX 68946 NEWTON 1141
ENVELOPE ENGINEERING

ENVELOPE

LAND
STRUCTURE
MANAGE

CLIENT:
THE WELLINGTON COMPANY

PROJECT:
SHELLY BAY
SHELLY BAY ROAD
WELLINGTON

PLAN SET:
CIVIL ENGINEERING DRAWINGS

ISSUE:
GWRC CONSENT ISSUE

DATE:
6th SEPTEMBER 2021

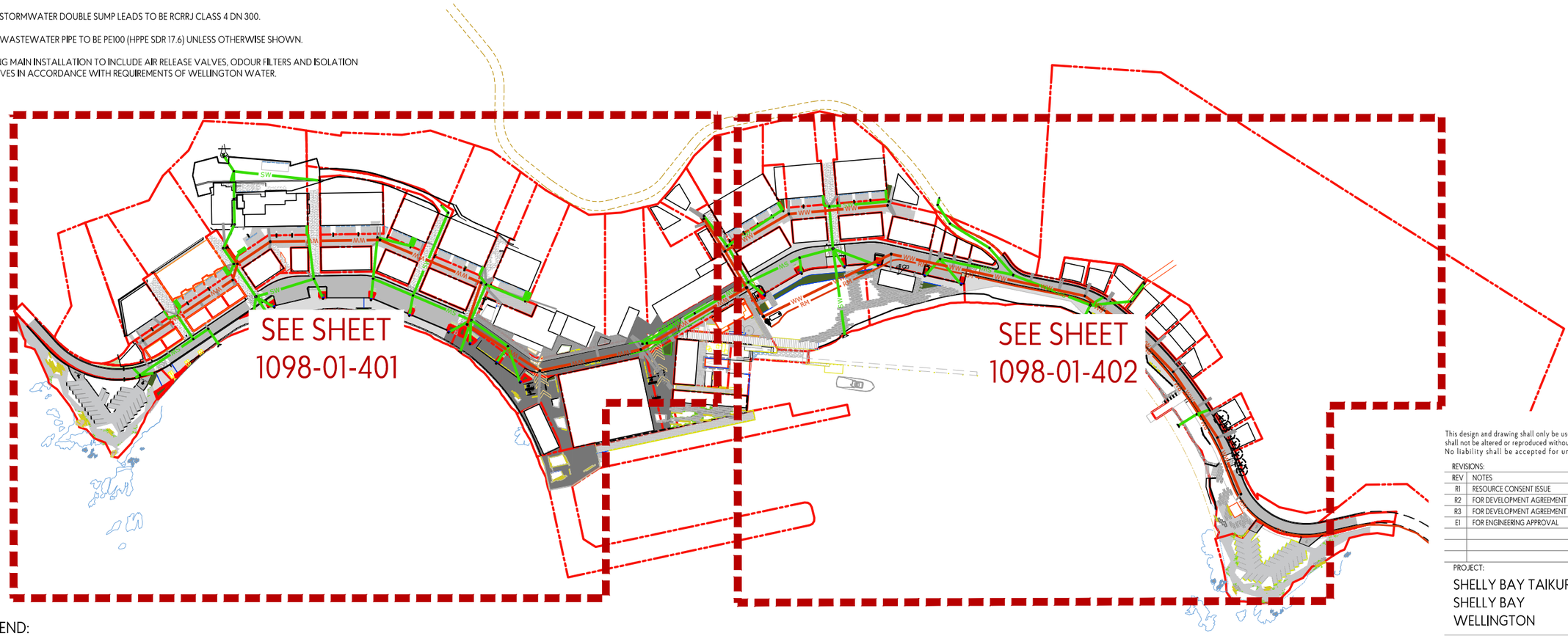
REFERENCE:
1098-01

L1, 125 VINCENT STREET
AUCKLAND CITY 1010
PO BOX 68946 NEWTON 1141
ENVELOPE ENGINEERING

DRAWING INDEX

NOTES:

1. CONTOURS SHOWN ARE PROPOSED FINISHED GROUND LEVELS AND ARE SHOWN AT 0.5m INTERVALS.
2. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 ORIGIN RM II SO 31470 - RL 3.05m.
3. ALL WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE OF LAND DEVELOPMENT EXCEPT WHERE ALTERNATIVE SOLUTIONS ARE SPECIFICALLY DESIGNED AND APPROVED.
4. ALL PUBLIC DRAINAGE DESIGN IS IN ACCORDANCE WITH WELLINGTON WATER REGIONAL STANDARDS FOR WATER SERVICES. DETAILS SHOWN ARE SUBJECT TO FURTHER DESIGN DEVELOPMENT AND FINAL APPROVALS FROM WELLINGTON WATER AND WCC.
5. ALL PRIVATE DRAINAGE INCLUDING RAINGARDENS WITHIN THE PRIVATE ACCESSWAY WILL BE COVERED UNDER A SEPARATE BUILDING CONSENT APPLICATION.
6. ALL STORMWATER AND WASTEWATER CONNECTIONS ARE SHOWN INDICATIVELY. THE LOCATION, DIMENSIONS AND NUMBER OF CONNECTIONS WILL BE CONFIRMED AT THE BUILDING CONSENT STAGE FOR EACH SUPERLOT.
7. ALL STORMWATER PIPES TO BE RCRRJ CLASS 2 UNLESS SHOWN OTHERWISE.
8. ALL MANHOLES TO BE 1050mmØ UNLESS SHOWN OTHERWISE. REFER TO 1098-01-420 TO 434.
9. ALL STORMWATER SINGLE SUMP LEADS TO BE RCRRJ CLASS 4 DN 225.
10. ALL STORMWATER DOUBLE SUMP LEADS TO BE RCRRJ CLASS 4 DN 300.
11. ALL WASTEWATER PIPE TO BE PE100 (HPPE SDR 17.6) UNLESS OTHERWISE SHOWN.
12. RISING MAIN INSTALLATION TO INCLUDE AIR RELEASE VALVES, ODOUR FILTERS AND ISOLATION VALVES IN ACCORDANCE WITH REQUIREMENTS OF WELLINGTON WATER.



LEGEND:

- INDICATIVE SUPERLOT BOUNDARIES
- INDICATIVE BUILDING FOOTPRINT
- INDICATES STORMWATER - PROPOSED
- INDICATES STORMWATER - PRIVATE
- INDICATES WASTEWATER - PROPOSED
- INDICATES WASTEWATER - PRIVATE
- INDICATES WASTEWATER - RISING MAIN
- INDICATES BACK-ENTRY CATCHPIT
- INDICATES PRIVATE RAIN GARDEN AREA
- INDICATES TRENCH DRAIN (ACO OR SIMILAR)

REVISIONS:

REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PJ	13-09-2016
R2	FOR DEVELOPMENT AGREEMENT (INTERNAL)	JW	30/06/2021
R3	FOR DEVELOPMENT AGREEMENT	JW	09/07/2021
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:

PUBLIC DRAINAGE PLANS
OVERALL LAYOUT

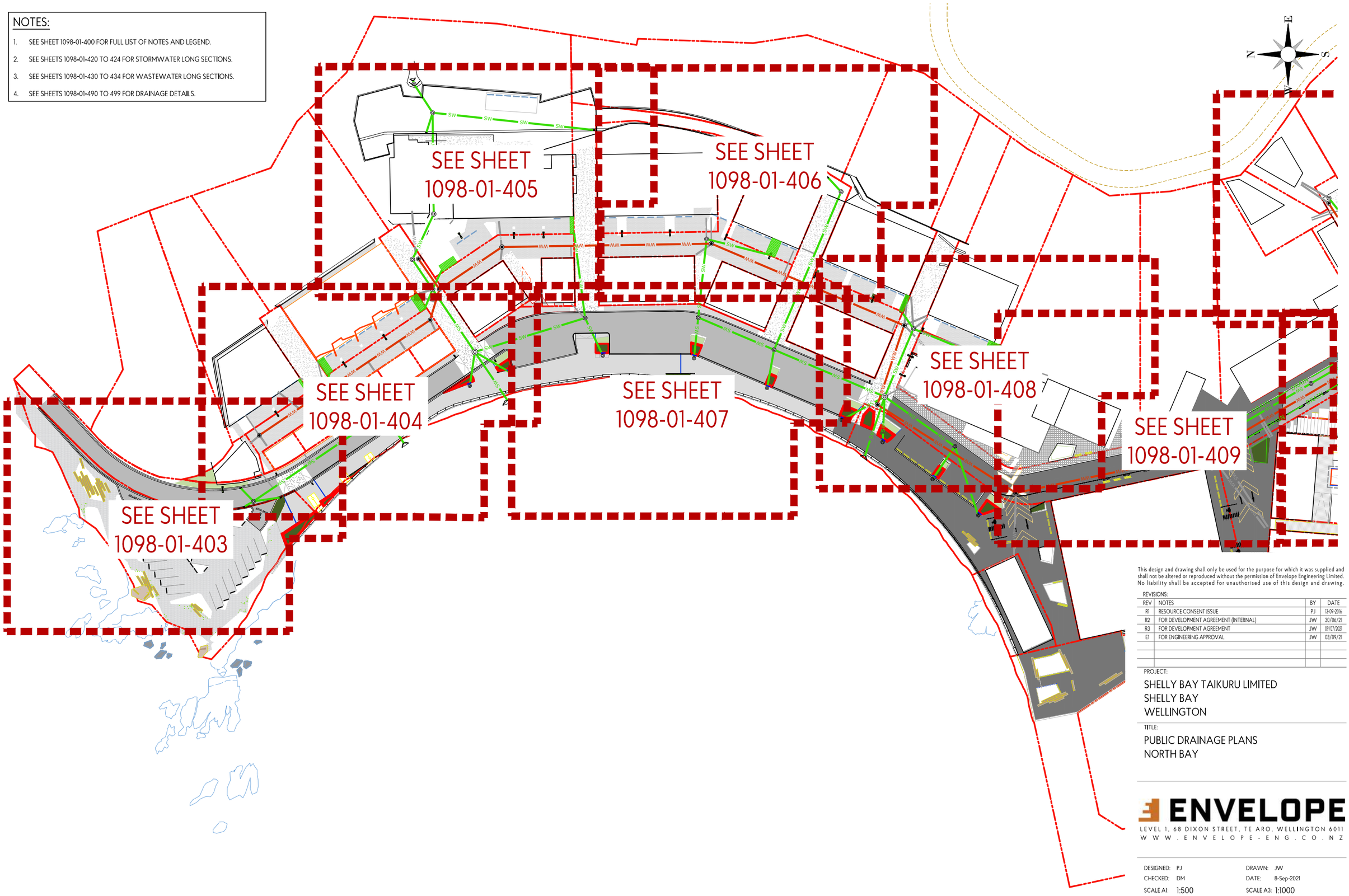
ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:1250
SCALE A3: 1:2500
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 400
REVISION: E1

NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.



REVISIONS:

REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PJ	13-09-2016
R2	FOR DEVELOPMENT AGREEMENT (INTERNAL)	JW	30/06/21
R3	FOR DEVELOPMENT AGREEMENT	JW	09/07/2021
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

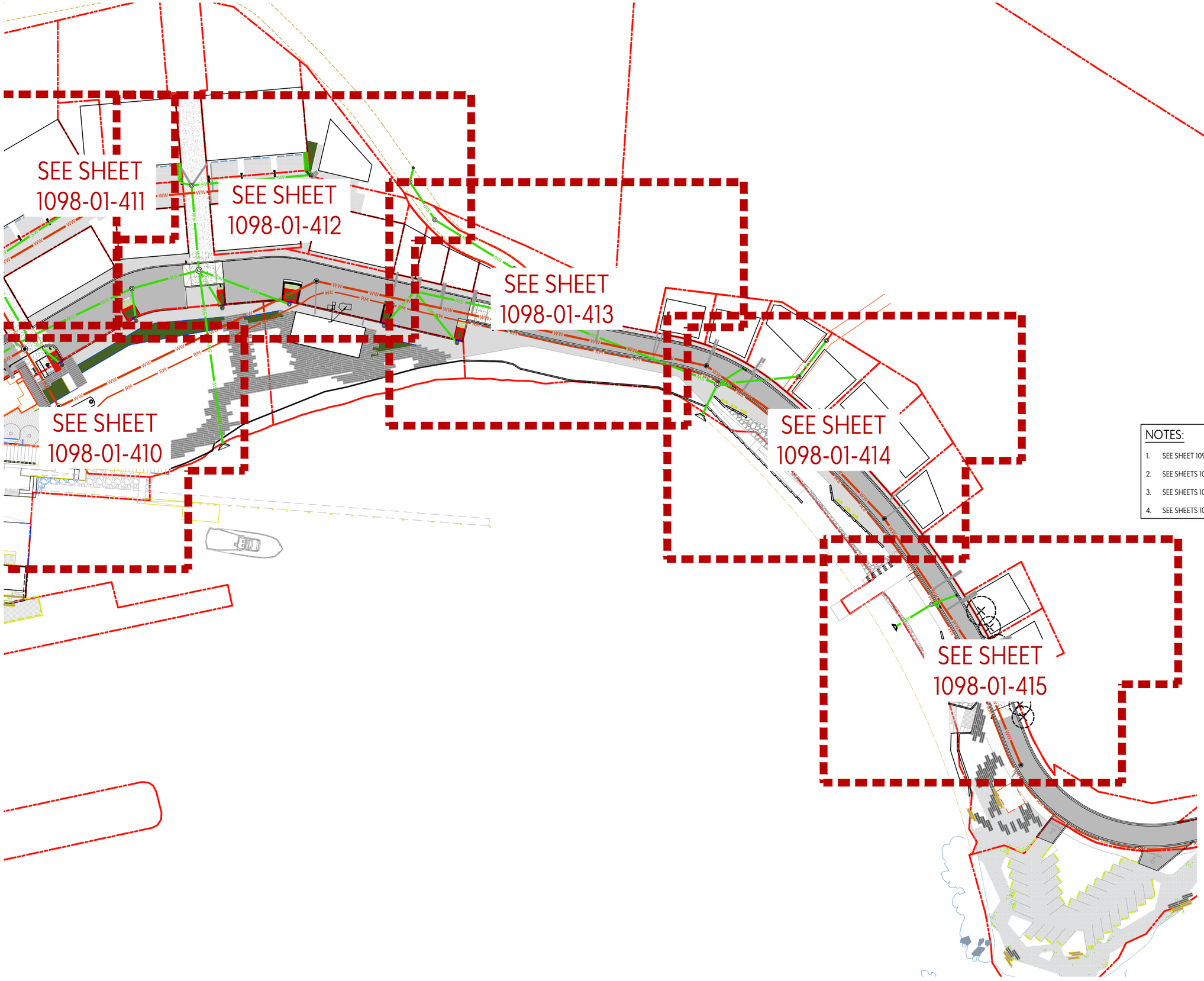
TITLE:

PUBLIC DRAINAGE PLANS
NORTH BAY

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:500
SCALE A3: 1:1000
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 401
REVISION: E1



NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.

REVISIONS:

REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PJ	13-09-2016
R2	FOR DEVELOPMENT AGREEMENT (INTERNAL)	JW	30/06/21
R3	FOR DEVELOPMENT AGREEMENT	JW	09/07/2021
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

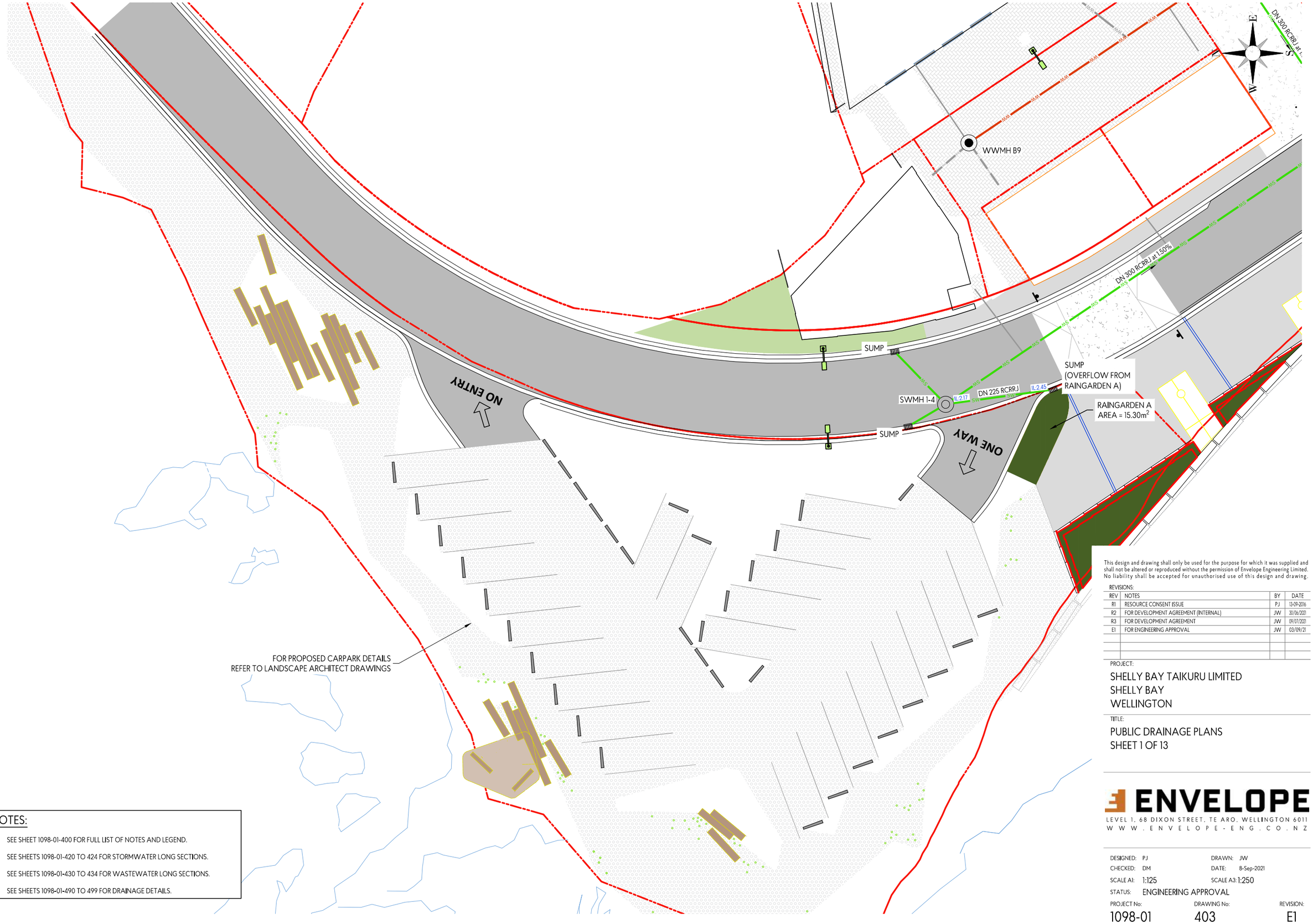
TITLE:

PUBLIC DRAINAGE PLANS
SOUTH BAY

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:500
SCALE A3: 1:1000
STATUS: ENGINEERING APPROVAL

PROJECT No:	DRAWING No:	REVISION:
1098-01	402	E1



NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.

REVISIONS:

REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PJ	13-09-2016
R2	FOR DEVELOPMENT AGREEMENT (INTERNAL)	JW	30/06/2021
R3	FOR DEVELOPMENT AGREEMENT	JW	09/07/2021
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:

PUBLIC DRAINAGE PLANS
SHEET 1 OF 13

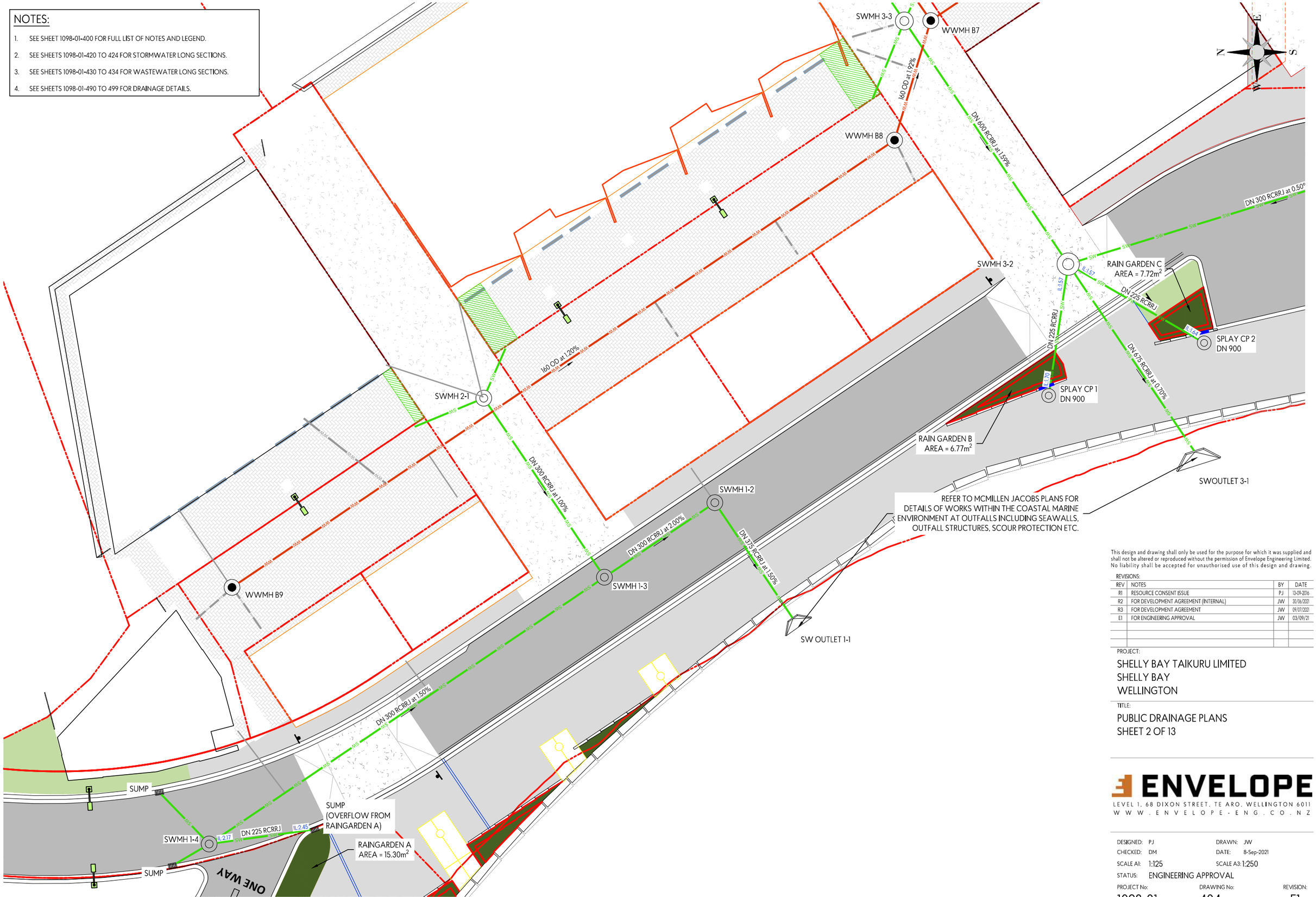
ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:125
SCALE A3: 1:250
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 403
REVISION: E1

NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.



REVISIONS:

REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PJ	13-09-2016
R2	FOR DEVELOPMENT AGREEMENT (INTERNAL)	JW	30/06/2021
R3	FOR DEVELOPMENT AGREEMENT	JW	09/07/2021
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:

PUBLIC DRAINAGE PLANS
SHEET 2 OF 13

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
W W W . E N V E L O P E - E N G . C O . N Z

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:125
SCALE A3: 1:250
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 404
REVISION: E1

NEW CONCRETE WINGWALL STRUCTURE WITH SCOUR PROTECTION TO COLLECT UPSTREAM OVERLAND FLOW

DN 225 LOW FLOW INLET

SWMH 3-8

DN 450 RCRRJ at 7.15%

SWMH 3-7

DN 225 RCRRJ

DN 300 RCRRJ

SUMP

SUMP

DN 450 RCRRJ at 5.37%

SWMH 3-6

DN 450 RCRRJ at 28.81%

SWMH 3-5

DN 450 RCRRJ at 16.90%

WWMH B6

SWMH 3-4

WWMH E1

160 OD at 1.08%

DN 600 RCRRJ at 1.00%

250 OD at 0.72%

SWMH 3-3

WWMH B7

DN 225 RCRRJ

N

E

S

W

NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.

REVISIONS:

REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PJ	13-09-2016
R2	FOR DEVELOPMENT AGREEMENT (INTERNAL)	JW	30/06/2021
R3	FOR DEVELOPMENT AGREEMENT	JW	09/07/2021
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:

PUBLIC DRAINAGE PLANS
SHEET 3 OF 13

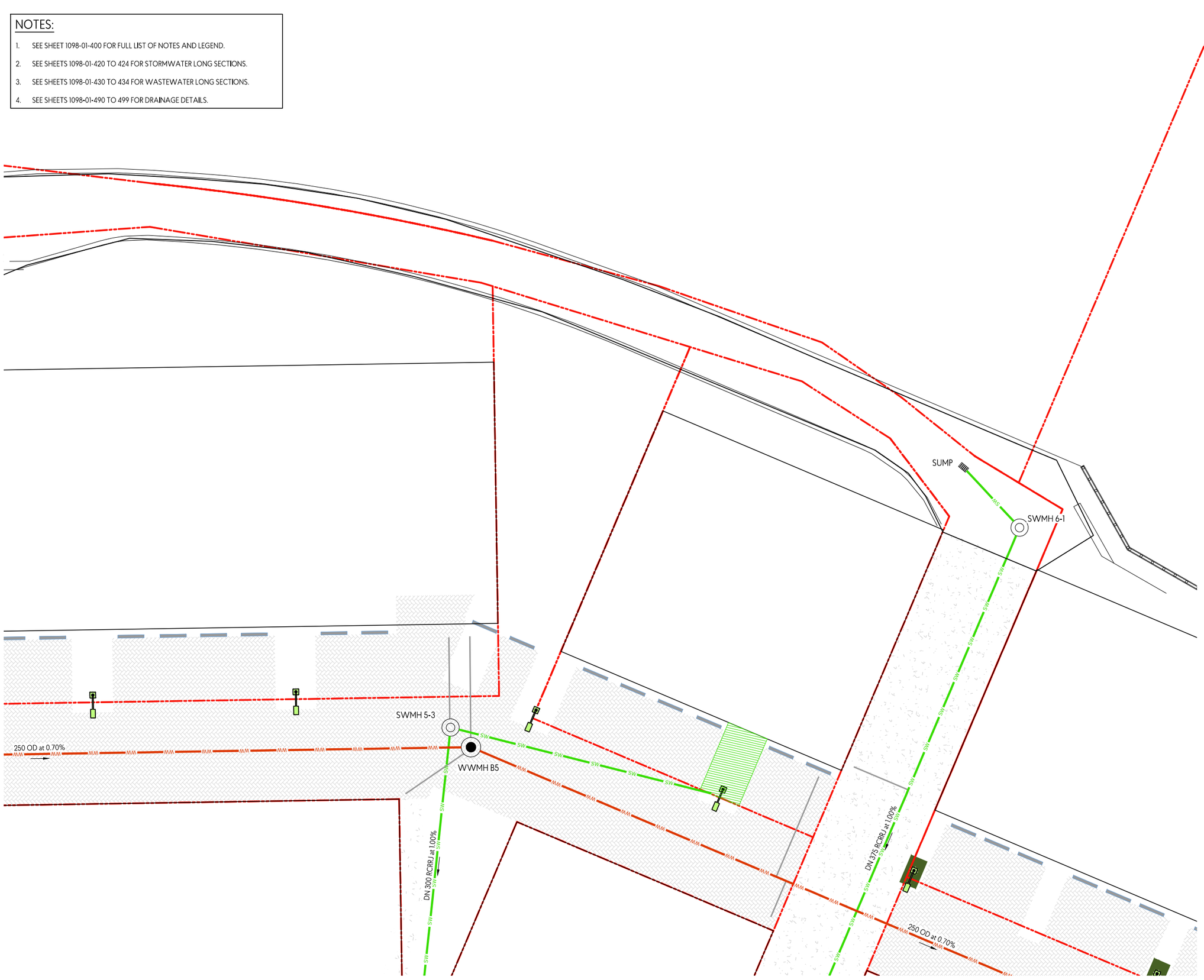
ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE AI: 1:125
SCALE A3: 1:250
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 405
REVISION: E1

NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.



REVISIONS:

REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PJ	13-09-2016
R2	FOR DEVELOPMENT AGREEMENT (INTERNAL)	JW	30/06/2021
R3	FOR DEVELOPMENT AGREEMENT	JW	09/07/2021
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:

PUBLIC DRAINAGE PLANS
SHEET 4 OF 13

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:125
SCALE A3: 1:250
STATUS: ENGINEERING APPROVAL
PROJECT No: 1098-01
DRAWING No: 406
REVISION: E1

NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.

REVISIONS:

REV	NOTES	BY	DATE
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

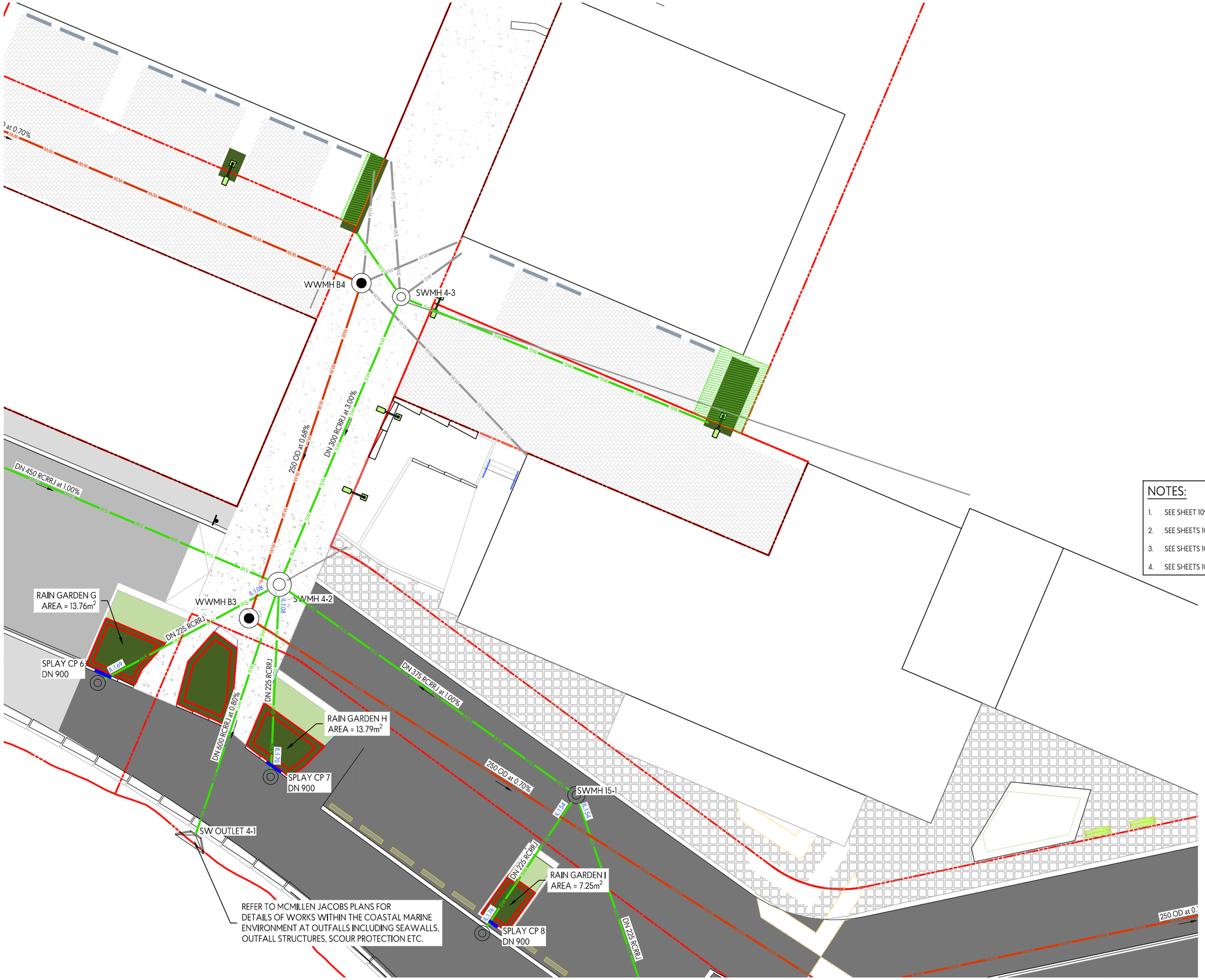
TITLE:

PUBLIC DRAINAGE PLANS
SHEET 5 OF 13

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:125
SCALE A3: 1:250
STATUS: ENGINEERING APPROVAL

PROJECT No:	DRAWING No:	REVISION:
1098-01	407	E1



NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.

REVISIONS:

REV	NOTES	BY	DATE
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:

PUBLIC DRAINAGE PLANS
SHEET 6 OF 13

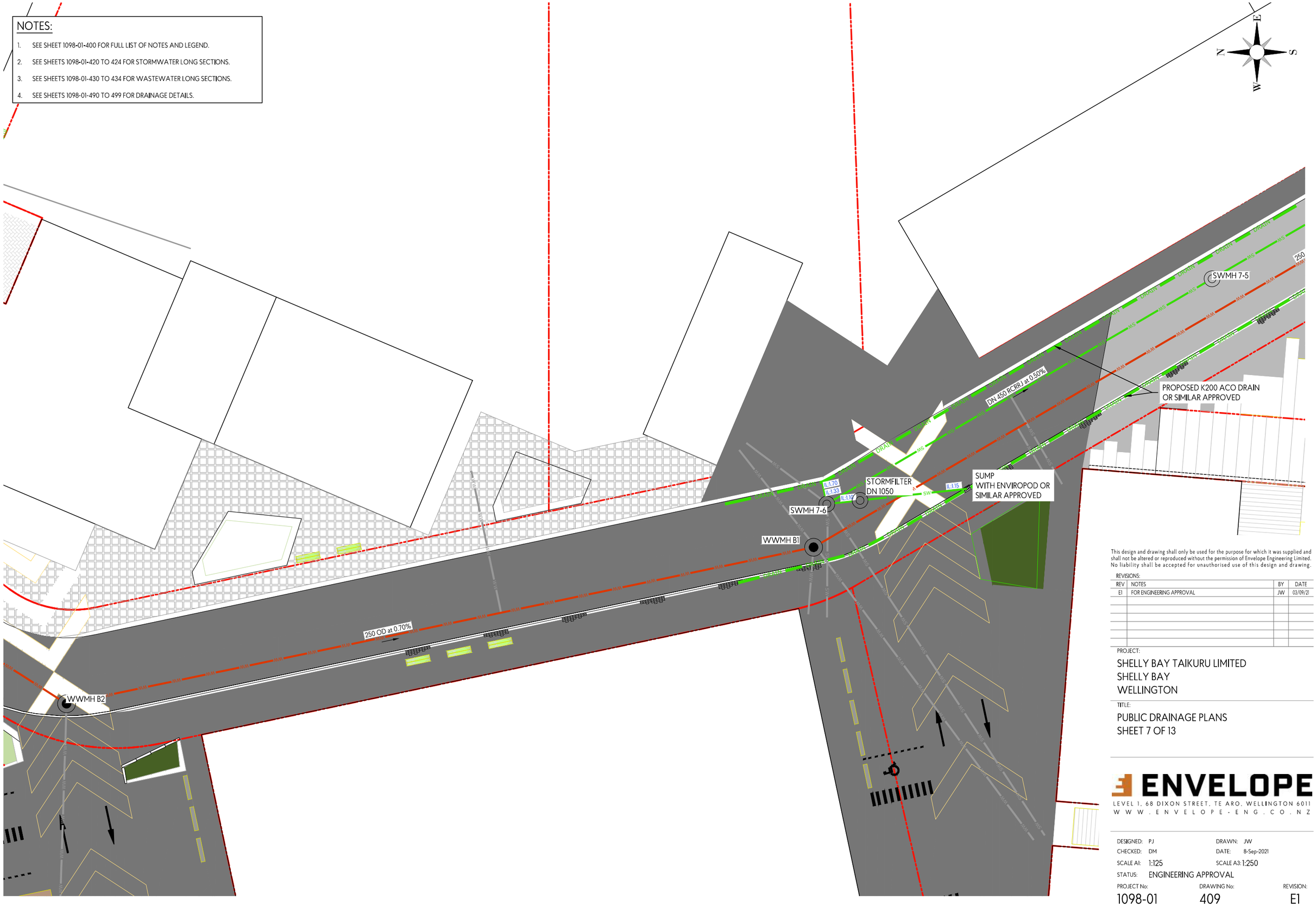
ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:125
SCALE A3: 1:250
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 408
REVISION: E1

NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.



REVISIONS:

REV	NOTES	BY	DATE
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:

PUBLIC DRAINAGE PLANS
SHEET 7 OF 13

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:125
SCALE A3: 1:250
STATUS: ENGINEERING APPROVAL

PROJECT No:	DRAWING No:	REVISION:
1098-01	409	E1

NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.

REVISIONS:

REV	NOTES	BY	DATE
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

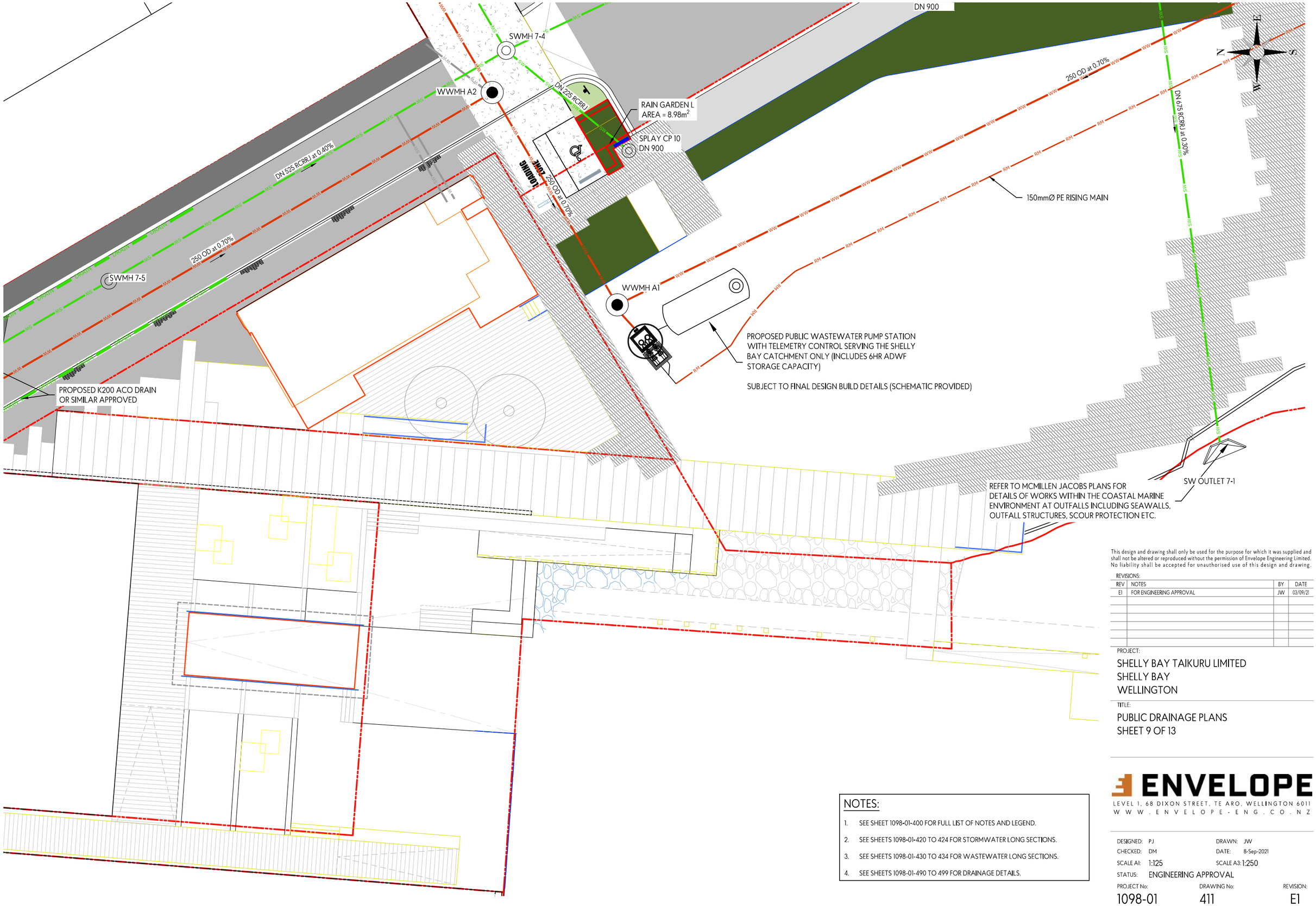
TITLE:

PUBLIC DRAINAGE PLANS
SHEET 8 OF 13

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:125
SCALE A3: 1:250
STATUS: ENGINEERING APPROVAL

PROJECT No:	DRAWING No:	REVISION:
1098-01	410	E1



NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.

REVISIONS:

REV	NOTES	BY	DATE
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:

PUBLIC DRAINAGE PLANS
SHEET 9 OF 13

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:125
SCALE A3: 1:250
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 411
REVISION: E1

NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.

N E S W

EXISTING SWALE

SW SCRUFFY DOME INLET

SWMH 11-3

DN 375 RCRRJ at 9.50%

SWMH 11-2

SWMH 9-2

SWMH 9-1

DN 300 RCRRJ at 1.00%

WWMH A5

160 OD at 1.20%

MH A4

DN 300 RCRRJ at 4.80%

SWMH 7-2

DN 600 RCRRJ at 0.30%

7-3

DN 225 RCRRJ

DN 225 RCRRJ

RAIN GARDEN M
AREA = 10.96m²

RAIN GARDEN N
AREA = 7.14m²

SPLAY CP 11
DN 900

SPLAY CP 12
DN 900

WWMH D1

RAIN GARDEN O
AREA = 12.80m²

SPLAY CP 13
DN 900

EXISTING WW PUMPSTATION & CHAMBERS TO BE REMOVED OR FILLED WITH HARDFILL/CONCRETE.

EXISTING WW RISING MAIN TO BE ABANDONED.

SWMH 10-4

RAIN GARDEN P
AREA = 7.03m²

DN 225 RCRRJ

SPLAY CP 14
DN 900

REVISIONS:

REV	NOTES	BY	DATE
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:
SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:
PUBLIC DRAINAGE PLANS
SHEET 10 OF 13

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:125
SCALE A3: 1:250
STATUS: ENGINEERING APPROVAL
PROJECT No: 1098-01
DRAWING No: 412
REVISION: E1

SWMH 11-3

DN 375 RCRRJ at 9.50%

SWMH 11-2

DN 375 RCRRJ at 9.50%

SWMH 11-1

DN 450 RCRRJ at 3.00%

SWMH 10-4

DN 300 RCRRJ at 0.50%

DN 225 RCRRJ

DN 225 RCRRJ

SPLAY CP 14
DN 900

RAIN GARDEN Q
AREA = 7.03m²

SPLAY CP 15
DN 900

250 OD at 0.70%

SWMH 10-3

DN 600 RCRRJ at 0.74%

N E S W

NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.

REVISIONS:

REV	NOTES	BY	DATE
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

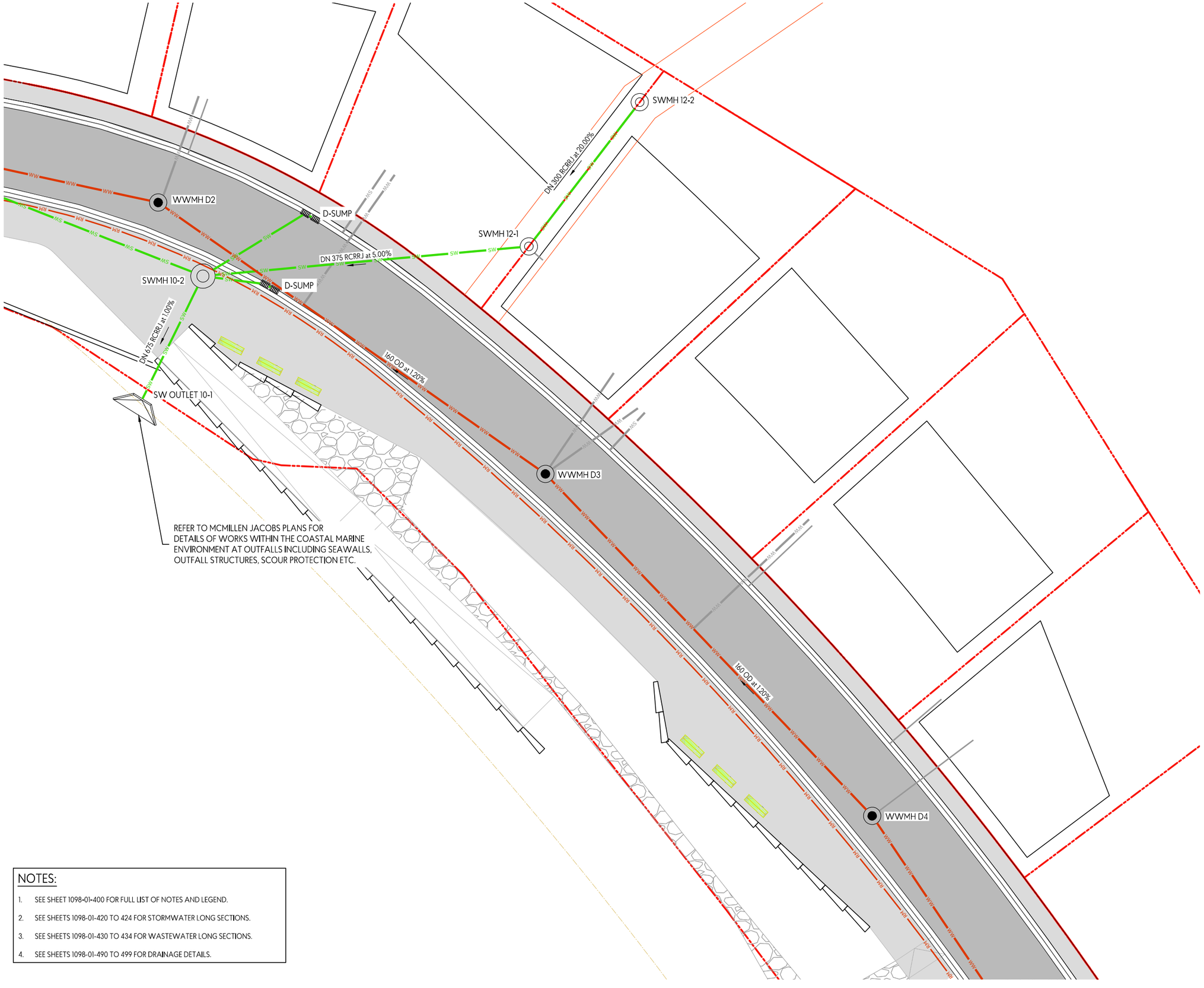
TITLE:

PUBLIC DRAINAGE PLANS
SHEET 11 OF 13

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:125
SCALE A3: 1:250
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 413
REVISION: E1



NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.

REVISIONS:

REV	NOTES	BY	DATE
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

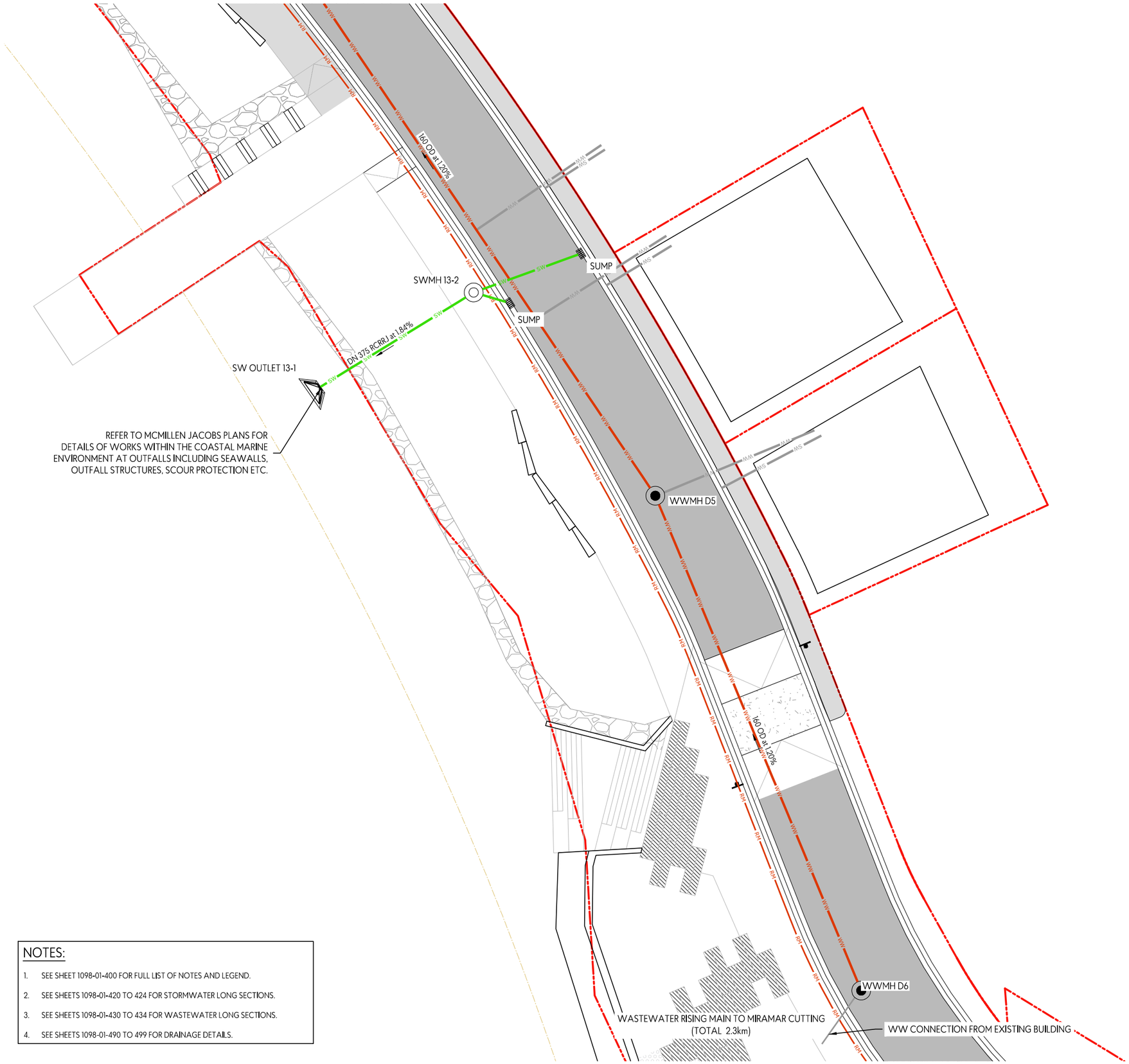
TITLE:

PUBLIC DRAINAGE PLANS
SHEET 12 OF 13

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:125
SCALE A3: 1:250
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 414
REVISION: E1



NOTES:

1. SEE SHEET 1098-01-400 FOR FULL LIST OF NOTES AND LEGEND.
2. SEE SHEETS 1098-01-420 TO 424 FOR STORMWATER LONG SECTIONS.
3. SEE SHEETS 1098-01-430 TO 434 FOR WASTEWATER LONG SECTIONS.
4. SEE SHEETS 1098-01-490 TO 499 FOR DRAINAGE DETAILS.

REVISIONS:

REV	NOTES	BY	DATE
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

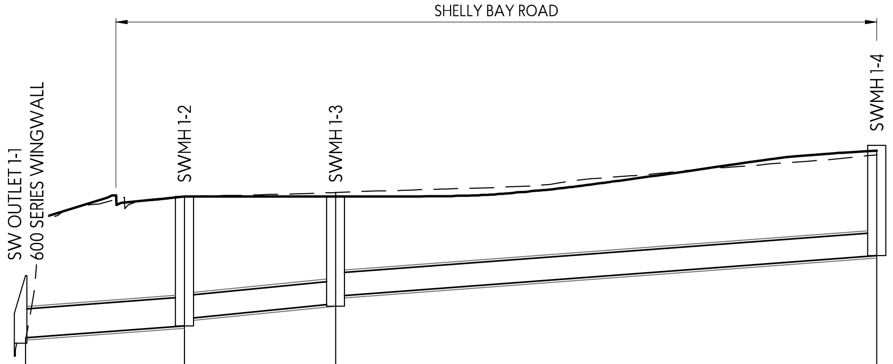
TITLE:

PUBLIC DRAINAGE PLANS
SHEET 13 OF 13

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ
DRAWN: JW
CHECKED: DM
DATE: 8-Sep-2021
SCALE A1: 1:125
SCALE A3: 1:250
STATUS: ENGINEERING APPROVAL

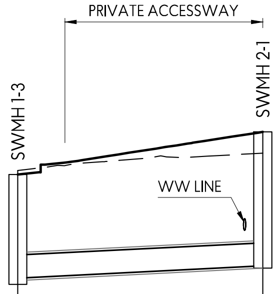
PROJECT No: 1098-01
DRAWING No: 415
REVISION: E1



Datum R.L. 0.00

	SW OUTLET 1-1		SWMH 1-2		SWMH 1-3		SWMH 1-4
DEPTH TO INVERT	0.85		1.71		1.45		1.46
INVERT LEVEL	1.00		1.16 / 1.25		1.45 / 1.55		2.09
LID LEVEL	1.82		2.87		2.87		3.55
GRADIENT & PIPE SIZE		1.50% DN 375 Class 2		2.00% DN 300 Class 2		1.50% DN 300 Class 2	
PIPE LENGTH & MH No.	SW OUTLET 1-1	10.5m	SWMH 1-2	10.0m	SWMH 1-3	35.8m	SWMH 1-4

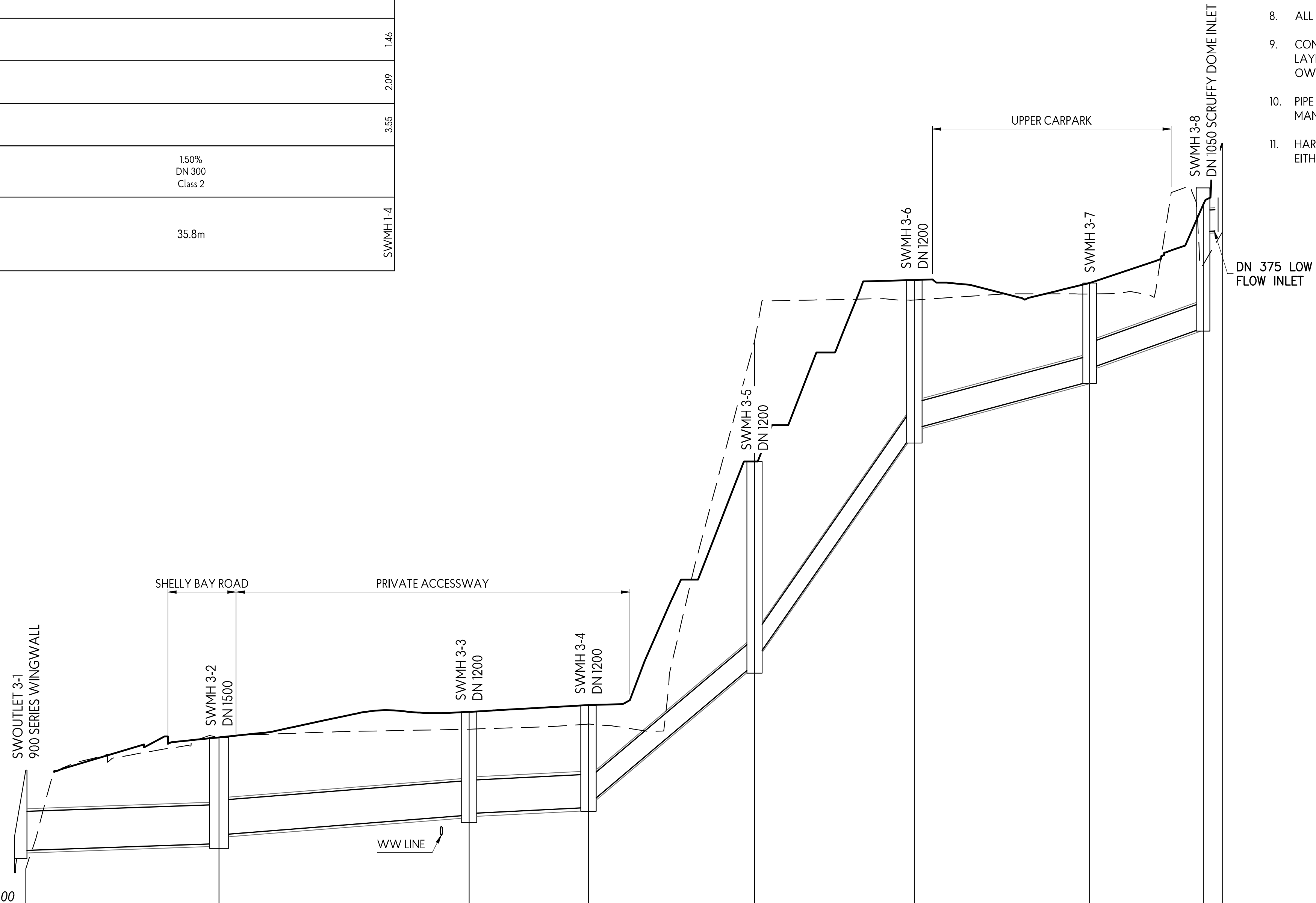
SW LINE 01



Datum R.L. 0.00

	SWMH 1-3		SWMH 2-1
DEPTH TO INVERT	1.45		1.80
INVERT LEVEL	1.50		1.66
LID LEVEL	2.87		3.43
GRADIENT & PIPE SIZE		1.00% DN 300 Class 2	
PIPE LENGTH & MH No.	SWMH 1-3	16.2m	SWMH 2-1

SW LINE 02



Datum R.L. 0.00

	SWOUTLET 3-1		SWMH 3-2		SWMH 3-3		SWMH 3-4		SWMH 3-5		SWMH 3-6		SWMH 3-7		SWMH 3-8	
DEPTH TO INVERT	1.46		1.95		1.95		1.87		3.73		2.87		1.77		2.52	
INVERT LEVEL	1.00		1.12 / 1.27		1.62 / 1.65		1.76 / 1.81		4.28 / 4.33		8.38 / 8.43		9.26 / 9.49		10.20 / 11.90	
LID LEVEL	2.41		2.99		3.44		3.56		7.85		11.05		10.99		12.67	
GRADIENT & PIPE SIZE		0.70% DN 675 Class 2		1.59% DN 600 Class 2		1.00% DN 600 Class 4		16.90% DN 450 Class 2		28.81% DN 450 Class 2		5.37% DN 450 Class 2		7.15% DN 450 Class 2		1.00% DN 375 Class 4
PIPE LENGTH & MH No.	SWOUTLET 3-1	17.0m	SWMH 3-2	22.0m	SWMH 3-3	10.5m	SWMH 3-4	14.8m	SWMH 3-5	14.6m	SWMH 3-6	15.4m	SWMH 3-7	10.0m	SWMH 3-8	1.0m

SW LINE 03

NOTES:

1. ——— INDICATES PROPOSED FINISHED GROUND LEVEL
2. — — — INDICATES EXISTING GROUND LEVEL (PRE EARTHWORKS)
3. LONG-SECTIONS ARE SHOWN WITH A 5x VERTICAL EXAGGERATION.
4. PIPE SIZES, INVERTS & GRADES AND MANHOLE DEPTHS ARE PRELIMINARY DESIGN AND WILL BE CONFIRMED AT DETAILED DESIGN/ENGINEERING APPROVAL STAGE.
5. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 ORIGIN RM II SO 31470 - RL 3.05.
6. ALL WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE OF LAND DEVELOPMENT.
7. ALL STORMWATER PIPE TO BE RCRRJ CLASS 2 UNLESS SHOWN OTHERWISE.
8. ALL MANHOLES TO BE DN 1050 UNLESS SHOWN OTHERWISE.
9. CONTRACTOR TO CHECK ALL INVERTS AGAINST PIPE CLASHES BEFORE LAYING. ADJUSTMENT OF ANY INVERT LEVELS IS AT THE CONTRACTORS OWN RISK DUE TO TIGHT TOLERANCES.
10. PIPE LENGTH SHOWN IS THE LENGTH OF PIPE BETWEEN CENTRE OF MANHOLES.
11. HARDFILL BACKFILL ALL TRENCHES BELOW CARRIAGEWAY AND 1m EITHER SIDE OF PIPE CROSSOVERS.

REVISIONS:

REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PJ	13-09-2016
R2	FOR DEVELOPMENT AGREEMENT	JW	21/06/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

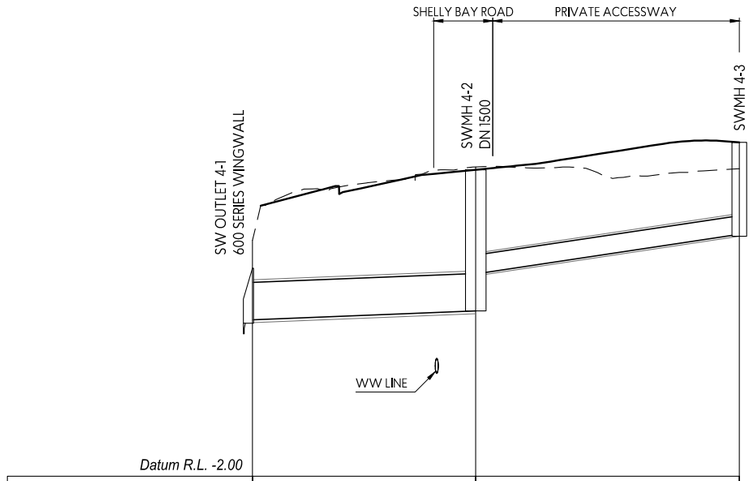
TITLE:

STORMWATER LONG SECTIONS
SHEET 1 OF 5

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ DRAWN: JW
CHECKED: DM DATE: 7-Sep-2021
SCALE A1: 1:250 Horz, 1:50 Vert SCALE A3: 1:500 Horz, 1:100 Vert
STATUS: ENGINEERING APPROVAL

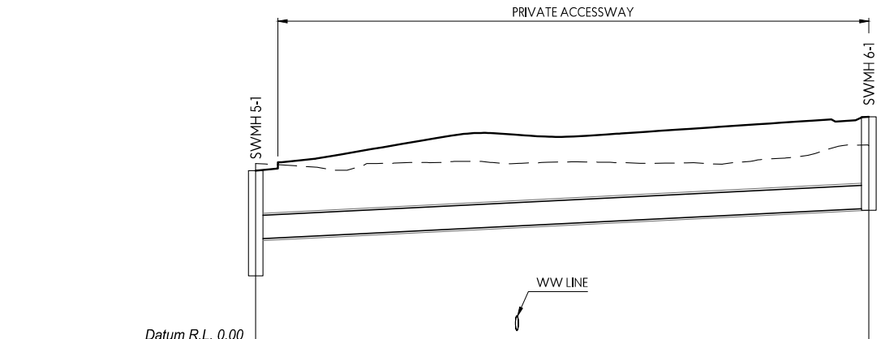
PROJECT No: 1098-01 DRAWING No: 420 REVISION: E1



Datum R.L. -2.00

DEPTH TO INVERT	0.88	2.30		1.53
INVERT LEVEL	0.55	0.70	1.30	1.95
LID LEVEL	1.39	3.00		3.45
GRADIENT & PIPE SIZE		0.80% DN 600 Class 2		3.00% DN 300 Class 2
PIPE LENGTH & MH No.	SW OUTLET 4-1	18.2m	SWMH 4-2	21.5m SWMH 4-3

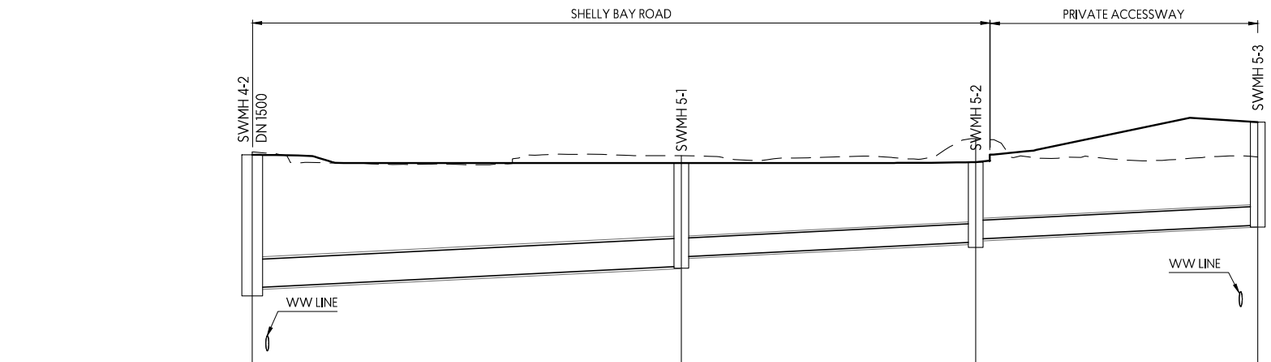
SW LINE 04



Datum R.L. 0.00

DEPTH TO INVERT	1.72		1.52
INVERT LEVEL	1.75		2.25
LID LEVEL	2.86		3.74
GRADIENT & PIPE SIZE		1.00% DN 375 Class 2	
PIPE LENGTH & MH No.	SWMH 5-1	50.0m	SWMH 6-1

SW LINE 06



Datum R.L. -2.00

DEPTH TO INVERT	2.30	1.72		1.39		1.71
INVERT LEVEL	0.83	1.18	1.33	1.57	1.62	1.85
LID LEVEL	3.00	2.86		2.88		3.53
GRADIENT & PIPE SIZE		1.00% DN 450 Class 2		1.00% DN 300 Class 2		1.00% DN 300 Class 2
PIPE LENGTH & MH No.	SWMH 4-2	35.0m	SWMH 5-1	24.0m	SWMH 5-2	23.0m SWMH 5-3

SW LINE 05

NOTES:

1. ——— INDICATES PROPOSED FINISHED GROUND LEVEL
2. — — — INDICATES EXISTING GROUND LEVEL (PRE EARTHWORKS)
3. LONG-SECTIONS ARE SHOWN WITH A 5x VERTICAL EXAGGERATION.
4. PIPE SIZES, INVERTS & GRADES AND MANHOLE DEPTHS ARE PRELIMINARY DESIGN AND WILL BE CONFIRMED AT DETAILED DESIGN/ENGINEERING APPROVAL STAGE.
5. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 ORIGIN RM II SO 31470 - RL 3.05.
6. ALL WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE OF LAND DEVELOPMENT.
7. ALL STORMWATER PIPE TO BE RCRRJ CLASS 2 UNLESS SHOWN OTHERWISE.
8. ALL MANHOLES TO BE DN 1050 UNLESS SHOWN OTHERWISE.
9. CONTRACTOR TO CHECK ALL INVERTS AGAINST PIPE CLASHES BEFORE LAYING. ADJUSTMENT OF ANY INVERT LEVELS IS AT THE CONTRACTORS OWN RISK DUE TO TIGHT TOLERANCES.
10. PIPE LENGTH SHOWN IS THE LENGTH OF PIPE BETWEEN CENTRE OF MANHOLES.
11. HARDFILL BACKFILL ALL TRENCHES BELOW CARRIAGEWAY AND 1m EITHER SIDE OF PIPE CROSSOVERS.

REVISIONS:

REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PJ	13-09-2016
R2	FOR DEVELOPMENT AGREEMENT	JW	21/06/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

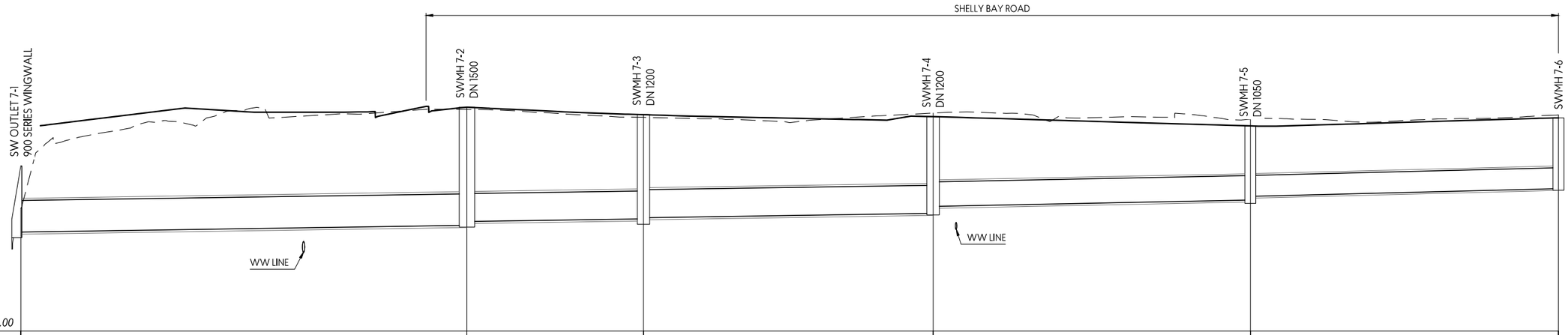
TITLE:

STORMWATER LONG SECTIONS
SHEET 2 OF 5

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ DRAWN: JW
CHECKED: DM DATE: 7-Sep-2021
SCALE A1: 1:250 Horz, 1:50 Vert SCALE A3: 1:500 Horz, 1:100 Vert
STATUS: ENGINEERING APPROVAL

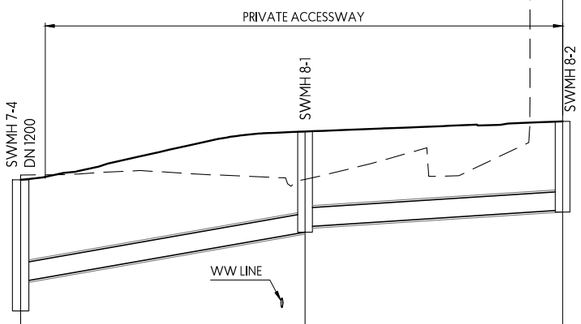
PROJECT No: 1098-01 DRAWING No: 421 REVISION: E1



Datum R.L. -2.00

DEPTH TO INVERT	3.44		2.61		2.39		2.14		1.69		1.57
INVERT LEVEL	0.15		0.30 0.38		0.44 0.47		0.56 0.71		0.85 0.93		1.10
LID LEVEL	1.59		2.87		2.71		2.67		2.46		2.64
GRADIENT & PIPE SIZE		0.30% DN 675 Class 2		0.30% DN 600 Class 2		0.30% DN 600 Class 2		0.40% DN 525 Class 2		0.50% DN 450 Class 2	
PIPE LENGTH & MH No.	SW OUTLET 7-1	48.5m	SWMH 7-2	19.2m	SWMH 7-3	31.5m	SWMH 7-4	34.5m	SWMH 7-5	33.5m	SWMH 7-6

SW LINE 07



Datum R.L. 0.00

DEPTH TO INVERT	2.14		1.64		1.48	
INVERT LEVEL	1.00		1.81 1.90		2.17	
LID LEVEL	2.67		3.45		3.62	
GRADIENT & PIPE SIZE		3.50% DN 300 Class 2		1.29% DN 300 Class 2		
PIPE LENGTH & MH No.	SWMH 7-4	23.2m	SWMH 8-1	21.0m	SWMH 8-2	

SW LINE 08

NOTES:

1. ——— INDICATES PROPOSED FINISHED GROUND LEVEL
2. — — — INDICATES EXISTING GROUND LEVEL (PRE EARTHWORKS)
3. LONG-SECTIONS ARE SHOWN WITH A 5x VERTICAL EXAGGERATION.
4. PIPE SIZES, INVERTS & GRADES AND MANHOLE DEPTHS ARE PRELIMINARY DESIGN AND WILL BE CONFIRMED AT DETAILED DESIGN/ENGINEERING APPROVAL STAGE.
5. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 ORIGIN RM II SO 31470 - RL 3.05.
6. ALL WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE OF LAND DEVELOPMENT.
7. ALL STORMWATER PIPE TO BE RCRRJ CLASS 2 UNLESS SHOWN OTHERWISE.
8. ALL MANHOLES TO BE DN 1050 UNLESS SHOWN OTHERWISE.
9. CONTRACTOR TO CHECK ALL INVERTS AGAINST PIPE CLASHES BEFORE LAYING. ADJUSTMENT OF ANY INVERT LEVELS IS AT THE CONTRACTORS OWN RISK DUE TO TIGHT TOLERANCES.
10. PIPE LENGTH SHOWN IS THE LENGTH OF PIPE BETWEEN CENTRE OF MANHOLES.
11. HARDFILL BACKFILL ALL TRENCHES BELOW CARRIAGEWAY AND 1m EITHER SIDE OF PIPE CROSSOVERS.

REVISIONS:

REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PJ	13-09-2016
R2	FOR DEVELOPMENT AGREEMENT	JW	21/06/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

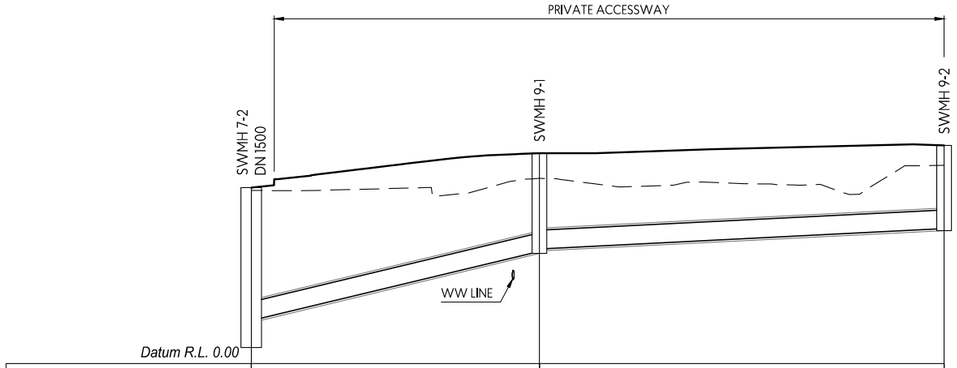
TITLE:

STORMWATER LONG SECTIONS
SHEET 3 OF 5

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

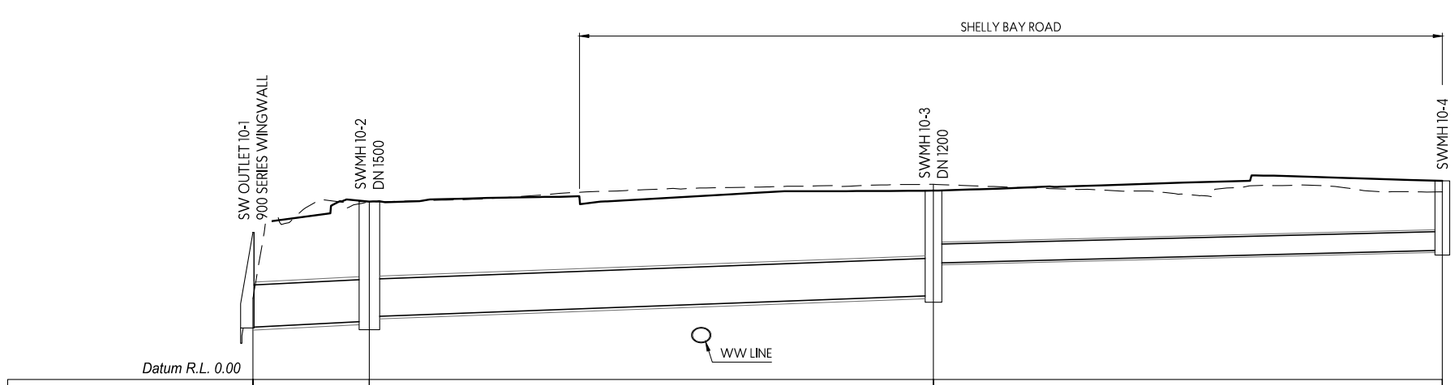
DESIGNED: PJ DRAWN: JW
CHECKED: DM DATE: 7-Sep-2021
SCALE A1: 1:250 Horz, 1:50 Vert SCALE A3: 1:500 Horz, 1:100 Vert
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 422
REVISION: E1



DEPTH TO INVERT	2.61	1.63	1.39
INVERT LEVEL	0.70	1.83 / 1.87	2.20
LID LEVEL	2.87	3.43	3.56
GRADIENT & PIPE SIZE		4.80% DN 300 Class 2	1.00% DN 300 Class 2
PIPE LENGTH & MH No.	SWMH 7-2	23.5m / SWMH 9-1	33.0m / SWMH 9-2

SW LINE 09



DEPTH TO INVERT	1.60	2.09	1.82	1.21
INVERT LEVEL	0.85	0.95 / 1.03	1.37 / 1.90	2.11
LID LEVEL	2.40	2.90	3.08	3.24
GRADIENT & PIPE SIZE		1.00% DN 675 Class 2	0.74% DN 600 Class 2	0.50% DN 300 Class 2
PIPE LENGTH & MH No.	SW OUTLET 10-1	9.5m / SWMH 10-2	46.0m / SWMH 10-3	41.5m / SWMH 10-4

SW LINE 10

NOTES:

1. ——— INDICATES PROPOSED FINISHED GROUND LEVEL
2. — — — INDICATES EXISTING GROUND LEVEL (PRE EARTHWORKS)
3. LONG-SECTIONS ARE SHOWN WITH A 5x VERTICAL EXAGGERATION.
4. PIPE SIZES, INVERTS & GRADES AND MANHOLE DEPTHS ARE PRELIMINARY DESIGN AND WILL BE CONFIRMED AT DETAILED DESIGN/ENGINEERING APPROVAL STAGE.
5. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 ORIGIN RM II SO 31470 - RL 3.05.
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7. ALL STORMWATER PIPE TO BE RCRRJ CLASS 2 UNLESS SHOWN OTHERWISE.
8. ALL MANHOLES TO BE DN 1050 UNLESS SHOWN OTHERWISE.
9. CONTRACTOR TO CHECK ALL INVERTS AGAINST PIPE CLASHES BEFORE LAYING. ADJUSTMENT OF ANY INVERT LEVELS IS AT THE CONTRACTORS OWN RISK DUE TO TIGHT TOLERANCES.
10. PIPE LENGTH SHOWN IS THE LENGTH OF PIPE BETWEEN CENTRE OF MANHOLES.
11. HARDFILL BACKFILL ALL TRENCHES BELOW CARRIAGEWAY AND 1m EITHER SIDE OF PIPE CROSSOVERS.

REVISIONS:

REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PJ	13-09-2016
R2	FOR DEVELOPMENT AGREEMENT	JW	21/06/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

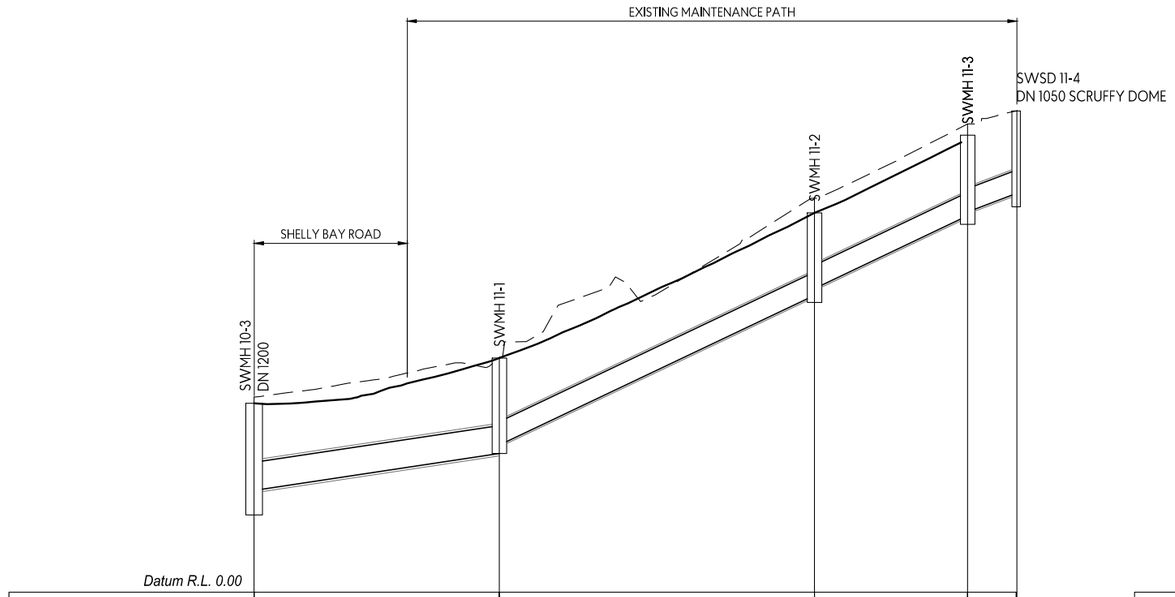
TITLE:

STORMWATER LONG SECTIONS
SHEET 4 OF 5

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

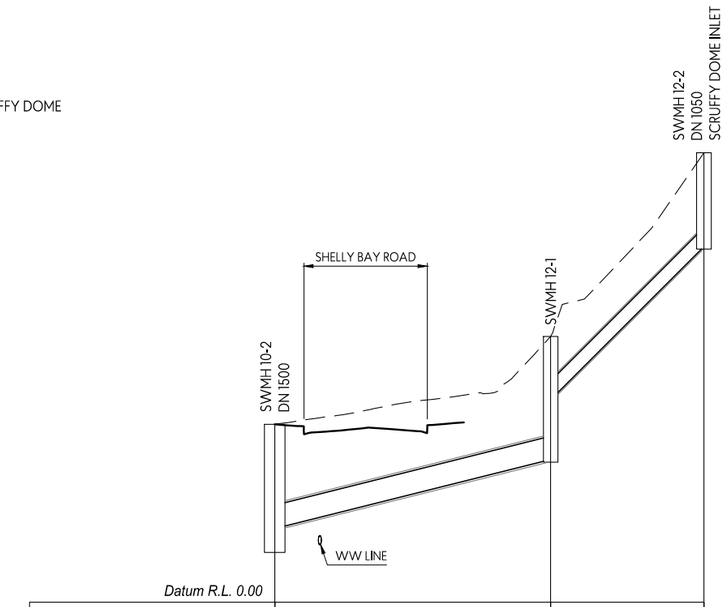
DESIGNED: PJ DRAWN: JW
CHECKED: DM DATE: 7-Sep-2021
SCALE A1: 1:250 Horz, 1:50 Vert SCALE A3: 1:500 Horz, 1:100 Vert
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 423
REVISION: E1



DEPTH TO INVERT	1.82	1.56	1.46	1.45	1.56
INVERT LEVEL	1.66	2.26 / 2.40	4.84 / 4.95	6.14	
LID LEVEL	3.08	3.82	6.18	7.45	7.85
GRADIENT & PIPE SIZE		3.00% DN 450 Class 2	9.50% DN 375 Class 2	9.50% DN 375 Class 2	
PIPE LENGTH & MH No.	SWMH 10-3	20.0m	SWMH 11-1	25.8m	SWMH 11-2	12.6m	SWMH 11-3	SWSD 11-4

SW LINE 11

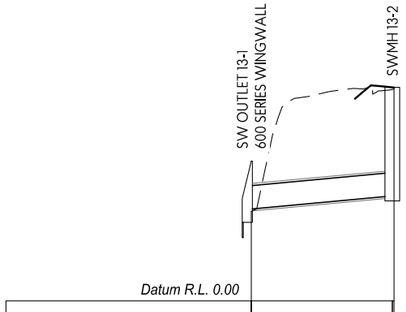


DEPTH TO INVERT	2.09	2.05	1.57
INVERT LEVEL	1.20	2.32 / 3.30	5.80
LID LEVEL	2.90	4.33	7.33
GRADIENT & PIPE SIZE		5.00% DN 375 Class 2	20.00% DN 300 Class 2
PIPE LENGTH & MH No.	SWMH 10-2	22.5m	SWMH 12-1	12.7m	SWMH 12-2

SW LINE 12

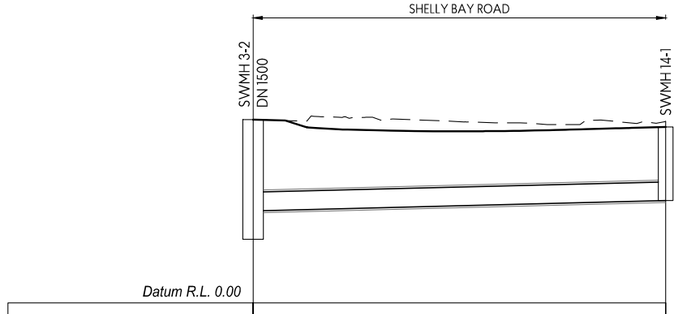
NOTES:

1. ——— INDICATES PROPOSED FINISHED GROUND LEVEL
2. — — — INDICATES EXISTING GROUND LEVEL (PRE EARTHWORKS)
3. LONG-SECTIONS ARE SHOWN WITH A 5x VERTICAL EXAGGERATION.
4. PIPE SIZES, INVERTS & GRADES AND MANHOLE DEPTHS ARE PRELIMINARY DESIGN AND WILL BE CONFIRMED AT DETAILED DESIGN/ENGINEERING APPROVAL STAGE.
5. LEVELS ARE IN TERMS OF WELLINGTON VERTICAL DATUM 1953 ORIGIN RM II SO 31470 - RL 3.05.
6. ALL WORKS TO COMPLY WITH THE WELLINGTON CITY COUNCIL CODE OF LAND DEVELOPMENT.
7. ALL STORMWATER PIPE TO BE RCRRJ CLASS 2 UNLESS SHOWN OTHERWISE.
8. ALL MANHOLES TO BE DN 1050 UNLESS SHOWN OTHERWISE.
9. CONTRACTOR TO CHECK ALL INVERTS AGAINST PIPE CLASHES BEFORE LAYING. ADJUSTMENT OF ANY INVERT LEVELS IS AT THE CONTRACTORS OWN RISK DUE TO TIGHT TOLERANCES.
10. PIPE LENGTH SHOWN IS THE LENGTH OF PIPE BETWEEN CENTRE OF MANHOLES.
11. HARDFILL BACKFILL ALL TRENCHES BELOW CARRIAGEWAY AND 1m EITHER SIDE OF PIPE CROSSOVERS.



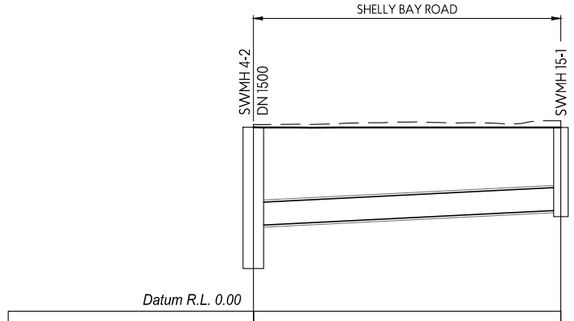
DEPTH TO INVERT	0.81		1.85
INVERT LEVEL	1.50		1.71
LID LEVEL	2.28		3.48
GRADIENT & PIPE SIZE		1.84% DN 375 Class 2	
PIPE LENGTH & MH No.	SW OUTLET 13-1	11.5m	SWMH 13-2

SW LINE 13



DEPTH TO INVERT	1.95		1.20
INVERT LEVEL	1.50		1.67
LID LEVEL	2.99		2.87
GRADIENT & PIPE SIZE		0.50% DN 300 Class 2	
PIPE LENGTH & MH No.	SWMH 13-2 DN 1500	33.6m	SWMH 14-1 DN 1050

SW LINE 14



DEPTH TO INVERT	2.30		1.45
INVERT LEVEL	1.64		1.39
LID LEVEL	3.00		2.99
GRADIENT & PIPE SIZE		1.00% DN 375 Class 4	
PIPE LENGTH & MH No.	SWMH 4-2	25.1m	SWMH 15-1

SW LINE 15

REVISIONS:

REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PJ	13-09-2016
R2	FOR DEVELOPMENT AGREEMENT	JW	21/06/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

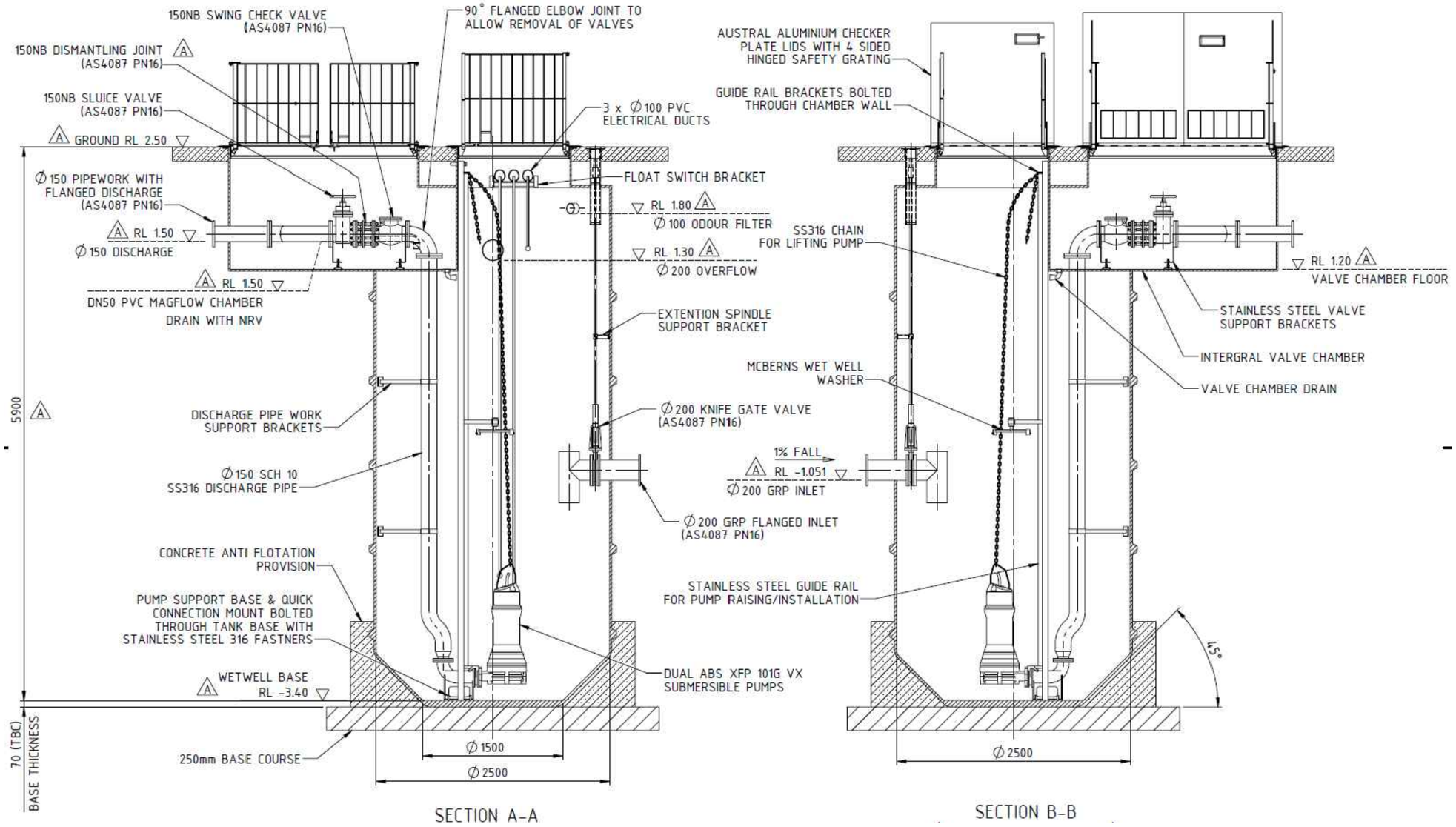
TITLE:

STORMWATER LONG SECTIONS
SHEET 5 OF 5

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: PJ DRAWN: JW
CHECKED: DM DATE: 7-Sep-2021
SCALE A1: 1:250 Horz, 1:50 Vert SCALE A3: 1:500 Horz, 1:100 Vert
STATUS: ENGINEERING APPROVAL

PROJECT No:	DRAWING No:	REVISION:
1098-01	424	E1



NOTES:

1. NOT PART OF THE CURRENT CONSENT APPLICATION.
2. DETAILS ARE PRELIMINARY AND BASED ON PROPRIETARY SUPPLIER SCHEMATIC. FINAL DESIGN IS SUBJECT TO A DESIGN BUILD TENDER.

REVISIONS:

REV	NOTES	BY	DATE
R1	FOR DEVELOPMENT AGREEMENT (INTERNAL)	JW	21/06/2021
R2	FOR DEVELOPMENT AGREEMENT	JW	09/07/2021
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

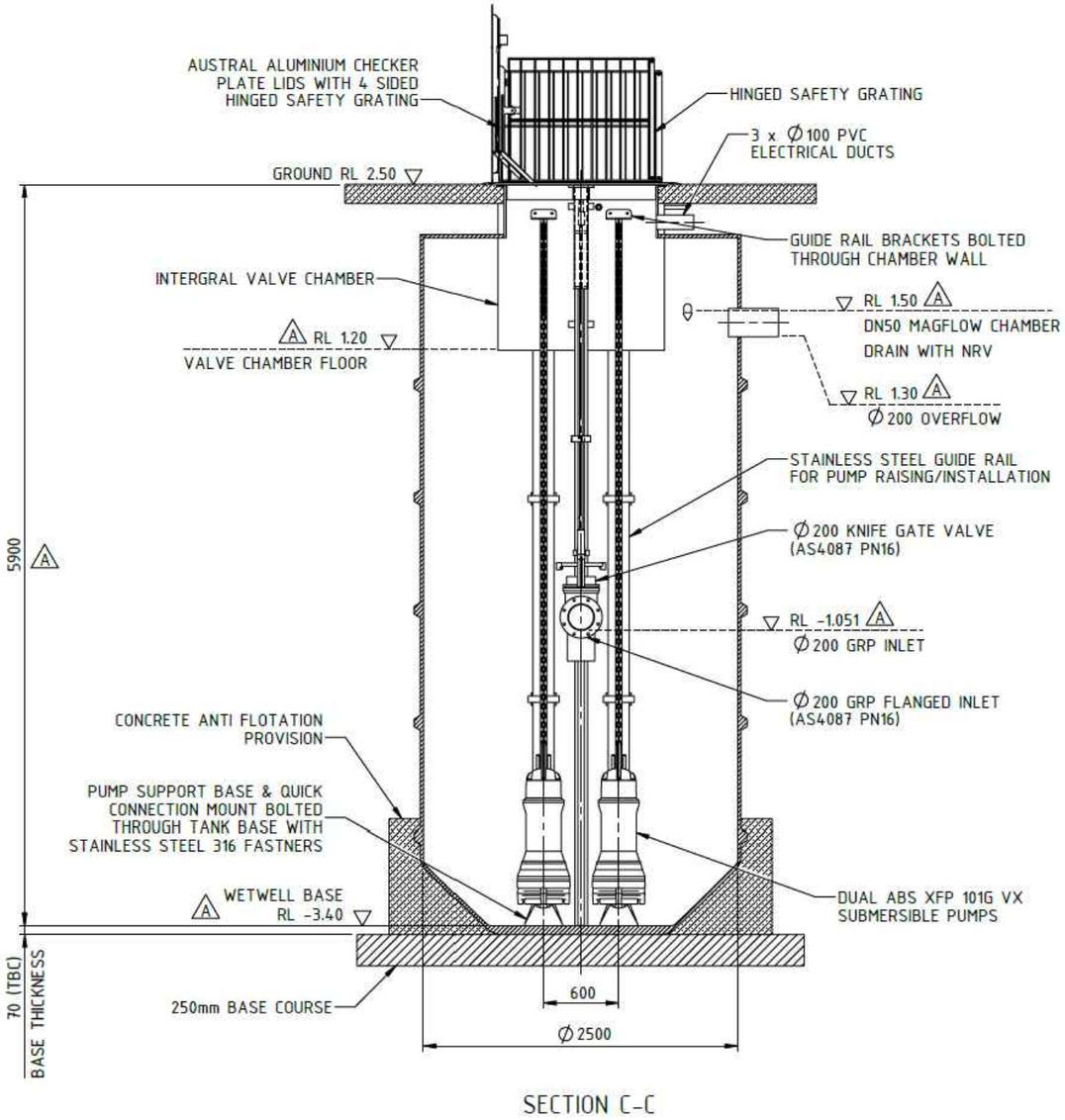
TITLE:

WASTEWATER PUMP STATION DETAILS
SHEET 1 OF 4

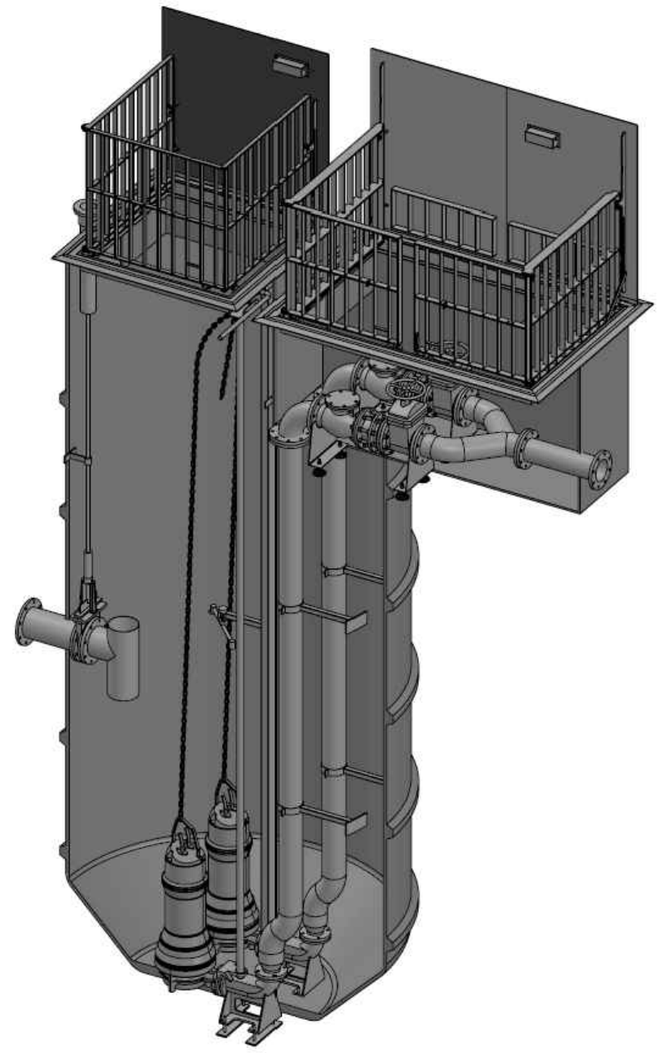
ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: -
DRAWN: JW
CHECKED: DM
DATE: 6-Sep-2021
SCALE A1: NTS
SCALE A3: NTS
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 490
REVISION: E1



SECTION C-C



NOTES:

1. NOT PART OF THE CURRENT CONSENT APPLICATION.
2. DETAILS ARE PRELIMINARY AND BASED ON PROPRIETARY SUPPLIER SCHEMATIC. FINAL DESIGN IS SUBJECT TO A DESIGN BUILD TENDER.

REVISIONS:

REV	NOTES	BY	DATE
R1	FOR DEVELOPMENT AGREEMENT (INTERNAL)	JW	21/06/2021
R2	FOR DEVELOPMENT AGREEMENT	JW	09/07/2021
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

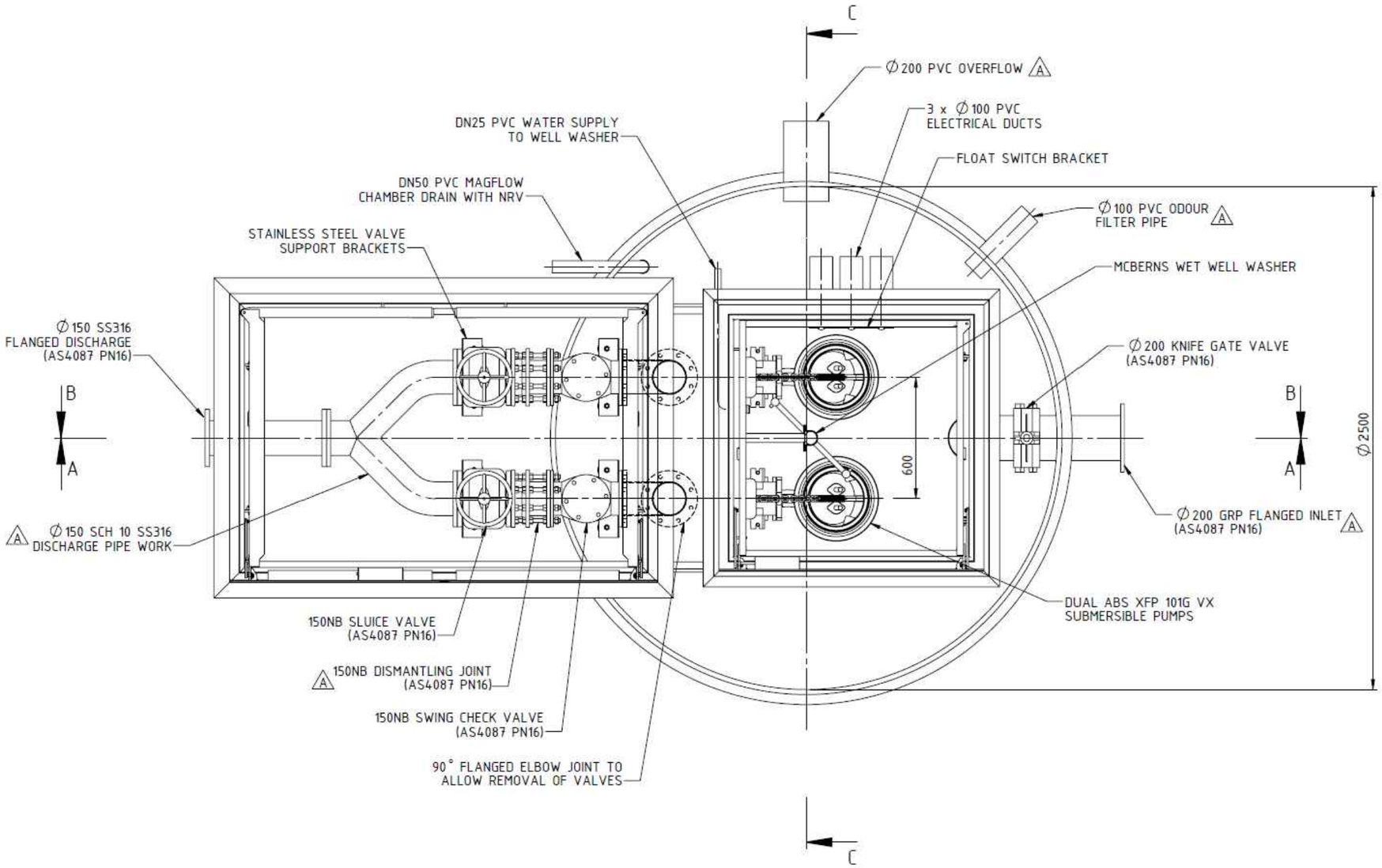
SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:

WASTEWATER PUMP STATION DETAILS
SHEET 2 OF 4

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: -
DRAWN: JW
CHECKED: DM
DATE: 6-Sep-2021
SCALE A1: NTS
SCALE A3: NTS
STATUS: ENGINEERING APPROVAL
PROJECT No: 1098-01
DRAWING No: 491
REVISION: E1



NOTES:

1. NOT PART OF THE CURRENT CONSENT APPLICATION.
2. DETAILS ARE PRELIMINARY AND BASED ON PROPRIETARY SUPPLIER SCHEMATIC. FINAL DESIGN IS SUBJECT TO A DESIGN BUILD TENDER.

REVISIONS:

REV	NOTES	BY	DATE
R1	FOR DEVELOPMENT AGREEMENT (INTERNAL)	JW	21/06/2021
R2	FOR DEVELOPMENT AGREEMENT	JW	09/07/2021
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

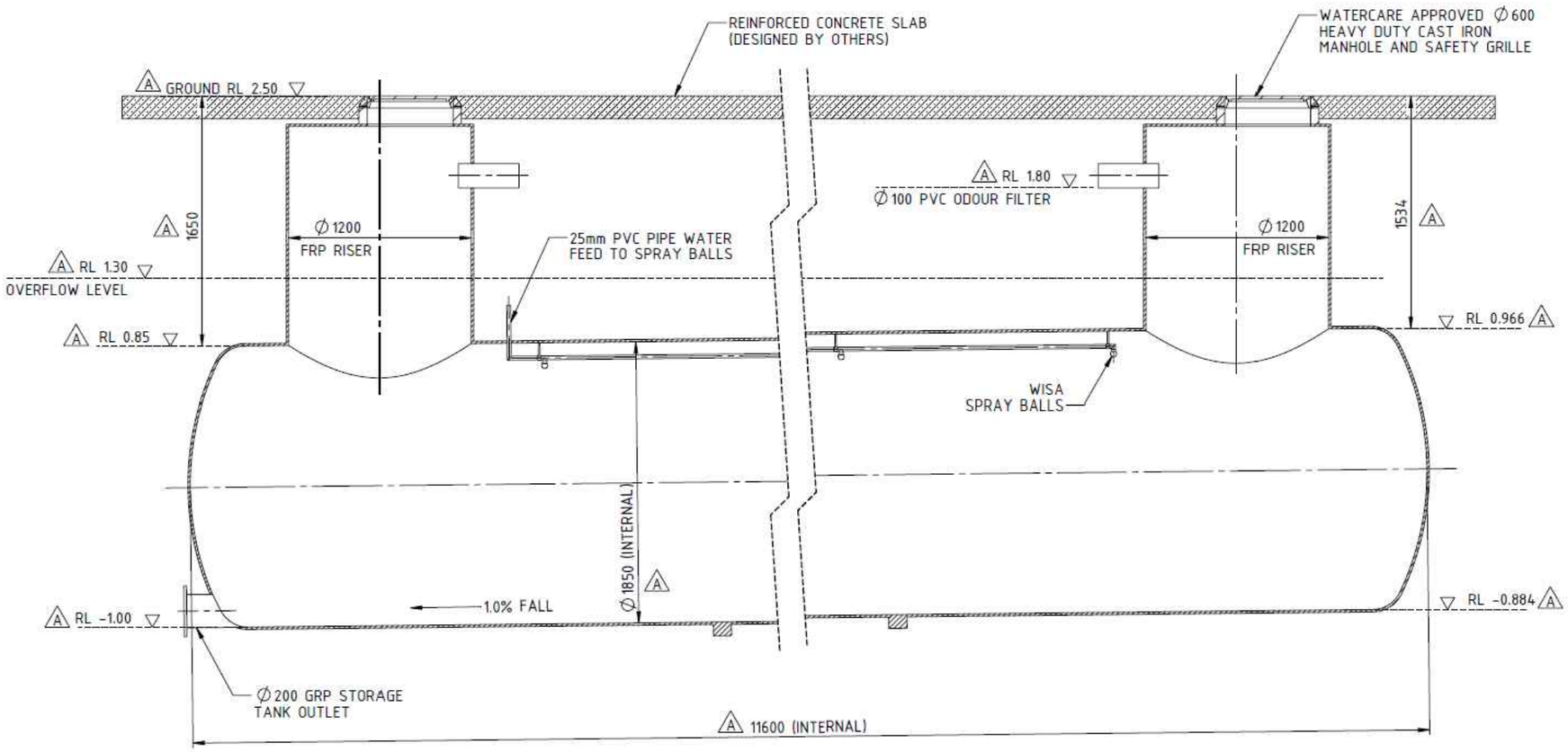
TITLE:

WASTEWATER PUMP STATION DETAILS
SHEET 3 OF 4

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: -
DRAWN: JW
CHECKED: DM
DATE: 6-Sep-2021
SCALE A1: NTS
SCALE A3: NTS
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 492
REVISION: E1



NOTES:

1. NOT PART OF THE CURRENT CONSENT APPLICATION.
2. DETAILS ARE PRELIMINARY AND BASED ON PROPRIETARY SUPPLIER SCHEMATIC. FINAL DESIGN IS SUBJECT TO A DESIGN BUILD TENDER.

REVISIONS:

REV	NOTES	BY	DATE
R1	FOR DEVELOPMENT AGREEMENT (INTERNAL)	JW	21/06/2021
R2	FOR DEVELOPMENT AGREEMENT	JW	09/07/2021
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:

WASTEWATER PUMP STATION DETAILS
SHEET 4 OF 4

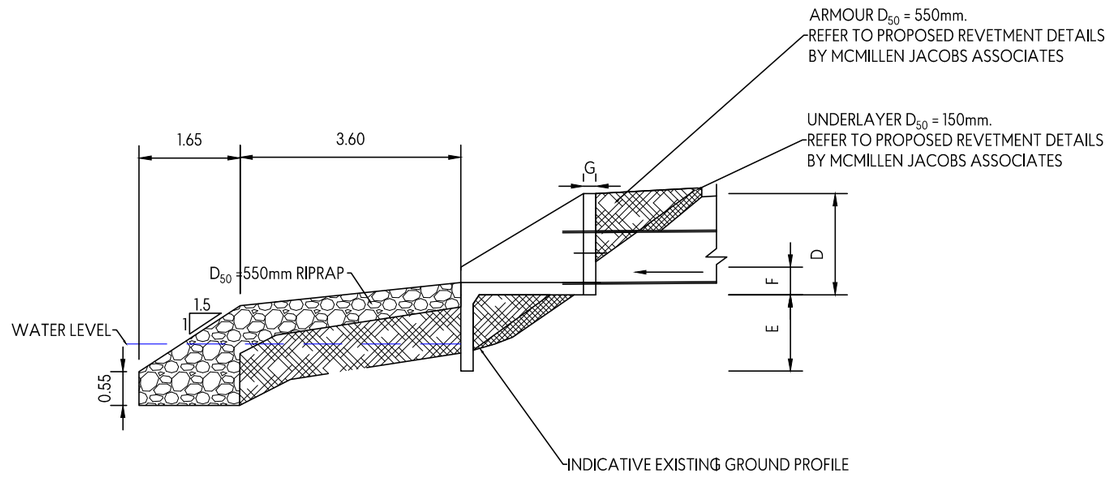
ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: -
DRAWN: JW
CHECKED: DM
DATE: 6-Sep-2021
SCALE A1: NTS
SCALE A3: NTS
STATUS: ENGINEERING APPROVAL

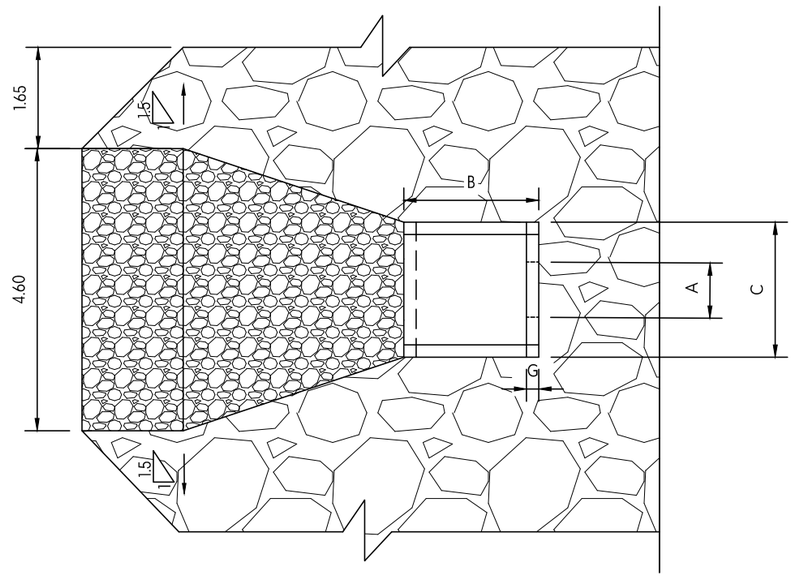
PROJECT No: 1098-01
DRAWING No: 493
REVISION: E1

1050 series Concrete Wingwall	
Dimension	Length (mm)
A	VARIES*
B	2200
C	2200
D	VARIES**
E	VARIES***
G	200

*Varies due to pipe sizing
**Varies due to Site Topography
***Varies due to sub-surface ground profile.
300mm minimum embedment depth required



SECTION A



SW OUTLET
PLAN VIEW

NOTES:

1. DESIGN LAYOUT IS INDICATIVE ONLY AND IS SUBJECT TO FINAL DESIGN BY MCMILLEN JACOBS ASSOCIATES.

REVISIONS:

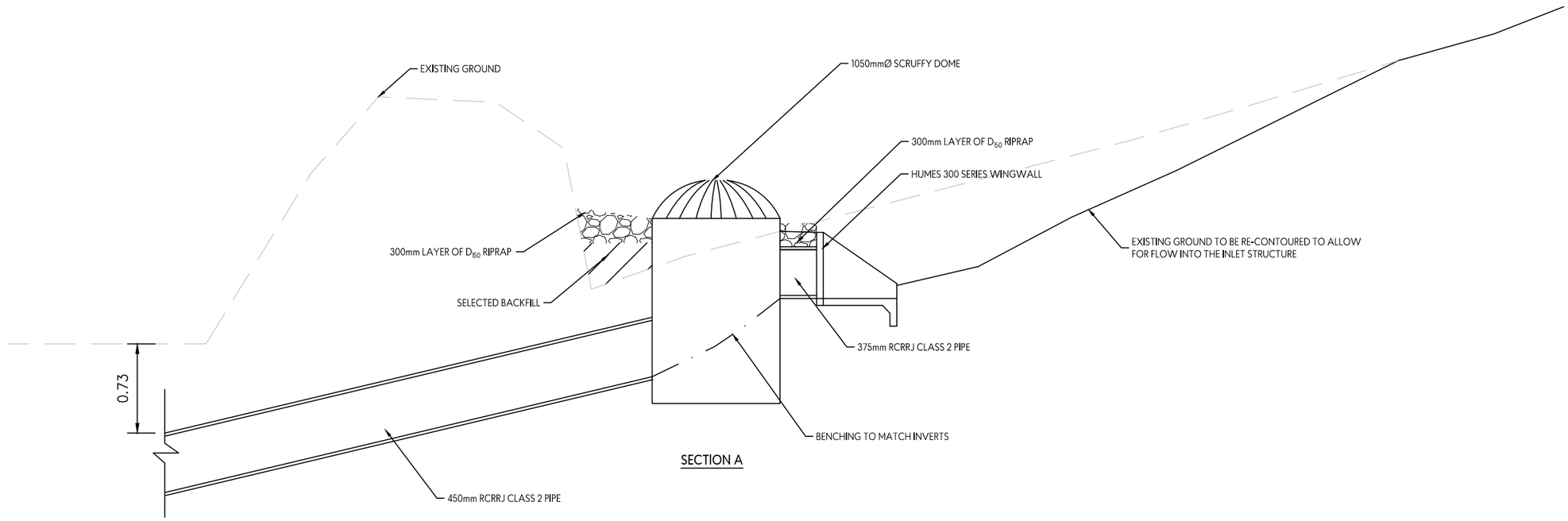
REV	NOTES	BY	DATE
R1	FOR DEVELOPMENT AGREEMENT	JW	23/06/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:
SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

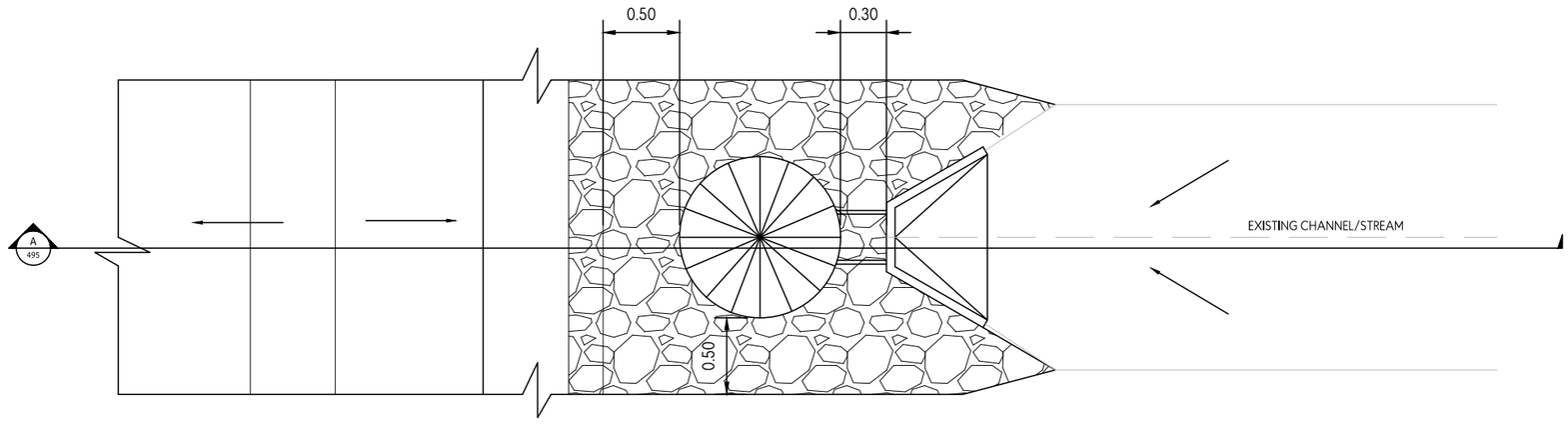
TITLE:
STORMWATER OUTLET DETAILS

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: JW
DRAWN: JW
CHECKED: DM
DATE: 6-Sep-2021
SCALE A1: 1:50
SCALE A3: 1:100
STATUS: ENGINEERING APPROVAL
PROJECT No: 1098-01
DRAWING No: 494
REVISION: E1



SECTION A



SW INLET
PLAN VIEW

REVISIONS:

REV	NOTES	BY	DATE
R1	FOR DEVELOPMENT AGREEMENT	JW	23/06/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

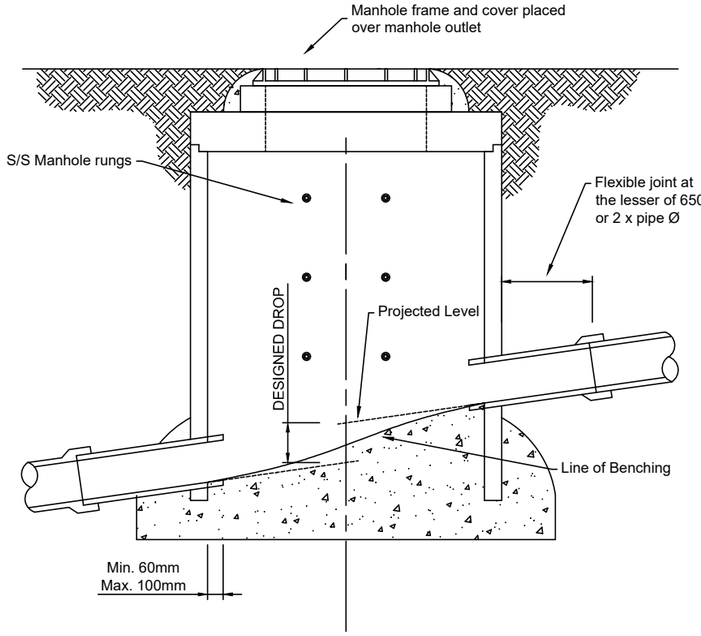
TITLE:

STORMWATER INLET DETAILS

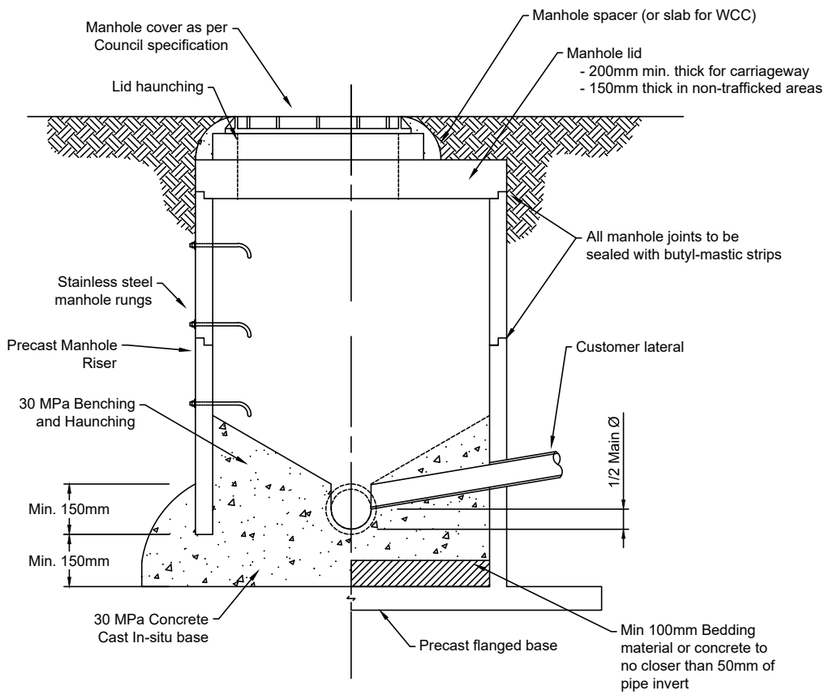
ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: JW
DRAWN: JW
CHECKED: DM
DATE: 31-Aug-2021
SCALE A1: 1:20
SCALE A3: 1:40
STATUS: ENGINEERING APPROVAL

PROJECT No:	DRAWING No:	REVISION:
1098-01	495	E1



Cross Section through Standard Manhole



Typical Manhole Benching and Haunching Details

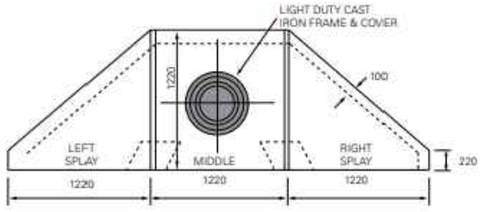
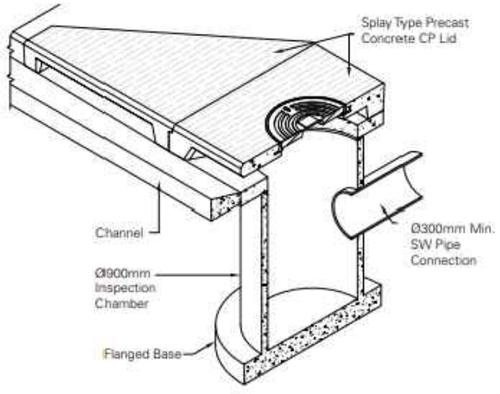
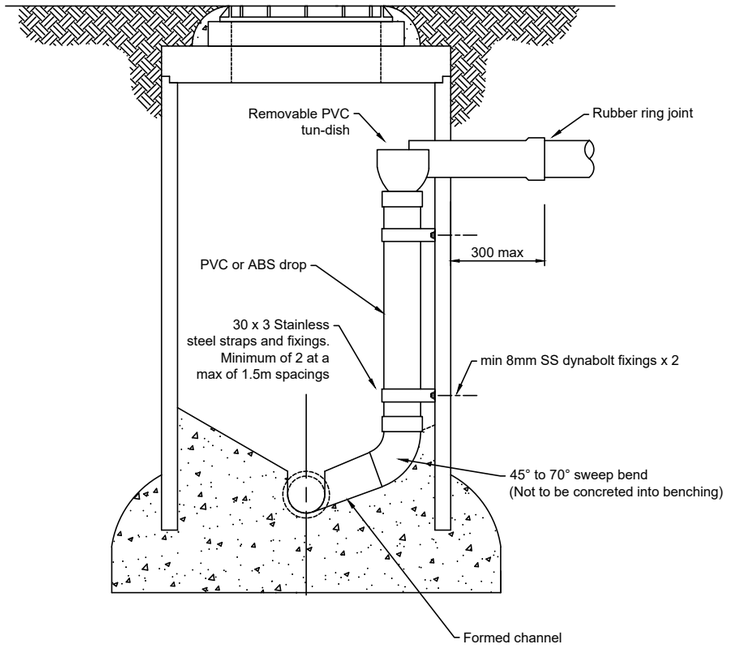
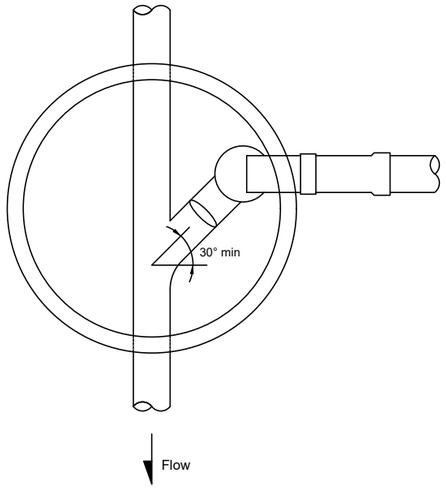


FIG. 2 Plan view (*)
(*) Hynds Catchpit Lids Design © J.McCann 2003





Typical Internal Drop Details



Plan View

NOTES:

1. DETAILS AS PER WELLINGTON WATER'S REGIONAL STANDARDS FOR WATER SERVICES

REVISIONS:

REV	NOTES	BY	DATE
R1	FOR DEVELOPMENT AGREEMENT	JW	23/06/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

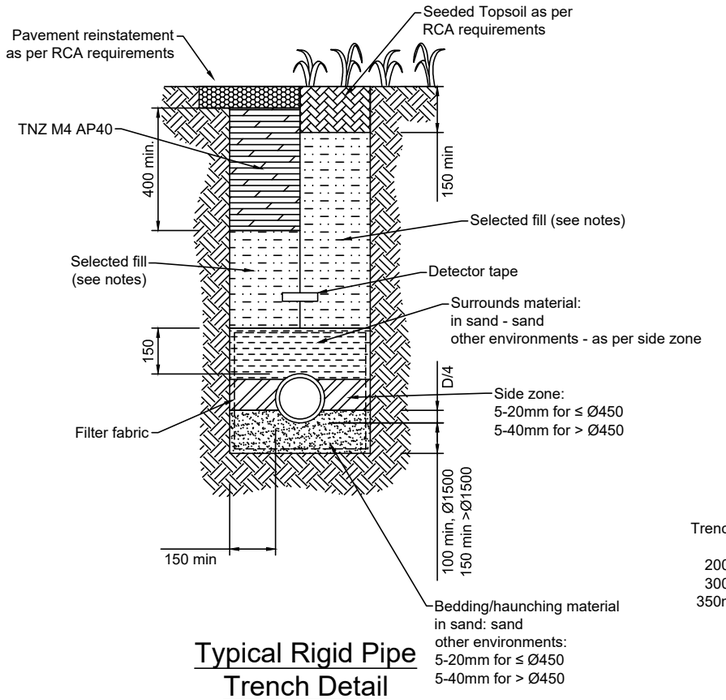
SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:

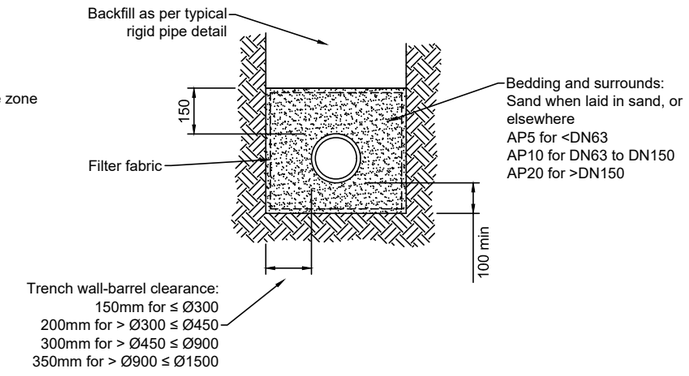
MANHOLE AND SPLAY CATCHPIT DETAILS

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

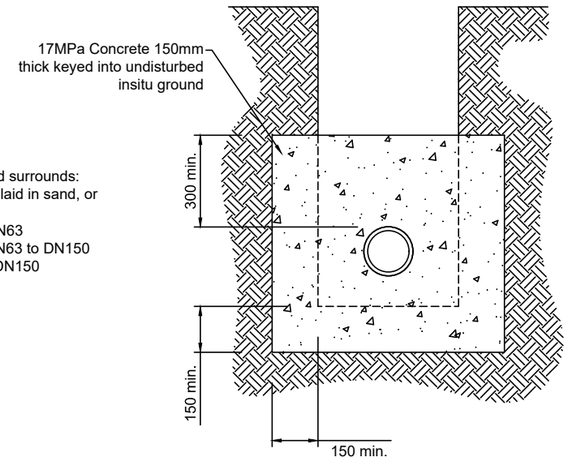
DESIGNED: JW
DRAWN: JW
CHECKED: DM
DATE: 31-Aug-2021
SCALE A1: NTS
SCALE A3: NTS
STATUS: ENGINEERING APPROVAL
PROJECT No: 1098-01
DRAWING No: 496
REVISION: E1



Typical Rigid Pipe Trench Detail



Typical Flexible Pipe Bedding and Surrounds Detail



Typical Waterstop Detail

NOTES:

1. DETAILS AS PER WELLINGTON WATER'S REGIONAL STANDARDS FOR WATER SERVICES

REVISIONS:

REV	NOTES	BY	DATE
R1	FOR DEVELOPMENT AGREEMENT	JW	23/06/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

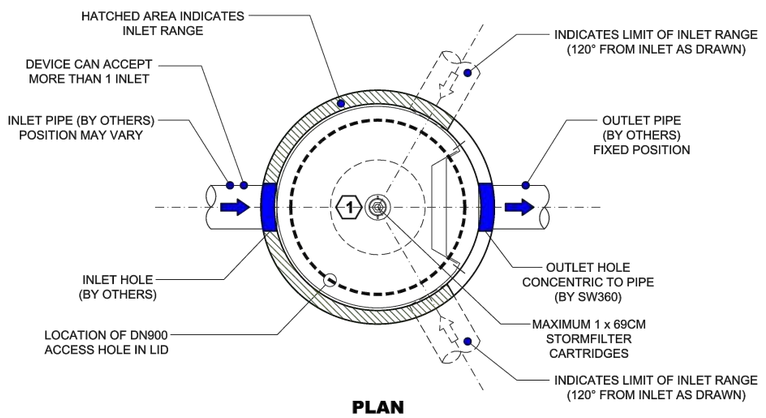
TITLE:

PIPE BEDDING AND TRENCH DETAILS

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

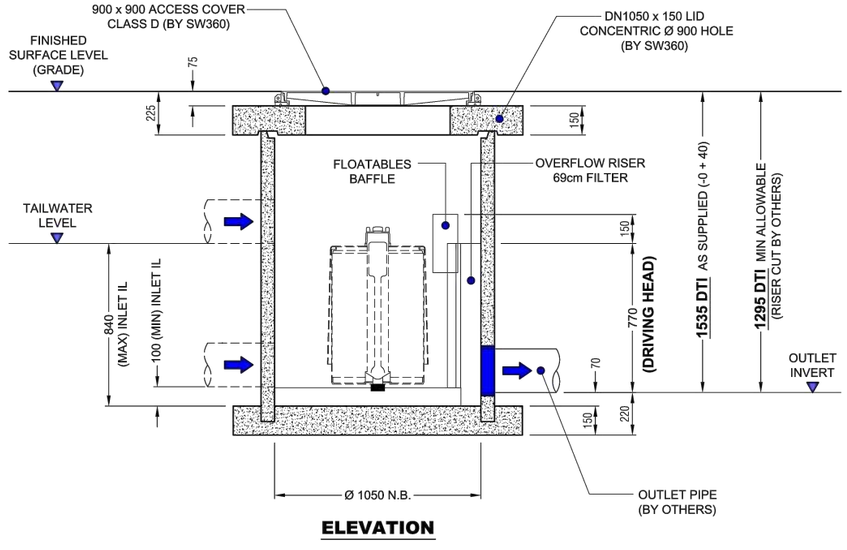
DESIGNED:	JW	DRAWN:	JW
CHECKED:	DM	DATE:	31-Aug-2021
SCALE A1:	NTS	SCALE A3:	NTS
STATUS:	ENGINEERING APPROVAL		

PROJECT No:	DRAWING No:	REVISION:
1098-01	497	E1



PLAN

(ACCESS COVER AND LID REMOVED)



ELEVATION

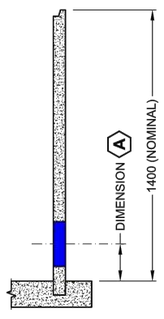
TO BE COMPLETED BY CUSTOMER / CONTRACTOR						
COMPANY :					P.O. NUMBER :	
SITE ADDRESS :						
SITE CONTACT & PHONE :						
PREFERRED DELIVERY DATE (TBC SW360) :						
STORMFILTER REFERENCE (IF APPLICABLE) :						
OUTLET HOLE Ø (CIRCLE) : *(TYPICAL PIPE MATERIAL)*	**Ø 130** *(DN100 PVC)*	**Ø 200** *(DN150 PVC)*	**Ø 225** *(DN175 PVC)*	**Ø 275** *(DN225 PVC)*	**Ø 300** *(DN225 RRJ)*	**Ø 350** *(DN300 PVC)*
LID LEVEL (RL) :		OUTLET PIPE (IL) :			DTI :	
COMPLETED BY :		SIGNED :			DATE :	

TO BE COMPLETED BY SW360				
SW360 PRODUCT CODE :				
MEDIA TYPE (CIRCLE ONE) :	PERLITE	ZPG	OTHER :	
CARTRIDGE QTY (STATE) :			PRE-INSTALLATION (Y/N) :	
SP FLOW RATE (CIRCLE ONE) :	FULL (Ø 27.6 ID) BLACK/MUSTARD	3 QTR (Ø 24.0 ID) WHITE/OPAL	HALF (Ø 19.7 ID) GREEN	OTHER :
ACCESS COVER (CIRCLE ONE) :	900 x 900 WEB-FORGE / CLASS D		OTHER :	
COMPLETED BY :	SIGNED :		DATE :	

SW360 PRODUCTION DATA

OUTLET HOLE DETAILS :

(CIRCLE REQUIREMENT)



OUTLET HOLE Ø	DIM A
130	120
200	145
225	165
275	190
300	180
350	220

DWG ISSUE No. :

REQUIRED DATE :

NOTES

1. MANHOLE UNIT FITTED WITH SWIFTLIFT ANCHOR POINTS (QTY 2). DO NOT EXCEED 60 DEGREE LIFT ANGLE. CONCRETE LID FITTED WITH SWIFTLIFT ANCHOR POINTS (QTY 4).
2. UNIT SUPPLIED WITH OUTLET CORE DRILLED. INLET/S CORE DRILLED ON SITE BY OTHERS WITHIN RANGE SHOWN ON DRAWING.
3. SEALING / GROUTING OF MANHOLE COMPONENTS AND PIPES BY CONTRACTOR. ENSURING LOCAL CODES AND REGULATIONS ARE COMPLIED WITH.
4. ANY RISERS REQUIRED TO INCREASE THE DEPTH TO INVERT (DTI) FROM THAT AS DRAWN TO BE SUPPLIED BY THE CONTRACTOR.
5. FOR A DTI EXCEEDING 5m PLEASE CONTACT **0800STORMWATER**.
6. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION RELATED EROSION RUNOFF.
7. BACKFILL, BEDDING AND BUOYANCY DESIGN BY ENGINEER OF RECORD
8. QTY OF CARTRIDGES BY ENGINEER OF RECORD.
9. CONCRETE MANHOLE RISERS ARE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH AS/NZS 4058 : 2007
10. CONCRETE MANHOLE BASES ARE DESIGNED AND MANUFACTURED IN ACCORDANCE WITH NZS 3101 : 2006 & NZS 3109 : 1997
11. CONCRETE LID DESIGNED AND MANUFACTURED TO HN-HO-72
12. FOR REQUIREMENTS OUTSIDE OF DRAWING SPECIFICATIONS PLEASE CONTACT **0800STORMWATER**.

APPROX WEIGHTS

MANHOLE SECTION INCLUDING CARTRIDGES : **1600 Kg**
(AS DELIVERED, BASED ON QTY 1 ZPG CARTS)
LID WEIGHT : **500 Kg**

Stormwater360
BETWEEN SKY AND SEA

0800 STORMWATER
sales@stormwater360.co.nz
www.stormwater360.co.nz

STORMFILTER®
CARTRIDGE FILTRATION SYSTEM
69cm CART / DN1050 x 1500 MH - TRAFFICABLE
GENERAL ARRANGEMENT

SCALE : NTS | DRG No : SF-MH-69-1050-T-20 | REV : 1 | DATE : 01.03.19

JOB NO :				REV	REVISION DETAIL	DATE
PROJECT :				0	APPROVED	01.03.19
				1	MARK-UPS	09.04.19
DRN :	R.P.	01.03.19				
CKD :	G.S.	G.Y.	01.03.19			

REVISIONS:

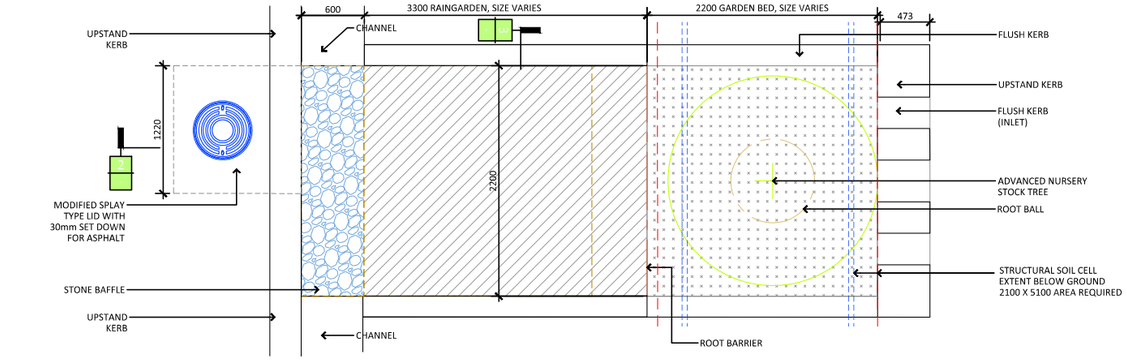
REV	NOTES	BY	DATE
R1	FOR DEVELOPMENT AGREEMENT	JW	23/06/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:
SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

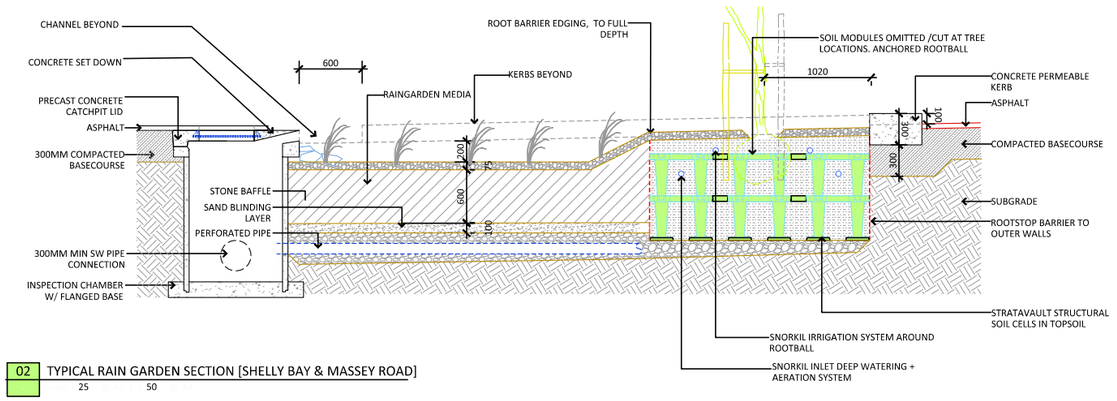
TITLE:
STORMWATER 360
STORMFILTER DETAILS

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

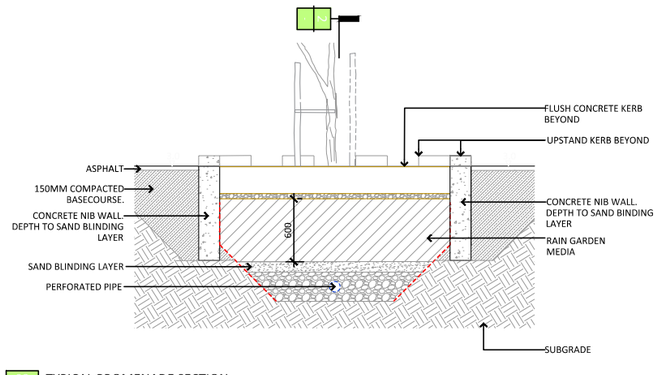
DESIGNED: - DRAWN: JW
CHECKED: DM DATE: 31-Aug-2021
SCALE A1: NTS SCALE A3: NTS
STATUS: ENGINEERING APPROVAL
PROJECT No: 1098-01 DRAWING No: 498 REVISION: E1



01 TYPICAL RAIN GARDEN [SHELLY BAY & MASSEY ROAD]



02 TYPICAL RAIN GARDEN SECTION [SHELLY BAY & MASSEY ROAD]
25 50



03 TYPICAL PROMENADE SECTION

NOTES:

1. REFER TO WAAL/LANDSCAPE ARCHITECTS FOR LANDSCAPE AND RAINGARDEN DETAILS. SUBJECT TO APPROVAL BY WELLINGTON WATER/REGIONAL COUNCIL.
2. RAINGARDEN MEDIA AS PER WELLINGTON WATER WSD SPECIFICATIONS AND LANDSCAPE ARCHITECTS ADDITIONAL DETAILS.
3. MODIFIED LID WITH 30mm SET DOWN FOR ASPHALT (NO STEEL FORMED EDGE) TO BE USED.
4. 150mm PRECAST/CAST IN PLACE BOX REINFORCED WITH HD12 AT 300mm c/s EACH WAY TO BE USED WHERE REQUIRED.

REVISIONS:

REV	NOTES	BY	DATE
E1	FOR ENGINEERING APPROVAL	JW	03/09/21

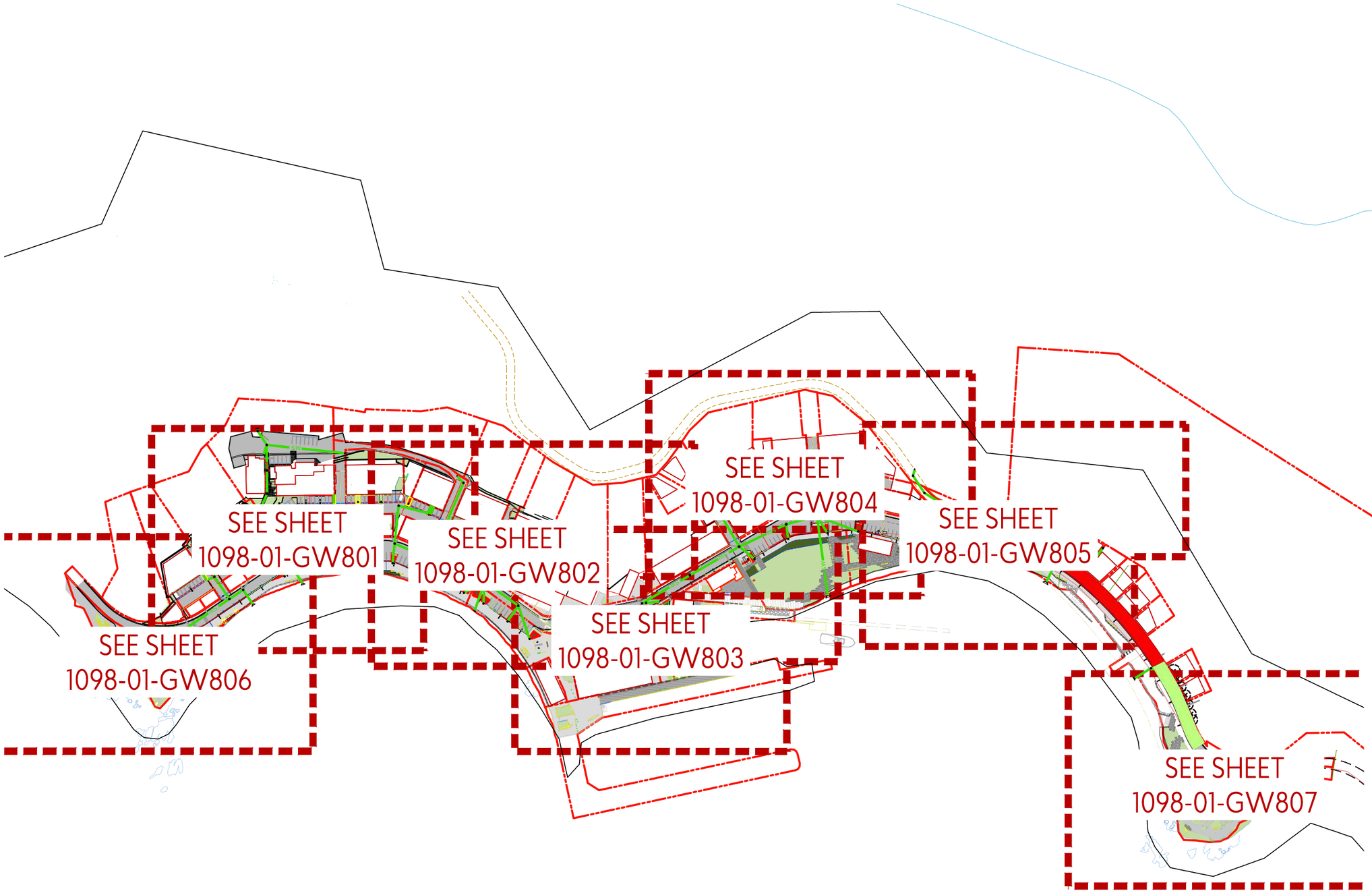
PROJECT:
SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:
RAINGARDEN DETAILS

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: JW
DRAWN: JW
CHECKED: DM
DATE: 6-Sep-2021
SCALE AI: NTS
SCALE A3: NTS
STATUS: ENGINEERING APPROVAL

PROJECT No: 1098-01
DRAWING No: 499
REVISION: E1



REVISIONS:

REV	NOTES	BY	DATE
P1	COUNCIL CONSENT ISSUE	JW	24/06/21
P2	REDRAWN - CATCHMENT FLOWPATHS SHOWN	JW	02/08/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

THE WELLINGTON COMPANY
SHELLY BAY
WELLINGTON

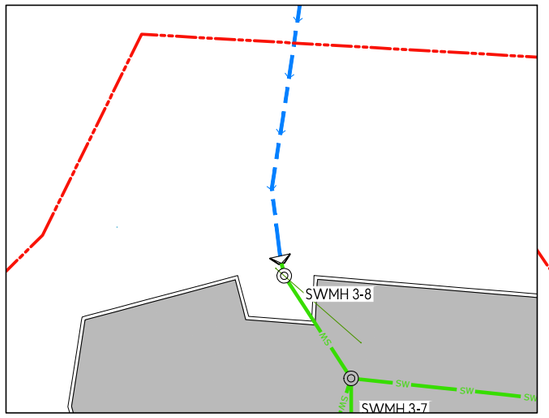
TITLE:

INTERNAL STORMWATER CATCHMENTS OVERALL LAYOUT

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: JW
DRAWN: JW
CHECKED: DM
DATE: 27-AUG-2021
SCALE A1: A1 - 1:1250,
SCALE A3: A3 - 1:2500
STATUS: COUNCIL CONSENT

PROJECT No:	DRAWING No:	REVISION:
1098-01	GW800	P1



INSERT 1

BUILDING	AREA (m^2)
B1	97.77
B2	377.87
B3	145.36
B4	630.05
B5	279.86
B6	249.65
B7	247.93
B8	411.89
B9	124.84
B10	629.14
B11	363.83
B12	375.57
B13	248.38
B14	504.00

STORMWATER QUALITY CATCHMENTS							
CATCHMENT	ROAD AREA (m^2)	ADJACENT FOOTPATH/HARDSTANDING AREAS (m^2)	TOTAL AREA (m^2)	MINIMUM RG SERVICEABLE AREA OF 2% (m^2)	RG AREA PROVIDED (m^2/%)		Ownership
A	351.93	67.93	419.31	8.39	15.30	3.65	Public
B	231.91	50.59	282.50	5.65	6.77	2.40	Public
C	236.52	51.32	287.84	5.76	7.72	2.68	Public
D	463.63	69.81	533.44	10.67	9.88	1.85	Public
E	312.74	63.89	376.63	7.53	9.08	2.41	Public
R	360.86	-	360.86	7.22	TBC	-	Private
S	283.24	-	283.24	5.66	TBC	-	Private
T	233.07	-	233.07	4.66	TBC	-	Private
U	336.90	-	336.90	6.74	TBC	-	Private
V	284.49	-	284.49	5.69	TBC	-	Private
W	474.18	-	474.18	9.48	TBC	-	Private
X	340.49	-	340.49	6.81	TBC	-	Private

Note: Non-trafficked hardstanding areas that are not anticipated to produce contaminants have been included in the 2% area treatment requirement

REVISIONS:

REV	NOTES	BY	DATE
P1	COUNCIL CONSENT ISSUE	JW	24/06/21
P2	REDRAWN - CATCHMENT FLOWPATHS SHOWN	JW	02/08/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:
THE WELLINGTON COMPANY
SHELLY BAY
WELLINGTON

TITLE:
INTERNAL STORMWATER CATCHMENTS
SHEET 1 OF 7

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: JW
DRAWN: JW
CHECKED: DM
DATE: 27-AUG-2021
SCALE A1: A1 - 1:250,
SCALE A3: A3 - 1:500
STATUS: COUNCIL CONSENT
PROJECT No: 1098-01
DRAWING No: GW801
REVISION: P1

BUILDING	AREA (m^2)
B15	391.57
B16	378.00
B17	504.93
B19	276.24
B20	1885.87
B21	99.00

STORMWATER QUALITY CATCHMENTS							
CATCHMENT	ROAD AREA (m^2)	ADJACENT FOOTPATH/HARDSTANDING AREAS (m^2)	TOTAL AREA (m^2)	MINIMUM RG SERVICEABLE AREA OF 2% (m^2)	RAINGARDEN AREA PROVIDED (m^2|%)		OWNERSHIP
F	389.63	32.40	422.03	8.44	7.76	1.84	Public
G	224.92	32.33	257.25	5.15	13.76	5.35	Public
H	254.45	31.23	285.68	5.71	13.79	4.83	Public
I	172.32	97.54	269.86	5.40	7.25	2.69	Public
J	301.29	285.82	587.11	11.74	13.86	2.36	Public
W	474.18	-	474.18	9.48	TBC	-	Private
X	340.49	-	340.49	6.81	TBC	-	Private
Y	516.09	-	516.09	10.32	TBC	-	Private
Z	387.52	-	387.52	7.75	TBC	-	Private

Note: Non-trafficked hardstanding areas that are not anticipated to produce contaminants have been included in the 2% area treatment requirement

REVISIONS:

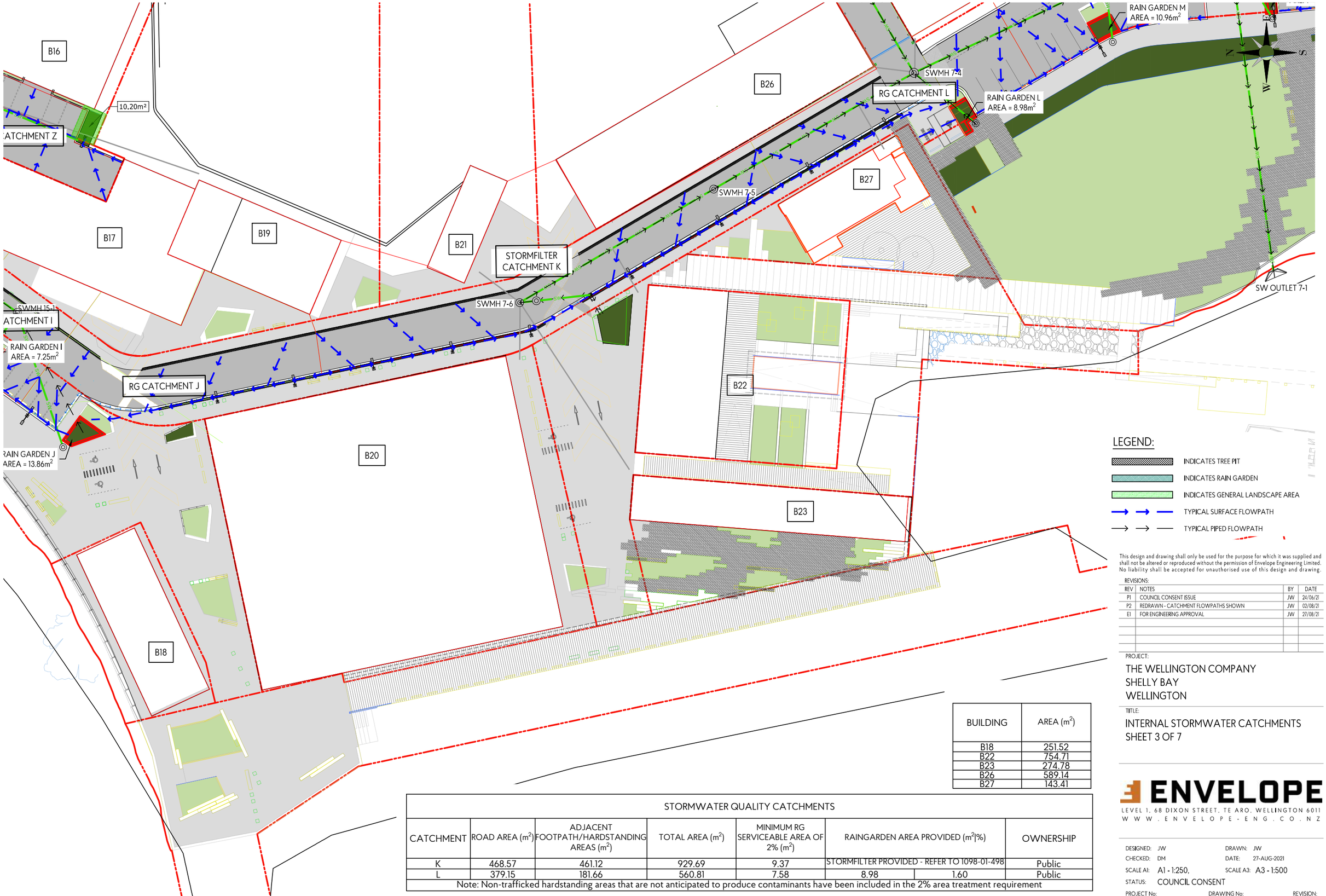
REV	NOTES	BY	DATE
P1	COUNCIL CONSENT ISSUE	JW	24/06/21
P2	REDRAWN - CATCHMENT FLOWPATHS SHOWN	JW	02/08/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:
THE WELLINGTON COMPANY
SHELLY BAY
WELLINGTON

TITLE:
INTERNAL STORMWATER CATCHMENTS
SHEET 2 OF 7

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: JW
DRAWN: JW
CHECKED: DM
DATE: 27-AUG-2021
SCALE A1: A1 - 1:250,
SCALE A3: A3 - 1:500
STATUS: COUNCIL CONSENT
PROJECT No: 1098-01
DRAWING No: GW802
REVISION: P1



BUILDING	AREA (m^2)
B18	251.52
B22	754.71
B23	274.78
B26	589.14
B27	143.41

STORMWATER QUALITY CATCHMENTS							
CATCHMENT	ROAD AREA (m^2)	ADJACENT FOOTPATH/HARDSTANDING AREAS (m^2)	TOTAL AREA (m^2)	MINIMUM RG SERVICEABLE AREA OF 2% (m^2)	RAINGARDEN AREA PROVIDED (m^2|%)		OWNERSHIP
K	468.57	461.12	929.69	9.37	STORMFILTER PROVIDED - REFER TO 1098-01-498		Public
L	379.15	181.66	560.81	7.58	8.98	1.60	Public
Note: Non-trafficked hardstanding areas that are not anticipated to produce contaminants have been included in the 2% area treatment requirement							

REVISIONS:

REV	NOTES	BY	DATE
P1	COUNCIL CONSENT ISSUE	JW	24/06/21
P2	REDRAWN - CATCHMENT FLOWPATHS SHOWN	JW	02/08/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

THE WELLINGTON COMPANY
SHELLY BAY
WELLINGTON

TITLE:

INTERNAL STORMWATER CATCHMENTS
SHEET 3 OF 7

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: JW
DRAWN: JW
CHECKED: DM
DATE: 27-AUG-2021
SCALE A1: A1 - 1:250,
SCALE A3: A3 - 1:500
STATUS: COUNCIL CONSENT
PROJECT No: 1098-01
DRAWING No: GW803
REVISION: P1

STORMWATER QUALITY CATCHMENTS							
CATCHMENT	ROAD AREA (m^2)	ADJACENT FOOTPATH/HARDSTANDING AREAS (m^2)	TOTAL AREA (m^2)	MINIMUM RG SERVICEABLE AREA OF 2% (m^2)	RAINGARDEN AREA PROVIDED (m^2|%)		OWNERSHIP
M	436.21	113.77	549.98	11.00	10.96	1.99	Public
N	183.31	30.51	213.82	4.28	7.14	3.34	Public
O	278.42	90.88	369.30	7.39	12.8	3.47	Public
P	260.90	59.54	320.44	6.41	7.03	2.19	Public
AA	550.52	-	550.52	11.01	TBC	-	Private
AB	328.39	-	328.39	6.57	TBC	-	Private
AC	247.39	-	247.39	4.95	TBC	-	Private
AD	278.42	-	278.42	5.57	TBC	-	Private
Note: Non-trafficked hardstanding areas that are not anticipated to produce contaminants have been included in the 2% area treatment requirement							

BUILDING	AREA (m^2)
B24	100.23
B25	100.04
B28	628.88
B29	361.73
B30	474.57
B31	268.93
B32	503.14
B33	335.15
B34	135.79
B35	311.56
B36	167.81

LEGEND:

- INDICATES TREE PIT
- INDICATES RAIN GARDEN
- INDICATES GENERAL LANDSCAPE AREA
- TYPICAL SURFACE FLOWPATH
- TYPICAL PIPED FLOWPATH

REVISIONS:

REV	NOTES	BY	DATE
P1	COUNCIL CONSENT ISSUE	JW	24/06/21
P2	REDRAWN - CATCHMENT FLOWPATHS SHOWN	JW	02/08/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

THE WELLINGTON COMPANY
SHELLY BAY
WELLINGTON

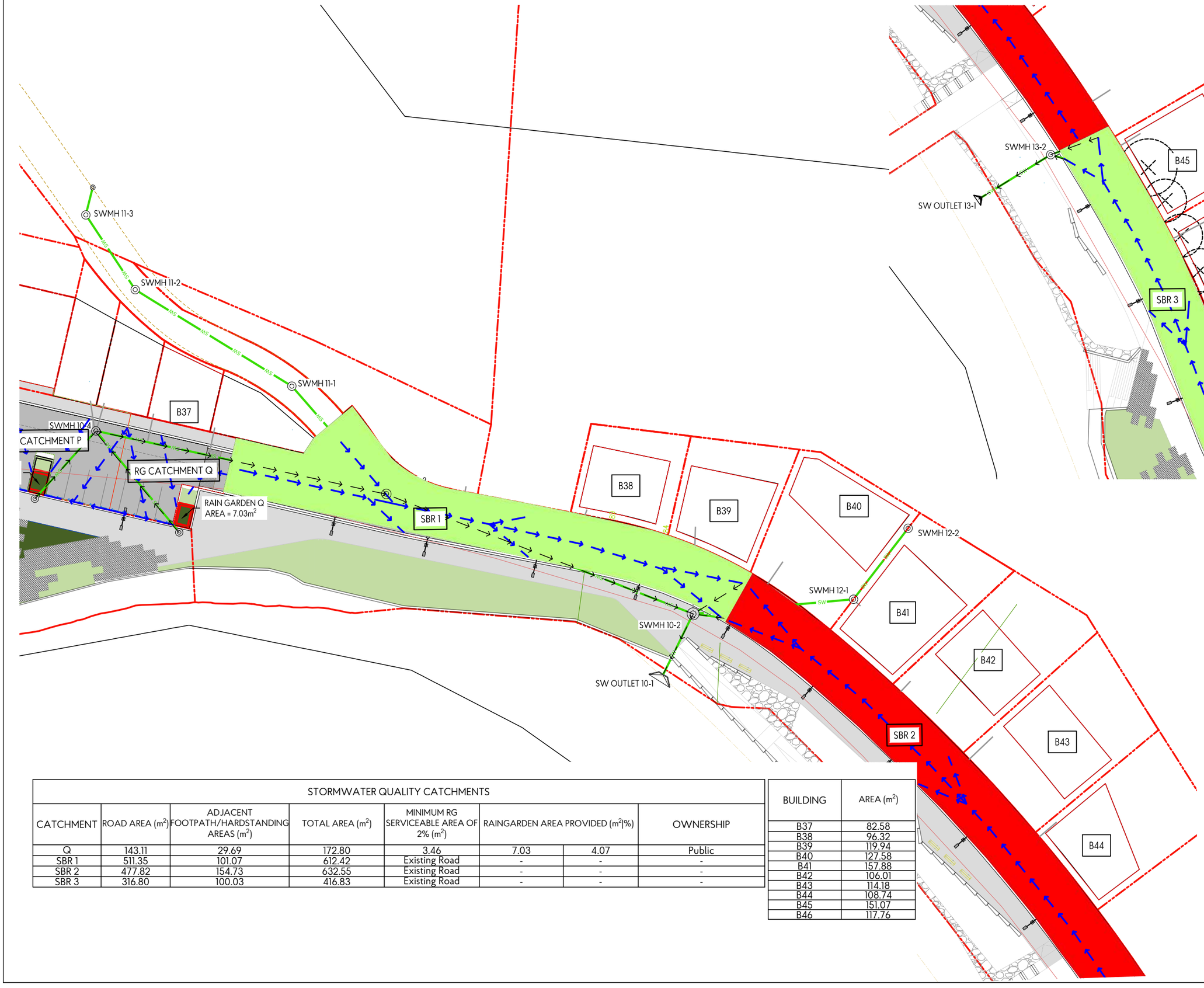
TITLE:

INTERNAL STORMWATER CATCHMENTS
SHEET 4 OF 7

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: JW
DRAWN: JW
CHECKED: DM
DATE: 27-AUG-2021
SCALE A1: A1 - 1:250,
SCALE A3: A3 - 1:500
STATUS: COUNCIL CONSENT

PROJECT No: 1098-01
DRAWING No: GW804
REVISION: P1



LEGEND:

- INDICATES TREE PIT
- INDICATES RAIN GARDEN
- INDICATES GENERAL LANDSCAPE AREA
- TYPICAL SURFACE FLOWPATH
- TYPICAL PIPED FLOWPATH

REVISIONS:

REV	NOTES	BY	DATE
P1	COUNCIL CONSENT ISSUE	JW	24/06/21
P2	REDRAWN - CATCHMENT FLOWPATHS SHOWN	JW	02/08/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

THE WELLINGTON COMPANY
SHELLY BAY
WELLINGTON

TITLE:

INTERNAL STORMWATER CATCHMENTS
SHEET 5 OF 7

STORMWATER QUALITY CATCHMENTS

CATCHMENT	ROAD AREA (m^2)	ADJACENT FOOTPATH/HARDSTANDING AREAS (m^2)	TOTAL AREA (m^2)	MINIMUM RG SERVICEABLE AREA OF 2% (m^2)	RAINGARDEN AREA PROVIDED (m^2|%)		OWNERSHIP
Q	143.11	29.69	172.80	3.46	7.03	4.07	Public
SBR 1	511.35	101.07	612.42	Existing Road	-	-	-
SBR 2	477.82	154.73	632.55	Existing Road	-	-	-
SBR 3	316.80	100.03	416.83	Existing Road	-	-	-

BUILDING	AREA (m^2)
B37	82.58
B38	96.32
B39	119.94
B40	127.58
B41	157.88
B42	106.01
B43	114.18
B44	108.74
B45	151.07
B46	117.76

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: JW DRAWN: JW
CHECKED: DM DATE: 27-AUG-2021
SCALE A1: A1 - 1:250, SCALE A3: A3 - 1:500
STATUS: COUNCIL CONSENT

PROJECT No: 1098-01
DRAWING No: GW805
REVISION: P1

FLOWS FROM CARPARK WILL DRAIN TOWARDS ROCKY COASTAL PLANTING WHICH ACT AS FILTER STRIPS FOR SEDIMENT CONTROL PRIOR TO RUNOFF ENTERING THE COASTAL MANAGEMENT AREA.

LEGEND:

- INDICATES TREE PIT
- INDICATES RAIN GARDEN
- INDICATES GENERAL LANDSCAPE AREA
- TYPICAL SURFACE FLOWPATH
- TYPICAL PIPED FLOWPATH

REVISIONS:

REV	NOTES	BY	DATE
P1	COUNCIL CONSENT ISSUE	JW	24/06/21
P2	REDRAWN - CATCHMENT FLOWPATHS SHOWN	JW	02/08/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

THE WELLINGTON COMPANY
SHELLY BAY
WELLINGTON

TITLE:

INTERNAL STORMWATER CATCHMENTS
SHEET 6 OF 7
NORTH BAY CARPARK

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: JW
DRAWN: JW
CHECKED: DM
DATE: 27-AUG-2021
SCALE A1: A1 - 1:250,
SCALE A3: A3 - 1:500
STATUS: COUNCIL CONSENT

PROJECT No: 1098-01
DRAWING No: GW806
REVISION: P1

FLOWS FROM CARPARK WILL DRAIN TOWARDS ROCKY COASTAL PLANTING WHICH ACT AS FILTER STRIPS FOR SEDIMENT CONTROL PRIOR TO RUNOFF ENTERING THE COASTAL MANAGEMENT AREA.

REVISIONS:

REV	NOTES	BY	DATE
P1	COUNCIL CONSENT ISSUE	JW	24/06/21
P2	REDRAWN - CATCHMENT FLOWPATHS SHOWN	JW	02/08/21
E1	FOR ENGINEERING APPROVAL	JW	27/08/21

PROJECT:

THE WELLINGTON COMPANY
SHELLY BAY
WELLINGTON

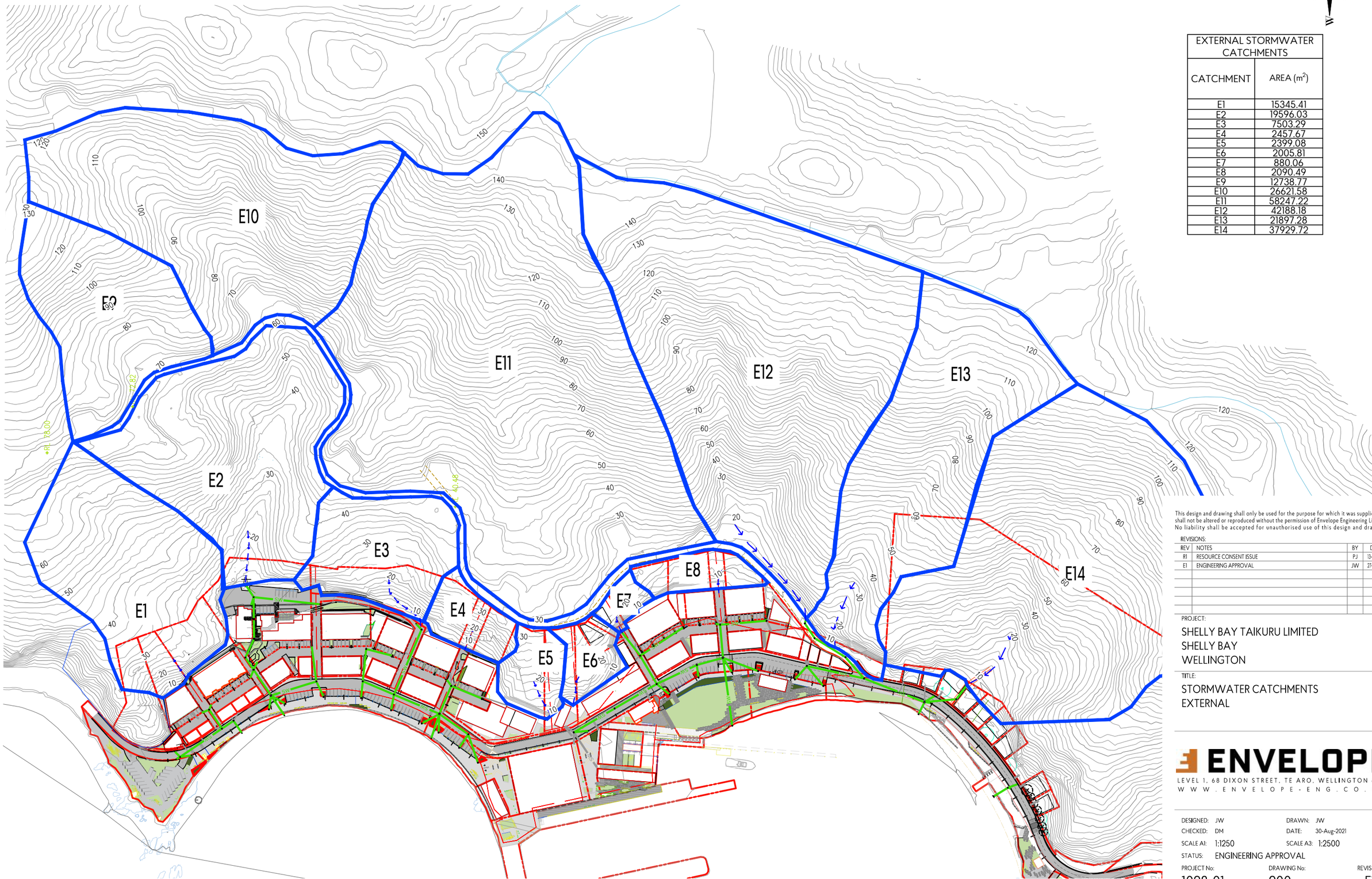
TITLE:

INTERNAL STORMWATER CATCHMENTS
SHEET 7 of 7
SOUTH BAY CARPARK

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: JW
DRAWN: JW
CHECKED: DM
DATE: 27-AUG-2021
SCALE A1: A1 - 1:250,
SCALE A3: A3 - 1:500
STATUS: COUNCIL CONSENT

PROJECT No:	DRAWING No:	REVISION:
1098-01	GW807	P1



EXTERNAL STORMWATER CATCHMENTS	
CATCHMENT	AREA (m^2)
E1	15345.41
E2	19596.03
E3	7503.29
E4	2457.67
E5	2399.08
E6	2005.81
E7	880.06
E8	2090.49
E9	12738.77
E10	26621.58
E11	58247.22
E12	42188.18
E13	21897.28
E14	37929.72

REVISIONS:

REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PJ	13-09-2016
E1	ENGINEERING APPROVAL	JW	27-08-2021

PROJECT:

SHELLY BAY TAIKURU LIMITED
SHELLY BAY
WELLINGTON

TITLE:

STORMWATER CATCHMENTS
EXTERNAL

ENVELOPE
LEVEL 1, 68 DIXON STREET, TE ARO, WELLINGTON 6011
WWW.ENVELOPE-ENG.CO.NZ

DESIGNED: JW
DRAWN: JW
CHECKED: DM
DATE: 30-Aug-2021
SCALE A1: 1:1250
SCALE A3: 1:2500
STATUS: ENGINEERING APPROVAL
PROJECT No: 1098-01
DRAWING No: 900
REVISION: E1