

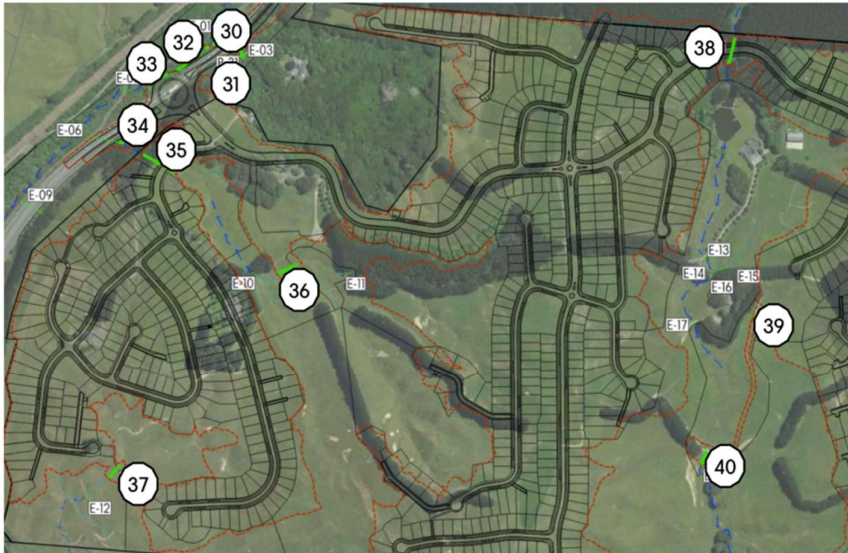


CULVERT DETAILS

MT WELCOME, PUKERUA BAY

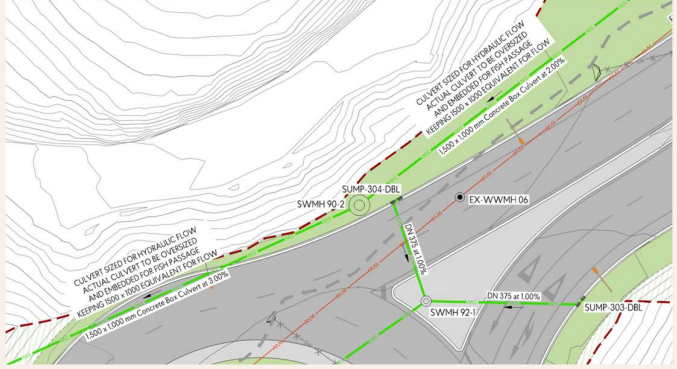
TO	Pukerua Property Group LP	DATE	04 August 2026
PROJECT NAME	Mt Welcome	ENVELOPE REF	1753-02
ATTENTION	William Dorset	FROM	Kyle Dirse
EMAIL ADDRESS	william.dorset@classicdevelopments.co.nz		

This memo has been prepared by Envelope in response to the culvert-related concerns raised by Greater Wellington in Table 1 of their section 53 comments on the Mt Welcome fast-track application (FTAA-2603-1181). It addresses each identified culvert issue identified, responding to the specific feasibility, scour, and maintenance access concerns raised, and confirming where further detailed design will be provided to satisfy GWRC's recommendations. The below figures are sourced from the Stormwater Management Plan Section 6.12 along with information pulled from the Minute 3 response to culvert design.



Culvert ID	Diameter	Length	Grade	Note
P-30	750mm	56m	1.20%	Replace E-02 with 750mm Dia
P-31	375mm	13m	10.00%	Second High Level Inlet With E-03
P-32	1500 x 1000 Box	45m	2.00%	Piping of stream to allow SH59 upgrade
P-33	1500 x 1000 Box	58m	3.00%	Piping of stream to allow SH59 upgrade
P-34	600mm	10m	3.60%	Extension of E-06
P-35	600 to 900 mm	60.5m	1.5% - 6%	Retention Wetland B Outlet
P-36	450 to 675 mm	36m	10% - 15%	Retention Wetland C Outlet
P-37	600mm	28m	14% - 25%	Retention Wetland A Outlet
P-38	900mm	44m	3.50%	Road/Stream Crossing
P-39	600mm	10m	2.00%	Replace E-18 with 600mm Dia
P-40	350 to 2100 mm	28.5m	5% - 6%	Retention Wetland E Outlet



CULVERT	CONCERN	RECOMMENDATION	ENVELOPE RESPONSE
Culvert 33, 32	The wingwall of these structures are far to close together to be feasible.	Further design is required. As changes to culvert/pipe 90 will impact overall roundabout design.	These structures are connected by a large manhole and will not have wingwalls at this close connection point. This arrangement is required due to site constraints, but the crossing is still treated as a culvert comprising two distinct sections, Culvert 33 and Culvert 32. 
Culvert 33, 32	The length and alignment of Culvert 90 raise concerns regarding maintenance access and the potential for blockage. The pipe is of significant length and changes direction at Sump 304, which may increase operational and maintenance challenges.	Further design with considerations with regards to maintenance and access should be supplied.	Access can be provided at the outlet from SH59 or from the shared path; however, this will result in the clearance of some additional SNA area. Generally, the culvert will need to be accessed from the shared path or the highway, but easy access will be limited. Any increase in access provision would require further SNA clearance or stream realignment.
Culvert 34 and 35	The T3 Post culvert wingwall appears to be positioned at an extreme angle, which may affect the culvert's function and potentially result in scour or increased ponding. There may also be consequential impacts on the drainage of Retention Wetland B.	Further details on how this should be undertaken to ensure no impacts on Retention Wetland B or scour on inflow ad Culvert T3.	SW-IN-95-NEW wingwall can be oversized to ensure clear path into the Culvert while maintaining parallel headwall direction to the fill batter. This can be detailed at Engineering Approval Phase
Culvert 37	Velocities out of the pipe have the potential for scour, specific design for riprap and maintenance should be sort. the probability of impacts is high, potential to improve these after the fact will be difficult due to location.	More specific design detail is required to ensure culvert feasibility.	As noted on plan 1753-02-4904-R2, Size of all scour protection and rocks shall be designed specifically at Engineering Approval Phase for each outlet/culvert



CULVERT	CONCERN	RECOMMENDATION	ENVELOPE RESPONSE
Culvert 36	Velocities out of the pipe have the potential for scour, specific design for riprap and maintenance should be sort. the probability of impacts is high, potential to improve these after the fact will be difficult due to location.	More specific design detail is required to ensure culvert feasibility.	As noted on plan 1753-02-4904-R2, Size of all scour protection and rocks shall be designed specifically at Engineering Approval Phase for each outlet/culvert
Culvert 40	Outlet velocities from the pipe have the potential to cause scour. Specific design details should be provided for riprap protection and ongoing maintenance requirements. The likelihood of impacts is high, and retrofitting mitigation after construction is likely to be difficult due to the location. There is also potential for outflows to affect EX DN750 due to its proximity downstream.	It is likely that EX DN 750 will overtop. The impacts of this should be assessed. More specific design detail is required to ensure culvert feasibility.	The flows from SW-OUT 72-1 are very similar to pre-development flows and the existing DN 750 likely overtops in the existing scenario. This culvert is outside the project area and proposed works, so specific design is not planned for the Ex-culvert downstream.
Culvert 38	This culvert is expected to convey significant velocities and discharges through the working farm area. The stormwater drawings provided indicate that other stormwater outlets may also discharge to this location. Based on the schematic, the proposed arrangement appears overly complex, and its feasibility is uncertain.	More specific design detail is required to ensure culvert feasibility.	North of Culvert 38 is an access track with a blocked culvert. This blocks most flows except during large 1-in-100-year events, where the access track may overtop. Velocities and flows are typically expected to be low. We do not consider the arrangement to be complex; it is a standard culvert under a road that will require typical design features. This will be detailed at the Engineering Approval phase. 



Detailed design requirements

Any consent issued should be conditional upon the detailed design being completed and demonstrating/confirming that:

REF	REQUIREMENT	ENVELOPE RESPONSE
(a)	The design of each culvert does not result in an increase in flood depth, flood velocity, or flood hazard compared to the site flood assessment;	Agreed and Stormwater modelling has been undertaken to check pre vs post development flows and flooding.
(b)	Each culvert inlet and outlet is protected against erosion and scour;	Agreed and as noted on plan 1753-02-4904-R2.
(c)	Each culvert is designed to avoid any aggradation, erosion, and scour of the bed, including any erosion and scour at the inlet and the outlet of the culvert;	Agreed and as noted on plan 1753-02-4904-R2.
(d)	Each culvert will avoid causing or increasing flooding on any neighbouring property;	Agreed. Stormwater modelling has been undertaken to check pre vs post development flows and flooding.
(e)	Each culvert is designed to avoid blockage by debris or other geomorphic processes (such as the movement of sediment).	Agreed. This will form part of the standard culvert inlet design.



Client Pukerua Property Group LP
Project Site Mt Welcome
Envelope Ref 1753-02
Version 1
Date 3/6/2026



Outputs from ICM Cut-Off Model

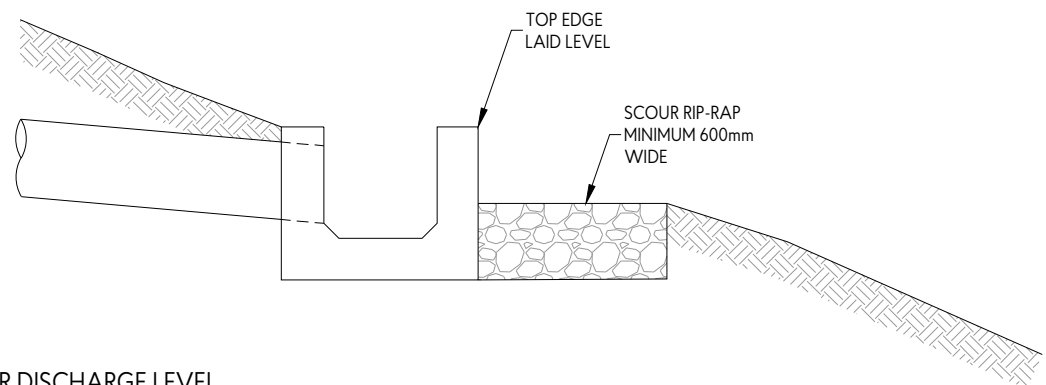
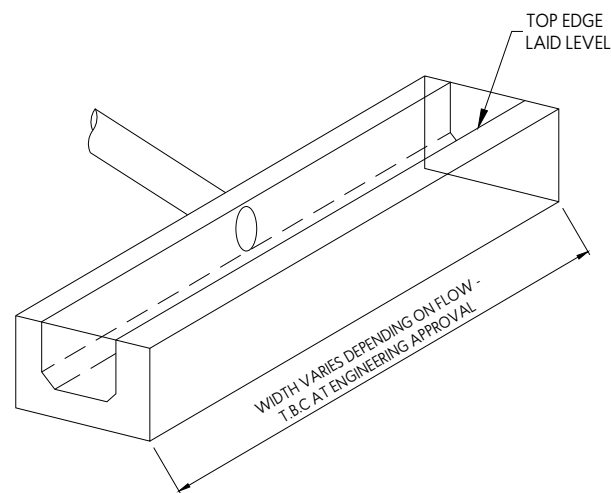
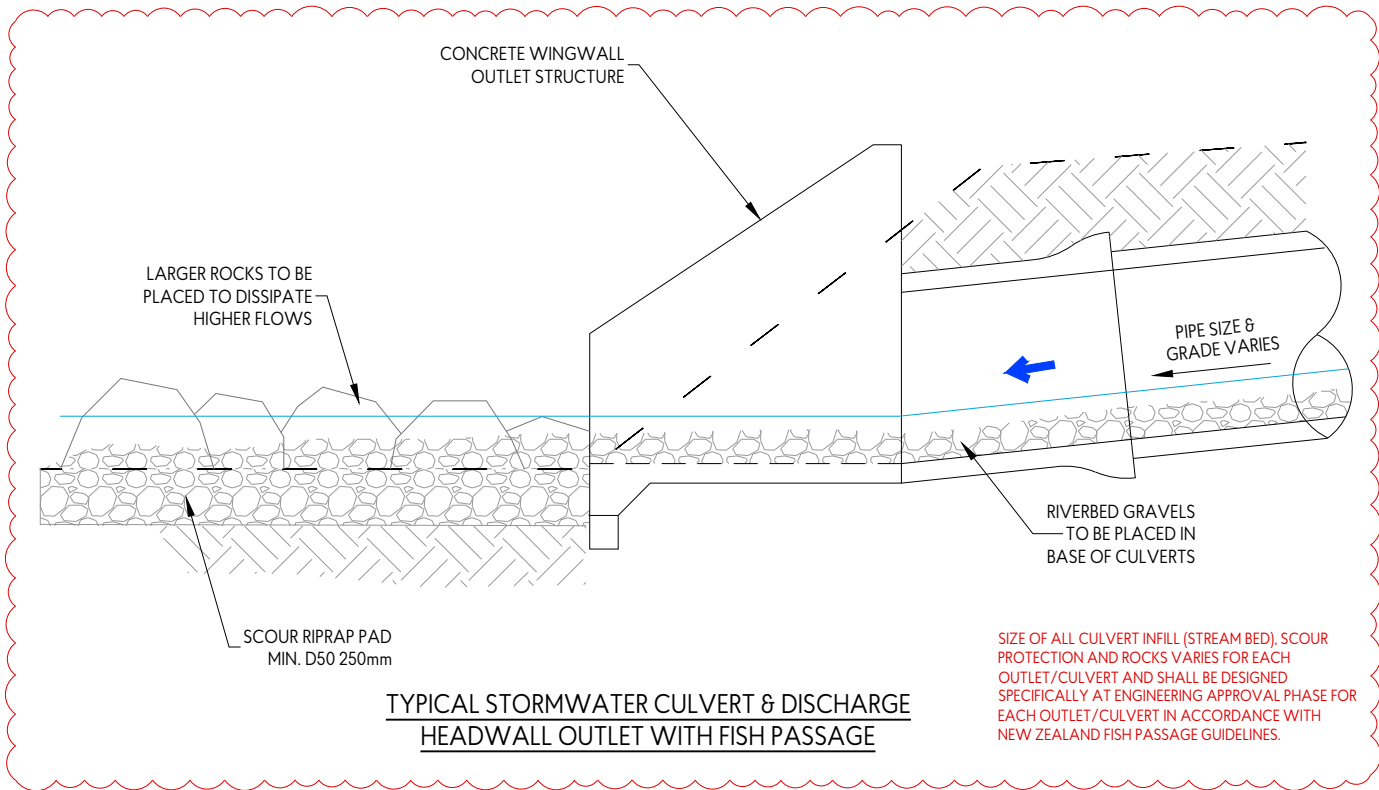
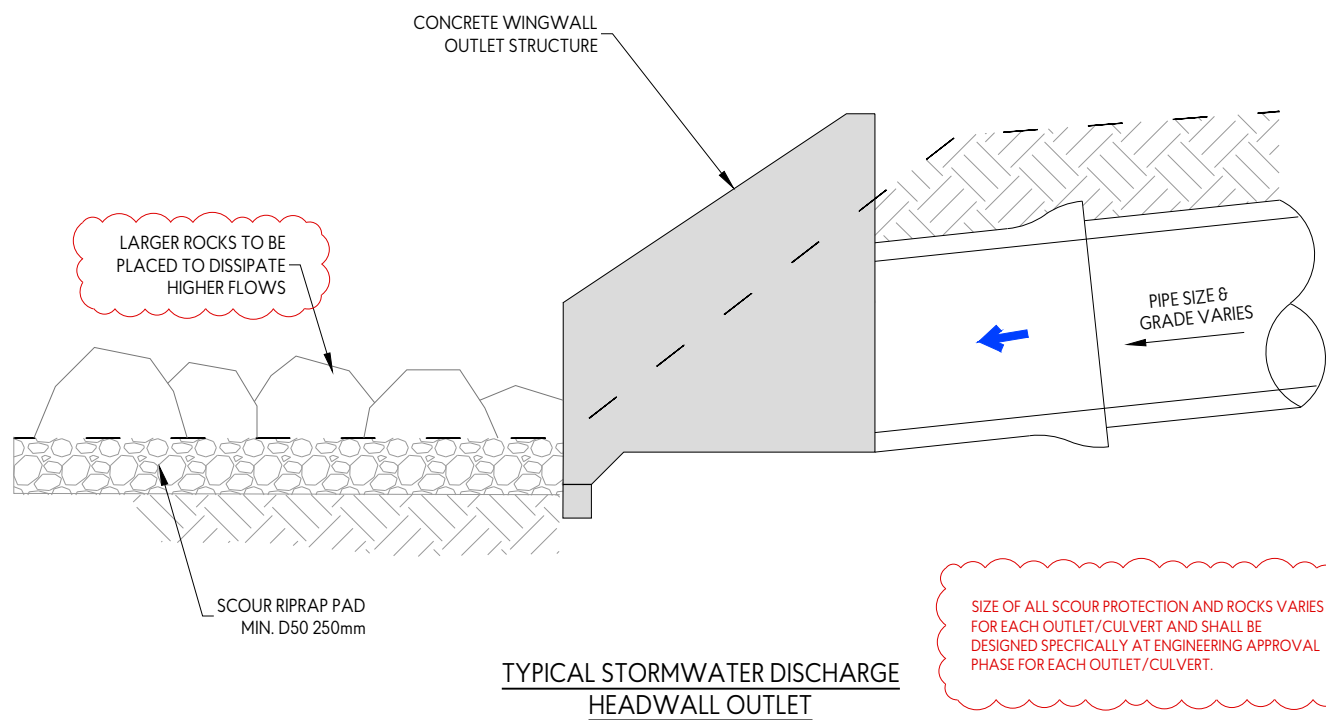
POST DEVELOPMENT - 10 YEAR

Culvert ID	Diameter	Length	Grade	Note	MODEL ID-POST	Model Diam	Length (m)	Gradient (m/m)	Max flow (m³/s)	Max velocity (m/s)
P-30	750mm	56m	1.20%	Replace E-02 with 750mm Dia	SW-OUT-94-1.1	CIRC	46.5	1.2%	1.7	3.1
P-31	375mm	56m	10.00%	Second High Level Inlet With E-03	SW-IN-94-1C.1	CIRC	14.8	10.0%	0.1	3.9
P-32	1500 x 1000 Box	45m	2.00%	Piping of stream to allow SH59 upgrade	SW-IN 90-3.1	RECT	54.5	2.0%	3.7	1.8
P-33	1500 x 1000 Box	58m	3.00%	Piping of stream to allow SH59 upgrade	SWMH 90-2.1	RECT	57.5	3.0%	3.7	1.8
P-34	600mm	10m	3.60%	Extension of E-06	EX-SW-IN-02.1	CIRC	51.2	3.6%	1	2.9
P-35	600 to 900 mm	60.5m	1.5% to 6%	Retention Wetland B Outlet	SWMH 01-2 (SD-IN).1	CIRC	57.5	6.0%	1.1	1.5
P-36	450 to 675 mm	36m	10% to 15%	Retention Wetland C Outlet	SWMH 23-2 (SD-IN).1	CIRC	31	10.0%	1.1	2.9
P-37	600mm	28m	14% to 25%	Retention Wetland A Outlet	SWMH 20-2 (SD-IN).1	CIRC	26	14.0%	1.2	3.5
P-38	900mm	44m	3.50%	Road/Stream Crossing	SW-IN 74-2.1	CIRC	41.5	3.5%	1.8	2.6
P-39	600mm	10m	2.00%	Replace E-18 with 600mm Dia	SW-IN 73-2.1	CIRC	10	2.0%	1	2.7
P-40	350 to 2100 mm	28.5m	5% to 6%	Retention Wetland E Outlet	SWMH 72-2.1	CIRC	25.5	6.0%	4.1	3.8

POST DEVELOPMENT - 100 YEAR

Culvert ID	Diameter	Length	Grade	Note	MODEL ID-POST	Model Diam	Length (m)	Gradient (m/m)	Max flow (m³/s)	Max velocity (m/s)
P-30	750mm	56m	1.20%	Replace E-02 with 750mm Dia	SW-OUT-94-1.1	CIRC	46.5	1.2%	2.4	4.2
P-31	375mm	56m	10.00%	Second High Level Inlet With E-03	SW-IN-94-1C.1	CIRC	14.8	10.0%	0.3	4.6
P-32	1500 x 1000 Box	45m	2.00%	Piping of stream to allow SH59 upgrade	SW-IN 90-3.1	RECT	54.5	2.0%	8.1	2.6
P-33	1500 x 1000 Box	58m	3.00%	Piping of stream to allow SH59 upgrade	SWMH 90-2.1	RECT	57.5	3.0%	8.1	2.6
P-34	600mm	10m	3.60%	Extension of E-06	EX-SW-IN-02.1	CIRC	51.2	3.6%	1	3.1
P-35	600 to 900 mm	60.5m	1.5% to 6%	Retention Wetland B Outlet	SWMH 01-2 (SD-IN).1	CIRC	57.5	6.0%	1.9	2.5
P-36	450 to 675 mm	36m	10% to 15%	Retention Wetland C Outlet	SWMH 23-2 (SD-IN).1	CIRC	31	10.0%	1.5	3.7
P-37	600mm	28m	14% to 25%	Retention Wetland A Outlet	SWMH 20-2 (SD-IN).1	CIRC	26	14.0%	1.5	4.4
P-38	900mm	44m	3.50%	Road/Stream Crossing	SW-IN 74-2.1	CIRC	41.5	3.5%	2.5	3.7
P-39	600mm	10m	2.00%	Replace E-18 with 600mm Dia	SW-IN 73-2.1	CIRC	10	2.0%	1.1	2.7
P-40	350 to 2100 mm	28.5m	5% to 6%	Retention Wetland E Outlet	SWMH 72-2.1	CIRC	25.5	6.0%	6.1	4.7

- NOTES:
- 1. DETAILS SHOWN ARE TYPICAL DETAILS.
 - 2. DETAILED SPECIFIC STORMWATER OUTLETS FOR EACH OUTLET WILL BE DESIGNED AND SUBMITTED FOR APPROVAL AT ENGINEERING APPROVAL.



This design and drawing shall only be used for the purpose for which it was supplied and shall not be altered or reproduced without the permission of Envelope Engineering Limited. No liability shall be accepted for unauthorised use of this design and drawing.

REVISIONS:			
REV	NOTES	BY	DATE
R1	RESOURCE CONSENT ISSUE	PWJ	13-11-2025
R2	SW OUTLET WITH FISH PASSAGE ADDED	PWJ	04-06-2026

PROJECT:
PUKERUA PROPERTY GROUP LP
MT WELCOME - PUKERUA BAY
PORIRUA

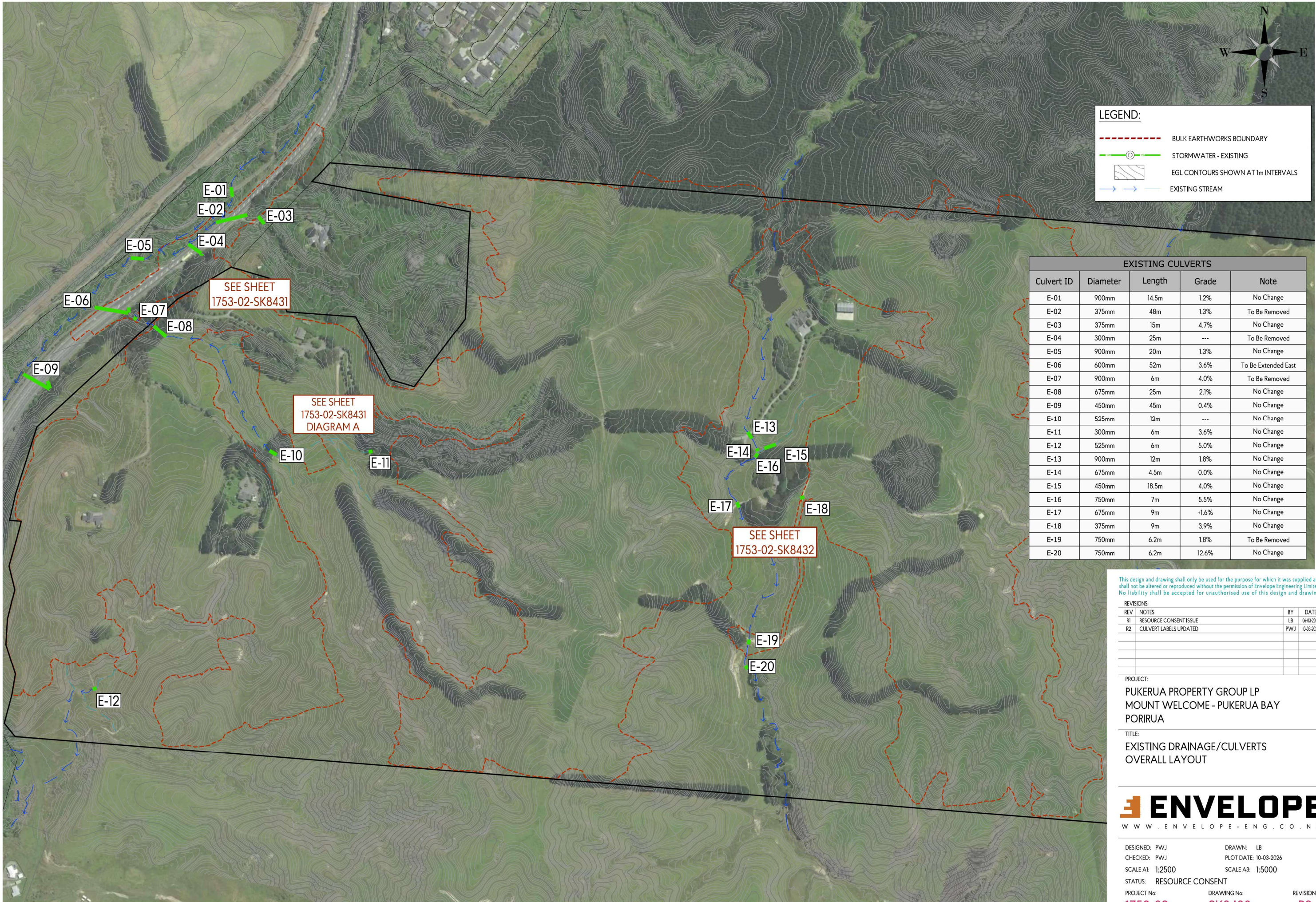
TITLE:
TYPICAL STORMWATER OUTLET DETAILS
SHEET 5 OF 5

ENVELOPE
W W . E N V E L O P E - E N G . C O . N Z

DESIGNED: PWJ
CHECKED: KD
SCALE A1: 1:10
STATUS: RESOURCE CONSENT
PROJECT No: 1753-02

DRAWN: MJP
PLOT DATE: 04-06-2026
SCALE A3: 1:20
DRAWING No: 4904

REVISION: R2



LEGEND:

- BULK EARTHWORKS BOUNDARY
- STORMWATER - EXISTING
- EGL CONTOURS SHOWN AT 1m INTERVALS
- EXISTING STREAM

EXISTING CULVERTS				
Culvert ID	Diameter	Length	Grade	Note
E-01	900mm	14.5m	1.2%	No Change
E-02	375mm	48m	1.3%	To Be Removed
E-03	375mm	15m	4.7%	No Change
E-04	300mm	25m	---	To Be Removed
E-05	900mm	20m	1.3%	No Change
E-06	600mm	52m	3.6%	To Be Extended East
E-07	900mm	6m	4.0%	To Be Removed
E-08	675mm	25m	2.1%	No Change
E-09	450mm	45m	0.4%	No Change
E-10	525mm	12m	---	No Change
E-11	300mm	6m	3.6%	No Change
E-12	525mm	6m	5.0%	No Change
E-13	900mm	12m	1.8%	No Change
E-14	675mm	4.5m	0.0%	No Change
E-15	450mm	18.5m	4.0%	No Change
E-16	750mm	7m	5.5%	No Change
E-17	675mm	9m	+1.6%	No Change
E-18	375mm	9m	3.9%	No Change
E-19	750mm	6.2m	1.8%	To Be Removed
E-20	750mm	6.2m	12.6%	No Change

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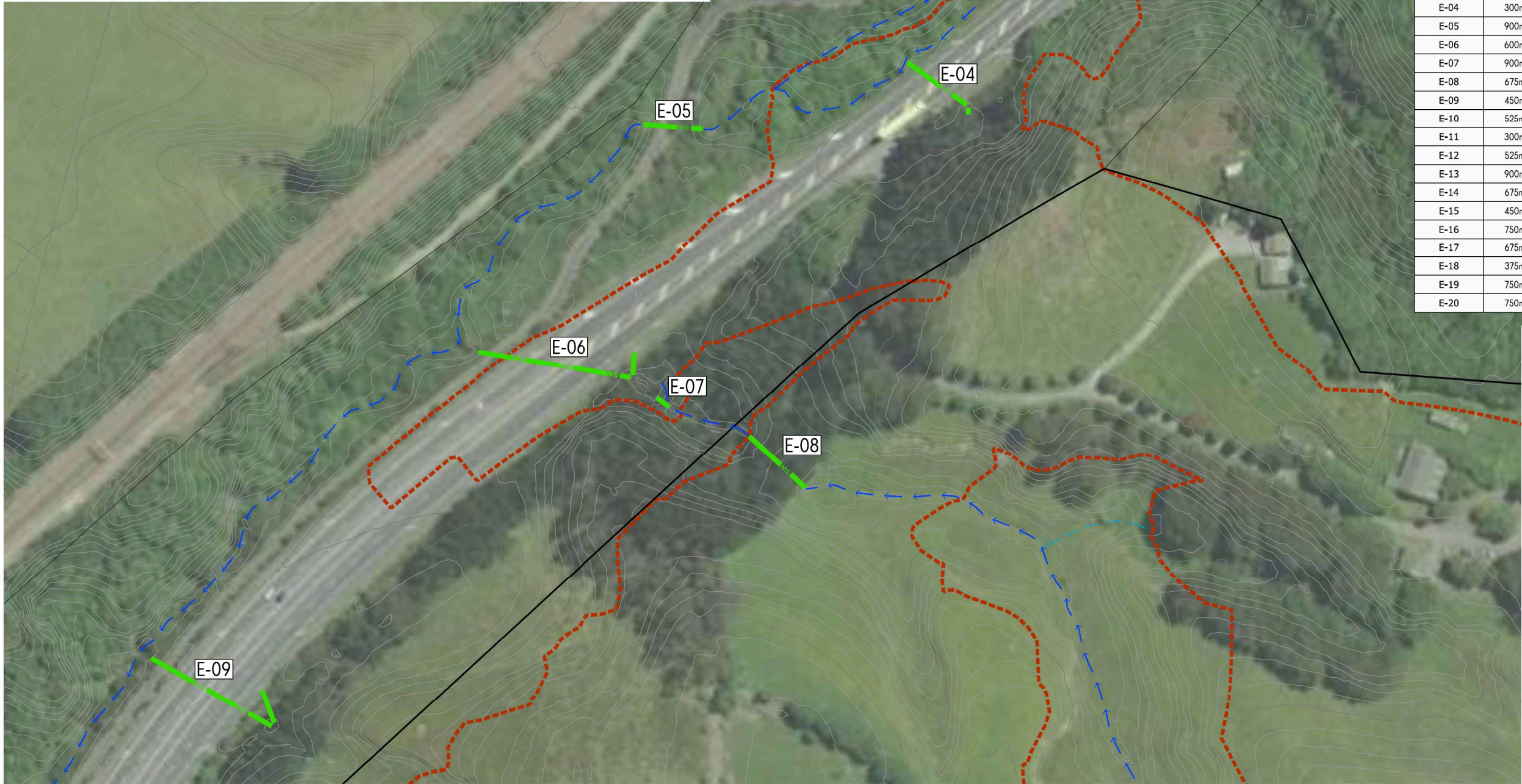
REVISIONS:		BY	DATE
REV	NOTES		
R1	RESOURCE CONSENT ISSUE	LB	06-03-2026
R2	CULVERT LABELS UPDATED	PWJ	10-03-2026

PROJECT:
PUKERUA PROPERTY GROUP LP
MOUNT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
EXISTING DRAINAGE/CULVERTS
OVERALL LAYOUT



DESIGNED: PWJ	DRAWN: LB	REVISION:
CHECKED: PWJ	PLOT DATE: 10-03-2026	
SCALE A1: 1:2500	SCALE A3: 1:5000	
STATUS: RESOURCE CONSENT		
PROJECT No: 1753-02	DRAWING No: SK8430	R2



LEGEND:

- BULK EARTHWORKS BOUNDARY
- STORMWATER - EXISTING
- EGL CONTOURS SHOWN AT 1m INTERVALS
- EXISTING STREAM



EXISTING CULVERTS				
Culvert ID	Diameter	Length	Grade	Note
E-01	900mm	14.5m	1.2%	No Change
E-02	375mm	48m	1.3%	To Be Removed
E-03	375mm	15m	4.7%	No Change
E-04	300mm	25m	---	To Be Removed
E-05	900mm	20m	1.3%	No Change
E-06	600mm	52m	3.6%	To Be Extended East
E-07	900mm	6m	4.0%	To Be Removed
E-08	675mm	25m	2.1%	No Change
E-09	450mm	45m	0.4%	No Change
E-10	525mm	12m	---	No Change
E-11	300mm	6m	3.6%	No Change
E-12	525mm	6m	5.0%	No Change
E-13	900mm	12m	1.8%	No Change
E-14	675mm	4.5m	0.0%	No Change
E-15	450mm	18.5m	4.0%	No Change
E-16	750mm	7m	5.5%	No Change
E-17	675mm	9m	+1.6%	No Change
E-18	375mm	9m	3.9%	No Change
E-19	750mm	6.2m	1.8%	To Be Removed
E-20	750mm	6.2m	12.6%	No Change

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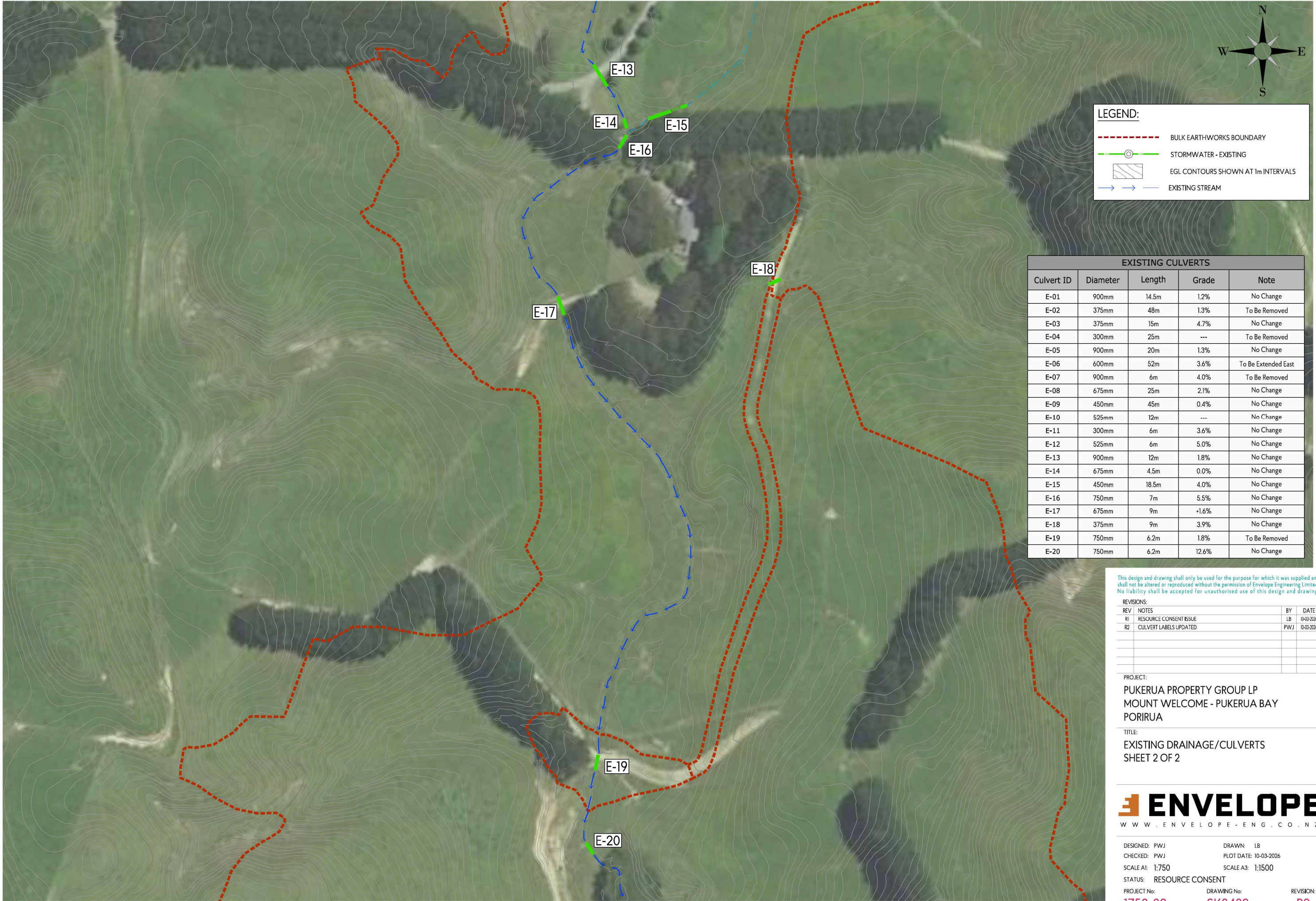
REVISIONS:		BY	DATE
REV	NOTES		
R1	RESOURCE CONSENT ISSUE	LB	10-03-2026
R2	CULVERT LABELS UPDATED	PWJ	10-03-2026

PROJECT:
PUKERUA PROPERTY GROUP LP
MOUNT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
EXISTING DRAINAGE/CULVERTS
SHEET 1 OF 2



DESIGNED: PWJ	DRAWN: LB	
CHECKED: PWJ	PLOT DATE: 10-03-2026	
SCALE A1: 1:750	SCALE A3: 1:1500	
STATUS: RESOURCE CONSENT		
PROJECT No:	DRAWING No:	REVISION:
1753-02	SK8431	R2



LEGEND:

- BULK EARTHWORKS BOUNDARY
- STORMWATER - EXISTING
- EGL CONTOURS SHOWN AT 1m INTERVALS
- EXISTING STREAM

EXISTING CULVERTS				
Culvert ID	Diameter	Length	Grade	Note
E-01	900mm	14.5m	1.2%	No Change
E-02	375mm	48m	1.3%	To Be Removed
E-03	375mm	15m	4.7%	No Change
E-04	300mm	25m	---	To Be Removed
E-05	900mm	20m	1.3%	No Change
E-06	600mm	52m	3.6%	To Be Extended East
E-07	900mm	6m	4.0%	To Be Removed
E-08	675mm	25m	2.1%	No Change
E-09	450mm	45m	0.4%	No Change
E-10	525mm	12m	---	No Change
E-11	300mm	6m	3.6%	No Change
E-12	525mm	6m	5.0%	No Change
E-13	900mm	12m	1.8%	No Change
E-14	675mm	4.5m	0.0%	No Change
E-15	450mm	18.5m	4.0%	No Change
E-16	750mm	7m	5.5%	No Change
E-17	675mm	9m	+1.6%	No Change
E-18	375mm	9m	3.9%	No Change
E-19	750mm	6.2m	1.8%	To Be Removed
E-20	750mm	6.2m	12.6%	No Change

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REVISIONS:		BY	DATE
REV	NOTES		
R1	RESOURCE CONSENT ISSUE	LB	10-03-2026
R2	CULVERT LABELS UPDATED	PWJ	10-03-2026

PROJECT:
PUKERUA PROPERTY GROUP LP
MOUNT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
EXISTING DRAINAGE/CULVERTS
SHEET 2 OF 2



DESIGNED: PWJ	DRAWN: LB	
CHECKED: PWJ	PLOT DATE: 10-03-2026	
SCALE A1: 1:750	SCALE A3: 1:1500	
STATUS: RESOURCE CONSENT		
PROJECT No: 1753-02	DRAWING No: SK8432	REVISION: R2



LEGEND:

- BULK EARTHWORKS BOUNDARY
- STORMWATER - EXISTING
- STORMWATER - PROPOSED
- MGL CONTOURS SHOWN AT 1m INTERVALS
- EXISTING STREAM

PROPOSED CULVERTS				
Culvert ID	Diameter	Length	Grade	Note
P-30	750mm	56m	1.2%	Replace E-02 with 750mm Dia
P-31	375mm	56m	10.0%	Second High Level Inlet With E-03
P-32	1500 x 1000 Box	45m	2.0%	Piping of stream to allow SH59 upgrade
P-33	1500 x 1000 Box	58m	3.0%	Piping of stream to allow SH59 upgrade
P-34	600mm	10m	3.6%	Extension of E-06
P-35	600 to 900 mm	60.5m	1.5% to 6%	Retention Wetland B Outlet
P-36	450 to 675 mm	36m	10% to 15%	Retention Wetland C Outlet
P-37	600mm	28m	14% to 25%	Retention Wetland A Outlet
P-38	900mm	44m	3.5%	Road/Stream Crossing
P-39	600mm	10m	2.0%	Replace E-18 with 600mm Dia
P-40	350 to 2100 mm	28.5mm	5% to 6%	Retention Wetland E Outlet

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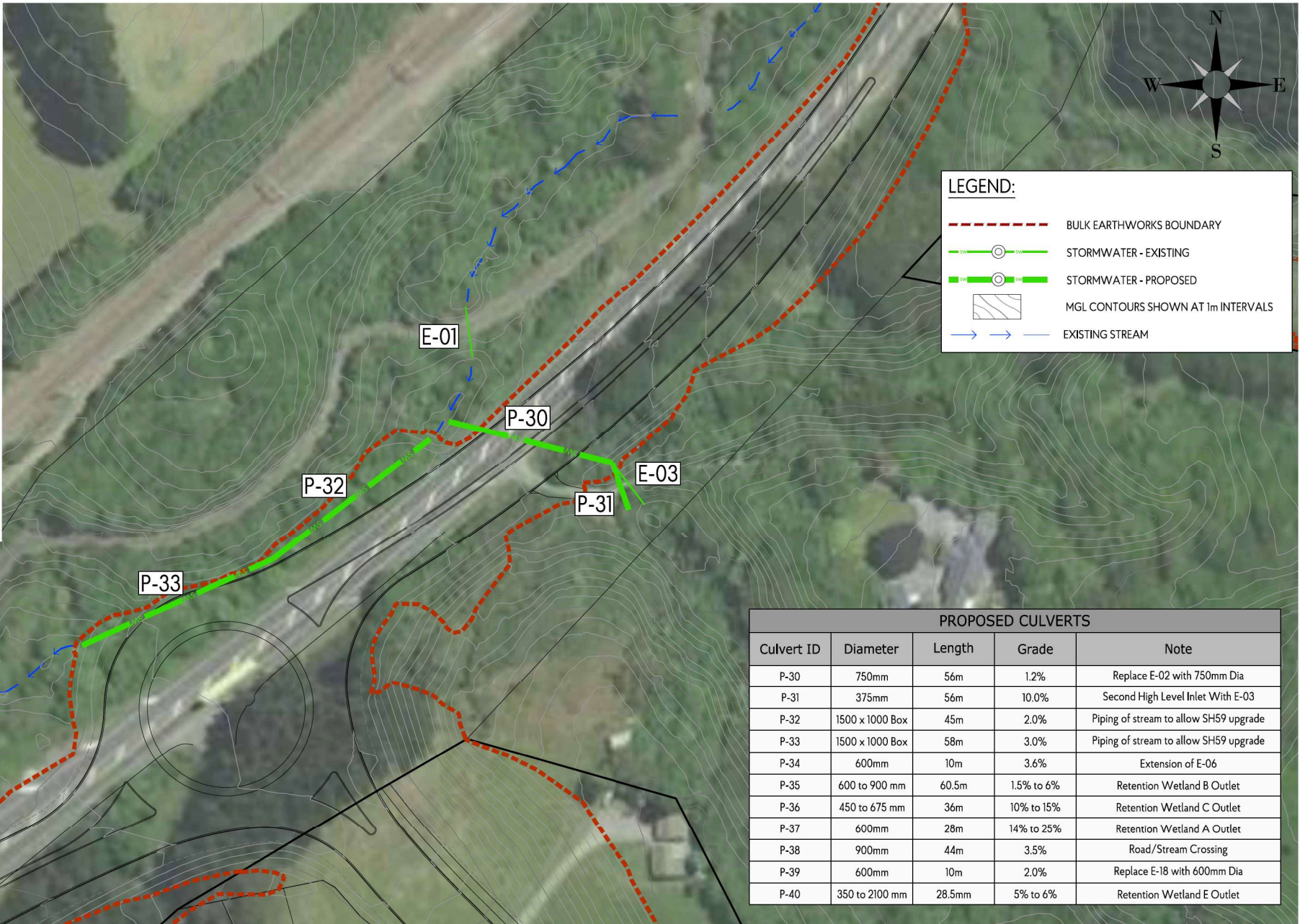
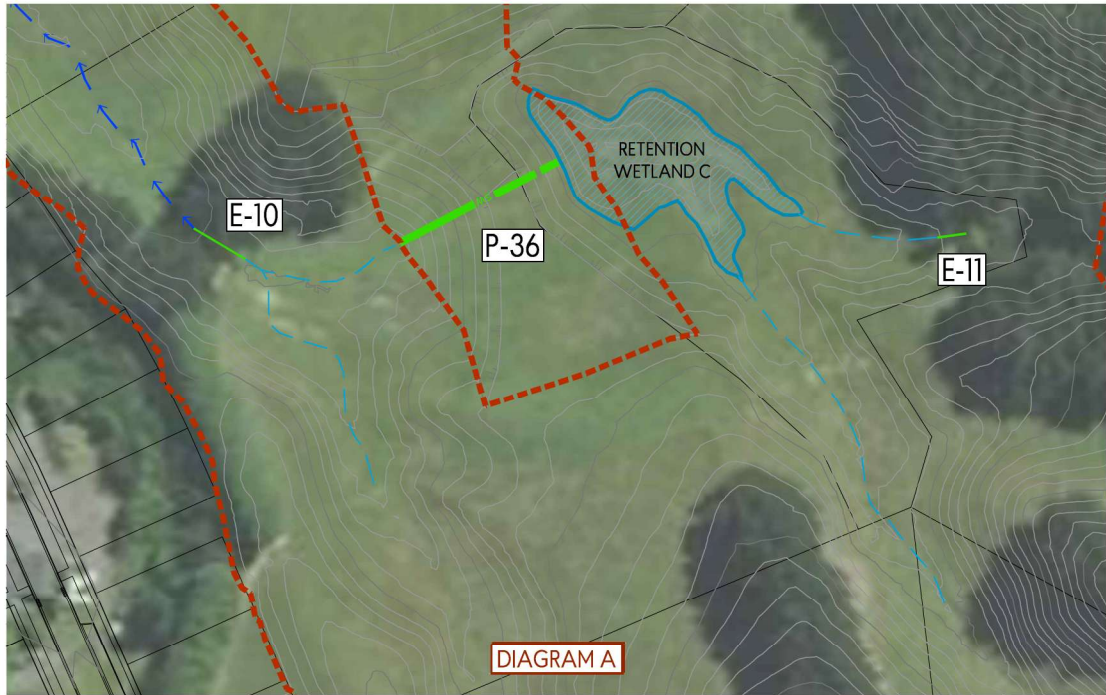
REVISIONS:		BY	DATE
REV	NOTES	LB	06-03-2026
R1	RESOURCE CONSENT ISSUE	PWJ	10-03-2026
R2	CULVERT LABELS UPDATED		

PROJECT:
PUKERUA PROPERTY GROUP LP
MOUNT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
PROPOSED DRAINAGE/CULVERTS
OVERALL LAYOUT



DESIGNED: PWJ	DRAWN: LB	
CHECKED: KD	PLOT DATE: 10-03-2026	
SCALE A1: 1:2500	SCALE A3: 1:5000	
STATUS: RESOURCE CONSENT		
PROJECT No: 1753-02	DRAWING No: SK8440	REVISION: R2



LEGEND:

- BULK EARTHWORKS BOUNDARY
- STORMWATER - EXISTING
- STORMWATER - PROPOSED
- MGL CONTOURS SHOWN AT 1m INTERVALS
- EXISTING STREAM

PROPOSED CULVERTS				
Culvert ID	Diameter	Length	Grade	Note
P-30	750mm	56m	1.2%	Replace E-02 with 750mm Dia
P-31	375mm	56m	10.0%	Second High Level Inlet With E-03
P-32	1500 x 1000 Box	45m	2.0%	Piping of stream to allow SH59 upgrade
P-33	1500 x 1000 Box	58m	3.0%	Piping of stream to allow SH59 upgrade
P-34	600mm	10m	3.6%	Extension of E-06
P-35	600 to 900 mm	60.5m	1.5% to 6%	Retention Wetland B Outlet
P-36	450 to 675 mm	36m	10% to 15%	Retention Wetland C Outlet
P-37	600mm	28m	14% to 25%	Retention Wetland A Outlet
P-38	900mm	44m	3.5%	Road/Stream Crossing
P-39	600mm	10m	2.0%	Replace E-18 with 600mm Dia
P-40	350 to 2100 mm	28.5mm	5% to 6%	Retention Wetland E Outlet

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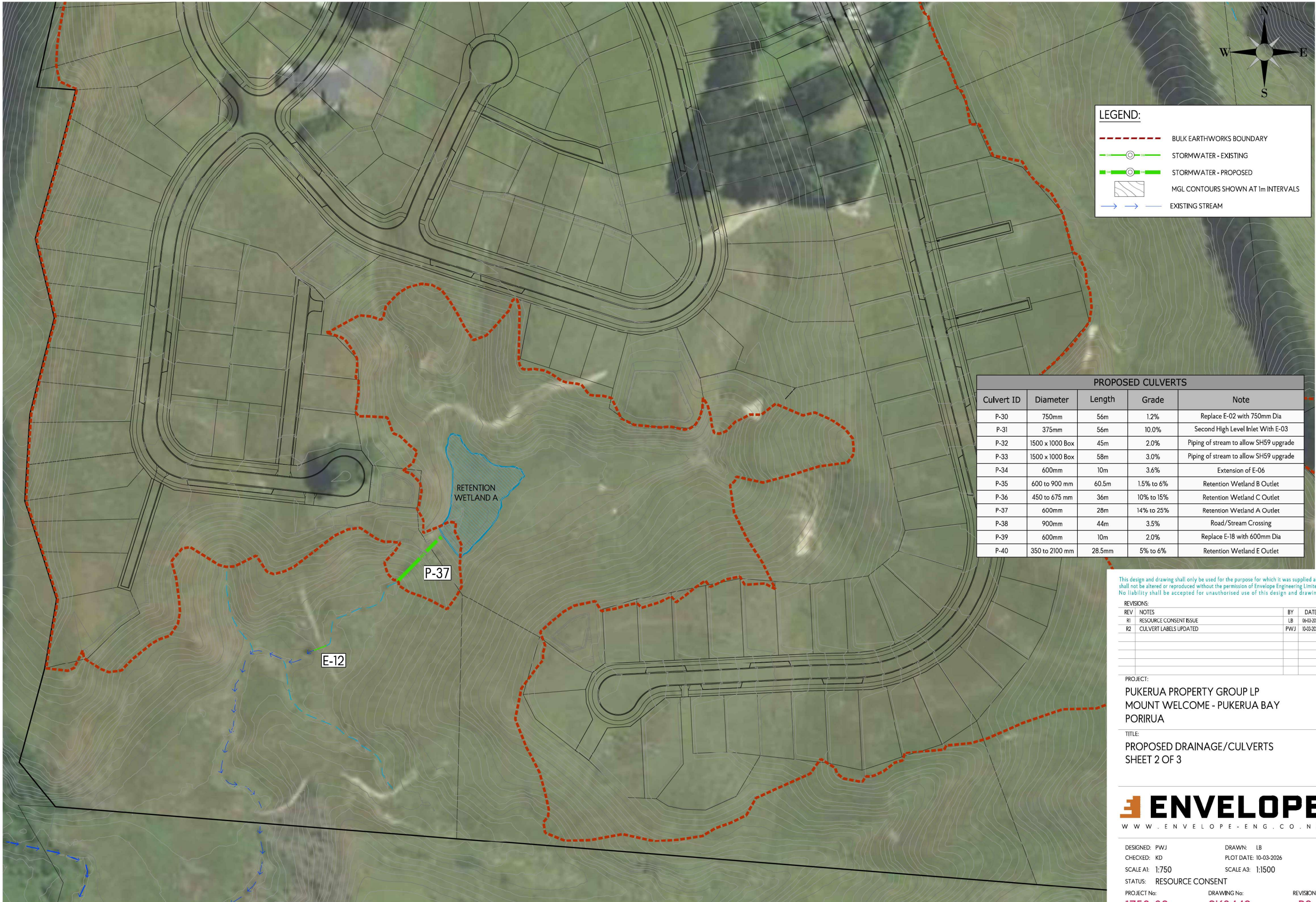
REVISIONS:		BY	DATE
REV	NOTES	LB	06-03-2026
R1	RESOURCE CONSENT ISSUE	PWJ	10-03-2026
R2	CULVERT LABELS UPDATED		

PROJECT:
PUKERUA PROPERTY GROUP LP
MOUNT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
PROPOSED DRAINAGE/CULVERTS
SHEET 1 OF 3



DESIGNED: PWJ	DRAWN: LB	
CHECKED: KD	PLOT DATE: 10-03-2026	
SCALE A1: 1:750	SCALE A3: 1:1500	
STATUS: RESOURCE CONSENT		
PROJECT No: 1753-02	DRAWING No: SK8441	REVISION: R2



LEGEND:

- BULK EARTHWORKS BOUNDARY
- STORMWATER - EXISTING
- STORMWATER - PROPOSED
- MGL CONTOURS SHOWN AT 1m INTERVALS
- EXISTING STREAM

PROPOSED CULVERTS				
Culvert ID	Diameter	Length	Grade	Note
P-30	750mm	56m	1.2%	Replace E-02 with 750mm Dia
P-31	375mm	56m	10.0%	Second High Level Inlet With E-03
P-32	1500 x 1000 Box	45m	2.0%	Piping of stream to allow SH59 upgrade
P-33	1500 x 1000 Box	58m	3.0%	Piping of stream to allow SH59 upgrade
P-34	600mm	10m	3.6%	Extension of E-06
P-35	600 to 900 mm	60.5m	1.5% to 6%	Retention Wetland B Outlet
P-36	450 to 675 mm	36m	10% to 15%	Retention Wetland C Outlet
P-37	600mm	28m	14% to 25%	Retention Wetland A Outlet
P-38	900mm	44m	3.5%	Road/Stream Crossing
P-39	600mm	10m	2.0%	Replace E-18 with 600mm Dia
P-40	350 to 2100 mm	28.5mm	5% to 6%	Retention Wetland E Outlet

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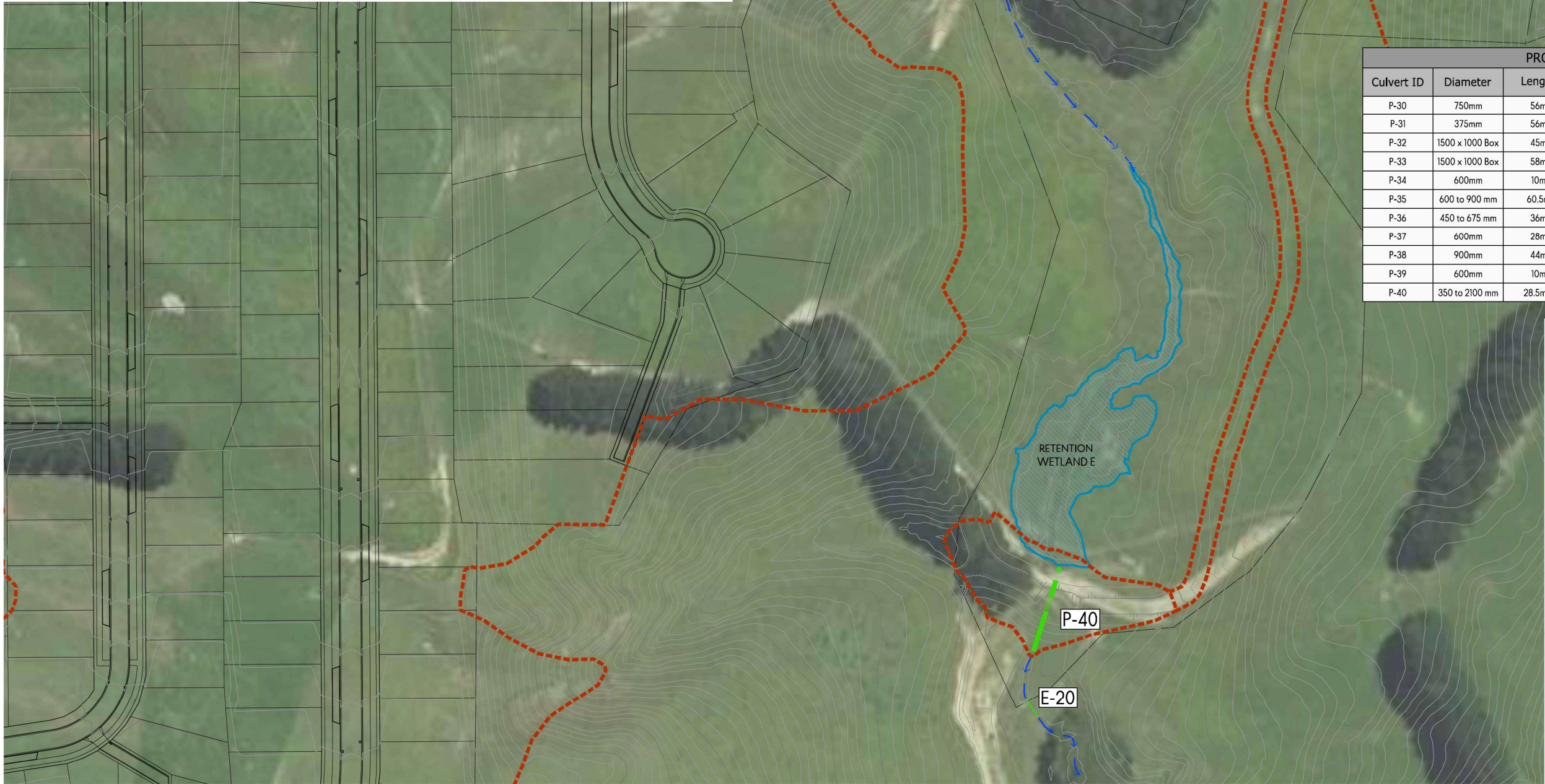
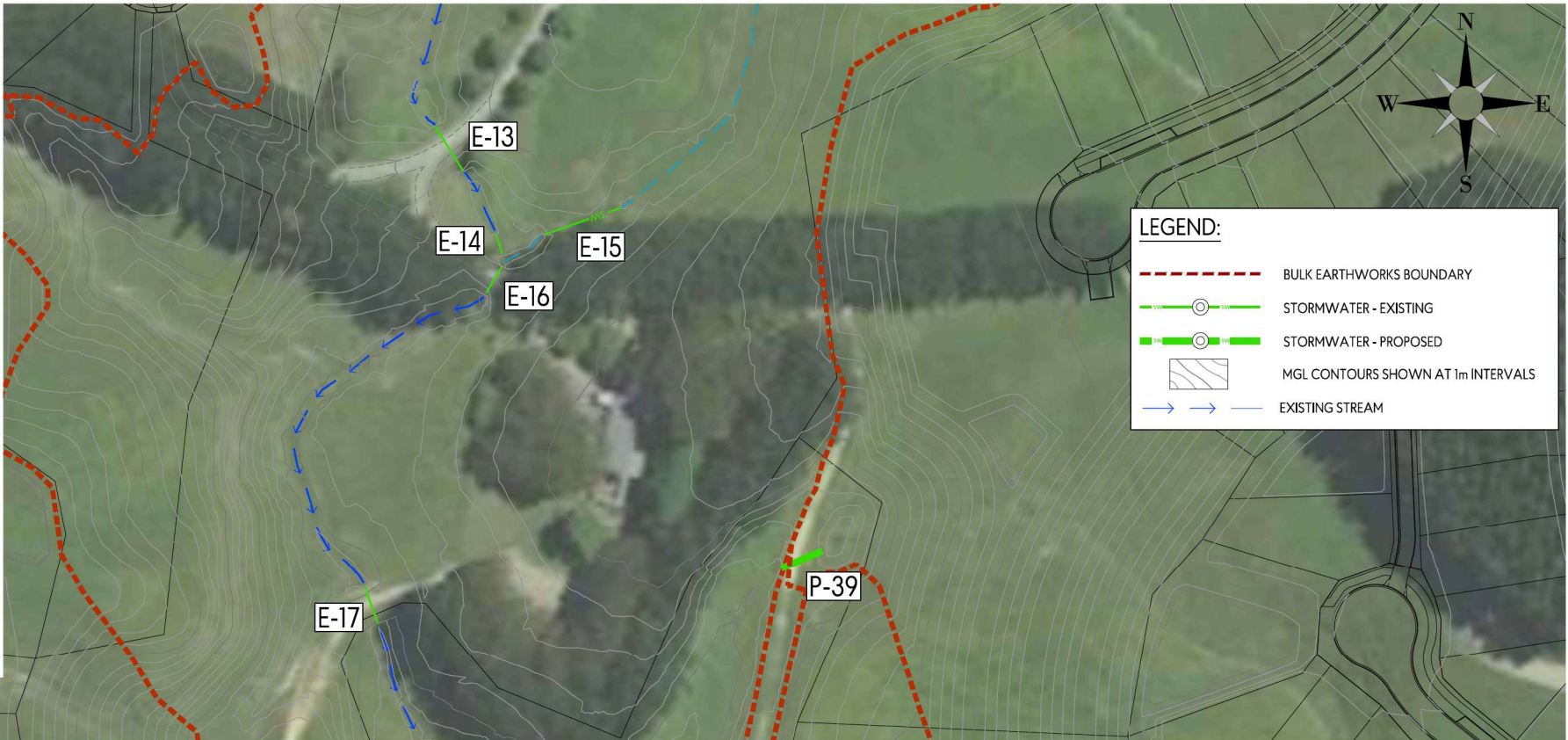
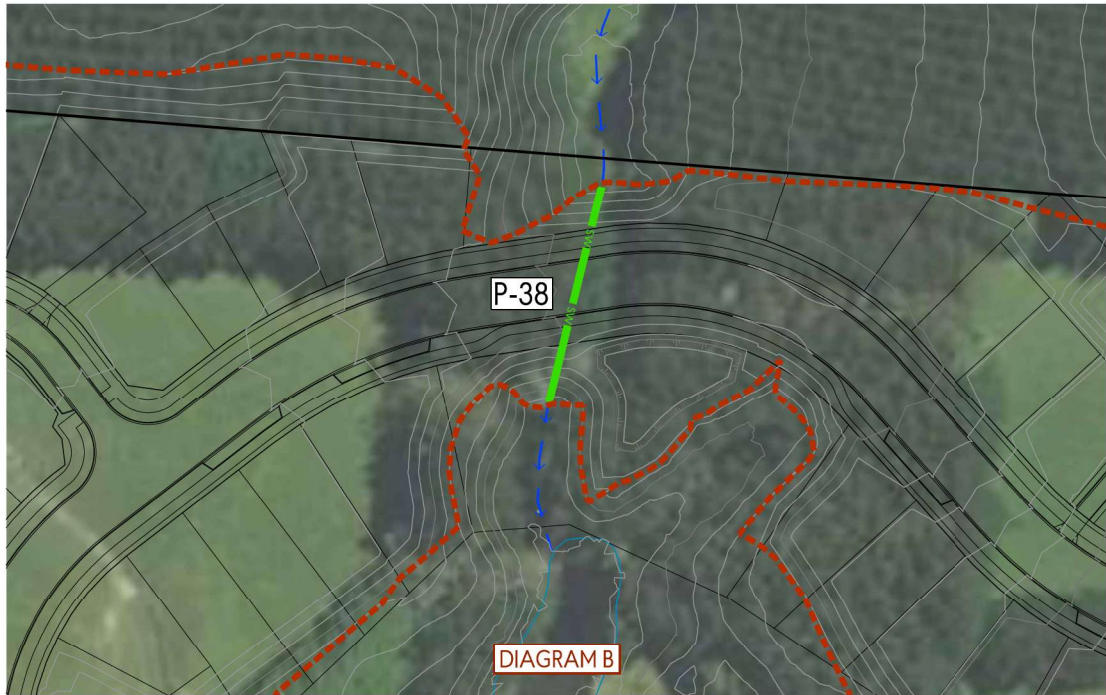
REVISIONS:		BY	DATE
REV	NOTES	LB	06-03-2026
R1	RESOURCE CONSENT ISSUE	PWJ	10-03-2026
R2	CULVERT LABELS UPDATED		

PROJECT:
PUKERUA PROPERTY GROUP LP
MOUNT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
PROPOSED DRAINAGE/CULVERTS
SHEET 2 OF 3



DESIGNED: PWJ	DRAWN: LB	
CHECKED: KD	PLOT DATE: 10-03-2026	
SCALE A1: 1:750	SCALE A3: 1:1500	
STATUS: RESOURCE CONSENT		
PROJECT No: 1753-02	DRAWING No: SK8442	REVISION: R2



PROPOSED CULVERTS				
Culvert ID	Diameter	Length	Grade	Note
P-30	750mm	56m	1.2%	Replace E-02 with 750mm Dia
P-31	375mm	56m	10.0%	Second High Level Inlet With E-03
P-32	1500 x 1000 Box	45m	2.0%	Piping of stream to allow SH59 upgrade
P-33	1500 x 1000 Box	58m	3.0%	Piping of stream to allow SH59 upgrade
P-34	600mm	10m	3.6%	Extension of E-06
P-35	600 to 900 mm	60.5m	1.5% to 6%	Retention Wetland B Outlet
P-36	450 to 675 mm	36m	10% to 15%	Retention Wetland C Outlet
P-37	600mm	28m	14% to 25%	Retention Wetland A Outlet
P-38	900mm	44m	3.5%	Road/Stream Crossing
P-39	600mm	10m	2.0%	Replace E-18 with 600mm Dia
P-40	350 to 2100 mm	28.5mm	5% to 6%	Retention Wetland E Outlet

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REVISIONS:		BY	DATE
REV	NOTES		
R1	RESOURCE CONSENT ISSUE	LB	06-03-2026
R2	CULVERT LABELS UPDATED	PWJ	10-03-2026

PROJECT:
PUKERUA PROPERTY GROUP LP
MOUNT WELCOME - PUKERUA BAY
PORIRUA

TITLE:
PROPOSED DRAINAGE/CULVERTS
SHEET 3 OF 3



DESIGNED: PWJ	DRAWN: LB	
CHECKED: KD	PLOT DATE: 10-03-2026	
SCALE A1: 1:750	SCALE A3: 1:1500	
STATUS: RESOURCE CONSENT		
PROJECT No: 1753-02	DRAWING No: SK8443	REVISION: R2