Auckland Council
BUN60432511
Approved Resource Consent Plan
06/03/2025

8-14, 17-19 BABICH ROAD, HENDERSON VALLEY

CLIENT: CARRACK CAPITAL LIMITED

PROJECT No. 210506

ENGINEERING PLANS FOR
RESOURCE CONSENT
REVISION F
FEBRUARY 2025

terra
CONSULTANTS



LOCALITY PLAN
N.T.S

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY

CLIENT: CARRACK CAPITAL LIMITED
PROJECT No. 210506

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SHEET 1 OF 2

DRAWING NUMBER		REVISION DATE 01 05 24	12 07 24	23 08 24	30 10 24	07 11 24	04 12 24	19 12 25
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210506-SS-01	TOPOGRAPHICAL SURVEY (REV. D-22/10/2024)	-	-	-	-	-	-	-
210506-SS-02	TOPOGRAPHICAL SURVEY (REV. D-22/10/2024)	-	-	-	-	-	-	-
210506-SS-03	TOPOGRAPHICAL SURVEY (REV. D-22/10/2024)	-	-	-	-	-	-	-
210506-SS-04	TOPOGRAPHICAL SURVEY (REV. D-22/10/2024)	-	-	-	-	-	-	-
210506-SS-05	TOPOGRAPHICAL SURVEY (REV. D-22/10/2024)	-	-	-	-	-	-	-
210506-SS-1A	TOPOGRAPHICAL SURVEY (WITH AERIAL PHOTOGRAPH) (REV. D-22/10/2024)	-	-	-	-	-	-	-
210506-SS-2A	TOPOGRAPHICAL SURVEY (WITH AERIAL PHOTOGRAPH) (REV. D-22/10/2024)	-	-	-	-	-	-	-
210506-SS-3A	TOPOGRAPHICAL SURVEY (WITH AERIAL PHOTOGRAPH) (REV. D-22/10/2024)	-	-	-	-	-	-	-
210506-SS-4A	TOPOGRAPHICAL SURVEY (WITH AERIAL PHOTOGRAPH) (REV. D-22/10/2024)	-	-	-	-	-	-	-
210506-SS-5A	TOPOGRAPHICAL SURVEY (WITH AERIAL PHOTOGRAPH) (REV. D-22/10/2024)	-	-	-	-	-	-	-
210506-SP05	OVERALL SCHEME PLAN (SP05 REV.Z-10/02/2025)	-	-	-	-	-	-	-
210506-SP06	OVERALL SCHEME PLAN (SP06 REV.Z-10/02/2025)	-	-	-	-	-	-	-
210506-SP-01	SCHEME PLAN STAGE 1 ~~(REV.Y-10/02/2025)~~ (REV. AA - 28/02/2025	-	-	-	-	-	-	-
210506-SP-02	SCHEME PLAN STAGE 2 ~~(REV.Y-10/02/2025)~~ (REV. AA - 28/02/2025)	-	-	-	-	-	-	-
210506-SP-03	SCHEME PLAN STAGE 3 ~~(REV.Y-10/02/2025)~~ (REV. AA - 28/02/2025)	-	-	-	-	-	-	-
210506-RC-50	EXISTING ZONE - YARD SETBACK PLAN	-	A	B	C	D	E	-
210506-RC-60	INFRASTRUCTURE STAGING OVERALL PLAN	-	A	B	C	-	D	-
210506-RC-61	INFRASTRUCTURE STAGING SHEET 1 OF 4	-	A	B	C	-	D	-
210506-RC-62	INFRASTRUCTURE STAGING SHEET 2 OF 4	-	A	B	C	-	D	-
210506-RC-63	INFRASTRUCTURE STAGING SHEET 3 OF 4	-	A	B	C	-	D	-
210506-RC-64	INFRASTRUCTURE STAGING SHEET 4 OF 4	-	A	B	C	-	D	-
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210506-RC-101	EXISTING AND FINISHED CONTOURS PLAN SHEET 1 OF 3	A	-	B	C	-	D	-
210506-RC-102	EXISTING AND FINISHED CONTOURS PLAN SHEET 2 OF 3	A	-	B	C	-	D	-
210506-RC-103	EXISTING AND FINISHED CONTOURS PLAN SHEET 3 OF 3	A	-	B	C	-	D	-
210506-RC-103.1	PROPOSED PARK RESERVE (LOT 503) PLAN	-	-	-	-	-	A	-
210506-RC-103.2	PROPOSED PARK RESERVE (LOT 503) CROSS SECTIONS	-	-	-	-	-	A	-
210506-RC-104	CONTAMINATION SOIL AREA PLAN	-	-	A	B	-	C	-
210506-RC-105	WICK DRAIN LAYOUT PLAN	-	-	A	B	-	C	-
210506-RC-106	TYPICAL WICK DRAIN BENCH DETAILS	-	-	A	-	-	-	-
210506-RC-107	SETTLEMENT MARKERS DETAILS	-	-	A	B	-	-	-
210506-RC-200	EARTHWORK OVERALL CUT-FILL PLAN	A	-	B	C	-	D	-
210506-RC-201	EARTHWORK CUT-FILL PLAN SHEET 1 OF 3	A	-	B	C	-	D	-
210506-RC-202	EARTHWORK CUT-FILL PLAN SHEET 2 OF 3	A	-	B	C	-	D	-
210506-RC-203	EARTHWORK CUT-FILL PLAN SHEET 3 OF 3	A	-	B	C	-	D	-
210506-RC-210	EARTHWORK CROSS SECTIONS OVERALL PLAN	A	-	B	C	-	D	-
210506-RC-211	EARTHWORKS CROSS SECTION PLAN SHEET 1 OF 4	A	-	B	C	-	D	-
210506-RC-212	EARTHWORKS CROSS SECTION PLAN SHEET 2 OF 4	A	-	B	C	-	D	-
210506-RC-213	EARTHWORKS CROSS SECTION PLAN SHEET 3 OF 4	A	-	B	C	-	D	-
210506-RC-214	EARTHWORKS CROSS SECTION PLAN SHEET 4 OF 4	A	-	B	C	-	D	-
210506-RC-216	PALISADE WALL PLAN	-	-	A	B	-	C	-
210506-RC-219	STANDARD DETAILS FOR PALISADE WALL	-	-	A	B	-	-	-
210506-RC-220	EROSION AND SEDIMENT CONTROL OVERALL PLAN	A	-	B	C	-	D	-
210506-RC-220.1	EROSION AND SEDIMENT CONTROL PLAN WITHIN THE PAREMUKA RESERVE	-	-	A	B	-	-	-
210506-RC-220.2	EROSION AND SEDIMENT CONTROL PLAN SHEET 1 OF 3	-	-	-	A	-	B	-
210506-RC-220.3	EROSION AND SEDIMENT CONTROL PLAN SHEET 2 OF 3	-	-	-	A	-	B	-
210506-RC-220.4	EROSION AND SEDIMENT CONTROL PLAN SHEET 3 OF 3	-	-	-	A	-	B	-
210506-RC-221	EROSION AND SEDIMENT CONTROL STANDARD DETAILS SHEET 1 OF 3	A	-	-	B	-	-	-
210506-RC-222	EROSION AND SEDIMENT CONTROL STANDARD DETAILS SHEET 2 OF 3	-	-	-	A	-	-	-
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DRAWING NUMBER		REVISION DATE 01 05 24	12 07 24	23 08 24	30 10 24	07 11 24	04 12 24	19 12 25
210506-RC-230	RETAINING WALL PLAN	A	-	B	C	-	D	-
210506-RC-231	RETAINING WALL DETAILS SHEET 1 OF 2	-	-	A	B	-	-	-
210506-RC-232	RETAINING WALL DETAILS SHEET 2 OF 2	-	-	A	B	-	-	C
210506-RC-235	RETAINING WALL LONG SECTION	-	-	A	B	-	C	-
210506-RC-240	TREE REMOVAL PLAN	-	-	A	B	-	C	-
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210506-RC-300	ROADING OVERALL LAYOUT PLAN	A	B	C	D	-	E	-
210506-RC-301	ROADING LAYOUT PLAN - SHEET 1 OF 4	A	B	C	D	-	E	-
210506-RC-301.1	ROADING LAYOUT PLAN - SHEET 2 OF 4	-	-	C	D	-	E	-
210506-RC-302	ROADING LAYOUT PLAN - SHEET 3 OF 4	A	B	C	D	-	E	-
210506-RC-303	ROADING LAYOUT PLAN - SHEET 4 OF 4	A	B	C	D	-	E	-
210506-RC-304	INTERSECTION DETAIL LINE MARKING AND SIGNAGE PLAN SHEET 1 OF 4	-	-	A	B	-	C	-
210506-RC-305	INTERSECTION DETAIL LINE MARKING AND SIGNAGE PLAN SHEET 2 OF 4	-	-	A	B	-	C	-
210506-RC-306	INTERSECTION DETAIL LINE MARKING AND SIGNAGE PLAN SHEET 3 OF 4	-	-	A	B	-	C	-
210506-RC-307	INTERSECTION DETAIL LINE MARKING AND SIGNAGE PLAN SHEET 4 OF 4	-	-	A	B	-	C	-
210506-RC-308	PUBLIC WALKWAY PLAN AND VEHICLE CROSSING PLAN	-	-	A	B	-	C	-
210506-RC-309	ROADING PLAN - ONE WAY CROSS FALL LOCATION	-	-	-	A	-	B	-
210506-RC-310	ROADING LONGITUDINAL SECTION - ROAD 1	A	B	C	D	-	-	-
210506-RC-311	ROADING LONGITUDINAL SECTION - ROAD 2 & ROAD 3	A	B	C	D	-	-	-
210506-RC-312	ROADING LONGITUDINAL SECTION - ROAD 4 & ROAD 5	A	B	C	D	-	-	-
210506-RC-313.1	ROADING LONGITUDINAL SECTION - ROAD 6-SHEET 1 OF 2	A	B	C	D	-	-	-
210506-RC-313.2	ROADING LONGITUDINAL SECTION - ROAD 6-SHEET 2 OF 2	A	B	C	D	-	-	-
210506-RC-314	ROADING LONGITUDINAL SECTION - BABICH ROAD CENTER LINE SHEET 1 OF 2	-	A	-	B	-	C	-
210506-RC-315	ROADING LONGITUDINAL SECTION - BABICH ROAD CENTER LINE SHEET 2 OF 2	-	A	B	C	-	D	-
210506-RC-316	ROADING LONGITUDINAL SECTION - COAL 400, COAL 401 & COAL 404	-	-	A	B	-	-	-
210506-RC-317	WALKWAY 1 & WALKWAY 2 - LONGITUDINAL SECTION, CROSS SECTION & STANDARD DETAILS	-	-	A	B	-	-	-
210506-RC-318	ROADING LONGITUDINAL SECTION - FUTURE ROAD	-	-	A	B	-	-	-
210506-RC-320	ROADING TYPICAL CROSS SECTIONS SHEET 1 OF 6	A	B	C	D	-	E	-
210506-RC-320.1	ROADING TYPICAL CROSS SECTIONS SHEET 2 OF 6 (HOUSE CONCEPT DESIGN ONLY)	-	-	-	A	-	B	-
210506-RC-321	ROADING TYPICAL CROSS SECTIONS SHEET 3 OF 6	A	B	C	D	-	E	-
210506-RC-322	ROADING TYPICAL CROSS SECTIONS SHEET 4 OF 6	-	A	B	C	-	D	-
210506-RC-323	ROADING TYPICAL CROSS SECTIONS SHEET 5 OF 6	-	-	-	-	-	A	-
210506-RC-324	ROADING TYPICAL CROSS SECTIONS SHEET 6 OF 6	-	-	-	-	-	A	-
210506-RC-330	ROADING STANDARD DETAILS SHEET 1 OF 2	A	-	-	-	-	-	-
210506-RC-331	ROADING STANDARD DETAILS SHEET 2 OF 2	A	B	-	-	-	-	-
210506-RC-350	TRACKING CURVE PLAN SHEET 1 OF 8	-	A	B	C	-	D	-
210506-RC-351	TRACKING CURVE PLAN SHEET 2 OF 8	-	A	B	C	-	D	-
210506-RC-352	TRACKING CURVE PLAN SHEET 3 OF 8	-	A	B	C	-	D	-
210506-RC-353	TRACKING CURVE PLAN SHEET 4 OF 8	-	A	B	C	-	D	-
210506-RC-354	TRACKING CURVE PLAN SHEET 5 OF 8	-	A	B	C	-	D	-
210506-RC-355	TRACKING CURVE PLAN SHEET 6 OF 8	-	A	B	C	-	D	-
210506-RC-356	TRACKING CURVE PLAN SHEET 7 OF 8	-	A	B	C	-	D	-
210506-RC-357	TRACKING CURVE PLAN SHEET 8 OF 8	-	A	B	C	-	D	-

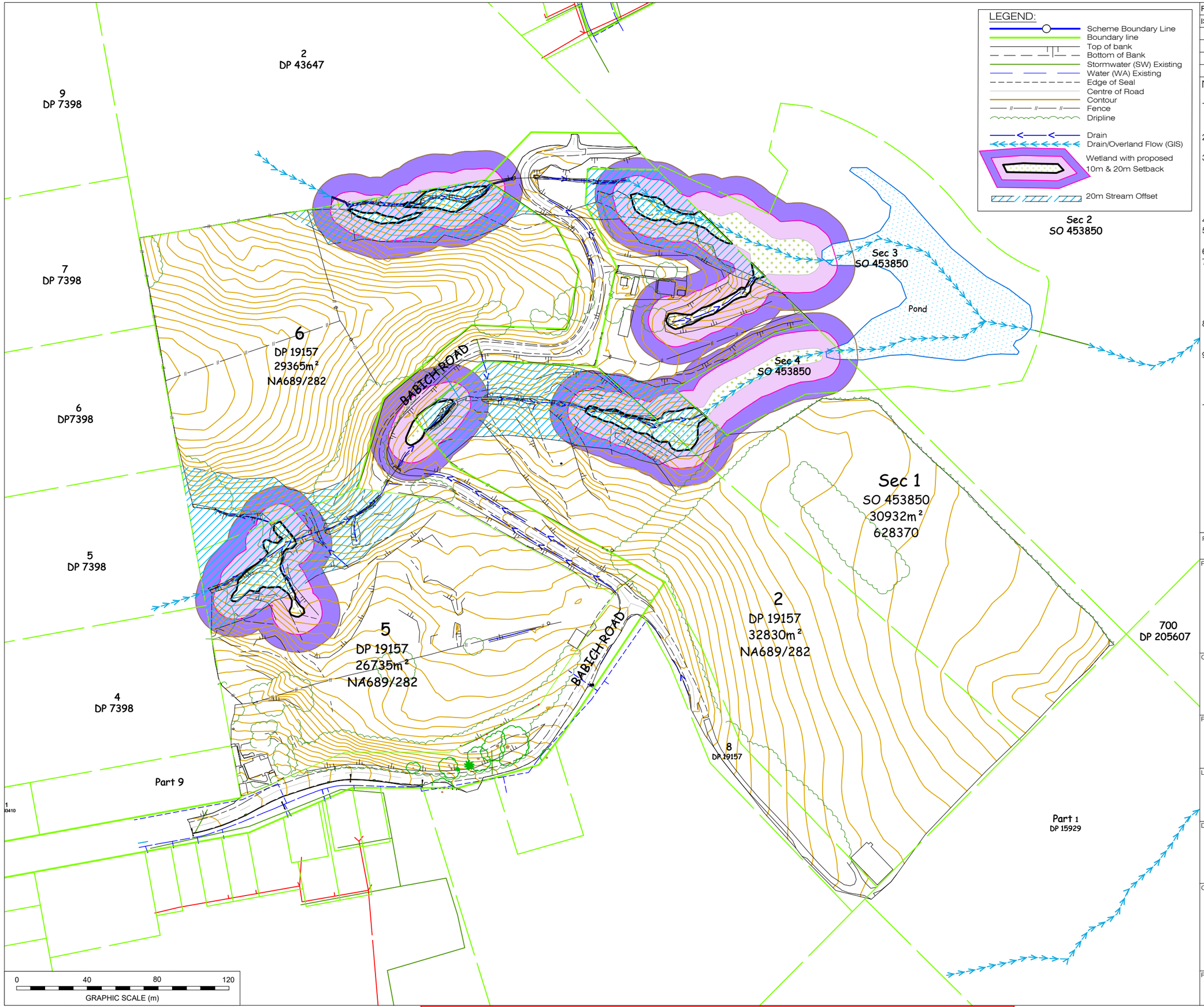
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY

CLIENT: CARRACK CAPITAL LIMITED
PROJECT No. 210506

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210506-RC-401	DRAINAGE LAYOUT PLAN - SHEET 1 OF 4	A	B	C	D	-	E	-
210506-RC-402	DRAINAGE LAYOUT PLAN - SHEET 2 OF 4	A	B	C	D	-	E	-
210506-RC-403	DRAINAGE LAYOUT PLAN - SHEET 3 OF 4	A	B	C	D	-	E	-
210506-RC-404	DRAINAGE LAYOUT PLAN - SHEET 4 OF 4	A	B	C	D	-	E	-
210506-RC-405	VEGETATION CLEARANCE AND EARTHWORKS WITHIN SIGNIFICANT ECOLOGICAL AREA PLAN	-	A	B	C	-	D	-
210506-RC-406	COMMON ACCESSWAY STORMWATER MITIGATION PLAN	-	-	-	-	-	A	-
210506-RC-410	STORMWATER LONGSECTION - SHEET 1 OF 9	A	B	C	D	-	E	-
210506-RC-411	STORMWATER LONGSECTION - SHEET 2 OF 9	A	B	C	D	-	E	-
210506-RC-412	STORMWATER LONGSECTION - SHEET 3 OF 9	A	B	C	D	-	E	-
210506-RC-413	STORMWATER LONGSECTION - SHEET 4 OF 9	A	B	C	D	-	E	-
210506-RC-414	STORMWATER LONGSECTION - SHEET 5 OF 9	A	B	C	D	-	E	-
210506-RC-415	STORMWATER LONGSECTION - SHEET 6 OF 9	A	B	C	D	-	E	-
210506-RC-416	STORMWATER LONGSECTION - SHEET 7 OF 9	A	B	C	D	-	E	-
210506-RC-417	STORMWATER LONGSECTION - SHEET 8 OF 9	A	B	C	D	-	E	-
210506-RC-418	STORMWATER LONGSECTION - SHEET 9 OF 9	-	-	-	A	-	B	-
210506-RC-425	EXISTING OVERLAND FLOW PATH AND FLOOD PLAIN PLAN	A	B	C	D	-	E	-
210506-RC-426	PROPOSED OVERLAND FLOW PATH PLAN	A	B	C	D	-	E	-
210506-RC-426.1	PROPOSED OVERLAND FLOW PATH PLAN CROSS SECTION CALCULATION - SHEET 1	-	A	-	B	-	-	-
210506-RC-426.2	PROPOSED OVERLAND FLOW PATH PLAN CROSS SECTION CALCULATION - SHEET 2	-	-	-	A	-	-	-
210506-RC-426.3	PROPOSED OVERLAND FLOW PATH PLAN CROSS SECTION CALCULATION - SHEET 3	-	-	-	A	-	B	-
210506-RC-426.4	PROPOSED OVERLAND FLOW PATH PLAN CROSS SECTION CALCULATION - SHEET 4	-	-	-	A	-	-	-
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210506-RC-427.1	STREAM AND WETLAND CATCHMENT PLAN PRE - DEVELOPMENT CALCULATIONS SHEET 1 OF 2	-	-	-	A	-	-	-
210506-RC-427.2	STREAM AND WETLAND CATCHMENT PLAN PRE - DEVELOPMENT CALCULATIONS SHEET 2 OF 2	-	-	-	A	-	-	-
210506-RC-428	STREAM AND WETLAND CATCHMENT PLAN POST - DEVELOPMENT	-	-	-	A	-	B	-
210506-RC-428.1	STREAM AND WETLAND CATCHMENT PLAN POST - DEVELOPMENT CALCULATIONS SHEET 1 OF 2	-	-	-	A	-	-	-
210506-RC-428.2	STREAM AND WETLAND CATCHMENT PLAN POST - DEVELOPMENT CALCULATIONS SHEET 2 OF 2	-	-	-	A	-	-	-
210506-RC-430	PROPOSED CULVERT 1 PLAN & LONG SECTION	A	B	C	D	-	E	-
210506-RC-431	PROPOSED CULVERT 1 CROSS SECTIONS	-	A	B	C	-	D	-
210506-RC-432	PROPOSED CULVERT 2 PLAN & LONG SECTION	-	A	-	B	-	C	-
210506-RC-433	PROPOSED CULVERT 2 CROSS SECTIONS	-	-	-	-	-	A	-
210506-RC-434	PROPOSED CULVERT 1 AND 2 RIP RAP CALCULATION	-	-	-	-	-	A	-
210506-RC-435	RAIN GARDENS PLAN	-	-	-	A	-	B	-
210506-RC-436	RAINGARDEN CATCHMENTS PLAN	A	-	B	C	-	D	-
210506-RC-437	RAIN GARDEN TYPICAL DETAILS ROAD SLOPE LESS THAN 5%	-	A	-	B	-	C	-
210506-RC-437.1	RAIN GARDEN 1 SECTION	-	-	-	A	-	B	-
210506-RC-437.2	RAIN GARDEN 6 SECTION	-	-	-	A	-	B	-
210506-RC-437.3	RAIN GARDEN 7 PLAN, LONG SECTION AND CROSS SECTION	-	-	-	A	-	B	-
210506-RC-437.4	RAIN GARDEN 10 AND 11 PLAN	-	-	-	A	-	B	-
210506-RC-437.5	RAIN GARDEN 10 AND 11 SECTIONS PLAN	-	-	-	A	-	B	-
210506-RC-437.6	RAIN GARDEN 9 SECTION PLAN	-	-	-	A	-	B	-
210506-RC-437.7	RAIN GARDEN 12 PLAN, LONG SECTION AND CROSS SECTION	-	-	-	-	-	A	-
210506-RC-437.8	RAIN GARDEN 13 PLAN, LONG SECTION AND CROSS SECTION	-	-	-	-	-	A	-
210506-RC-440	STORMWATER STANDARD DETAILS SHEET 1 OF 3	A	-	-	-	-	-	-
210506-RC-441	STORMWATER STANDARD DETAILS SHEET 2 OF 3	A	-	-	-	-	-	-
210506-RC-442	STORMWATER STANDARD DETAILS SHEET 3 OF 3	A	-	B	-	-	-	-

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210506-RC-450	WASTEWATER LONGSECTION - SHEET 1 OF 9	A	B	C	D	-	E	-
210506-RC-451	WASTEWATER LONGSECTION - SHEET 2 OF 9	A	B	C	D	-	E	-
210506-RC-452	WASTEWATER LONGSECTION - SHEET 3 OF 9	A	B	C	D	-	E	-
210506-RC-453	WASTEWATER LONGSECTION - SHEET 4 OF 9	A	B	C	D	-	E	-
210506-RC-454	WASTEWATER LONGSECTION - SHEET 5 OF 9	A	B	C	D	-	E	-
210506-RC-455	WASTEWATER LONGSECTION - SHEET 6 OF 9	A	B	C	D	-	E	-
210506-RC-456	WASTEWATER LONGSECTION - SHEET 7 OF 9	A	B	C	D	-	E	-
210506-RC-457	WASTEWATER LONGSECTION - SHEET 8 OF 9	A	B	C	D	-	E	-
210506-RC-458	WASTEWATER LONGSECTION - SHEET 9 OF 9	A	B	C	D	-	E	-
210506-RC-460	FLOOD LEVEL AT PIPE BRIDGE CALCULATION	-	A	-	-	-	-	-
210506-RC-461	PEDESTRIAN FOOTBRIDGE DETAILS (INDICATIVE ONLY)	-	-	A	B	-	-	-
210506-RC-462	RIPRAP CALCULATION	-	-	A	-	-	-	-
210506-RC-470	WASTEWATER STANDARD DETAILS SHEET 1 OF 4	A	-	-	-	-	-	-
210506-RC-471	WASTEWATER STANDARD DETAILS SHEET 2 OF 4	A	-	-	-	-	-	-
210506-RC-472	WASTEWATER STANDARD DETAILS SHEET 3 OF 4	A	-	-	-	-	-	-
210506-RC-473	WASTEWATER STANDARD DETAILS SHEET 4 OF 4	A	-	-	-	-	-	-
WATER SUPPLY & UTILITIES								
230506-RC-500	WATERMAIN OVERALL LAYOUT PLAN	A	B	C	D	-	E	-
230506-RC-501	WATERMAIN LAYOUT - SHEET 1 OF 3	A	B	C	D	-	E	-
230506-RC-502	WATERMAIN LAYOUT - SHEET 2 OF 3	A	B	C	D	-	E	-
230506-RC-503	WATERMAIN LAYOUT - SHEET 3 OF 3	A	B	C	D	-	E	-
230506-RC-510	WATERMAIN STANDARD DETAILS - SHEET 1 OF 3	A	-	-	-	-	-	-
230506-RC-511	WATERMAIN STANDARD DETAILS - SHEET 2 OF 3	A	-	-	-	-	-	-
230506-RC-512	WATERMAIN STANDARD DETAILS - SHEET 3 OF 3	A	-	-	-	-	-	-



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	09/04/24	FOR INFORMATION	SRM	MGC
B	08/10/24	TREE & STREAM DETAIL ADD'D	SRM	MGC
C	10/10/24	ADDITIONAL TREE DETAIL ADD'D	SRM	MGC
D	22/10/24	20M WETLAND AND STREAM O/S	SRM	MGC

NOTES:

1. Height Datum is in Terms of Auckland Vertical Datum 1946 (MSL).
   Origin: RM 8 DP 404605 RL 81.380
2. Horizontal Datum is Geodetic Datum 2000.
   Origin: Mt Eden 800,000mN 400,000mE.
3. Contours shown on this plan have been electronically computed from information collected on site, they may not represent the true ground levels. Any critical heights should be checked on site before any construction work proceeds.
4. Contours are at 1.0m intervals.
5. Comprised in Records of Title NA689/282 & 628370.
6. Total Area by Title = 11.9862Ha.
7. Property Boundaries have been sourced from the LINZ spatial database and are accurate for topographical purposes only. Where critical, boundary dimensions should be confirmed by adoption calculations or survey definition as required.
8. Where not determined by direct survey, drainage services have been adopted from Council GIS records.
9. Where the relationship of a proposed building to council's height to boundary control rules become critical further ground levels should be taken on the boundary adjacent to the critical position(s).
10. These notes are an integral part of this plan.

PURPOSE
FOR INFORMATION

PROJECT CONSULTANTS
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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
8-14 & 17-19 BABICH ROAD

LOCATION
8-14 & 17-19 BABICH ROAD
HENDERSON VALLEY
BEING LOTS 2, 5, 6 DP 19157 &
SEC 1 DP 453850

DRAWING TITLE
TOPOGRAPHICAL SURVEY

ORIENTATION

SCALE	A1	1:1000
	A3	1:2000
DATE		04/04/2024
SURVEYED		HF/MGC/CHP
DESIGNED		-
DRAWN		MGC
CHECKED		SRM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	SS 01	D

Z:\Babich Road (8-14, 17-19) 230432\Survey\8. DWG - AutoCAD\230432 SS01-06 Rev D.dwg, 01, 2024-10-30,3:38:38 pm

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	09/04/24	FOR INFORMATION	SRM	MGC
B	08/10/24	TREE & STREAM DETAIL ADD'D	SRM	MGC
C	10/10/24	ADDITIONAL TREE DETAIL ADD'D	SRM	MGC
D	22/10/24	20M WETLAND AND STREAM O/S	SRM	MGC

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LEGEND:

- Scheme Boundary Line
- Boundary line
- Top of bank
- Bottom of Bank
- Stormwater (SW) Existing
- Water (WA) Existing
- Edge of Seal
- Centre of Road
- Contour
- Fence
- Dripline
- Drain
- Drain/Overland Flow (GIS)
- Wetland with proposed 10m & 20m Setback
- 20m Stream Offset

PURPOSE

FOR INFORMATION

PROJECT CONSULTANTS

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PO BOX 12858, Penrose, New Zealand
Auckland: (09) 357 3557
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Email: terra@terragroup.co.nz | Web: www.terragroup.co.nz

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CLIENT

CARRACK CAPITAL LIMITED

PROJECT

8-14 & 17-19 BABICH ROAD

LOCATION 8-14 & 17-19 BABICH ROAD HENDERSON VALLEY BEING LOTS 2, 5, 6 DP 19157 & SEC 1 DP 453850

DRAWING TITLE

TOPOGRAPHICAL SURVEY

ORIENTATION

SCALE	A1	1:400
	A3	1:800
DATE		04/04/2024
SURVEYED		HF/MGC/CHP
DESIGNED		-
DRAWN		MGC
CHECKED		SRM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	SS 02	D

Z:\Babich Road (8-14, 17-19) 230432\Survey\8. DWG - AutoCAD\230432 SS01-06 Rev D.dwg, 02, 2024-10-30,3:38:49 pm

GRAPHIC SCALE (m): 0 10 20 30 40 50

LEGEND:

- Scheme Boundary Line
- Boundary line
- Top of bank
- Bottom of Bank
- Stormwater (SW) Existing
- Water (WA) Existing
- Edge of Seal
- Centre of Road
- Contour
- Fence
- Dripline
- Drain
- Drain/Overland Flow (GIS)
- Wetland with proposed 10m & 20m Setback
- 20m Stream Offset

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	09/04/24	FOR INFORMATION	SRM	MGC
B	08/10/24	TREE & STREAM DETAIL ADD'D	SRM	MGC
C	10/10/24	ADDITIONAL TREE DETAIL ADD'D	SRM	MGC
D	22/10/24	20M WETLAND AND STREAM O/S	SRM	MGC

NOTES:

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8-14 & 17-19 BABICH ROAD

LOCATION

8-14 & 17-19 BABICH ROAD
HENDERSON VALLEY
BEING LOTS 2, 5, 6 DP 19157 & SEC 1 DP 453850

DRAWING TITLE

TOPOGRAPHICAL SURVEY

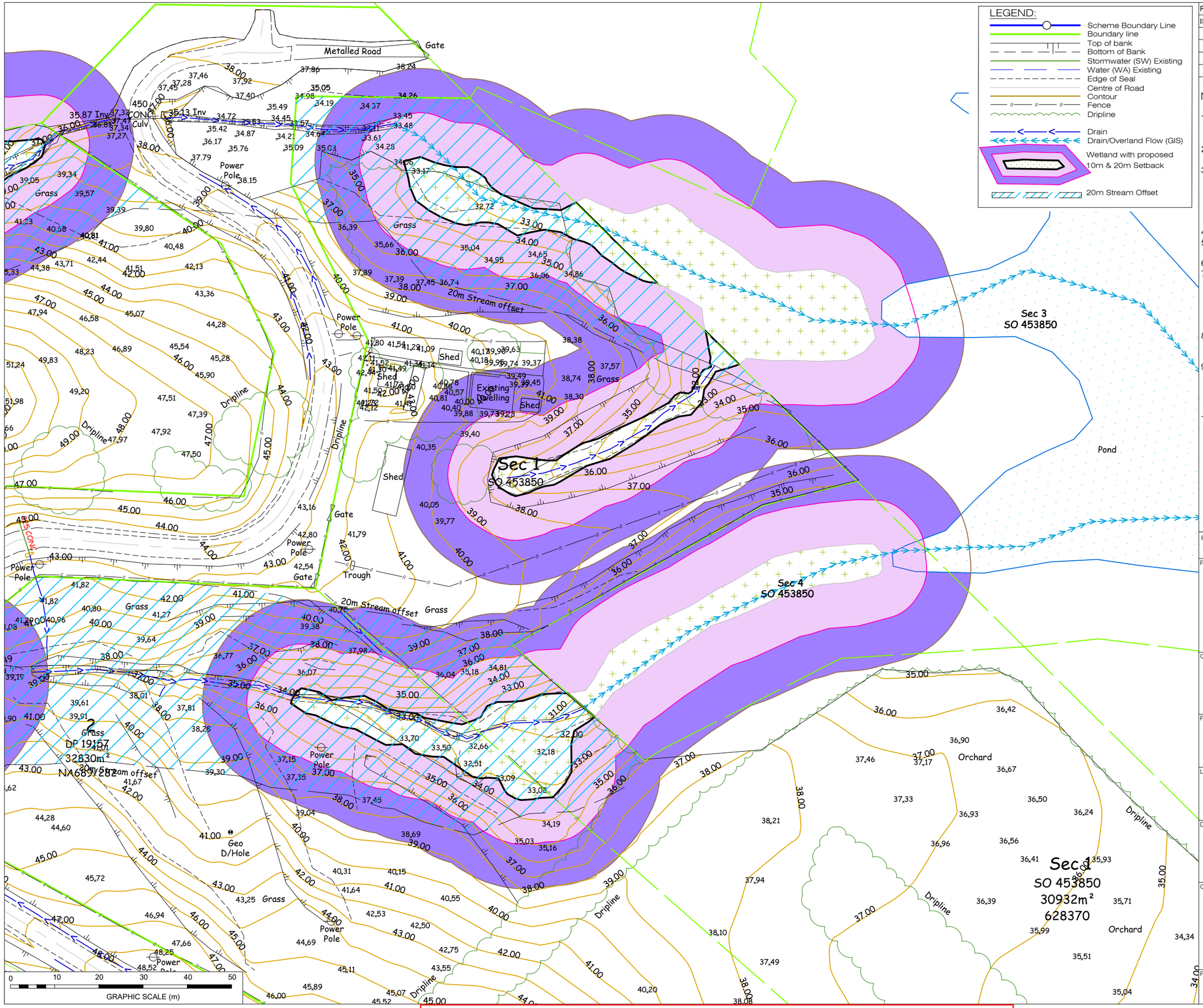
ORIENTATION

SCALE	A1	1:400
	A3	1:800
DATE		04/04/2024
SURVEYED		HF/MGC/CHP
DESIGNED		-
DRAWN		MGC
CHECKED		SRM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	SS 03	D

GRAPHIC SCALE (m): 0 10 20 30 40 50

Z:\Babich Road (8-14, 17-19) 230432\Survey\8. DWG - AutoCAD\230432 SS01-06 Rev D.dwg, 03, 2024-10-30,3:38:44 pm



LEGEND:

- Scheme Boundary Line
- Boundary line
- Top of bank
- Bottom of Bank
- Stormwater (SW) Existing
- Water (WA) Existing
- Edge of Seal
- Centre of Road
- Contour
- Fence
- Dripline
- Drain
- Drain/Overland Flow (GIS)
- Wetland with proposed 10m & 20m Setback
- 20m Stream Offset

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	09/04/24	FOR INFORMATION	SRM	MGC
B	08/10/24	TREE & STREAM DETAIL ADD'D	SRM	MGC
C	10/10/24	ADDITIONAL TREE DETAIL ADD'D	SRM	MGC
D	22/10/24	20M WETLAND AND STREAM O/S	SRM	MGC

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CLIENT

CARRACK CAPITAL LIMITED

PROJECT

8-14 & 17-19 BABICH ROAD

LOCATION

8-14 & 17-19 BABICH ROAD
HENDERSON VALLEY
BEING LOTS 2, 5, 6 DP 19157 & SEC 1 DP 453850

DRAWING TITLE

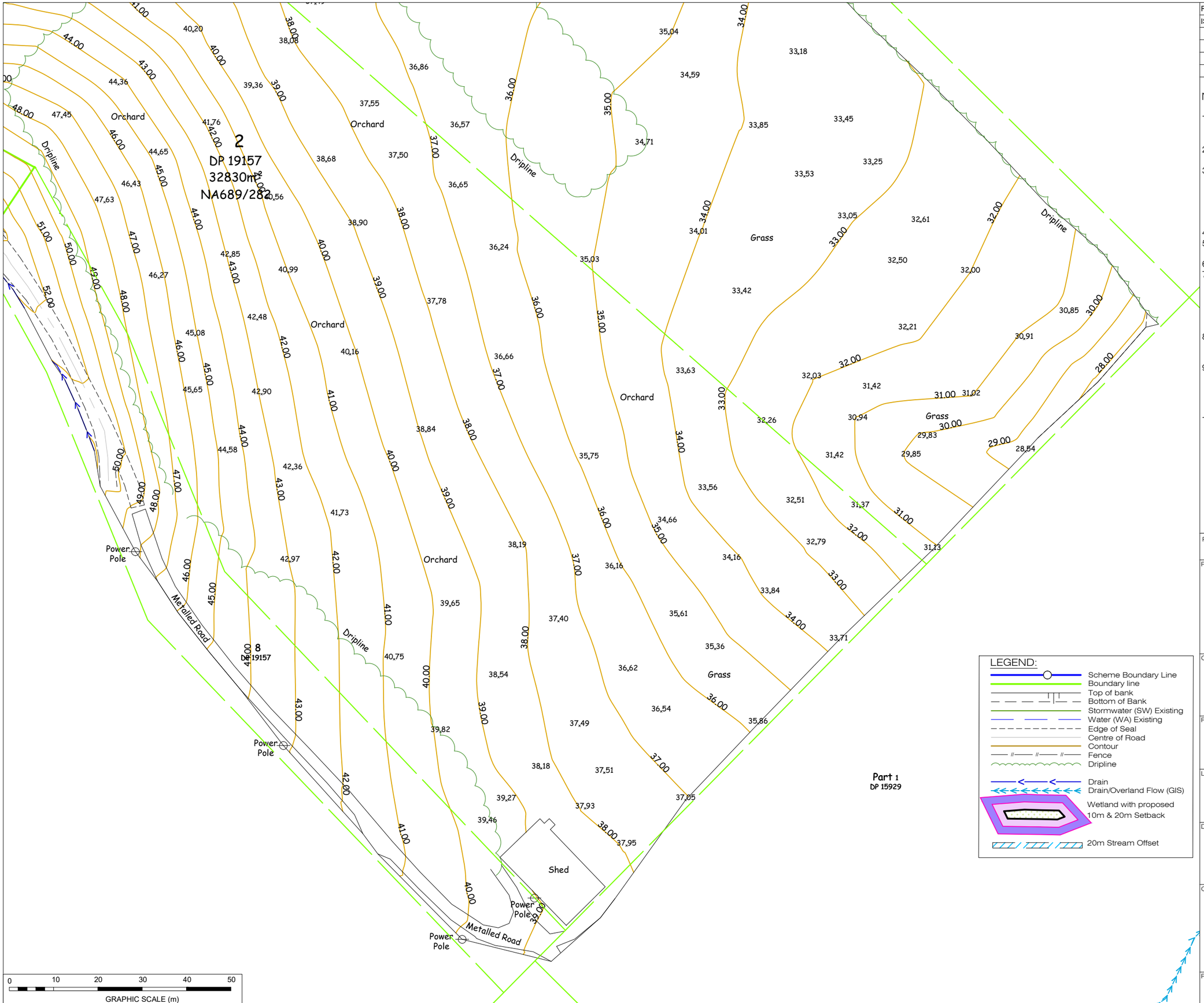
TOPOGRAPHICAL SURVEY

ORIENTATION

SCALE	A1	1:400
	A3	1:800
DATE		04/04/2024
SURVEYED		HF/MGC/CHP
DESIGNED		-
DRAWN		MGC
CHECKED		SRM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	SS 04	D

Z:\Babich Road (8-14, 17-19) 230432\Survey\8. DWG - AutoCAD\230432 SS01-06 Rev D.dwg, 04, 2024-10-30,3:38:54 pm



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	09/04/24	FOR INFORMATION	SRM	MGC
B	08/10/24	TREE & STREAM DETAIL ADD'D	SRM	MGC
C	10/10/24	ADDITIONAL TREE DETAIL ADD'D	SRM	MGC
D	22/10/24	20M WETLAND AND STREAM O/S	SRM	MGC

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CLIENT

CARRACK CAPITAL LIMITED

PROJECT

8-14 & 17-19 BABICH ROAD

LOCATION

8-14 & 17-19 BABICH ROAD
HENDERSON VALLEY
BEING LOTS 2, 5, 6 DP 19157 &
SEC 1 DP 453850

DRAWING TITLE

TOPOGRAPHICAL SURVEY

ORIENTATION

N

SCALE	A1	1:400
	A3	1:800
DATE		04/04/2024
SURVEYED		HF/MGC/CHP
DESIGNED		-
DRAWN		MGC
CHECKED		SRM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	SS 05	D

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REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	09/04/24	FOR INFORMATION	SRM	MGC
B	08/10/24	TREE & STREAM DETAIL ADD'D	SRM	MGC
C	10/10/24	ADDITIONAL TREE DETAIL ADD'D	SRM	MGC
D	22/10/24	20M WETLAND AND STREAM O/S	SRM	MGC

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
8-14 & 17-19 BABICH ROAD

LOCATION
8-14 & 17-19 BABICH ROAD
HENDERSON VALLEY
BEING LOTS 2, 5, 6 DP 19157 &
SEC 1 DP 453850

DRAWING TITLE
TOPOGRAPHICAL SURVEY
(WITH AERIAL PHOTOGRAPH)

ORIENTATION

SCALE	A1	1:1000
	A3	1:2000
DATE		04/04/2024
SURVEYED		HF/MGC/CHP
DESIGNED		-
DRAWN		MGC
CHECKED		SRM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	SS 1A	D

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REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	09/04/24	FOR INFORMATION	SRM	MGC
B	08/10/24	TREE & STREAM DETAIL ADD'D	SRM	MGC
C	10/10/24	ADDITIONAL TREE DETAIL ADD'D	SRM	MGC
D	22/10/24	20M WETLAND AND STREAM O/S	SRM	MGC

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
8-14 & 17-19 BABICH ROAD

LOCATION
8-14 & 17-19 BABICH ROAD
HENDERSON VALLEY
BEING LOTS 2, 5, 6 DP 19157 & SEC 1 DP 453850

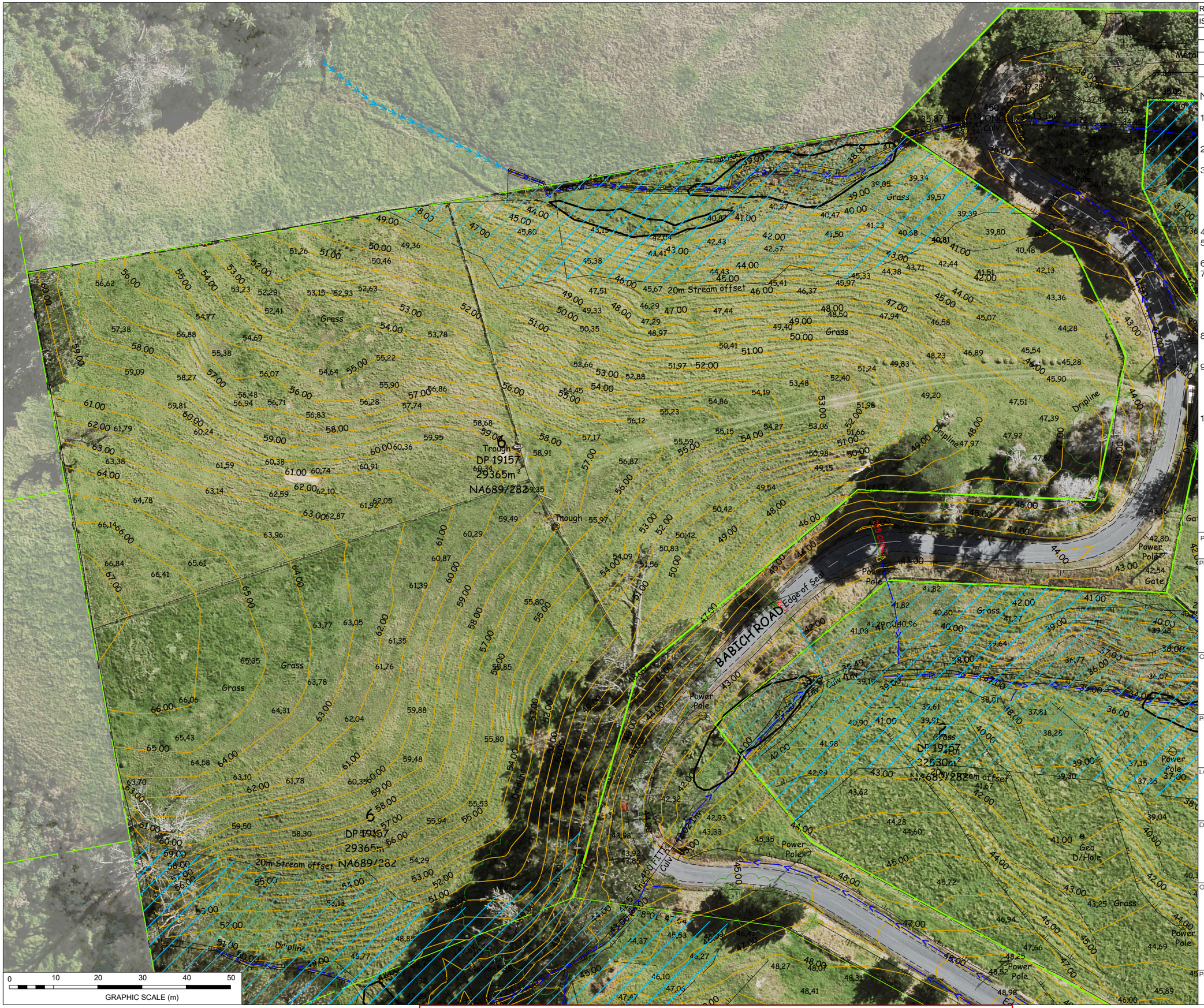
DRAWING TITLE
TOPOGRAPHICAL SURVEY (WITH AERIAL PHOTOGRAPH)

ORIENTATION

SCALE	A1	1:400
	A3	1:800
DATE		04/04/2024
SURVEYED		HF/MGC/CHP
DESIGNED		-
DRAWN		MGC
CHECKED		SRM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	SS 2A	D

Z:\Babich Road (8-14, 17-19) 230432\Survey\8. DWG - AutoCAD\230432 SS01-06 Rev D.dwg, 2A, 2024-10-30, 3:39:15 pm



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	09/04/24	FOR INFORMATION	SRM	MGC
B	08/10/24	TREE & STREAM DETAIL ADD'D	SRM	MGC
C	10/10/24	ADDITIONAL TREE DETAIL ADD'D	SRM	MGC
D	22/10/24	20M WETLAND AND STREAM O/S	SRM	MGC

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8-14 & 17-19 BABICH ROAD

LOCATION

8-14 & 17-19 BABICH ROAD
HENDERSON VALLEY
BEING LOTS 2, 5, 6 DP 19157 & SEC 1 DP 453850

DRAWING TITLE

TOPOGRAPHICAL SURVEY (WITH AERIAL PHOTOGRAPH)

ORIENTATION

N

SCALE	A1	1:400
	A3	1:800
DATE		04/04/2024
SURVEYED		HF/MGC/CHP
DESIGNED		-
DRAWN		MGC
CHECKED		SRM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	SS 3A	D

Z:\Babich Road (8-14, 17-19) 230432\Survey\8. DWG - AutoCAD\230432 SS01-06 Rev D.dwg, 3A, 2024-10-30, 3:39:20 pm



REVISION				
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8-14 & 17-19 BABICH ROAD

LOCATION

8-14 & 17-19 BABICH ROAD
HENDERSON VALLEY
BEING LOTS 2, 5, 6 DP 19157 & SEC 1 DP 453850

DRAWING TITLE

TOPOGRAPHICAL SURVEY (WITH AERIAL PHOTOGRAPH)

ORIENTATION

N

SCALE	A1	1:400
	A3	1:800
DATE		04/04/2024
SURVEYED		HF/MGC/CHP
DESIGNED		-
DRAWN		MGC
CHECKED		SRM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	SS 4A	D

Z:\Babich Road (8-14, 17-19) 230432\Survey\8. DWG - AutoCAD\230432 SS01-06 Rev D.dwg, 4A, 2024-10-30, 3:39:25 pm



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
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LOCATION

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BEING LOTS 2, 5, 6 DP 19157 &
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DRAWING TITLE

TOPOGRAPHICAL SURVEY

ORIENTATION

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	A3	1:800
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DESIGNED		-
DRAWN		MGC
CHECKED		SRM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	SS 5A	D

Z:\Babich Road (8-14, 17-19) 230432\Survey\8. DWG - AutoCAD\230432 SS01-06 Rev D.dwg, 5A, 2024-10-30, 3:39:30 pm

STAGE 1	STAGE 2	STAGE 3
4.8525 ha Gross	3.0576 ha Gross	3.8432 ha Gross
1.1212 ha Road	0.2410 ha Road	0.3724 ha Road
0.6437 ha DRN Res	0.5389 ha Eco Cov	0.1412 ha COAL
0.0767 ha Access		0.2906 ha DRN Res
0.0266 ha COAL		0.7572 ha Eco Cov
0.0053 ha ROW		0.0339 ha ROW
0.0162 ha Eco Cov		
2.9628 ha Nett	2.2777 ha Nett	2.2479 ha Nett

STAGE 3

STAGE 1

STAGE 2

BABICH ROAD

ROAD 1

BABICH ROAD

Lot 1008 98m² Vesting on Deposit for Road in Auckland Council

Lot 501 2906m² Vesting on Deposit for Local Purpose (Drainage) Reserve in Auckland Council

Lot 1007 153m² Vesting on Deposit for Road in Auckland Council

Lot 500 6437m² Vesting on Deposit for Local Purpose (Drainage) Reserve in Auckland Council

Lot 1009 42m² Vesting on Deposit for Road in Auckland Council

Lot 1001 42m² Vesting on Deposit for Road in Auckland Council

Lot 1002 317m² Vesting on Deposit for Accessway in Auckland Council

Lot 1003 450m² Vesting on Deposit for Accessway in Auckland Council

Lot 1000 1117m² Vesting on Deposit for Road in Auckland Council

Lot 1005 2368m² Vesting on Deposit for Road in Auckland Council

Lot 1006 3473m² Vesting on Deposit for Road in Auckland Council

Lot 400 (COAL) 629m²

Lot 402 (COAL) 184m²

Lot 403 (COAL) 82m²

Lot 404 (COAL) 659m²

Lot 405 (COAL) 124m²

Lot 100 4708m² Cov 2271m²

Lot 101 1537m²

Lot 102 1259m²

Lot 103 G 1647m² N 1308m²

Lot 104 450m²

Lot 105 450m²

Lot 106 450m²

Lot 107 450m²

Lot 108 450m²

Lot 109 450m²

Lot 110 450m²

Lot 111 484m² Cov 26m²

Lot 112 600m²

Lot 113 450m²

Lot 114 450m²

Lot 115 450m²

Lot 116 450m²

Lot 117 489m² Cov 115m²

Lot 118 1268m² Cov 301m²

Lot 119 1250m² Cov 301m²

Lot 120 1948m² Cov 1248m²

Lot 121 1562m² Cov 1066m²

Lot 122 1936m² Cov 636m²

Lot 123 463m²

Lot 124 459m²

Lot 125 484m²

Lot 126 466m²

Lot 127 501m² Cov 124m²

Lot 128 592m²

Lot 129 451m²

Lot 130 770m² Cov 271m²

Lot 131 561m² Cov 186m²

Lot 132 451m²

Lot 133 451m² Cov 94m²

Lot 134 608m² Cov 320m²

Lot 135 558m² Cov 352m²

Lot 136 495m² Cov 287m²

Lot 137 501m² Cov 124m²

Lot 1 450m²

Lot 2 450m²

Lot 3 450m²

Lot 4 450m²

Lot 5 465m²

Lot 6 514m²

Lot 7 618m²

Lot 8 510m²

Lot 9 501m²

Lot 10 528m²

Lot 11 484m² Cov 26m²

Lot 12 474m² Cov 107m²

Lot 13 455m² Cov 29m²

Lot 14 450m²

Lot 15 450m²

Lot 16 450m²

Lot 17 450m²

Lot 18 450m²

Lot 19 450m²

Lot 20 460m²

Lot 21 450m²

Lot 22 450m²

Lot 23 450m²

Lot 24 450m²

Lot 25 450m²

Lot 26 451m²

Lot 27 454m²

Lot 28 450m²

Lot 29 450m²

Lot 30 450m²

Lot 31 450m²

Lot 32 450m²

Lot 33 450m²

Lot 34 450m²

Lot 35 451m²

Lot 36 450m²

Lot 37 450m²

Lot 38 450m²

Lot 39 451m²

Lot 40 451m²

Lot 41 453m²

Lot 42 450m²

Lot 43 450m²

Lot 44 453m²

Lot 45 453m²

Lot 46 6583m² N530m²

Lot 47 453m²

Lot 48 459m²

Lot 49 454m²

Lot 50 450m²

Lot 51 450m²

Lot 52 450m²

Lot 53 451m²

Lot 54 450m²

Lot 55 450m²

Lot 56 456m²

Lot 57 463m²

Lot 58 450m²

Lot 59 450m²

Lot 60 450m²

Lot 61 450m²

Lot 62 450m²

Lot 63 450m²

Lot 64 450m²

Lot 65 450m²

Lot 66 450m²

Lot 67 450m²

Lot 68 450m²

Lot 69 450m²

Lot 70 450m²

Lot 71 450m²

Lot 72 450m²

Lot 73 450m²

Lot 74 450m²

Lot 75 451m²

Lot 76 451m²

Lot 77 1256m²

Lot 78 1253m²

Lot 79 1261m²

Lot 80 1293m²

Lot 81 457m²

Lot 82 492m²

Lot 91 461m²

Lot 97 1250m²

Lot 138 485m²

Lot 139 469m²

Lot 200 49m²

Lot 201 49m²

Lot 2000 16m²

LOT 92 2911m² Cov 1241m²

LOT 94 2976m² Cov 1419m²

LOT 96 4745m² Cov 2729m²

Lot 503 3700m² Land in Lieu

Sec 2 SO 453850

Sec 3 SO 453850

Sec 4 SO 453850

Sec 2 SO 453850

2 DP 43647

7 DP 7398

6 DP7398

5 DP 7398

4 DP 7398

1 DP .....

Pt 3 DP 19157

8 DP 19157

2 DP 552960

1 DP 552960

8 DP 517636

9

11 DP 541878

Pt 3 DP 19157

2 DP 93410

700 DP 205607

Pt. 1 DP 15929

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
V	07/10/24	STAGE 2 LOTS 92, 93 & 98 AMENDED	SRM	MGC	SURVEYED		
W	14/11/24	LOT 500 TRANSFERRED TO STAGE 1	SRM	SRM	DESIGNED		
X	29/11/24	LOTS 81 & 82 TO STAGE 1- TRANSFORMER EASEMENT ADDED	SRM	SRM	DRAWN	SRM	23/01/25
Y	09/12/24	LOTS 93 - 100 LAYOUT CHANGED	SRM	MGC	TRACED		
Z	10/02/25	COV ADDED LOTS 117 & 118 - INCREASED ON LOTS 119 & 120	SRM	MGC	CHECKED	SRM	23/01/25

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DRAWINGS ARE COPYRIGHT AND PROPERTY OF TERRA CONSULTANTS

CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14 & 17-19 BABICH ROAD HENDERSON VALLEY

DRAWING TITLE: OVERALL SCHEME PLAN FUTURE LOTS BEING LOTS 2, 5, 6 DP 19157 & SEC 1 SO 453850

STAGE: FUTURE LOTS

THIS DRAWING IS NOT SUITABLE FOR SETOUT PURPOSES

PROJECT NUMBER: 230432

SCALE: A1 1:250 A3 1:500

DWG NUMBER: SP05

REVISION: REV Z

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Parcel Area Table	
Lot #	Area
LOT: 1	450m²
LOT: 2	450m²
LOT: 3	450m²
LOT: 4	450m²
LOT: 5	465m²
LOT: 6	514m²
LOT: 7	618m²
LOT: 8	510m²
LOT: 9	501m²
LOT: 10	528m²
LOT: 11	484m²
LOT: 12	474m²
LOT: 13	455m²
LOT: 14	450m²
LOT: 15	450m²
LOT: 16	450m²
LOT: 17	450m²
LOT: 18	450m²
LOT: 19	450m²
LOT: 20	460m²

Parcel Area Table	
Lot #	Area
LOT: 21	450m²
LOT: 22	450m²
LOT: 23	450m²
LOT: 24	450m²
LOT: 25	450m²
LOT: 26	451m²
LOT: 27	454m²
LOT: 28	450m²
LOT: 29	450m²
LOT: 30	450m²
LOT: 31	450m²
LOT: 32	450m²
LOT: 33	450m²
LOT: 34	450m²
LOT: 35	451m²
LOT: 36	450m²
LOT: 37	450m²
LOT: 38	450m²
LOT: 39	451m²
LOT: 40	451m²

Parcel Area Table	
Lot #	Area
LOT: 41	453m²
LOT: 42	450m²
LOT: 43	450m²
LOT: 44	453m²
LOT: 45	453m²
LOT: 46	583m²
LOT: 47	453m²
LOT: 48	459m²
LOT: 49	454m²
LOT: 50	450m²
LOT: 51	450m²
LOT: 52	450m²
LOT: 53	451m²
LOT: 54	450m²
LOT: 55	450m²
LOT: 56	456m²
LOT: 57	463m²
LOT: 58	450m²
LOT: 59	450m²
LOT: 60	450m²

Parcel Area Table	
Lot #	Area
LOT: 61	450m²
LOT: 62	450m²
LOT: 63	450m²
LOT: 64	450m²
LOT: 65	450m²
LOT: 66	450m²
LOT: 67	450m²
LOT: 68	450m²
LOT: 69	450m²
LOT: 70	450m²
LOT: 71	450m²
LOT: 72	450m²
LOT: 73	450m²
LOT: 74	450m²
LOT: 75	451m²
LOT: 76	451m²
LOT: 77	1256m²
LOT: 78	1253m²
LOT: 79	1261m²
LOT: 80	1293m²

Parcel Area Table	
Lot #	Area
LOT: 81	457m²
LOT: 82	492m²
LOT: 91	461m²
LOT: 92	2911m²
LOT: 94	2976m²
LOT: 96	4745m²
LOT: 97	1250m²
LOT: 100	4708m²
LOT: 101	1537m²
LOT: 102	1259m²
LOT: 103	1647m²
LOT: 104	450m²
LOT: 105	450m²
LOT: 106	450m²
LOT: 107	450m²
LOT: 108	450m²
LOT: 109	450m²
LOT: 110	450m²
LOT: 112	600m²
LOT: 113	450m²

Parcel Area Table	
Lot #	Area
LOT: 114	450m²
LOT: 115	450m²
LOT: 116	450m²
LOT: 117	489m²
LOT: 118	1268m²
LOT: 119	1250m²
LOT: 120	1948m²
LOT: 121	1562m²
LOT: 122	1936m²
LOT: 123	463m²
LOT: 124	459m²
LOT: 125	484m²
LOT: 126	466m²
LOT: 128	592m²
LOT: 129	451m²
LOT: 130	770m²
LOT: 131	61m²
LOT: 132	451m²
LOT: 133	451m²
LOT: 134	608m²

Parcel Area Table	
Lot #	Area
LOT: 135	558m²
LOT: 136	495m²
LOT: 137	501m²
LOT: 138	485m²
LOT: 139	469m²
LOT: 200	49m²
LOT: 201	49m²
LOT: 500	6437m²
LOT: 501	2906m²
LOT: 503	3700m²
LOT: 400 (COAL)	629m²
LOT: 402 (COAL)	184m²
LOT: 403 (COAL)	82m²
LOT: 404 (COAL)	659m²
LOT: 405 (COAL)	124m²
LOT 1000	11170m²
LOT 1001	42m²
LOT 1002	317m²
LOT 1003	450m²
LOT 1005	2368m²

Parcel Area Table	
LOT 1006	3473m²
LOT 1007	153m²
LOT 1008	98m²
LOT 1009	42m²
LOT: 2000	16m²

STAGE 1
STAGE 2
STAGE 3

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
V	07/10/24	STAGE 2 LOTS 92, 93 & 98 AMENDED	SRM	MGC	SURVEYED		
W	14/11/24	LOT 500 TRANSFERRED TO STAGE 1	SRM	SRM	DESIGNED		
X	29/11/24	LOTS 81 & 82 TO STAGE 1- TRANSFORMER EASEMENT ADDED	SRM	SRM	DRAWN	SRM	23/01/25
Y	09/12/24	LOTS 93 - 100 LAYOUT CHANGED	SRM	MGC	TRACED		
Z	10/02/25	COV ADDED LOTS 117 & 118 - INCREASED ON LOTS 119 & 120	SRM	MGC	CHECKED	SRM	23/01/25

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14 & 17-19 BABICH ROAD
HENDERSON VALLEY

DRAWING TITLE
OVERALL SCHEME PLAN
FUTURE LOTS
BEING LOTS 2, 5, 6 DP 19157 &
SEC 1 SO 453850

STAGE
FUTURE LOTS
THIS DRAWING IS NOT SUITABLE FOR SETOUT PURPOSES

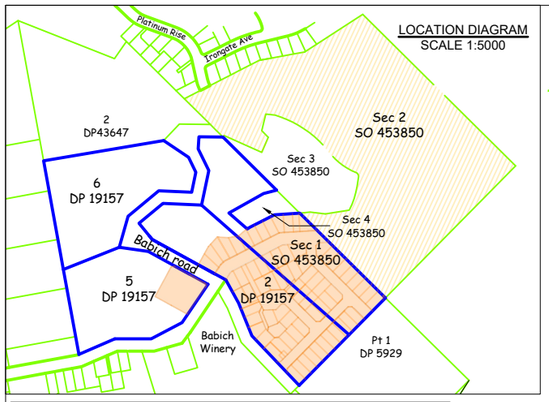
PROJECT NUMBER
230432

SCALE
A1 1:250
A3 1:500

DWG NUMBER
SP06

REVISION
REV Z

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AMALGAMATION CONDITIONS
(Pursuant to S.220 Resource Management Act 1991)

That Lot 2000 hereon and Section 2 SO 453850 be held in the same Record of Title.

MEMORANDUM OF EASEMENTS
(Pursuant to S.243(a) Resource Management Act 1991)

PURPOSE	SHOWN	BURDENED LAND	BENEFITED LAND
Right of Way	(AH)	Lot 46 Hereon	Lot 44 Hereon
Maintenance	(AI)	Lot 14 Hereon	Lots 10 -13 Hereon
	(AJ)	Lot 13 Hereon	Lots 10-12 Hereon
	(AN)	Lot 12 Hereon	Lots 10-11&13 Hereon
	(AL)	Lot 11 Hereon	Lots 10, 12-13 Hereon
	(AM)	Lot 10 Hereon	Lots 11-13 Hereon

Areas subject to an Ecological Covenant.

Lot #	Shown	Area
Lot 11	(I)	26m²
Lot 12	(J)	107m²
Lot 13	(K)	29m²

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
X	29/01/25	BALANCE LOTS NUMBER EDIT	SRM	MGC
Y	10/02/25	COV AMENDED LOTS 117-120	SRM	MGC
Z	28/02/25	EASEMENT SCHEDULE AMEN'D	SRM	MGC
AA	28/02/25	402 AMALGAMATION AMENDED	SRM	MGC

LEGEND:

- Property Boundaries
- Scheme Boundaries
- Covenant / Boundary Easement

NOTES:

1. The information shown on this drawing is for the sole purpose of supporting a subdivision consent application under the Resource Management Act 1991 to Auckland council. The information must not be used for any other purpose.
2. Areas and measurements are subject to survey.
3. These notes are an integral part of the drawing.
4. Re-calc. Bdy's are subject to LINZ approval.
5. Lots 200 & 201 are to be owned by Auckland Council for the purpose of turning facility for the public road.

PROPOSED SUBDIVISION AT 8-14 & 17-19 BABICH ROAD HENDERSON VALLEY

Being Lot's 2 DP....., 2 DP 19157 and Sec1 DP 453850
Affected R'sT: 1182246 & 628370

PURPOSE
FOR RESOURCE CONSENT

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
8-14 & 17-19 BABICH ROAD

LOCATION
8-14 & 17-19 BABICH ROAD HENDERSON VALLEY BEING LOTS 2, 5, 6 DP 19157 & SEC 1 DP 453850

DRAWING TITLE
SCHEME PLAN STAGE 1

ORIENTATION	SCALE	A1 1:750, A3 1:1500
	DATE	12/04/2024
	SURVEYED	DIB/CHP/SRM
	DESIGNED	NM/GT
	DRAWN	MGC
	CHECKED	SRM
PROJECT NUMBER: 210506	DWG NUMBER: SP-01	REVISION: AA

0 30 60 90
GRAPHIC SCALE (m)

AMALGAMATION CONDITIONS
(Pursuant to S.220 Resource Management Act 1991)

That Lot 402 Hereon (Legal access) be held as to 5 undivided one-fifth shares by the owners of Lots 45, 47 - 49 & 138 Hereon as Tenants -in-Common in the said shares and that individual Records of Title be issued in accordance therewith.
That Lot 403 Hereon (Legal access) be held as to 3 undivided one-third shares by the owners of Lots 29, 30 & 41 Hereon as Tenants -in-Common in the said shares and that individual Records of Title be issued in accordance therewith.

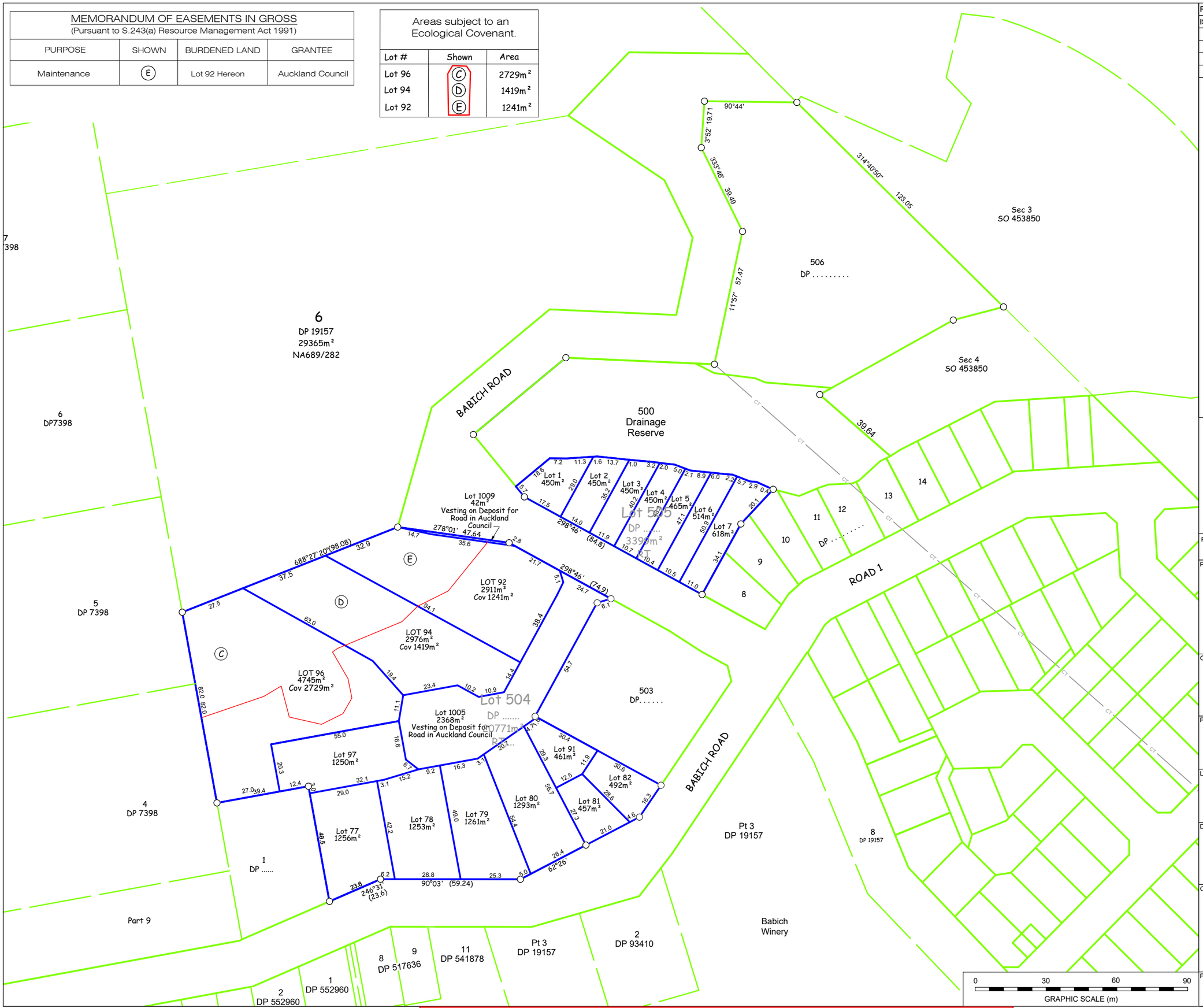
PROPOSED EASEMENTS IN GROSS

PURPOSE	SHOWN	BURDENED LAND	GRANTEE
Right to Convey Electricity	(AC)	Lot 402 Hereon	Vector Ltd
	(AD)	Lot 403 Hereon	
Right to Convey Telecommunications	(AC)	Lot 402 Hereon	Chorus NZ Ltd
	(AD)	Lot 403 Hereon	

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MEMORANDUM OF EASEMENTS IN GROSS (Pursuant to S.243(a) Resource Management Act 1991)			
PURPOSE	SHOWN	BURDENED LAND	GRANTEE
Maintenance	(E)	Lot 92 Hereon	Auckland Council

Areas subject to an Ecological Covenant.		
Lot #	Shown	Area
Lot 96	(C)	2729m²
Lot 94	(D)	1419m²
Lot 92	(E)	1241m²



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
X	29/01/25	BALANCE LOTS NUMBER EDIT	SRM	MGC
Y	10/02/25	COV AMENDED LOTS 117-120	SRM	MGC
Z	28/02/25	EASEMENT SCHEDULE AMEN'D	SRM	MGC
AA	28/02/25	402 AMALGAMATION AMENDED	SRM	MGC

LEGEND:

- Property Boundaries
- Scheme Boundaries
- Covenant / Boundary Easement

NOTES:

1. The information shown on this drawing is for the sole purpose of supporting a subdivision consent application under the Resource Management Act 1991 to Auckland council. The information must not be used for any other purpose.
2. Areas and measurements are subject to survey.
3. These notes are an integral part of the drawing.
4. Re-calc. Bdy's are subject to LINZ approval

PROPOSED SUBDIVISION AT 8-14 & 17-19 BABICH ROAD HENDERSON VALLEY

Being Lot's 504 & 505 DP.....

PURPOSE
FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
BABICH ROAD

LOCATION
8-14, 17-19 BABICH ROAD
HENDERSON VALLEY
BEING LOT 2,5 & 6 DP 19157

DRAWING TITLE
SCHEME PLAN
STAGE 2

ORIENTATION

SCALE	A1	1:750
	A3	1:1500
DATE		12/04/2024
SURVEYED		DIB/CHP/SRM
DESIGNED		NM/GT
DRAWN		MGC
CHECKED		SRM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	SP-02	AA

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MEMORANDUM OF EASEMENTS
(Pursuant to S.243(a) Resource Management Act 1991)

PURPOSE	SHOWN	BURDENED LAND	BENEFITED LAND
Right of Way, Right to Drain Water and Sewage, Right to Convey Electricity, Water, & Telecommunications.	AB	Lot 103 Hereon	Lots 101, 102, 104 & 105 Hereon

MEMORANDUM OF EASEMENTS IN GROSS
(Pursuant to S.243(a) Resource Management Act 1991)

PURPOSE	SHOWN	BURDENED LAND	GRANTEE
Right of way (Pedestrian Access)	AG	Lot 404 Hereon	Auckland Council
Right of way (Vehicle Manoeuvring)	AK	Lot 400 Hereon	
Maintenance	M	Lot 100 Hereon	

PROPOSED EASEMENTS IN GROSS

PURPOSE	SHOWN	BURDENED LAND	GRANTEE
Right to Convey Electricity	AA AK	Lots 400 Hereon	Vector Ltd
	AB	Lots 103 Hereon	
	AE	Lots 404 Hereon	
	AF	Lots 405 Hereon	
Right to Convey Telecommunications	AA AK	Lots 400 Hereon	Chorus NZ Ltd
	AB	Lots 103 Hereon	
	AE	Lots 404 Hereon	
	AF	Lots 405 Hereon	

AMALGAMATION CONDITIONS
(Pursuant to S.220 Resource Management Act 1991)

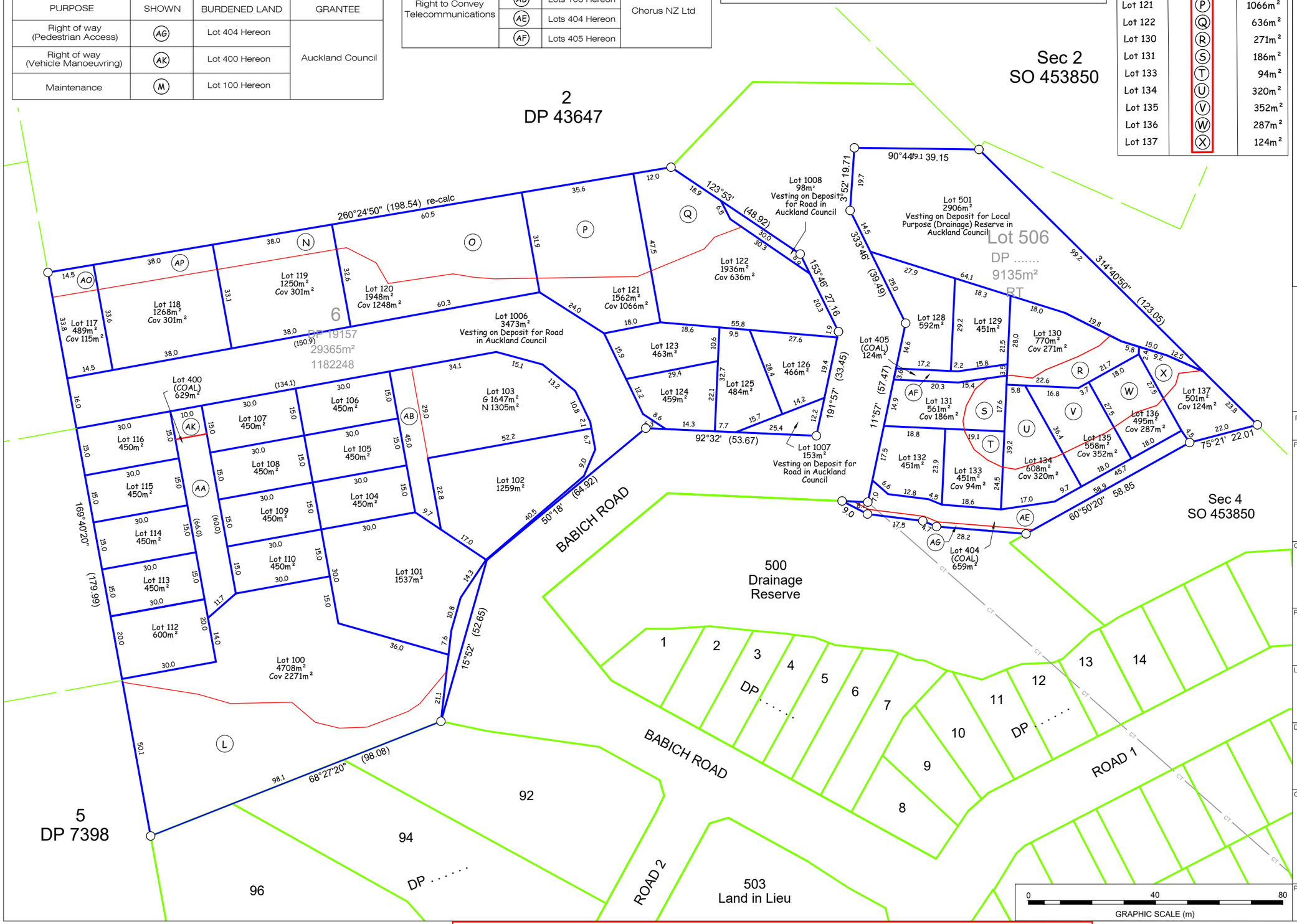
That Lot 400 Hereon (Legal access) be held as to 9 undivided one-ninth shares by the owners of Lots 100, 107 -110 & 112-115 Hereon as Tenants -in-Common in the said shares and that individual Records of Title be issued in accordance therewith.

That Lot 404 Hereon (Legal access) be held as to 6 undivided one-sixth shares by the owners of Lots 132 - 137 Hereon as Tenants -in-Common in the said shares and that individual Records of Title be issued in accordance therewith.

That Lot 405 Hereon (Legal access) be held as to 3 undivided one-third shares by the owners of Lots 128 - 130 Hereon as Tenants -in-Common in the said shares and that individual Records of Title be issued in accordance therewith.

Areas subject to an Ecological Covenant.

Lot #	Shown	Area
Lot 100	L	2271m²
Lot 117	AO	115m²
Lot 118	AP	301m²
Lot 119	N	301m²
Lot 120	O	1248m²
Lot 121	P	1066m²
Lot 122	Q	636m²
Lot 130	R	271m²
Lot 131	S	186m²
Lot 133	T	94m²
Lot 134	U	320m²
Lot 135	V	352m²
Lot 136	W	287m²
Lot 137	X	124m²



REVISION

ISSUE	DATE	DETAIL	CHKD	DRWN
X	29/01/25	BALANCE LOTS NUMBER EDIT	SRM	MGC
Y	10/02/25	COV AMENDED LOTS 117-120	SRM	MGC
Z	28/02/25	EASEMENT SCHEDULE AMEN'D	SRM	MGC
AA	28/02/25	402 AMALGAMATION AMENDED	SRM	MGC

LEGEND:

- Property Boundaries
- Scheme Boundaries
- Covenant / Boundary Easement

NOTES:

1. The information shown on this drawing is for the sole purpose of supporting a subdivision consent application under the Resource Management Act 1991 to Auckland council. The information must not be used for any other purpose.
2. Areas and measurements are subject to survey.
3. These notes are an integral part of the drawing.

PROPOSED SUBDIVISION AT 8-14 & 17-19 BABICH ROAD HENDERSON VALLEY

Being Lot's 6 DP 19157 & 506 DP .....

Affected RT 1182248

PURPOSE: FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT: BABICH ROAD

LOCATION: 8-14, 17-19 BABICH ROAD HENDERSON VALLEY BEING LOT 2, 5 & 6 DP 19157 AND SEC 1 SO 453850

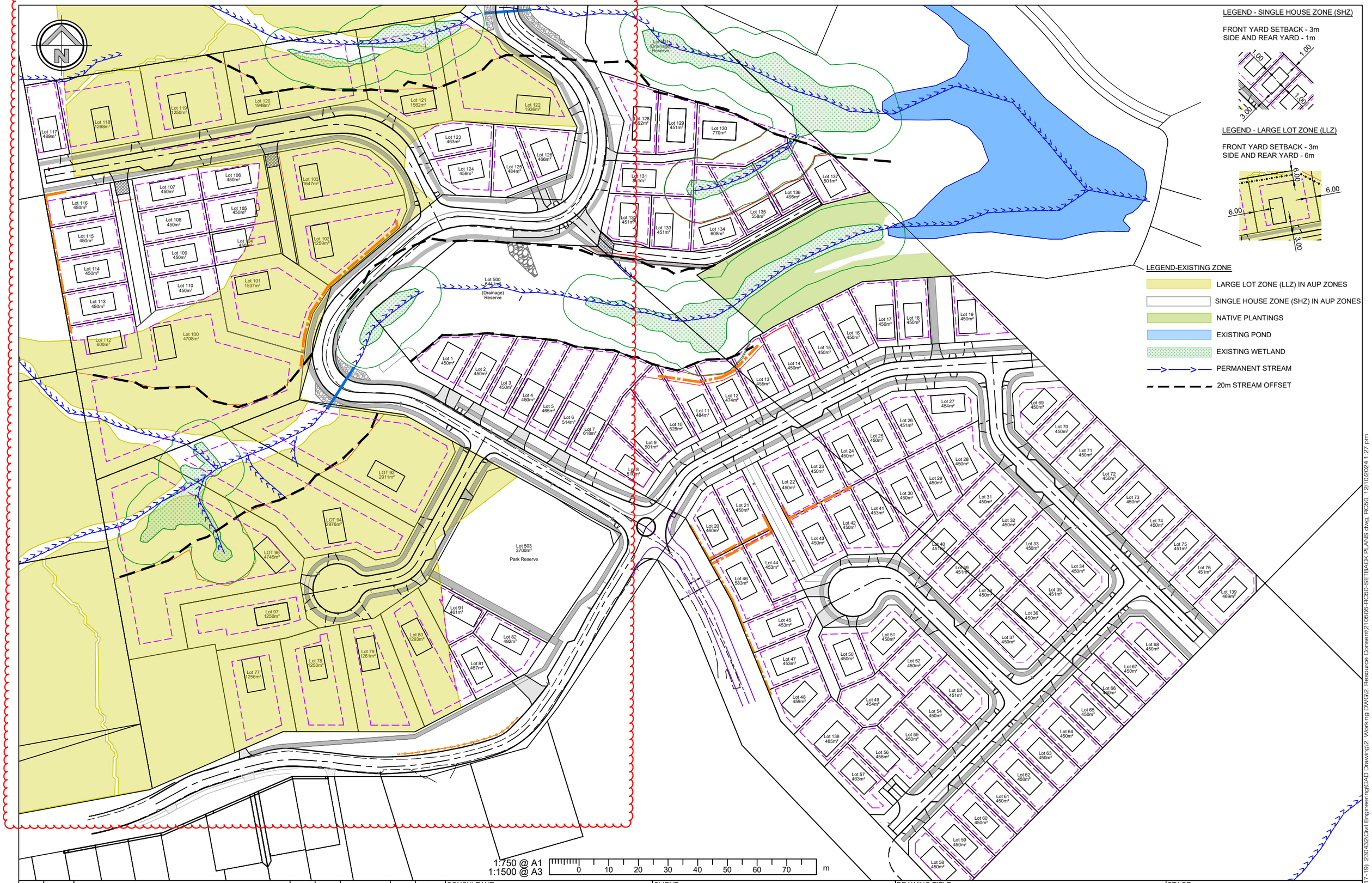
DRAWING TITLE: SCHEME PLAN STAGE 3

ORIENTATION

SCALE	A1	1:600
	A3	1:1200
DATE		12/04/2024
SURVEYED		DIB/CHP/SRM
DESIGNED		NM/GT
DRAWN		MGC
CHECKED		SRM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	SP-03	AA

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ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	14/07/24	FOR S92	GT	GZ	SURVEYED		
B	23/08/24	FOR S92	NM	GZ	DESIGNED		
C	30/10/24	FOR S92	NM	GZ	DRAWN		
D	07/11/24	FOR S92	NM	GZ	TRACED		
E	04/12/24	FOR S92	NM	GZ	CHECKED		

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
EXISTING ZONE-YARD SETBACK PLAN

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:750
A3 1:1500

DWG NUMBER
RC-50

REVISION
E

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SHEET 61

LEGEND - STAGING:

- INFRASTRUCTURE - STAGE 1
- INFRASTRUCTURE - STAGE 2
- INFRASTRUCTURE - STAGE 3
- STAGING BOUNDARY

STAGE 3

STAGE 2

STAGE 1

ROAD 6

ROAD 5

ROAD 1

ROAD 2

ROAD 3

ROAD 4

BABICH ROAD

21 BABICH ROAD

2 BABICH ROAD

PAREMUKA ESPLANADE

PAREMUKA RESERVE

BROOKWOOD DRIVE

CHELMSLEY AVENUE

SHEET 62

SHEET 63

SHEET 64

1:1000 @ A1
1:2000 @ A3

0 10 20 30 40 50 60 70 80 90 100 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	12/07/24	FOR RESOURCE CONSENT	GT	GZ	SURVEYED		
B	23/08/24	FOR S92	GT	GZ	DESIGNED	GT	12/07/24
C	30/10/24	FOR S92	GT	GZ	DRAWN	GZ	12/07/24
D	04/12/24	FOR S92	GT	GZ	TRACED	GT	12/07/24
					CHECKED	GT	12/07/24

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: INFRASTRUCTURE STAGING OVERALL PLAN

STAGE: FOR RESOURCE CONSENT

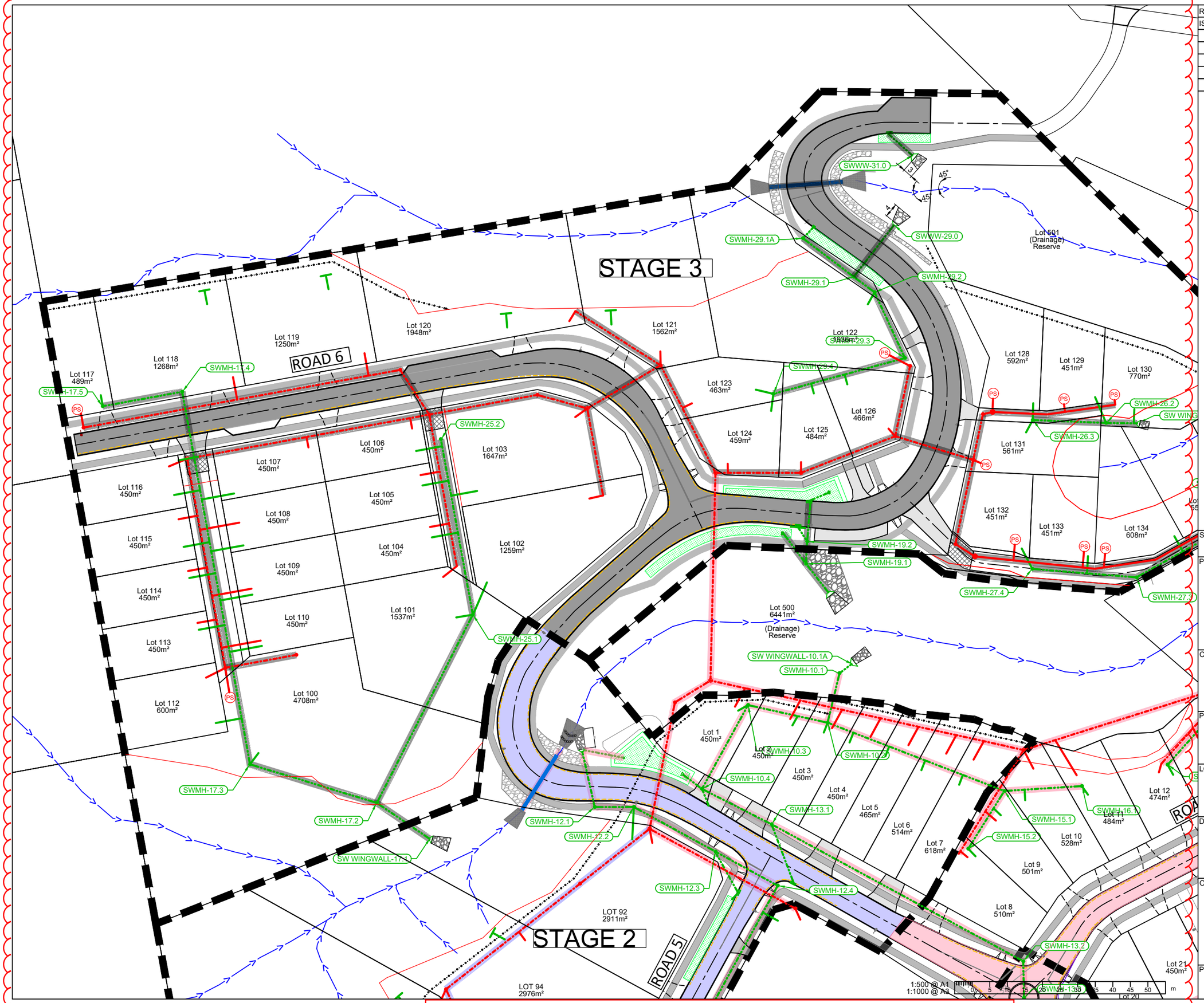
PROJECT NUMBER: 210506

SCALE: A1 1:1000, A3 1:2000

DWG NUMBER: RC-60

REVISION: D

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawings\2. Working DWG\2. Resource Consent\210506-RC60_62-ENG STAGING.dwg, 60, 12/9/2024 8:27 pm



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	12/07/24	FOR RESOURCE CONSENT	GT	GCAI
B	23/08/24	FOR S92	GT	GZ
C	30/10/24	FOR S92	GT	GZ
D	04/12/24	FOR S92	GT	GZ

LEGEND - PROPOSED DRAINAGE:

- SW MANHOLE, CESSPIT
- SW PIPE (PUBLIC)
- SW PIPE (PRIVATE)
- WW MANHOLE
- WW PIPE (PUBLIC)
- WW PIPE (PRIVATE)
- INFRASTRUCTURE - STAGE 1
- INFRASTRUCTURE - STAGE 2
- INFRASTRUCTURE - STAGE 3
- STAGING BOUNDARY

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE
FOR RESOURCE CONSENT

PROJECT CONSULTANTS
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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

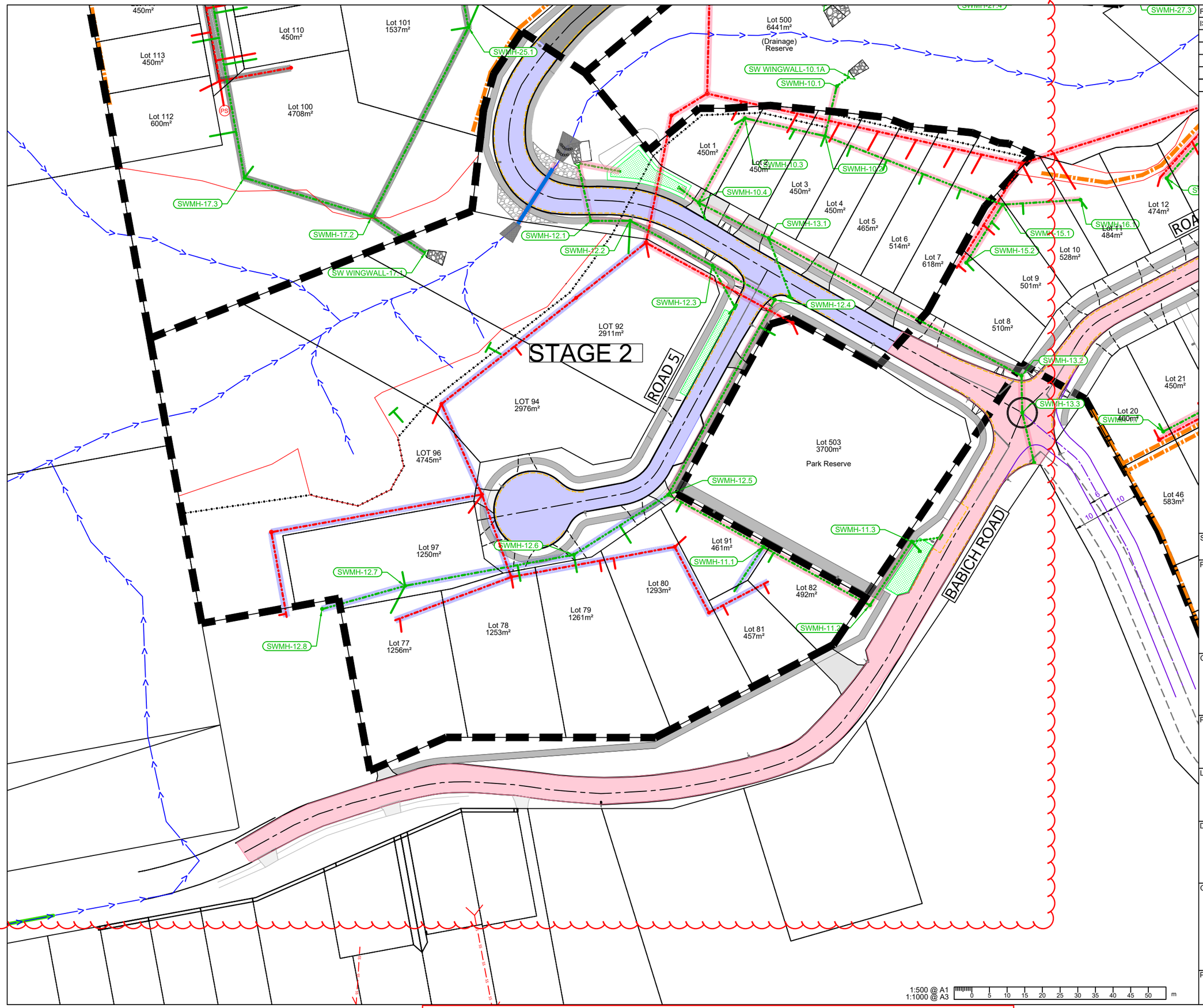
DRAWING TITLE
INFRASTRUCTURE
STAGING PLAN
SHEET 1 OF 4

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		GCAI
DRAWN		GCAI
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 61	D

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC60_62-ENG STAGING.dwg, 61, 12/9/2024 8:27 pm



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	12/07/24	FOR RESOURCE CONSENT	GT	GCAI
B	23/08/24	FOR S92	GT	GZ
C	30/10/24	FOR S92	GT	GZ
D	04/12/24	FOR S92	GT	GZ

LEGEND - PROPOSED DRAINAGE:

- SW MANHOLE, CESSPIT
- SW PIPE (PUBLIC)
- SW PIPE (PRIVATE)
- WW MANHOLE
- WW PIPE (PUBLIC)
- WW PIPE (PRIVATE)
- INFRASTRUCTURE - STAGE 1
- INFRASTRUCTURE - STAGE 2
- INFRASTRUCTURE - STAGE 3
- STAGING BOUNDARY

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE
FOR RESOURCE CONSENT

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PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
INFRASTRUCTURE
STAGING PLAN
SHEET 2 OF 4

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		12/07/2024
SURVEYED		TERRA
DESIGNED		GCAI
DRAWN		GCAI
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 62	D

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC60_62-ENG STAGING.dwg, 62, 12/9/2024 8:27 pm

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	12/07/24	FOR RESOURCE CONSENT	GT	GCAI
B	23/08/24	FOR S92	GT	GZ
C	30/10/24	FOR S92	GT	GZ
D	04/12/24	FOR S92	GT	GZ

LEGEND - PROPOSED DRAINAGE:

- SW MANHOLE, CESSPIT
- SW PIPE (PUBLIC)
- SW PIPE (PRIVATE)
- WW MANHOLE
- WW PIPE (PUBLIC)
- WW PIPE (PRIVATE)
- INFRASTRUCTURE - STAGE 1
- INFRASTRUCTURE - STAGE 2
- INFRASTRUCTURE - STAGE 3
- STAGING BOUNDARY

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE
FOR RESOURCE CONSENT

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PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
INFRASTRUCTURE
STAGING PLAN
SHEET 3 OF 4

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		12/07/2024
SURVEYED		TERRA
DESIGNED		GCAI
DRAWN		GCAI
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 63	D

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1:1000 @ A3
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Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC60_62-ENG STAGING.dwg, 63, 12/9/2024 8:28 pm

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	12/07/24	FOR RESOURCE CONSENT	GT	GCAI
B	23/08/24	FOR S92	GT	GZ
C	30/10/24	FOR S92	GT	GZ
D	04/12/24	FOR S92	GT	GZ

LEGEND - PROPOSED DRAINAGE:

- SW MANHOLE, CESSPIT
- SW PIPE (PUBLIC)
- SW PIPE (PRIVATE)
- WW MANHOLE
- WW PIPE (PUBLIC)
- WW PIPE (PRIVATE)
- INFRASTRUCTURE - STAGE 1
- INFRASTRUCTURE - STAGE 2
- INFRASTRUCTURE - STAGE 3
- STAGING BOUNDARY

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE
FOR RESOURCE CONSENT

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
INFRASTRUCTURE
STAGING PLAN
SHEET 4 OF 4

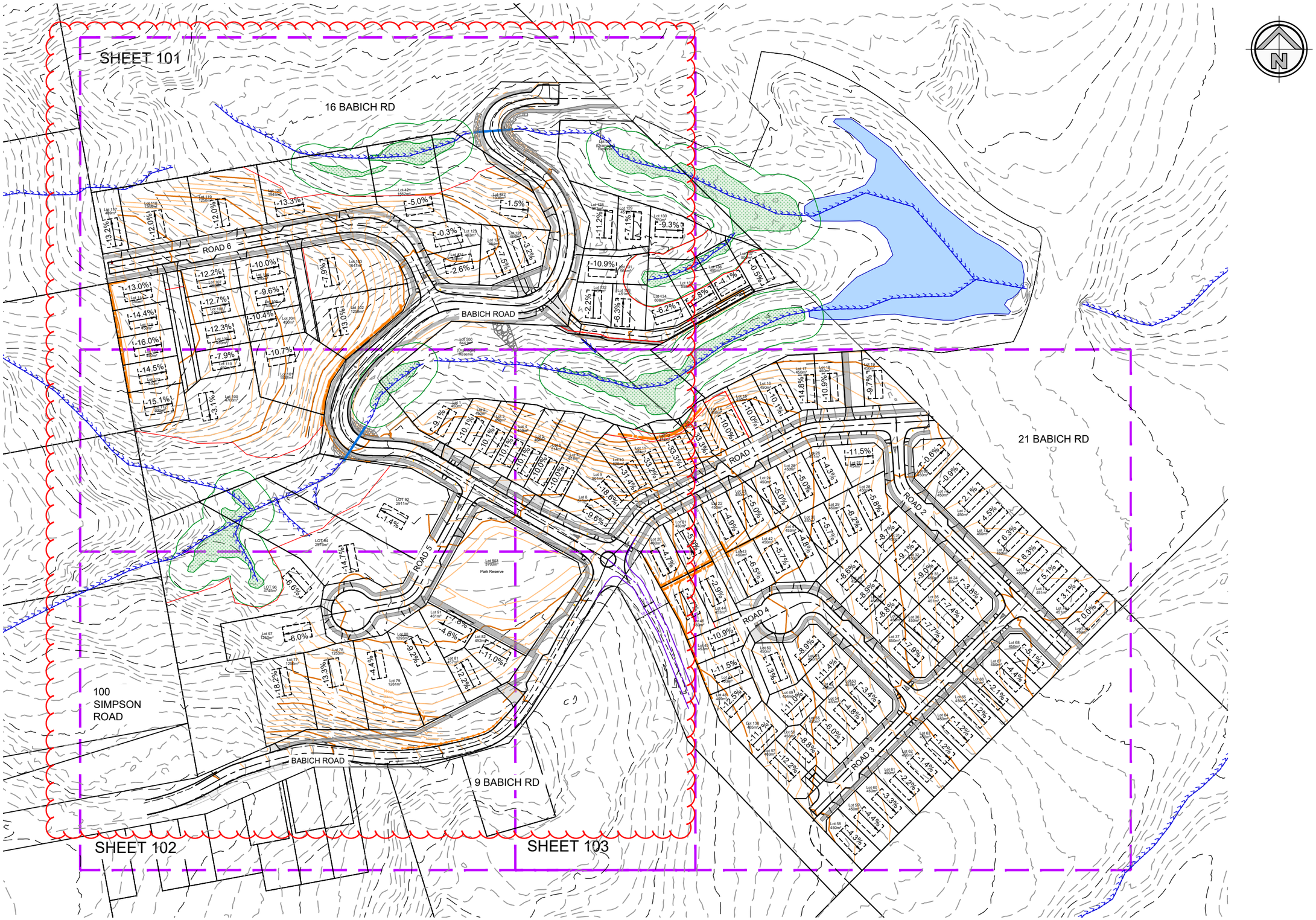
ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		12/07/2024
SURVEYED		TERRA
DESIGNED		GCAI
DRAWN		GCAI
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 64	D

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC60_62-ENG STAGING.dwg, 64, 12/9/2024 8:28 pm



1:1000 @ A1
1:2000 @ A3

0 10 20 30 40 50 60 70 80 90 100 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92	NM	NM
C	30/10/24	FOR S92	NM	GT
D	04/12/24	FOR S92	NM	GT

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	NM	01/05/24
DRAWN	NM	01/05/24
TRACED		
CHECKED	GT	01/05/24

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CLIENT
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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
EXISTING AND FINISHED CONTOURS
OVERALL PLAN

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:1000
A3 1:2000

DWG NUMBER
RC- 100

REVISION
D

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92	NM	NM
C	30/10/24	FOR S92	NM	GT
D	04/12/24	FOR S92	NM	GT

LEGEND:

- EXISTING ROAD
- EXISTING OVERLAND FLOW PATH
- EXISTING WETLAND
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- VEHICLE CROSSING TO BE BUILT WITH SUBDIVISION CIVIL WORKS
- INDICATIVE VEHICLE CROSSINGS (WILL NOT BE BUILT WITH SUBDIVISION)

STAGE

FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

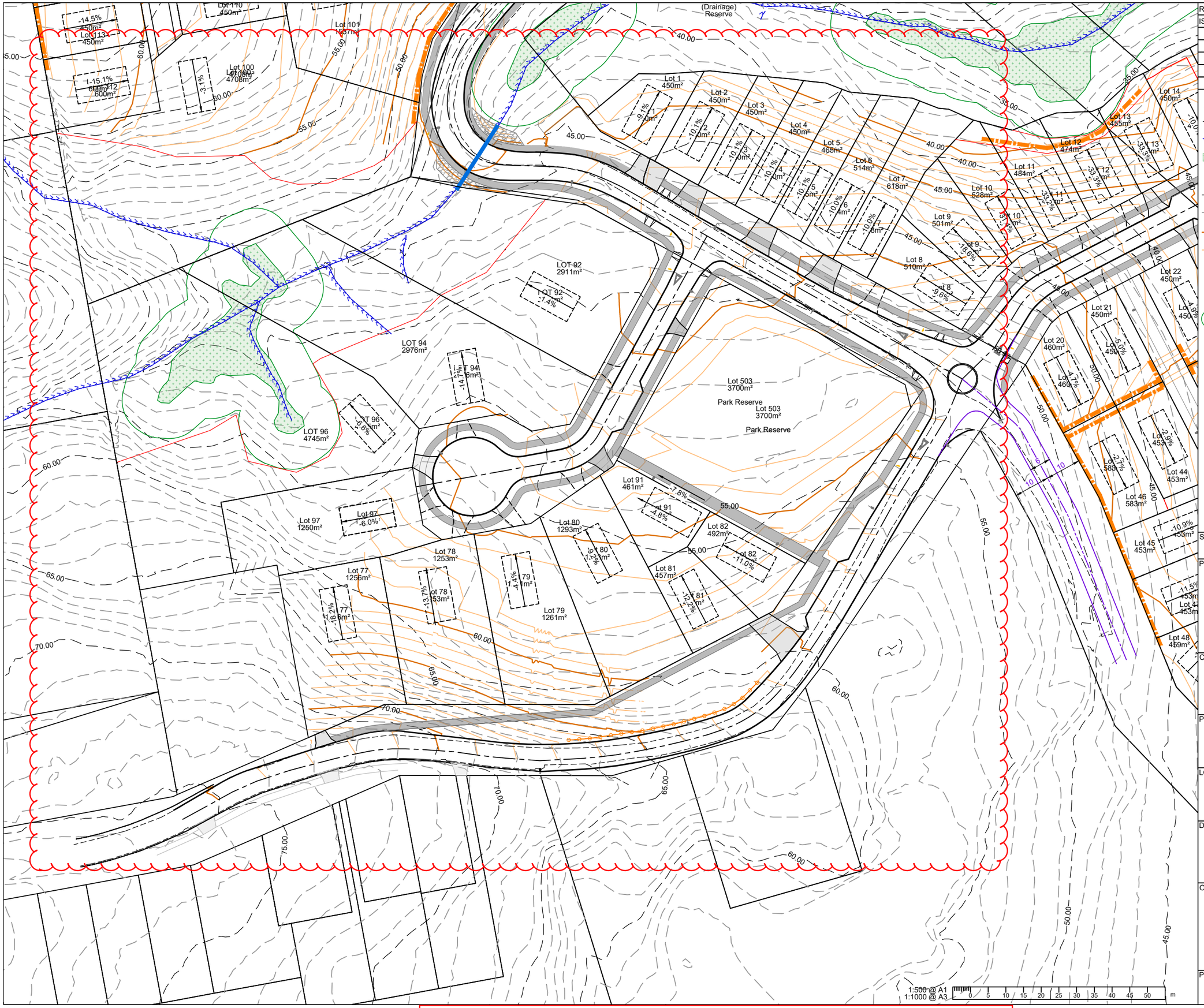
EXISTING AND FINISHED
CONTOURS PLAN
SHEET 1 OF 3

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		NM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 101	D

1:500 @ A1
1:1000 @ A3



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92	NM	NM
C	30/10/24	FOR S92	NM	GT
D	04/12/24	FOR S92	NM	GT

LEGEND:

- EXISTING ROAD
- EXISTING OVERLAND FLOW PATH
- EXISTING WETLAND
- PROPOSED PALISADE WALL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- VEHICLE CROSSING TO BE BUILT WITH SUBDIVISION CIVIL WORKS
- INDICATIVE VEHICLE CROSSINGS (WILL NOT BE BUILT WITH SUBDIVISION)
- WETLAND AND 10m OFFSET

STAGE

FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT

CARRACK CAPITAL LIMITED

PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

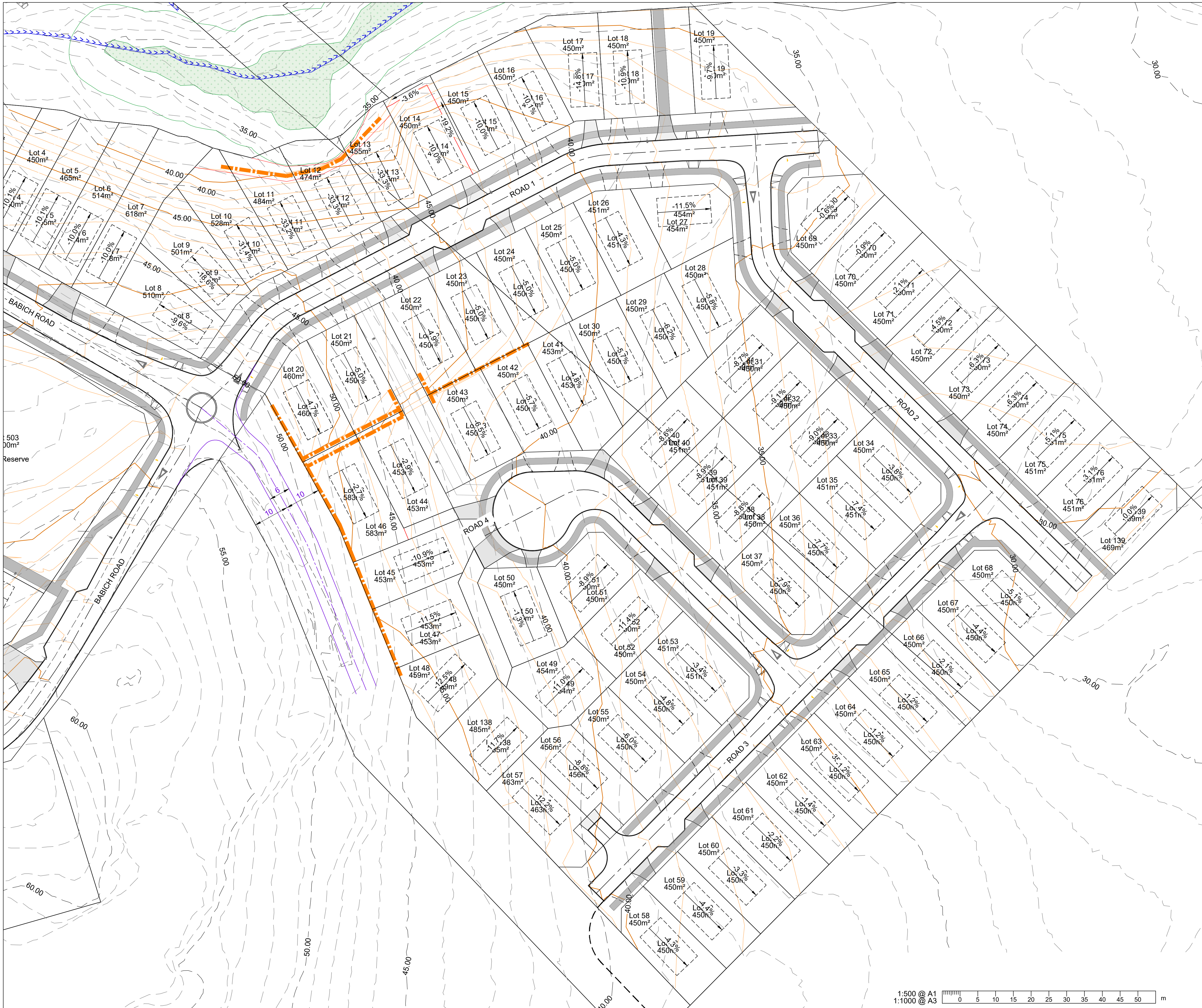
DRAWING TITLE

EXISTING AND FINISHED CONTOURS PLAN
SHEET 2 OF 3

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 102	D



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92	NM	NM
C	30/10/24	FOR S92	NM	GT
D	04/12/24	FOR S92	NM	GT

LEGEND:

- EXISTING ROAD
- EXISTING OVERLAND FLOW PATH
- EXISTING WETLAND
- PROPOSED STREET LIGHT
- PROPOSED RETAINING WALL
- PROPOSED PALISADE WALL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- VEHICLE CROSSING TO BE BUILT WITH SUBDIVISION CIVIL WORKS
- INDICATIVE VEHICLE CROSSINGS (WILL NOT BE BUILT WITH SUBDIVISION)
- WETLAND AND 10m OFFSET

STAGE
FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
EXISTING AND FINISHED CONTOURS PLAN SHEET 3 OF 3

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC-103	D

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC100-EX AND FIN CONTOURS PLAN.dwg, 103, 12/11/2024 12:47 pm

LOT 93
1714m²

Lot 8
510m²

Lot 503
3700m²
Park Reserve

Lot 91
461m²

Lot 82
492m²

Lot 79
1261m²

Lot 80
1293m²

Lot 81
457m²

REQUIRED FLAT AREA
30m x 30m

PROPOSED FLAT AREA
GRADIENT WITHIN 3%-5%

PROPOSED PARK
RESERVE (LOT 503)
BOUNDARY

PROPOSED WALKWAY

PARK RESERVE CROSS
SECTION C-C

REFER TO RC103.2 FOR
CROSS SECTION DETAILS

REFER TO RC103.2 FOR
CROSS SECTION DETAILS

PARK RESERVE CROSS
SECTION B-B

REFER TO RC103.2 FOR
CROSS SECTION DETAILS

PARK RESERVE CROSS
SECTION A-A

1:200 @ A1
1:400 @ A3
0 2 4 6 8 10 12 14 16 18 20 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	04/12/24	FOR RESOURCE CONSENT	GT	GZ	SURVEYED		
					DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
PROPOSED PARK RESERVE (LOT 503) PLAN

STAGE
FOR RESOURCE CONSENT

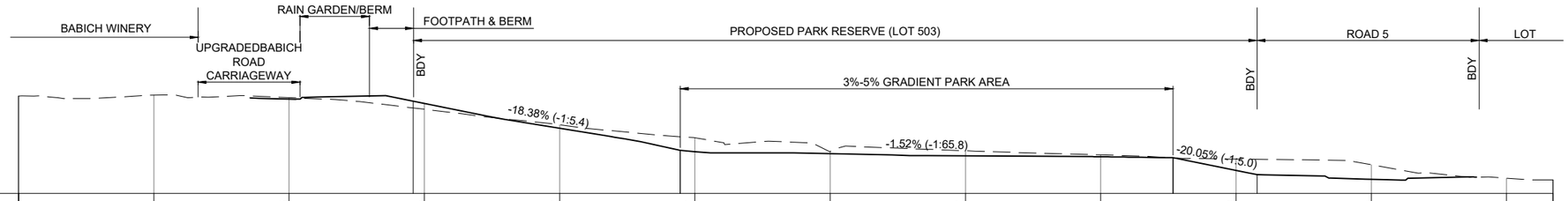
PROJECT NUMBER
210506

SCALE
A1 1:200
A3 1:400

DWG NUMBER
RC-103.1

REVISION
A

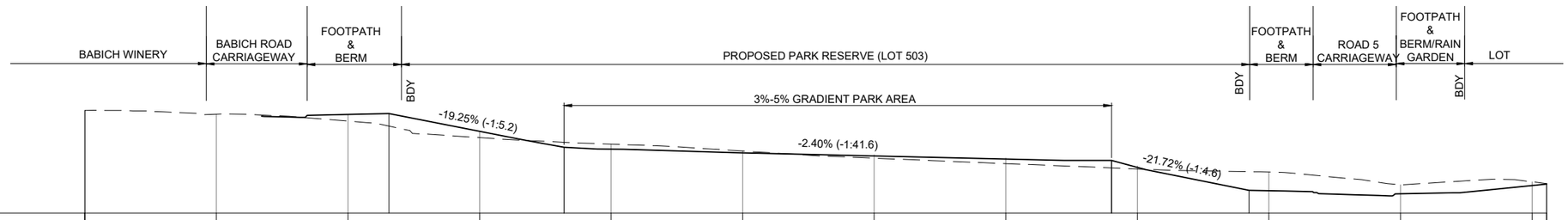
Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC100-EX AND FIN CONTOURS PLAN.dwg, 103.1, 12/9/2024 7:16 pm



DATUM RL 50.00m

PROPOSED LEVEL		56.96	56.64	54.82	53.07	52.94	52.77	52.71	51.69	51.04			
EXISTING LEVEL	57.18	57.26	57.07	56.21	55.07	54.10	53.10	53.14	52.84	52.53	52.11	51.12	51.00
CUT (-) / FILL (+)		-0.11	0.43	-0.25	-1.03	-0.16	-0.38	-0.13	-0.84	-1.07			
CHAINAGE	0.00	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00	110.00	113.42

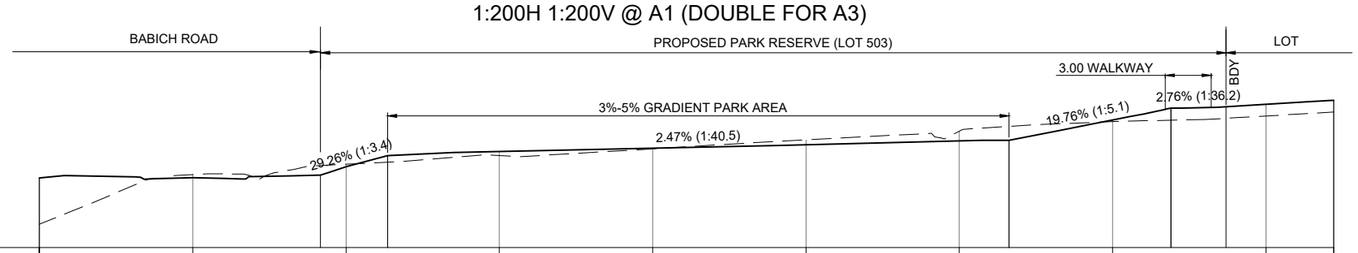
CROSS SECTION A-A FOR PARK RESERVE LONGSECTION
CH: 0.00m TO CH: 113.42m
1:200H 1:200V @ A1 (DOUBLE FOR A3)



DATUM RL 48.00m

PROPOSED LEVEL		55.49	54.21	52.86	52.58	52.34	52.10	51.48	49.70	49.47	50.10	50.21	
EXISTING LEVEL	55.79	55.50	54.98	53.73	53.24	52.72	52.17	51.76	51.35	51.12	50.15	50.38	50.24
CUT (-) / FILL (+)		0.51	0.48	-0.38	-0.14	0.17	0.34	0.12	-1.42	-0.68	-0.28	-0.03	
CHAINAGE	0.00	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	90.00	100.00	110.00	111.11

CROSS SECTION B-B FOR PARK RESERVE LONGSECTION
CH: 0.00m TO CH: 111.11m
1:200H 1:200V @ A1 (DOUBLE FOR A3)



DATUM RL 46.00m

PROPOSED LEVEL	50.54	50.56	51.27	52.26	52.47	52.70	52.96	54.31	55.34	55.60
EXISTING LEVEL	47.52	50.76	51.44	52.00	52.43	53.02	53.58	54.21	54.58	54.83
CUT (-) / FILL (+)	3.02	-0.20	-0.17	0.25	0.04	-0.32	-0.62	0.11	0.76	0.77
CHAINAGE	0.00	10.00	20.00	30.00	40.00	50.00	60.00	70.00	80.00	84.42

CROSS SECTION C - C FOR PARK RESERVE LONGSECTION
CH: 0.00m TO CH: 84.42m
1:200H 1:200V @ A1 (DOUBLE FOR A3)

1:200 @ A1
1:400 @ A3
0 2 4 6 8 10 12 14 16 18 20 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN
A	04/12/24	FOR RESOURCE CONSENT	GT	GZ

	NAME	DATE
SURVEYED		
DESIGNED		
DRAWN		
TRACED		
CHECKED		

CONSULTANT
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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
PROPOSED PARK RESERVE (LOT 503)
CROSS SECTIONS

STAGE
FOR RESOURCE CONSENT

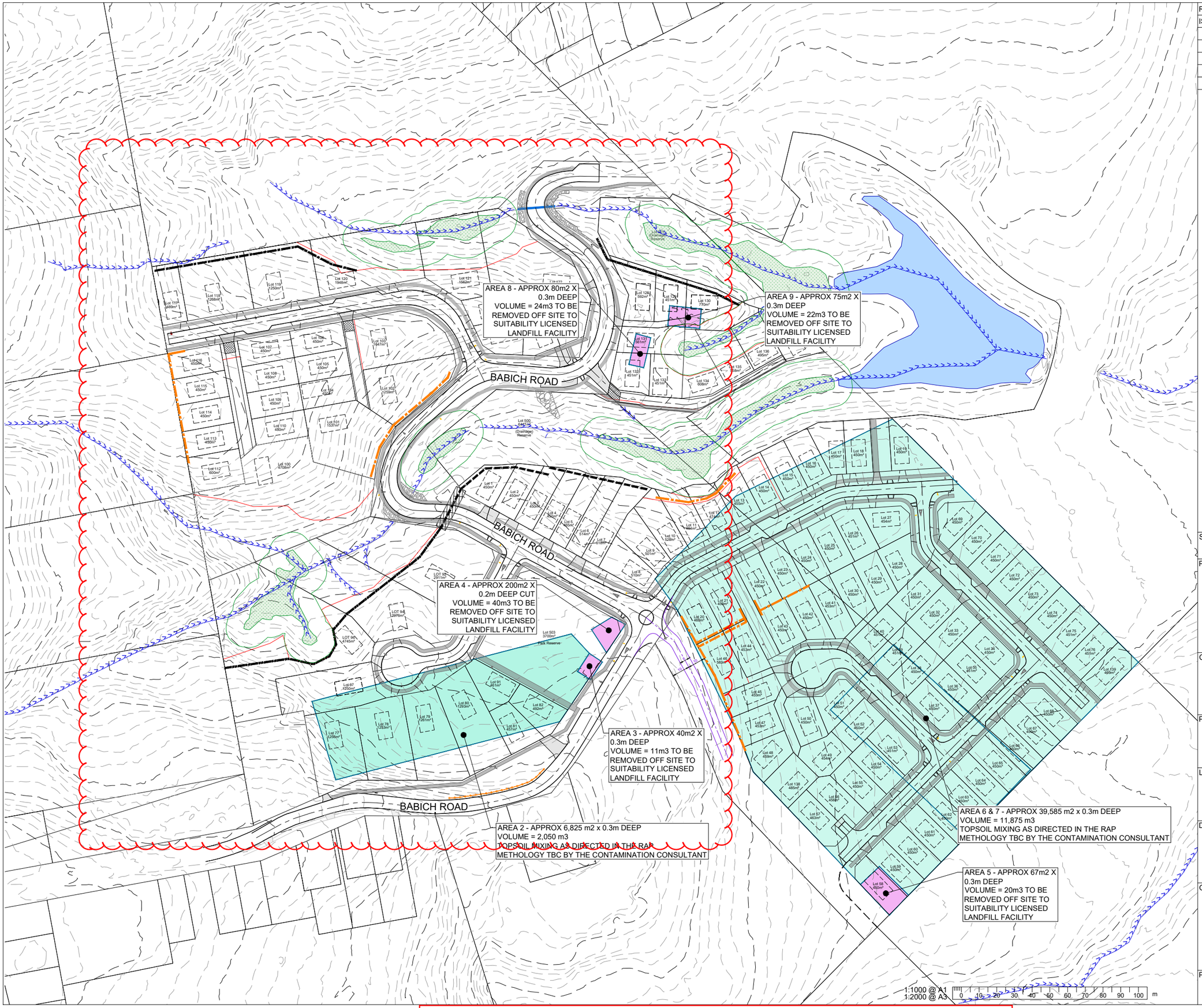
PROJECT NUMBER
210506

SCALE
A1 1:200
A3 1:400

DWG NUMBER
RC-103.2

REVISION
A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC100-EX AND FIN CONTOURS PLAN.dwg, 103.2, 11/29/2024 1:28 pm



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	23/08/24	FOR RESOURCE CONSENT	NM	NM
B	30/10/24	FOR S92	NM	NM
C	04/12/24	FOR S92	NM	NM

NOTES :

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2. REFER TO RAP FOR CONTAMINATION AREAS AND DESCRIPTIONS
3. NO MATERIALS TO BE REMOVED OR REMEDIATED WITHOUT ENGINEER/CONTAMINATION CONSULTANT APPROVAL
4. POSTS NOT TO BE BURNT AS CONTAMINATED
5. ALL CONTAMINATED AREAS TO BE FENCED BY CONTRACTOR AND ALL WORKS ASSOCIATED WITH REMEDIATION TO BE COMPLETED UNDER DIRECTION/SUPERVISION OF ENGINEER AND CONTAMINATION CONSULTANT
6. NO CONTAMINATION REMEDIATION TO COMMENCE WITHOUT APPROVED OF ENGINEER AND CONTAMINATION CONSULTANT
7. TOPSOIL FROM CONTAMINATED OR SOIL MIXING AREAS TO BE MAINTAINED SEPARATELY AND NOT STOCKPILED WITH ANY OTHER SOILS ON SITE.
8. CONTAMINATED SOILS TO BE REMOVED FROM SITE TO LICENSED FILL FACILITY
9. NO MIXED SOIL TO BE REMOVED FROM SITE. ALL MIXED SOILS TO BE STOCKPILED FOR LATER USE AS TOPSOIL.
10. NON MIXED SOILS MAY BE REMOVED FROM SITE TO CLEAN FILL TIP SITE PROVIDED IF INSTRUCTED BY ENGINEER

STAGE

FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT

CARRACK CAPITAL LIMITED

PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

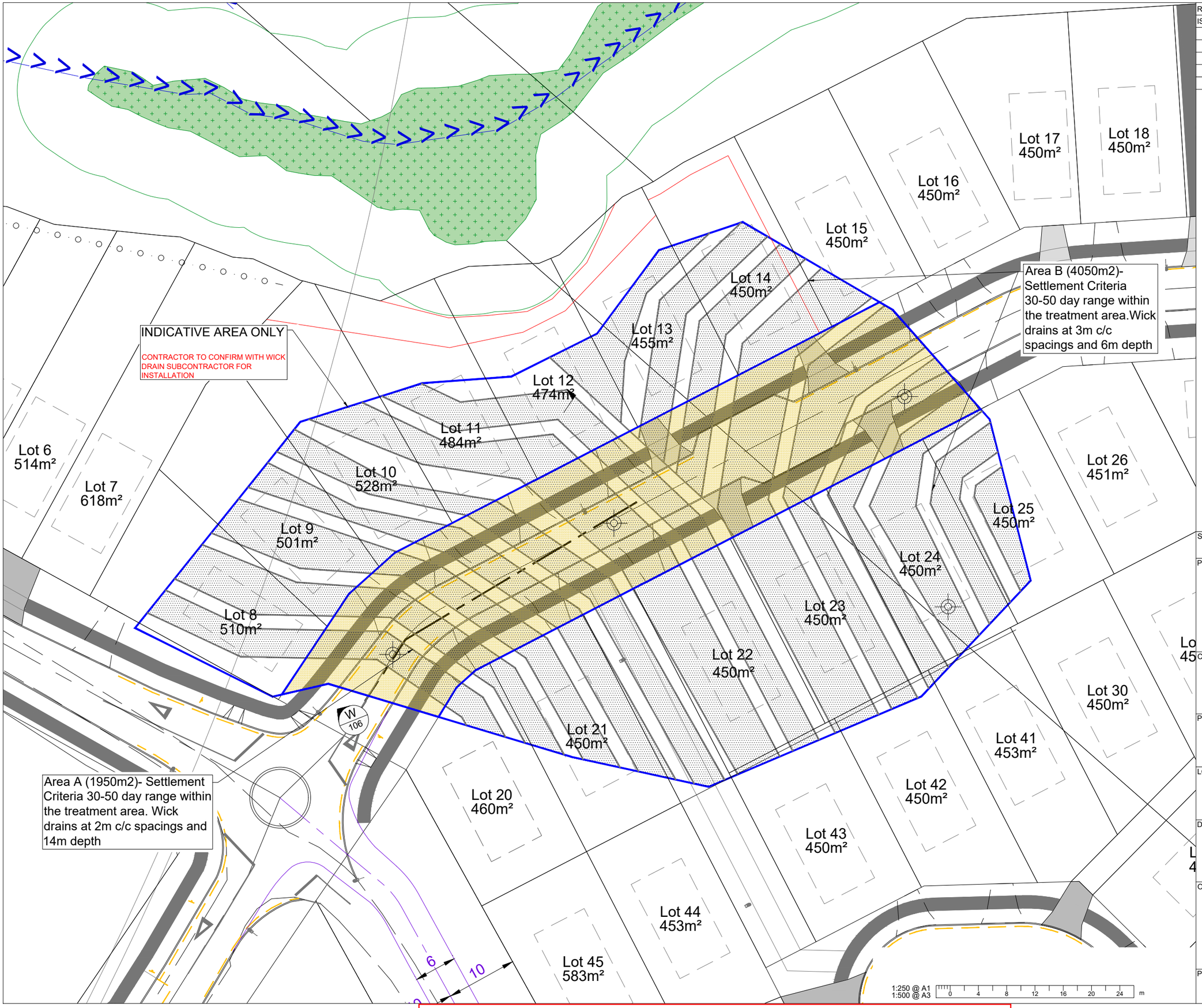
CONTAMINATION SOIL AREA PLAN

ORIENTATION

SCALE	A1	1:1000
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DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		NM

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 104	C

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC104_216-CONTAM & REMEDATION PLAN.dwg, 104, 12/9/2024 7:19 pm



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	23/08/24	FOR RESOURCE CONSENT	GT	GCAI
B	30/10/24	FOR S92	GT	GZ
C	04/12/24	FOR S92	GT	GZ

LEGEND:

- WICK DRAIN BENCH
- BATTER
- SETTLEMENT MARKER
- EXTENT OF WICK DRAIN (AREA = 6,087m2)

NOTE -

1. REFER TO RC-106 FOR WICK DRAIN REQUIREMENT. SUCH AS SAND LAYER, WICK DRAIN DETAILS ,ETC..
2. GEOTECHNICAL ENGINEER TO CONFIRM WICK DRAIN AREA. CONTRACTOR TO MARK OUT FOR CONFIRMATION BY GEOTECHNICAL ENGINEER.
3. WICK DRAINS TO BE CONSTRUCTED UNDER SUPERVISION OF GEOTECHNICAL ENGINEER.
4. ANY UNDERCUT AREAS FOR EARTHWORK TO BE CONSTRUCTED UNDER SUPERVISION OF GEOTECH ENGINEER.

STAGE
FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

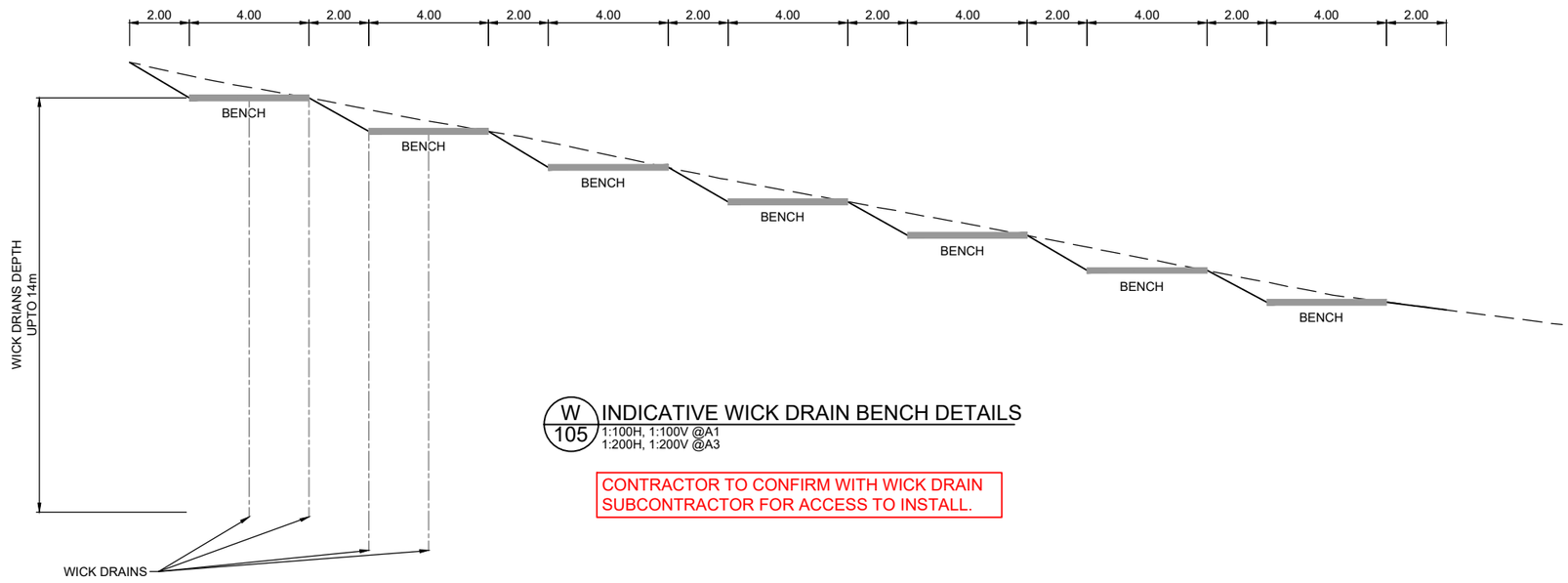
DRAWING TITLE
WICK DRAIN LAYOUT PLAN

ORIENTATION

SCALE	A1	1:250
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DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		GCAI
DRAWN		GCAI
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 105	C

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W 105 INDICATIVE WICK DRAIN BENCH DETAILS
1:100H, 1:100V @A1
1:200H, 1:200V @A3

CONTRACTOR TO CONFIRM WITH WICK DRAIN SUBCONTRACTOR FOR ACCESS TO INSTALL.

NOTES:

- **1 WICK DRAIN REQUIREMENTS**
- TYPICAL BENCH WIDTH 4m, TYPICAL BATTER WIDTH 2m.
- WICK DRAIN INSTALLED AT 2m C/C IF FILL DEPTHS ABOVE 5m.
- WICK DRAIN INSTALLED AT 3m C/C IF FILL DEPTHS BELOW 5m.
- WICK DRAIN LAYOUT REQUIRES THE DESIGN C/C SPACING ON A TRIANGULAR GRID.
- DEPTH = 13.8M BELOW STRIPPED GROUND LEVEL OR 14M FROM SURFACE OF DRAINAGE BLANKET - OR TO REFUSAL IF ENCOUNTERED SHALLOWER
- WICK DRAINS TO COMPRISE 100MM WIDE PREFABRICATED VERTICAL (OR WICK) DRAIN PRODUCT SUCH AS TERRADRAIN WD250 OR ALIDRAIN AD300.

2 DRAINAGE BLANKET REQUIREMENTS

- MINIMUM THICKNESS 200MM
- COARSE SAND OR GRANULAR DRAINAGE MEDIUM TO BE FREE DRAINING AND APPROVED BY THE GEOTECHNICAL ENGINEER PRIOR TO COMMENCEMENT. NOTE THAT IF A POORLY GRADED MATERIAL IS TO BE USED, A GEOTEXTILE CLOTH MAY BE REQUIRED BOTH ABOVE AND BENEATH.

3 WORKS SEQUENCE

THE INSTALLATION OF THE WICK DRAINS IS CONTAINED WITHIN THE WORK SEQUENCE DESCRIBED BELOW:

1. SEDIMENT CONTROL WORKS.
2. STRIP NATURAL GROUND OF TOPSOIL AND ENSURE A CROSS-FALL TO FACILITATE DRAINAGE OF THE WATER. PERIMETER DRAINS IF REQUIRED. GEOTEXTILE CLOTH ACROSS THE PREPARED SURFACE IF REQUIRED (DEPENDING ON DRAINAGE BLANKET MATERIAL).
3. INSTALL MONITORING EQUIPMENT (DETAILS IN THE RELATED DOCUMENTS) WITH INITIAL SURVEY INFORMATION PRIOR TO ANY FILL BEING PLACED.
4. INSTALL 200MM THICK DRAINAGE BLANKET ACROSS STRIPPED SURFACE.
5. INSTALL WICK DRAINS AT REQUIRED SPACINGS AND DEPTHS.
6. PLACEMENT OF A GEOTEXTILE CLOTH TO PREVENT MIGRATION OF FINES INTO THE DRAINAGE BLANKET.
7. PLACE AND COMPACT ENGINEERED FILL AND EXTEND MONITORING EQUIPMENT TO THE SURFACE DURING THE WORKS. REGULAR MONITORING TO OCCUR
8. PLACE PRE-LOAD AND EXTEND THE MONITORING EQUIPMENT DURING THE WORKS. REGULAR MONITORING TO OCCUR
9. UNDERTAKE ONGOING MONITORING.
10. REMOVAL OF PRELOAD FOLLOWING WRITTEN APPROVAL FROM CMW.

4 GEOTECHNICAL OBSERVATION REQUIREMENTS

THE FOLLOWING ITEMS FORM HOLD POINTS IN THE CONSTRUCTION WORKS THAT REQUIRE OBSERVATION, TESTING AND APPROVAL BY THE GEOTECHNICAL ENGINEER (CMW):

1. APPROVAL OF THE PREPARED SUBGRADE SURFACE, INCLUDING PLACEMENT OF GEOTEXTILE, IF REQUIRED.
2. OBSERVATION OF SETTLEMENT MONITORING EQUIPMENT INSTALLATION ON THE PREPARED SURFACE PRIOR TO PRELOAD PLACEMENT.
3. APPROVAL OF EXTENTS OF WICK DRAINS BASED ON DEPTHS TO REFUSAL CLOSE TO TREATMENT PERIMETER AREAS.
4. APPROVAL AND OBSERVATION OF PLACEMENT OF ANY GEOTEXTILE.

IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE GEOTECHNICAL ENGINEER IS GIVEN REASONABLE NOTICE AND OPPORTUNITY TO OBSERVE THE ABOVE WORKS AND THAT THE WORKS DO NOT PROCEED UNTIL APPROVAL HAS BEEN GAINED FROM THE GEOTECHNICAL ENGINEER.

48 HOURS IS CONSIDERED REASONABLE NOTICE

5 AS-BUILT INFORMATION REQUIREMENTS

CMW REQUIRE THE FOLLOWING AS-BUILT INFORMATION TO BE PROVIDED:

- AS-BUILT PLAN OF EXTENTS OF WICK DRAIN TREATMENT AREA.
- CONFIRMATION THAT PRODUCTS INSTALLED COMPLY WITH THE REQUIREMENTS OF THE PROJECT DRAWINGS AND THIS SPECIFICATION.
- CONFIRMATION OF DRAIN DEPTHS.

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

1:100 @ A1
1:200 @ A3
0 1 2 3 4 5 6 7 8 9 10 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	23/08/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	
					DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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CLIENT
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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
TYPICAL WICK DRAIN BENCH DETAILS

STAGE
FOR RESOURCE CONSENT

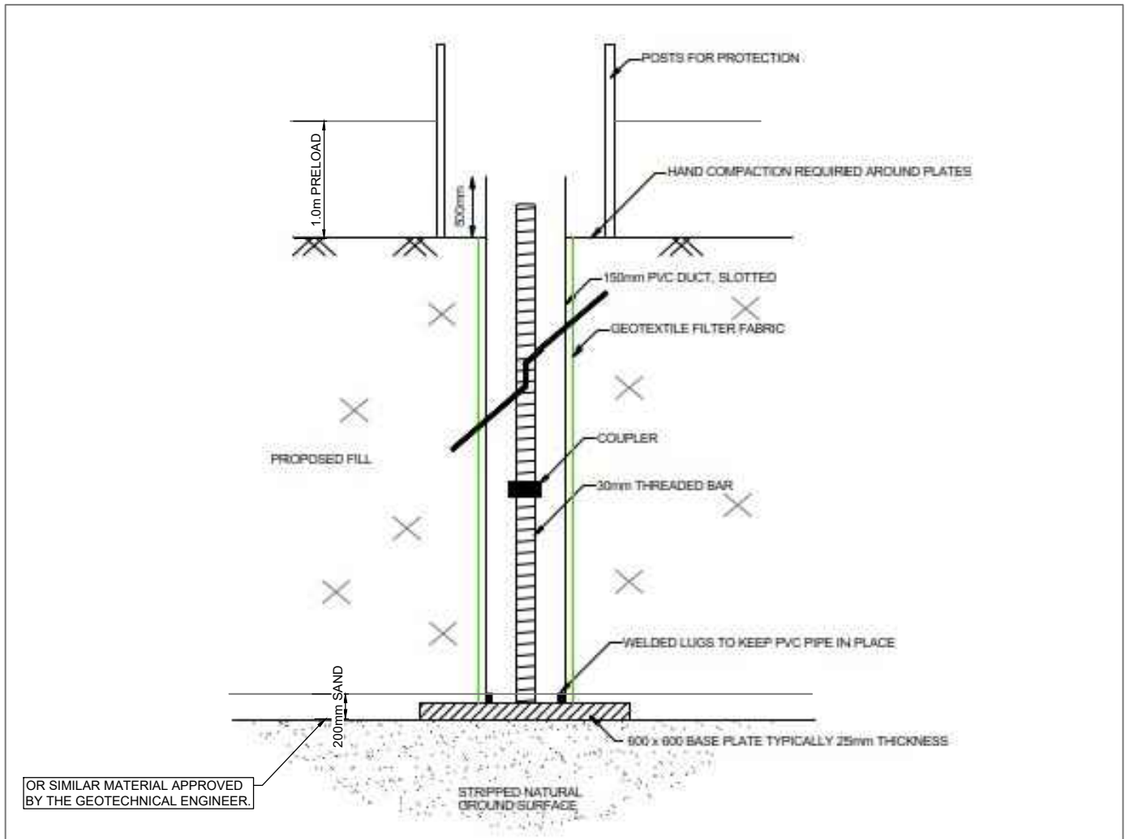
PROJECT NUMBER
210506

SCALE
A1 1:100
A3 1:200

DWG NUMBER
RC-106

REVISION
A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2 Working DWG\2 Resource Consent\210506-RC105-WICK DRAIN LAYOUT PLAN.dwg, 106, 10/28/2024 5:53 pm



NOTES:

1. SETTLEMENT MARKERS SHOULD TYPICALLY COMPRISE 600MM X 600MM SQUARE STEEL BASE PLATES WITH A CENTRAL STEEL PIPE UPSTAND (30MM DIAMETER X 1M LONG TYPICAL) WELDED TO THE BASE AND A 150MM DIAMETER PVC DUCT PLACED AROUND THE UPSTAND.
2. PVC PIPE TO BE SLOTTED AND WRAPPED IN GEOTEXTILE.
3. THE SETTLEMENT PLATES MUST BE INSTALLED AT OR WITHIN 250MM OF EXISTING GROUND LEVELS AND A SMALL BUND OF FILL PLACED OVER THEM FOR STABILITY.
4. THE SETTLEMENT MARKERS (TOP OF UPSTAND) MUST BE PRECISELY LEVELLED AND THE PRECISE LENGTH OF THE UPSTAND MEASURED AT THE TIME OF INSTALLATION PRIOR TO ANY FILL PLACEMENT.
5. THE SETTLEMENT MARKERS MUST BE PERIODICALLY EXTENDED BY WELDING/SPLICING ADDITIONAL LENGTHS OF UPSTAND AS THE FILL LEVEL IS RAISED.
6. SETTLEMENT MARKERS AND ADJACENT FILL LEVEL MUST BE PRECISELY LEVELLED AT WEEKLY INTERVALS DURING CONSTRUCTION AND FORTNIGHTLY THEREAFTER AT THE GEOTECHNICAL ENGINEERS DISCRETION.
7. THE LAYOUT OF THE SETTLEMENT MARKERS MUST BE DETERMINED BY THE GEOTECHNICAL ENGINEER DURING THE FINAL PLAN REVIEW.
8. THE NUMBER AND POSITION OF MONITORING PLATES AND THE FREQUENCY OF POST CONSTRUCTION SETTLEMENT MONITORING IS TO BE AGREED WITH THE GEOTECHNICAL ENGINEER AT THE COMMENCEMENT OF EARTHWORKS.
9. IT IS THE CONTRACTORS RESPONSIBILITY TO ENSURE THE INTEGRITY OF THE MONITORING PLATES IS MAINTAINED DURING THE WORKS AND UNTIL THE GEOTECHNICAL ENGINEER HAS INSTRUCTED THE PLATES CAN BE REMOVED.

1:1 @ A1
1:2 @ A3
0 10 20 30 40 50 60 70 80 90 100 mm

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	23/08/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	
B	30/10/24	FOR S92	GT	GZ	DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
SETTLEMENT MARKERS DETAILS

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

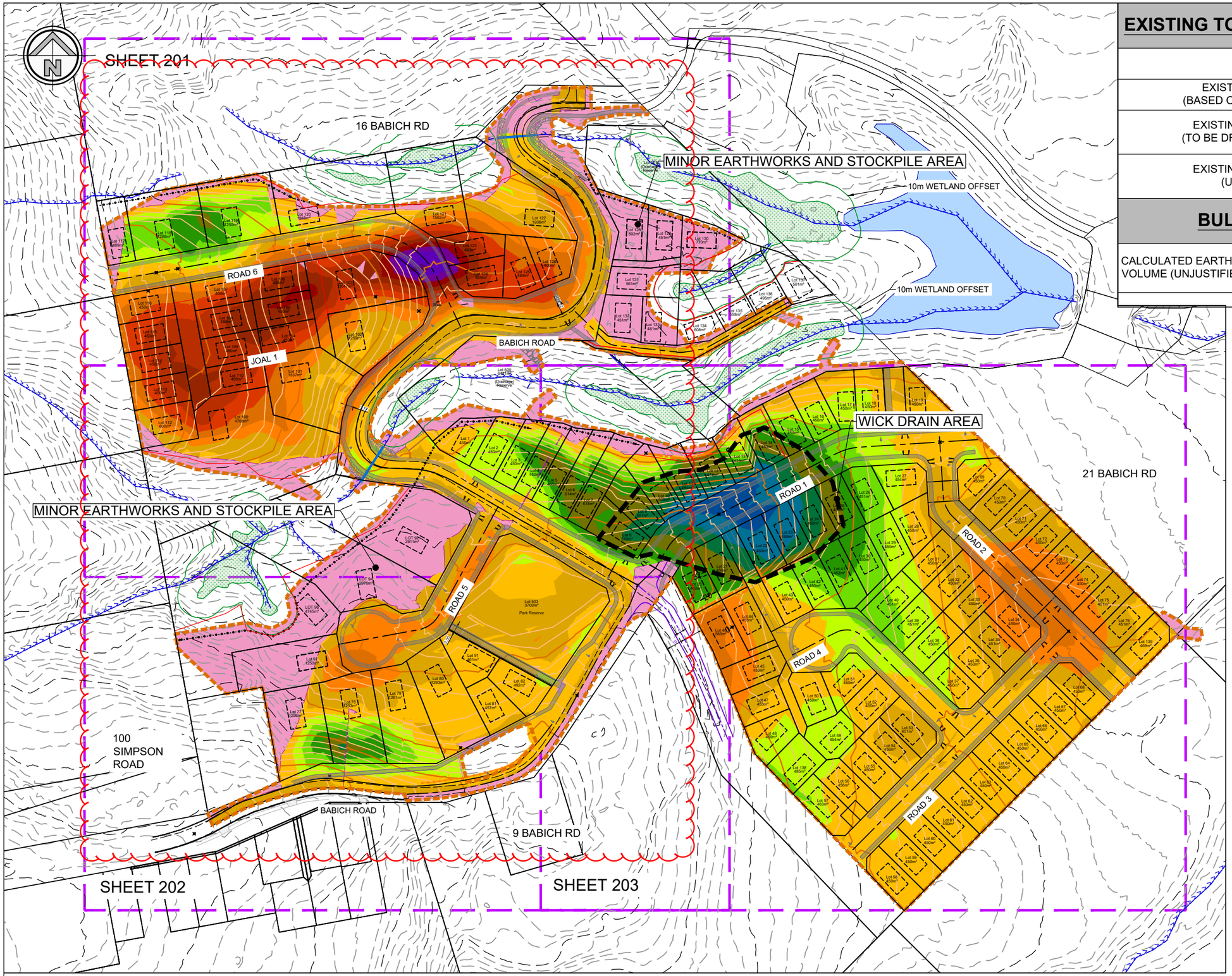
SCALE
A1 AS SHOWN
A3 AS SHOWN

DWG NUMBER
RC-107

REVISION
B

Auckland Council | Approved Resource Consent Plan | BUN60432511 | 06/03/2025 | Page 34 of 177

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EXISTING TOPSOIL AND UNSUITABLE SUMMARY

	AREA (m2)	VOLUME (m3)
EXISTING TOP SOIL (BASED ON 250mm DEPTH)	109,772	27443
EXISTING UNSUITABLE (TO BE DRIED OR REUSED)		3,500
EXISTING UNSUITABLE (UNUSABLE)		1,300

BULK EARTHWORKS SUMMARY

CALCULATED EARTHWORKS VOLUME (UNJUSTIFIED)	AREA (m2)	CUT (m3)	FILL (m3)
	109,772	73,465	85,629

NOTES - EARTHWORKS:

1. POST NOT TO BE BURNT AS CONTAMINATED.
2. CONTRACTOR TO MANAGE EARTHWORKS AS REQUIRED TO ACHIEVE PROGRAM AND TO CATER FOR POSSIBLE EARTHWORKS OVER TWO EARTHWORKS SEASONS.
3. ALL STOCKPILES TO BE MANAGED TO ALLOW FOR PROGRESSION OF THE WORKS ASSOCIATED WITH ACHIEVING DETAILED STAGE REQUIREMENTS.
4. ALL EARTHWORKS TO BE 0-100mm BULK EARTHWORKS TOLERANCES. ALL LOTS AND ROADWAY AREAS TO BE FINISHED TO 0-50mm TOLERANCES.
5. CONTRACTOR MAYBE REQUIRED TO DEWATER DEEP CUTS AT ALL LOCATIONS OVER SITE.

TOTAL AREA OF EARTHWORKS INCLUDES CONTAMINATION REMEDIATION WORKS AREA, MINOR EARTHWORKS AND STOCKPILE AREA, AND GEOTECHNICAL REMEDIATION WORK AREA.

LEGEND:

- EXISTING ROAD
- EXISTING OVERLAND FLOW PATH
- PROPOSED RETAINING WALL
- PROPOSED PALISADE WALL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- WETLAND AND 10m OFFSET
- EXTENTS OF EARTHWOKS
- MINOR EARTHWORKS AND STOCKPILE AREA (OUTSIDE BULK EARTHWORKS AREA)

1:1000 @ A1
1:2000 @ A3
0 10 20 30 40 50 60 70 80 90 100 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	23/08/24	FOR S92 RFIs	NM	NM	DESIGNED	NM	01/05/24
C	30/10/24	FOR S92 RFIs	NM	NM	DRAWN	NM	01/05/24
D	04/12/24	FOR S92 RFIs	NM	NM	TRACED		
					CHECKED	GT	01/05/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
EARTHWORKS OVERALL CUT-FILL PLAN

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER	SCALE	
210506	A1	1:1000
	A3	1:2000

DWG NUMBER	REVISION
RC- 200	D

NOTES - EARTHWORKS:

1. POST NOT TO BE BURNT AS CONTAMINATED.
2. CONTRACTOR TO MANAGE EARTHWORKS AS REQUIRED TO ACHIEVE PROGRAM AND TO CATER FOR POSSIBLE EARTHWORKS OVER TWO EARTHWORKS SEASONS.
3. ALL STOCKPILES TO BE MANAGED TO ALLOW FOR PROGRESSION OF THE WORKS ASSOCIATED WITH ACHIEVING DETAILED STAGE REQUIREMENTS.
4. ALL EARTHWORKS TO BE 0-100mm BULK EARTHWORKS TOLERANCES. ALL LOTS AND ROADWAY AREAS TO BE FINISHED TO 0-50mm TOLERANCES.
5. CONTRACTOR MAYBE REQUIRED TO DEWATER DEEP CUTS AT ALL LOCATIONS OVER SITE.

CUT & FILL ISOPACHS

MINIMUM ELEVATION	MAXIMUM ELEVATION	RANGE AREA	VOLUME	COLOUR
0.00m	1.00m	27755	36890	
+1.00m	2.00m	9973	19223	
+2.00m	3.00m	5057	12309	
+3.00m	4.00m	3589	8143	
+4.00m	5.00m	2728	4816	
+5.00m	6.00m	1680	2815	
+6.00m	7.00m	1428	1284	
+7.00m	8.00m	580	149	

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92 RFIs	NM	NM
C	30/10/24	FOR S92 RFIs	NM	NM
D	04/12/24	FOR S92 RFIs	NM	NM

CUT & FILL ISOPACHS

MINIMUM ELEVATION	MAXIMUM ELEVATION	RANGE AREA	VOLUME	COLOUR
-11.00m	-10.00m	0	0	
-10.00m	-9.00m	26	2	
-9.00m	-8.00m	231	138	
-8.00m	-7.00m	258	381	
-7.00m	-6.00m	475	688	
-6.00m	-5.00m	1912	1749	
-5.00m	-4.00m	3296	4659	
-4.00m	-3.00m	3214	7702	
-3.00m	-2.00m	4636	11434	
-2.00m	-1.00m	7942	17576	
-1.00m	0.00m	19009	29134	

10m WETLAND OFFSET

EARTHWORKS EXTENTS

MINOR EARTHWORKS AREA

LEGEND:

- EXISTING ROAD
- EXISTING OVERLAND FLOW PATH
- PROPOSED RETAINING WALL
- PROPOSED PALISADE WALL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- WETLAND AND 10m OFFSET
- EXTENTS OF EARTHWOKS
- MINOR EARTHWORKS AND STOCKPILE AREA (OUTSIDE BULK EARTHWORKS AREA)

STAGE

FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT

CARRACK CAPITAL LIMITED

PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

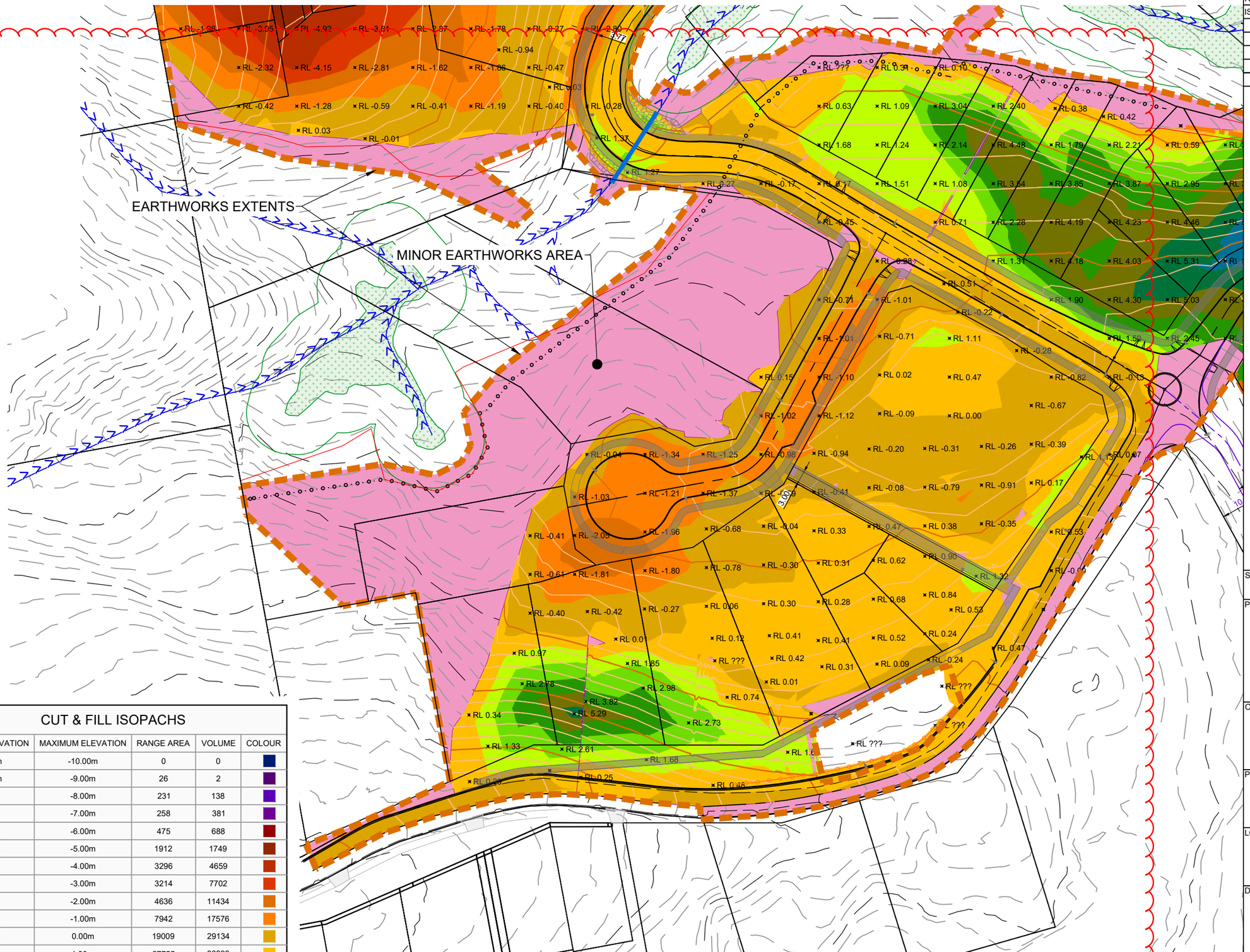
DRAWING TITLE

EARTHWORKS CUT-FILL PLAN
SHEET 1 OF 3

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 201	D



CUT & FILL ISOPACHS

MINIMUM ELEVATION	MAXIMUM ELEVATION	RANGE AREA	VOLUME	COLOUR
-11.00m	-10.00m	0	0	
-10.00m	-9.00m	26	2	
-9.00m	-8.00m	231	138	
-8.00m	-7.00m	258	381	
-7.00m	-6.00m	475	688	
-6.00m	-5.00m	1912	1749	
-5.00m	-4.00m	3296	4659	
-4.00m	-3.00m	3214	7702	
-3.00m	-2.00m	4636	11434	
-2.00m	-1.00m	7942	17576	
-1.00m	0.00m	19009	29134	
0.00m	1.00m	27755	36890	
+1.00m	2.00m	9973	19223	
+2.00m	3.00m	5057	12309	
+3.00m	4.00m	3589	8143	
+4.00m	5.00m	2728	4816	
+5.00m	6.00m	1680	2815	
+6.00m	7.00m	1428	1284	
+7.00m	8.00m	580	149	

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92 RFIs	NM	NM
C	30/10/24	FOR S92 RFIs	NM	NM
D	04/12/24	FOR S92 RFIs	NM	NM

NOTES - EARTHWORKS:
1. POST NOT TO BE BURNT AS CONTAMINATED.
2. CONTRACTOR TO MANAGE EARTHWORKS AS REQUIRED TO ACHIEVE PROGRAM AND TO CATER FOR POSSIBLE EARTHWORKS OVER TWO EARTHWORKS SEASONS.
3. ALL STOCKPILES TO BE MANAGED TO ALLOW FOR PROGRESSION OF THE WORKS ASSOCIATED WITH ACHIEVING DETAILED STAGE REQUIREMENTS.
4. ALL EARTHWORKS TO BE 0-100mm BULK EARTHWORKS TOLERANCES. ALL LOTS AND ROADWAY AREAS TO BE FINISHED TO 0-50mm TOLERANCES.
5. CONTRACTOR MAYBE REQUIRED TO DEWATER DEEP CUTS AT ALL LOCATIONS OVER SITE.

LEGEND:
- EXISTING ROAD
- EXISTING OVERLAND FLOW PATH
- PROPOSED RETAINING WALL
- PROPOSED PALISADE WALL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- WETLAND AND 10m OFFSET
- EXTENTS OF EARTHWOKS
- MINOR EARTHWORKS AND STOCKPILE AREA (OUTSIDE BULK EARTHWORKS AREA)

STAGE
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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

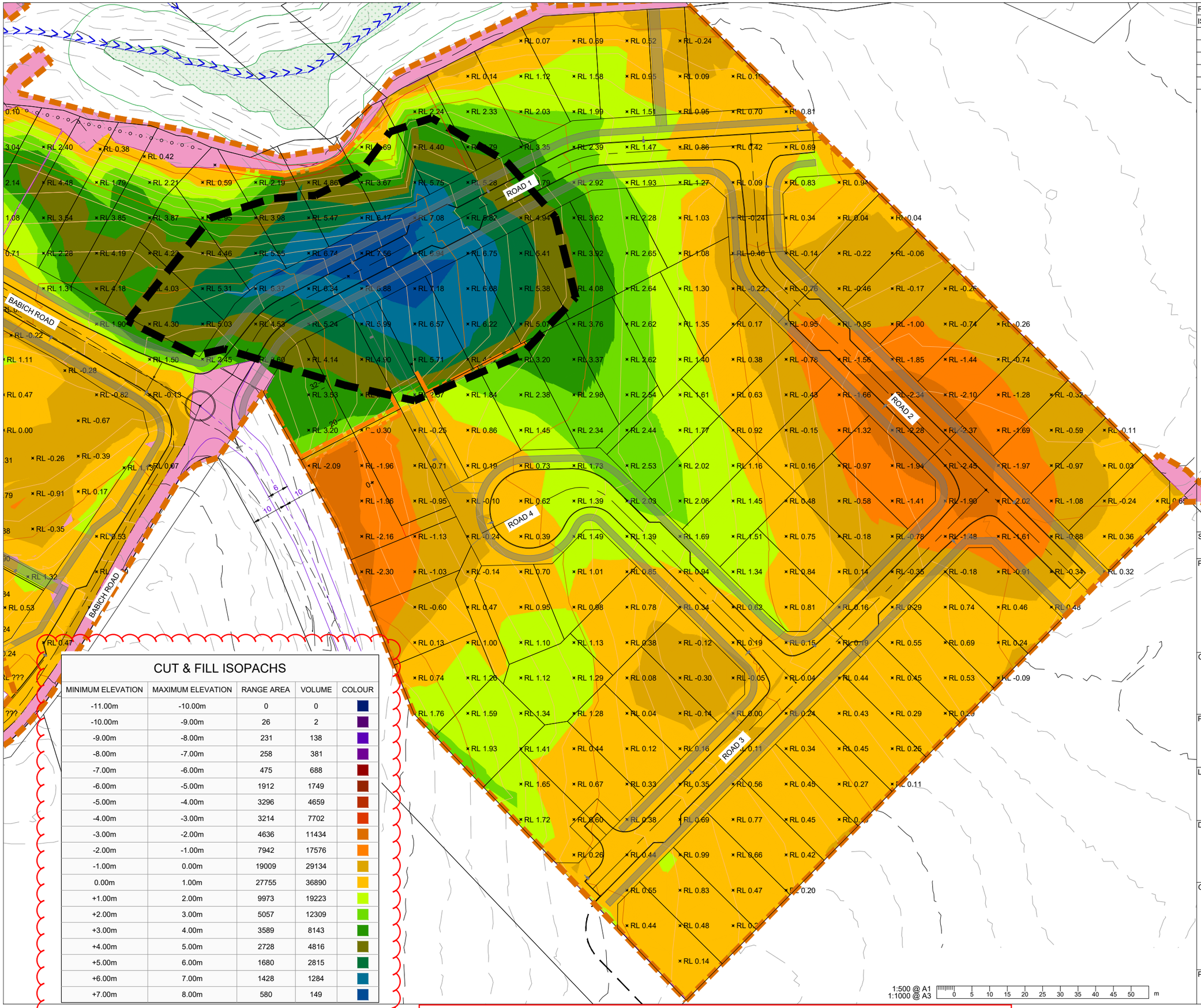
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EARTHWORKS CUT-FILL PLAN SHEET 2 OF 3

ORIENTATION: N

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 202	D

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m



CUT & FILL ISOPACHS

MINIMUM ELEVATION	MAXIMUM ELEVATION	RANGE AREA	VOLUME	COLOUR
-11.00m	-10.00m	0	0	
-10.00m	-9.00m	26	2	
-9.00m	-8.00m	231	138	
-8.00m	-7.00m	258	381	
-7.00m	-6.00m	475	688	
-6.00m	-5.00m	1912	1749	
-5.00m	-4.00m	3296	4659	
-4.00m	-3.00m	3214	7702	
-3.00m	-2.00m	4636	11434	
-2.00m	-1.00m	7942	17576	
-1.00m	0.00m	19009	29134	
0.00m	1.00m	27755	36890	
+1.00m	2.00m	9973	19223	
+2.00m	3.00m	5057	12309	
+3.00m	4.00m	3589	8143	
+4.00m	5.00m	2728	4816	
+5.00m	6.00m	1680	2815	
+6.00m	7.00m	1428	1284	
+7.00m	8.00m	580	149	

REVISION

ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	**NM**	**NM**
B	23/08/24	FOR S92 RFIs	NM	NM
C	30/10/24	FOR S92 RFIs	NM	NM
D	04/12/24	FOR S92 RFIs	NM	NM

NOTES - EARTHWORKS:

1. POST NOT TO BE BURNT AS CONTAMINATED.
2. CONTRACTOR TO MANAGE EARTHWORKS AS REQUIRED TO ACHIEVE PROGRAM AND TO CATER FOR POSSIBLE EARTHWORKS OVER TWO EARTHWORKS SEASONS.
3. ALL STOCKPILES TO BE MANAGED TO ALLOW FOR PROGRESSION OF THE WORKS ASSOCIATED WITH ACHIEVING DETAILED STAGE REQUIREMENTS.
4. ALL EARTHWORKS TO BE 0-100mm BULK EARTHWORKS TOLERANCES. ALL LOTS AND ROADWAY AREAS TO BE FINISHED TO 0-50mm TOLERANCES.
5. CONTRACTOR MAYBE REQUIRED TO DEWATER DEEP CUTS AT ALL LOCATIONS OVER SITE.

LEGEND:

- EXISTING ROAD
- EXISTING OVERLAND FLOW PATH
- PROPOSED RETAINING WALL
- PROPOSED PALISADE WALL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- WETLAND AND 10m OFFSET
- EXTENTS OF EARTHWOKS
- MINOR EARTHWORKS AND STOCKPILE AREA (OUTSIDE BULK EARTHWORKS AREA)

STAGE

FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT

CARRACK CAPITAL LIMITED

PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

EARTHWORKS CUT-FILL PLAN
SHEET 3 OF 3

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 203	D

LEGEND:

- EXISTING ROAD
- EXISTING OVERLAND FLOW PATH
- PROPOSED RAIN GARDEN (WITH <5% LONG SECTION)
- PROPOSED STREET LIGHT
- PROPOSED RETAINING WALL
- PROPOSED PALISADE WALL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- WETLAND AND 10m OFFSET

1:1000 @ A1
1:2000 @ A3

0 10 20 30 40 50 60 70 80 90 100 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	02/08/24	FOR S92 RFIs	NM	NM	DESIGNED	NM	01/05/24
C	30/10/24	FOR S92 RFIs	NM	NM	DRAWN	NM	01/05/24
D	04/12/24	FOR S92 RFIs	NM	NM	TRACED		
					CHECKED	NM	01/05/24

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
EARTHWORKS CROSS SECTIONS
OVERALL PLAN

STAGE
FOR RESOURCE CONSENT

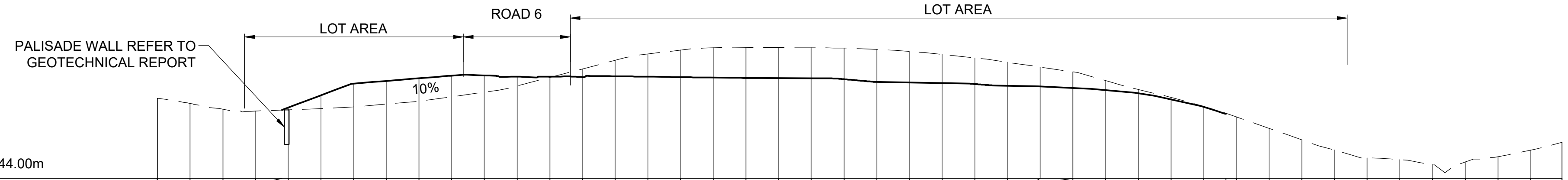
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:2000

DWG NUMBER
RC- 210

REVISION
D

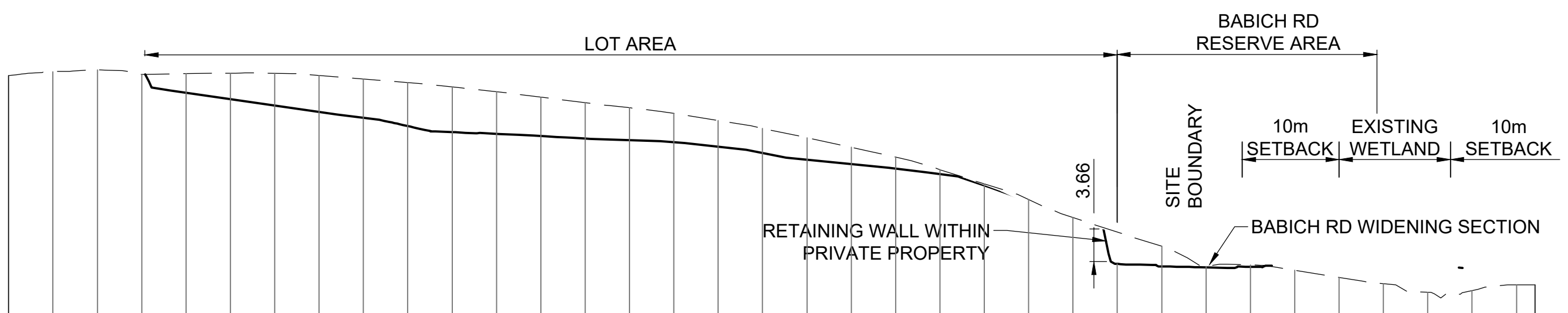
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DATUM RL 44.00m

CHAINAGE	PROPOSED LEVEL	EXISTING LEVEL	CUT (-) / FILL (+)
0.00		56.17	
5.00		55.38	
10.00		54.50	
15.00		54.23	
20.00	54.74	54.42	0.33
25.00	56.63	54.61	2.02
30.00	58.41	54.85	3.56
35.00	58.81	55.28	3.53
40.00	59.22	55.70	3.52
45.00	59.62	56.40	3.22
50.00	59.66	57.10	2.57
55.00	59.47	58.05	1.42
60.00	59.49	59.34	0.15
65.00	59.40	60.63	-1.23
70.00	59.53	61.96	-2.43
75.00	59.47	62.91	-3.45
80.00	59.39	63.52	-4.13
85.00	59.33	63.86	-4.53
90.00	59.27	63.94	-4.67
95.00	59.24	63.90	-4.67
100.00	59.23	63.87	-4.64
105.00	59.08	63.85	-4.77
110.00	58.65	63.62	-4.97
115.00	58.56	63.32	-4.76
120.00	58.47	62.85	-4.37
125.00	58.34	62.31	-3.97
130.00	58.09	61.66	-3.57
135.00	57.99	60.92	-2.94
139.98	57.75	60.20	-2.45
140.00	57.75	60.19	-2.45
145.00	57.41	58.85	-1.44
150.00	56.93	57.51	-0.58
155.00	56.01	56.29	-0.28
160.00	54.88	54.94	-0.06
165.00	53.78	53.33	
170.00		51.59	
175.00		49.83	
180.00		48.29	
185.00		47.07	
190.00		46.84	
195.00		46.10	
200.00		46.46	
205.00		47.27	
210.00		48.26	
214.78		49.48	

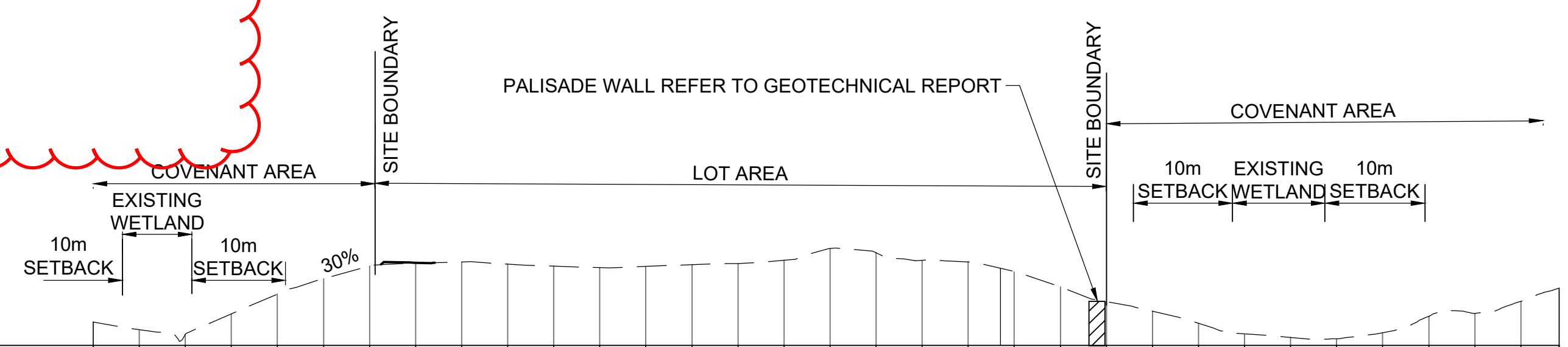
EW SECTION 1 LONGSECTION
CH: 0.00m TO CH: 214.78m
1:500H 1:500V @ A1 (DOUBLE FOR A3)



DATUM RL 38.00m

CHAINAGE	PROPOSED LEVEL	EXISTING LEVEL	CUT (-) / FILL (+)
0.00		65.38	
5.00		65.82	
10.00		66.02	
15.00		65.52	
20.00	63.45	65.59	-2.15
25.00	62.73	65.66	-2.93
30.00	62.01	65.66	-3.65
35.00	61.29	65.39	-4.10
40.00	60.63	65.01	-4.38
45.00	59.68	64.60	-4.91
50.00	59.01	64.11	-5.11
55.00	58.83	63.57	-4.75
60.00	58.56	62.96	-4.40
65.00	58.28	62.34	-4.05
70.00	58.11	61.77	-3.66
75.00	57.87	61.11	-3.24
80.00	57.35	60.31	-2.96
85.00	56.63	59.43	-2.80
90.00	55.89	58.36	-2.48
95.00	55.41	57.30	-1.89
100.00	54.91	56.20	-1.29
105.00	54.28	54.77	-0.50
110.00	53.00	53.18	-0.18
115.00	51.21	51.38	-0.17
120.00	49.42	49.38	0.04
125.00	44.15	47.74	-3.59
130.00	43.86	46.15	-2.29
135.00	43.75	43.85	-0.10
140.00	43.83	44.04	-0.21
145.00		43.42	
150.00		42.61	
155.00		41.92	
160.00		40.93	
165.00		41.14	
170.00		41.77	
172.07		41.78	

EW SECTION 2 LONGSECTION
CH: 0.00m TO CH: 172.07m
1:500H 1:500V @ A1 (DOUBLE FOR A3)



DATUM RL 32.00m

CHAINAGE	PROPOSED LEVEL	EXISTING LEVEL	CUT (-) / FILL (+)
0.00		34.57	
5.00		33.72	
10.00		33.23	
15.00		35.44	
20.00		37.58	
25.00		39.25	
30.00		40.63	
35.00		40.93	
40.00		41.08	
45.00		40.84	
50.00		40.62	
55.00		40.46	
60.00		40.59	
65.00		40.78	
70.00		40.91	
75.00		41.27	
80.00		42.53	
85.00		42.07	
90.00		41.25	
95.00		41.09	
100.00		40.03	
105.00		38.36	
110.00		36.76	
115.00		35.73	
120.00		34.44	
125.00		33.26	
130.00		32.89	
135.00		32.75	
140.00		33.41	
145.00		35.19	
150.00		35.50	
155.00		36.80	
159.15		38.22	

EW SECTION 3 LONGSECTION
CH: 0.00m TO CH: 159.15m
1:500H 1:500V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	23/08/24	FOR S92 RFIs	NM	NM	DESIGNED	NM	01/05/24
C	30/10/24	FOR S92 RFIs	NM	NM	DRAWN	NM	01/05/24
D	04/12/24	FOR S92 RFIs	NM	NM	TRACED		
					CHECKED	NM	01/05/24

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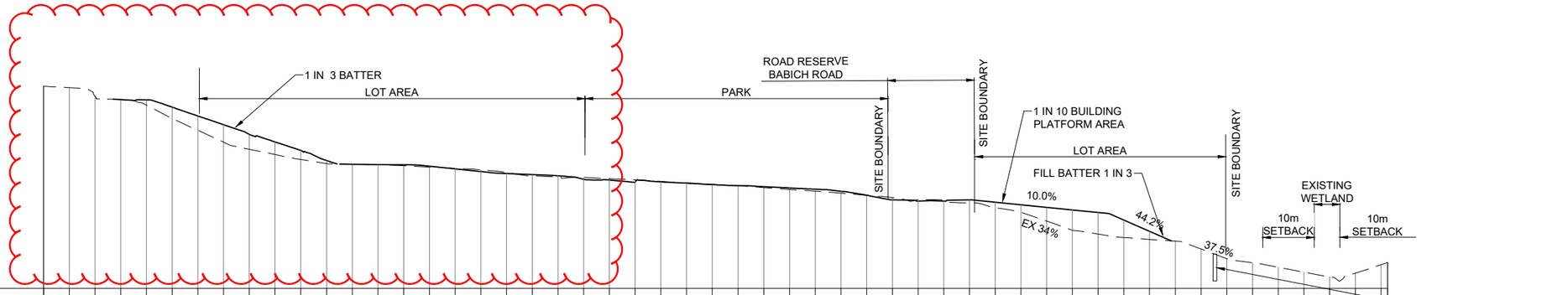
CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
EARTHWORKS CROSS SECTION PLAN
SHEET 1 OF 4

STAGE
FOR RESOURCE CONSENT

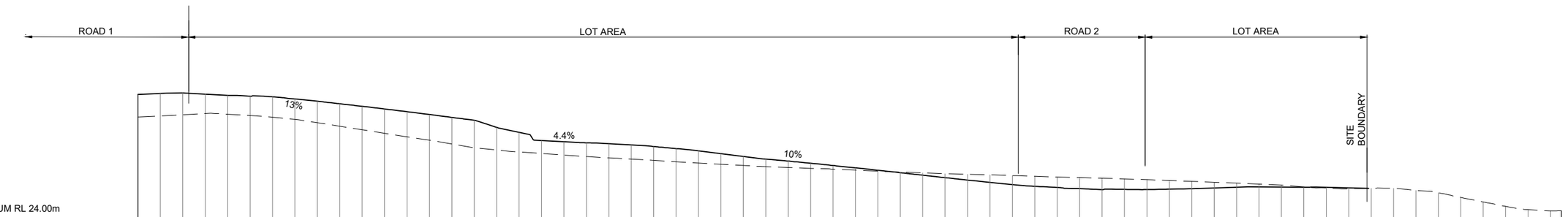
PROJECT NUMBER 210506
SCALE A1 1:500, A3 1:1000
DWG NUMBER RC- 211
REVISION D



DATUM RL 32.00m

CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00	100.00	105.00	110.00	115.00	120.00	125.00	130.00	135.00	140.00	145.00	150.00	155.00	160.00	165.00	170.00	175.00	180.00	185.00	190.00	195.00	200.00	205.00	210.00	215.00	220.00	225.00	230.00	235.00	240.00	245.00	250.00	255.00	260.00	261.29
EXISTING LEVEL	71.35	71.07	69.39	68.76	67.67	65.07	62.77	60.46	59.09	58.06	57.08	56.31	56.17	56.06	55.89	55.63	55.38	55.08	54.54	53.88	53.70	53.60	53.36	53.12	52.84	52.54	52.25	51.95	51.62	51.27	50.92	50.54	50.11	49.67	49.28	49.01	48.67	47.71	46.84	45.12	43.32	42.59	41.92	41.54	41.18	39.68	37.81	36.99	36.12	35.17	34.25	34.96	36.61	37.05
CUT (-) / FILL (+)				-0.01	1.02	2.20	2.80	3.41	2.88	2.46	1.77	0.59	0.01	0.05	0.19	0.18	-0.09	-0.31	-0.16	0.29	0.23	-0.35	-0.27	-0.41	-0.11	-0.06	-0.03	0.07	0.18	0.29	0.40	0.34	0.03	-0.43	-0.27	0.00	0.57	1.08	1.45	2.67	3.97	4.20	3.39	1.57											
PROPOSED LEVEL				68.76	68.68	67.28	65.56	63.87	61.97	60.52	58.86	56.90	56.18	56.11	56.07	55.81	55.29	54.77	54.38	54.16	53.92	53.25	53.09	52.71	52.73	52.48	52.22	52.02	51.80	51.56	51.31	50.88	50.14	49.24	49.01	49.01	49.24	48.79	48.29	47.79	47.29	46.79	45.31	43.11											

DATUM RL 24.00m



CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	95.00	100.00	105.00	110.00	115.00	120.00	125.00	130.00	135.00	140.00	145.00	150.00	155.00	160.00	165.00	170.00	175.00	180.00	185.00	190.00	195.00	200.00	205.00	210.00	215.00	220.00	225.00	230.00	235.00	240.00	245.00	250.00	255.00	260.00	265.00	270.00	275.00	280.00	285.00	290.00	295.00	300.00	305.00	310.00	315.00	317.42
EXISTING LEVEL	46.60	46.86	47.12	47.39	47.24	46.94	46.57	46.08	45.33	44.56	43.77	42.98	42.20	41.44	40.59	39.75	39.25	38.82	38.47	38.13	37.80	37.49	37.24	36.93	36.62	36.34	36.06	35.79	35.53	35.35	35.16	34.97	34.75	34.53	34.33	34.14	33.96	33.83	33.71	33.55	33.39	33.23	33.09	32.95	32.80	32.65	32.45	32.25	32.06	31.86	31.65	31.43	31.02	30.77	30.60	30.71	30.69	30.21	29.74	28.66	27.67	26.67	25.94	25.64	25.72
CUT (-) / FILL (+)	5.04	5.01	4.86	4.33	4.22	4.29	4.55	4.58	4.79	5.02	5.23	5.43	5.60	5.74	5.94	6.12	5.04	4.36	2.88	2.96	3.06	3.16	3.15	3.09	2.95	2.74	2.38	2.03	1.67	1.44	1.15	0.82	0.53	0.22	-0.14	-0.51	-0.88	-1.29	-1.68	-2.01	-2.23	-2.32	-2.46	-2.54	-2.33	-2.22	-1.93	-1.65	-1.29	-0.93	-0.65	-0.46	-0.07	0.16	0.20									
PROPOSED LEVEL	51.64	51.87	51.98	51.72	51.45	51.23	51.12	50.66	50.13	49.57	49.00	48.41	47.80	47.17	46.53	45.88	44.30	43.18	41.35	41.09	40.87	40.66	40.39	40.02	39.56	39.08	38.45	37.82	37.21	36.79	36.31	35.79	35.28	34.75	34.19	33.63	33.08	32.55	32.03	31.54	31.16	30.90	30.63	30.41	30.47	30.43	30.52	30.61	30.77	30.93	31.00	30.96	30.95	30.93	30.80									

EW SECTION 4 LONGSECTION
CH: 0.00m TO CH: 261.29m
1:500H 1:500V @ A1 (DOUBLE FOR A3)

EW SECTION 5 LONGSECTION
CH: 0.00m TO CH: 317.42m
1:500H 1:500V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	32/08/24	FOR S92 RFIs	NM	NM
C	30/10/24	FOR S92 RFIs	NM	NM
D	04/12/24	FOR S92 RFIs	NM	NM

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	NM	01/05/24
DRAWN	NM	01/05/24
TRACED		
CHECKED	NM	01/05/24

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
EARTHWORKS CROSS SECTION PLAN
SHEET 2 OF 4

STAGE
FOR RESOURCE CONSENT

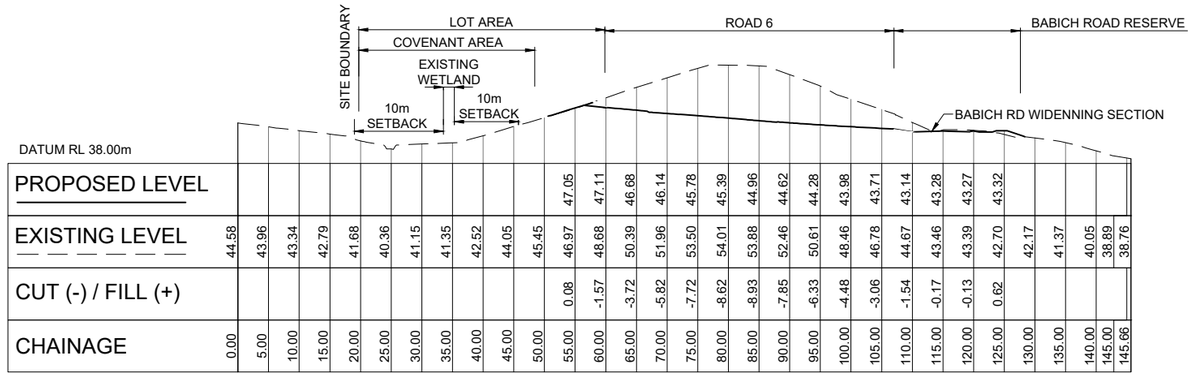
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1001

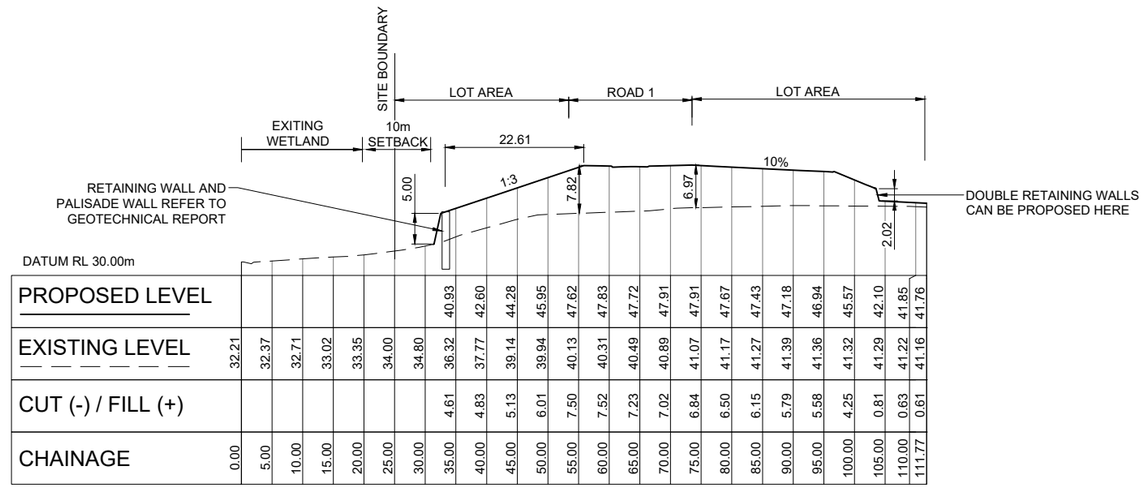
DWG NUMBER
RC- 212

REVISION
D

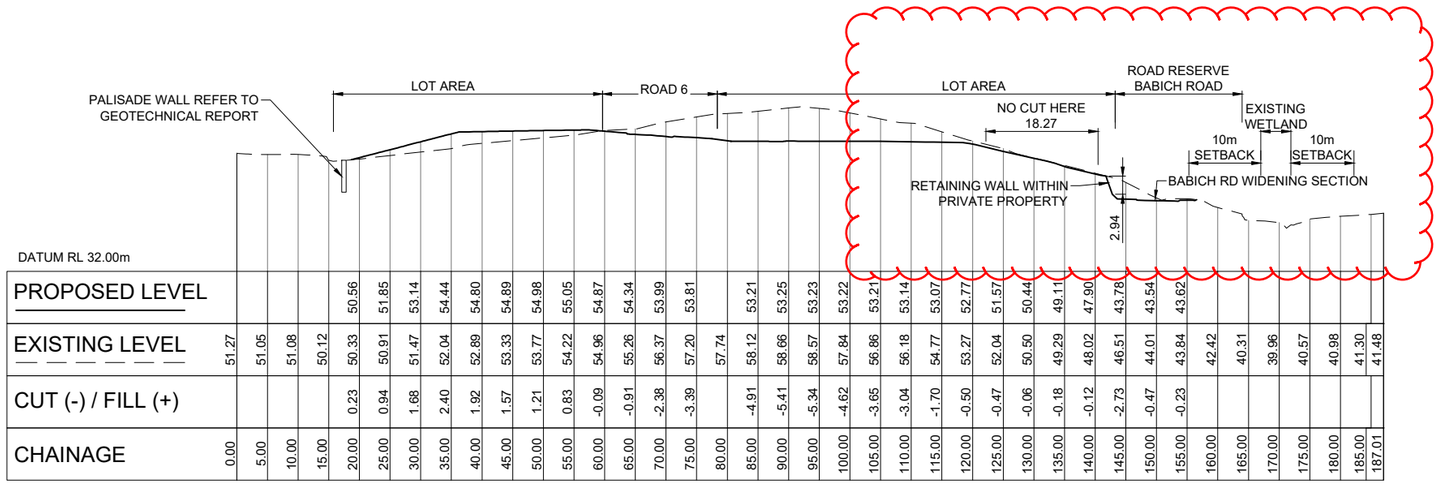
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EW SECTION 7 LONGSECTION
CH: 0.00m TO CH: 145.66m
1:500H 1:500V @ A1 (DOUBLE FOR A3)



EW SECTION 6 LONGSECTION
CH: 0.00m TO CH: 111.77m
1:500H 1:500V @ A1 (DOUBLE FOR A3)



EW SECTION 8 LONGSECTION
CH: 0.00m TO CH: 187.01m
1:500H 1:500V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92	GT	GCAI
C	30/10/24	FOR S92 RFIs	NM	NM
D	04/12/24	FOR S92 RFIs	NM	NM

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	NM	01/05/24
DRAWN	NM	01/05/24
TRACED		
CHECKED	NM	01/05/24

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
EARTHWORKS CROSS SECTION PLAN
SHEET 3 OF 4

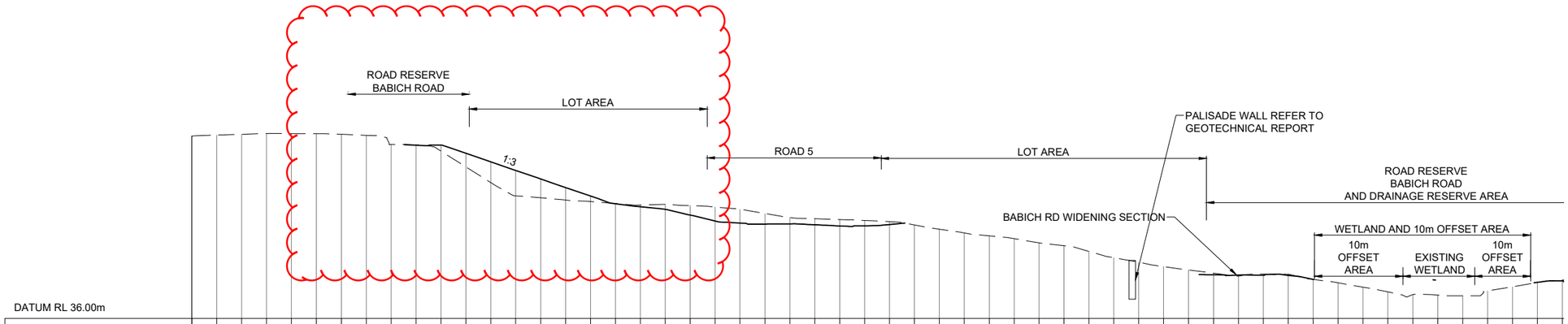
STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 213

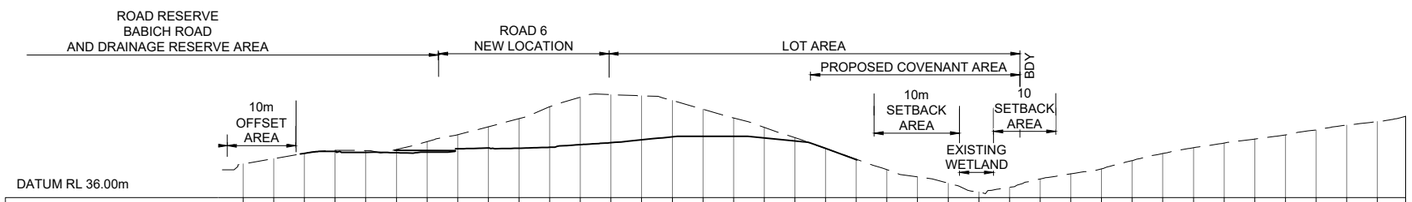
REVISION
D



DATUM RL 36.00m

CHAINAGE	PROPOSED LEVEL	EXISTING LEVEL	CUT (-) / FILL (+)
0.00		72.78	
5.00		72.95	
10.00		73.09	
15.00		73.07	
20.00		73.06	
25.00		72.94	
30.00		72.75	
35.00		70.92	
40.00		70.82	-0.06
45.00	70.76	69.58	1.22
50.00	70.80	66.42	2.71
55.00	69.13	63.26	4.14
60.00	67.41	60.60	5.08
65.00	65.68	60.20	3.78
70.00	63.98	59.77	2.49
75.00	62.26	59.45	1.11
80.00	60.56	59.05	-0.03
85.00	59.02	58.76	-0.37
90.00	58.40	58.88	-0.99
95.00	57.89	58.62	-1.88
100.00	56.74	58.53	-2.83
105.00	55.53	58.36	-2.76
110.00	55.13	57.89	-2.12
115.00	54.93	57.05	-1.28
120.00	54.97	56.26	-1.21
125.00	54.79	56.00	-1.29
130.00	54.55	55.84	-1.06
135.00	54.59	55.65	-0.58
140.00	54.83	55.42	
145.00		54.76	
150.00		53.91	
155.00		53.15	
160.00		52.55	
165.00		52.00	
170.00		51.16	
175.00		50.59	
180.00		49.46	
185.00		48.18	
190.00		47.27	
195.00		46.40	
200.00		45.72	
205.00		45.08	-0.32
210.00		44.45	0.21
215.00		44.47	-0.25
220.00		44.90	-0.24
225.00		44.85	0.01
230.00		43.82	
235.00		43.13	
240.00		42.27	
245.00		41.33	
250.00		40.77	
255.00		40.68	
260.00		40.52	
265.00		41.50	
270.00	43.23	42.35	0.02
275.00	43.53	43.21	-0.17

EW SECTION 9 LONGSECTION
CH: 0.00m TO CH:275.00m
1:500H 1:500V @ A1 (DOUBLE FOR A3)



DATUM RL 36.00m

CHAINAGE	PROPOSED LEVEL	EXISTING LEVEL	CUT (-) / FILL (+)
260.00		41.50	
265.00		42.35	
270.00	43.23	43.21	0.02
275.00	43.53	43.70	-0.17
280.00	43.38	43.66	-0.28
285.00	43.32	43.86	-0.54
290.00	43.41	45.14	-1.73
295.00	43.95	46.24	-2.28
300.00	44.08	47.55	-3.47
305.00	44.06	48.86	-4.80
310.00	44.20	50.80	-6.60
315.00	44.64	51.01	-7.75
320.00	44.95	52.38	-7.83
325.00	45.42	52.77	-7.17
330.00	45.91	52.59	-5.91
335.00	46.00	51.82	-4.39
340.00	46.00	50.39	-2.99
345.00	45.74	48.99	-1.71
350.00	45.22	47.45	-0.54
355.00	44.03	45.77	0.02
360.00	42.20	44.02	-0.06
365.00		42.25	
370.00		40.55	
375.00		39.38	
380.00		38.35	
385.00		36.92	
390.00		37.67	
395.00		39.03	
400.00		39.89	
405.00		40.68	
410.00		42.03	
415.00		43.21	
420.00		43.35	
425.00		44.13	
430.00		44.89	
435.00		45.55	
440.00		46.22	
445.00		47.01	
449.60		47.81	
		48.39	

EW SECTION 9 LONGSECTION
CH:260.00m TO CH: 449.60m
1:500H 1:500V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92 RFIs	GT	NM
C	30/10/24	FOR S92 RFIs	NM	NM
D	04/12/24	FOR S92 RFIs	NM	NM

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	NM	01/05/24
DRAWN	NM	01/05/24
TRACED		
CHECKED	NM	01/05/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
EARTHWORKS CROSS SECTION PLAN
SHEET 4 OF 4

STAGE
FOR RESOURCE CONSENT

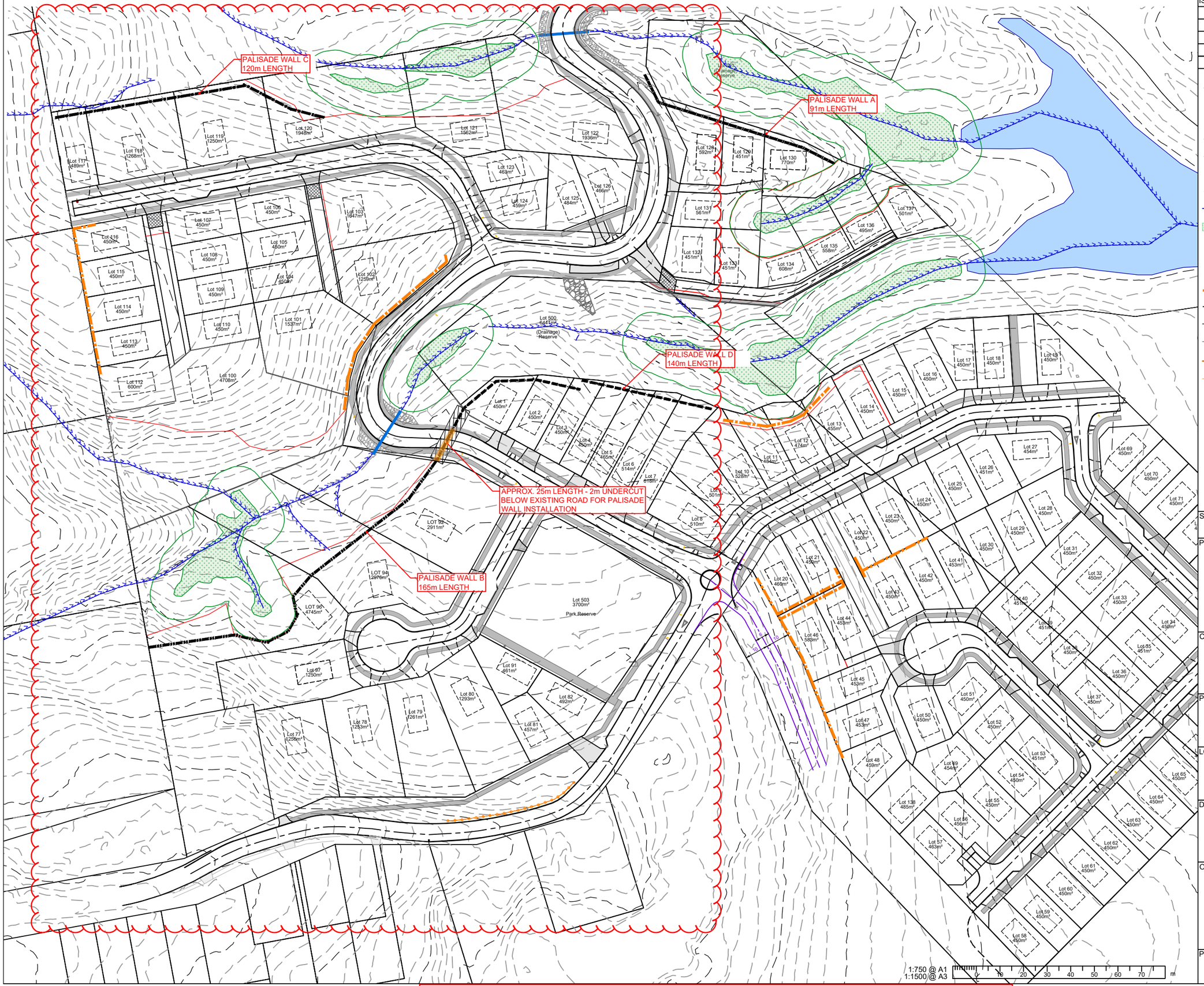
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 214

REVISION
D

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC210-EARTHWORK SECTIONS.dwg, 214, 12/9/2024 11:05 am



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	23/08/24	FOR RESOURCE CONSENT	GT	GCAI
B	30/10/24	FOR S92 RESPONSE	GT	SP
C	04/12/24	FOR S92 RESPONSE	GT	SP

LEGEND :

- RETAINING WALL
- COVENANT AREA
- PALISADE RETAINING WALL A
- PALISADE RETAINING WALL B
- PALISADE RETAINING WALL C
- PALISADE RETAINING WALL D
- EXISTING OVERLAND FLOW PATH
- EXISTING WETLAND
- PROPOSED RAIN GARDEN (WITH <5% LONG SECTION)
- PROPOSED STREET LIGHT
- PROPOSED RETAINING WALL
- PROPOSED PALISADE WALL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- VEHICLE CROSSING TO BE BUILT WITH SUBDIVISION CIVIL WORKS
- INDICATIVE VEHICLE CROSSINGS (WILL NOT BE BUILT WITH SUBDIVISION

STAGE

FOR RESOURCE CONSENT

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PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

PALISADE WALL PLAN

ORIENTATION

SCALE	A1	1:750
	A3	1:1500
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 216	C

NOTES

THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE CMW DESIGN REPORT REFERENCED

1. **SPECIFICATION OF RC OPTION**

   MATERIAL PROPERTIES

   CONCRETE: CHARACTERISTIC COMPRESSIVE STRENGTH F'C = 30MPa UNLESS OTHERWISE NOTED.

   STEEL REINFORCEMENT: MINIMUM G500 STRUCTURAL STEEL.

2. MINIMUM CONCRETE COVER TO REINFORCEMENT MEMBERS IS 75mm WITH A MINIMUM COVER OF 100mm AT THE PILE BASE. PILE HOLE DIAMETER MAY ONLY BE VARIED BY DESIGNER IN WRITING.
3. ALL PILE HOLES TO BE AUGERED AND DRILLING SPOIL DISPOSED OF AWAY FROM THE PALISADE WALL.
4. THE CONTRACTOR SHALL REFER TO THE DESIGN ENGINEER AS SOON AS POSSIBLE FOR FURTHER INSTRUCTION SHOULD ANY UNFORESEEN CIRCUMSTANCE OR ABNORMAL SITE CONDITION BE ENCOUNTERED.
5. PILES SHOULD BE DRILLED AND POURED WITHIN THE SAME DAY TO REDUCE POTENCIAL FOR COLLAPSE.
6. PILE HOLES MUST BE SUITABLY COVERED WHEN LEFT OPEN.

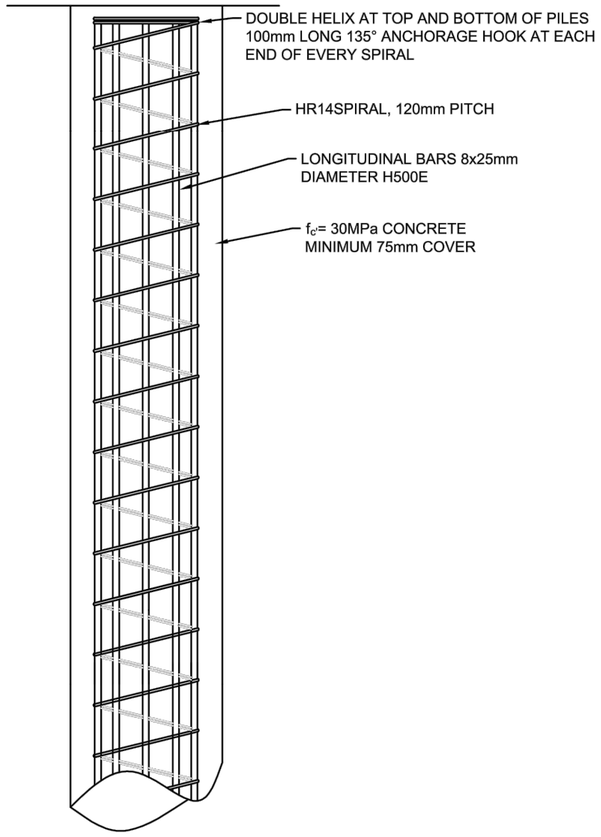
2. **OBSERVATIONS AND HOLD POINTS:**

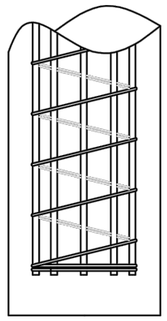
- MEASUREMENT OF PILE HOLE DEPTH, SPACING AND DIAMETER.
- GROUND CONDITIONS IN THE PILE HOLE PRIOR REINFORCEMENT PLACEMENT.
- PILE REINFORCEMENT CAGE DETAILS AND LENGTH PRIOR TO PLACEMENT.
- REVIEW OF CONCRETE MIX SHEET.
- FINAL INSPECTION AND AS-BUILT SURVEY TO BE COMPLETED.

DESIGN CASE TABLE:

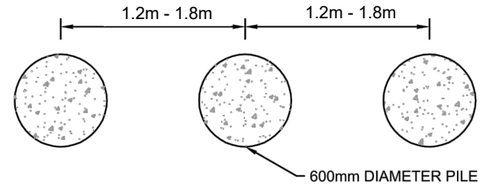
	C/C UPRIGHT SPACING (m)	MINIMUM UPRIGHT HOLE DIAMETER (mm)	MINIMUM EMBEDDED LENGTH (m)	PILE CAPACITY
PALISADE WALL A TOTAL LENGTH 91m	1.2 - 1.8	600	8	150 kN/m
PALISADE WALL B TOTAL LENGTH 165m	1.2 - 1.8	600	8	150 kN/m
PALISADE WALL C TOTAL LENGTH 120m	1.8	600	7	160 kN/m
PALISADE WALL D TOTAL LENGTH 140m	1.35	600	7	160 kN/m

NOTE:
PALISADE WALL SPACING IS SUBJECT TO GEOTECH CONFIRMATION AT BUILDING CONSENT.

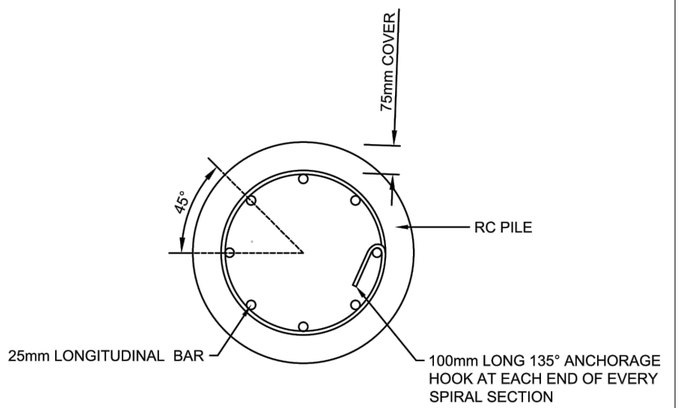




TYPICAL RC PILE ELEVATION



TYPICAL PILE LAYOUT FOR PALISADE WALL



TYPICAL RC PILE SECTION

NOTES:
DETAILS SUBJECT TO BUILDING CONSENT APPROVAL.

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	23/08/24	FOR S92 RESPONSE	GT	GCAI	SURVEYED	TERRA	-
B	30/10/24	FOR S92 RESPONSE	GT	GZ	DESIGNED	NM	01/05/24
					DRAWN	NM	01/05/24
					TRACED		
					CHECKED	NM	01/05/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STANDARD DETAILS FOR PALISADE WALL

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 N.T.S
A3 N.T.S

DWG NUMBER
RC- 219

REVISION
B

NOTES:
ALL SEDIMENT CONTROL WORKS TO BE COMPLETED AND APPROVED BY COUNCIL PRIOR TO ANY EARTHWORKS BEING UNDERTAKEN.

SEDIMENT RETENTION POND DIMENSION						
DEVICE NAME	CATCHMENT AREA (ha)	MINIMUM VOLUME (m3)	TOP LENGTH (m)	TOP WIDTH (m)	BASE LENGTH (m)	BASE WIDTH (m)
SRP A	5.0	1500	56.40	21.60	45.90	13.20
SRP B	2.5	750	43.95	17.10	34.95	9.90
SRP C	2.5	750	43.95	17.10	34.95	9.90

LEGEND:
- SSF — SUPER SILT FENCE
- CW — CLEAN WATER DIVERSION BUND
- POND
- DW — DIRTY WATER DIVERSION
- EARTHWORK EXTENT
- 10m WETLAND SETBACK
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- EXISTING STABILIZED ROAD

SHEET 220.2

SEDIMENT RETENTION POND (SRP) B

DIRTY WATER DIVERSION

CATCHMENT AREA = 2.50ha FOR SEDIMENT RETENTION POND B

10m EXISTING WETLAND SETBACK

TOPSOIL STOCKPILE INDICATIVE AREA APPROX. VOL. = 6,000m^3

PROPOSED STABALISED CONSTRUCTION ENTRANCE

CLEAN WATER DIVERSION

SEDIMENT RETENTION POND (SRP) C

10m EXISTING WETLAND SETBACK

CATCHMENT AREA = 2.50ha FOR SEDIMENT RETENTION POND C

PROPOSED STABALISED CONSTRUCTION ENTRANCE

TOPSOIL STOCKPILE INDICATIVE AREA APPROX. VOL. = 9,000m^3

CATCHMENT AREA = 5.0 ha FOR SEDIMENT RETENTION POND A

EXISTING STABALISED ROAD

TOPSOIL STOCKPILE INDICATIVE AREA APPROX. VOL. = 4,700m^3

TOPSOIL STOCKPILE INDICATIVE AREA APPROX. VOL. = 2,000m^3

SEDIMENT RETENTION POND (SRP) A

SHEET 220.3

SHEET 220.4

1:1000 @ A1
1:2000 @ A3
0 10 20 30 40 50 60 70 80 90 100 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GZ	SURVEYED	TERRA	-
B	23/08/24	FOR S92 RESPONSE	GT	GCAI	DESIGNED	GZ	02/04/24
C	30/10/24	FOR S92 RESPONSE	GT	GT	DRAWN	GZ	02/04/24
D	04/12/24	FOR S92 RESPONSE	GT	NM	TRACED		
					CHECKED	NM	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
EROSION AND SEDIMENT CONTROL OVERALL PLAN

STAGE
FOR RESOURCE CONSENT

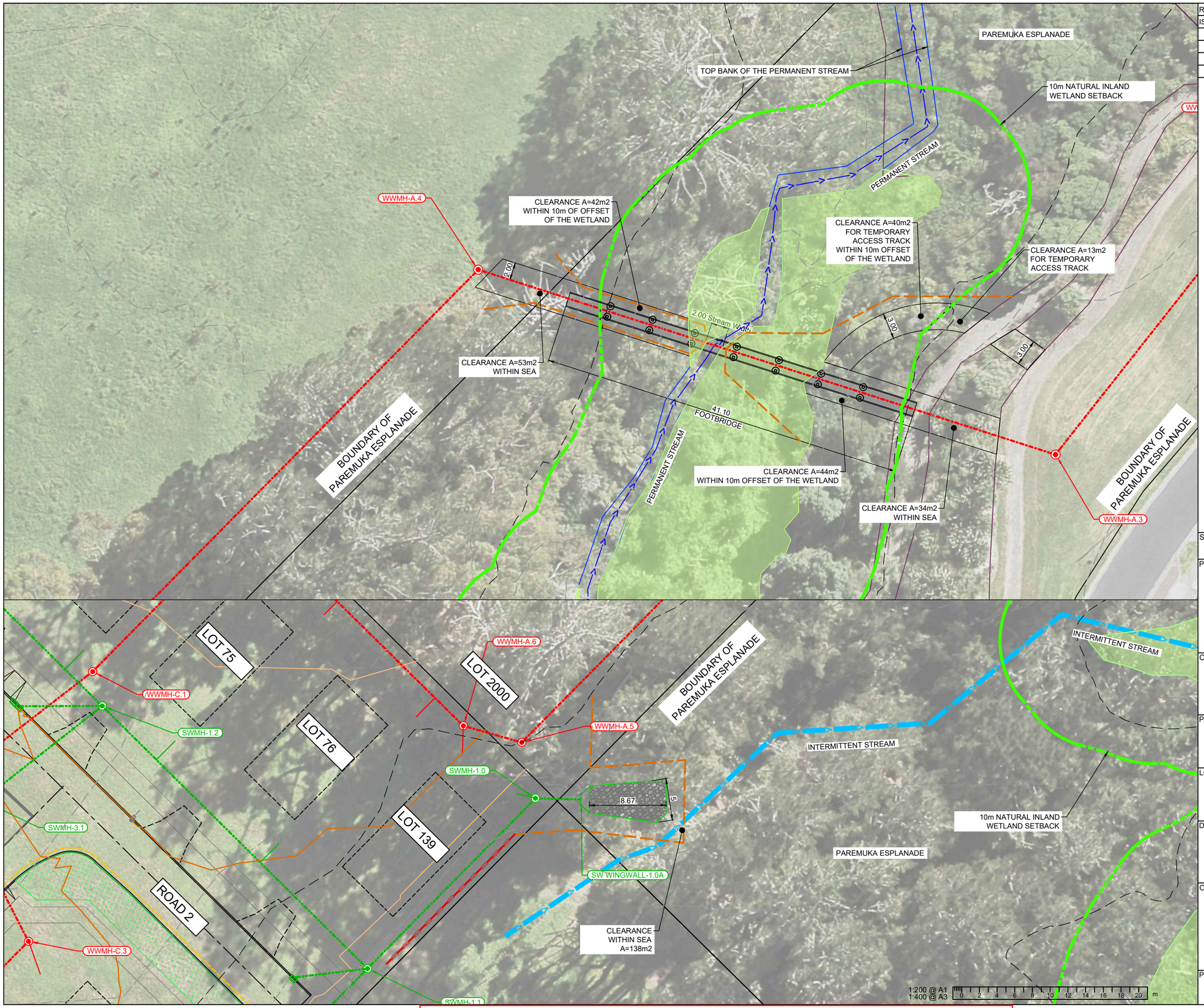
PROJECT NUMBER
210506

SCALE
A1 1:1000
A3 1:2000

DWG NUMBER
RC- 220

REVISION
D

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC220-EROSION AND SEDIMENT CONTROL PLAN.dwg, 220, 12/10/2024 10:50 am



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	23/08/24	FOR RESOURCE CONSENT	GT	GZ
B	30/10/24	FOR S92	GT	GZ

LEGEND:

- SILT SOCK
- SUPER SILT FENCE
- CLEAN WATER DIVERSION BUND
- POND
- DIRTY WATER DIVERSION
- NATURAL INLAND WETLAND

NOTE:

1. SILT SOCKS TO BE INSTALLED AS A SEDIMENT CONTROL DEVICES WITHIN PAREMUKA ESPLANADE RESERVE.
2. EARTHWORK METHODOLOGY WILL BE CONFIRMED BY CONTRACTOR PRIOR CONSTRUCTION.
3. EARTHWORK WITHIN PAREMUKA ESPLANADE RESERVE SHALL BE MINIMUM. CUT AND COVER METHODOLOGY IS RECOMMENDED IF SUITABLE.

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE

FOR RESOURCE CONSENT

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PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

EROSION AND SEDIMENT CONTROL PLAN WITHIN THE PAREMUKA RESERVE

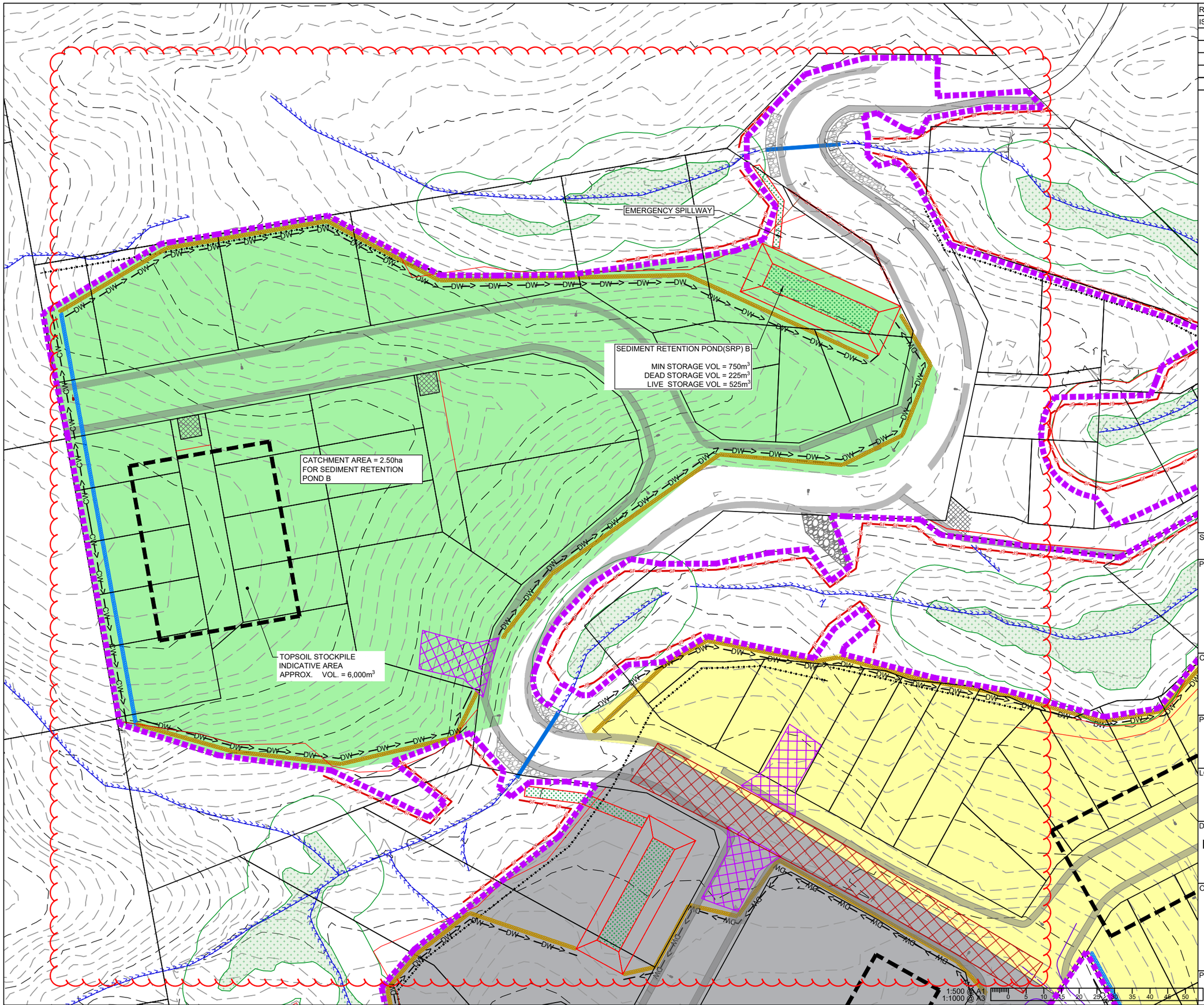
ORIENTATION

N

SCALE	A1	1:200
	A3	1:400
DATE		05/07/2024
SURVEYED		TERRA
DESIGNED		GZ
DRAWN		GZ
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC-220.1	B

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REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	30/10/24	FOR S92 RESPONSE	GT	GZ
B	04/12/24	FOR S92 RESPONSE	GT	GZ

LEGEND:

- SUPER SILT FENCE
- CLEAN WATER DIVERSION BUND
- POND
- DIRTY WATER DIVERSION
- EARTHWORK EXTENT
- 10m WETLAND SETBACK
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- EXISTING STABILIZED ROAD

STAGE

FOR RESOURCE CONSENT

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PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

EROSION AND SEDIMENT CONTROL
PLAN SHEET 1 OF 3

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		
DESIGNED		GZ
DRAWN		GZ
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC-220.2	B

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TOPSOIL STOCKPILE
INDICATIVE AREA
APPROX. VOL. = 6,000m^3

EMERGENCY SPILLWAY

SEDIMENT RETENTION POND (SRP) C
MIN STORAGE VOL = 750m^3
DEAD STORAGE VOL = 225m^3
LIVE STORAGE VOL = 525m^3

CATCHMENT AREA = 2.50ha
FOR SEDIMENT RETENTION
POND C

TOPSOIL STOCKPILE
INDICATIVE AREA
APPROX. VOL. = 4,700m^3

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

REVISION

ISSUE	DATE	DETAIL	CHKD	DRWN
A	30/10/24	FOR S92 RESPONSE	GT	GZ
B	04/12/24	FOR S92 RESPONSE	GT	GZ

LEGEND:

- SUPER SILT FENCE
- CLEAN WATER DIVERSION BUND
- POND
- DIRTY WATER DIVERSION
- EARTHWORK EXTENT
- 10m WETLAND SETBACK
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- EXISTING STABILIZED ROAD

STAGE
FOR RESOURCE CONSENT

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CARRACK CAPITAL LIMITED

PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

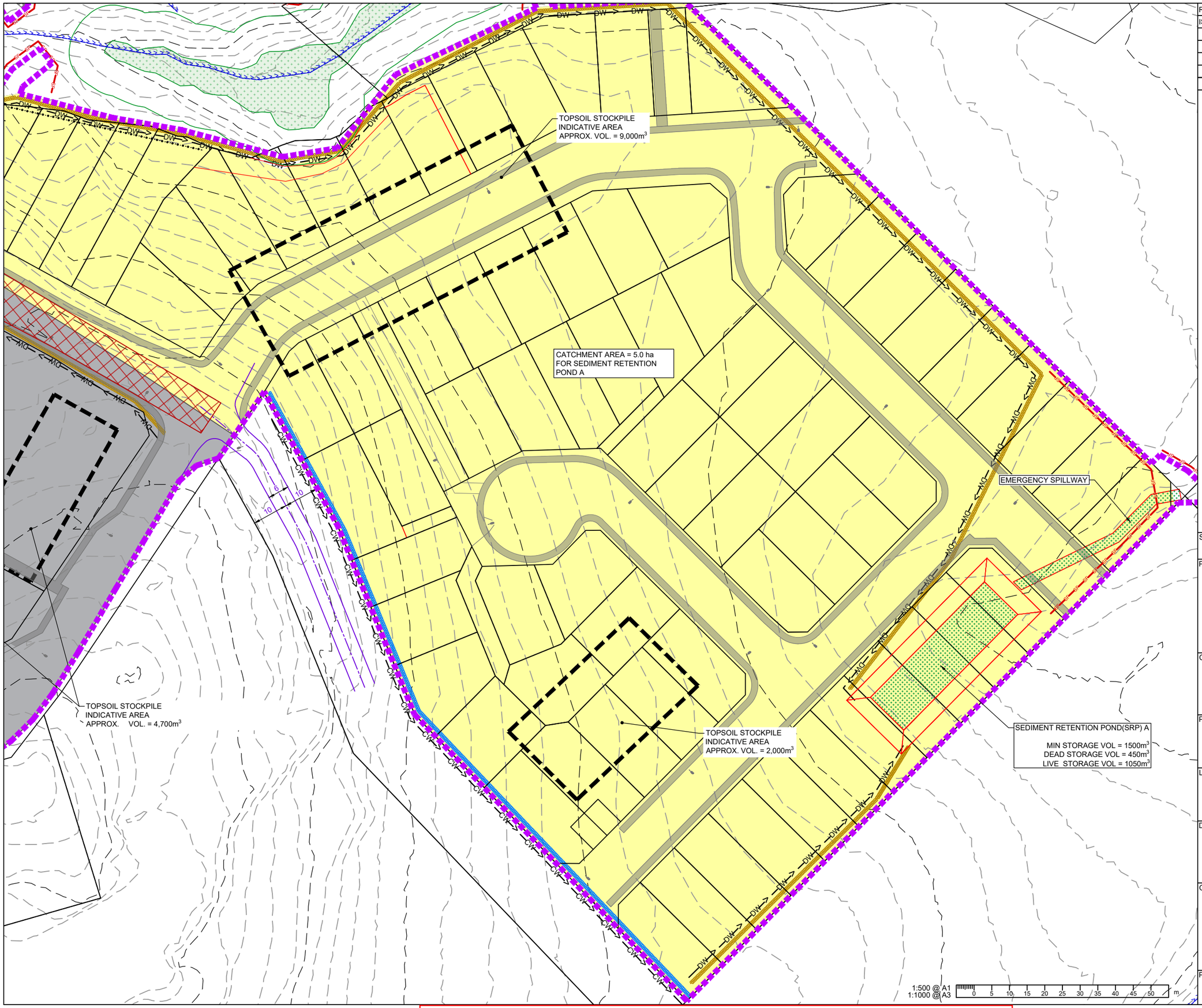
DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN SHEET 2 OF 3

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		
DESIGNED		GZ
DRAWN		GZ
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC-220.3	B

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC220-EROSION AND SEDIMENT CONTROL PLAN.dwg, 220.3, 12/10/2024 10:51 am



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	30/10/24	FOR S92 RESPONSE	GT	GZ
B	04/12/24	FOR S92 RESPONSE	GT	GZ

LEGEND:

- SUPER SILT FENCE
- CLEAN WATER DIVERSION BUND
- POND
- DIRTY WATER DIVERSION
- EARTHWORK EXTENT
- 10m WETLAND SETBACK
- PROPOSED STABILIZED CONSTRUCTION ENTRANCE
- EXISTING STABILIZED ROAD

STAGE

FOR RESOURCE CONSENT

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CARRACK CAPITAL LIMITED

PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

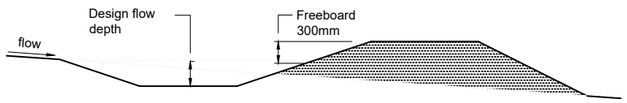
EROSION AND SEDIMENT CONTROL
PLAN SHEET 3 OF 3

ORIENTATION

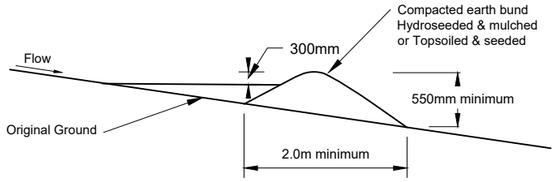
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	A3	1:1000
DATE		01/05/2024
SURVEYED		
DESIGNED		GZ
DRAWN		GZ
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC-220.4	B

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC220-EROSION AND SEDIMENT CONTROL PLAN.dwg, 220.4, 12/10/2024 10:52 am



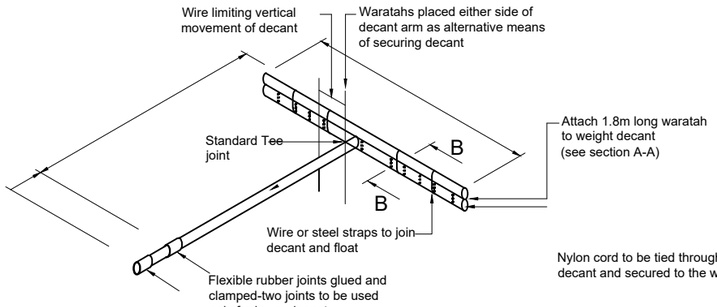
RUNOFF DIVERSION CHANNEL CROSS SECTION
NTS



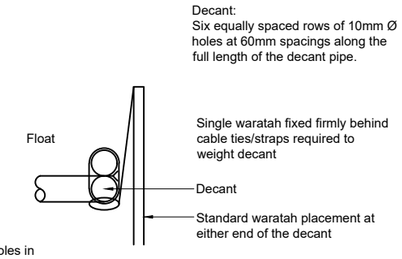
CLEAN WATER DIVERSION
NTS

NOTE:

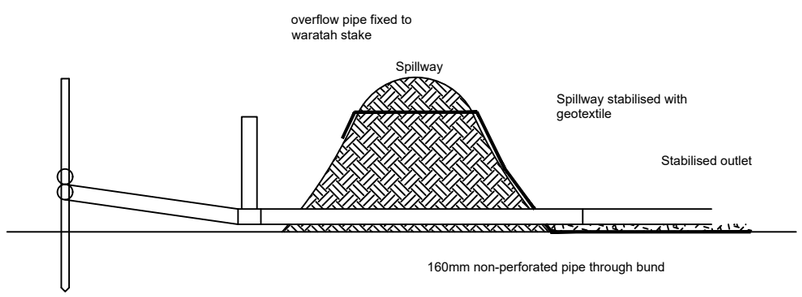
ALL WORKS TO BE CARRIED OUT IN ACCORDANCE
WITH AUCKLAND COUNCIL GUIDELINE DOCUMENT 05
- EROSION AND SEDIMENT
CONTROL GUIDELINES FOR LAND DISTURBING
ACTIVITIES IN THE AUCKLAND REGION JUNE 2016.



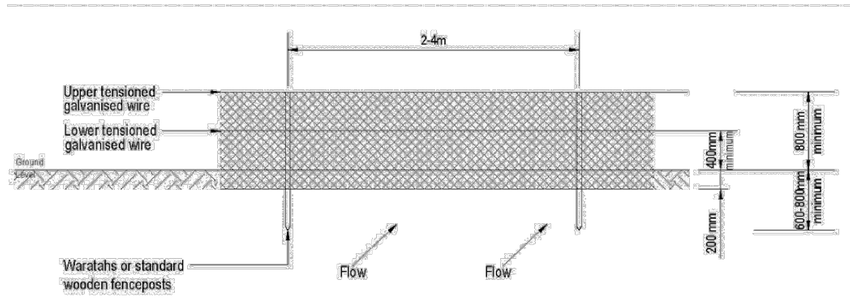
DECANT DETAIL
NTS



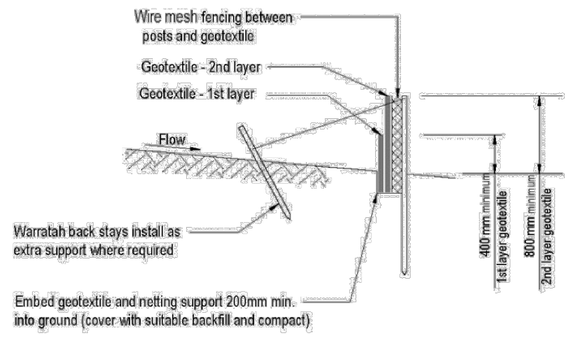
SECTION B-B



TYPICAL CROSS-SECTION: EARTH BUND DECANT
NTS



Elevation



Cross-section

SUPER SILT FENCE
NTS

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GZ	SURVEYED	TERRA	-
B	30/10/24	FOR S92 RESPONSE	GT	GZ	DESIGNED	GZ	01/05/24
					DRAWN	GZ	01/05/24
					TRACED		
					CHECKED	NM	01/05/24

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
EROSION AND SEDIMENT
STANDARD DETAILS
SHEET 1 OF 3

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 N.T.S
A3 N.T.S

DWG NUMBER
RC- 221

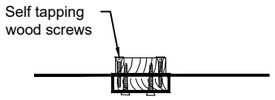
REVISION
B

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC220-EROSION AND SEDIMENT CONTROL PLAN.dwg, 221, 10/14/2024 4:12 pm

NOTE:

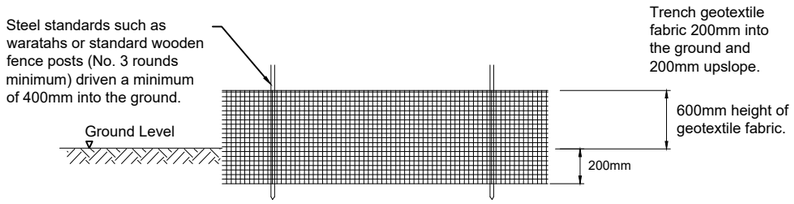
ALL WORKS TO BE CARRIED OUT IN ACCORDANCE WITH AUCKLAND COUNCIL GUIDELINE DOCUMENT 05 - EROSION AND SEDIMENT **CONTROL GUIDELINES FOR LAND DISTURBING** ACTIVITIES IN THE AUCKLAND REGION JUNE 2016.

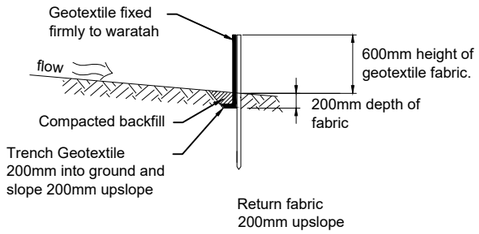
Post spacingcan be increased from 2 metres to 4 metres if supported by a 2.5m diameter high tensile wire along the top with clips every 200mm.

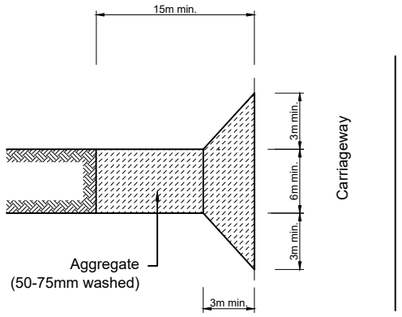


Wrap both ends of the fabric around one stake and clamp the other stake to it using self tapping screws at 150mm spacings.

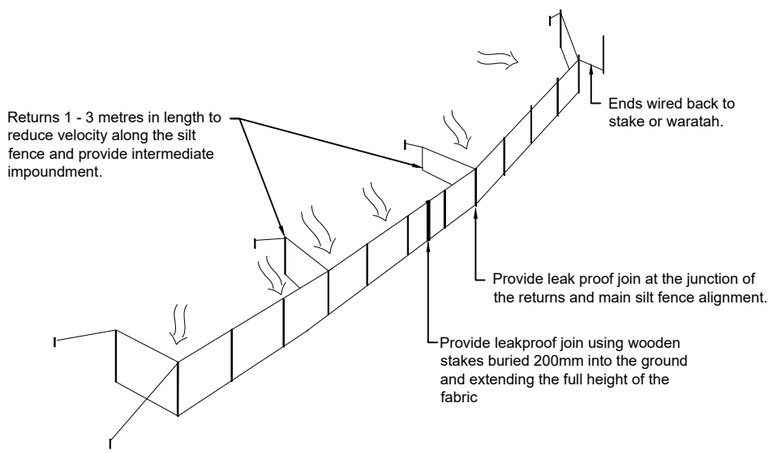
Standard Detail for Fabric Join



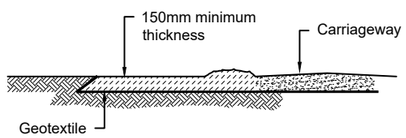




PlanView
Stabilised Construction Entrance
NTS



Silt Fence with Returns and Supports Wire



Side Elevation

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR S92 RESPONSE	GT	GZ	SURVEYED	TERRA	-
					DESIGNED	GZ	01/05/24
					DRAWN	GZ	01/05/24
					TRACED		
					CHECKED	NM	01/05/24

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: EROSION AND SEDIMENT STANDARD DETAILS SHEET 2 OF 3

STAGE: FOR RESOURCE CONSENT

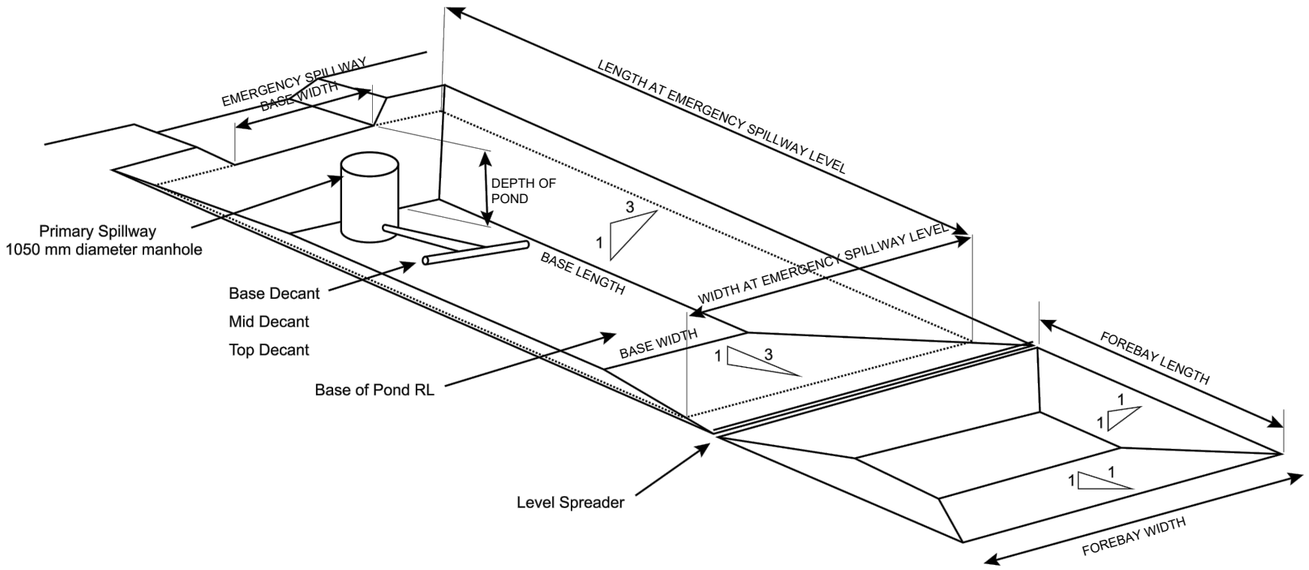
PROJECT NUMBER: 210506

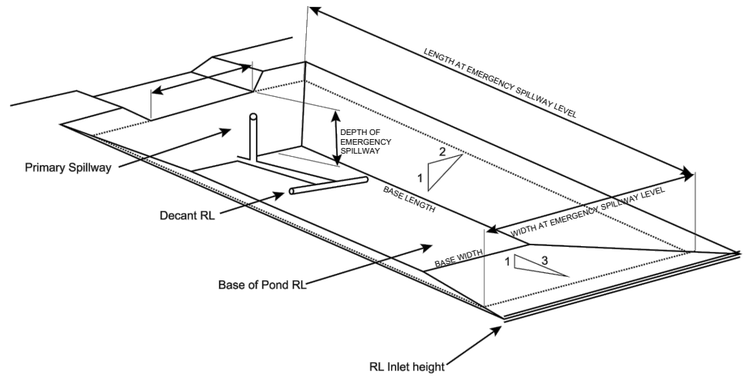
SCALE: A1 N.T.S, A3 N.T.S

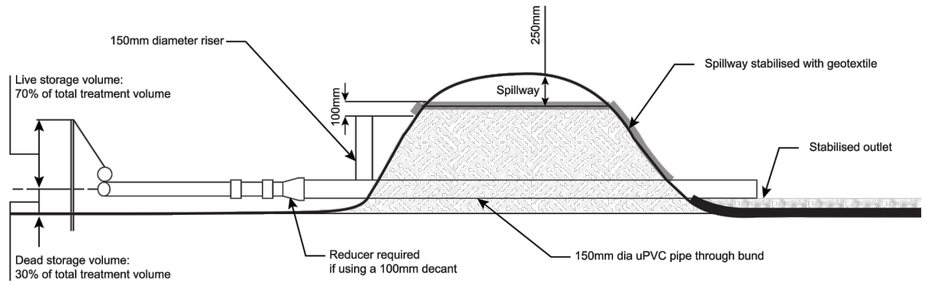
DWG NUMBER: RC- 222

REVISION: A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC220-EROSION AND SEDIMENT CONTROL PLAN.dwg, 222, 10/14/2024 4:12 pm

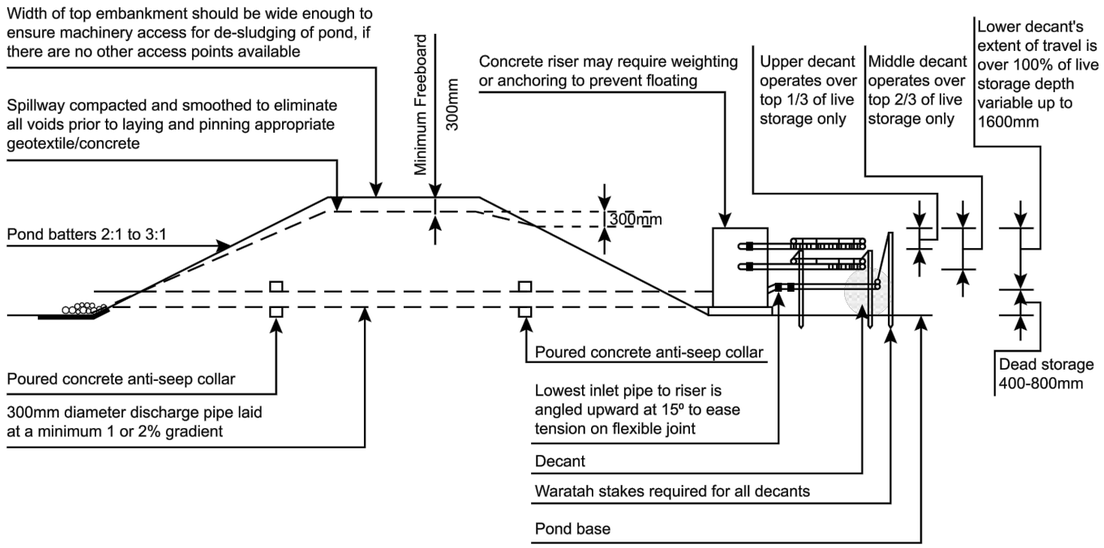






Cross - section

DECANTING EARTH BUND
NTS



Sediment retention pond for 3 to 5 ha catchment

SEDIMENT RETENTION POND
NTS

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR S92 RESPONSE	GT	GZ	SURVEYED	TERRA	-
					DESIGNED	GZ	01/05/24
					DRAWN	GZ	01/05/24
					TRACED		
					CHECKED	NM	01/05/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
EROSION AND SEDIMENT
STANDARD DETAILS
SHEET 3 OF 3

STAGE
FOR RESOURCE CONSENT

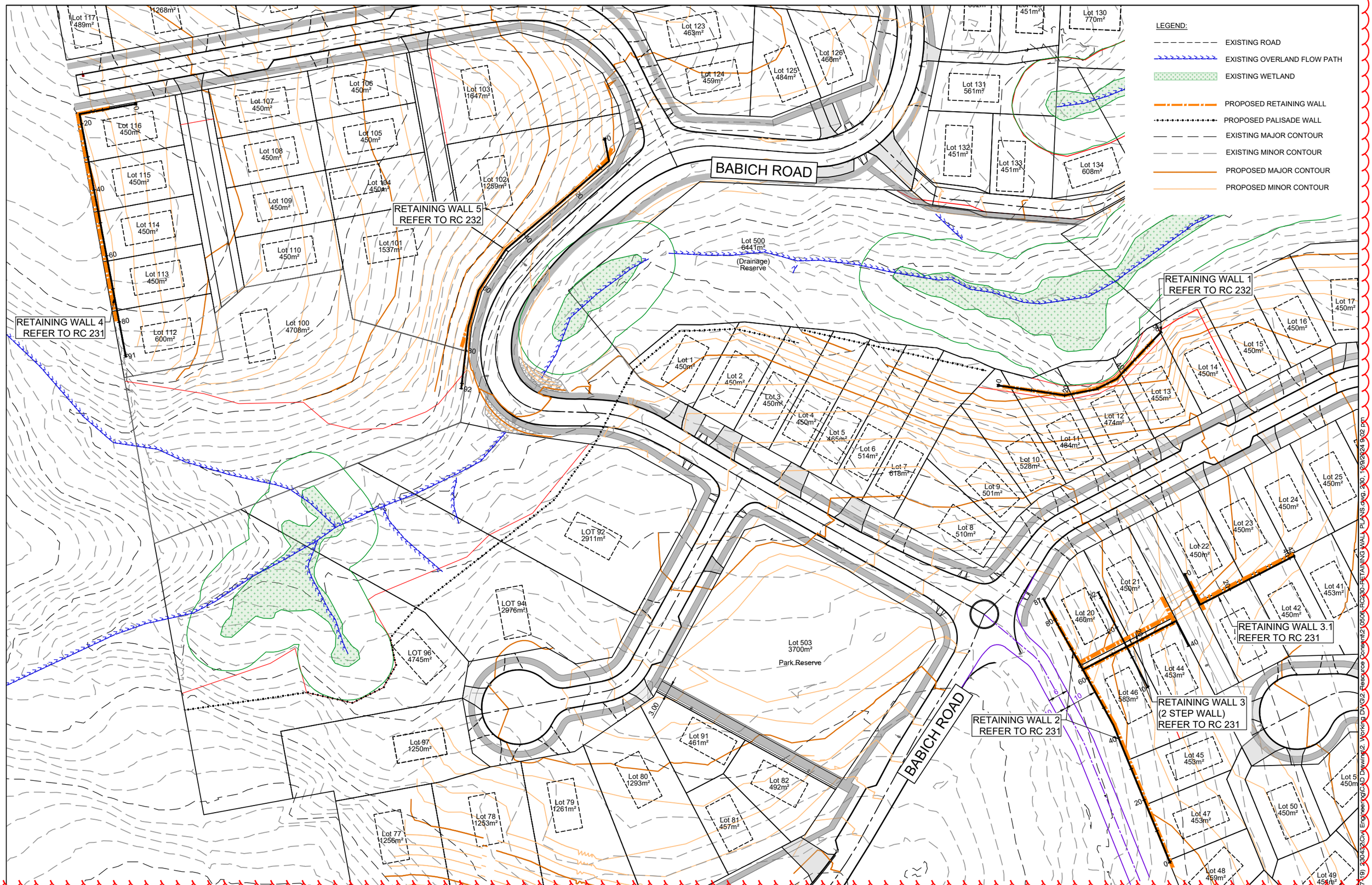
PROJECT NUMBER
210506

SCALE
A1 N.T.S
A3 N.T.S

DWG NUMBER
RC- 223

REVISION
A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC220-EROSION AND SEDIMENT CONTROL PLAN.dwg, 223, 10/14/2024 4:12 pm



ISSUE	DATE	REVISION	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	GT	GZ
B	23/08/24	FOR S92 RFIs	NM	GZ
C	30/10/24	FOR S92 RFIs	NM	GZ
D	04/12/24	FOR S92 RFIs	NM	GZ

	NAME	DATE
SURVEYED		
DESIGNED		
DRAWN		
TRACED		
CHECKED		

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
RETAINING WALL PLAN

STAGE
FOR RESOURCE CONSENT

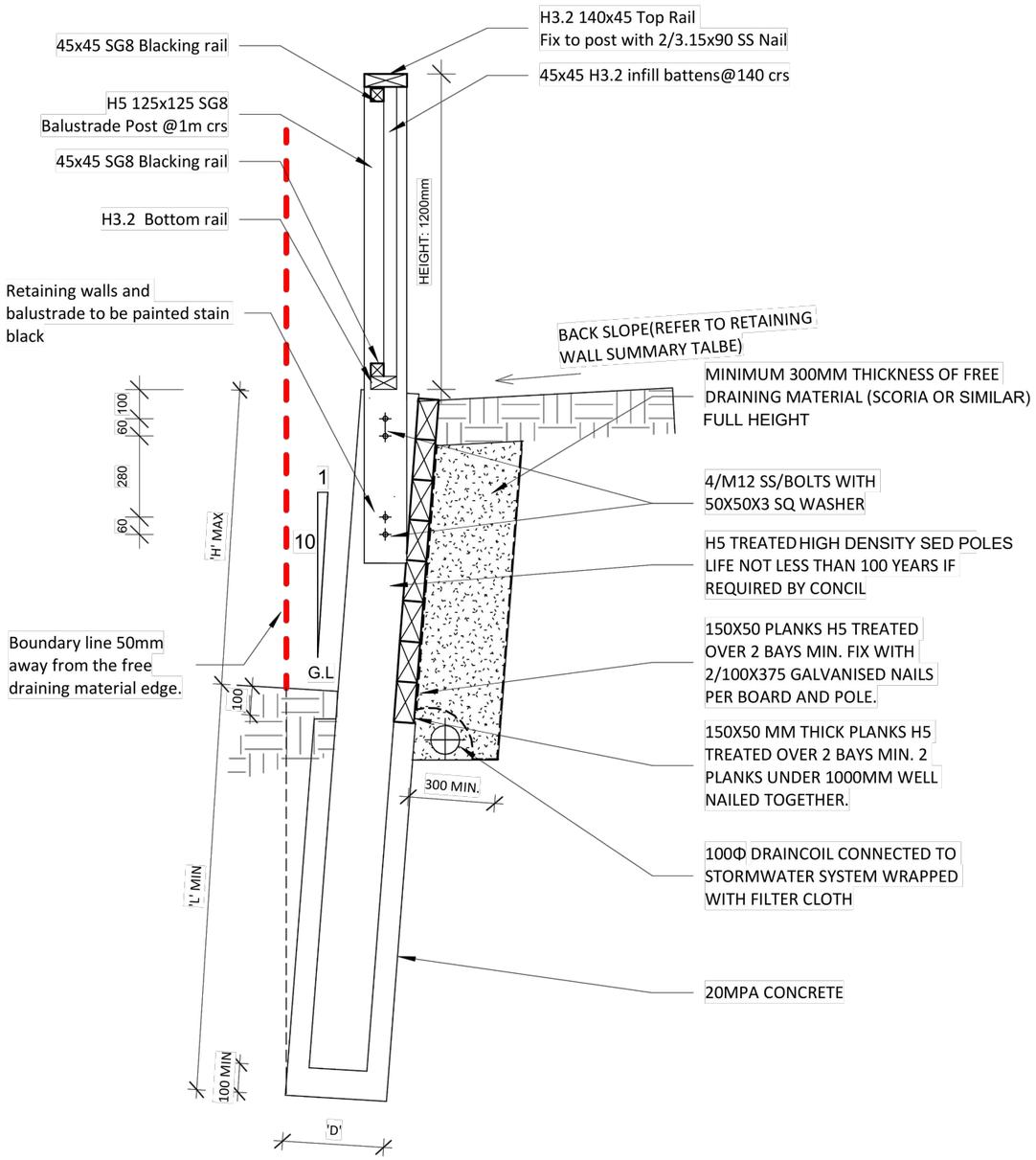
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 230

REVISION
D

Z:\Babich Road (8-14, 17-19)_230432\Civil Engineering\CAD Drawing\2_Working DWG\2_Resource Consent\210506_RC230_RETAINING WALL PLANS.dwg, 230, 12/9/2024 9:02 pm



- RETAINING WALL SECTIONAL DETAILS

- 1:20H, 1:20V @A1
  1:40H, 1:40V @A3

TIMBER RETAINING WALL SUMMARY

RETAINING WALL FRONT SLOPE 5 DEG, BACK SLOPE 5 DEG, SURCHARGE 12kPa (450Kg/m3)

H(m)	D(mm)	L(m)	Pole(mm)
0-1.0	400	1.8	200@1000c/c
1.0-2.0	500	3.2	325@1200c/c
2.0-3.0	600	4.2	400@1500c/c

NOTE:
1. DESIGN TO BE CONFIRMED AT BUILDING CONSENT STAGE.
2.RETAINING WALL HEIGHT TO BE MEASURED TO SUBGRADE LEVEL

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	23/08/24	FOR S92	GT	GZ	SURVEYED	TERRA	
B	30/10/24	FOR S92	GT	SP	DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: RETAINING WALL DETAILS SHEET 1 OF 2

STAGE: FOR RESOURCE CONSENT

PROJECT NUMBER: 210506

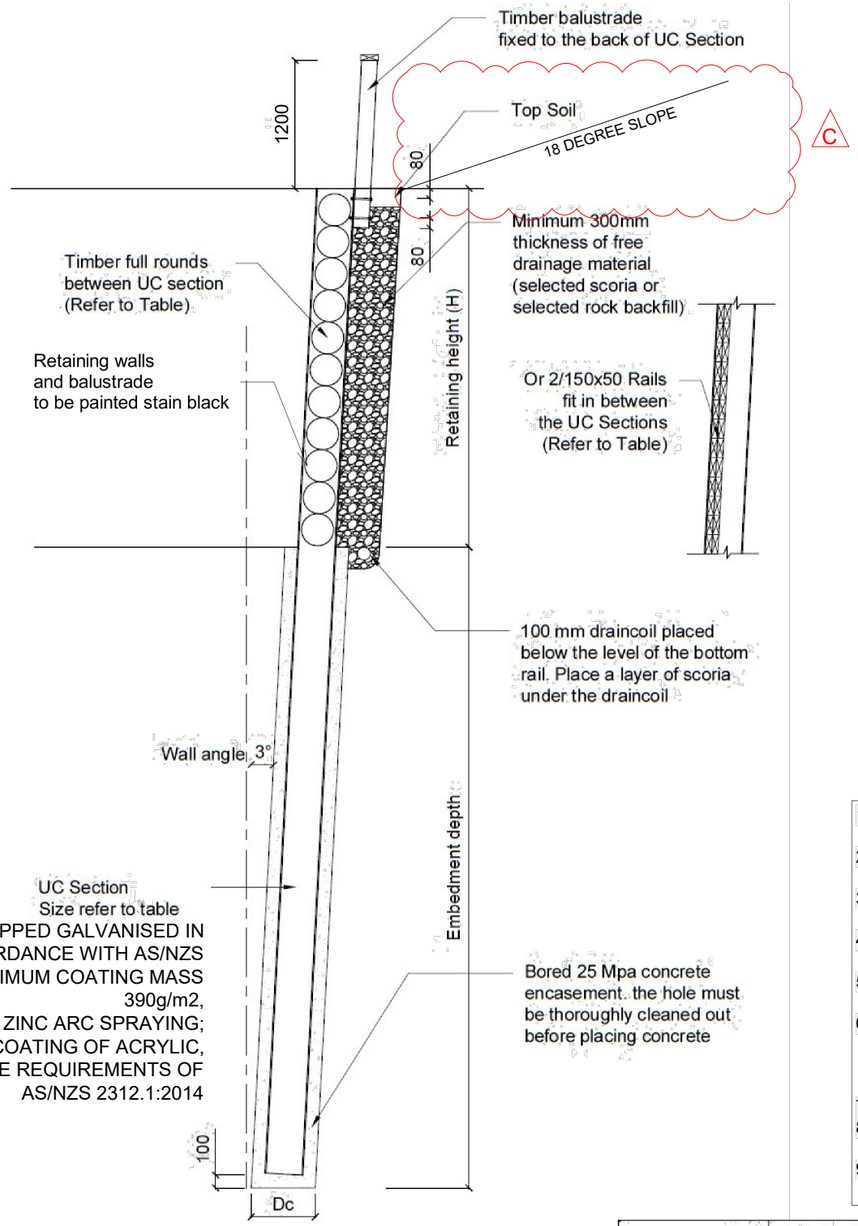
SCALE: A1 N.T.S, A3 N.T.S

DWG NUMBER: RC- 231

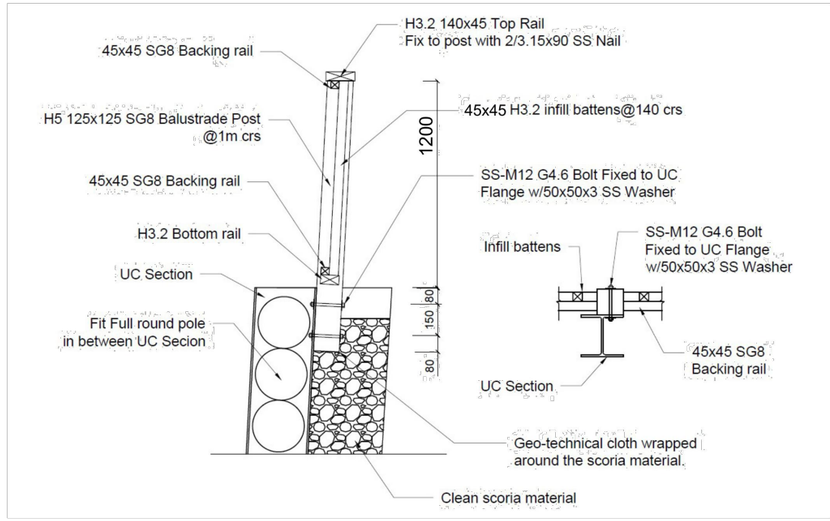
REVISION: B

Auckland Council | Approved Resource Consent Plan | BUN60432511 | 06/03/2025 | Page 55 of 177

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC230-RETAINING WALL PLANS.dwg, 231, 10/30/2024 1:10 pm



TYP. Retaining Wall - Detail



1. Ensure all augered holes have firm natural clay walls and that no collapse of walls occurs. should hole walls collapse then holes are to be cleaned out prior to pole and concrete placing.
2. If ground water is encounted during construction contractor to provide appropriate means of controlling ground water to prevent seepage into augered holes and / or construction area.
3. All augured holes for retaining walls and excavation for drainage must be inspected by the structural engineer prior to back-filling with concrete.
4. No trenches for services or otherwise to be dug in front of retaining walls unless authorised by the structural engineer.
5. The extent of excavation required shall be marked out on the ground having regard to the positions of poles, working space for construction, backfill required and drainage provisions.
6. Excavations for foundations shall be taken out by auguring holes to the specified dimensions with all surplus soils being disposed off away from the site. allowance shall be made in positioning augured holes for the slope of the walls and for concrete surround to poles. Driving of poles is not acceptable as an alternative to auguring, unless otherwise approved by the structural engineer.
7. the contractor shall locate / ascertain / protect all services on site.
8. Do not scale from drawings.The contractor shall check all measurements / levels on site before commencement of site works.
9. Design subject to approved building consent plans.

C

Recommended Retaining Wall (12kPa Surcharge, Ka Soil Pressure, front slope 30deg, back slope18deg)

Reference	Retention Height (H)	Type	Grade	Pole Dia.(Dp)	Concrete Dia. (Dc)	Spacing	Min embedment (D)	Retaining wall Rails
RW	3.01-4.7m	Steel	Grade 300	250UC89	400mm	0.8m	9.5m	2/150x50 SG8
RW	4.71-5.5m	Steel	Grade 300	250UC89	400mm	0.8m	9.5m	2/150x50 SG8

NOTES:
DETAILS SUBJECT TO BUILDING CONSENT.

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	23/08/24	FOR RESOURCE CONSENT	GT	GZ	SURVEYED	TERRA	
B	30/10/24	FOR S92	GT	GZ	DESIGNED		
C	19/02/25	FOR S92	GT	GZ	DRAWN		
					TRACED		
					CHECKED		

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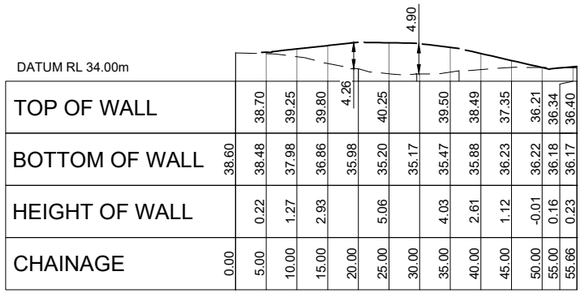
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
RETAINING WALL DETAILS
SHEET 2 OF 2

STAGE
FOR RESOURCE CONSENT

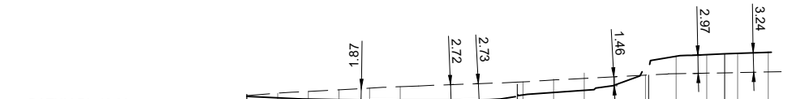
PROJECT NUMBER 210506
SCALE A1 N.T.S A3 N.T.S
DWG NUMBER RC- 232
REVISION C

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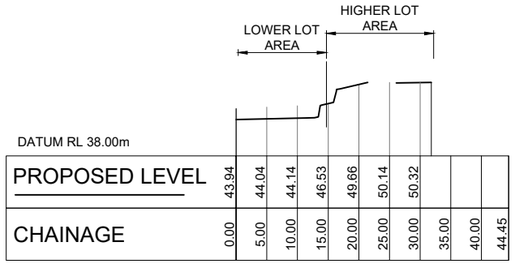
TOP OF WALL		38.70	39.25	39.80	4.26	40.25		39.50	38.49	37.35	36.21	36.34	36.40	
BOTTOM OF WALL	38.60	38.48	37.98	36.86	35.98	35.20	35.17	35.47	35.88	36.23	36.22	36.18	36.17	
HEIGHT OF WALL		0.22	1.27	2.93		5.06		4.03	2.61	1.12	-0.01	0.16	0.23	
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	55.66	

RETAINING WALL 1 LONGSECTION
CH: 0.00m TO CH: 55.66m
1:500H 1:500V @ A1 (DOUBLE FOR A3)



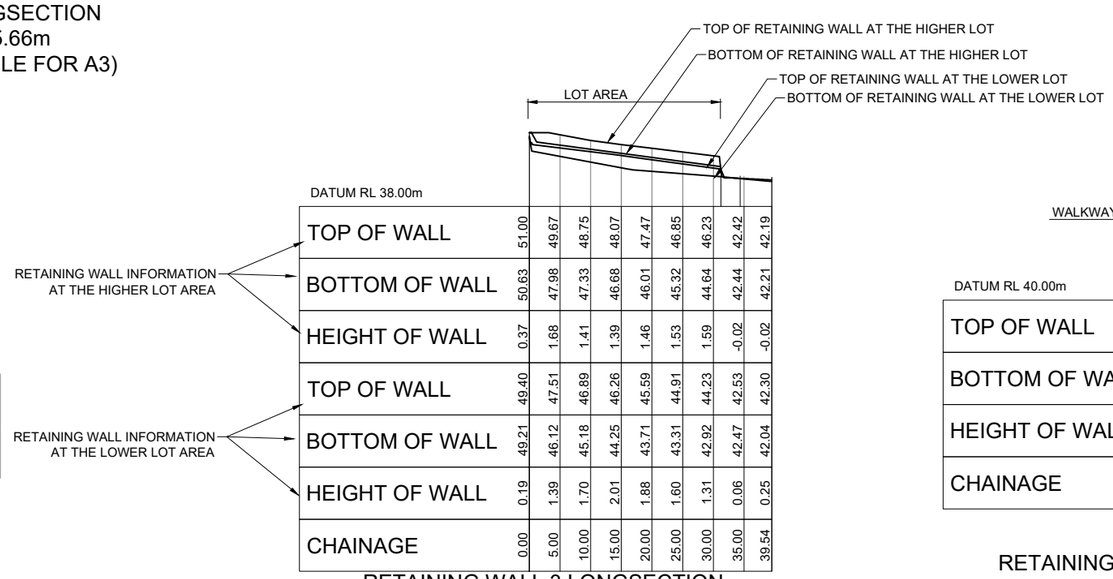
TOP OF WALL	45.78	45.54	45.33	45.27	45.16	45.03	44.99	45.03	45.28	46.02	46.42	46.77	47.63		52.33	52.59	52.79	52.98				
BOTTOM OF WALL	45.93	46.30	46.61	46.87	47.14	47.37				48.15	48.46	48.72	48.99	49.25								
HEIGHT OF WALL	-0.14	-0.76	-1.28	-1.60	-1.98	-2.34				-2.13	-2.03	-1.95	-1.36									
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	87.12			

RETAINING WALL 2 LONGSECTION
CH: 0.00m TO CH: 87.12m
1:500H 1:500V @ A1 (DOUBLE FOR A3)



PROPOSED LEVEL	43.94	44.04	44.14	46.53	49.66	50.14	50.32			
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	44.45

RETAINING WALL 3 (2 STEP WALL)
TYPICAL CROSS SECTION



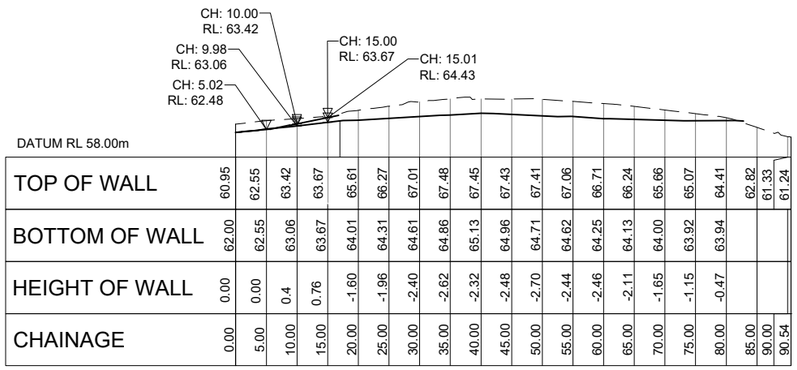
TOP OF WALL	51.00	49.67	48.75	48.07	47.47	46.85	46.23	42.42	42.19		
BOTTOM OF WALL	50.63	47.98	47.33	46.68	46.01	45.32	44.64	42.44	42.21		
HEIGHT OF WALL	0.37	1.68	1.41	1.39	1.46	1.53	1.59	-0.02	-0.02		
TOP OF WALL	49.40	47.51	46.89	46.26	45.59	44.91	44.23	42.53	42.30		
BOTTOM OF WALL	49.21	46.12	45.18	44.25	43.71	43.31	42.92	42.47	42.04		
HEIGHT OF WALL	0.19	1.39	1.70	2.01	1.88	1.60	1.31	0.06	0.25		
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	39.54		

RETAINING WALL 3 LONGSECTION
CH: 0.00m TO CH: 39.54m
1:500H 1:500V @ A1 (DOUBLE FOR A3)



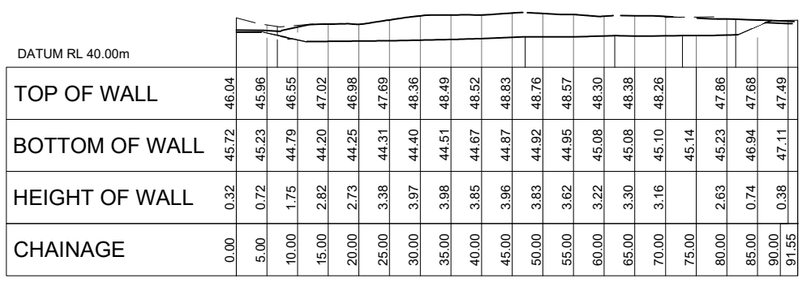
TOP OF WALL		46.13	**44.29**	43.88	43.47	43.06	42.65	42.24	41.82
BOTTOM OF WALL		45.88	43.31	41.97	41.77	41.57	41.43	41.32	41.21
HEIGHT OF WALL		0.25	0.98	1.91	1.70	1.49	1.21	0.91	0.61
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	41.65

RETAINING WALL 3.1 LONGSECTION
CH: 0.00m TO CH: 41.65m
1:500H 1:500V @ A1 (DOUBLE FOR A3)



TOP OF WALL	60.95	62.55	63.42	63.67	65.61	66.27	67.01	67.48	67.45	67.43	67.41	67.06	66.71	66.24	65.66	65.07	64.41	62.82	61.33	61.24		
BOTTOM OF WALL	62.00	62.55	63.06	63.67	64.01	64.31	64.61	64.86	65.13	64.96	64.71	64.62	64.25	64.13	64.00	63.92	63.94					
HEIGHT OF WALL	0.00	0.00	0.4	0.76	-1.60	-1.96	-2.40	-2.62	-2.32	-2.48	-2.70	-2.44	-2.46	-2.11	-1.65	-1.15	-0.47					
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	90.54		

RETAINING WALL 4 LONGSECTION
CH: 0.00m TO CH: 90.54m
1:500H 1:500V @ A1 (DOUBLE FOR A3)



TOP OF WALL	46.04	45.96	46.55	47.02	46.98	47.69	48.36	48.49	48.52	48.83	48.76	48.57	48.30	48.38	48.26		47.86	47.68	47.49				
BOTTOM OF WALL	45.72	45.23	44.79	44.20	44.25	44.31	44.40	44.51	44.67	44.87	44.92	44.95	45.08	45.08	45.10	45.14	45.23	46.94	47.11				
HEIGHT OF WALL	0.32	0.72	1.75	2.82	2.73	3.38	3.97	3.98	3.85	3.96	3.83	3.62	3.22	3.30	3.16		2.63	0.74	0.38				
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00	45.00	50.00	55.00	60.00	65.00	70.00	75.00	80.00	85.00	90.00	91.55			

RETAINING WALL 5 LONGSECTION
CH: 0.00m TO CH: 91.55m
1:500H 1:500V @ A1 (DOUBLE FOR A3)

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	23/08/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	
B	30/10/24	FOR S92 RFIS	NM	NM	DESIGNED		
C	04/12/24	FOR S92 RFIS	NM	NM	DRAWN		
					TRACED		
					CHECKED		

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Email: terra@terragroup.co.nz | Web: www.terragroup.co.nz
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CLIENT
CARRACK CAPITAL LIMITED

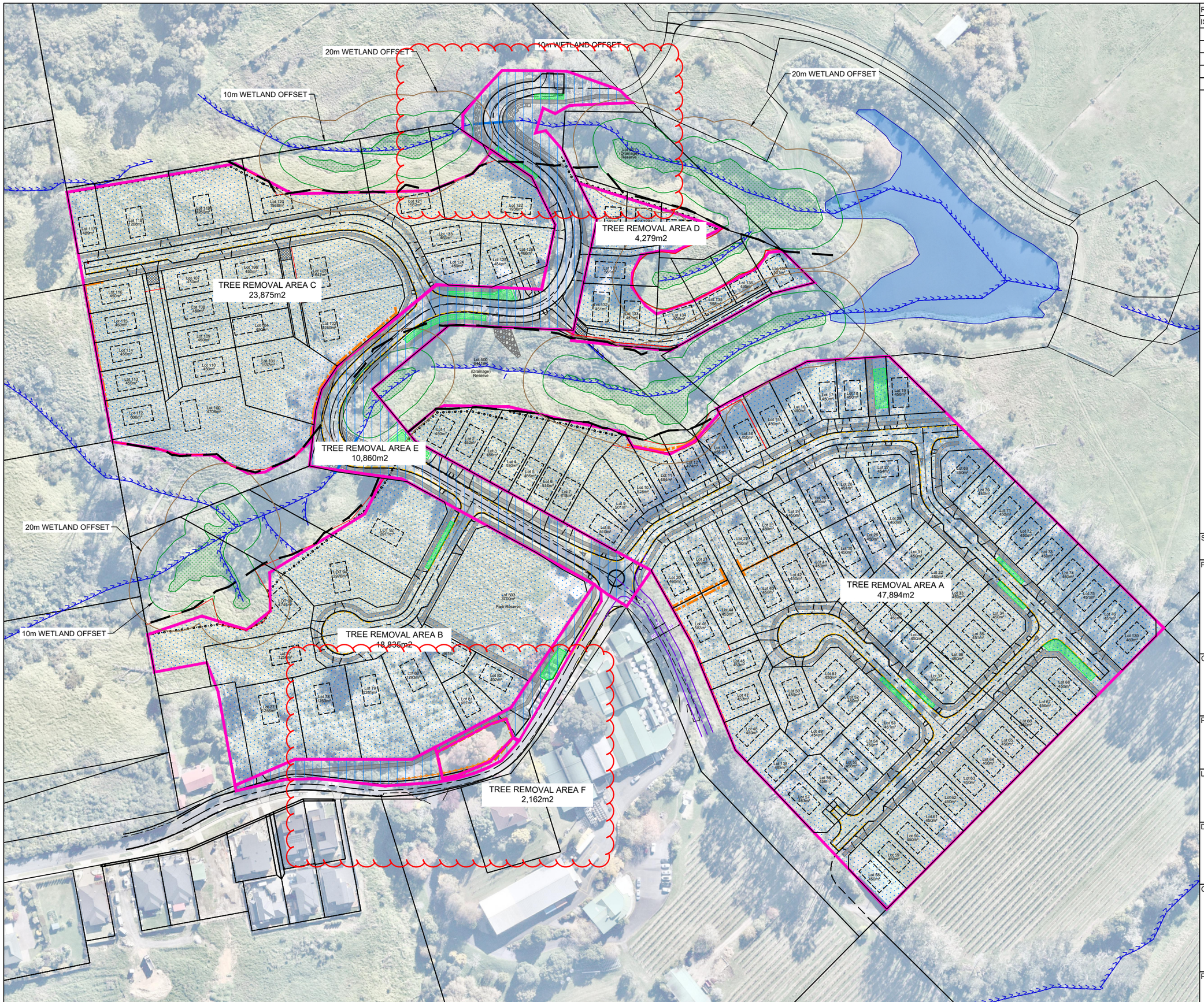
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
RETAINING WALL LONG SECTION

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER	SCALE	
210506	A1	N.T.S
	A3	N.T.S
DWG NUMBER	REVISION	
RC- 235	C	

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC230-RETAINING WALL PLANS.dwg, 235, 12/9/2024 9:00 pm



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	23/08/24	FOR RESOURCE CONSENT	GT	GCAI
B	30/10/24	FOR S92	GT	GZ
C	04/12/24	FOR S92	GT	GZ

LEGEND:

- TREES TO BE REMOVED WITHIN THE ROAD RESERVE AREA
- TREES TO BE REMOVED WITHIN THE EARTHWORK AREA
- 20m STREAM OFFSET

NOTES :

1. NO CLEARING OF TREES OUTSIDE PROPERTY BOUNDARY OR WITHIN DRAINAGE OR ESPLANADE RESERVES. ALL TREES TO BE REMOVED TO BE MARKED AND APPROVED AS TO BE REMOVED. ALL BOUNDARY AND RESERVE AREAS TO BE CLEARLY MARKED.

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE
FOR RESOURCE CONSENT

PROJECT CONSULTANTS
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CLIENT
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PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
TREE REMOVAL PLAN

ORIENTATION		
	SCALE	A1 1:900
		A3 1:1800
	DATE	01/05/2024
	SURVEYED	TERRA
	DESIGNED	GCAI
	DRAWN	GCAI
	CHECKED	GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 240	C

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC240-TREE REMOVAL PLAN.dwg, 240, 12/10/2024 2:52 pm

VEHICLE CROSSING NOTES:
1. VEHICLE CROSSING TO COMMON ACCESS LOT (COAL) ARE TO BE CONSTRUCTED AS PART OF THE VACANT LOTS SUBDIVISION.
2. VEHICLE CROSSINGS TO INDIVIDUAL LOTS ARE TO BE CONSTRUCTED AS AT BUILDING CONSENT STAGE.
3. THE VEHICLE CROSSINGS TO INDIVIDUAL LOTS ARE SHOWN INDICATIVELY.

SHEET 301

SHEET 301.1

16-18 BABICH ROAD

21 Babich Road

96 SIMPSON ROAD

100 SIMPSON ROAD

FUTURE ROAD 6 EXTENSION TO SIMPSON ROAD - CONCEPT ONLY
NOT PART OF THIS APPLICATION

BABICH ROAD

SHEET 302

SHEET 303

END OF ROAD WIDENING WORK

1:1000 @ A1
1:2000 @ A3
0 10 20 30 40 50 60 70 80 90 100 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RFIs	NM	NM	DESIGNED	NM	01/05/24
C	23/08/24	FOR S92 RFIs	NM	NM	DRAWN	NM	01/05/24
D	30/10/24	FOR S92 RFIs	NM	NM	TRACED		
E	04/12/24	FOR S92 RFIs	NM	NM	CHECKED	GT	01/05/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROADING OVERALL LAYOUT PLAN

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:1000
A3 1:2000

DWG NUMBER
RC- 300

REVISION
E

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC300-ROADING LAYOUT PLAN.dwg, 300, 12/10/2024 12:10 pm

NOTES - ROADING:

1. ALL MARKINGS AND SIGNS SHALL COMPLY WITH NZTA MANUAL OF TRAFFIC SIGNS AND MARKINGS (MOTSAM).
2. PRAM CROSSING TO BE INSTALLED WITH TACTILE GROUND SURFACE INDICATOR (TGSI) AND MUST BE IN ACCORDANCE WITH (A) NZTA RTS 14 GUIDELINES FACILITIES FOR BLIND AND VISION-IMPAIRED PEDESTRIANS AND (B) AS/NZS 1428.4:2009 DESIGN FOR ACCESS AND MOBILITY.
3. ALL MARKINGS ARE TO BE OF LONG LIFE REFLECTORISED THERMOPLASTIC TYPE.

VEHICLE CROSSING NOTES:

1. VEHICLE CROSSING TO COMMON ACCESS LOT (COAL) ARE TO BE CONSTRUCTED AS PART OF THE VACANT LOTS SUBDIVISION.
2. VEHICLE CROSSINGS TO INDIVIDUAL LOTS ARE TO BE CONSTRUCTED AS AT BUILDING CONSENT STAGE.
3. THE VEHICLE CROSSINGS TO INDIVIDUAL LOTS ARE SHOWN INDICATIVELY UNLESS STATED ON PLAN.

16-18 BABICH ROAD

INDICATIVE INTERSECTION OF THE NEIGHBOUR SITE (DERIVED FROM APPROVE PLAN BUN30586235)

PROPOSED TURNING AREA FOR TRUCK AT INDICATIVE ACCESS OF NEIGHBOUR DEVELOPMENT SITE.

END OF ROAD WIDENING WORK

VEHICLE CROSSING TO BE UTILISED AS INTERIM TURNING AREA

VEHICLE CROSSING TO BE BUILT WITH SUBDIVISION CIVIL WORK

ROAD 6

COAL 400

COAL 401

COAL 404

COAL 405

BABICH ROAD

DIFFERENT PAVEMENT FOR SPEED MANAGEMENT

AT STANDARD RESIDENTIAL COMPOUND INTERSECTION

OVERLAND FLOWPATH EXIT

PROPOSED BROADWALK CANTILEVER - TBC

RETAINING WALL 1

RETAINING WALL 4

RETAINING WALL 5

Lot 100 4708m²
Lot 101 1537m²
Lot 102 1259m²
Lot 103 1647m²
Lot 104 450m²
Lot 105 450m²
Lot 106 450m²
Lot 107 450m²
Lot 108 450m²
Lot 109 450m²
Lot 110 450m²
Lot 112 600m²
Lot 113 450m²
Lot 114 450m²
Lot 115 450m²
Lot 116 450m²
Lot 117 489m²
Lot 118 1268m²
Lot 120 1948m²
Lot 121 1562m²
Lot 122 1936m²
Lot 123 463m²
Lot 124 459m²
Lot 125 484m²
Lot 126 466m²
Lot 128 592m²
Lot 129 451m²
Lot 130 770m²
Lot 131 561m²
Lot 132 451m²
Lot 133 451m²
Lot 134 608m²
Lot 1 450m²
Lot 2 450m²
Lot 3 450m²
Lot 4 450m²
Lot 5 465m²
Lot 6 514m²
Lot 7 618m²
Lot 8 510m²
Lot 9 501m²
Lot 10 528m²
Lot 11 484m²
Lot 12 474m²
Lot 21 450m²
LOT 92 2911m²
Lot 500 6441m² (Drainage) Reserve
Lot 501 (Drainage) Reserve

RG 07
RG 08
RG 10
RG 11

RC321

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	12/07/24	FOR S92 RFIs	NM	NM
C	23/08/24	FOR S92 RFIs	NM	NM
D	30/10/24	FOR S92 RFIs	NM	NM
E	04/12/24	FOR S92 RFIs	NM	NM

LEGEND:

- EXISTING ROAD
- EXISTING OVERLAND FLOW PATH
- EXISTING WETLAND
- PROPOSED RAIN GARDEN (WITH <5% LONG SECTION)
- PROPOSED STREET LIGHT
- PROPOSED RETAINING WALL
- PROPOSED PALISADE WALL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- VEHICLE CROSSING TO BE BUILT WITH SUBDIVISION CIVIL WORKS
- INDICATIVE VEHICLE CROSSINGS (WILL NOT BE BUILT WITH SUBDIVISION)

STAGE

FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT

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PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

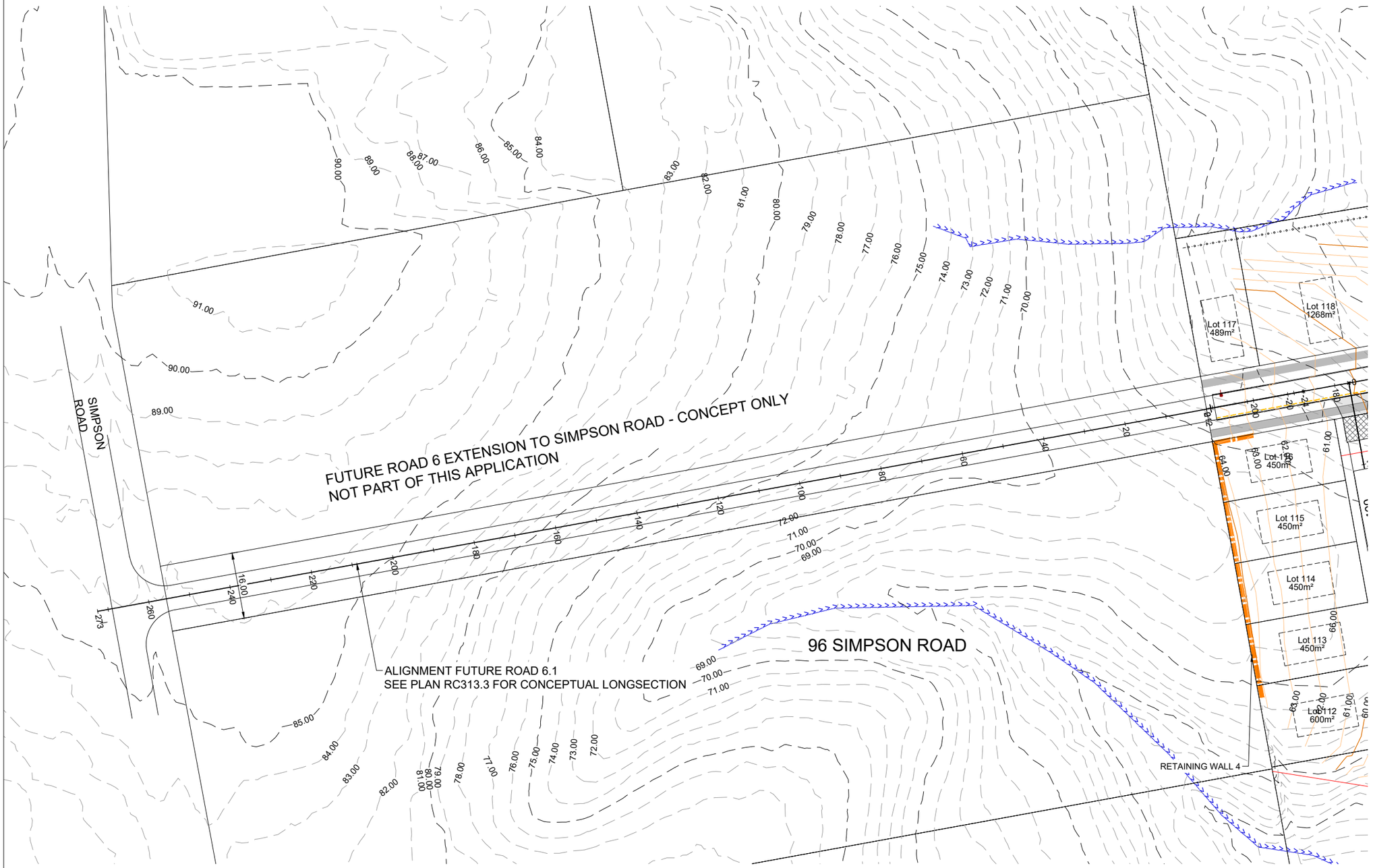
ROADING LAYOUT PLAN
SHEET 1 OF 3

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 301	E

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC300-ROADING LAYOUT PLAN.dwg, 301, 12/10/2024 4:05 pm



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	12/07/24	FOR S92 RFIs	NM	NM
C	23/08/24	FOR S92 RFIs	NM	NM
D	30/10/24	FOR S92 RFIs	NM	NM
E	04/12/24	FOR S92 RFIs	NM	NM

NOTES - ROADING:
1. ALL MARKINGS AND SIGNS SHALL COMPLY WITH NZTA MANUAL OF TRAFFIC SIGNS AND MARKINGS (MOTSAM).
2. PRAM CROSSING TO BE INSTALLED WITH TACTILE GROUND SURFACE INDICATOR (TGSI) AND MUST BE IN ACCORDANCE WITH (A) NZTA RTS 14 GUIDELINES FACILITIES FOR BLIND AND VISION-IMPAIRED PEDESTRIANS AND (B) AS/NZS 1428.4:2009 DESIGN FOR ACCESS AND MOBILITY.
3. ALL MARKINGS ARE TO BE OF LONG LIFE REFLECTORISED THERMOPLASTIC TYPE.

VEHICLE CROSSING NOTES:
1. VEHICLE CROSSING TO COMMON ACCESS LOT (COAL) ARE TO BE CONSTRUCTED AS PART OF THE VACANT LOTS SUBDIVISION.
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3. THE VEHICLE CROSSINGS TO INDIVIDUAL LOTS ARE SHOWN INDICATIVELY UNLESS STATED ON PLAN.

LEGEND:

- EXISTING ROAD
- EXISTING OVERLAND FLOW PATH
- EXISTING WETLAND
- PROPOSED RAIN GARDEN (WITH <5% LONG SECTION)
- PROPOSED STREET LIGHT
- PROPOSED RETAINING WALL
- PROPOSED PALISADE WALL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR

STAGE
FOR RESOURCE CONSENT

PROJECT CONSULTANTS
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CLIENT
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PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROADING LAYOUT PLAN
SHEET 1 OF 3

ORIENTATION		
	SCALE	A1 1:500
		A3 1:1000
	DATE	01/05/2024
	SURVEYED	TERRA
	DESIGNED	NM
	DRAWN	NM
	CHECKED	GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 301.1	E

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC300-ROADING LAYOUT PLAN.dwg, 301.1, 12/9/2024 11:46 am

NOTES - ROADING:
1. ALL MARKINGS AND SIGNS SHALL COMPLY WITH NZTA MANUAL OF TRAFFIC SIGNS AND MARKINGS (MOTSAM).
2. PRAM CROSSING TO BE INSTALLED WITH TACTILE GROUND SURFACE INDICATOR (TGSI) AND MUST BE IN ACCORDANCE WITH (A) NZTA RTS 14 GUIDELINES FACILITIES FOR BLIND AND VISION-IMPAIRED PEDESTRIANS AND (B) AS/NZS 1428.4:2009 DESIGN FOR ACCESS AND MOBILITY.
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3. THE VEHICLE CROSSINGS TO INDIVIDUAL LOTS ARE SHOWN INDICATIVELY UNLESS STATED ON PLAN.

BABICH ROAD
ROAD 5
WALKWAY 503
Lot 500 6441m² (Drainage) Reserve
Lot 101 153m²
Lot 110 450m²
Lot 113 450m²
Lot 112 600m²
Lot 100 4708m²
Lot 1 450m²
Lot 2 450m²
Lot 3 450m²
Lot 4 450m²
Lot 5 465m²
Lot 6 514m²
Lot 7 616m²
Lot 8 510m²
Lot 9 501m²
Lot 10 528m²
Lot 11 484m²
Lot 12 474m²
Lot 21 450m²
Lot 20 460m²
Lot 46 583m²
LOT 92 2911m²
LOT 94 2976m²
LOT 96 4745m²
Lot 97 1250m²
Lot 91 461m²
Lot 80 1293m²
Lot 82 492m²
Lot 79 1261m²
Lot 78 1253m²
Lot 77 1256m²
Lot 81 457m²
RG 07
RG 08
RG 9
PROPOSED GABION BASKET ON BATTER OF 1 IN 1 CONFIRMED BY GEOTECH ENGINEER (MAXIMUM 80°)
FOOTPATH TO BE CANTILEVERED EXTENTS TO BE CONFIRMED IN EPA
RETAINING WALL 1
RETAINING WALL 2
RETAINING WALL 4
VEHICLE CROSSING TO BE BUILT WITH SUBDIVISION CIVIL WORK
AT STANDARD RESIDENTIAL COMPOUND INTERSECTION
PROPOSED MINI ROUNDABOUT DESIGNED TO BE CONFIRMED IN EPA DIMENSIONS ARE PROVIDED IN TRACKING CURVE PLANS
EXISTING OAK TREES TO REMAIN
TREES TO BE REMOVED
STEP FOOTPATH ON EX GROUND
EXISTING PRIVATE DRIVEWAY
EXISTING KERB LINE ENDED LOCATION
THIS LOT IS CURRENTLY PRIVATELY OWNED. PRECINCT PLAN HAS IDENTIFIED THIS LOT AS A FUTURE PUBLIC ROAD.

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	12/07/24	FOR S92 RFIs	NM	NM
C	23/08/24	FOR S92 RFIs	NM	NM
D	30/10/24	FOR S92 RFIs	NM	NM
E	04/12/24	FOR S92 RFIs	NM	NM

LEGEND:
- EXISTING ROAD
- EXISTING OVERLAND FLOW PATH
- EXISTING WETLAND
- PROPOSED RAIN GARDEN (WITH <5% LONG SECTION)
- PROPOSED STREET LIGHT
- PROPOSED RETAINING WALL
- PROPOSED PALISADE WALL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- VEHICLE CROSSING TO BE BUILT WITH SUBDIVISION CIVIL WORKS
- INDICATIVE VEHICLE CROSSINGS (WILL NOT BE BUILT WITH SUBDIVISION)

STAGE
FOR RESOURCE CONSENT

PROJECT CONSULTANTS
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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROADING LAYOUT PLAN SHEET 2 OF 3

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 302	E

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC300-ROADING LAYOUT PLAN.dwg, 302, 12/10/2024 12:12 pm

NOTES - ROADING:

1. ALL MARKINGS AND SIGNS SHALL COMPLY WITH NZTA MANUAL OF TRAFFIC SIGNS AND MARKINGS (MOTSAM).
2. PRAM CROSSING TO BE INSTALLED WITH TACTILE GROUND SURFACE INDICATOR (TGSI) AND MUST BE IN ACCORDANCE WITH (A) NZTA RTS 14 GUIDELINES FACILITIES FOR BLIND AND VISION-IMPAIRED PEDESTRIANS AND (B) AS/NZS 1428.4:2009 DESIGN FOR ACCESS AND MOBILITY.
3. ALL MARKINGS ARE TO BE OF LONG LIFE REFLECTORISED THERMOPLASTIC TYPE.

VEHICLE CROSSING NOTES:

1. VEHICLE CROSSING TO COMMON ACCESS LOT (COAL) ARE TO BE CONSTRUCTED AS PART OF THE VACANT LOTS SUBDIVISION.
2. VEHICLE CROSSINGS TO INDIVIDUAL LOTS ARE TO BE CONSTRUCTED AS AT BUILDING CONSENT STAGE.
3. THE VEHICLE CROSSINGS TO INDIVIDUAL LOTS ARE SHOWN INDICATIVELY UNLESS STATED ON PLAN.

REVISION

ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	12/07/24	FOR S92 RFIs	NM	NM
C	23/08/24	FOR S92 RFIs	NM	NM
D	30/10/24	FOR S92 RFIs	NM	NM
E	04/12/24	FOR S92 RFIs	NM	NM

LEGEND:

- EXISTING ROAD
- EXISTING OVERLAND FLOW PATH
- EXISTING WETLAND
- PROPOSED RAIN GARDEN (WITH <5% LONG SECTION)
- PROPOSED STREET LIGHT
- PROPOSED RETAINING WALL
- PROPOSED PALISADE WALL
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- VEHICLE CROSSING TO BE BUILT WITH SUBDIVISION CIVIL WORKS
- INDICATIVE VEHICLE CROSSINGS (WILL NOT BE BUILT WITH SUBDIVISION)

STAGE

FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT

CARRACK CAPITAL LIMITED

PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

ROADING LAYOUT PLAN
SHEET 3 OF 3

ORIENTATION

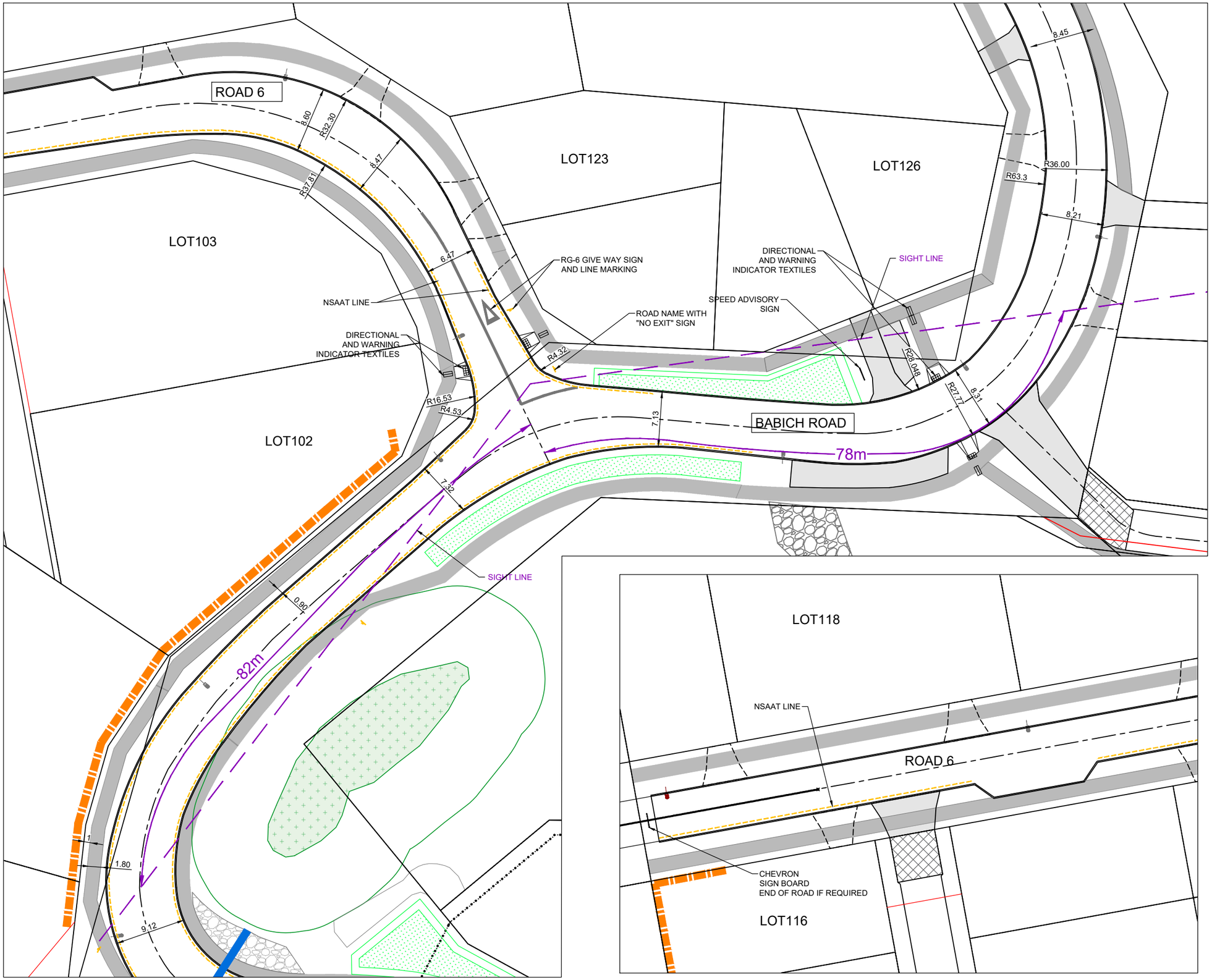
SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 303	E

1:500 @ A1
1:1000 @ A3

0 5 10 15 20 25 30 35 40 45 50 m

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC-300-ROADING LAYOUT PLAN.dwg, 303, 12/10/2024 12:14 pm



ROAD 6 INTERSECTION AND END OF ROAD 6

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	23/08/24	FOR S92 RFIs	NM	NM
B	30/10/24	FOR S92 RFIs	NM	NM
C	04/12/24	FOR S92 RFIs	NM	NM

Dt	5.5	s
V	40	km/h
d	0.36	
a	1	%
SISD	**78.1**	m

Dt	5.5	s
V	40	km/h
d	0.46	
a	1	%
SISD	**74.5**	m

1:250 @ A1
1:500 @ A3
0 4 8 12 16 20 24 m

STAGE
FOR RESOURCE CONSENT

PROJECT CONSULTANTS
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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

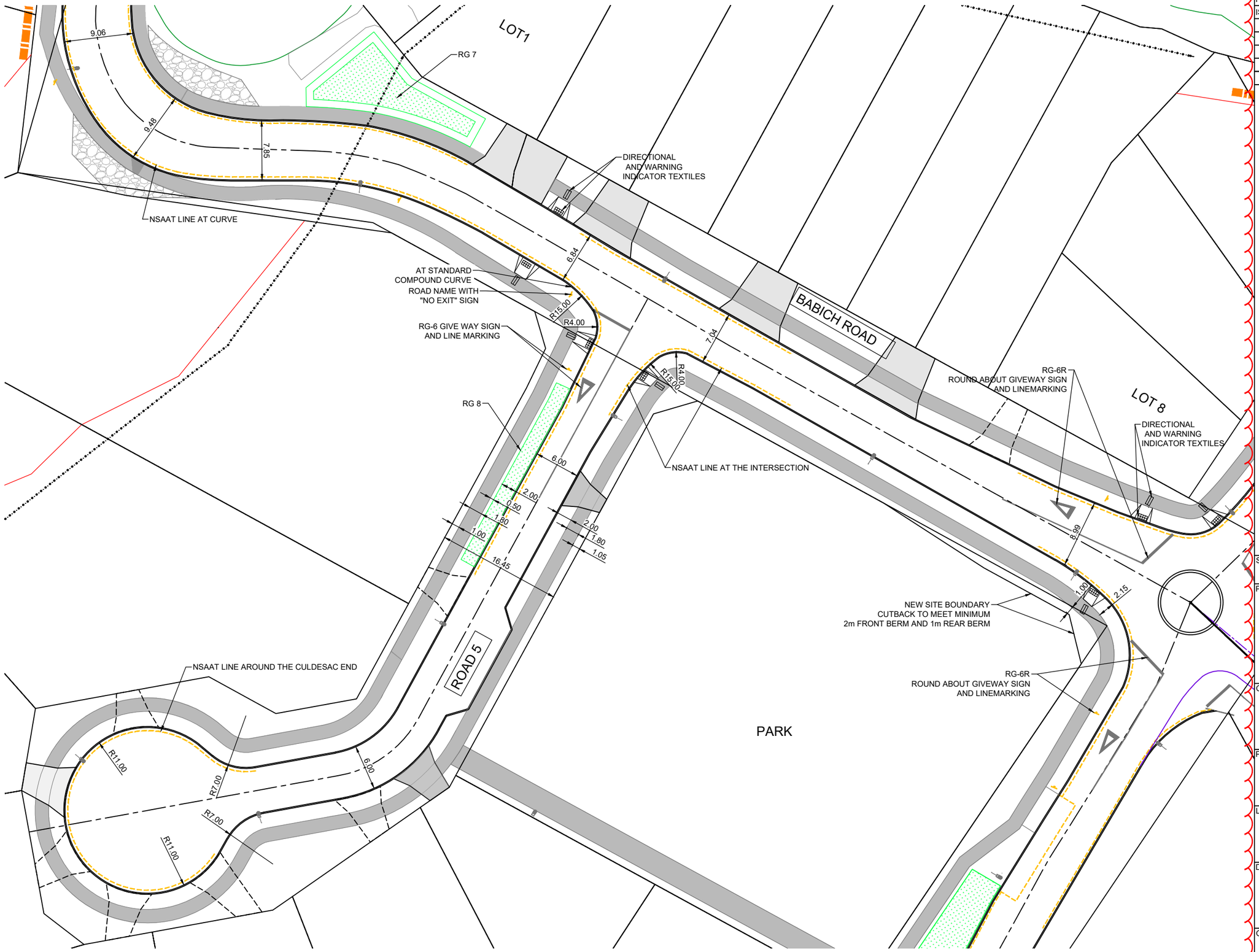
DRAWING TITLE
INTERSECTION DETAIL
LINE MARKING AND SIGNAGE PLAN
SHEET 1 OF 4

ORIENTATION

SCALE	A1	1:250
	A3	1:500
DATE		23/08/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 304	C

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC300-ROADING LAYOUT PLAN.dwg, 304, 12/10/2024 3:15 pm



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	23/08/24	FOR S92 RFIs	NM	NM
B	30/10/24	FOR S92 RFIs	NM	NM
C	04/12/24	FOR S92 RFIs	NM	NM

STAGE
FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT
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PROJECT
BABICH RISE

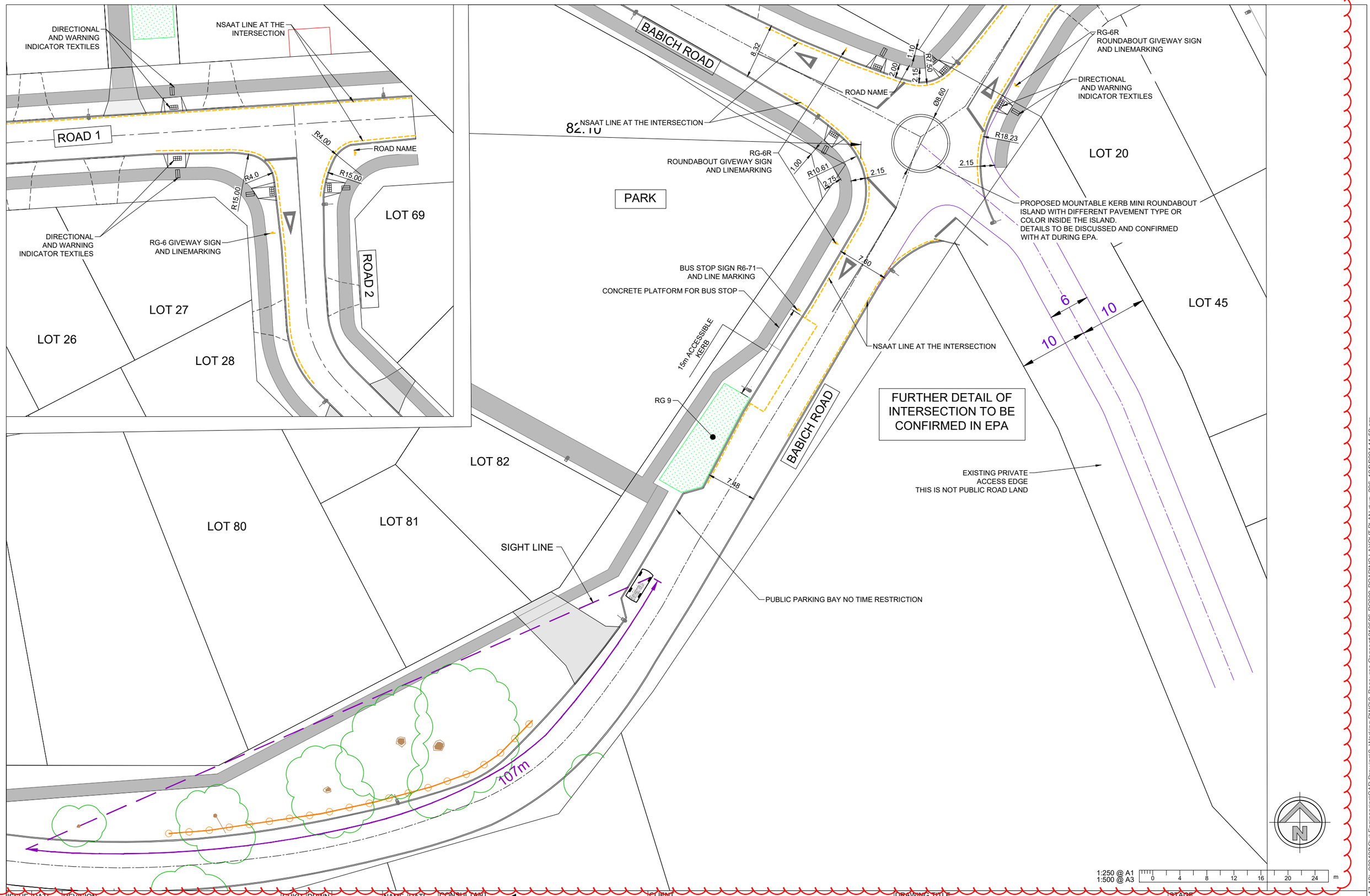
LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
INTERSECTION DETAIL
LINE MARKING AND SIGNAGE PLAN
SHEET 2 OF 4

ORIENTATION		
	SCALE	A1 1:250
		A3 1:500
	DATE	23/08/2024
	SURVEYED	TERRA
	DESIGNED	NM
	DRAWN	NM
	CHECKED	GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 305	C

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC300-ROADING LAYOUT PLAN.dwg, 305, 12/10/2024 3:20 pm



ISSUE	DATE	REVISION	CHKD	DRWN
A	23/08/24	FOR S92 RFIs	NM	NM
B	30/10/24	FOR S92 RFIs	NM	NM
C	04/12/24	FOR S92 RFIs	NM	NM

	NAME	DATE
SURVEYED		
DESIGNED		
DRAWN		
TRACED		
CHECKED		

CONSULTANT
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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
INTERSECTION DETAIL
LINE MARKING AND SIGNAGE PLAN
SHEET 3 OF 4

STAGE
FOR RESOURCE CONSENT

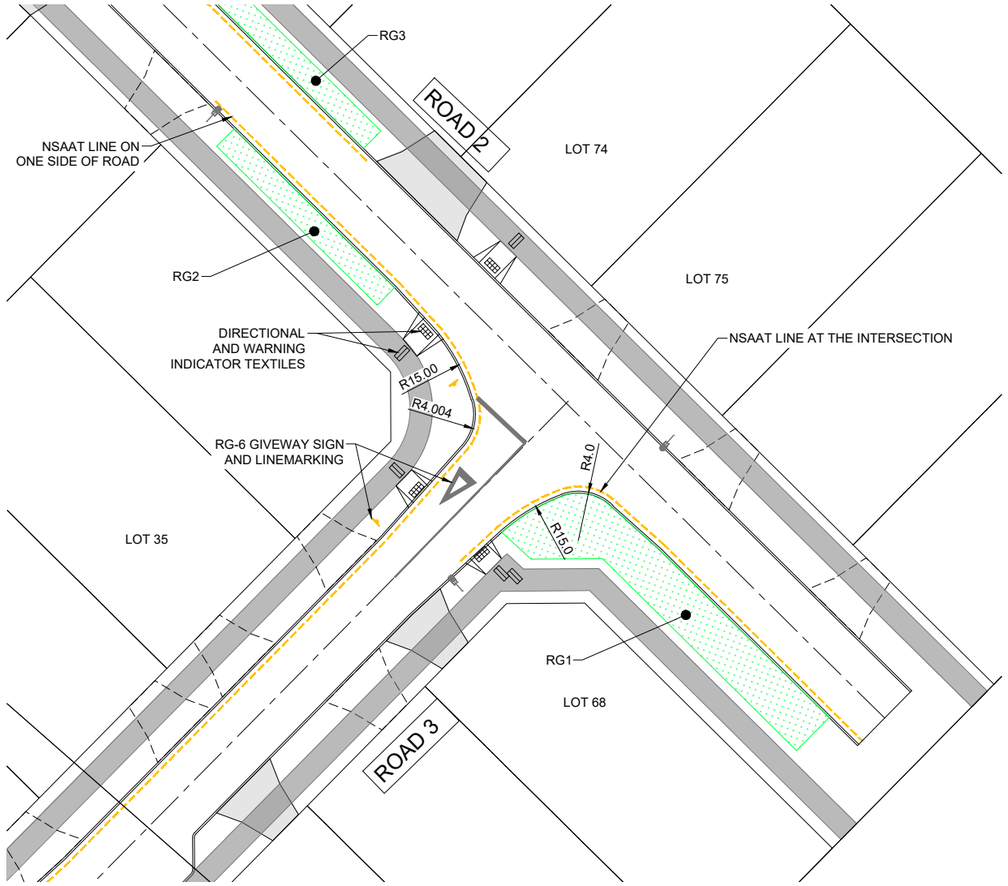
PROJECT NUMBER
210506

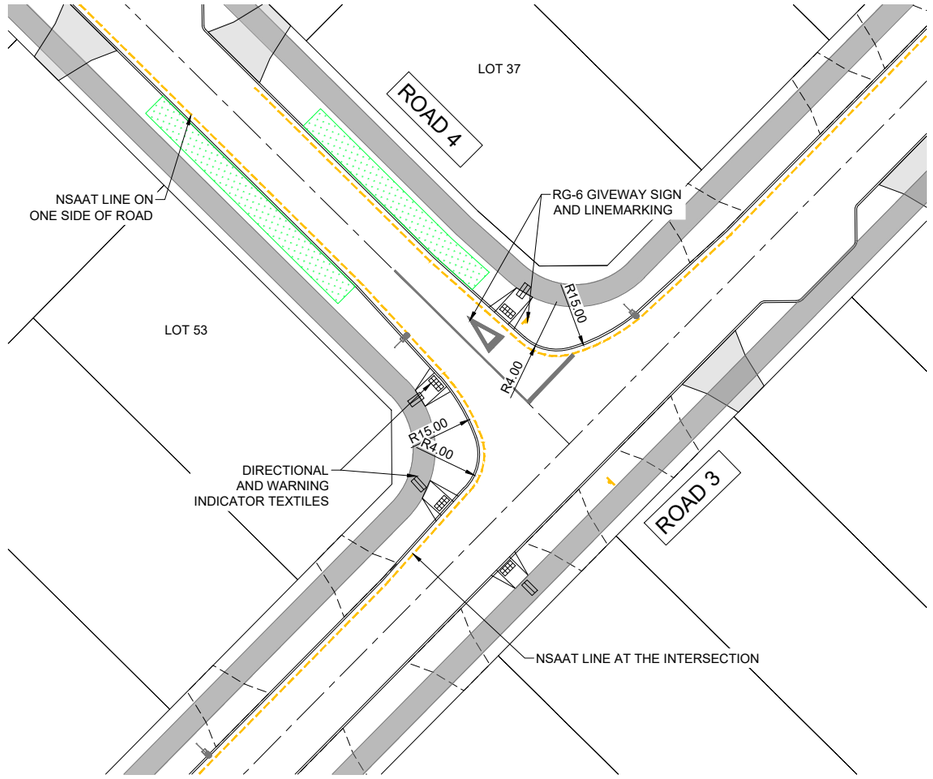
SCALE
A1 1:250
A3 1:500

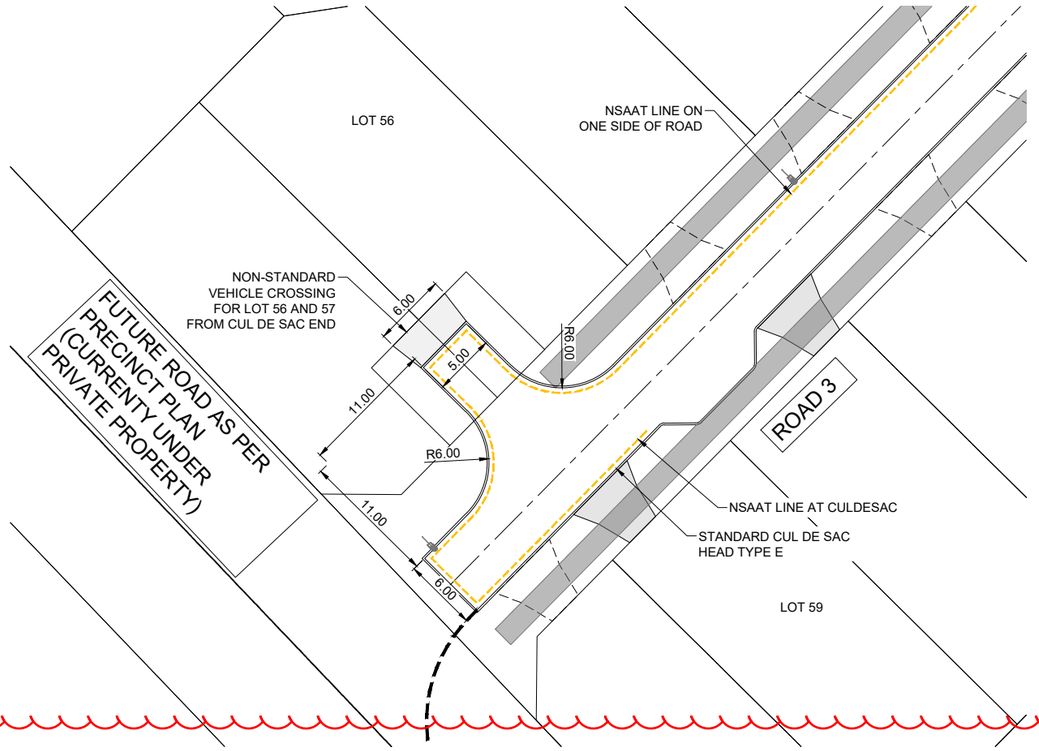
DWG NUMBER
RC- 306

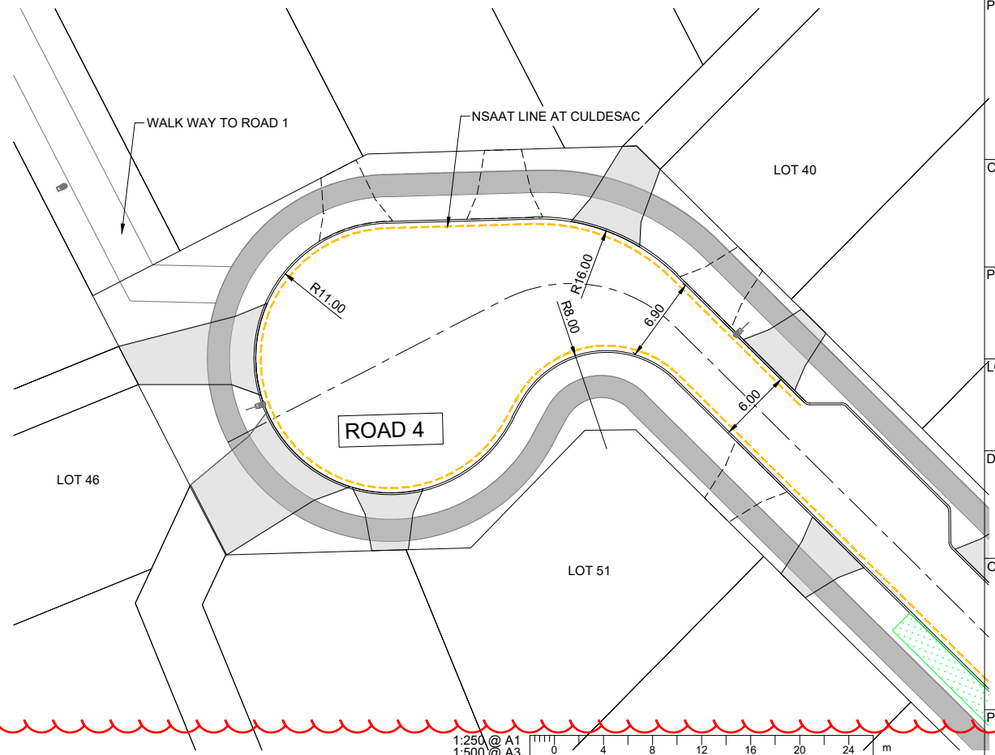
REVISION
C

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC300-ROADING LAYOUT PLAN.dwg, 306, 12/9/2024 11:58 am









1:250 @ A1
1:500 @ A3

0 4 8 12 16 20 24 m

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	23/08/24	FOR S92 RFIs	NM	NM
B	30/10/24	FOR S92 RFIs	NM	NM
C	04/12/24	FOR S92 RFIs	NM	NM

STAGE

FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT

CARRACK CAPITAL LIMITED

PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

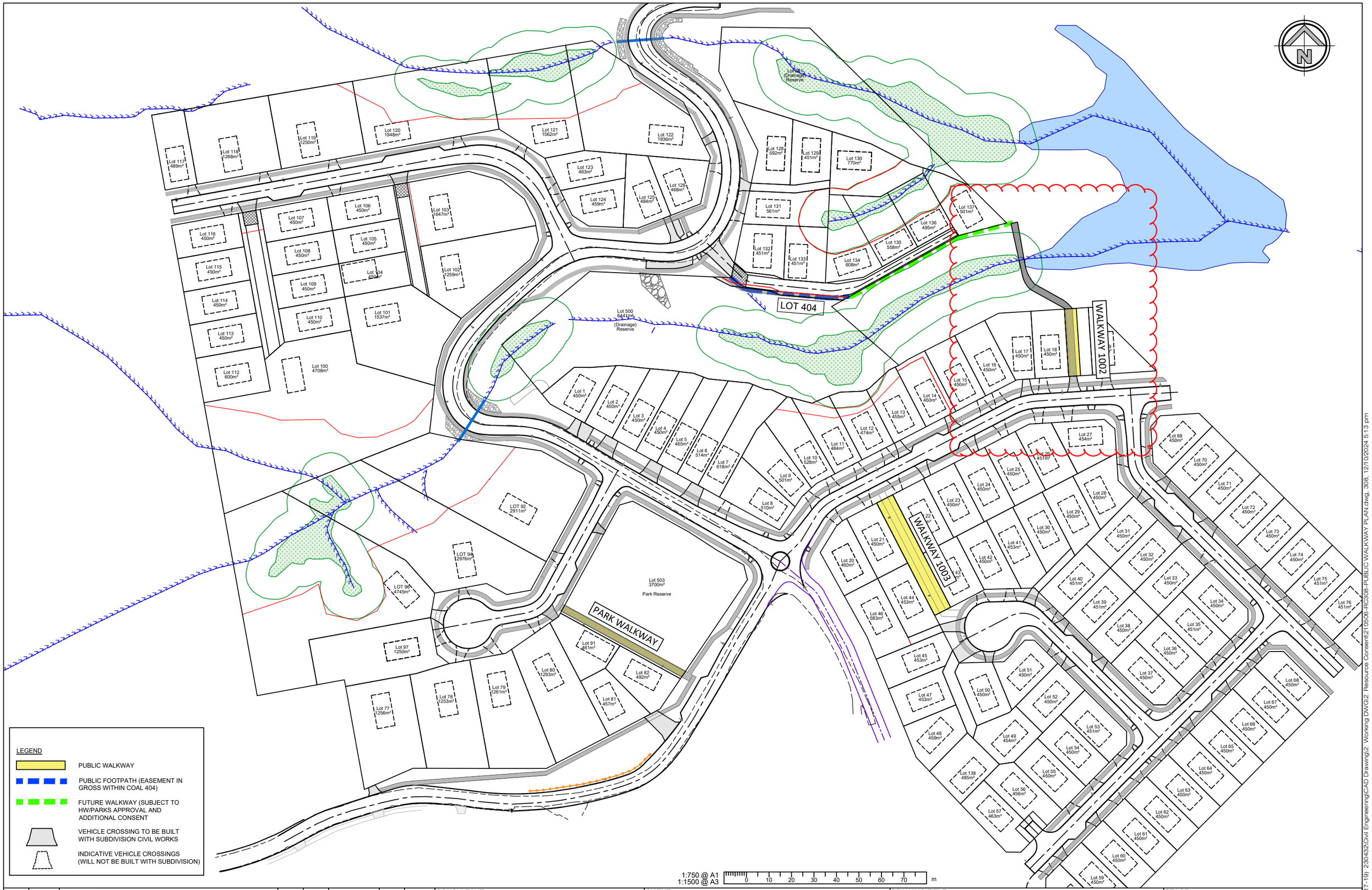
INTERSECTION DETAIL
LINE MARKING AND SIGNAGE PLAN
SHEET 4 OF 4

ORIENTATION

SCALE	A1	1:250
	A3	1:500
DATE		23/08/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 307	C

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC300-ROADING LAYOUT PLAN.dwg, 307, 12/9/2024 11:58 am



ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	23/08/24	FOR RESOURCE CONSENT	GT	SP	SURVEYED	TERRA	
B	30/10/24	FOR S92	GT	GZ	DESIGNED	GCAI	02/04/24
C	04/12/24	FOR S92	GT	GZ	DRAWN	GCAI	02/04/24
					TRACED		
					CHECKED	GT	02/04/24

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CLIENT
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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
PUBLIC WALKWAY AND VEHICLE CROSSING PLAN

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:750
A3 1:1500

DWG NUMBER
RC- 308

REVISION
C

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC308-PUBLIC WALKWAY PLAN.dwg, 308, 12/10/2024 5:13 pm

16-18 BABICH ROAD

100 SIMPSON ROAD

SIMPSON ROAD

BABICH ROAD

21 Babich Road

PROPOSED ONE WAY CROSS FALL IN THIS AREA TO DIRECT SURFACE WATER TO RG13

PROPOSED ONE WAY CROSS FALL IN THIS AREA TO DIRECT SURFACE WATER TO RG12

PROPOSED ONE WAY CROSS FALL IN THIS AREA TO DIRECT SURFACE WATER TO RG11

PROPOSED ONE WAY CROSS FALL IN THIS AREA TO DIRECT SURFACE WATER TO RG10

PROPOSED ONE WAY CROSS FALL IN THIS AREA TO DIRECT SURFACE WATER TO RG08

PROPOSED ONE WAY CROSS FALL IN THIS AREA TO DIRECT SURFACE WATER TO RG09

PROPOSED ONE WAY CROSS FALL IN THIS AREA TO DIRECT SURFACE WATER TO RG01

RG 01
RG 02
RG 03
RG 04
RG 05
RG 06
RG 07
RG 08
RG 9
RG 10
RG 11

ROAD 1
ROAD 2
ROAD 3
ROAD 4
ROAD 5
ROAD 6

COAL 400
COAL 401
COAL 402
COAL 403
COAL 404
COAL 405

WALKWAY 503
WALKWAY 1002

Lot 503 3700m² Park Reserve

Lot 1500 5441m² (Drainage) Reserve

LOT 92 5021m²

LOT 96 4745m²

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN
A	30/10/24	FOR S92 RFIs	NM	GZ
B	04/12/24	FOR S92 RFIs	GT	GZ

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	NM	01/05/24
DRAWN	NM	01/05/24
TRACED		
CHECKED	GT	01/05/24

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: ROADING PLAN - ONE WAY CROSS FALL LOCATION

STAGE: FOR RESOURCE CONSENT

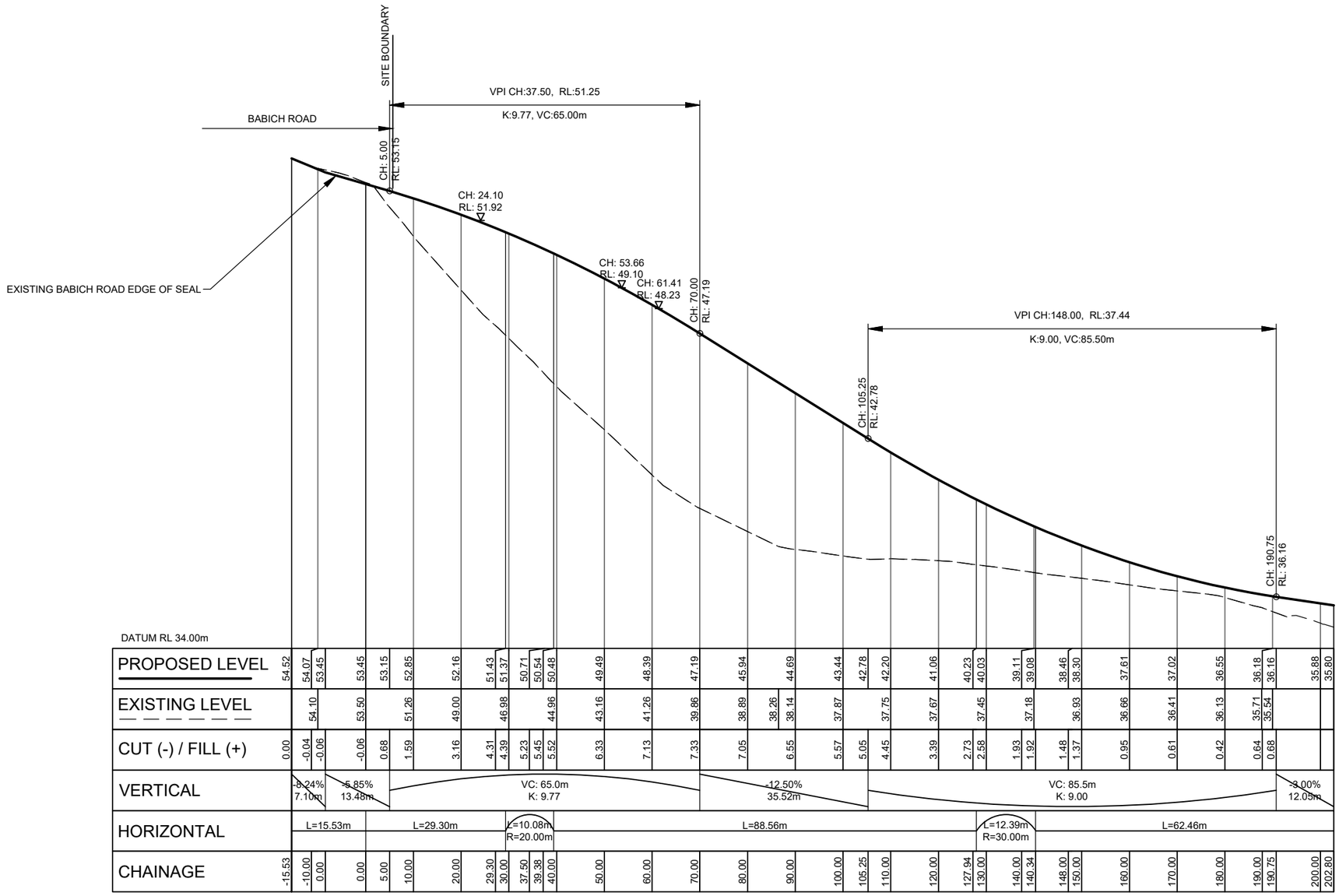
PROJECT NUMBER: 210506

SCALE: A1 1:800, A3 1:1600

DWG NUMBER: RC- 309

REVISION: B

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC300-ROADING LAYOUT PLAN.dwg, 309, 12/10/2024 1:04 pm



ROAD 1 LONGSECTION
CH: -15.53m TO CH: 202.80m
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RFIs	NM	NM	DESIGNED		
C	23/08/24	FOR S92 RFIs	NM	NM	DRAWN		
D	30/10/24	FOR S92 RFIs	NM	NM	TRACED		
					CHECKED		

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROADING LONGITUDINAL SECTION
ROAD 1

STAGE
FOR RESOURCE CONSENT

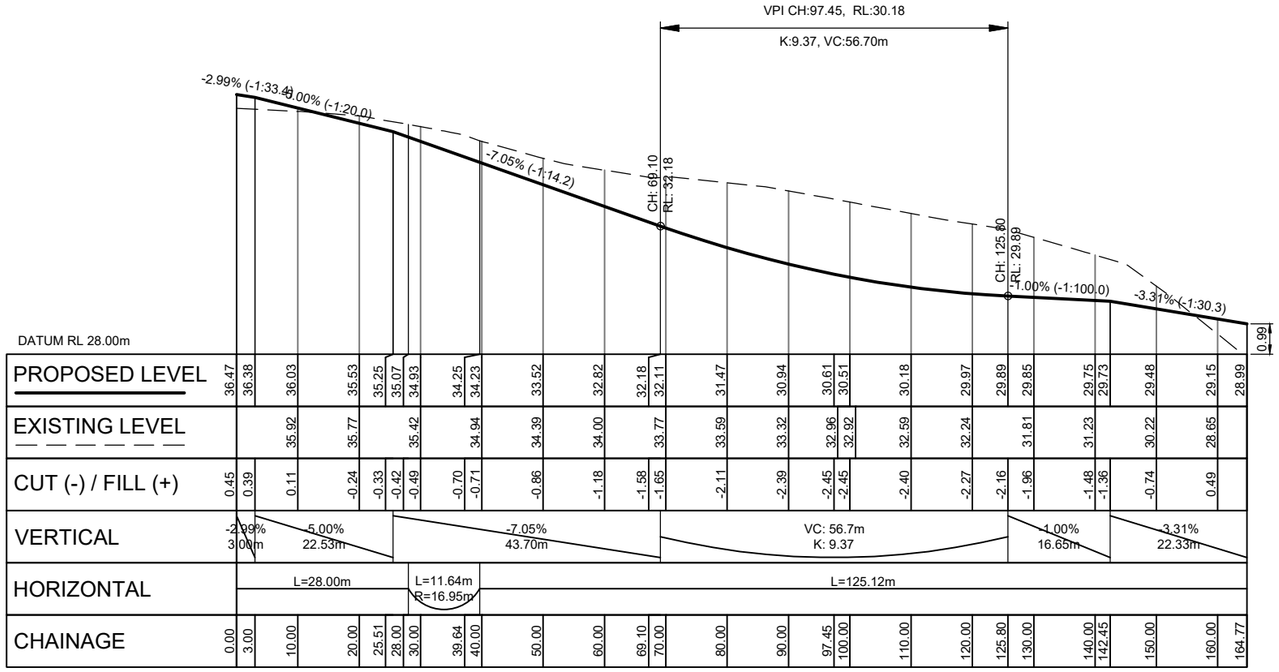
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

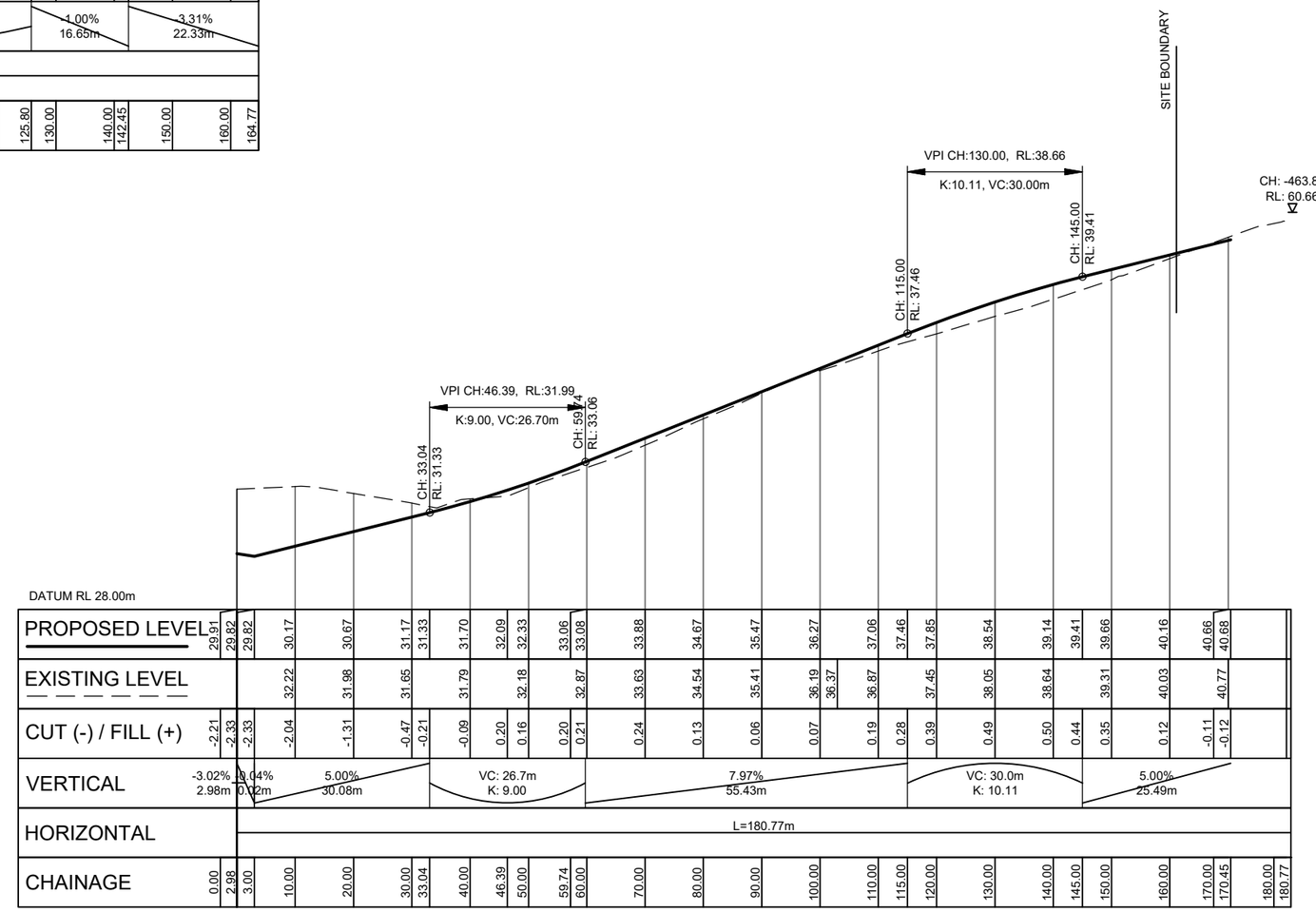
DWG NUMBER
RC- 310

REVISION
D

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC310-ROADING LONG SECTION.dwg, 310, 10/28/2024 12:51 pm



ROAD 2 LONGSECTION
CH: 0.00m TO CH: 164.77m
1:500H 1:100V @ A1 (DOUBLE FOR A3)



ROAD 3 LONGSECTION
CH: 0.00m TO CH: 180.77m
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RFIs	NM	NM	DESIGNED		
C	23/08/24	FOR S92 RFIs	NM	NM	DRAWN		
D	30/10/24	FOR S92 RFIs	NM	NM	TRACED		
					CHECKED		

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

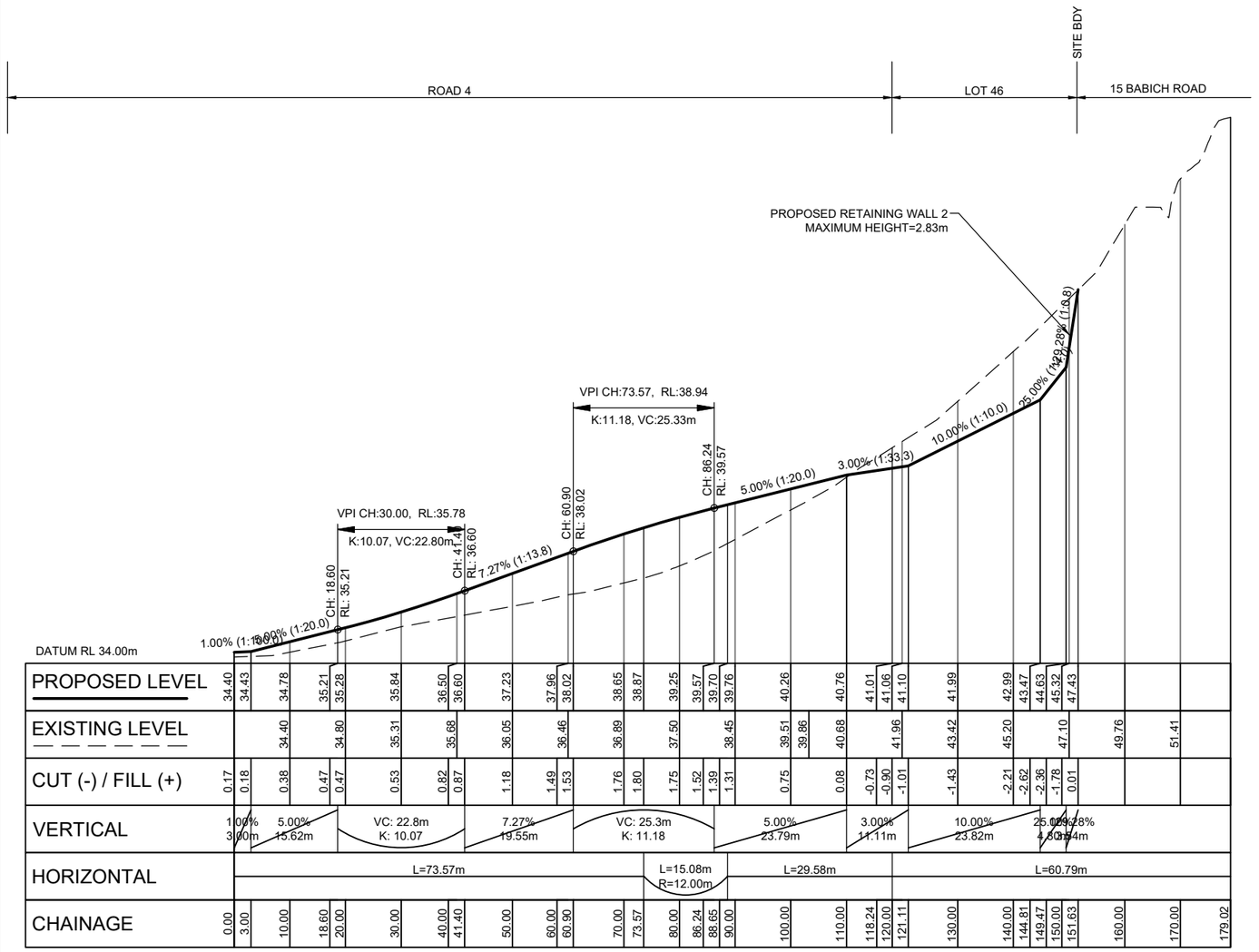
DRAWING TITLE
ROADING LONGITUDINAL SECTION
ROAD 2 & ROAD 3

STAGE
FOR RESOURCE CONSENT

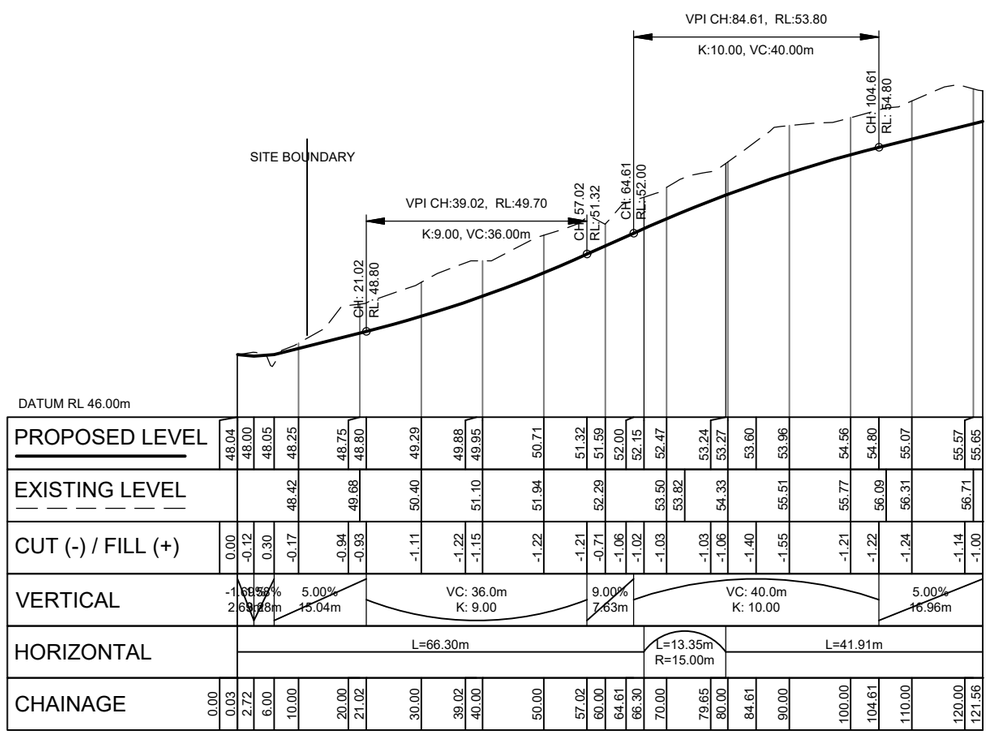
PROJECT NUMBER 210506
SCALE A1 1:500 A3 1:1000
DWG NUMBER RC- 311
REVISION D

Auckland Council | Approved Resource Consent Plan | BUN60432511 | 06/03/2025 | Page 71 of 177

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC310-ROADING LONG SECTION.dwg, 311, 10/28/2024 12:50 pm



ROAD 4 LONGSECTION
CH: 0.00m TO CH: 179.02m
1:500H 1:100V @ A1 (DOUBLE FOR A3)



ROAD 5 LONGSECTION
CH: 0.00m TO CH: 121.56m
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	12/07/24	FOR S92 RFIs	NM	NM
C	23/08/24	FOR S92 RFIs	NM	NM
D	30/10/24	FOR S92 RFIs	NM	NM

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED		
DRAWN		
TRACED		
CHECKED		

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROADING LONGITUDINAL SECTION
ROAD 4 & ROAD 5

STAGE
FOR RESOURCE CONSENT

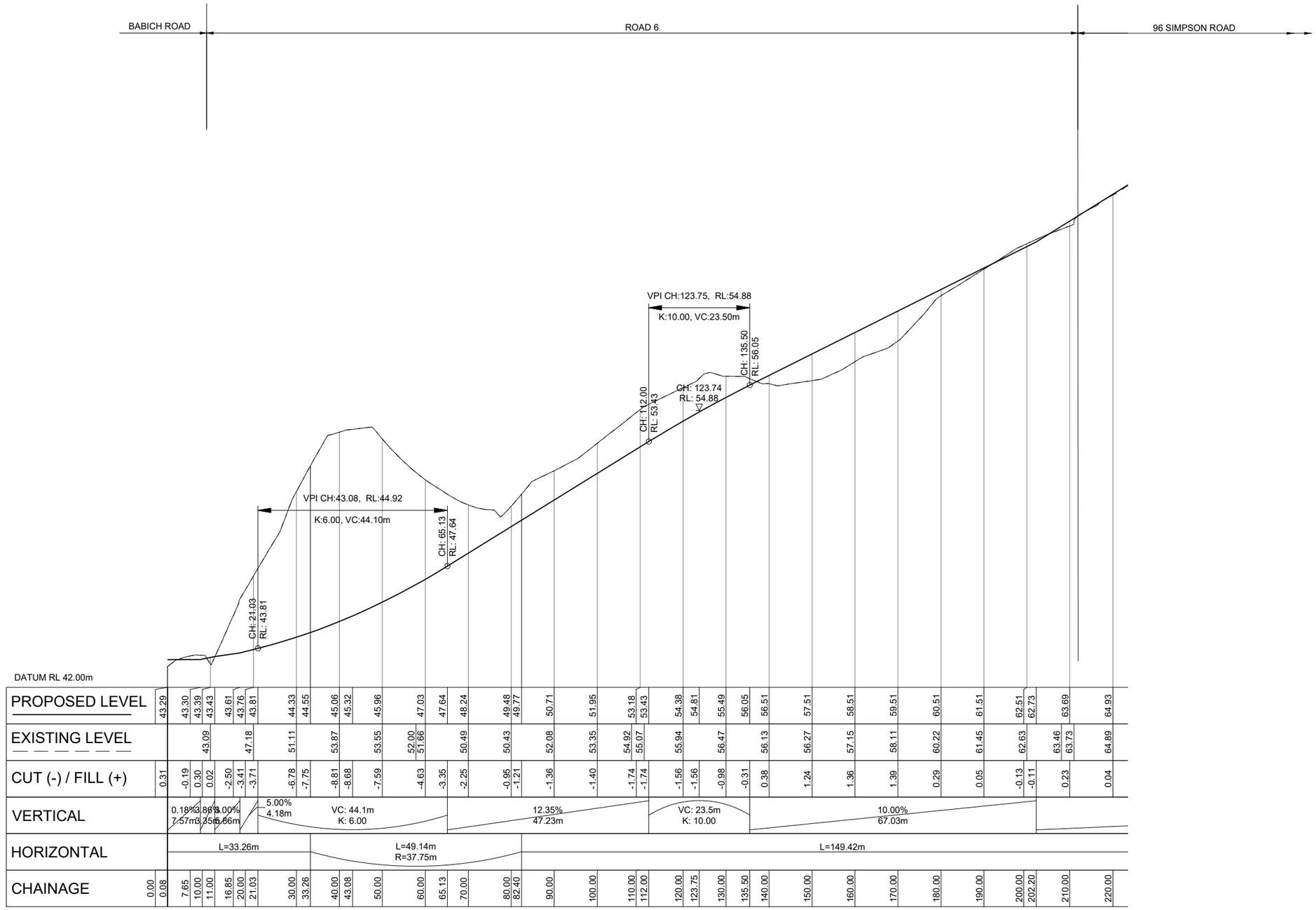
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 312

REVISION
D

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC310-ROADING LONG SECTION.dwg, 312, 10/28/2024 10:41 am



ROAD 6 LONGSECTION
CH: 0.00m TO CH: 260.00m
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RFIs	NM	NM	DESIGNED		
C	23/08/24	FOR S92 RFIs	NM	NM	DRAWN		
D	30/10/24	FOR S92 RFIs	NM	NM	TRACED		
					CHECKED		

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROADING LONGITUDINAL SECTION
ROAD 6 - SHEET 1 OF 2

STAGE
FOR RESOURCE CONSENT

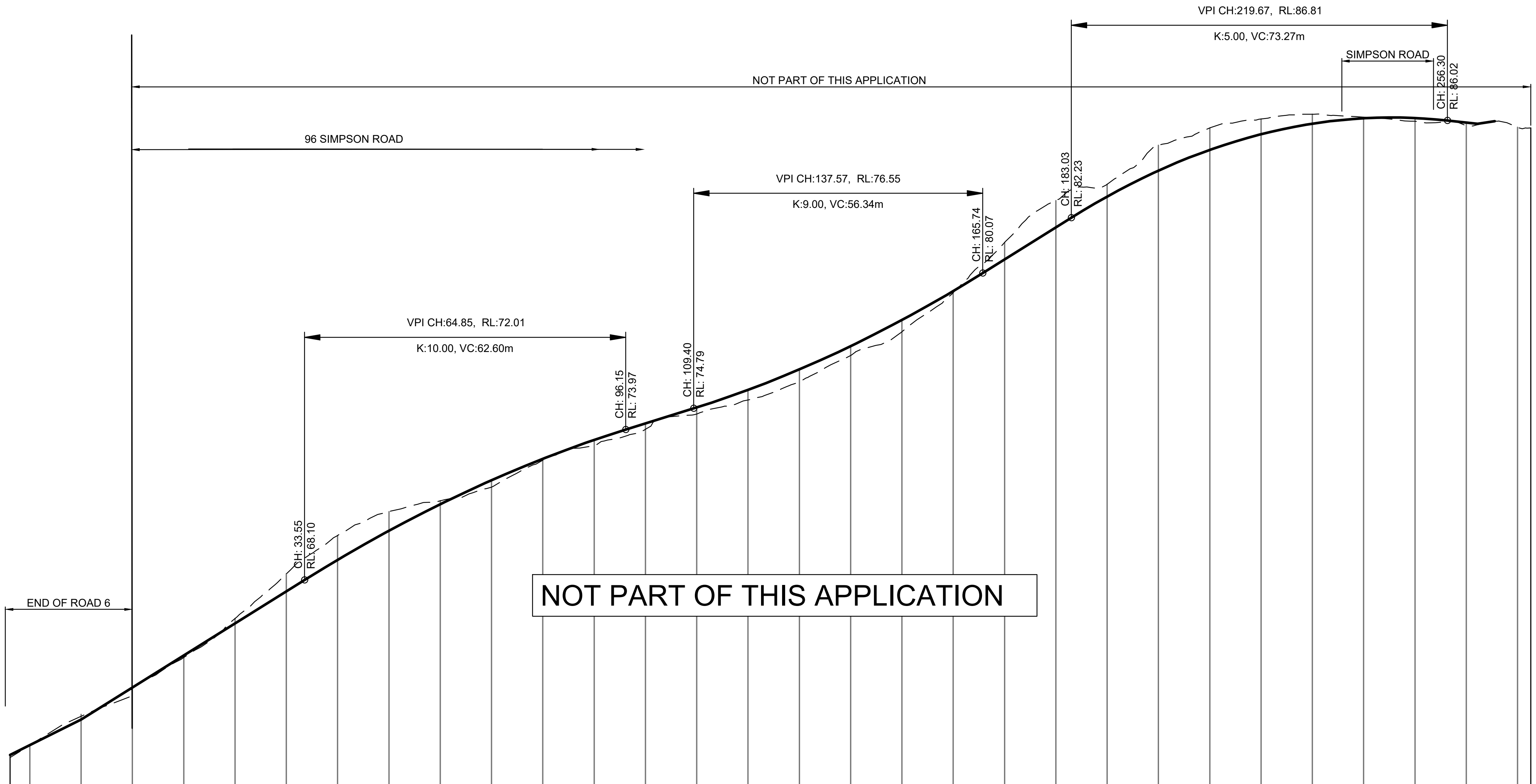
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 313.1

REVISION
D

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC310-ROADING LONG SECTION.dwg, 313.1, 10/27/2024 2:54 pm



DATUM RL 60.00m

PROPOSED LEVEL	61.27, 61.66, 62.66, 63.91, 65.16, 66.41, 67.66, 68.10, 68.89, 70.02, 71.06, 71.52, 71.99, 72.83, 73.56, 73.97, 74.21, 74.79, 74.83, 75.52, 76.31, 76.99, 77.22, 78.24, 79.37, 80.07, 80.60, 81.85, 82.23, 83.05, 84.07, 84.88, 85.47, 85.49, 85.90, 86.11, 86.14, 86.12, 86.02, 85.94, 85.90, 86.00
EXISTING LEVEL	61.65, 62.78, 63.87, 65.07, 66.60, 68.34, 69.84, 70.77, 71.19, 71.72, 72.41, 72.77, 73.35, 73.98, 74.58, 75.12, 75.83, 76.85, 77.78, 79.31, 81.27, 82.50, 82.90, 83.54, 85.06, 85.73, 86.08, 86.27, 86.15, 85.99, 85.81, 85.76
CUT (-) / FILL (+)	0.10, 0.00, -0.13, 0.04, 0.08, -0.19, -0.69, -0.85, -0.95, -0.75, -0.13, 0.14, 0.27, 0.06, 0.21, 0.25, 0.23, 0.25, 0.25, 0.40, 0.48, 0.37, 0.37, 0.46, 0.06, -0.36, -0.66, -1.05, -1.09, -0.48, -0.99, -0.86, -0.60, -0.59, -0.37, -0.04, 0.07, 0.13, 0.04, 0.13, 0.04, 0.00
VERTICAL	10.00% 13.90m; 12.50% 43.89m; VC: 62.6m K: 10.00; 6.24% 13.28m; VC: 56.3m K: 9.00; 12.50% 17.42m; VC: 73.3m K: 5.00; -2.15% 5.90m; 4.00% 3.37m
HORIZONTAL	L=296.40m
CHAINAGE	-23.83, -20.00, -10.00, 0.00, 10.00, 20.00, 30.00, 33.55, 40.00, 50.00, 60.00, 64.85, 70.00, 80.00, 90.00, 96.15, 100.00, 109.40, 110.00, 120.00, 130.00, 137.57, 140.00, 150.00, 160.00, 165.74, 170.00, 180.00, 183.03, 190.00, 200.00, 210.00, 219.67, 220.00, 230.00, 240.00, 245.53, 250.00, 256.30, 260.00, 262.20, 265.57, 270.00, 272.57

FUTURE RD 6.1 LONGSECTION
CH: -23.83m TO CH: 272.57m
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RFIs	NM	NM	DESIGNED		
C	23/08/24	FOR S92 RFIs	NM	NM	DRAWN		
D	30/10/24	FOR S92 RFIs	NM	NM	TRACED		
					CHECKED		

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROADING LONGITUDINAL SECTION
ROAD 6 - SHEET 2 OF 2

STAGE
FOR RESOURCE CONSENT

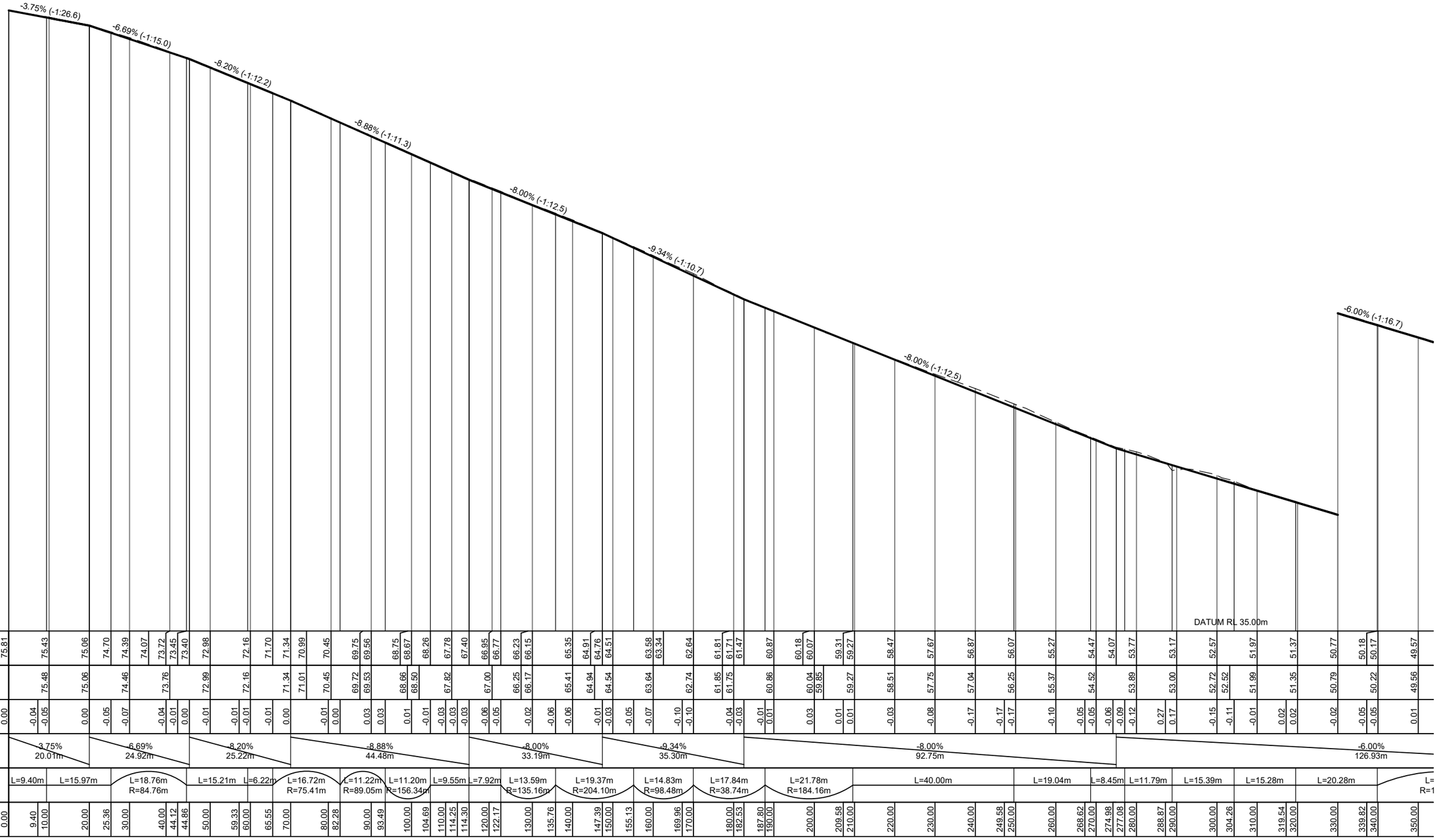
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 313 .2

REVISION
D

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC310-ROADING LONG SECTION.dwg, 313 .2, 10/29/2024 12:25 pm



BABICH RD CL PROPOSED LONGSEC
CH: 0.00m TO CH: 350.00m
1:500H 1:100V @ A1 (DOUBLE FOR ,

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	12/07/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	30/10/24	FOR S92 RFIs	NM	NM	DESIGNED		
C	04/12/24	FOR S92 RFIs	NM	NM	DRAWN		
					TRACED		
					CHECKED		

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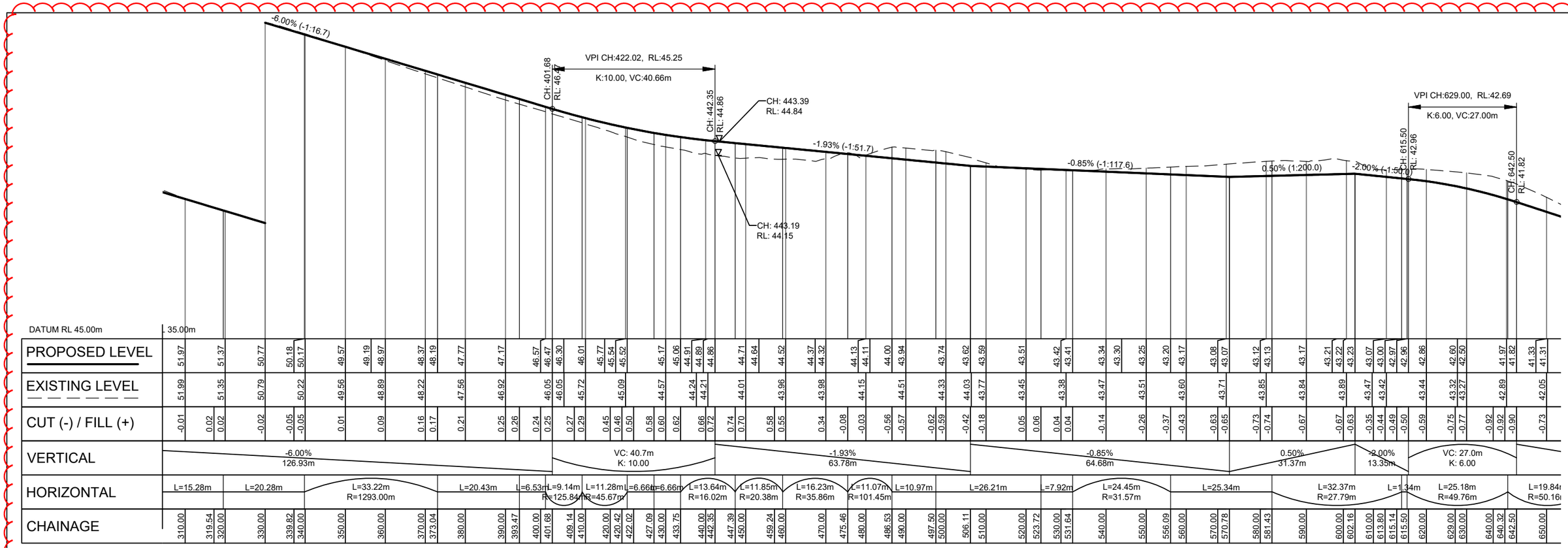
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROADING LONGITUDINAL SECTION - BABICH ROAD CENTER LINE
SHEET 1 OF 2

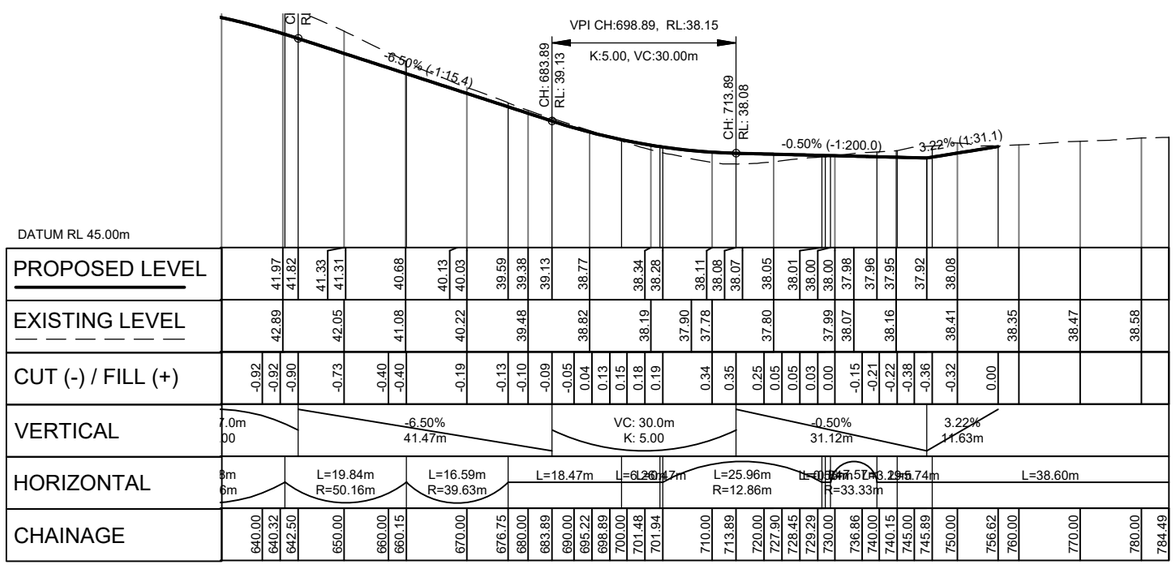
STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER 210506
SCALE A1 1:500 A3 1:1000
DWG NUMBER RC- 314
REVISION C

Z:\Babich Road (8-14, 17-19) 230432\CAD Engineering\2. Working DWG\2. Resource Consent\210506-RC310-ROADING LONG SECTION.dwg, 314, 12/9/2024 12:06 pm



BABICH RD CL PROPOSED LONGSECTION
CH: 310.00m TO CH: 650.00m
1:500H 1:100V @ A1 (DOUBLE FOR A3)



BABICH RD CL PROPOSED LONGSECTION
CH: 650.00m TO CH: 784.49m
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRAWN		NAME	DATE
A	12/07/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	23/08/24	FOR S92 RFIs	NM	NM	DESIGNED		
C	30/10/24	FOR S92 RFIs	NM	NM	DRAWN		
D	04/12/24	FOR S92 RFIs	NM	NM	TRACED		
					CHECKED		

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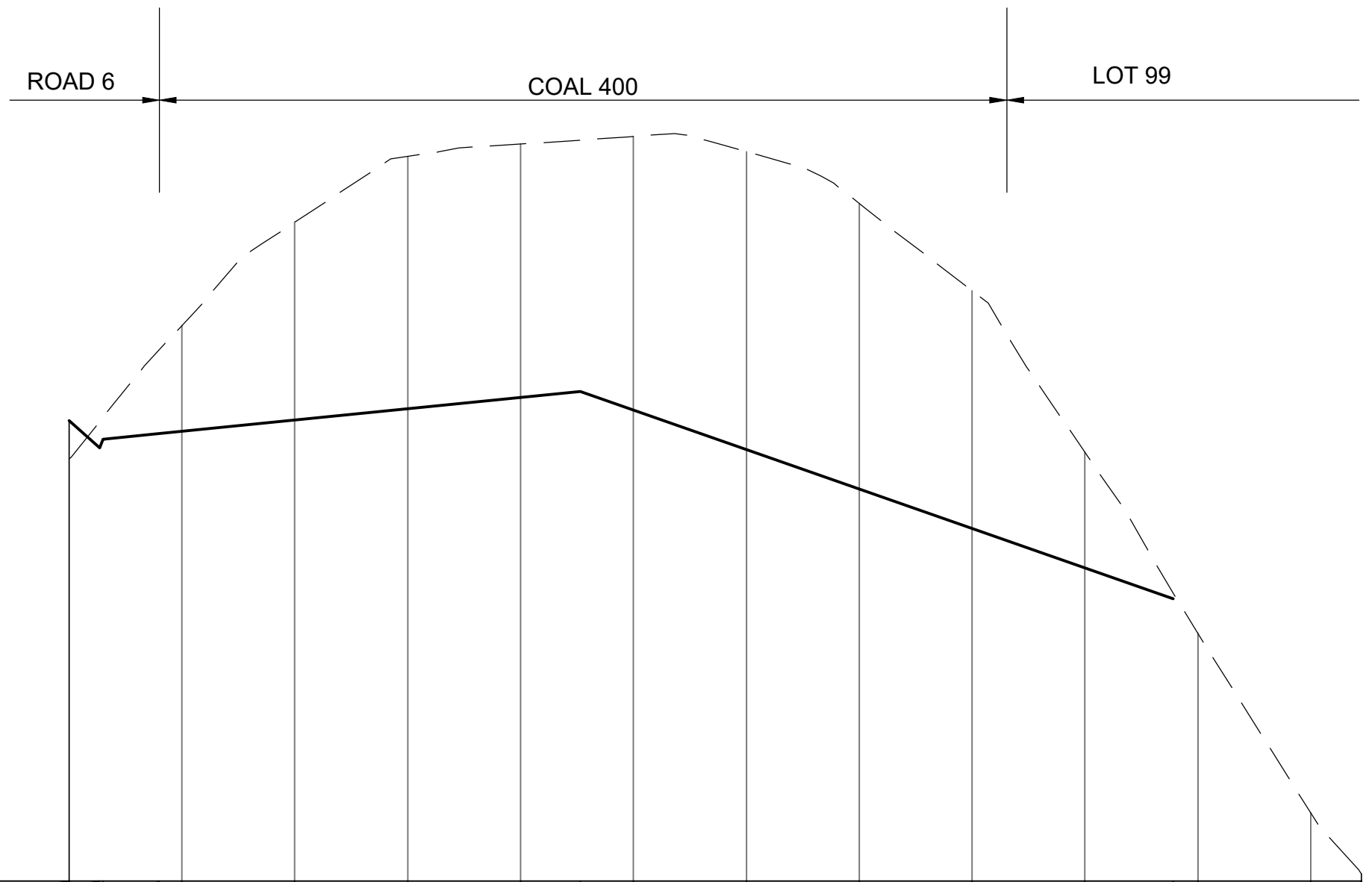
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROADING LONGITUDINAL SECTION -
BABICH ROAD CENTER LINE
SHEET 2 OF 2

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER	SCALE	
210506	A1	1:500
	A3	1:1000
DWG NUMBER	REVISION	
RC- 315	D	

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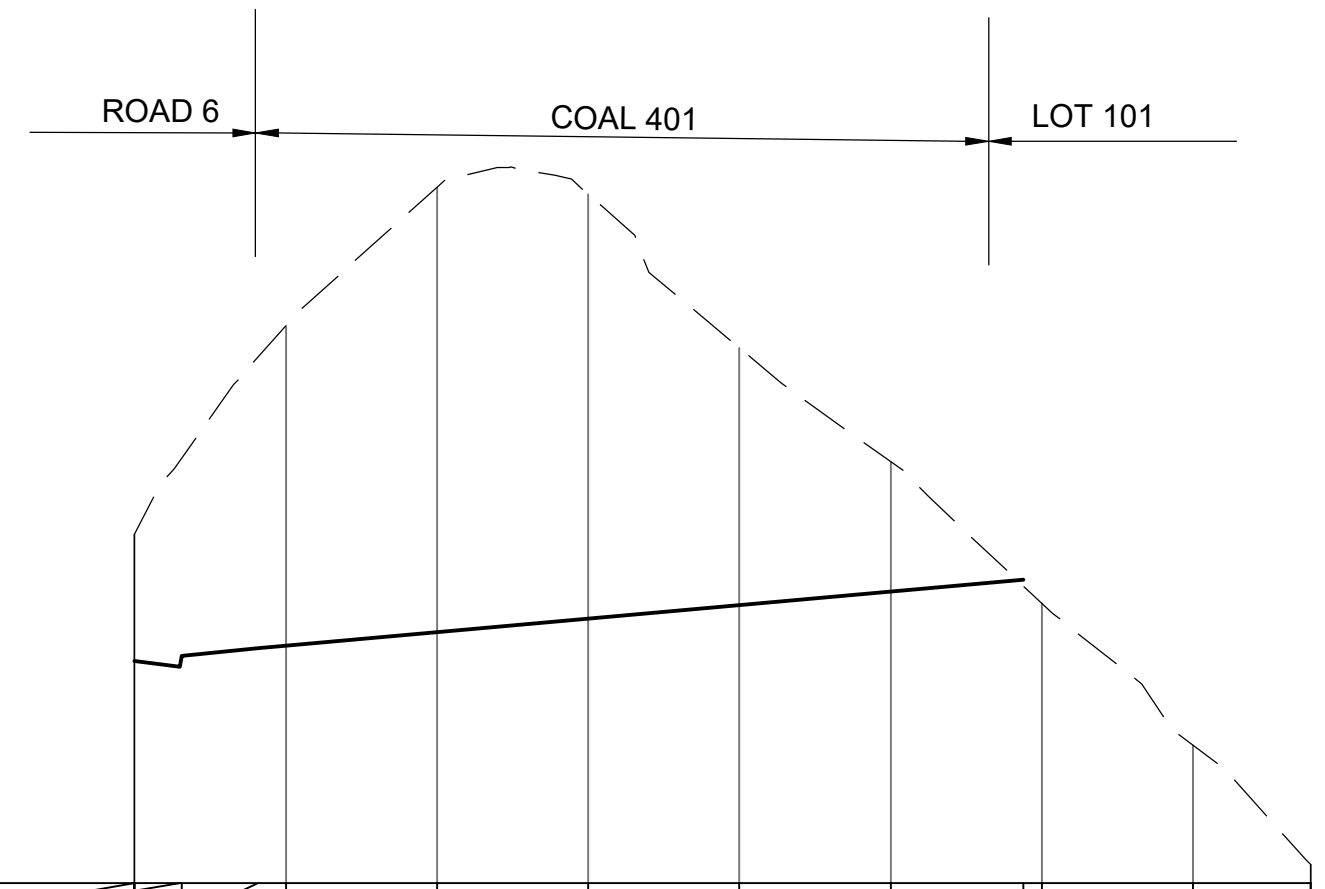
DATUM RL 52.00m

CHAINAGE	0.00	2.71	3.01	8.00	10.00	20.00	30.00	40.00	45.29	50.00	60.00	70.00	80.00	90.00	97.83	100.00	110.00	114.50
PROPOSED LEVEL	60.16	59.68	59.83	59.92	59.96	60.16	60.36	60.56	60.67	60.34	59.64	58.94	58.25	57.55	57.00			
EXISTING LEVEL					61.84	63.67	64.84	65.06		65.19	64.92	64.00	62.46	59.60		56.39	53.20	52.96
CUT (-) / FILL (+)	0.68	-0.46	-0.39	-1.49	-1.88	-3.51	-4.47	-4.49	-4.46	-4.85	-5.28	-5.06	-4.21	-2.05	-0.10			

VERTICAL: -1507.0984% 2.07.34.99m (overlapping) | 2.00% 37.30m | -6.99% 52.67m

HORIZONTAL: L=114.50m

COAL 400 LONGSECTION
CH: 0.00m TO CH: 114.50m
1:500H 1:100V @ A1 (DOUBLE FOR A3)



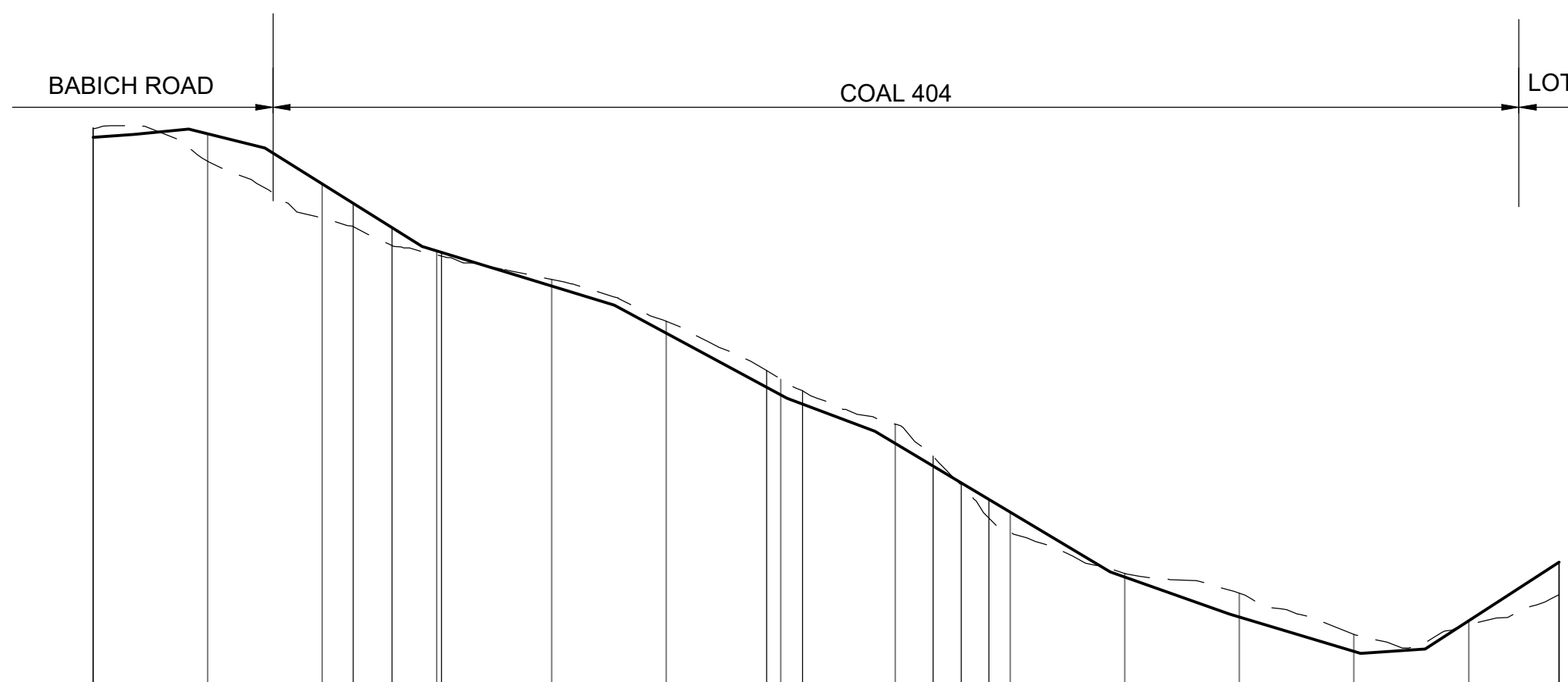
DATUM RL 50.00m

CHAINAGE	0.00	2.99	3.14	8.15	10.00	20.00	30.00	40.00	50.00	58.77	60.00	70.00	77.79
PROPOSED LEVEL	52.94	52.85	53.00	53.10	53.14	53.32	53.49	53.67	53.85	54.01			
EXISTING LEVEL					57.37	59.19	59.11	57.07	55.57		53.70	51.82	
CUT (-) / FILL (+)	-1.67	-2.73	-2.63	-3.84	-4.23	-5.88	-5.62	-3.40	-1.72	0.08			

VERTICAL: -2931.207% 2.95100m (overlapping) | 1.78% 50.63m

HORIZONTAL: L=77.79m

COAL 401 LONGSECTION
CH: 0.00m TO CH: 77.79m
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 34.00m

CHAINAGE	PROPOSED LEVEL	EXISTING LEVEL	CUT (-) / FILL (+)
0.00	43.56		-0.16
3.57	43.60		-0.15
8.36	43.70		0.32
10.00	43.62	43.13	0.48
15.01	43.36		0.69
20.00	42.74		0.60
22.72	42.40	42.14	0.41
26.07	41.98	41.99	0.31
28.73	41.65	41.67	0.09
30.00	41.57	41.50	0.07
30.39	41.55	41.48	0.07
40.00	40.96	41.08	-0.12
45.46	40.62		-0.15
50.00	40.14	40.35	-0.21
58.76	39.19		-0.29
60.00	39.06	39.48	-0.27
60.54	39.00	39.33	-0.26
61.90	38.90	39.13	-0.23
68.20	38.43		-0.23
70.00	38.21	38.55	-0.34
73.28	37.82	37.99	-0.17
75.72	37.52	37.49	0.04
78.14	37.23	36.91	0.33
80.00	37.01	36.67	0.34
88.72	35.96		-0.05
90.00	35.88	35.94	-0.07
99.16	35.23	35.60	-0.42
100.00	35.18	35.56	-0.42
110.00	34.58		-0.29
110.58	34.55	34.88	-0.30
116.21	34.62		-0.11
120.00	35.11	35.05	0.07
127.88	36.14		0.57

VERTICAL: 1.33% 3.57m | 1.96% 4.79m | -5.00% 6.65m | -12.50% 13.83m | -6.13% 16.76m | -10.75% 15.16m | -7.50% 7.68m | -12.00% 20.67m | -7.00% 10.46m | -6.00% 11.44m | 1.30% 5.63m | 13.00% 11.77m

HORIZONTAL: L=22.72m | L=3.35m 4.31m (overlapping) | L=28.38m | L=3.14m | L=11.38m | L=2.42m 4.41m (overlapping) | L=49.75m

COAL 404 LONGSECTION
CH: 0.00m TO CH: 127.88m
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	23/08/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	30/10/24	FOR S92 RFIs	NM	NM	DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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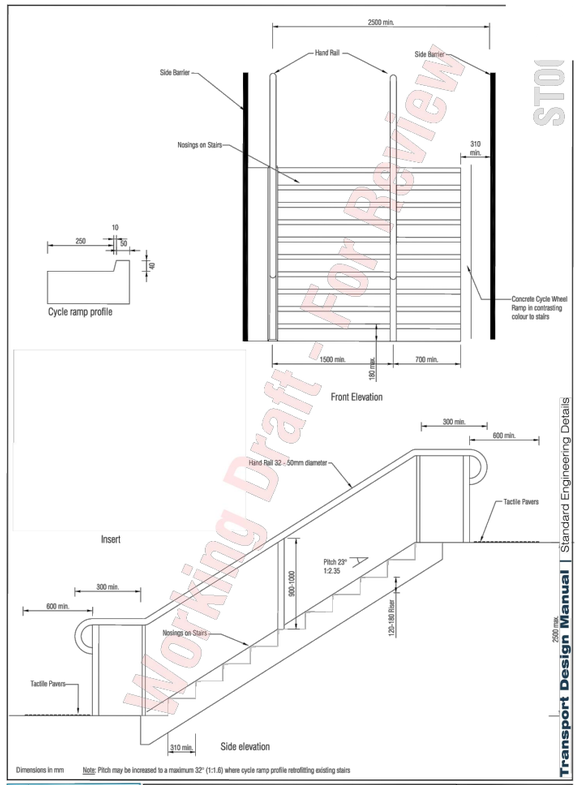
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

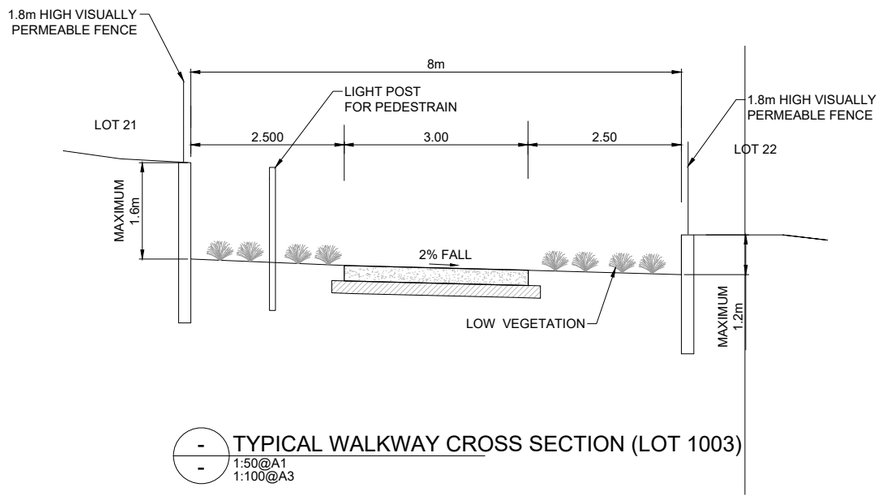
DRAWING TITLE
ROADING LONGITUDINAL SECTION
COAL 400, 401 & 404

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER 210506
SCALE A1 1:500, A3 1:1000
DWG NUMBER RC-316
REVISION B

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC310-ROADING LONG SECTION.dwg, 316, 10/27/2024 3:04 pm

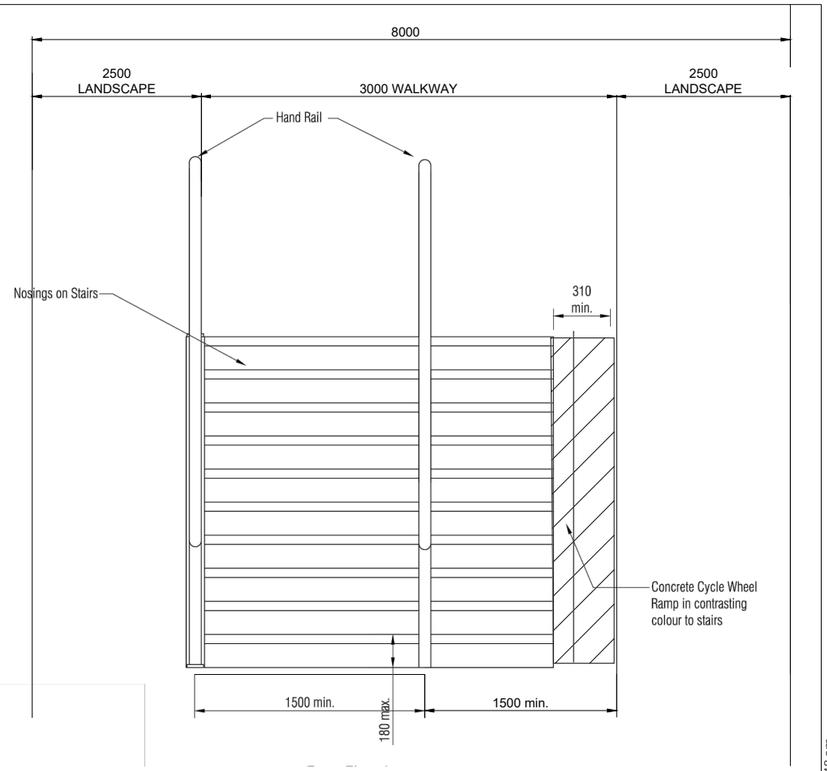




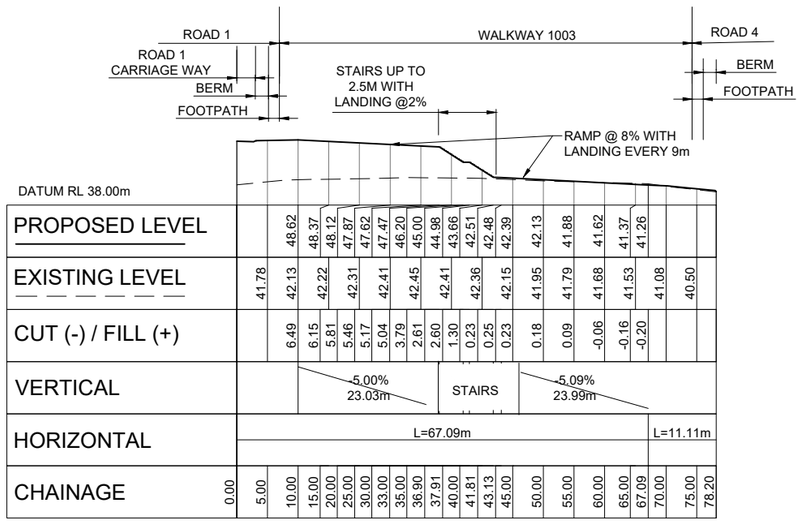
- TYPICAL WALKWAY CROSS SECTION (LOT 1003)

1:50@A1
1:100@A3

1:50 @ A1
1:100 @ A3
0 1 2 3 4 5 m



TYPICAL STAIR CROSS SECTION WITHIN
8m PEDESTRIAN ACCESS LOT
(NTS)



MORE DETAILS CAN BE PROVIDED IN EPA

WALKWAY 1003 LONGSECTION
CH: 0.00m TO CH: 78.20m
1:500H 1:500V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	23/08/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	30/10/24	FOR S92 RFIs	NM	NM	DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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CLIENT
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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

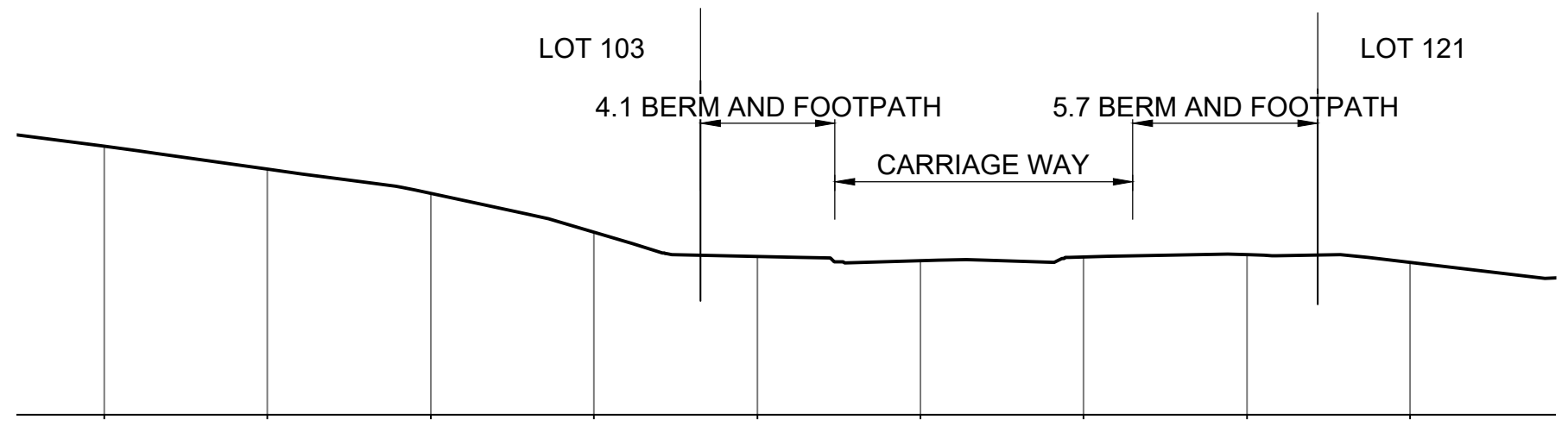
DRAWING TITLE
WALKWAY 1003
LONGITUDINAL SECTION & CROSS SECTION & STANDARD DETAILS

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER 210506
SCALE A1 1:500 A3 1:1000
DWG NUMBER RC- 317
REVISION B

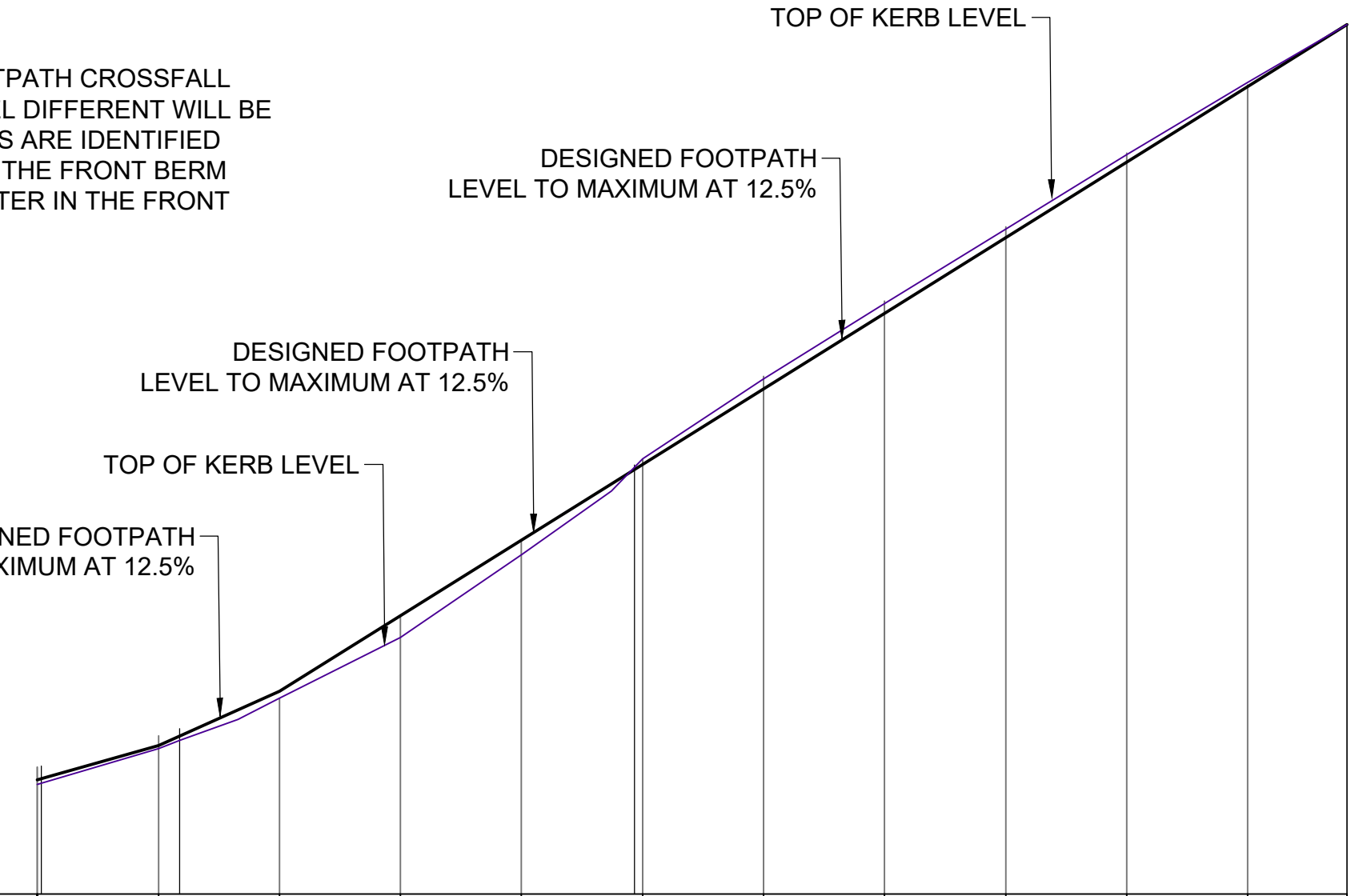
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FOOTPATH GRADIENTS NOTES:
IN THE CASE OF FRONT BERM AND FOOTPATH CROSSFALL DESIGNED AT 2% CROSSFALL. THE LEVEL DIFFERENT WILL BE 58-60mm. WHERE THE FOOTPATH LEVELS ARE IDENTIFIED MORE THAN 60mm, MODIFIED LEVELS IN THE FRONT BERM WILL BE PROPOSED. THE MAXIMUM BATTER IN THE FRONT BERM WILL BE SET AT 1 IN 5.



ROAD 6 CROSS SECTION AT CHAINAGE 58

SCALE: 1 IN 200 @A1
1 IN 400 @ A3



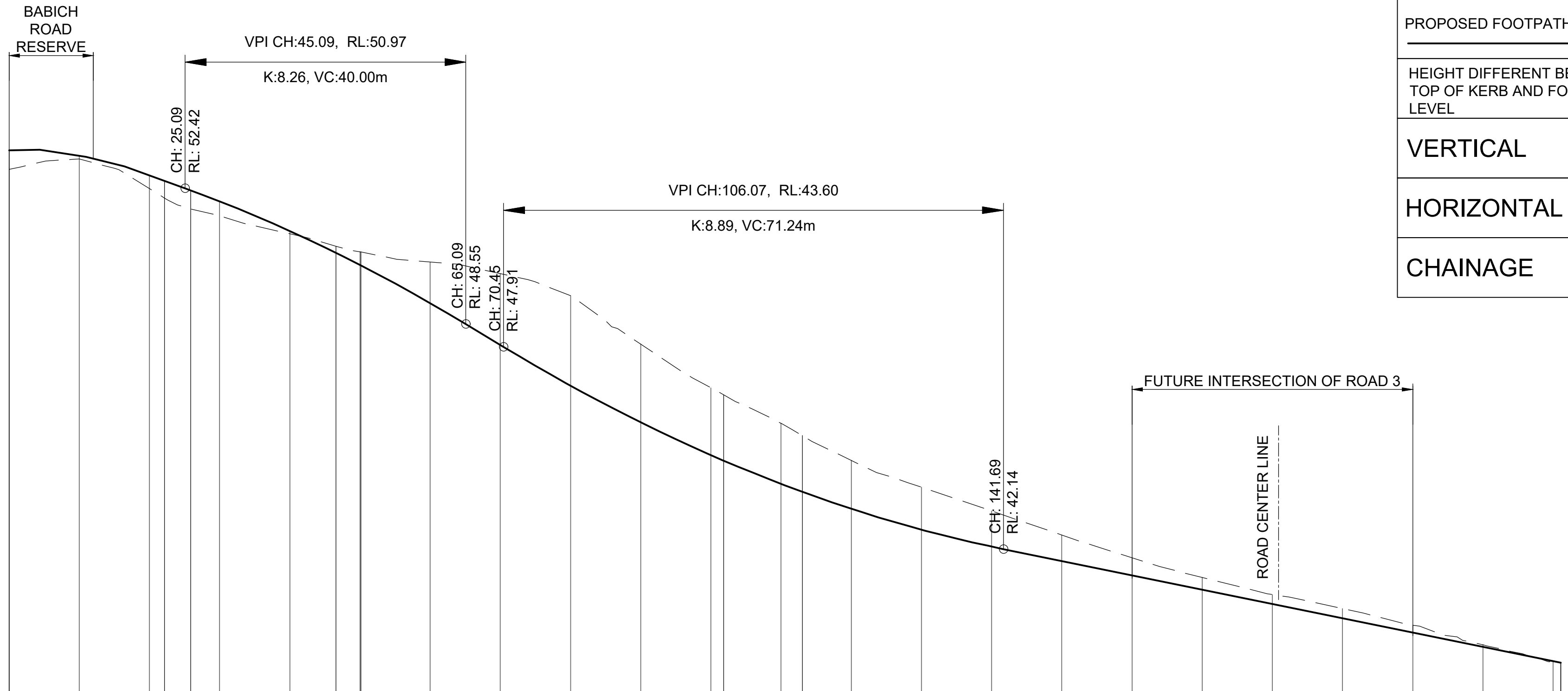
DATUM RL 42.00m

CHAINAGE	PROPOSED TOP OF KERB LEVEL	PROPOSED FOOTPATH LEVEL	HEIGHT DIFFERENT BETWEEN TOP OF KERB AND FOOTPATH LEVEL
0.00	44.10	44.04	-0.15
10.00	44.62	44.57	-0.11
20.00	45.26	45.23	0.12
30.00	46.36	46.33	0.27
40.00	47.71	47.66	0.19
50.00	49.19	49.19	-0.09
60.00	50.56	50.52	-0.17
70.00	51.80	51.76	-0.16
80.00	53.03	52.99	-0.14
90.00	54.25	54.21	-0.11
100.00	55.38	55.34	0.01
108.21	56.23	56.19	0.19

VERTICAL: 5.68% 10.02m; 8.97% 10.04m; 12.5%

HORIZONTAL: L=0.31m R=24.37m; L=11.43m R=44.17m; L=37.60m R=36.20m; L=58.87m

FOOTPATH ROAD 6 LONGSECTION
CH: 0.00m TO CH: 108.21m
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 38.00m

CHAINAGE	PROPOSED LEVEL	CUT (-) / FILL (+)
0.00	53.50	0.54
4.36	53.52	0.36
10.00	53.35	0.10
11.00	53.32	0.12
16.42	53.05	0.19
20.00	52.79	0.38
22.16	52.64	0.49
25.09	52.42	0.55
25.89	52.37	0.53
30.00	52.05	0.41
40.00	51.21	0.08
45.09	50.73	-0.13
46.57	50.59	-0.18
50.00	50.24	-0.38
50.12	50.23	-0.38
60.00	49.15	-1.17
65.09	48.55	-1.66
70.00	47.96	-2.03
70.45	47.91	-2.07
80.00	46.80	-2.57
90.00	45.76	-2.23
100.00	44.82	-1.92
101.82	44.66	-1.88
106.07	44.31	-1.81
110.00	44.00	-1.72
113.02	43.78	-1.60
120.00	43.29	-1.38
130.00	42.70	-1.21
140.00	42.21	-1.01
141.69	42.14	-0.97
150.00	41.80	-0.74
160.00	41.39	-0.50
170.00	40.99	-0.35
180.00	40.58	-0.27
190.00	40.17	-0.28
200.00	39.76	-0.21
210.00	39.35	-0.06
220.00	38.94	-0.02
221.07	38.90	0.00

EXISTING LEVEL: 53.26, 52.42, 51.64, 51.13, 50.68, 50.62, 50.33, 49.99, 49.37, 47.99, 46.74, 46.54, 45.72, 44.67, 43.90, 43.23, 42.54, 41.90, 41.33, 40.85, 40.45, 39.97, 39.69, 39.42, 38.96

VERTICAL: 0.42% 4.36m; 3.00% 6.64m; 5.00% 5.43m; -7.25% 8.69m; VC: 40.0m K: 8.26; -12.09% 5.40m; VC: 71.2m K: 8.89; -4.08% 79.45m

HORIZONTAL: L=22.16m; L=3.73m R=12.00m; L=20.68m; L=3.55m R=30.00m; L=51.70m; L=11.19m R=30.00m; L=108.06m

FUTURE ROAD (PRIVATE LAND) LONGSECTION WITHIN PRIVATE LAND AT 15 BABICH ROAD
CH: 0.00m TO CH: 221.07m
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	23/08/24	FOR S92	NM	NM	SURVEYED	TERRA	-
B	30/10/24	FOR S92 RFIs	NM	NM	DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: ROADING LONGITUDINAL SECTION FUTURE ROAD

STAGE: FOR RESOURCE CONSENT

PROJECT NUMBER: 210506

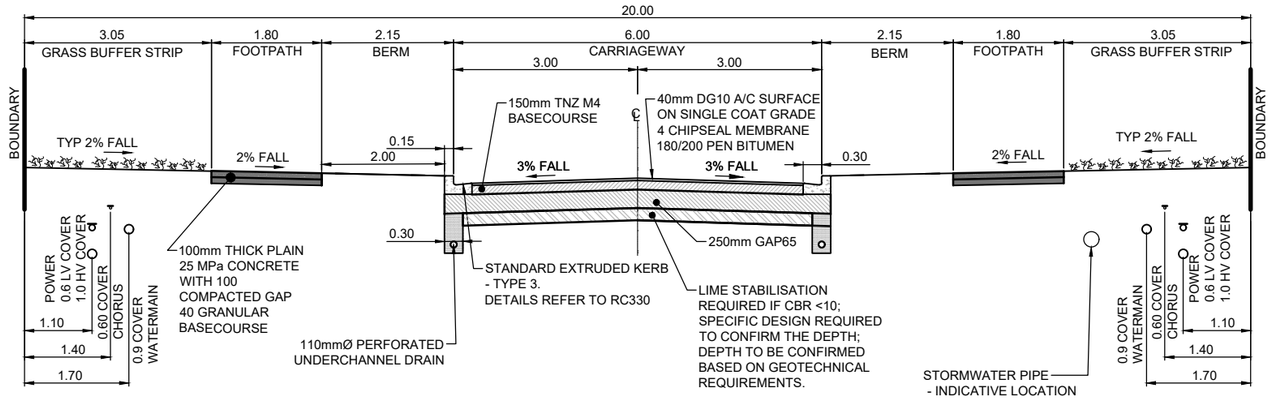
SCALE: A1 1:500; A3 1:1000

DWG NUMBER: RC- 318

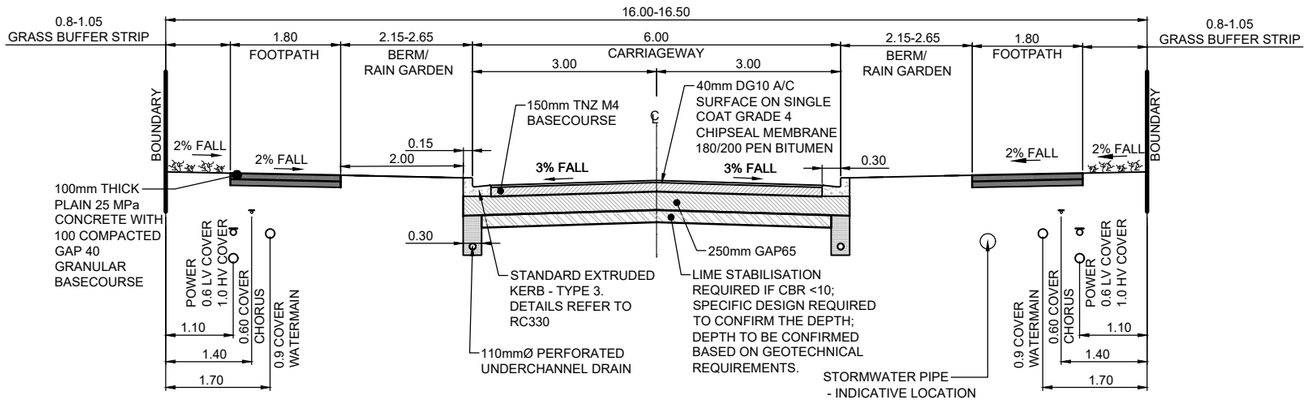
REVISION: B

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC310-ROADING LONG SECTION.dwg, 318, 12/9/2024 12:08 pm

PAVEMENT TO ACHIEVE NO MORE THAN 1.00mm DEFLECTION ON BENKLEMAN BEAM TEST USING 8.2t REAR AXLE LOADING PRIOR TO FINAL SURFACING.

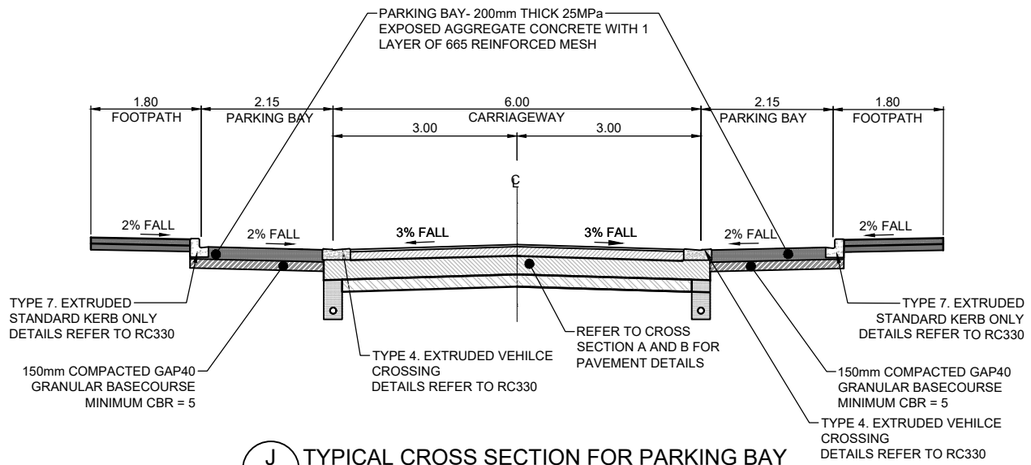


A 303 ROAD 1 LOCAL ROAD TYPICAL CROSS SECTION
1:50@ A1
1:100 @ A3



B 303 ROAD 2, 3, 4, 5 AND 6 LOCAL ROAD TYPICAL CROSS SECTION
1:50@ A1
1:100 @ A3

WHERE RAIN GARDENS ARE PROPOSED THE ROAD CORRIDOR WIDTH IS 16.50m AND THE FRONT BERM WIDTH IS 2.65m.
FURTHER DETAILS IN RC437.



J 300 TYPICAL CROSS SECTION FOR PARKING BAY
1:50@ A1
1:100 @ A3

1:50 @ A1
1:100 @ A3
0 1 2 3 4 5 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RFIs	GT	GZ	DESIGNED	GZ	02/04/24
C	23/08/24	FOR S92 RFIs	GT	GZ	DRAWN	GZ	02/04/24
D	30/10/24	FOR S92 RFIs	NM	GZ	TRACED		
E	04/12/24	FOR S92 RFIs	NM	GZ	CHECKED	NM	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROAD TYPICAL CROSS SECTION
SHEET 1 OF 6

STAGE
FOR RESOURCE CONSENT

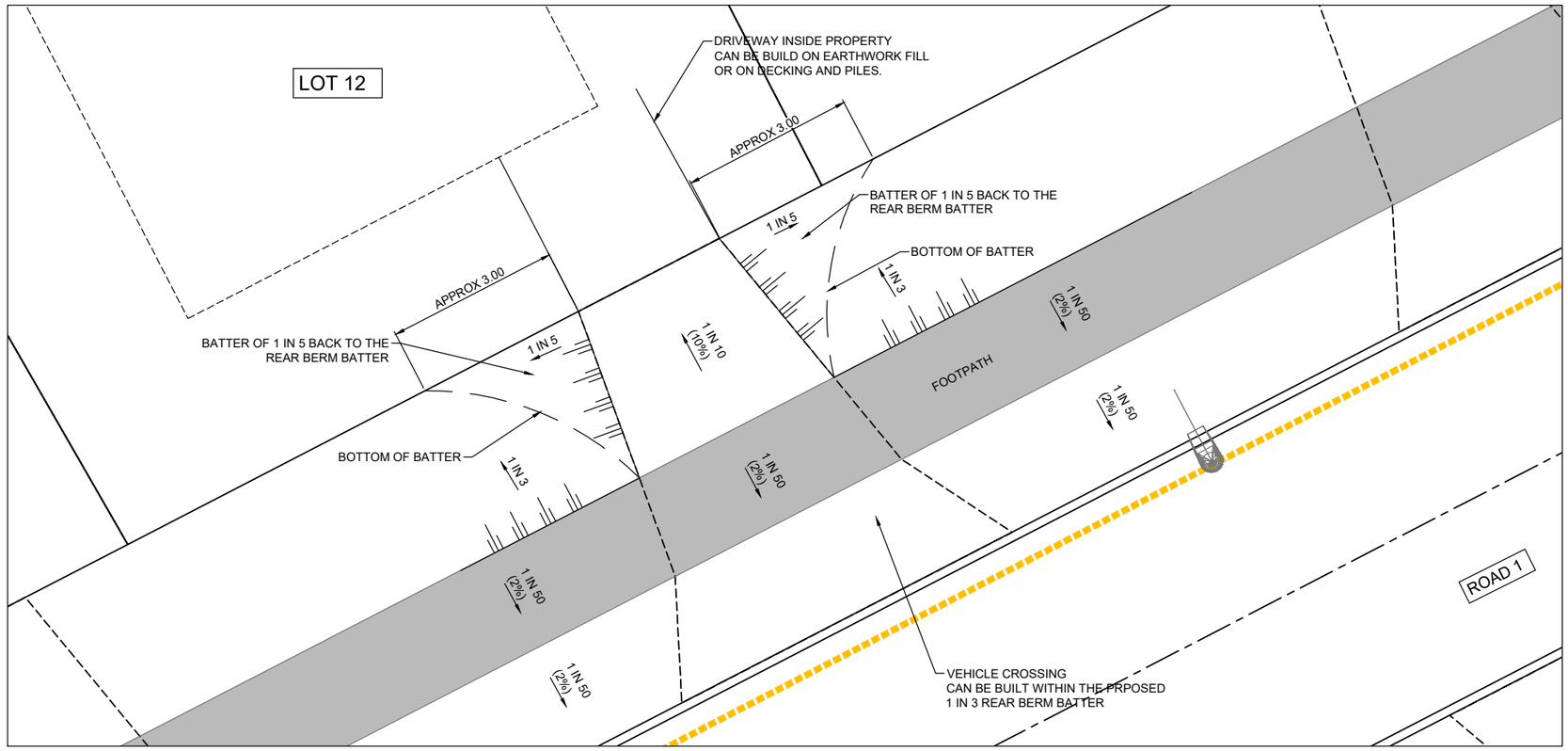
PROJECT NUMBER
210506

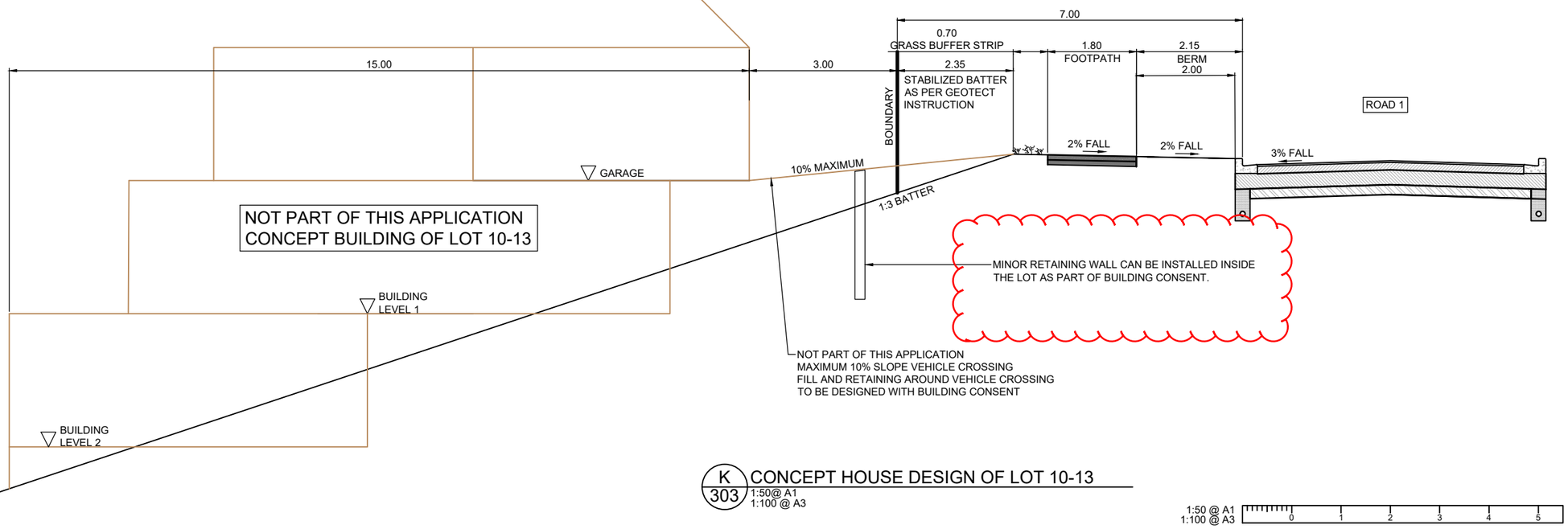
SCALE
A1 1:50
A3 1:100

DWG NUMBER
RC- 320

REVISION
E

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K/303 CONCEPT HOUSE DESIGN OF LOT 10-13
1:50@ A1
1:100 @ A3

1:50 @ A1
1:100 @ A3
0 1 2 3 4 5 m

ISSUE	DATE	REVISION	CHKD	DRWN
A	30/10/24	FOR S92 RFIs	NM	GZ
B	04/12/24	FOR S92 RFIs	NM	GZ

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	GZ	02/04/24
DRAWN	GZ	02/04/24
TRACED		
CHECKED	NM	02/04/24

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HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROAD TYPICAL CROSS SECTION
SHEET 2 OF 6
(HOUSE CONCEPT DESIGN ONLY)

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

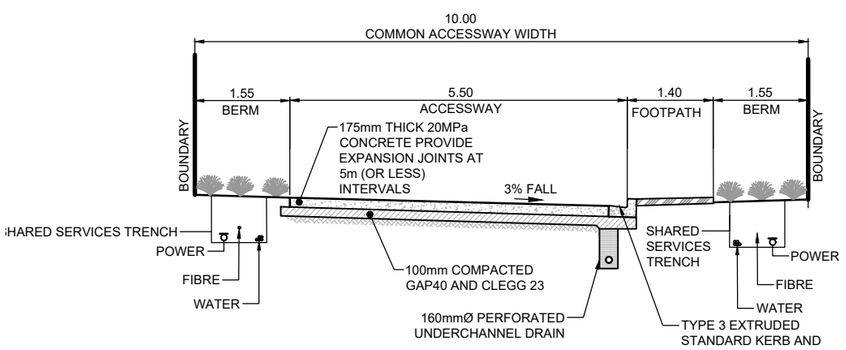
SCALE
A1 1:50
A3 1:100

DWG NUMBER
RC- 320.1

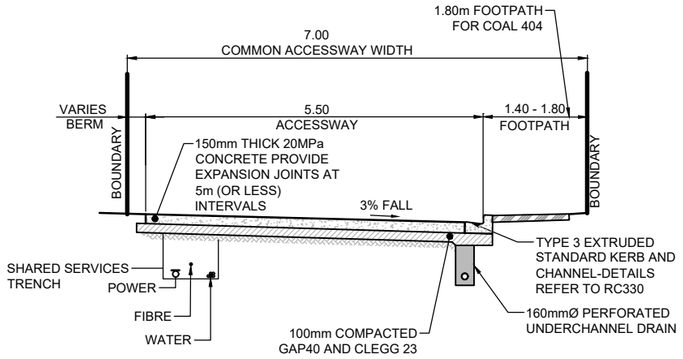
REVISION
B

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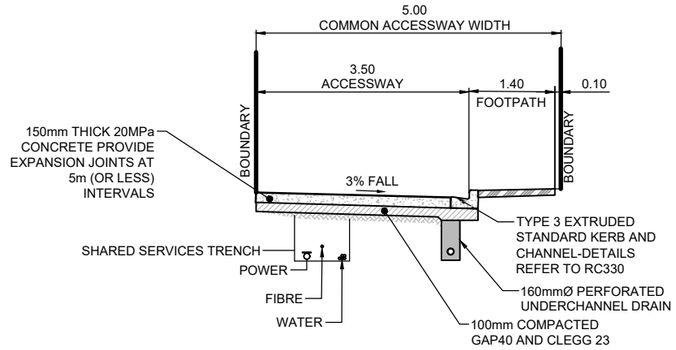
NOTE:
1. FOR CBR > 3
   - FOR 2 TO 9 LOTS, 150mm THICK 20MPa CONCRETE ON 100mm DEPTH OF COMPACTED GAP40 BASECOURSE
   - FOR MORE THAN 4 LOTS, 665 MESH CENTRALLY PLACED IS REQUIRED
   - FOR >=10 LOTS, 175mm THICK REINFORCED 20MPa CONCRETE ON 100mm DEPTH OF COMPACTED BASECOURSE
2. FOR CBR < 3, SPECIFIC DESIGN IS REQUIRED.



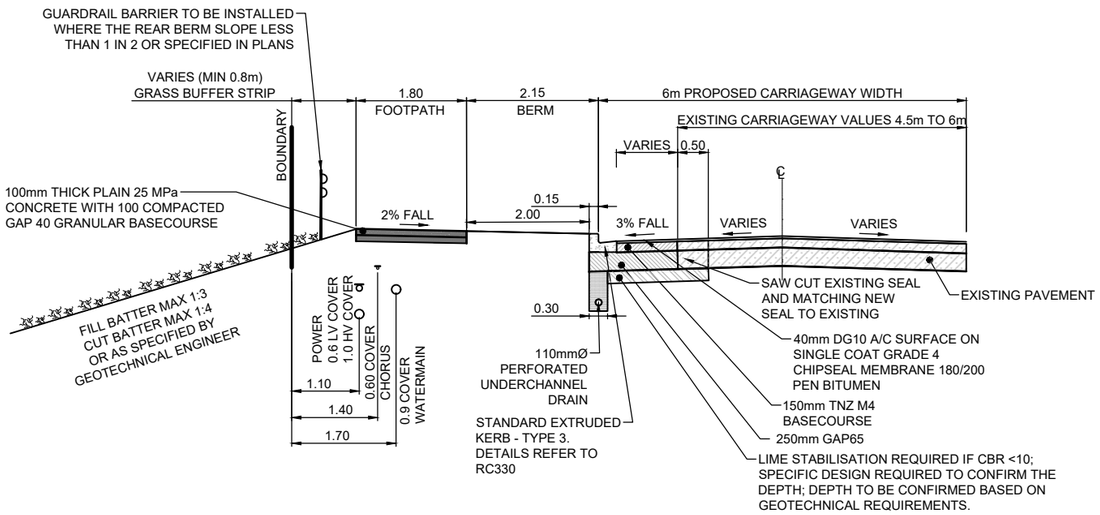
C 301 COAL 400 CROSS SECTION
1:50@A1
1:100@A3



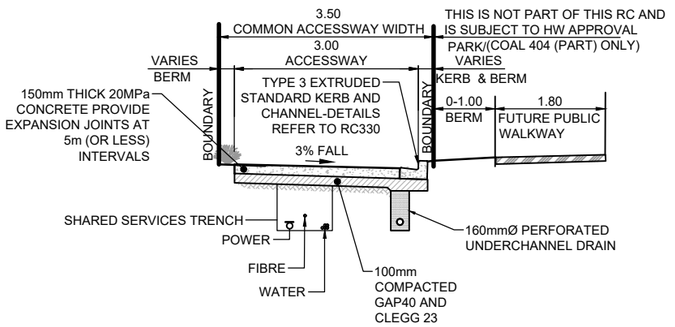
E 301 COAL 401 AND COAL 404 (CH16-CH66) CROSS SECTION
1:50@A1
1:100@A3



F 303 COAL 402 CROSS SECTION
1:50@A1
1:100@A3



D 302 BABICH ROAD UPGRADE TYPICAL CROSS SECTION
1:50@ A1
1:100 @ A3



G 303 COAL403, 404 (CH66-END) AND 405 CROSS SECTION
1:50@A1
1:100@A3

1:50 @ A1
1:100 @ A3
0 1 2 3 4 5 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	NM	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RFIs	GT	GZ	DESIGNED	GZ	02/04/24
C	23/08/24	FOR S92 RFIs	GT	GZ	DRAWN	GZ	02/04/24
D	30/10/24	FOR S92 RFIs	NM	GZ	TRACED		
E	04/12/24	FOR S92 RFIs	NM	GZ	CHECKED	NM	02/04/24

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HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROAD TYPICAL CROSS SECTION
SHEET 3 OF 6

STAGE
FOR RESOURCE CONSENT

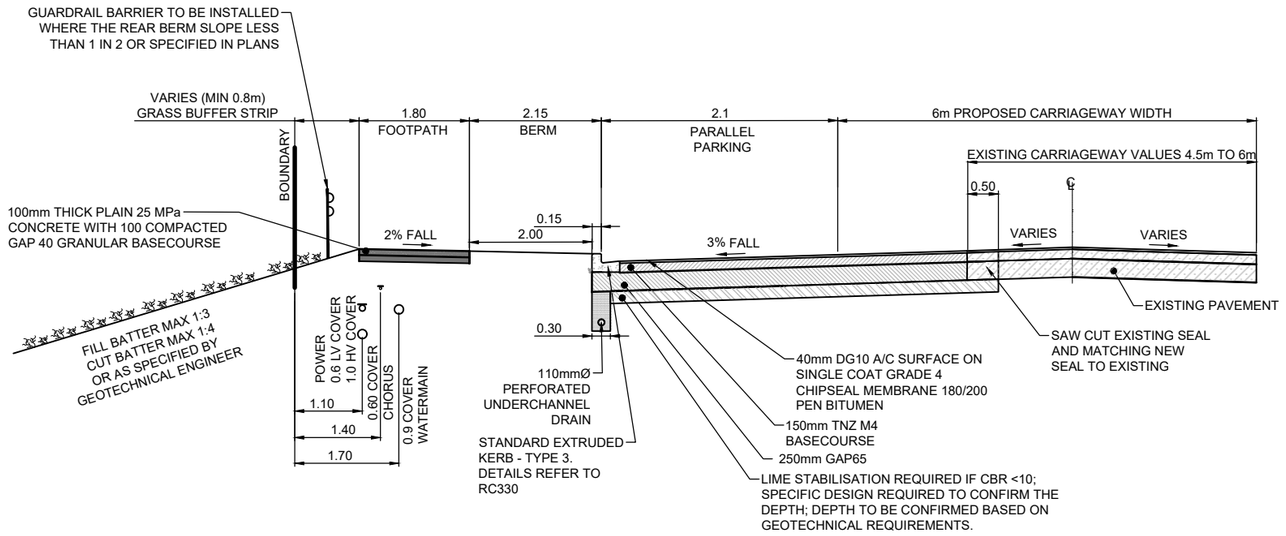
PROJECT NUMBER
210506

SCALE
A1 1:50
A3 100

DWG NUMBER
RC- 321

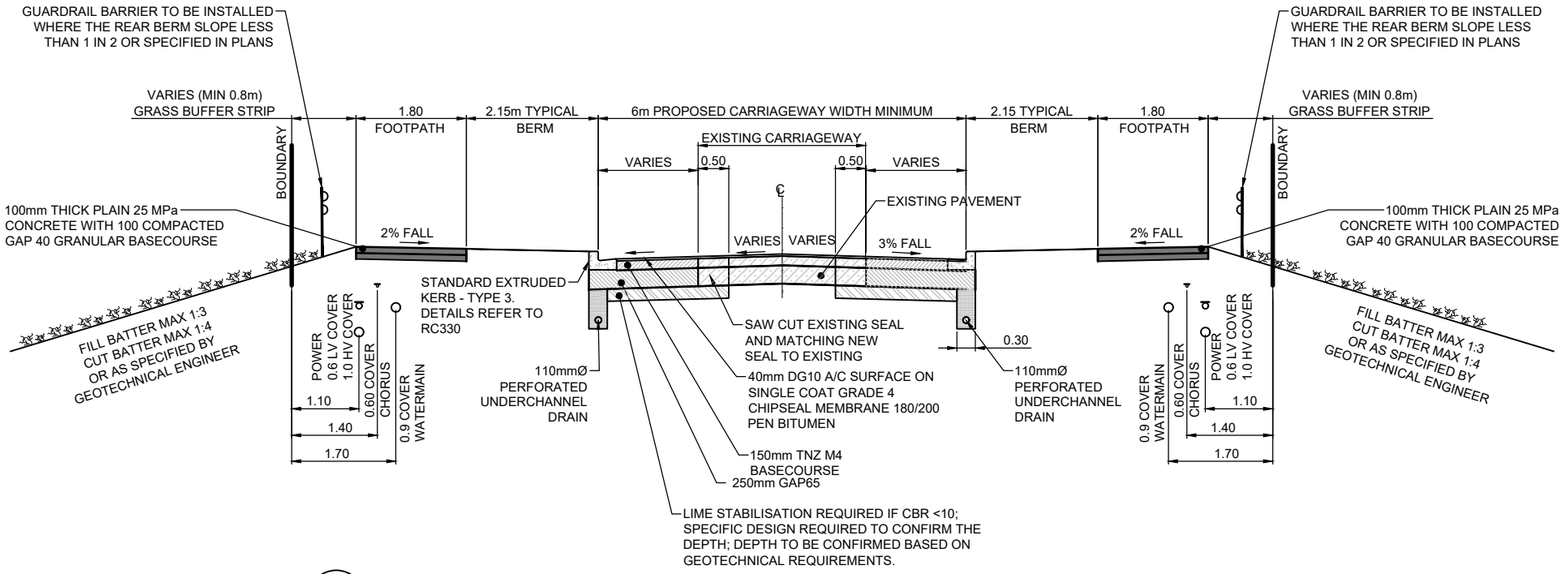
REVISION
E

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC320-ROADING CROSS SECTION.dwg, RC321, 12/9/2024 12:10 pm



H 302 BABICH ROAD UPGRADE TYPICAL CROSS SECTION WITH ON-STREET PARKING

1:50@ A1
1:100 @ A3



I 302 BABICH ROAD UPGRADE TYPICAL CROSS SECTION WIDENING BOTH SIDES

1:50@ A1
1:100 @ A3

1:50 @ A1
1:100 @ A3

0 1 2 3 4 5 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	12/07/24	FOR S92 RFIs	GT	GZ	SURVEYED	TERRA	-
B	23/08/24	FOR S92 RFIs	GT	GZ	DESIGNED	GZ	02/04/24
C	30/10/24	FOR S92 RFIs	NM	GZ	DRAWN	GZ	02/04/24
D	04/12/24	FOR S92 RFIs	NM	GZ	TRACED		
					CHECKED	NM	02/04/24

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DRAWING TITLE
ROAD TYPICAL CROSS SECTION
SHEET 4 OF 6

STAGE
FOR RESOURCE CONSENT

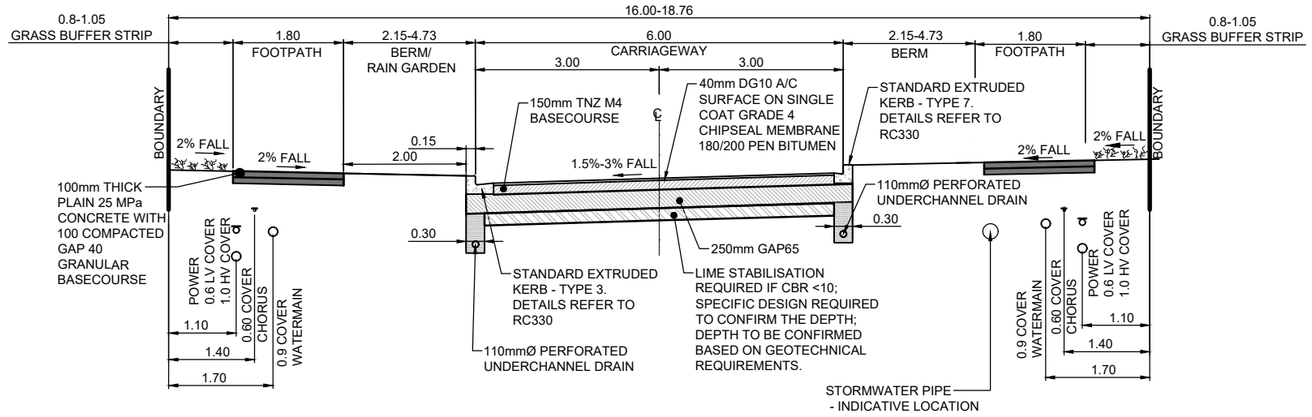
PROJECT NUMBER
210506

SCALE
A1 1:50
A3 100

DWG NUMBER
RC- 322

REVISION
D

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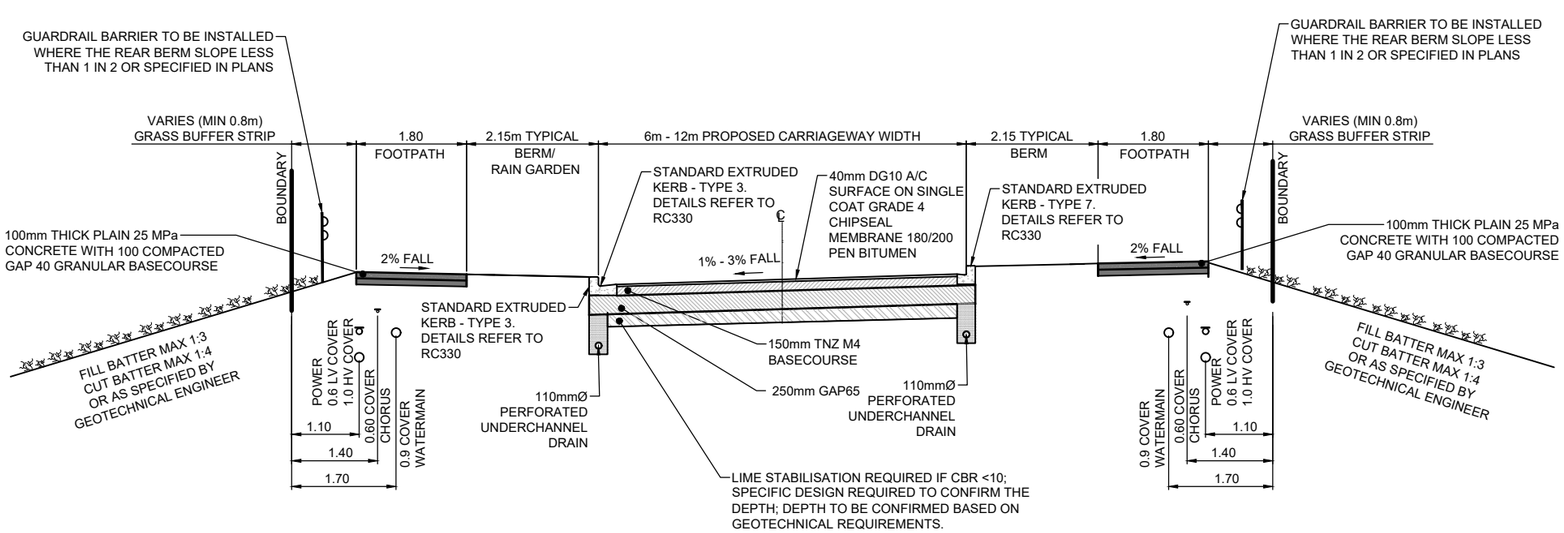


L 303 ROAD 2, 3, 5 AND 6 LOCAL ROAD - ONE WAY CROSS FALL TYPICAL CROSS SECTION

1:50@ A1
1:100 @ A3

ONE WAY CROSS FALL		
ROADING	START CHAINAGE	END CHAINAGE
ROAD 2	CH130	CH160
ROAD 3	CH0	CH160
ROAD 5	CH10	CH90
ROAD 6	CH10	CH40

NOTE:
ROAD CROSS SECTIONS TO BE FINALIZED AT EPA STAGE.



M 302 BABICH ROAD UPGRADE WIDENING BOTH SIDES-ONE WAY CROSS FALL TYPICAL CROSS SECTION

1:50@ A1
1:100 @ A3

ONE WAY CROSS FALL		
ROADING	START CHAINAGE	END CHAINAGE
BABICH ROAD	CH140	CH230
BABICH ROAD	CH420	CH550
BABICH ROAD	CH620	CH685

NOTE:
ROAD CROSS SECTIONS TO BE FINALIZED AT EPA STAGE.

1:50 @ A1
1:100 @ A3
0 1 2 3 4 5 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	04/12/24	FOR S92 RFIs	GT	GZ	SURVEYED	TERRA	-
					DESIGNED	GZ	02/04/24
					DRAWN	GZ	02/04/24
					TRACED		
					CHECKED	NM	02/04/24

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DRAWING TITLE
ROAD TYPICAL CROSS SECTION
SHEET 5 OF 6

STAGE
FOR RESOURCE CONSENT

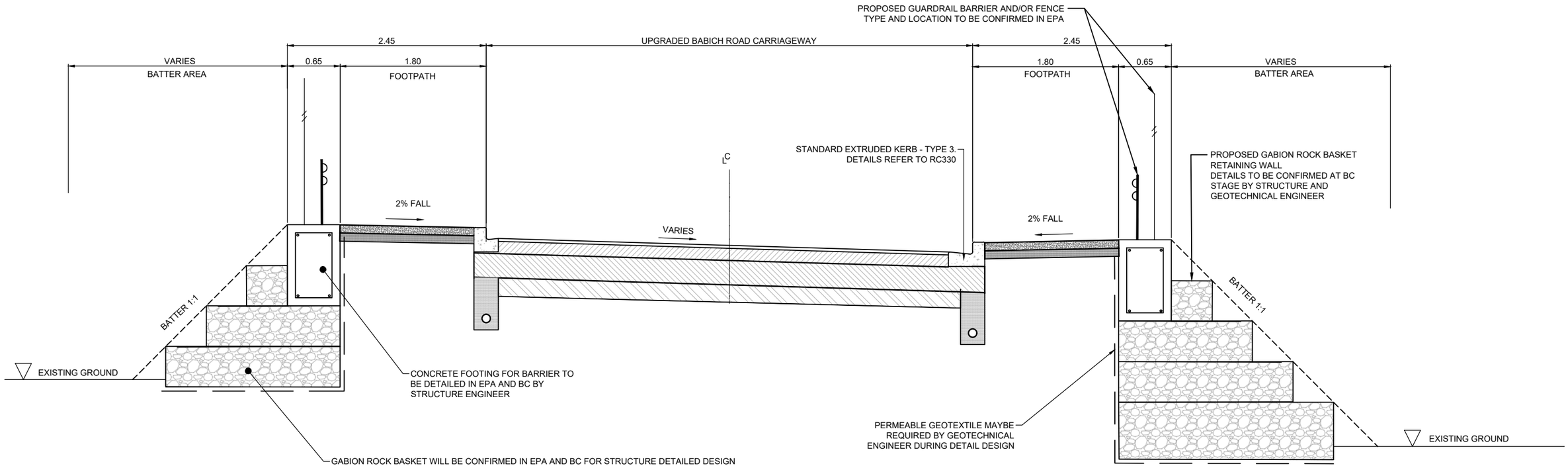
PROJECT NUMBER
210506

SCALE
A1 1:50
A3 1:100

DWG NUMBER
RC- 323

REVISION
A

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N
302 TYPICAL BABICH ROAD CROSS SECTION WITH GABION WALL AROUND CULVERTS AREA
1:25@ A1
1:50 @ A3



EXAMPLE OF GUARDRAIL AND FENCE ALONG
FOOTPATH ON TOP OF GABION WALL

1:25 @ A1
1:50 @ A3
0 400 800 1200 1600 2000 2400 mm

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	04/12/24	FOR S92 RFIs	GT	GZ	SURVEYED	TERRA	-
					DESIGNED	GZ	02/04/24
					DRAWN	GZ	02/04/24
					TRACED		
					CHECKED	NM	02/04/24

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HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROAD TYPICAL CROSS SECTION
SHEET 6 OF 6

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

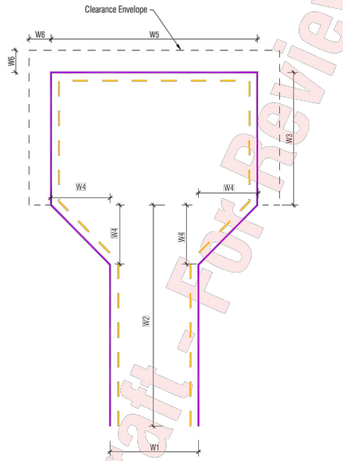
SCALE
A1 1:25
A3 1:50

DWG NUMBER
RC- 324

REVISION
A

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Working Draft - For Review



Minimum dimensions					
W1	W2	W3	W4	W5	W6
6.0	15.0	9.0	4.0	14.0	1.5

For 10.3m Rigid Truck only

NOTES:

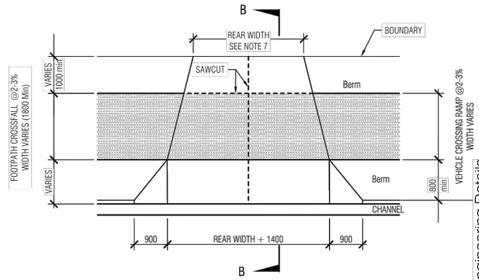
1. This interim layout is to be used for planned staged development only. If extension of the road is not planned, then a permanent cul-de-sac must be provided
2. Pavement must be designed for the maximum period before road extension will be open for public use.
3. These dimensions can be accepted without supplying specific vehicle tracking.
4. The clearance envelop must be protected against obstruction by a temporary easement or agreement.
5. No Stopping At Any Time road-markings must be provided at all turning heads to extent shown for turning movement but not across driveways or parking bays.

Transport Design Manual | Standard Engineering Details

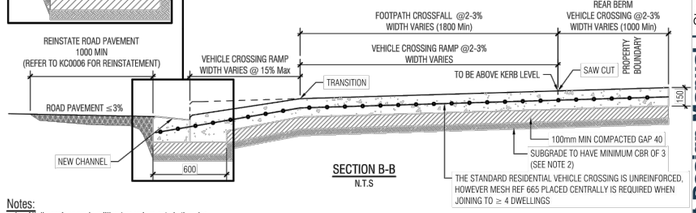
Review 1	TDM TECHNICAL STANDARDS	Date: Document in Review
DATE: February 14, 2020	Interim turning head	SED No. GD0006 | Version A



PERSPECTIVE VIEW
N.T.S



VEHICLE CROSSING
FOOTPATH SEPARATED FROM KERB
N.T.S



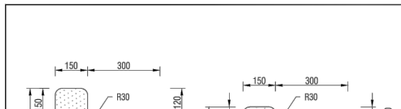
SECTION B-B
N.T.S

Notes:

1. All dimensions are in millimetres unless noted otherwise.
2. If CBR of existing Subgrade Is <3, Pavement Design should be provided and approved by Auckland Transport.
3. All concrete to be 20 MPa and constructed in accordance with NZS 3109 with a broom or exposed aggregate finish and contain upto 4Kg/m³ black oxide.
4. Saw cut expansion joints at 4m centres maximum each way In addition to saw cuts shown on dwg.
5. Any existing infrastructure within the crossing may require specific design approval for relocation.
6. Construct in same material and finish as surrounding footpath.
7. Rear Width to be as permitted under Auckland unitary Plan;
   2750-3000 - Single vehicle crossing
   5500-6000 - Two-Way Shared Access
   3000-3500 - One-Way Shared Access
8. Commercial crossing standards for 10 and more houses and multi-story apartments.
9. Formwork shall be full depth of concrete and straight.

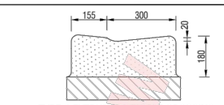
Transport Design Manual | Standard Engineering Details

CHIEF APPROVED ENGINEER	TDM TECHNICAL STANDARDS	Date: 11/04/2022
	Residential Vehicle Crossing (Sheet 3 of 4)	SED No. VX0103 | Version D

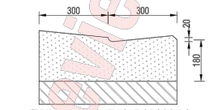


TYPE 3 EXTRUDED STANDARD KERB AND CHANNEL

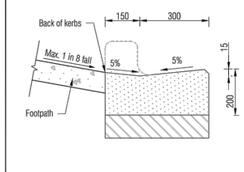
TYPE 3 EXTRUDED STANDARD KERB AND CHANNEL (OPTIONAL)



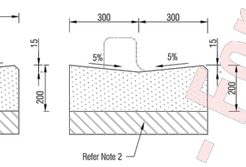
TYPE 4 EXTRUDED VEHICLE CROSSING



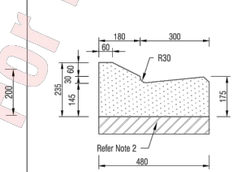
TYPE 4 IN-SITU VEHICLE CROSSING



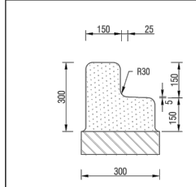
TYPE 5 EXTRUDED PRAM CROSSING



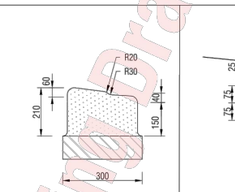
TYPE 5 IN-SITU PRAM CROSSING



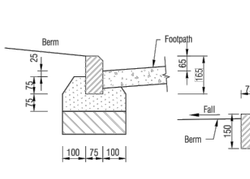
TYPE 6 EXTRUDED MOUNTABLE KERB AND CHANNEL



TYPE 7 EXTRUDED STANDARD KERB ONLY



TYPE 7C EXTRUDED KERB ONLY AT VEHICLE CROSSING



TYPE 8 BASALT OR PRE-CAST KERB EDGING (75x150mm)

NOTES :

1. Jointing:
   Precast kerb neatly pointed with 10mm min. cement mortar. Extruded kerbs cracking control joints formed or saw cut to a minimum depth of 30mm at max. 3.00m. intervals to coincide with concrete footpath joints (where the kerb is adjacent to the footpath). Crack control joints between bluestone kerb blocks shall be approximately 20mm wide (measured at the top and front faces) with neat square jointing 2 to 4 mm proud. Joints must located either side of vehicle crossings.
2. Bedding:
   Kerbing must be laid on 300mm. min. GAP65 subbase in roads and 100mm GAP40 in footpaths (where subgrade CBR:>5). If the subgrade CBR<5 then roads and footpaths must be undercut and backfilled with appropriate backfill material.
3. Concrete Grades:
   Precast kerb blocks 20 MPa. In-Situ channel and haunching 20 MPa. Extruded concrete 25 MPa fibre reinforced.
4. All chamfers 20mm

Transport Design Manual | Standard Engineering Details

Review 1	TDM TECHNICAL STANDARDS	Date: Document in Review
DATE: February 14, 2020	Kerb and channel - Type 3 - 8	SED No. KC0002 | Version A

Working Draft - For Review

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GZ	SURVEYED	TERRA	
					DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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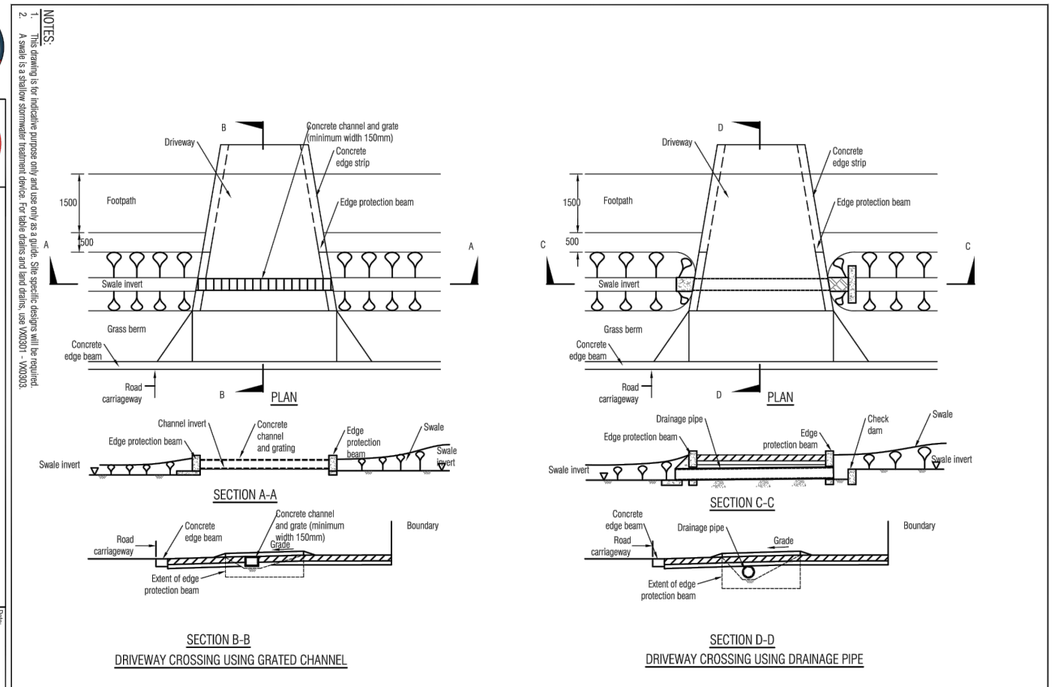
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
ROADING STANDARD DETAILS
SHEET 1 OF 2

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER	SCALE	
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	A3	N.T.S
DWG NUMBER	REVISION	
RC- 330	A	

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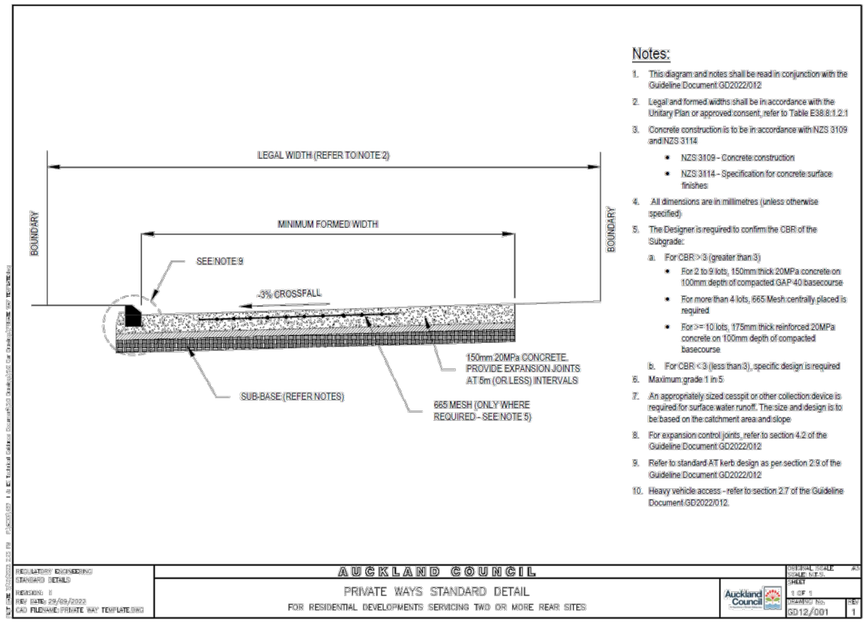


Figure 1: Private ways standard detail

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ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	GZ	SURVEYED	TERRA	
B	12/07/24	FOR S92 RFIs	GT	GZ	DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: ROADING STANDARD DETAILS SHEET 2 OF 2

STAGE: FOR RESOURCE CONSENT

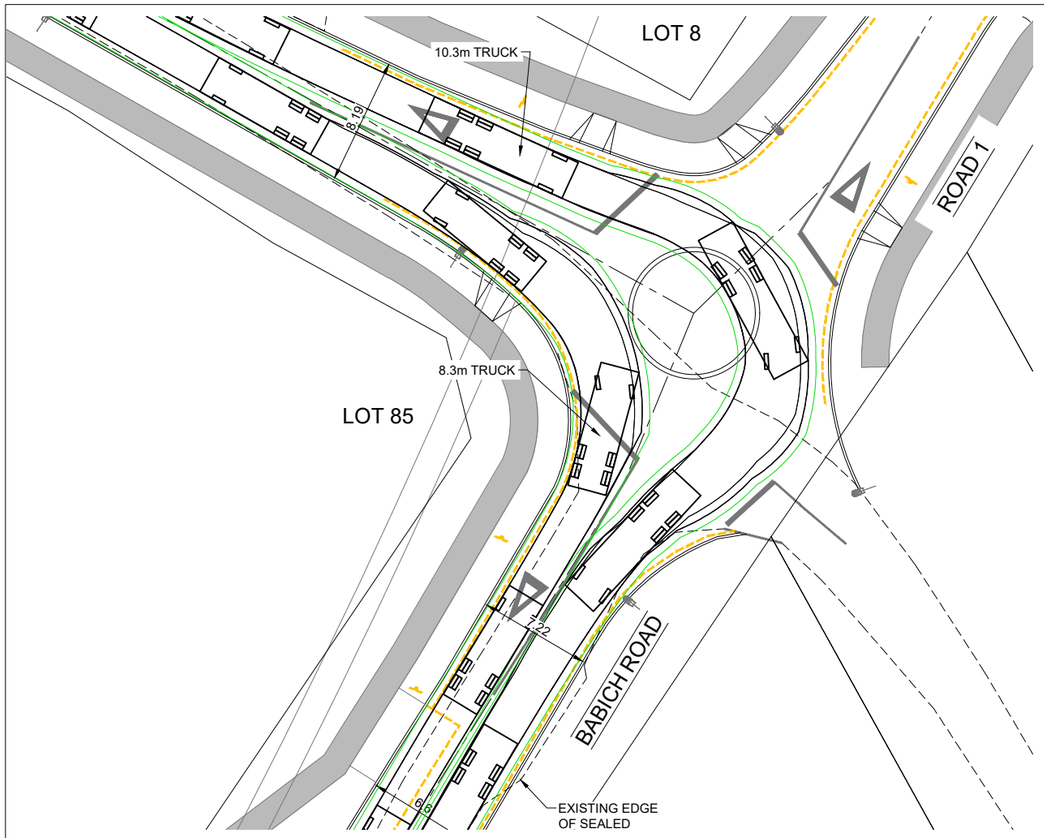
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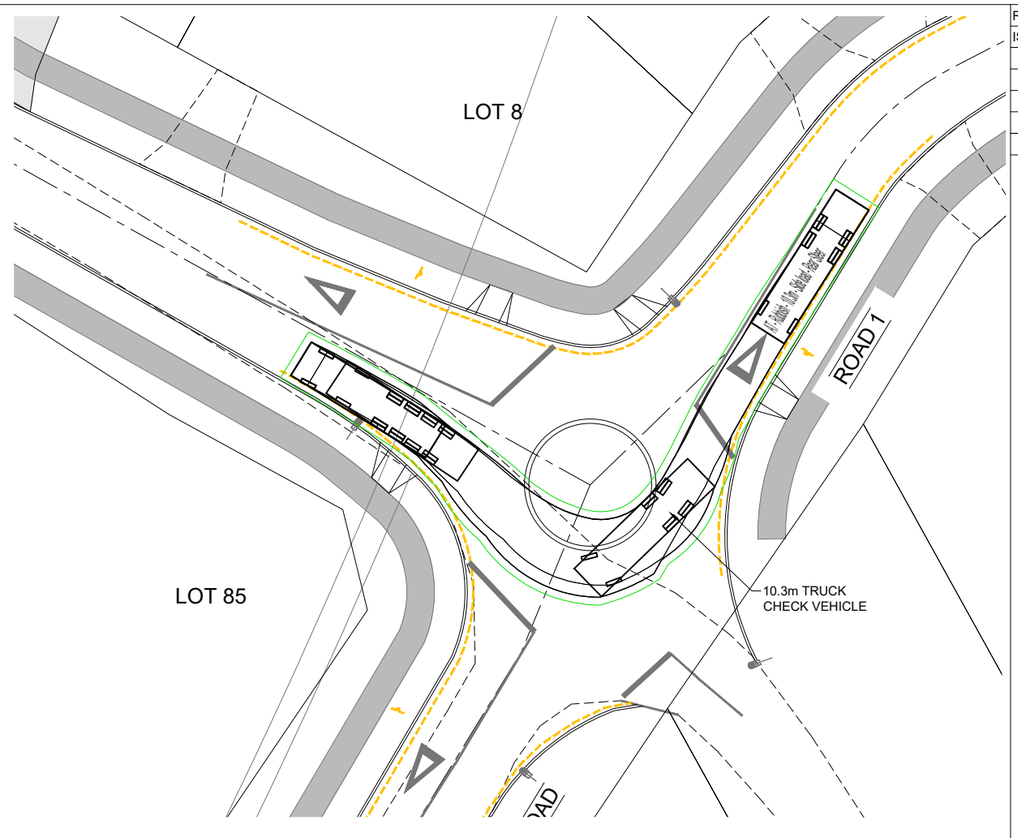
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DWG NUMBER: RC- 331

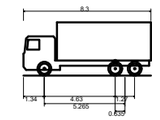
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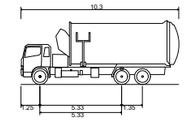


REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
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B	23/08/24	FOR S92	NM	NM
C	30/10/24	FOR S92	NM	NM
D	04/12/24	FOR S92	NM	NM



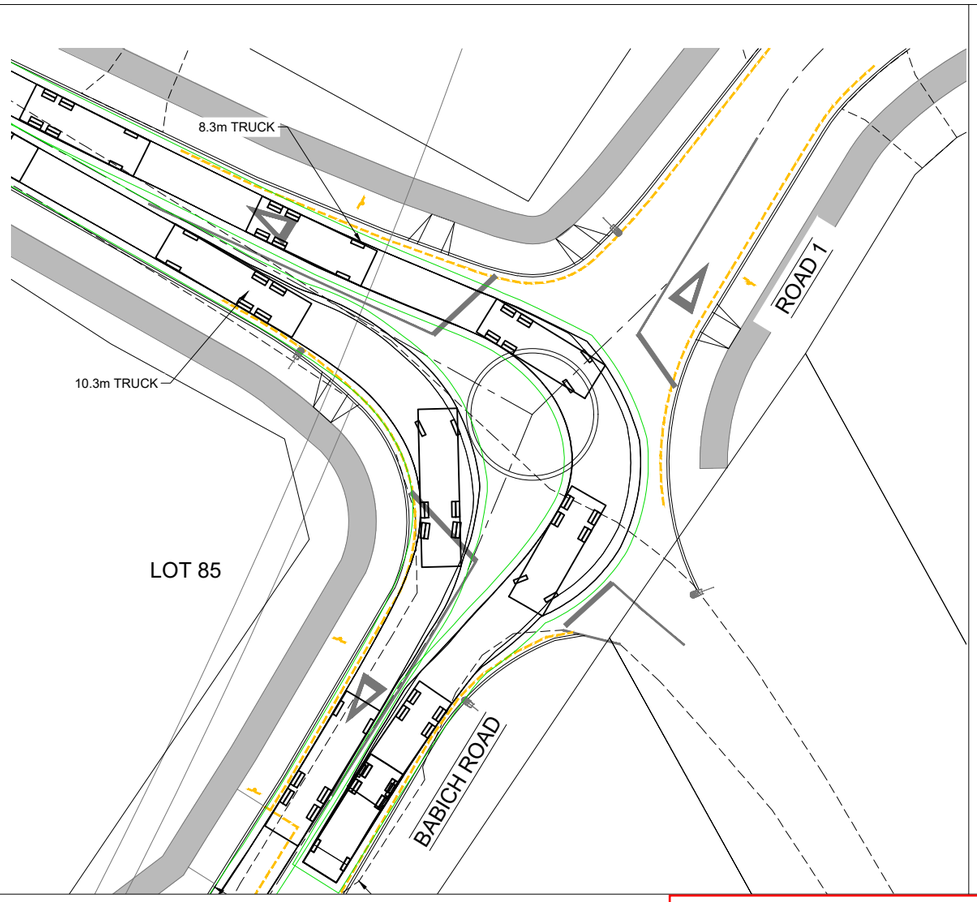
AT - 8.3m Truck

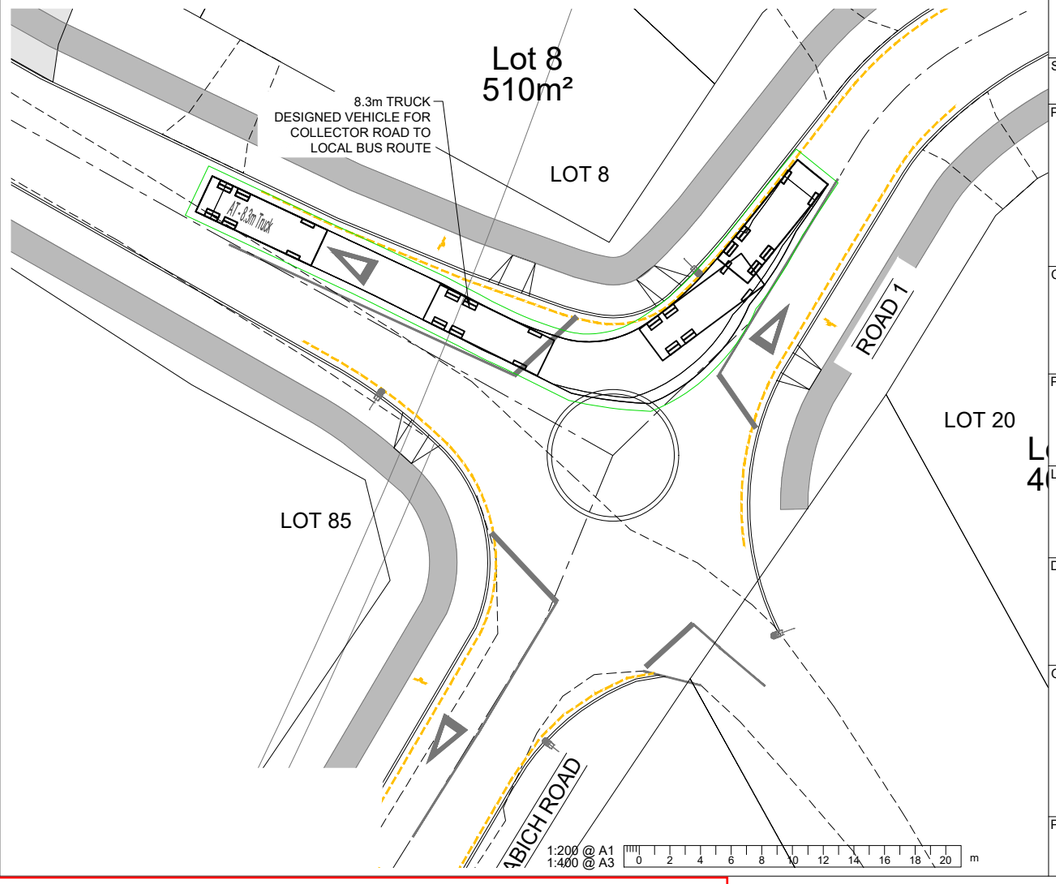
Overall Length	8.300m
Overall Width	2.550m
Overall Body Height	3.471m
Min Body Ground Clearance	0.373m
Track Width	2.550m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	8.782m



AT - Rubbish - 10.3m - Side load - Rear Steer

Overall Length	10.300m
Overall Width	2.550m
Overall Body Height	4.163m
Min Body Ground Clearance	0.443m
Track Width	2.550m
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	47.00°





HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE

FOR RESOURCE CONSENT

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CLIENT

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PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

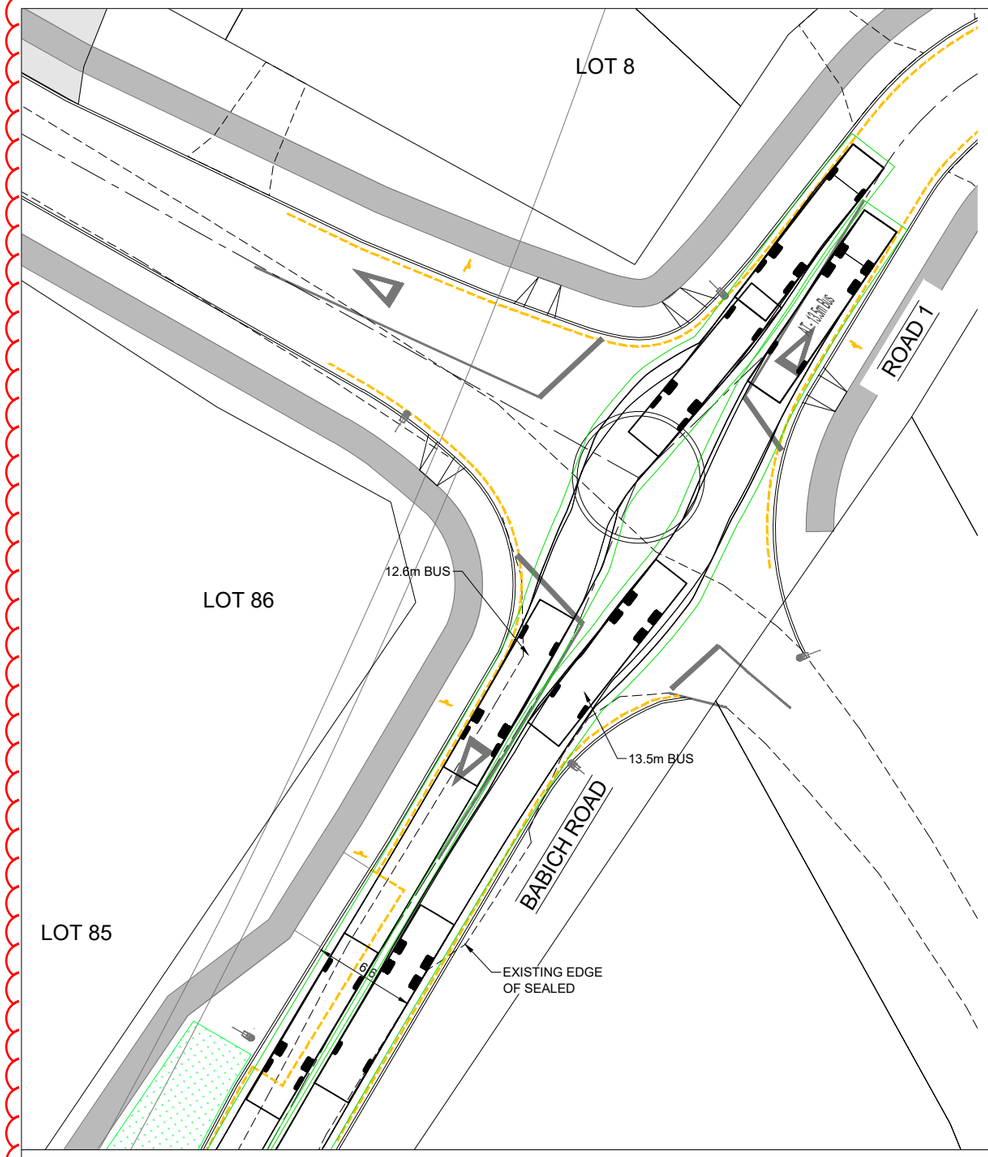
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SHEET 1 OF 8

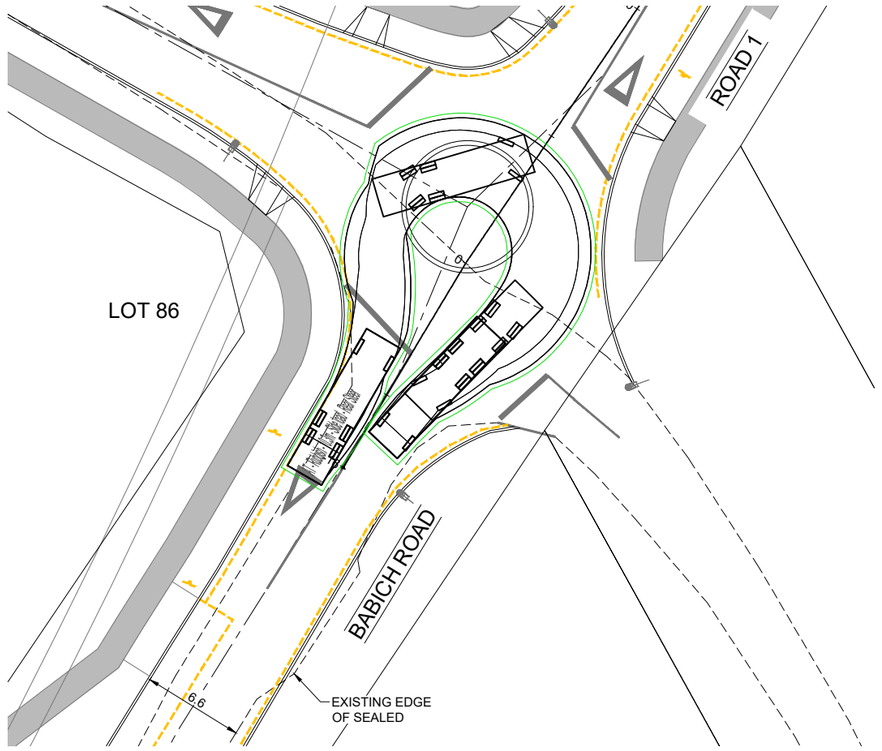
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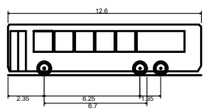
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210506	RC- 350	D

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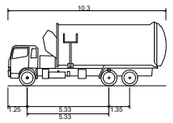


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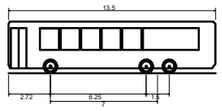
AT - 12.6m Urban Bus

Overall Length	12.600m
Overall Width	2.550m
Overall Body Height	3.311m
Min Body Ground Clearance	0.263m
Track Width	2.550m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	12.500m



AT - Rubbish - 10.3m - Side load - Rear Steer

Overall Length	10.300m
Overall Width	2.550m
Overall Body Height	4.163m
Min Body Ground Clearance	0.443m
Track Width	2.550m
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	47.00°



AT - 13.5m Bus

Overall Length	13.500m
Overall Width	2.550m
Overall Body Height	3.373m
Min Body Ground Clearance	0.328m
Track Width	2.550m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	11.442m

TABLE 2 DESIGN VEHICLES FOR STREET TYPES

Mid-block				
Road Classification	Design Vehicle	Tracking type	Check Vehicle	Tracking type
Local (residential or retail)	6.3m Van	A	10.3m Truck	A, B
Local (Commercial or Light Industrial)	8.3m Truck	A	17.9m Semi	B
Local (Industrial estate with significant freight movement)	12.6m Rigid	A	23m Truck & Trailer	B
Local (Bus route)	12.6m Bus	A	13.5 m Bus	B
Collector (Residential – no bus route)	8.3m Truck	A	10.3m Truck	B
Collector (Commercial)	12.6m Rigid	A	19.45m Semi	B
Collector (Bus route)	12.6 m Bus	A	13.5m Bus	B
Arterial (first general lane)	19.45m Semi	A	23m Truck & Trailer	B
Arterial (additional lanes)	8.3m Truck	A	23m Truck & Trailer	B
Arterial (Bus or Transit lane)	12.6 m Bus	A	13.5 m Bus	B

FOR LOCAL ROADS

FOR BABICH ROAD NORTH OF THE ROUNDABOUT

FOR BABICH ROAD WEST OF THE ROUNDABOUT

REVISION

ISSUE	DATE	DETAIL	CHKD	DRWN
A	12/07/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92	NM	NM
C	30/10/24	FOR S92	NM	NM
D	04/12/24	FOR S92	NM	NM

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE
FOR RESOURCE CONSENT

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PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

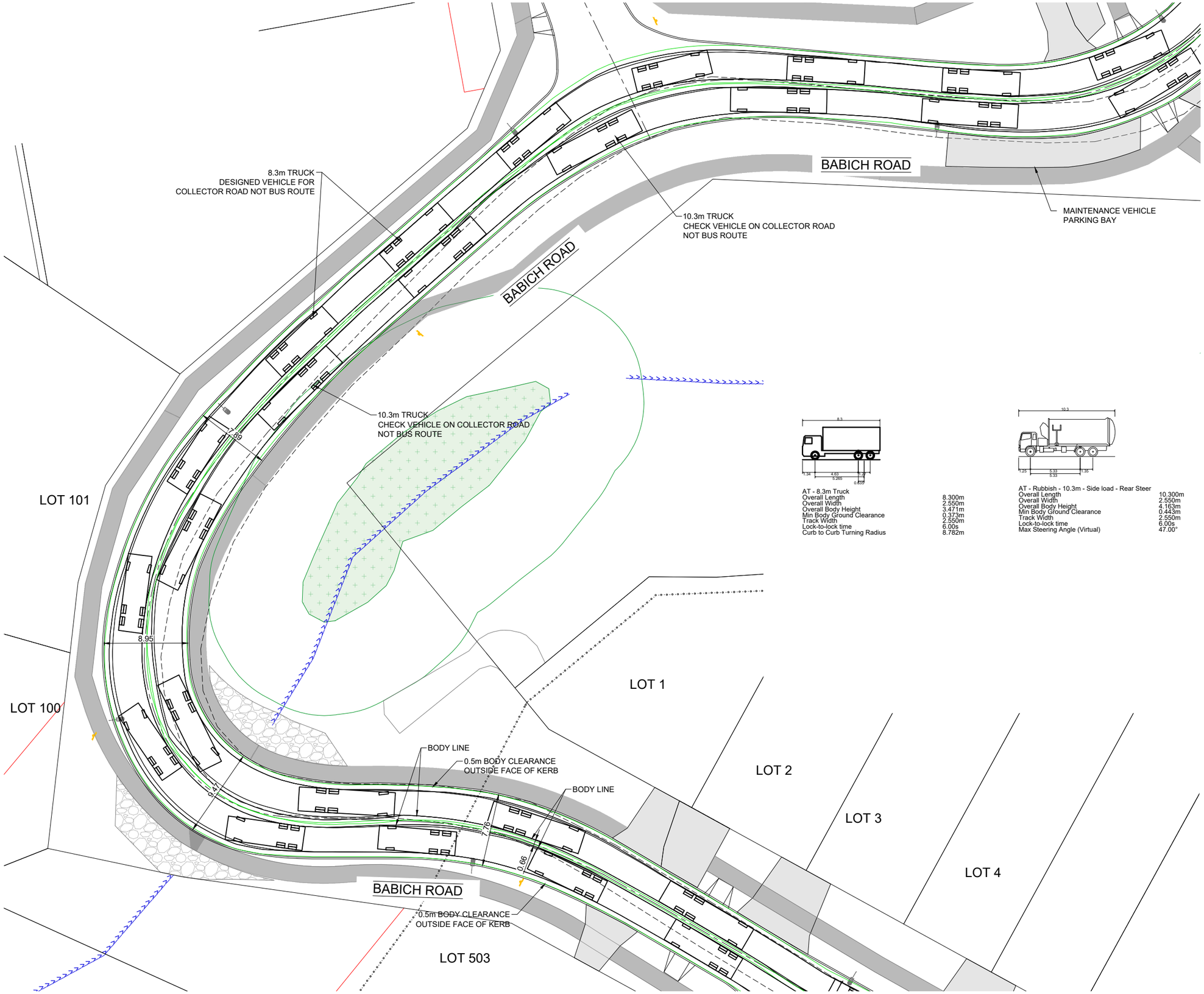
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SHEET 2 OF 8

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PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 351	D

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AT - 8.3m Truck

Overall Length	8.300m
Overall Width	2.550m
Overall Body Height	3.471m
Min Body Ground Clearance	0.373m
Track Width	2.550m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	8.782m

AT - Rubbish - 10.3m - Side load - Rear Steer

Overall Length	10.300m
Overall Width	2.550m
Overall Body Height	4.163m
Min Body Ground Clearance	0.443m
Track Width	2.550m
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	47.00°

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REVISION

ISSUE	DATE	DETAIL	CHKD	DRWN
A	12/07/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92	NM	NM
C	30/10/24	FOR S92	NM	NM
D	04/12/24	FOR S92	NM	NM

BABICH ROAD NORTH OF THE ROUNDABOUT IS NOT A BUS ROUTE. DESIGN VEHICLE IS 8.30m TRUCK AND CHECK VEHICLE IS 10.3m TRUCK

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

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PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

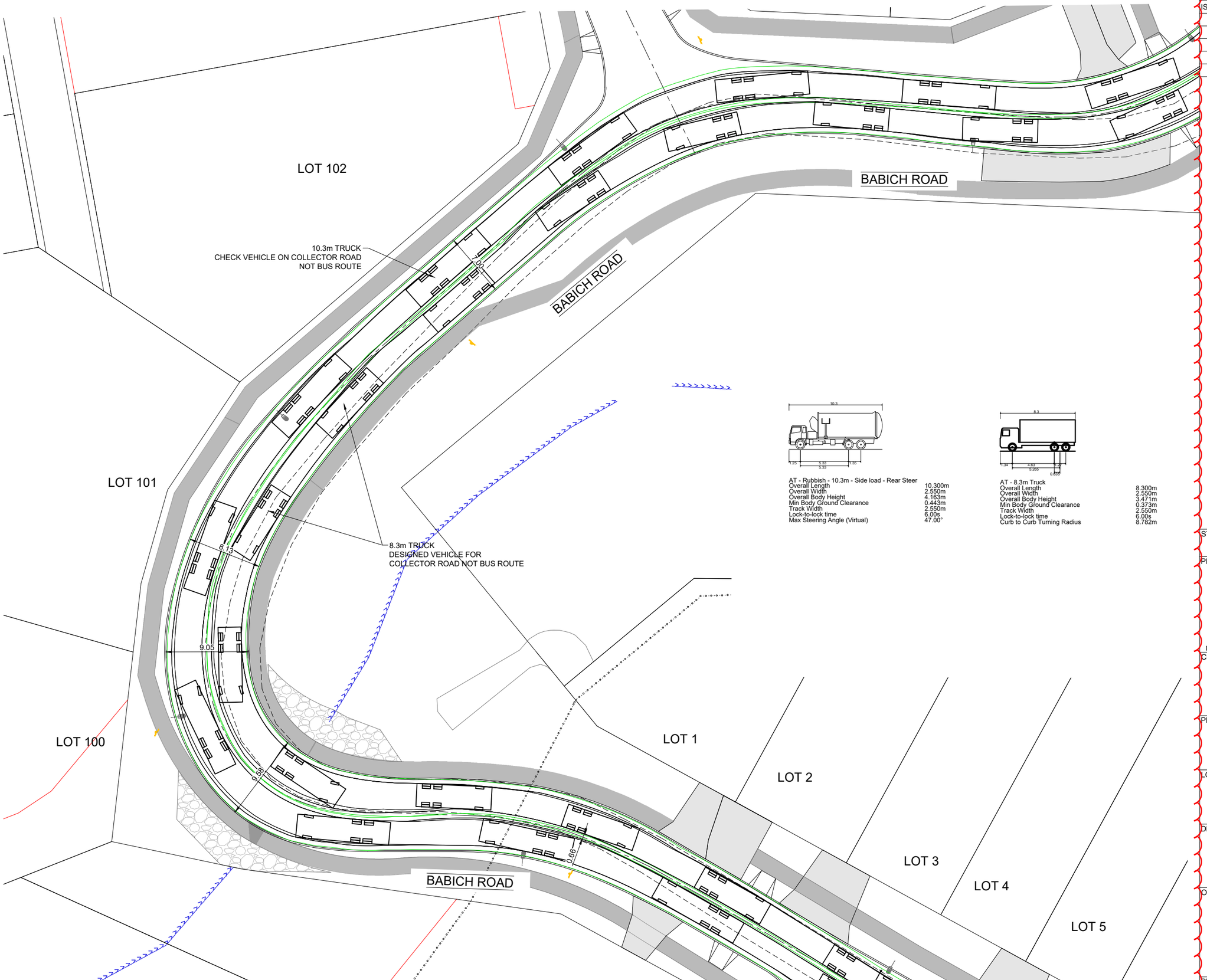
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SHEET 3 OF 8

ORIENTATION

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PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 352	D

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AT - Rubbish - 10.3m - Side load - Rear Steer

Overall Length	10.300m
Overall Width	2.550m
Overall Body Height	4.163m
Min Body Ground Clearance	0.443m
Track Width	2.550m
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	47.00°

AT - 8.3m Truck

Overall Length	8.300m
Overall Width	2.550m
Overall Body Height	3.471m
Min Body Ground Clearance	0.373m
Track Width	2.550m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	8.782m

1:200 @ A1
1:400 @ A3

0 2 4 6 8 10 12 14 16 20 m

REVISION

ISSUE	DATE	DETAIL	CHKD	DRWN
A	12/07/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92	NM	NM
C	30/10/24	FOR S92	NM	NM
D	04/12/24	FOR S92	NM	NM

BABICH ROAD NORTH OF THE ROUNDABOUT IS NOT A BUS ROUTE. DESIGN VEHICLE IS 8.30m TRUCK AND CHECK VEHICLE IS 10.3m TRUCK

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

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PROJECT
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LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

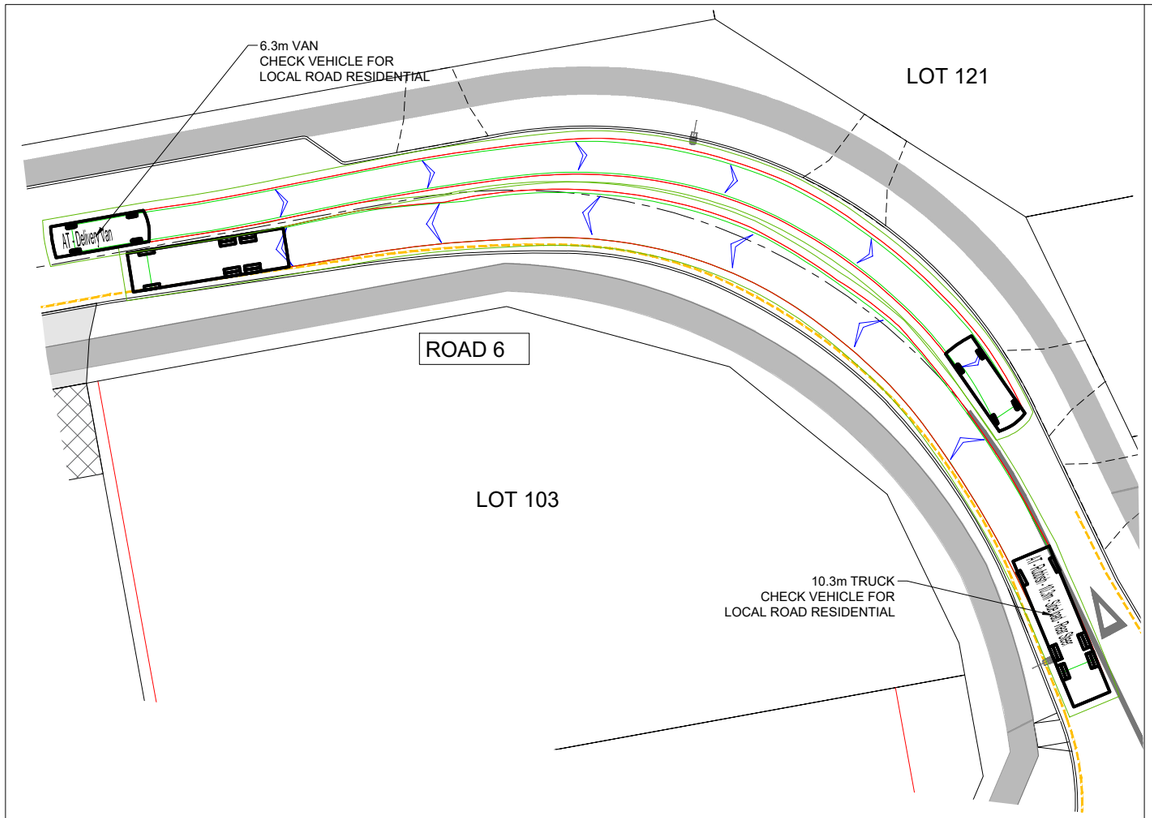
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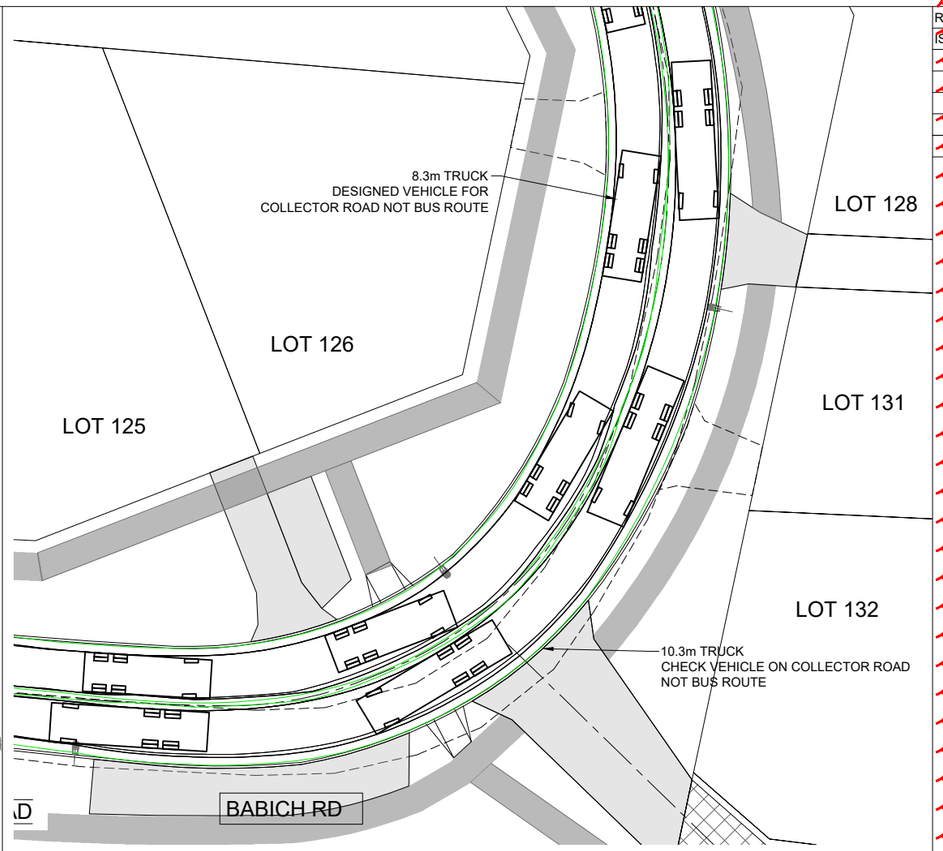
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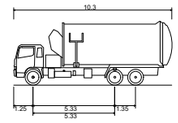
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210506	RC- 353	D

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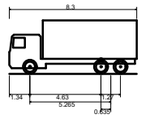


REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	12/07/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92	NM	NM
C	30/10/24	FOR S92	NM	NM
D	04/12/24	FOR S92	NM	NM



AT - Rubbish - 10.3m - Side load - Rear Steer

Overall Length	10.300m
Overall Width	2.550m
Overall Body Height	4.163m
Min Body Ground Clearance	0.443m
Track Width	2.550m
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	47.00°

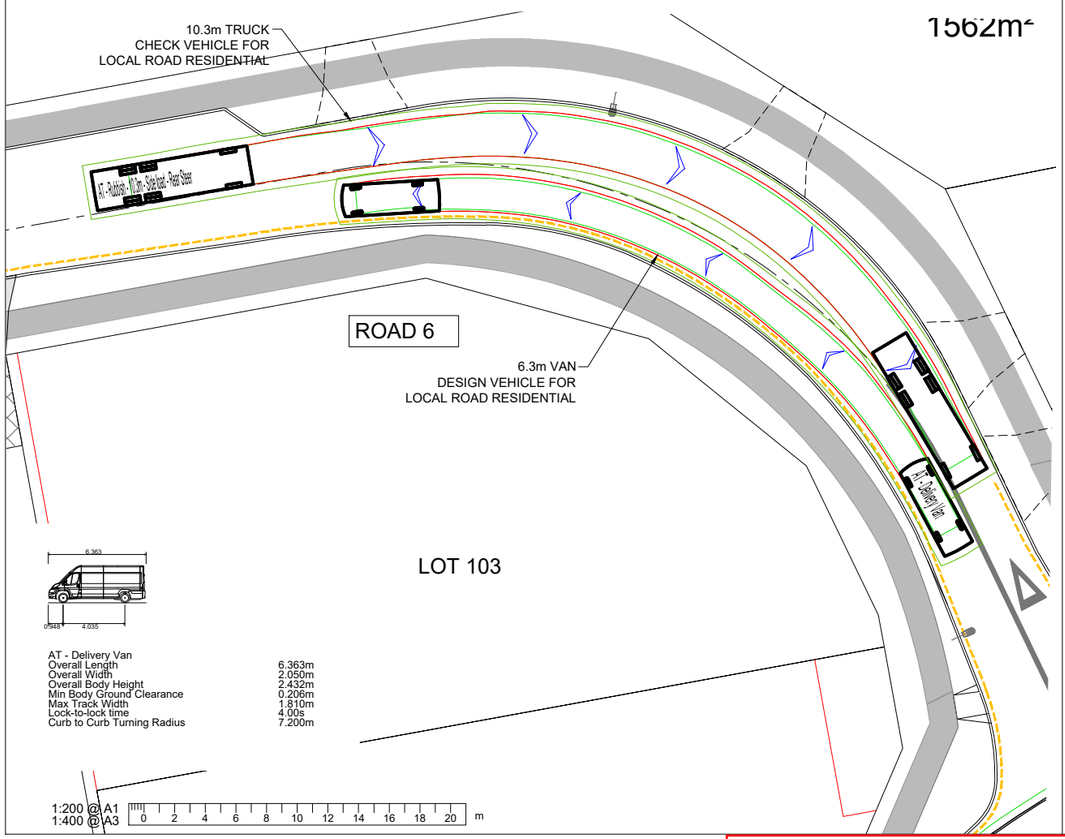


AT - 8.3m Truck

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Overall Body Height	3.471m
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Track Width	2.550m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	8.782m

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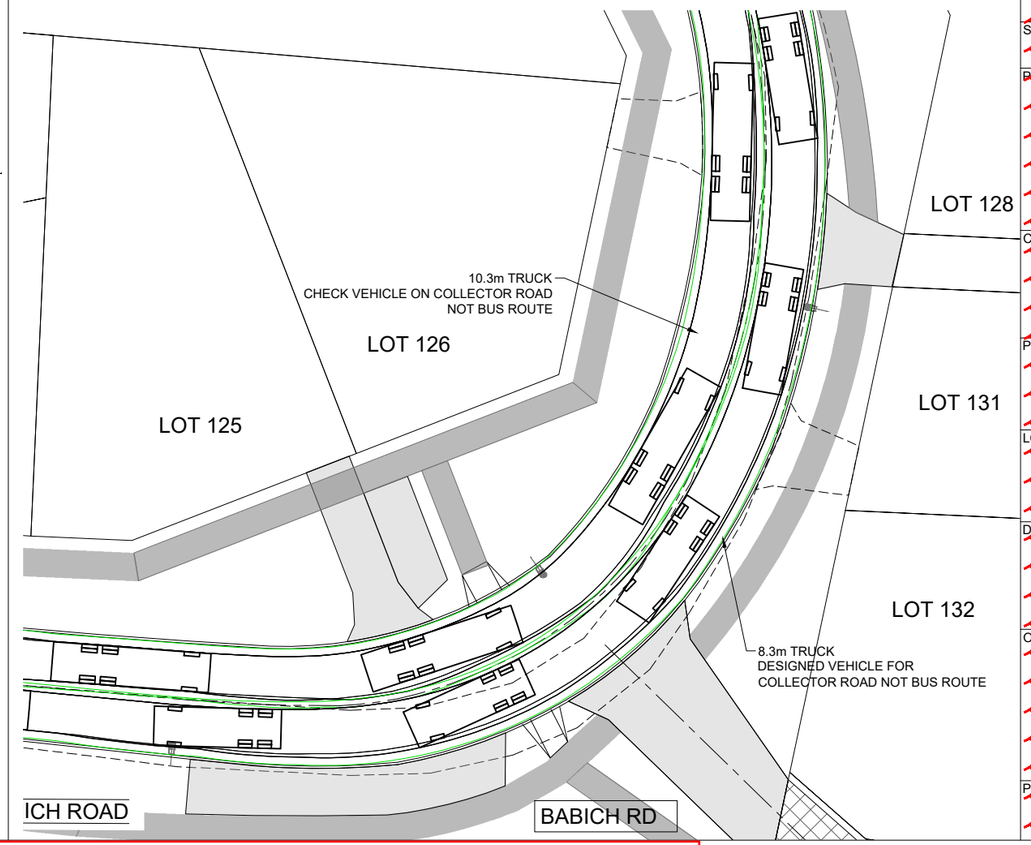
HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10



AT - Delivery Van

Overall Length	6.363m
Overall Width	2.050m
Overall Body Height	2.432m
Min Body Ground Clearance	0.206m
Max Track Width	1.810m
Lock-to-lock time	4.00s
Curb to Curb Turning Radius	7.200m

1:200 @ A1
1:400 @ A3



STAGE
FOR RESOURCE CONSENT

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

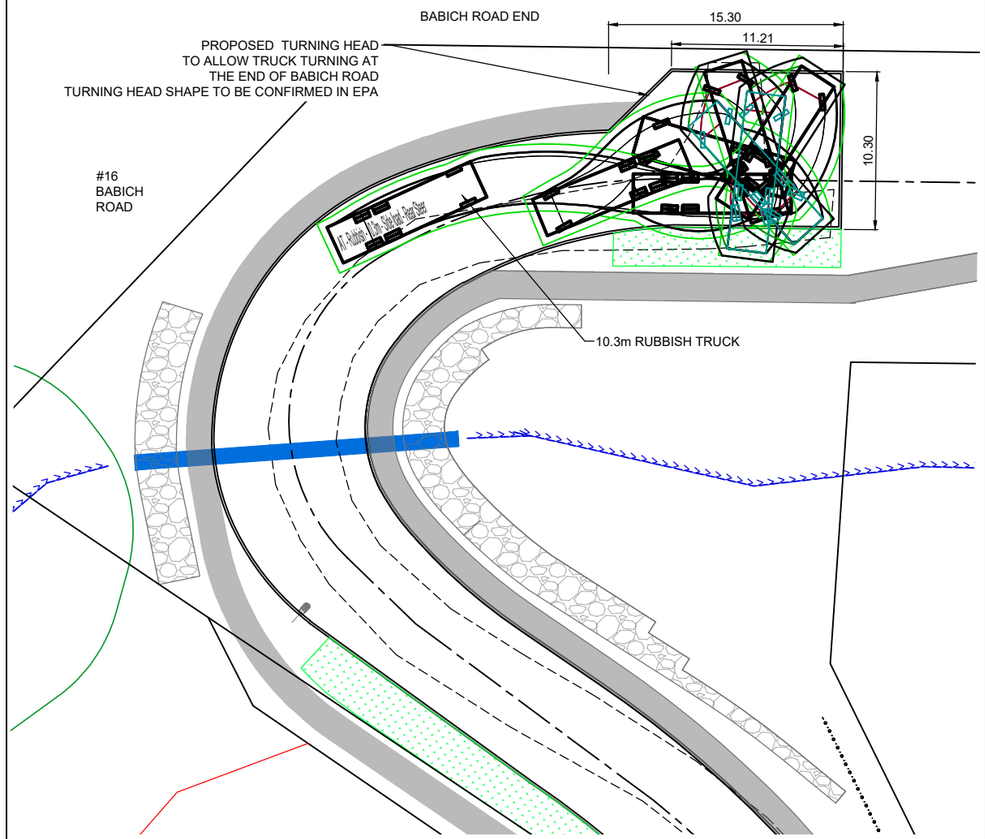
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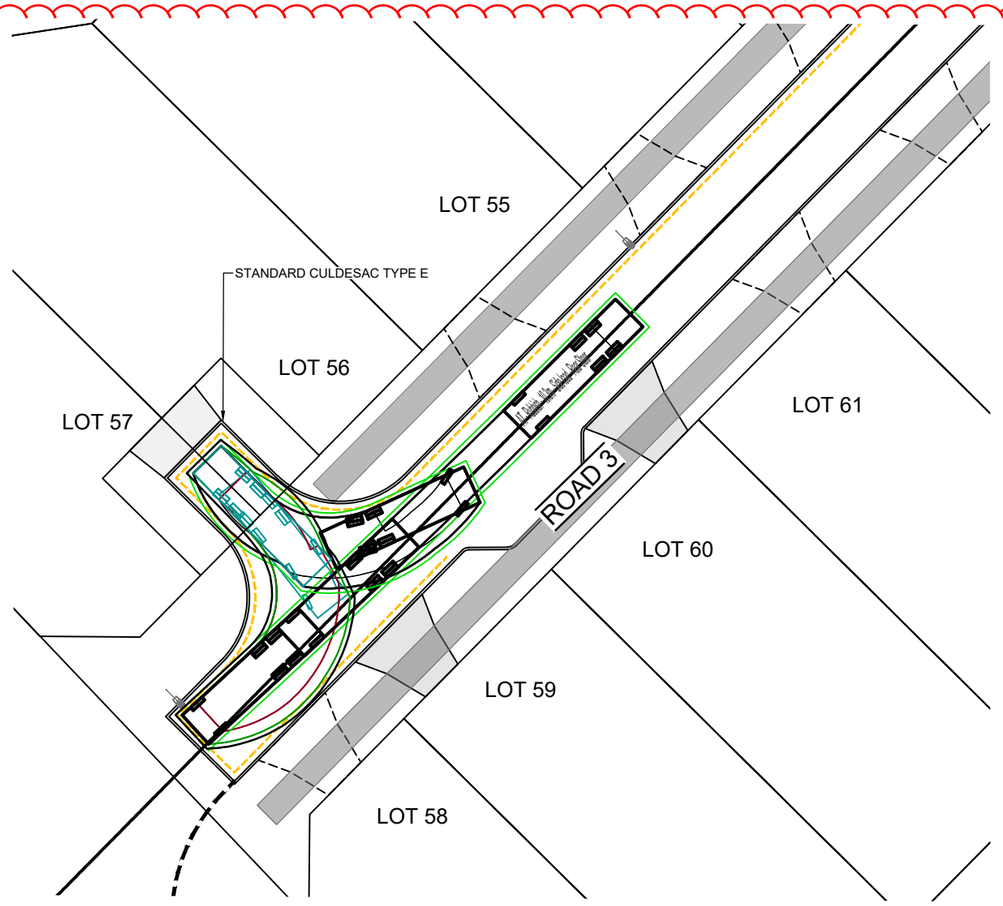
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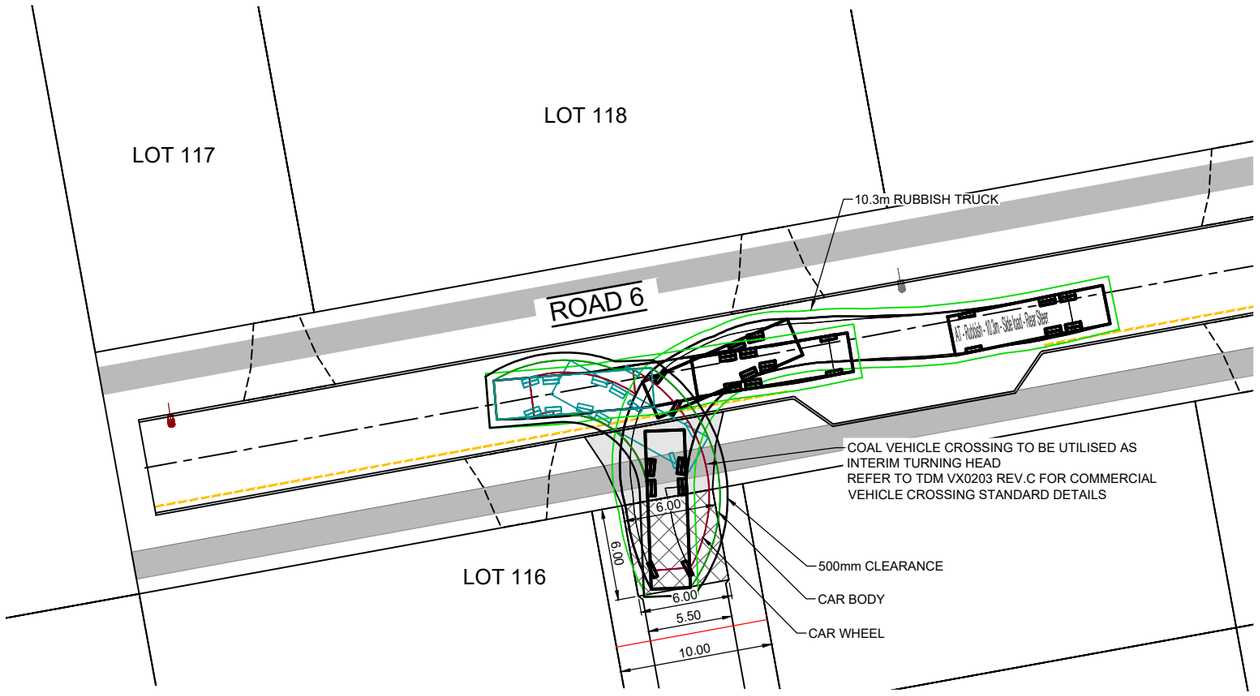
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DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 354	D

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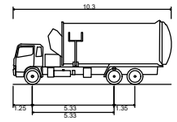




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1:400 @ A3
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REVISION

ISSUE	DATE	DETAIL	CHKD	DRWN
A	12/07/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92	NM	NM
C	30/10/24	FOR S92	NM	NM
D	04/12/24	FOR S92	NM	NM



AT - Rubbish - 10.3m - Side load - Rear Steer

Overall Length	10.300m
Overall Width	2.550m
Overall Body Height	4.163m
Min Body Ground Clearance	0.443m
Track Width	2.550m
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	47.00°

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE
FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

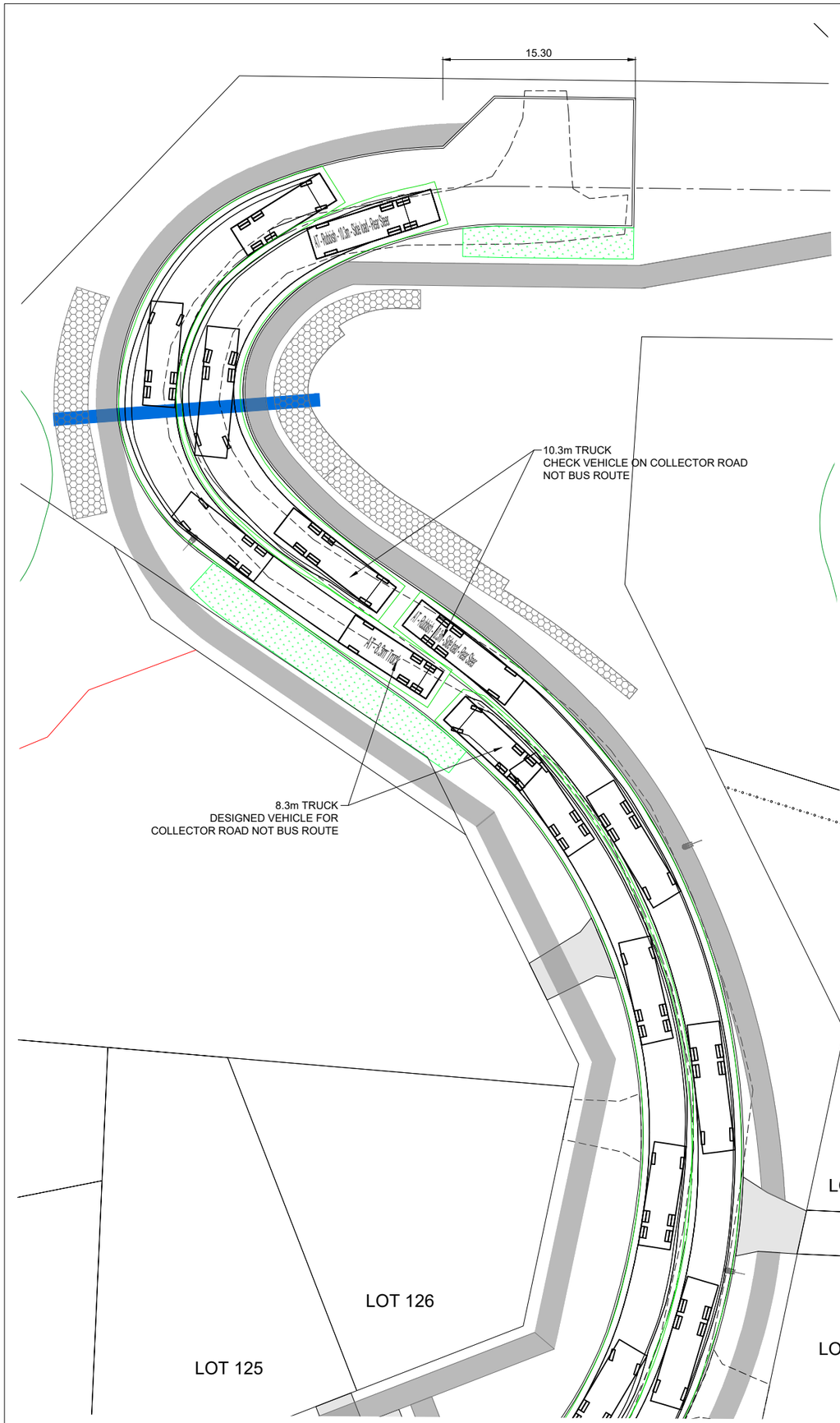
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TRACKING CURVE PLAN
SHEET 6 OF 8

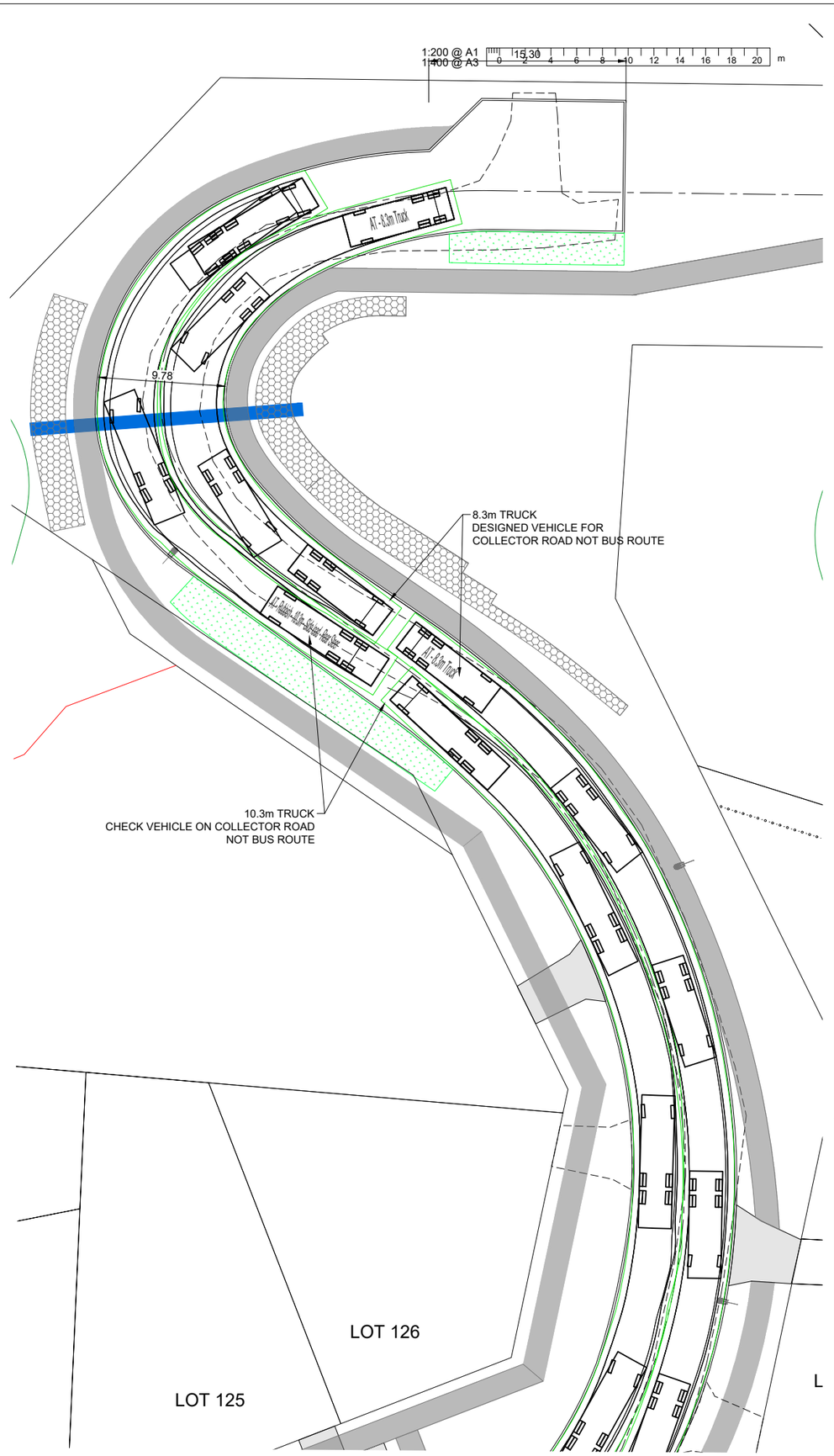
ORIENTATION

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DATE		12/07/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 355	D

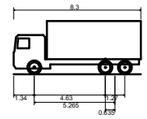
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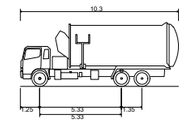
REVISION

ISSUE	DATE	DETAIL	CHKD	DRWN
A	12/07/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92	NM	NM
C	30/10/24	FOR S92	NM	NM
D	04/12/24	FOR S92	NM	NM



AT - 8.3m Truck

Overall Length	8.300m
Overall Width	2.550m
Overall Body Height	3.471m
Min Body Ground Clearance	0.373m
Track Width	2.550m
Lock-to-lock time	6.00s
Curb to Curb Turning Radius	8.782m



AT - Rubbish - 10.3m - Side load - Rear Steer

Overall Length	10.300m
Overall Width	2.550m
Overall Body Height	4.163m
Min Body Ground Clearance	0.443m
Track Width	2.550m
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	47.00°

BABICH ROAD NORTH OF THE ROUNDABOUT IS NOT A BUS ROUTE. DESIGN VEHICLE IS 8.30m TRUCK AND CHECK VEHICLE IS 10.3m TRUCK

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE

FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT

CARRACK CAPITAL LIMITED

PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

TRACKING CURVE PLAN
SHEET 7 OF 8

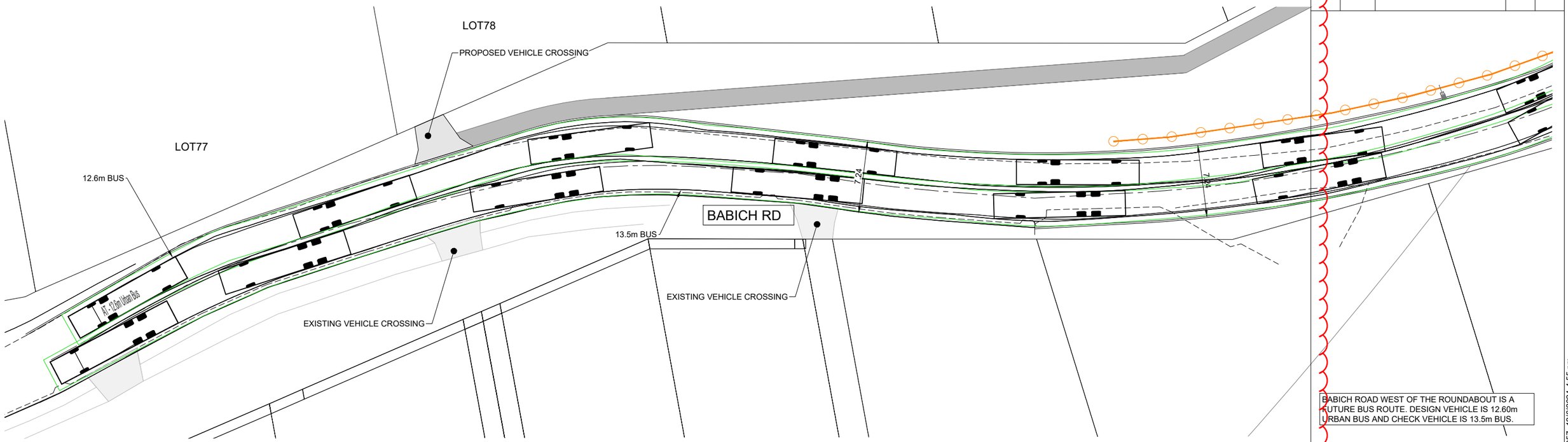
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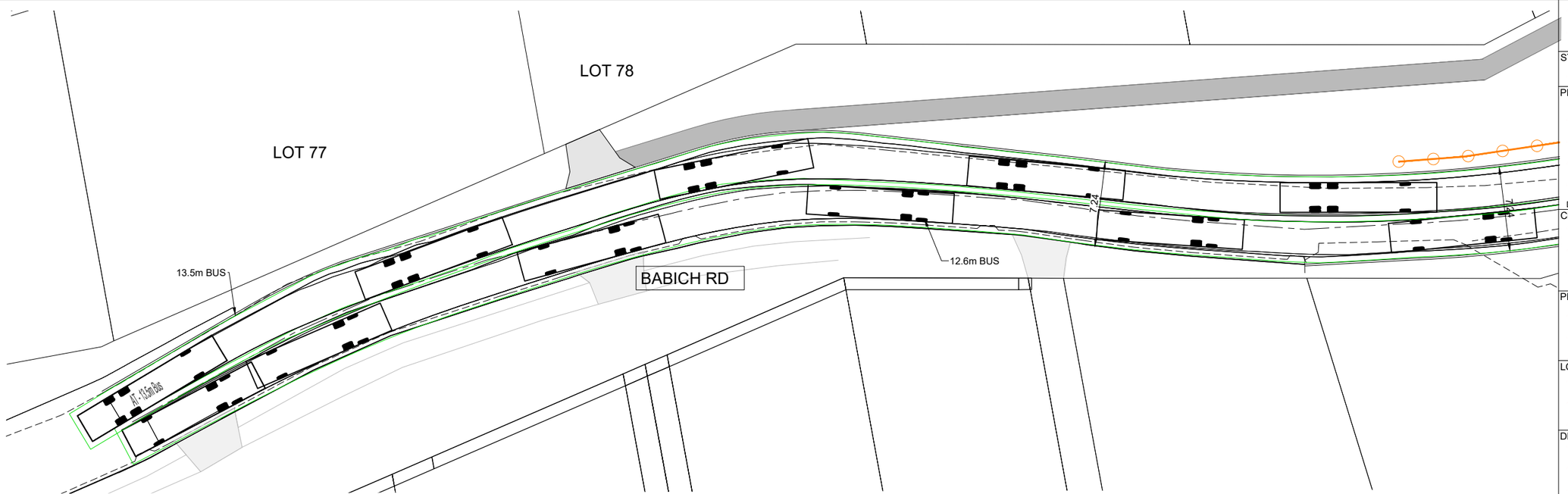
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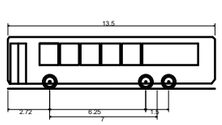
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SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 356	D

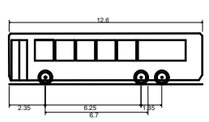
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AT - 13.5m Bus	
Overall Length	13.500m
Overall Width	2.550m
Overall Body Height	3.373m
Min Body Ground Clearance	0.328m
Track Width	2.550m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	11.442m



AT - 12.6m Urban Bus	
Overall Length	12.600m
Overall Width	2.550m
Overall Body Height	3.311m
Min Body Ground Clearance	0.263m
Track Width	2.550m
Lock-to-lock time	6.00s
Wall to Wall Turning Radius	12.500m

1:200 @ A1
1:400 @ A3
0 2 4 6 8 10 12 14 16 18 20 m

REVISION

ISSUE	DATE	DETAIL	CHKD	DRWN
A	12/07/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92	NM	NM
C	30/10/24	FOR S92	NM	NM
D	04/12/24	FOR S92	NM	NM

BABICH ROAD WEST OF THE ROUNDABOUT IS A FUTURE BUS ROUTE. DESIGN VEHICLE IS 12.60m URBAN BUS AND CHECK VEHICLE IS 13.5m BUS.

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE
FOR RESOURCE CONSENT

PROJECT CONSULTANTS
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CLIENT
CARRACK CAPITAL LIMITED

PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
TRACKING CURVE PLAN
SHEET 8 OF 8

ORIENTATION

SCALE	A1	1:200
	A3	1:400
DATE		12/07/2024
SURVEYED		TERRA
DESIGNED		NM
DRAWN		NM
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 357	D

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NOTES:

1. A CONSENT NOTICE IS REQUIRED FOR PRIVATE A WASTEWATER PUMP STATION ON LOTS 128 TO 137.
2. A CONSENT NOTICE IS REQUIRED FOR PRIVATE A WASTEWATER PUMP STATION AND/OR MINIMUM FLOOR LEVELS FOR LOTS 100, 117 & 122. THE MINIMUM FLOOR LEVELS WILL NEED TO COMPLY WITH REDUCED LEVELS IDENTIFIED IN THE TABLE 1.0.
3. A CONSENT NOTICE IS REQUIRED FOR A PRIVATE STORMWATER LEVEL SPREADER FOR LOTS 118 TO 121, 94 & 96.

TABLE 1.0

WASTEWATER MINIMUM FLOOR LEVEL			
LOT NUMBER	PUBLIC SOFFIT LEVEL	FREEBOARD REQUIREMENT	RECOMMENDED MINUMUM FLOOR LEVEL (MFL)
(No.)	(R.L.)	(m)	(R.L.)
100	56.76	1.20	57.96
117	60.05	1.20	61.25
122	41.38	1.20	42.58

SHEET 401

SHEET 402

SHEET 403

SHEET 404

ROAD 5

ROAD 1

ROAD 2

ROAD 3

ROAD 4

BABICH ROAD

EXISTING PUBLIC 300mmØ WASTEWATER PIPIE

BROOKWOOD DRIVE

CHELMSLEY AVENUE

27 CHELMSLEY A

26 CHELMSLEY AVENUE

24 CHELMSLEY AVE

21 BABICH ROAD

2 BABICH ROAD

PAREMUKA ESPLANADE

1:1000 @ A1
1:2000 @ A3

0 10 20 30 40 50 60 70 80 90 100 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RESPONSE	GT	GCAI	DESIGNED	GCAI	02/04/24
C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	GT	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

CONSULTANT

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
DRAINAGE OVERALL LAYOUT PLAN

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:1000
A3 1:2000

DWG NUMBER
RC- 400

REVISION
E

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC400-DRAINAGE PLAN.dwg, 400, 12/10/2024 11:44 am

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI
B	12/07/24	FOR S92 RESPONSE	GT	GCAI
C	23/08/24	FOR S92 RESPONSE	GT	GCAI
D	30/10/24	FOR S92 RESPONSE	GT	GT
E	04/12/24	FOR S92 RESPONSE	GT	SS

LEGEND - PROPOSED DRAINAGE:

- SW MANHOLE, CESSPIT
- SW PIPE (PUBLIC)
- SW PIPE (PRIVATE)
- RAIN GARDEN
- LOTS WITH LEVEL SPREADER (INDICATIVE ONLY TO BE INSTALLED BY FUTURE LOT OWNERS)
- WW MANHOLE
- WW PIPE (PUBLIC)
- WW PIPE (PRIVATE)
- LOTS WITH PRIVATE WW PUMP STATION (INDICATIVE ONLY TO BE INSTALLED BY FUTURE LOT OWNERS)

STAGE

FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT

CARRACK CAPITAL LIMITED

PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

DRAINAGE LAYOUT PLAN
SHEET 1 OF 4

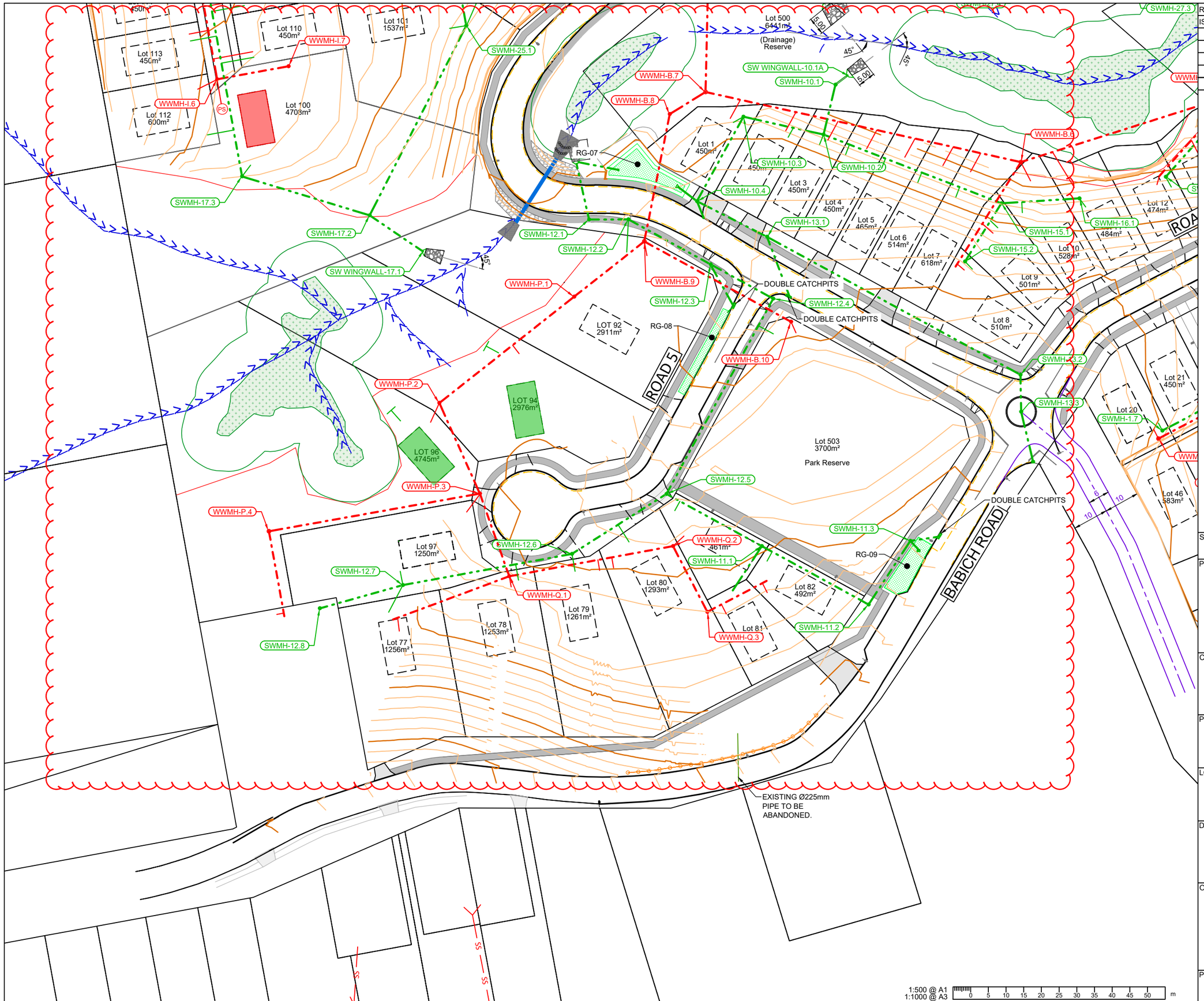
ORIENTATION

SCALE	A1	1:500
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DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		GCAI
DRAWN		GCAI
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 401	E

1:500 @ A1
1:1000 @ A3

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC400-DRAINAGE PLAN.dwg, 401, 12/10/2024 11:45 am



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
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B	12/07/24	FOR S92 RESPONSE	GT	GCAI
C	23/08/24	FOR S92 RESPONSE	GT	GCAI
D	30/10/24	FOR S92 RESPONSE	GT	GT
E	04/12/24	FOR S92 RESPONSE	GT	SS

LEGEND - PROPOSED DRAINAGE:

- SW MANHOLE, CESSPIT
- SW PIPE (PUBLIC)
- SW PIPE (PRIVATE)
- RAIN GARDEN
- LOTS WITH LEVEL SPREADER (INDICATIVE ONLY TO BE INSTALLED BY FUTURE LOT OWNERS)
- WW MANHOLE
- WW PIPE (PUBLIC)
- WW PIPE (PRIVATE)
- LOTS WITH PRIVATE WW PUMP STATION (INDICATIVE ONLY TO BE INSTALLED BY FUTURE LOT OWNERS)

STAGE
FOR RESOURCE CONSENT

PROJECT CONSULTANTS
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CLIENT
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PROJECT
BABICH RISE

LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

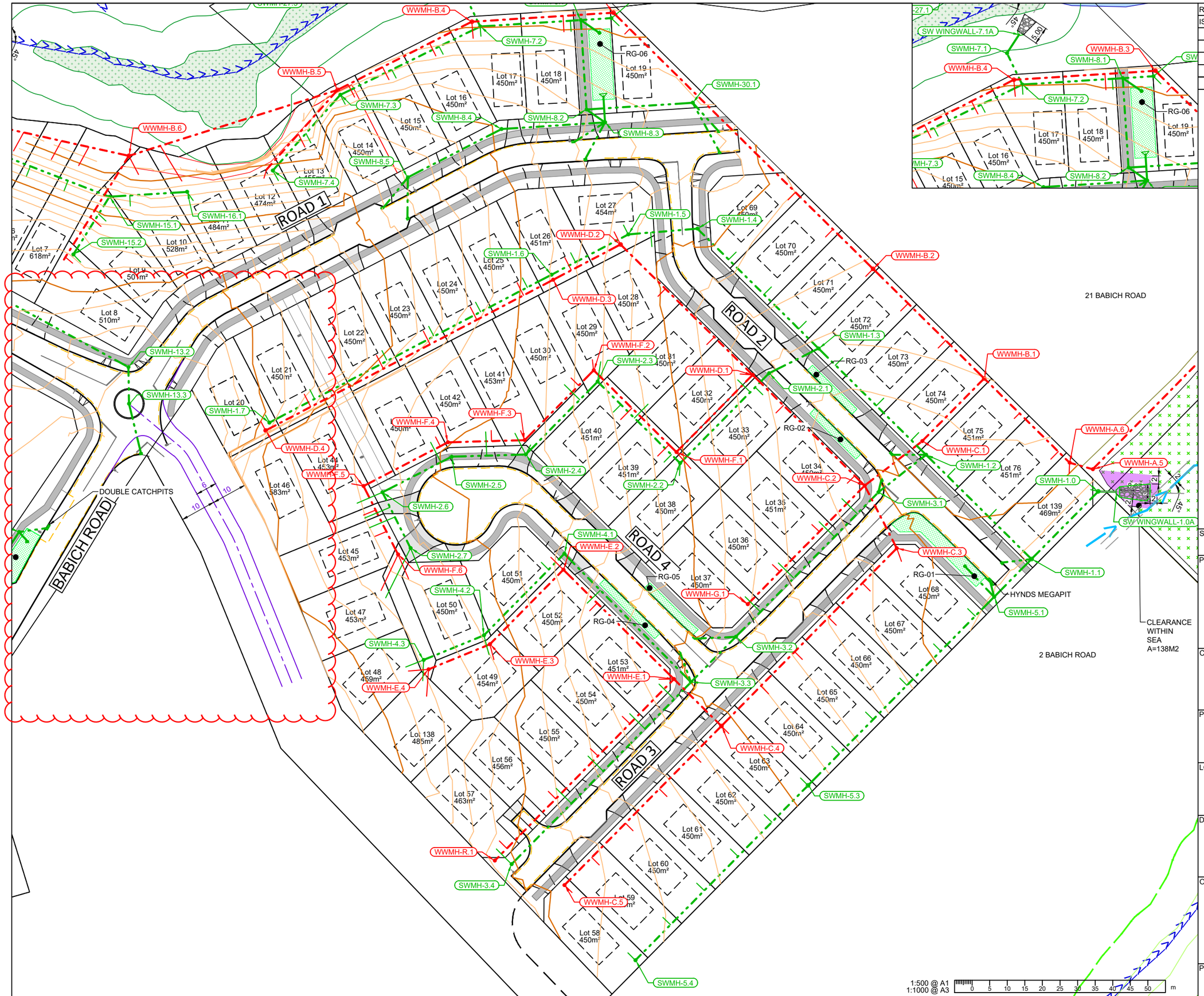
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DRAINAGE LAYOUT PLAN
SHEET 2 OF 4

ORIENTATION

SCALE	A1	1:500
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DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		GCAI
DRAWN		GCAI
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 402	E

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REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI
B	12/07/24	FOR S92 RESPONSE	GT	GCAI
C	23/08/24	FOR S92 RESPONSE	GT	GCAI
D	30/10/24	FOR S92 RESPONSE	GT	GT
E	04/12/24	FOR S92 RESPONSE	GT	SS

LEGEND - PROPOSED DRAINAGE:

- SW MANHOLE, CESSPIT
- SW PIPE (PUBLIC)
- SW PIPE (PRIVATE)
- RAIN GARDEN
- LOTS WITH LEVEL SPREADER (INDICATIVE ONLY TO BE INSTALLED BY FUTURE LOT OWNERS)
- WW MANHOLE
- WW PIPE (PUBLIC)
- WW PIPE (PRIVATE)
- PS — LOTS WITH PRIVATE WW PUMP STATION (INDICATIVE ONLY TO BE INSTALLED BY FUTURE LOT OWNERS)

STAGE

FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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CLIENT

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PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

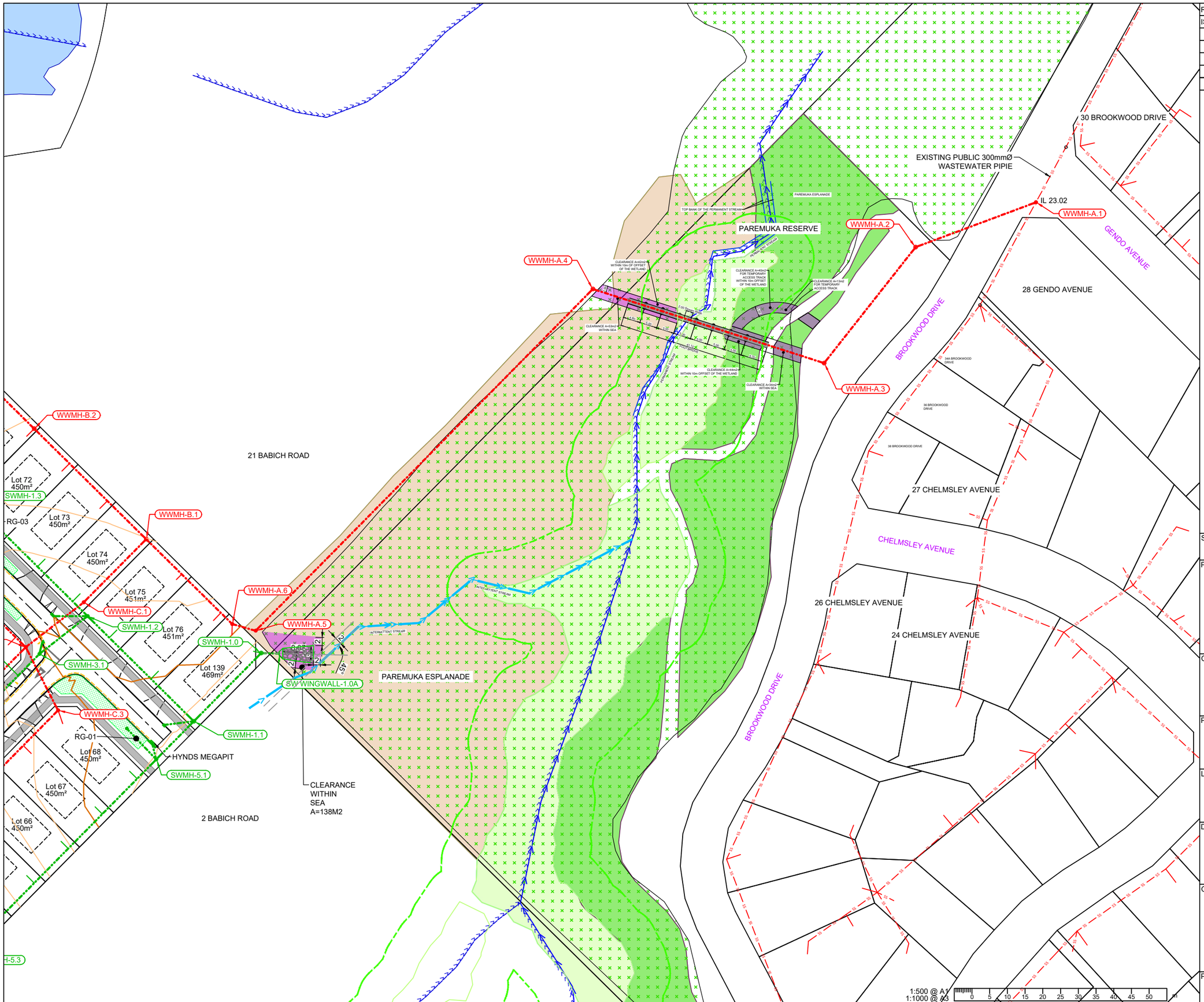
DRAINAGE LAYOUT PLAN
SHEET 3 OF 4

ORIENTATION

SCALE	A1	1:500
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DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		GCAI
DRAWN		GCAI
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 403	E

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REVISION

ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI
B	12/07/24	FOR S92 RESPONSE	GT	GCAI
C	23/08/24	FOR S92 RESPONSE	GT	GCAI
D	30/10/24	FOR S92 RESPONSE	GT	GT
E	04/12/24	FOR S92 RESPONSE	GT	SS

LEGEND - PROPOSED DRAINAGE:

- SW MANHOLE, CESSPIT
- SW PIPE (PUBLIC)
- SW PIPE (PRIVATE)
- RAIN GARDEN
- LOTS WITH LEVEL SPREADER (INDICATIVE ONLY TO BE INSTALLED BY FUTURE LOT OWNERS)
- WW MANHOLE
- WW PIPE (PUBLIC)
- WW PIPE (PRIVATE)
- PS — LOTS WITH PRIVATE WW PUMP STATION (INDICATIVE ONLY TO BE INSTALLED BY FUTURE LOT OWNERS)

STAGE

FOR RESOURCE CONSENT

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PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

DRAINAGE LAYOUT PLAN
SHEET 4 OF 4

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		GCAI
DRAWN		GCAI
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 404	E

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PROPOSED EARTHWORKS AND CLEARANCE WITHIN SEA			
ITEM	TASK	AREA (m2)	VOLUME(m3)
1	SWMH-1.0 TO THE OUTLET 1.0A AND RIPRAP - CLEARANCE AND PIPE CONSTRUCTION	138	68
2	WWMH-A.4 TO WWMH-A.3 - CLEARANCE AND PIPE CONSTRUCTION	173	52
3	HAUL ROAD - CONSTRUCTION	53	20
4	BRIDGE PILES - CONSTRUCTION (14 x PILES TOTAL)	5	25
TOTAL		369	165

PROPOSED EARTHWORKS AND CLEARANCE WITHIN 10m OFFSET OF THE WETLAND			
ITEM	TASK	AREA (m2)	VOLUME(m3)
1	WWMH-A.4 TO WWMH-A.3 - CLEARANCE AND PIPE CONSTRUCTION	126	-
2	BRIDGE PILES-CONSTRUCTION (14 X PILES)	5	25
TOTAL		131	25

PAREMUKA ESPLANADE

TOP BANK OF THE PERMANENT STREAM

10m SETBACK

PAREMUKA RESERVE

PERMANENT STREAM

WWMH-A.4

CLEARANCE A=42m2 WITHIN 10m OF OFFSET OF THE WETLAND

CLEARANCE A=40m2 FOR TEMPORARY ACCESS TRACK WITHIN 10m OFFSET OF THE WETLAND

CLEARANCE A=13m2 FOR TEMPORARY ACCESS TRACK

2.00

2.00 Stream Width

3.00

3.00

4.80

5.00

5.00

5.00

5.00

5.00

5.00

41.10 FOOTBRIDGE

6.30

CLEARANCE A=53m2 WITHIN SEA

CLEARANCE A=44m2 WITHIN 10m OFFSET OF THE WETLAND

CLEARANCE A=34m2 WITHIN SEA

PERMANENT STREAM

WWMH-A.3

LOT 75

LOT 76

LOT 139

ROAD 2

WWMH-C.1

WWMH-A.6

WWMH-A.5

SWMH-1.2

SWMH-1.0

SWMH-1.1

SW WINGWALL-1.0A

INTERMITTENT STREAM

INTERMITTENT STREAM

2

2

45°

3.67

5

2

2

CLEARANCE WITHIN SEA A=138M2

PAREMUKA ESPLANADE

1:200 @ A1
1:400 @ A3

0 2 4 6 8 10 12 14 16 18 20 m

REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	12/07/24	FOR S92 RFIs	GT	GZ
B	23/08/24	FOR S92 RESPONSE	GT	GCAI
C	30/10/24	FOR S92 RESPONSE	GT	GZ
D	04/12/24	FOR S92 RESPONSE	GT	SS

LEGEND - PROPOSED DRAINAGE:

- NATURAL INLAND WETLAND AREA
- REVEGETATION PLANTINGS
- EXOTIC PINES
- SEA-TERRESTRIAL [rp/dp]
- CLEARANCE AREA
- 10m WETLAND SETBACK
- PERMANENT STREAM
- INTERMITTENT STREAM
- PROPOSED PILES FOR BRIDGING
- PEDESTRIAN FOOTBRIDGE

STAGE

FOR RESOURCE CONSENT

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CLIENT

CARRACK CAPITAL LIMITED

PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

VEGETATION CLEARANCE AND EARTHWORKS WITHIN SIGNIFICANT ECOLOGICAL AREAS PLAN

ORIENTATION		
	SCALE	A1 1:200
		A3 1:400
	DATE	05/07/2024
	SURVEYED	TERRA
	DESIGNED	GZ
	DRAWN	GZ
	CHECKED	GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 405	D

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC400-DRAINAGE PLAN.dwg, 405, 12/10/2024 11:47 am

STORMWATER DETENTION TANK FOR COMMON ACCESSWAY				
ACCESSWAY	IMPERVIOUS AREA (m^2)	SW DETENTION TANK VOLUME(m^3)	SW DETENTION TANK DIAMATER (m)	SW DETENTION TANK LENGTH (m)
COAL 400	446	16.0	1.2	2 x 7.5
EASTMENT AB (LOT 103)	281	10.0	1.2	9.0
COAL 402	174	6.0	1.2	5.5
COAL 403	71	2.5	1.2	2.5
COAL 404	537	19.0	1.2	2 x 8.5
COAL 405	107	4.0	1.2	4.0
EASEMENT AH (LOT 46)	53	2.0	1.2	2.0

NOTE:
1. PROPOSED DETENTION TANKS ARE BASED ON THE DIMENSION OF 1.2m DIAMETER CIRCULAR UNDERGROUND TANK. MORE DETAILS TO BE FINALISED AT BC STAGE.

ISSUE	DATE	REVISION	CHKD	DRWN
A	04/12/24	FOR S92 RESPONSE	GT	GZ

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	GCAI	02/04/24
DRAWN	GCAI	02/04/24
TRACED		
CHECKED	GT	02/04/24

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: COMMON ACCESSWAY STORMWATER MITIGATION PLAN

STAGE: FOR RESOURCE CONSENT

PROJECT NUMBER: 210506

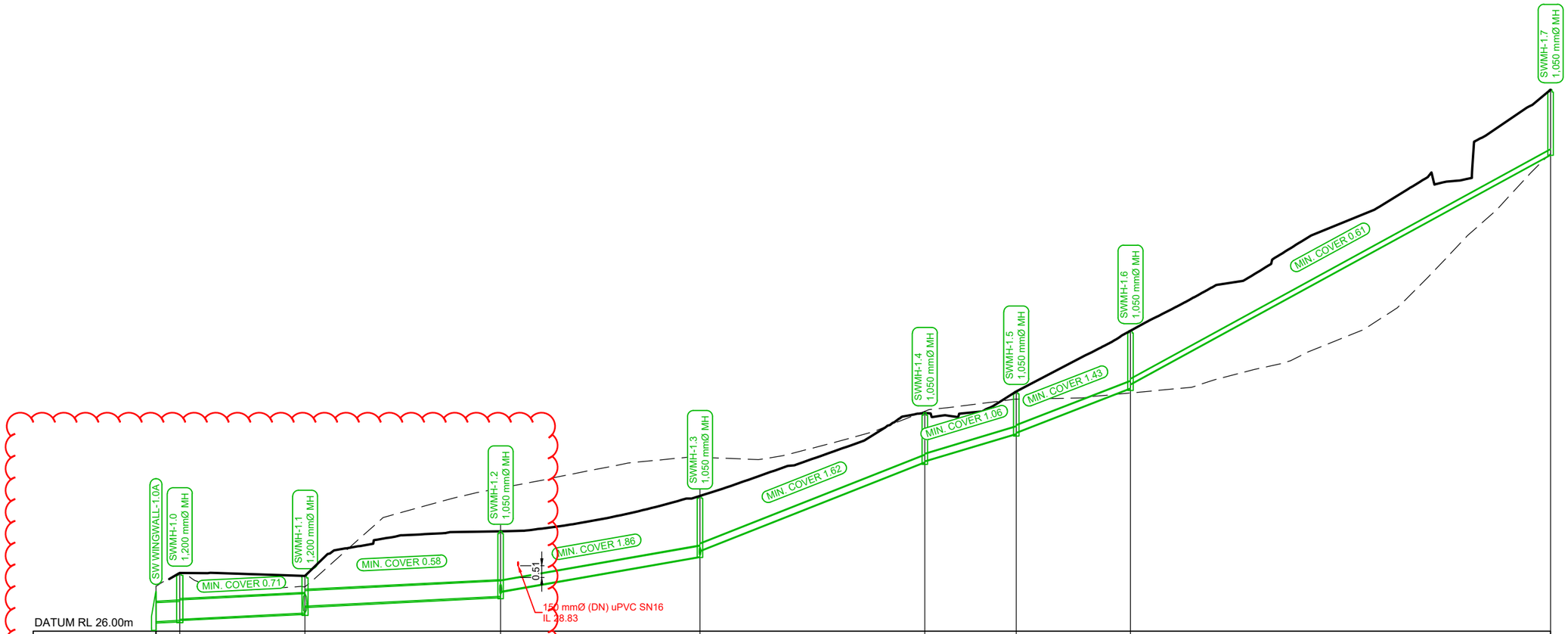
DWG NUMBER: RC- 406

SCALE: A1 1:750, A3 1:1500

REVISION: A

1:750 @ A1
1:1500 @ A3

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC406-RAIN GARDEN FOR COAL PLAN.dwg, 406, 12/10/2024 3:39 pm



LID LEVEL	27.71	28.50	28.39	30.30	31.82	35.40	36.33	38.95	49.33
DEPTH TO STRUCTURE SUMP	1.34	2.14	1.71	2.91	2.65	2.22	1.92	2.58	2.83
INVERT LEVEL AT INSIDE EDGE	26.40	26.46	26.51	26.77 / 27.07	27.50 / 27.71	29.21 / 29.46	33.28 / 33.33	34.51 / 34.56	36.47 / 36.64	46.53
DISTANCE	5.14	27.03	42.19	43.00	48.50	19.72	24.66	90.62		
GRADIENT	1.10%	0.99%	1.00%	3.49%	7.89%	5.99%	7.74%	10.92%		
PIPE SIZE AND MATERIAL		825mmØ (DN) RCRRJ CLASS 4	675mmØ (DN) RCRRJ CLASS 4	450mmØ (DN) RCRRJ CLASS 4	300mmØ (DN) RCRRJ CLASS 4	300mmØ (DN) RCRRJ CLASS 2	300mmØ (DN) RCRRJ CLASS 4	225mmØ (DN) RCRRJ CLASS 2		
FLOW DETAIL		825mmØ (DN) RCRRJ CLASS 4								

SW-1 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RESPONSE	GT	GCAI	DESIGNED	GCAI	02/04/24
C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STORMWATER LONGSECTION
SHEET 1 OF 9

STAGE
FOR RESOURCE CONSENT

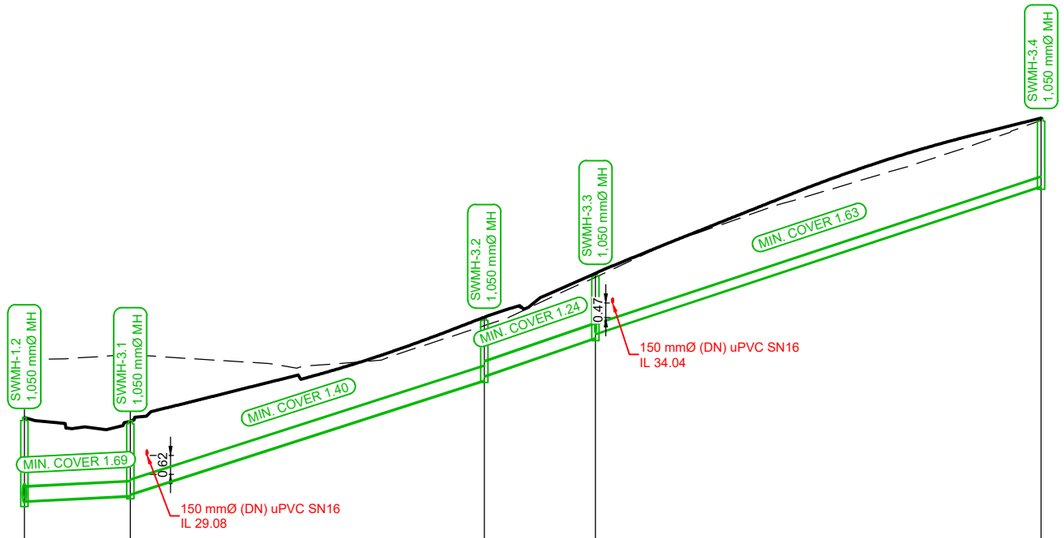
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 410

REVISION
E

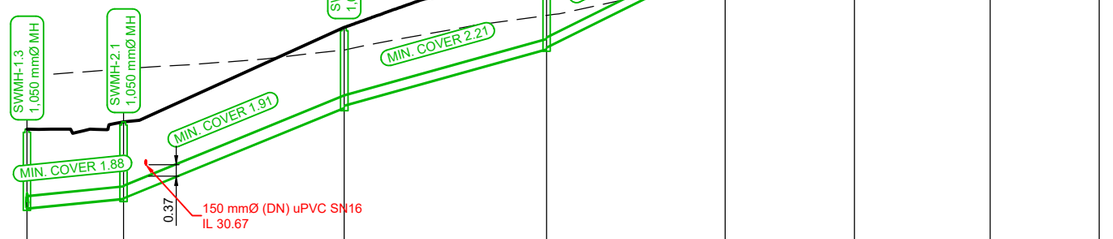
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DATUM RL 26.00m

LID LEVEL	30.30	30.20		33.57	35.00		40.07		
DEPTH TO STRUCTURE SUMP	2.91	2.55		2.12	2.19		2.33		
INVERT LEVEL AT INSIDE EDGE	27.58	27.75	27.80	31.52	31.66	32.91	33.03		37.84
DISTANCE	17.27		57.74		18.13		72.68		
GRADIENT	1.00%		6.44%		6.88%		6.62%		
PIPE SIZE AND MATERIAL	450mmØ (DN) RCRRJ CLASS 4		450mmØ (DN) RCRRJ CLASS 4		450mmØ (DN) RCRRJ CLASS 4		300mmØ (DN) RCRRJ CLASS 2		
FLOW DETAIL									

SW-3 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 28.00m

LID LEVEL	31.82	32.06		35.13	37.16	39.37	39.88	41.34	41.29
DEPTH TO STRUCTURE SUMP	2.65	2.60		2.70	2.80	2.06	1.68	1.98	1.40
INVERT LEVEL AT INSIDE EDGE	29.24	29.56	29.58	32.53	32.60	34.44	34.50	37.38	37.51	38.30	38.42	39.46	39.55	39.99
DISTANCE	15.75		35.98		32.99		29.11		21.11		22.14		17.78
GRADIENT	2.00%		8.18%		5.57%		9.92%		3.75%		4.73%		2.47%
PIPE SIZE AND MATERIAL	375mmØ (DN) RCRRJ CLASS 4		375mmØ (DN) RCRRJ CLASS 4		300mmØ (DN) RCRRJ CLASS 4		300mmØ (DN) RCRRJ CLASS 4		225mmØ (DN) RCRRJ CLASS 2		225mmØ (DN) RCRRJ CLASS 2		225mmØ (DN) RCRRJ CLASS 2
FLOW DETAIL													

SW-2 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
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C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STORMWATER LONGSECTION
SHEET 2 OF 9

STAGE
FOR RESOURCE CONSENT

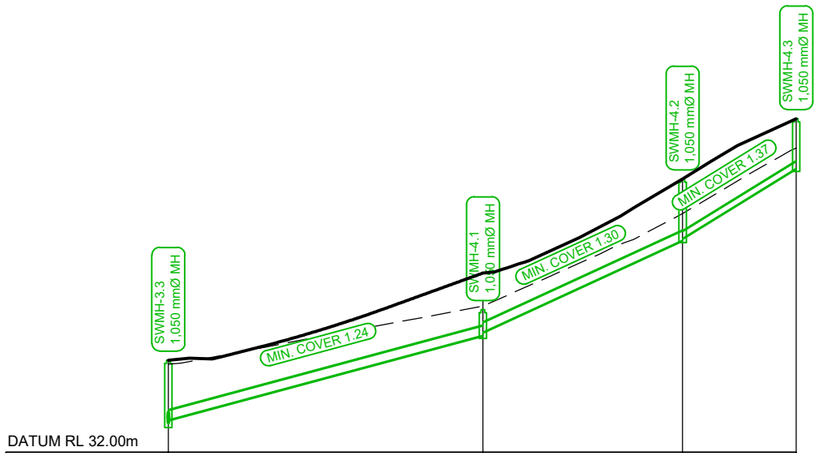
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 411

REVISION
E

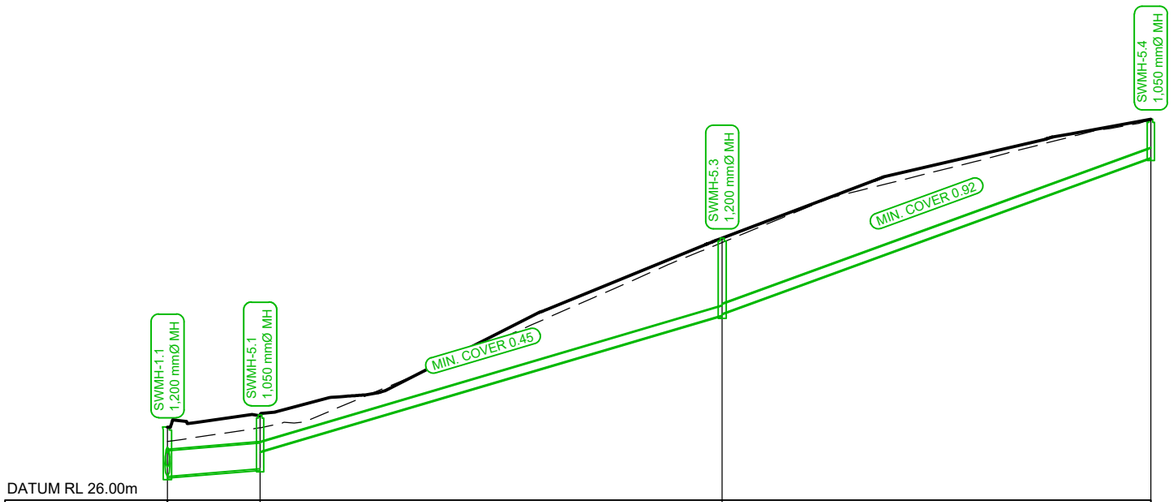
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DATUM RL 32.00m

LID LEVEL	35.00	36.65	40.91	42.88
DEPTH TO STRUCTURE SUMP	2.19	0.94	2.07	1.72
INVERT LEVEL AT INSIDE EDGE	33.06	35.81 / 35.92	38.92 / 38.97	41.26
DISTANCE		51.31	32.57	18.53
GRADIENT		5.37%	9.21%	12.34%
PIPE SIZE AND MATERIAL		300mmØ (DN) RCRRJ CLASS 4	300mmØ (DN) RCRRJ CLASS 4	225mmØ (DN) RCRRJ CLASS 2
FLOW DETAIL				

SW-4 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 26.00m

LID LEVEL	28.39	28.78	34.55	38.42
DEPTH TO STRUCTURE SUMP	1.71	1.85	2.62	1.35
INVERT LEVEL AT INSIDE EDGE	26.77	27.02 / 27.58	32.03 / 32.08	37.17
DISTANCE		15.11	75.35	69.90
GRADIENT		1.65%	5.90%	7.28%
PIPE SIZE AND MATERIAL		825mmØ (DN) RCRRJ CLASS 4	300mmØ (DN) RCRRJ CLASS 4	300mmØ (DN) RCRRJ CLASS 4
FLOW DETAIL				

SW-5 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RESPONSE	GT	GCAI	DESIGNED	GCAI	02/04/24
C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STORMWATER LONGSECTION
SHEET 3 OF 9

STAGE
FOR RESOURCE CONSENT

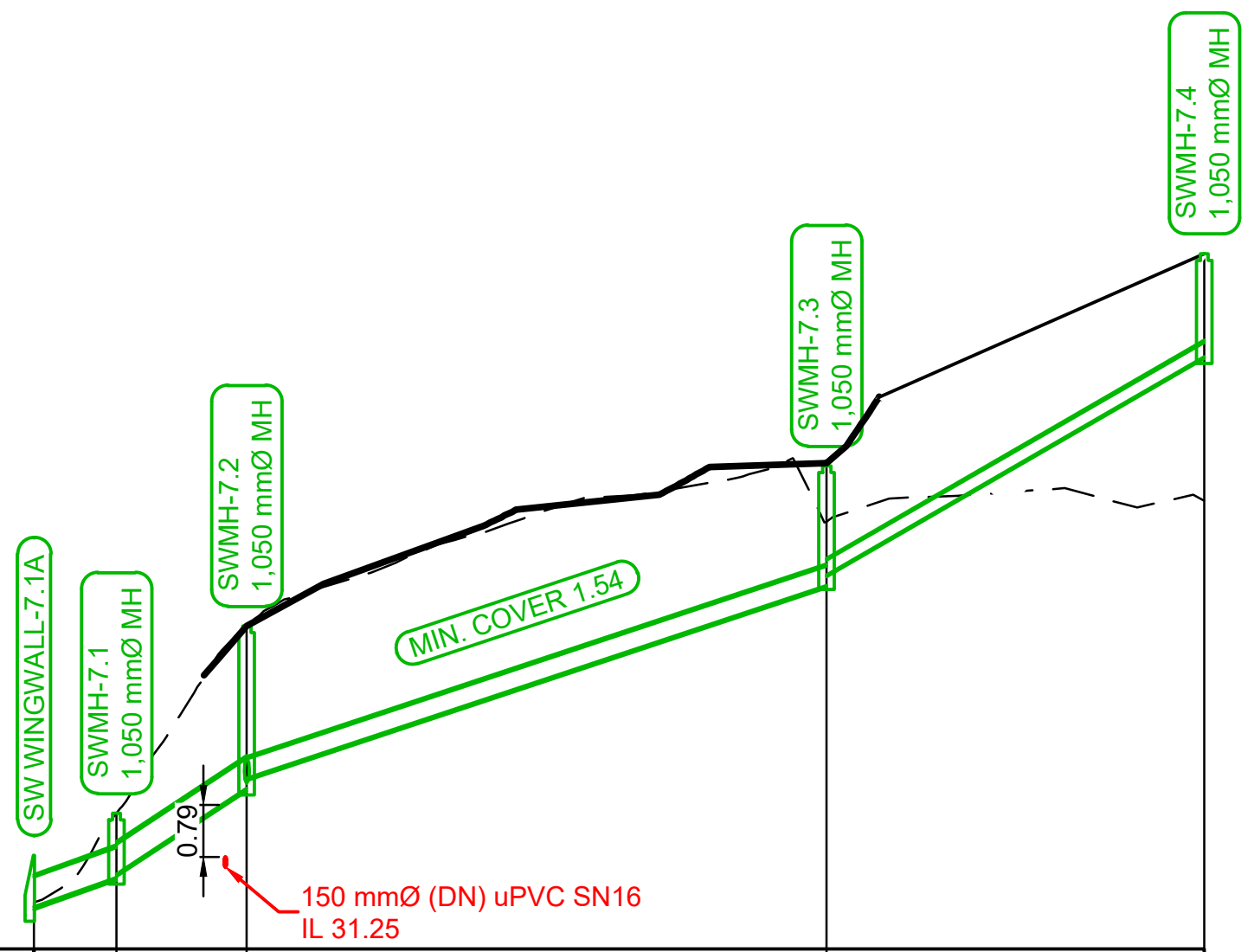
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 412

REVISION
E

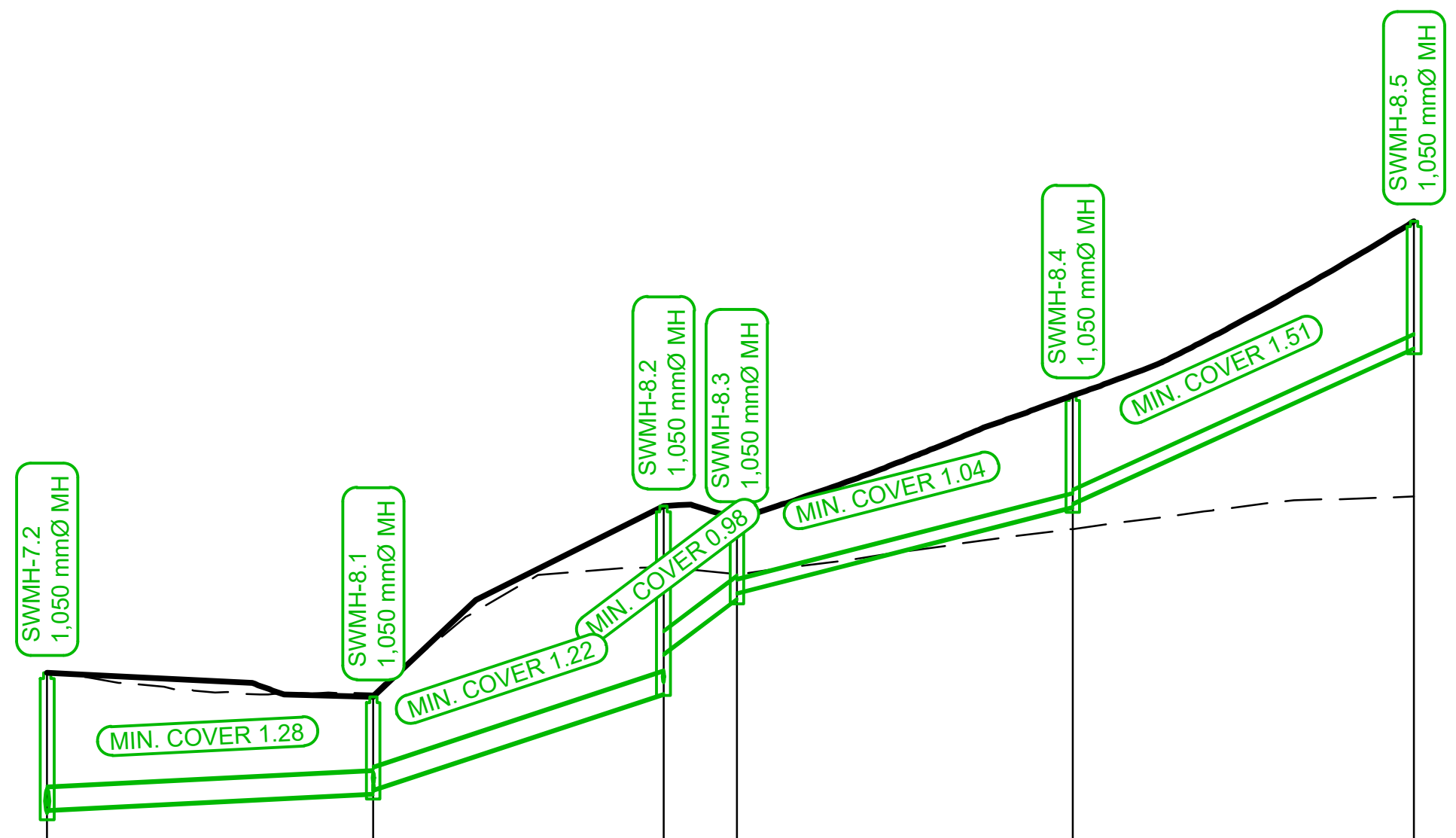
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DATUM RL 30.00m

LID LEVEL	31.42		32.07		34.93		37.38		40.63
DEPTH TO STRUCTURE SUMP	???		1.08		2.58		1.89		1.68
INVERT LEVEL AT INSIDE EDGE	30.64		31.09 31.14		32.45 32.60		35.55 35.72		39.05
DISTANCE		6.31		9.95		44.30		28.85	
GRADIENT		7.13%		13.18%		6.65%		11.56%	
PIPE SIZE AND MATERIAL			450mmØ (DN) RCRRJ CLASS 4			300mmØ (DN) RCRRJ CLASS 4		225mmØ (DN) RCRRJ CLASS 2	
FLOW DETAIL			450mmØ (DN) RCRRJ CLASS 4						

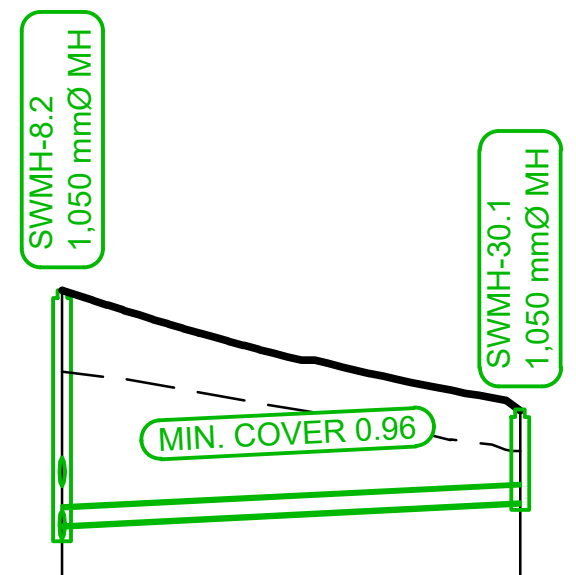
SW-7 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 32.00m

LID LEVEL	34.93		34.51		37.86		37.64		39.82		42.87
DEPTH TO STRUCTURE SUMP	2.58		1.79		3.32		1.50		2.07		2.33
INVERT LEVEL AT INSIDE EDGE	32.53		32.82 32.88		34.57 35.27		36.24 36.34		37.85 37.91		40.64
DISTANCE		28.66		25.49		6.44		29.52		29.98	
GRADIENT		1.00%		6.63%		15.06%		5.11%		9.11%	
PIPE SIZE AND MATERIAL		375mmØ (DN) RCRRJ CLASS 4		375mmØ (DN) RCRRJ CLASS 2				225mmØ (DN) RCRRJ CLASS 2		225mmØ (DN) RCRRJ CLASS 2	
FLOW DETAIL								375mmØ (DN) RCRRJ CLASS 2			

SW-8 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 34.00m

LID LEVEL	37.86		36.29
DEPTH TO STRUCTURE SUMP	3.32		1.33
INVERT LEVEL AT INSIDE EDGE	34.75		35.05
DISTANCE		30.27	
GRADIENT		1.00%	
PIPE SIZE AND MATERIAL		225mmØ (DN) RCRRJ CLASS 2	
FLOW DETAIL			

SW-30 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RESPONSE	GT	GCAI	DESIGNED	GCAI	02/04/24
C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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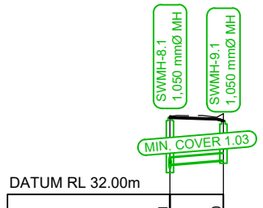
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STORMWATER LONGSECTION
SHEET 4 OF 9

STAGE
FOR RESOURCE CONSENT

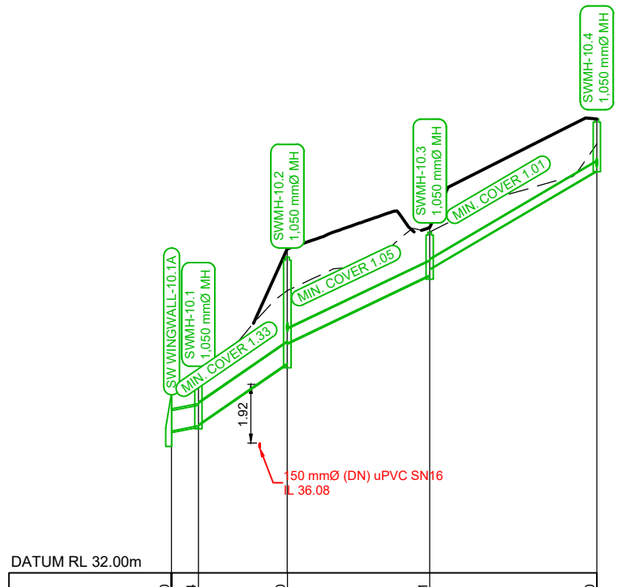
PROJECT NUMBER 210506
SCALE A1 1:500 A3 1:1000
DWG NUMBER RC- 413
REVISION E

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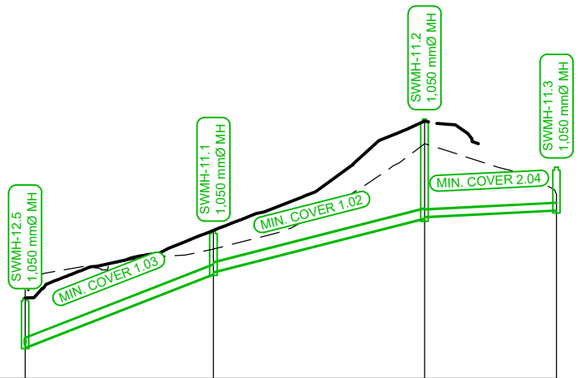
DATUM RL 32.00m		
LID LEVEL	34.51	34.40
DEPTH TO STRUCTURE SUMP	1.79	1.38
INVERT LEVEL AT INSIDE EDGE	32.97	33.12
DISTANCE	8.71	
GRADIENT	1.65%	
PIPE SIZE AND MATERIAL	225mmØ (DN) RCRRJ CLASS 2	
FLOW DETAIL		

SW-9 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 32.00m					
LID LEVEL	37.80	38.44	42.30	43.11	46.80
DEPTH TO STRUCTURE SUMP	0.00	1.74	3.61	1.54	1.72
INVERT LEVEL AT INSIDE EDGE	36.80 36.80	36.84	38.84	39.50 41.71	41.91 45.12
DISTANCE	4.38	14.49	23.21		27.24
GRADIENT	3.92%	13.80%	9.55%		11.78%
PIPE SIZE AND MATERIAL	675mmØ (DN) RCRRJ CLASS 4		450mmØ (DN) RCRRJ CLASS 4		300mmØ (DN) RCRRJ CLASS 2
FLOW DETAIL		675mmØ (DN) RCRRJ CLASS 4			

SW-10 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 50.00m				
LID LEVEL	52.64	54.84	58.47	56.90
DEPTH TO STRUCTURE SUMP	1.65	1.46	3.34	1.50
INVERT LEVEL AT INSIDE EDGE	51.02	53.41 53.48	55.23 55.28	55.50
DISTANCE	30.72	34.41		21.53
GRADIENT	7.79%	5.10%		1.00%
PIPE SIZE AND MATERIAL	300mmØ (DN) RCRRJ CLASS 2	300mmØ (DN) RCRRJ CLASS 2		225mmØ (DN) RCRRJ CLASS 2
FLOW DETAIL				

SW-11 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3

0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
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D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STORMWATER LONGSECTION
SHEET 5 OF 9

STAGE
FOR RESOURCE CONSENT

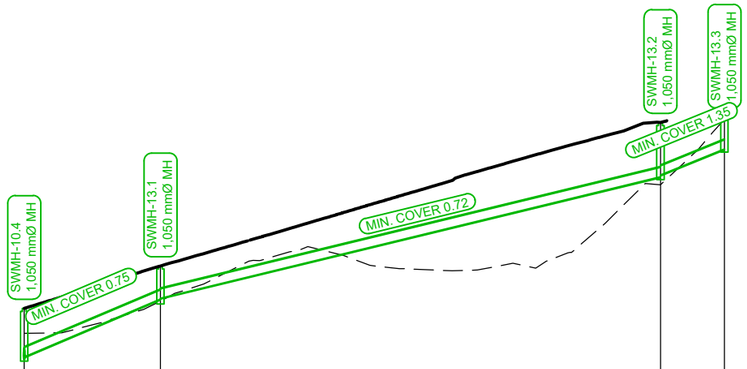
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 414

REVISION
E

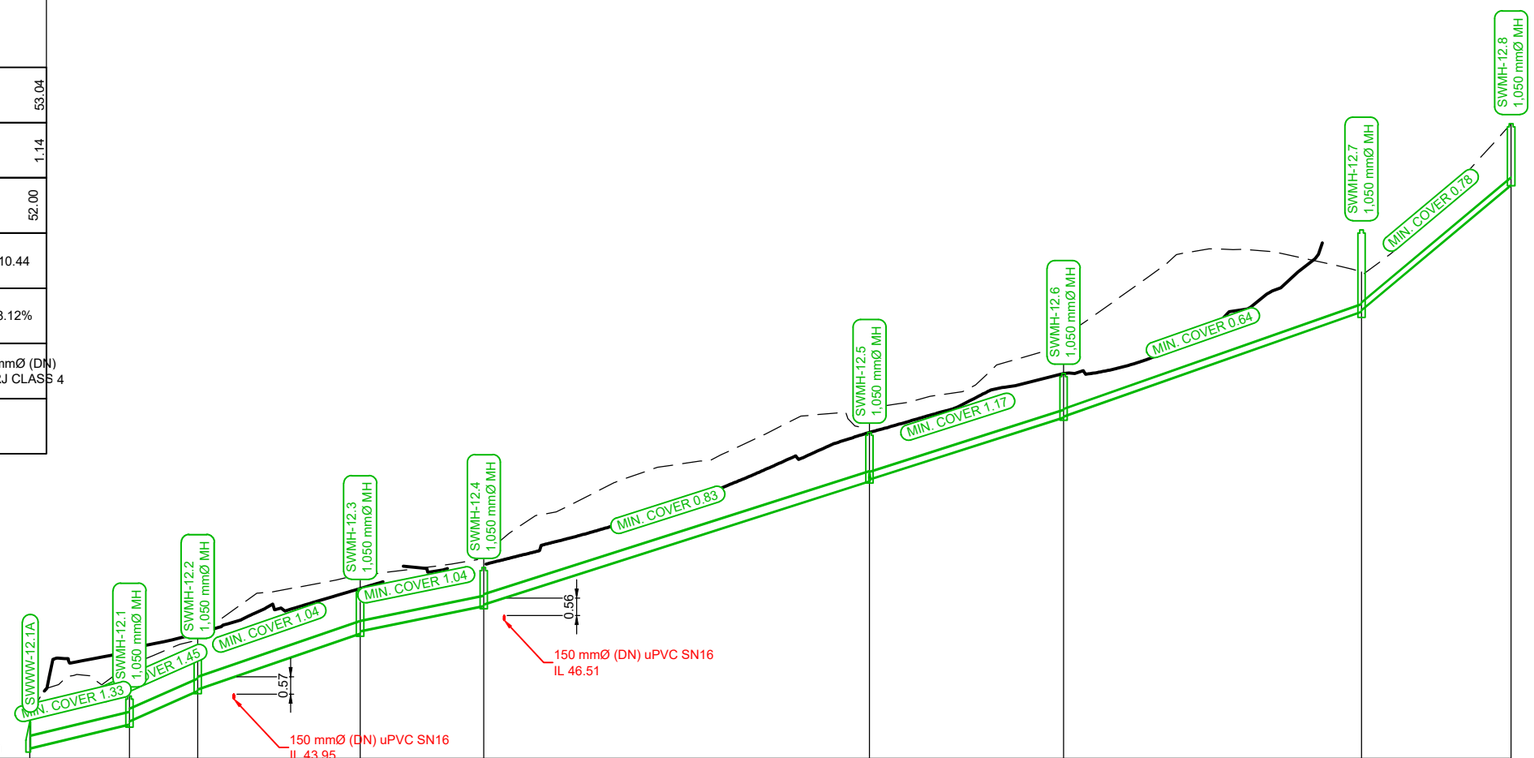
Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC410-STORMWATER LONGSECTION.dwg, 414, 12/9/2024 7:11 pm



DATUM RL 44.00m

LID LEVEL	46.80	48.19	52.86	53.04
DEPTH TO STRUCTURE SUMP	1.72	1.24	1.86	1.14
INVERT LEVEL AT INSIDE EDGE	45.22	47.11 / 47.14	51.10	51.15 / 52.00
DISTANCE	22.21	81.55		10.44
GRADIENT	8.48%	4.86%		8.12%
PIPE SIZE AND MATERIAL	300mmØ (DN) RCRRJ CLASS 2	300mmØ (DN) RCRRJ CLASS 4		300mmØ (DN) RCRRJ CLASS 4
FLOW DETAIL				

SW-13 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 42.00m

LID LEVEL	43.21	44.04	45.63	47.55	48.23	52.64	54.56	59.24	62.70
DEPTH TO STRUCTURE SUMP	0.00	1.01	1.51	1.55	1.34	1.65	1.52	2.85	2.02
INVERT LEVEL AT INSIDE EDGE	42.35	43.13 / 43.23	44.22 / 44.27	46.09	46.17 / 46.99	47.04 / 51.06	51.11 / 53.14	53.17 / 56.58	56.63 / 60.71
DISTANCE	16.18	11.13	26.49	20.18	62.90		31.64	48.60	24.40
GRADIENT	4.82%	8.86%	6.88%	4.06%	6.39%		6.39%	7.03%	16.70%
PIPE SIZE AND MATERIAL	375mmØ (DN) RCRRJ CLASS 4	375mmØ (DN) RCRRJ CLASS 4	375mmØ (DN) RCRRJ CLASS 4	300mmØ (DN) RCRRJ CLASS 4	300mmØ (DN) RCRRJ CLASS 4		225mmØ (DN) RCRRJ CLASS 2	225mmØ (DN) RCRRJ CLASS 2	225mmØ (DN) RCRRJ CLASS 2
FLOW DETAIL									

SW-12 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RESPONSE	GT	GCAI	DESIGNED	GCAI	02/04/24
C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STORMWATER LONGSECTION
SHEET 6 OF 9

STAGE
FOR RESOURCE CONSENT

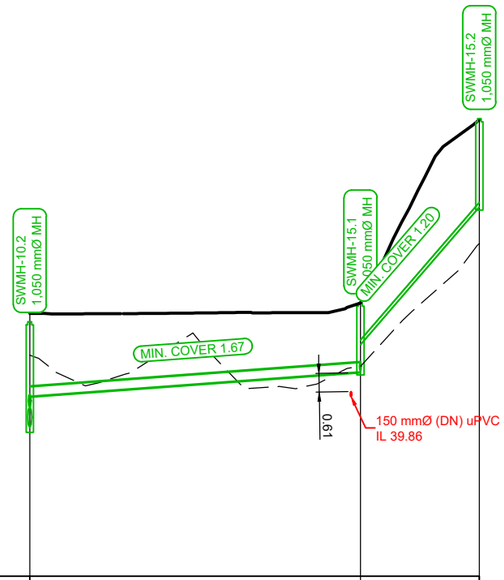
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 415

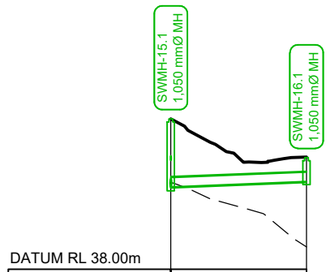
REVISION
E

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210606-RC410-STORMWATER LONGSECTION.dwg, 415, 12/10/2024 4:47 pm



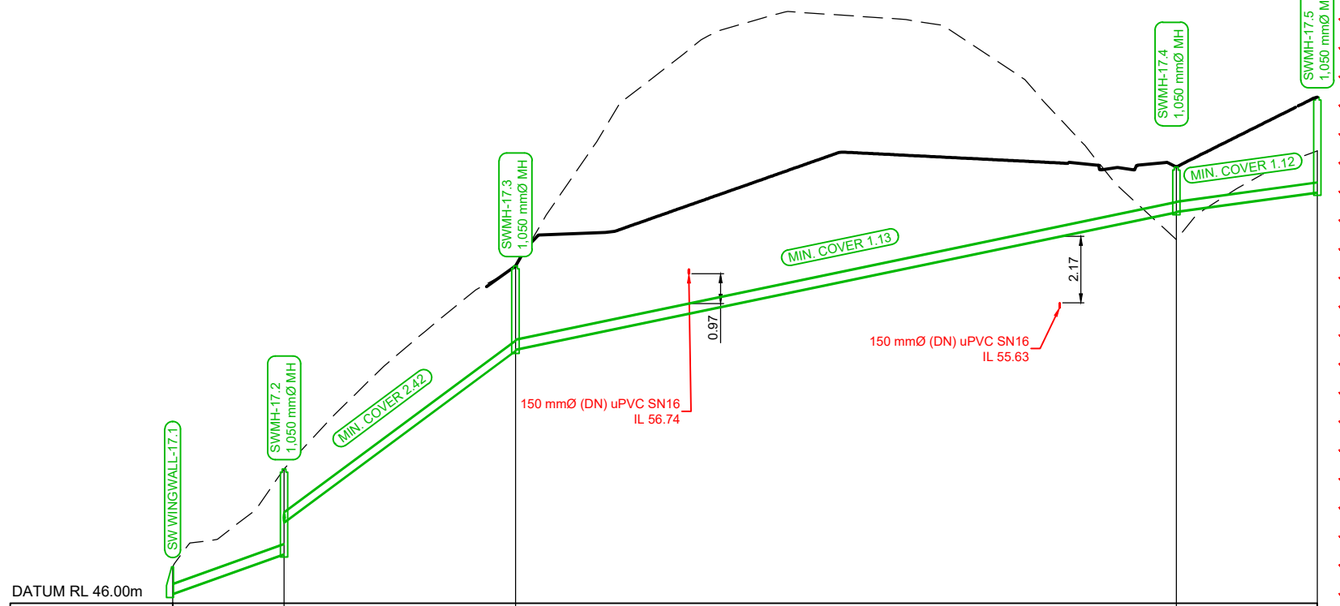
DATUM RL 34.00m			
LID LEVEL	42.30	42.91	48.92
DEPTH TO STRUCTURE SUMP	3.61	2.34	2.98
INVERT LEVEL AT INSIDE EDGE	39.87	40.66 / 41.55	46.04
DISTANCE		53.91	19.39
GRADIENT		1.48%	23.14%
PIPE SIZE AND MATERIAL		300mmØ (DN) RCRRJ CLASS 4	150 mmØ (DN) uPVC SN16
FLOW DETAIL			

SW-15 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 38.00m		
LID LEVEL	42.91	41.64
DEPTH TO STRUCTURE SUMP	2.34	0.88
INVERT LEVEL AT INSIDE EDGE	40.69	40.86
DISTANCE		22.11
GRADIENT		0.80%
PIPE SIZE AND MATERIAL		300mmØ (DN) RCRRJ CLASS 4
FLOW DETAIL		

SW-16 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 46.00m				
LID LEVEL	47.19	50.38	57.00	60.22 / 62.50
DEPTH TO STRUCTURE SUMP	0.00	2.87	2.86	1.56 / 3.20
INVERT LEVEL AT INSIDE EDGE	46.31	47.61 / 48.64	54.24	54.28 / 58.76 / 58.77 / 59.40
DISTANCE		18.18	37.73	107.78 / 22.99
GRADIENT		7.15%	14.84%	4.16% / 2.74%
PIPE SIZE AND MATERIAL		300mmØ (DN) RCRRJ CLASS 4	300mmØ (DN) RCRRJ CLASS 4	300mmØ (DN) RCRRJ CLASS 4 / 300mmØ (DN) RCRRJ CLASS 4
FLOW DETAIL				

SW-17 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
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C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STORMWATER LONGSECTION
SHEET 7 OF 9

STAGE
FOR RESOURCE CONSENT

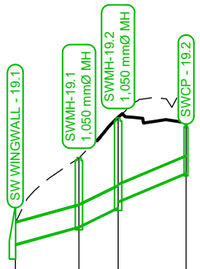
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 416

REVISION
E

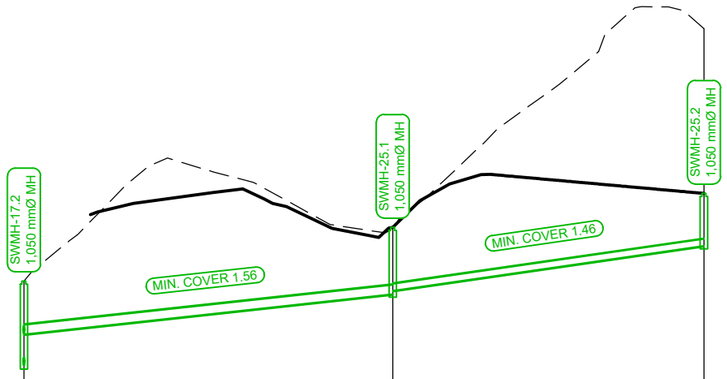
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DATUM RL 38.00m

LID LEVEL	40.22	41.86	43.16	42.95
DEPTH TO STRUCTURE SUMP	2.30	2.35	3.02	1.59
INVERT LEVEL AT INSIDE EDGE	39.04	39.61 / 39.61	40.24 / 40.43	41.36
DISTANCE		10.40	6.36	11.09
GRADIENT		5.48%	9.87%	8.40%
PIPE SIZE AND MATERIAL		675mmØ (DN) RCRRJ CLASS 2	525mmØ (DN) RCRRJ CLASS 2	
FLOW DETAIL			675mmØ (DN) RCRRJ CLASS 2	

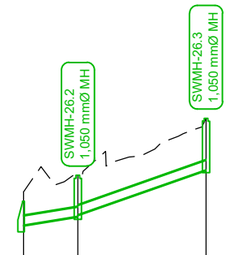
SW-19 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 46.00m

LID LEVEL	50.38	52.12	53.23
DEPTH TO STRUCTURE SUMP	2.87	2.28	1.81
INVERT LEVEL AT INSIDE EDGE	48.64	49.95 / 50.06	51.52
DISTANCE		60.14	50.74
GRADIENT		2.18%	2.88%
PIPE SIZE AND MATERIAL		300mmØ (DN) RCRRJ CLASS 2	225mmØ (DN) RCRRJ CLASS 2
FLOW DETAIL			

SW-25 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 36.00m

LID LEVEL	38.40	39.25	41.11
DEPTH TO STRUCTURE SUMP	0.00	1.44	1.78
INVERT LEVEL AT INSIDE EDGE	37.62	37.91 / 37.96	39.43
DISTANCE		8.85	20.89
GRADIENT		3.28%	7.04%
PIPE SIZE AND MATERIAL		300mmØ (DN) RCRRJ CLASS 4	
FLOW DETAIL			300mmØ (DN) RCRRJ CLASS 4

SW-26 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RESPONSE	GT	GCAI	DESIGNED	GCAI	02/04/24
C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STORMWATER LONGSECTION
SHEET 8 OF 9

STAGE
FOR RESOURCE CONSENT

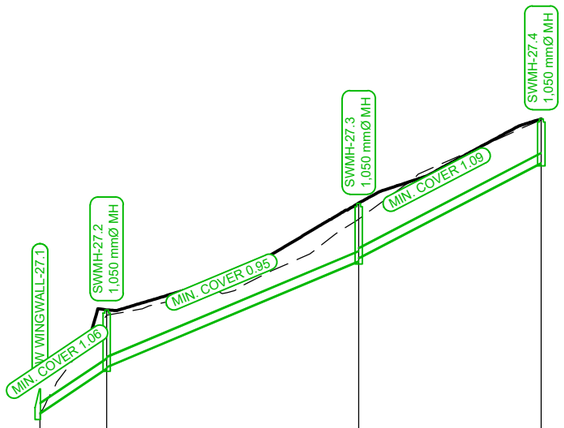
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 417

REVISION
E

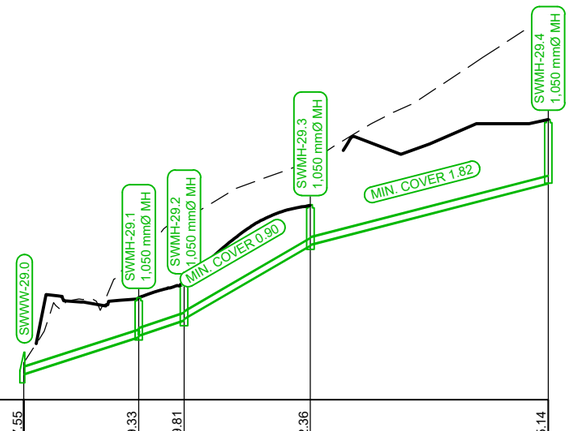
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DATUM RL 30.00m

LID LEVEL	32.02	34.59	38.06	40.82
DEPTH TO STRUCTURE SUMP	0.71	2.00	1.97	1.53
INVERT LEVEL AT INSIDE EDGE	31.23	32.69 / 32.74	36.19	36.29 / 39.39
DISTANCE	10.88	41.11	29.77	
GRADIENT	13.42%	8.39%	10.41%	
PIPE SIZE AND MATERIAL	300mmØ (DN) RCRRJ CLASS 4	300mmØ (DN) RCRRJ CLASS 4	300mmØ (DN) RCRRJ CLASS 4	
FLOW DETAIL				

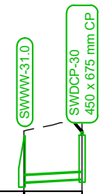
SW-27 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 36.00m

LID LEVEL	37.55	39.33	39.81	42.36	45.14	
DEPTH TO STRUCTURE SUMP	0.00	1.38	1.40	1.46	2.07	
INVERT LEVEL AT INSIDE EDGE	36.85	38.05	38.10 / 38.60	38.85 / 41.03	41.06	43.07
DISTANCE	18.66	7.37	20.61	38.79		
GRADIENT	6.44%	6.78%	11.59%	5.16%		
PIPE SIZE AND MATERIAL	225mmØ (DN) RCRRJ CLASS 2		225mmØ (DN) RCRRJ CLASS 2	225mmØ (DN) RCRRJ CLASS 2		
FLOW DETAIL		225mmØ (DN) RCRRJ CLASS 2				

SW-29 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 36.00m

LID LEVEL	37.81	37.93
DEPTH TO STRUCTURE SUMP	???	1.53
INVERT LEVEL AT INSIDE EDGE	36.30	36.40
DISTANCE	9.35	
GRADIENT	1.10%	
PIPE SIZE AND MATERIAL	225mmØ (DN) RCRRJ CLASS 2	
FLOW DETAIL		

SW-31 - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR S92 RESPONSE	GT	SS	SURVEYED	TERRA	-
B	04/12/24	FOR S92 RESPONSE	GT	SS	DESIGNED	GCAI	02/04/24
					DRAWN	GCAI	02/04/24
					TRACED		
					CHECKED	GT	02/04/24

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8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STORMWATER LONGSECTION
SHEET 9 OF 9

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 418

REVISION
B

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LEGEND:

- EXISTING MINOR OVERLAND FLOW PATH (GIS)
- EXISTING OVERLAND FLOW PATH (GIS)
- EXISTING FLOOD PLAINS (GIS)
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EXISTING CONTOURS AT 1.0m INTERVALS

EX5
EN5
MINOR OLFP 5
ROAD 6
PROPOSED CULVERT
MORE DETAILS AT RC430
WATERCOURSE B
WATERCOURSE A
BABICH ROAD
E4
E3
MINOR OLFP 4
MINOR OLFP 3
ROAD 5
ROAD 1
ROAD 2
ROAD 3
ROAD 4
MINOR OLFP 2
MINOR OLFP 1
EX2
EX 1

1:1000 @ A1
1:2000 @ A3
0 10 20 30 40 50 60 70 80 90 100 m

ISSUE	DATE	REVISION	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI
B	12/07/24	FOR S92 RFIs	GT	GZ
C	23/08/24	FOR S92 RFIs	GT	GZ
D	30/10/24	FOR S92 RFIs	GT	GZ
E	04/12/24	FOR S92 RFIs	GT	GZ

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	GCAI	02/04/24
DRAWN	GCAI	02/04/24
TRACED		
CHECKED	GT	02/04/24

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HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
EXISTING OVERLAND FLOW PATH AND FLOOD PLAIN PLAN

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:1000
A3 1:2000

DWG NUMBER
RC- 425

REVISION
E

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC425-EXISTING AND PROPOSED OLFP PLAN.dwg, 425, 12/10/2024 1:14 pm

LEGEND:

- EXISTING MINOR OVERLAND FLOW PATH (GIS)
- EXISTING OVERLAND FLOWPATH (GIS)
- PROPOSED SHEET FLOW
- PROPOSED OLFP
- PROPOSED OLFP CATCHMENTS EXTENT
- PROPOSED MAJOR CONTOUR
- PROPOSED MINOR CONTOUR
- PROPOSED CONTOURS AT 1.0m INTERVALS

EX5
EN5
MINOR OLFP 5
ROAD 6
WATERCOURSE B
WATERCOURSE A
MINOR OLFP 4
PROPOSED CULVERT
MORE DETAILS AT RC430
EX4
EX3
EX2
EX 1
ROAD 1
ROAD 2
ROAD 3
ROAD 4
ROAD 5
BABICH ROAD
PROPOSED OLFP CATCHMENT A
AREA = 3.88ha
PROPOSED OLFP CATCHMENT B
AREA = 1.39ha
53.08
1:1000 @ A1
1:2000 @ A3
0 10 20 30 40 50 60 70 80 90 100 m

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC425-EXISTING AND PROPOSED OLFP PLAN.dwg, 426, 12/10/2024 1:15 pm

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	12/07/24	FOR RFIs	GT	GZ	SURVEYED	TERRA	-
B	23/08/24	FOR S92 RFIs	GT	GZ	DESIGNED	GZ	12/07/24
C	11/10/24	FOR S92 RFIs	GT	GZ	DRAWN	GZ	12/07/24
D	30/10/24	FOR S92 RFIs	GT	GZ	TRACED		
E	04/12/24	FOR S92 RFIs	GT	GZ	CHECKED	GT	12/07/24

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PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: PROPOSED OVERLAND FLOW PATH PLAN

STAGE: FOR RESOURCE CONSENT

PROJECT NUMBER: 210506

SCALE: A1 1:1000, A3 1:2000

DWG NUMBER: RC- 426

REVISION: E

Channel Report

ROAD 1

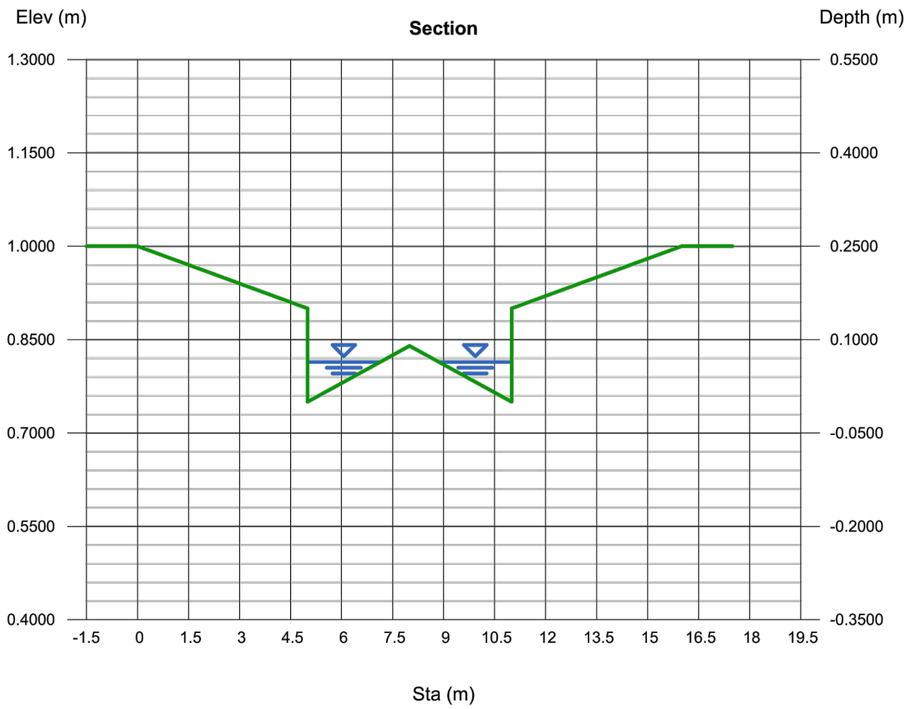
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Thursday, Oct 10 2024

100Yr OLFP Cross Section C-C - ROAD 1

User-defined		**Highlighted**	
Invert Elev (m)	= 0.7500	Depth (m)	= 0.0640
Slope (%)	= 6.0000	Q (cms)	= 0.150
N-Value	= 0.020	Area (sqm)	= 0.1366
		Velocity (m/s)	= 1.0984
Calculations		Wetted Perim (m)	= 4.3971
Compute by:	Known Q	Crit Depth, Yc (m)	= 0.0853
Known Q (cms)	= 0.1500	Top Width (m)	= 4.2672
		EGL (m)	= 0.1255

(Sta, El, n)-(Sta, El, n)...

(0.0000, 1.0000)-(5.0000, 0.9000, 0.020)-(5.0000, 0.7500, 0.020)-(8.0000, 0.8400, 0.020)-(11.0000, 0.7500, 0.020)-(11.0000, 0.9000, 0.020)-(16.0000, 1.0000,



Channel Report

ROAD 2

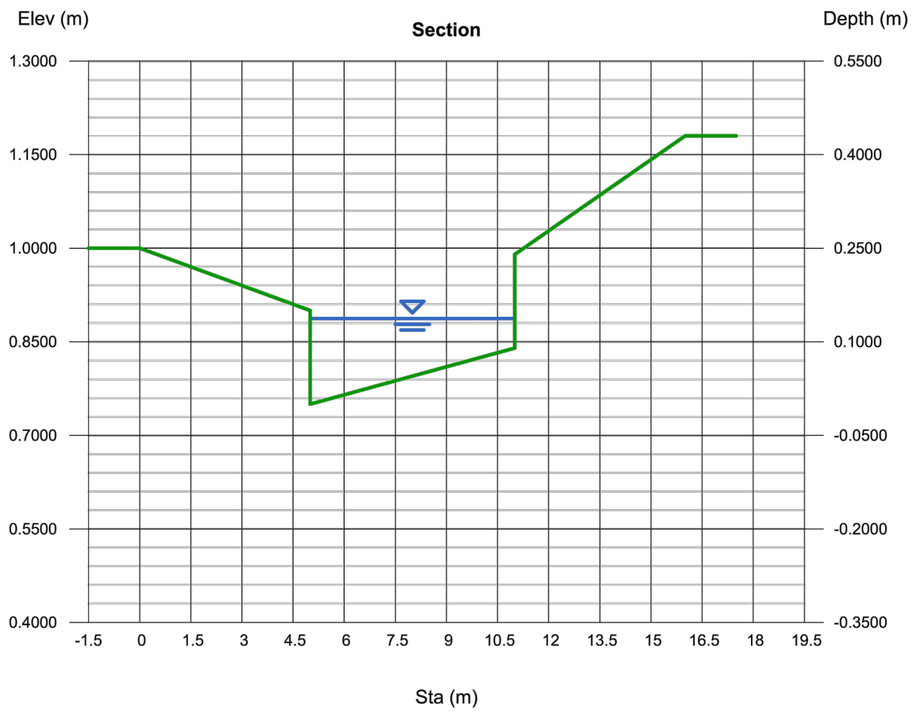
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Saturday, Oct 26 2024

100Yr OLFP Road 2 - One way 1.5%

User-defined		**Highlighted**	
Invert Elev (m)	= 0.7500	Depth (m)	= 0.1372
Slope (%)	= 3.0000	Q (cms)	= 0.9300
N-Value	= 0.020	Area (sqm)	= 0.5530
		Velocity (m/s)	= 1.6818
Calculations		Wetted Perim (m)	= 6.1850
Compute by:	Known Q	Crit Depth, Yc (m)	= 0.1890
Known Q (cms)	= 0.9300	Top Width (m)	= 6.0000
		EGL (m)	= 0.2814

(Sta, El, n)-(Sta, El, n)...

(0.0000, 1.0000)-(5.0000, 0.9000, 0.020)-(5.0000, 0.7500, 0.020)-(11.0000, 0.8400, 0.020)-(11.0000, 0.9900, 0.020)-(16.0000, 1.1800, 0.020)



HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	12/07/24	FOR RFIs	GT	GZ	SURVEYED	TERRA	-
B	30/10/24	FOR RFIs	GT	GZ	DESIGNED	GZ	12/07/24
					DRAWN	GZ	12/07/24
					TRACED		
					CHECKED	GT	12/07/24

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: PROPOSED OVERLAND FLOW PATH CROSS SECTION CALCULATION - SHEET 1

STAGE: FOR RESOURCE CONSENT

PROJECT NUMBER: 210506

SCALE: A1 N.T.S, A3 N.T.S

DWG NUMBER: RC- 426.1

REVISION: B

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC425-EXISTING AND PROPOSED OLFP PLAN.dwg, 426.1, 10/29/2024 9:19 pm

Channel Report

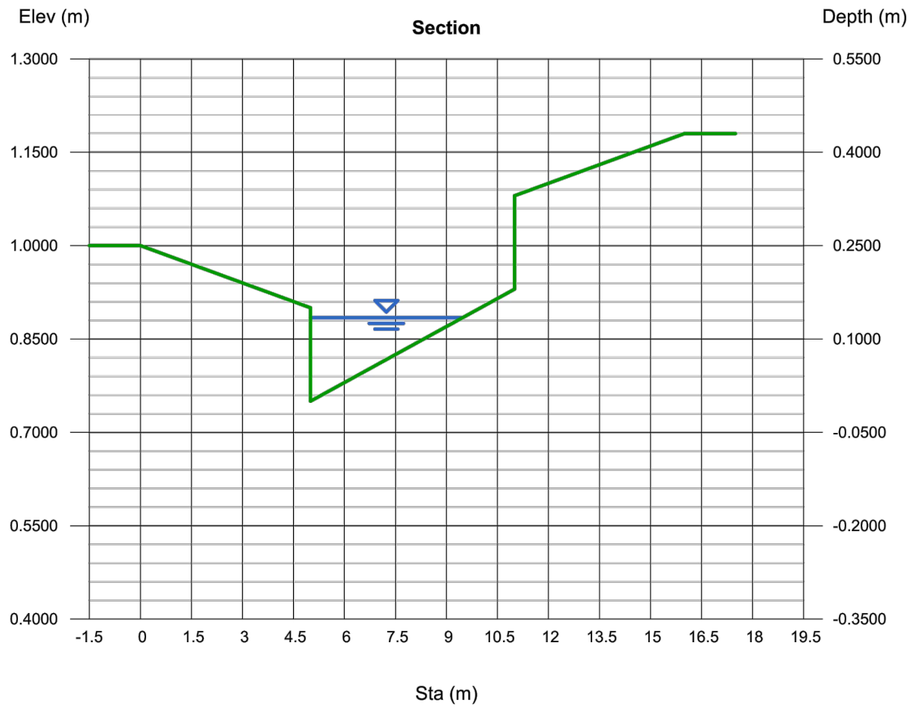
ROAD 3

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Saturday, Oct 26 2024

100Yr OLFP Road 3 - One way 3%

User-defined		**Highlighted**	
Invert Elev (m)	= 0.7500	Depth (m)	= 0.1341
Slope (%)	= 5.0000	Q (cms)	= 0.5420
N-Value	= 0.020	Area (sqm)	= 0.2998
		Velocity (m/s)	= 1.8081
Calculations		Wetted Perim (m)	= 4.6065
Compute by:	Known Q	Crit Depth, Yc (m)	= 0.1890
Known Q (cms)	= 0.5420	Top Width (m)	= 4.4704
		EGL (m)	= 0.3009

(Sta, El, n)-(Sta, El, n)...
(0.0000, 1.0000)-(5.0000, 0.9000, 0.020)-(5.0000, 0.7500, 0.020)-(11.0000, 0.9300, 0.020)-(11.0000, 1.0800, 0.020)-(16.0000, 1.1800, 0.020)



Channel Report

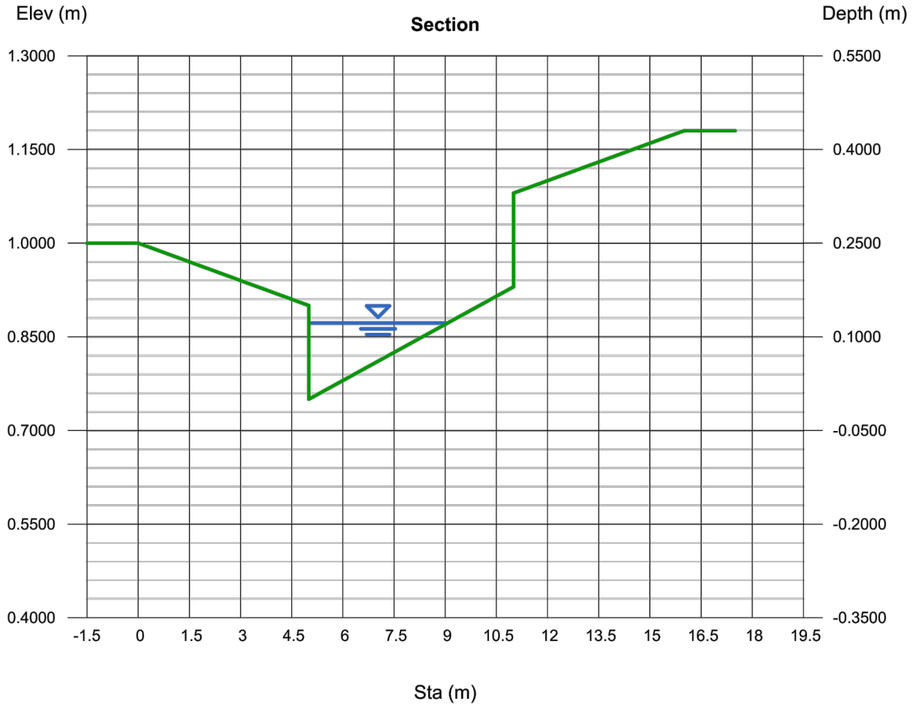
ROAD 5

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Saturday, Oct 26 2024

100Yr OLFP Road 5 - One way 3%

User-defined		**Highlighted**	
Invert Elev (m)	= 0.7500	Depth (m)	= 0.1219
Slope (%)	= 5.0000	Q (cms)	= 0.4200
N-Value	= 0.020	Area (sqm)	= 0.2477
		Velocity (m/s)	= 1.6953
Calculations		Wetted Perim (m)	= 4.1877
Compute by:	Known Q	Crit Depth, Yc (m)	= 0.1707
Known Q (cms)	= 0.4200	Top Width (m)	= 4.0640
		EGL (m)	= 0.2685

(Sta, El, n)-(Sta, El, n)...
(0.0000, 1.0000)-(5.0000, 0.9000, 0.020)-(5.0000, 0.7500, 0.020)-(11.0000, 0.9300, 0.020)-(11.0000, 1.0800, 0.020)-(16.0000, 1.1800, 0.020)



HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR RFIs	GT	GZ	SURVEYED	TERRA	-
					DESIGNED	GZ	12/07/24
					DRAWN	GZ	12/07/24
					TRACED		
					CHECKED	GT	12/07/24

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
PROPOSED OVERLAND FLOW PATH CROSS SECTION CALCULATION - SHEET 2

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 N.T.S
A3 N.T.S

DWG NUMBER
RC- 426.2

REVISION
A

Auckland Council | Approved Resource Consent Plan | BUN60432511 | 06/03/2025 | Page 115 of 177

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC425-EXISTING AND PROPOSED OLFP PLAN.dwg, 426.2, 10/29/2024 9:22 pm

Channel Report

ROAD 6

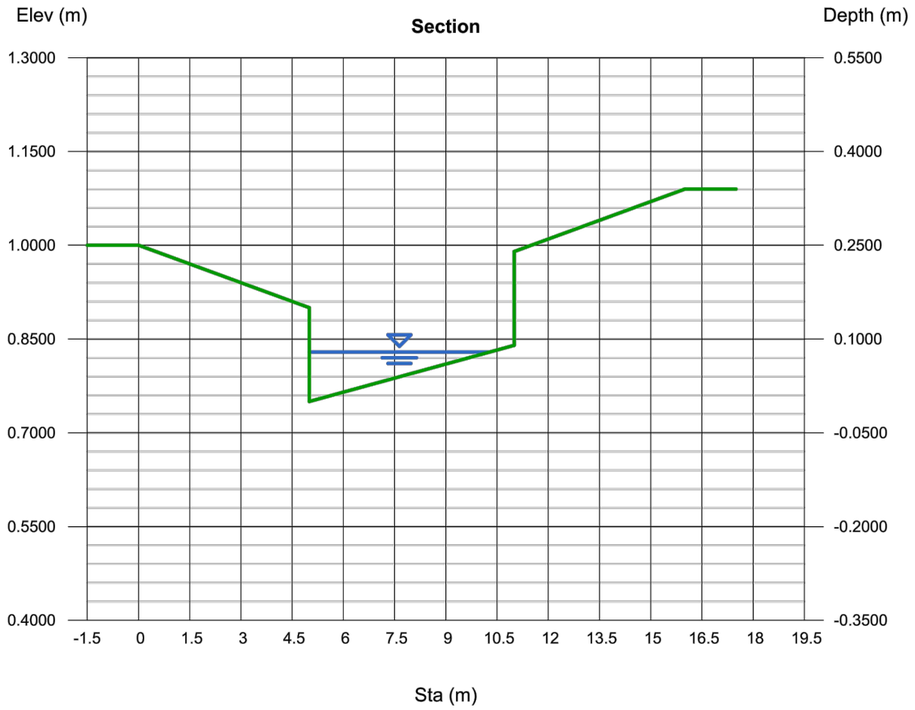
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Saturday, Oct 26 2024

100Yr OLFP Road 6 - One way 1.5%

User-defined		**Highlighted**	
Invert Elev (m)	= 0.7500	Depth (m)	= 0.0792
Slope (%)	= 5.0000	Q (cms)	= 0.250
N-Value	= 0.020	Area (sqm)	= 0.2093
		Velocity (m/s)	= 1.1942
Calculations		Wetted Perim (m)	= 5.3630
Compute by:	Known Q	Crit Depth, Yc (m)	= 0.1036
Known Q (cms)	= 0.2500	Top Width (m)	= 5.2832
		EGL (m)	= 0.1520

(Sta, El, n)-(Sta, El, n)...

(0.0000, 1.0000)-(5.0000, 0.9000, 0.020)-(5.0000, 0.7500, 0.020)-(11.0000, 0.8400, 0.020)-(11.0000, 0.9900, 0.020)-(16.0000, 1.0900, 0.020)



Channel Report

BABICH ROAD
AT LOW POINT - CH565

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Saturday, Oct 26 2024

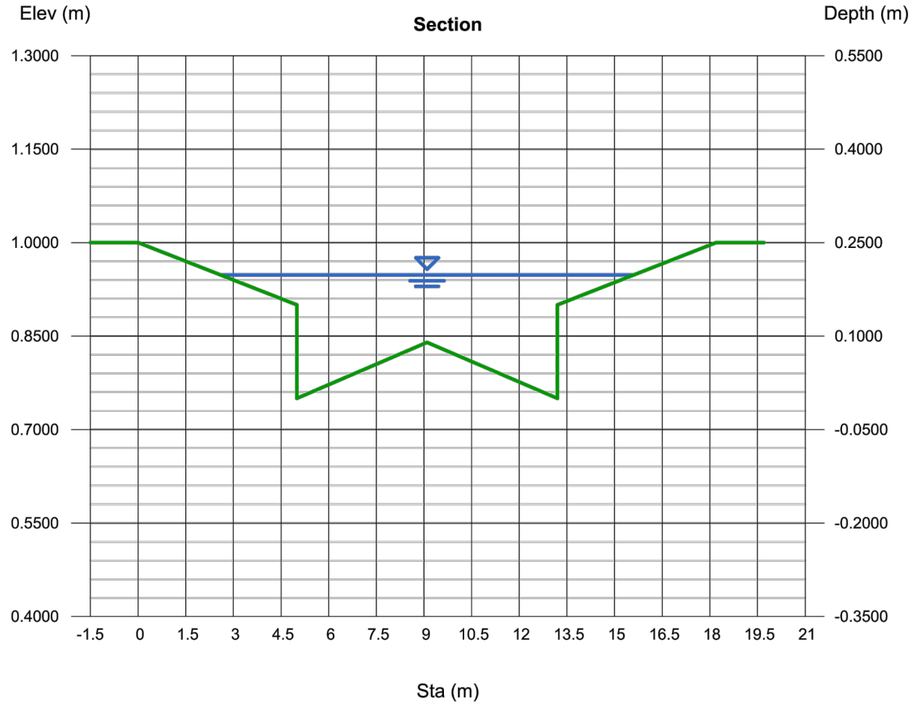
100Yr OLFP Cross Section C-C - ROAD 1

User-defined		**Highlighted**	
Invert Elev (m)	= 0.7500	Depth (m)	= 0.1981
Slope (%)	= 0.7700	Q (cms)	= 1.3000
N-Value	= 0.020	Area (sqm)	= 1.3714
		Velocity (m/s)	= 0.9480
Calculations		Wetted Perim (m)	= 13.3149
Compute by:	Known Q	Crit Depth, Yc (m)	= 0.1920
Known Q (cms)	= 1.3000	Top Width (m)	= 13.0120
		EGL (m)	= 0.2440

(Sta, El, n)-(Sta, El, n)...

(0.0000, 1.0000)-(5.0000, 0.9000, 0.020)-(5.0000, 0.7500, 0.020)-(9.1000, 0.8400, 0.020)-(13.2000, 0.7500, 0.020)-(13.2000, 0.9000, 0.020)-(18.2000, 1.0000,

FLOWPATH WIDTH AT THE EXIT POINT WILL BE WITHIN THE ROAD RESERVE AREA - 40mm ABOVE KERB TOP



ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR s92 RFIs	GT	GZ	SURVEYED	TERRA	-
B	04/12/24	FOR s92 RFIs	GT	GZ	DESIGNED	GZ	12/07/24
					DRAWN	GZ	12/07/24
					TRACED		
					CHECKED	GT	12/07/24

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
PROPOSED OVERLAND FLOW PATH CROSS SECTION CALCULATION - SHEET 3

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 N.T.S
A3 N.T.S

DWG NUMBER
RC- 426.3

REVISION
B

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC426-EXISTING AND PROPOSED OLFP PLAN.dwg, 426.3, 12/10/2024 11:40 am

Channel Report

BABICH ROAD
TOWARD RAINGARDEN 10

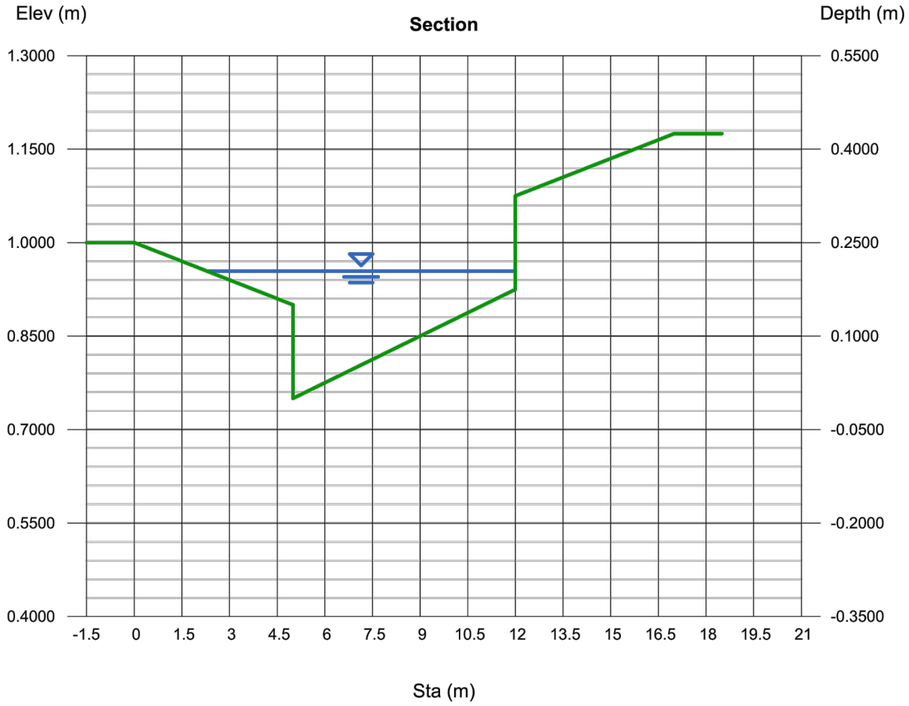
Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Tuesday, Dec 10 2024

100Yr OLFP BABICH Road - ONEWAY TOWARD RG 10

User-defined		**Highlighted**	
Invert Elev (m)	= 0.7500	Depth (m)	= 0.2042
Slope (%)	= 0.8500	Q (cms)	= 1.0000
N-Value	= 0.016	Area (sqm)	= 0.8905
		Velocity (m/s)	= 1.1230
Calculations		Wetted Perim (m)	= 9.8927
Compute by:	Known Q	Crit Depth, Yc (m)	= 0.2195
Known Q (cms)	= 1.0000	Top Width (m)	= 9.7108
		EGL (m)	= 0.2685

(Sta, El, n)-(Sta, El, n)...
(0.0000, 1.0000)-(5.0000, 0.9000, 0.016)-(5.0000, 0.7500, 0.016)-(12.0000, 0.9250, 0.016)-(12.0000, 1.0750, 0.016)-(17.0000, 1.1750, 0.016)

MAXIMUM 100Yr WATER DEPTH CONTAIN WITHIN
BABICH ROAD RESERVE - 50mm ABOVE KERB LEVEL



Channel Report

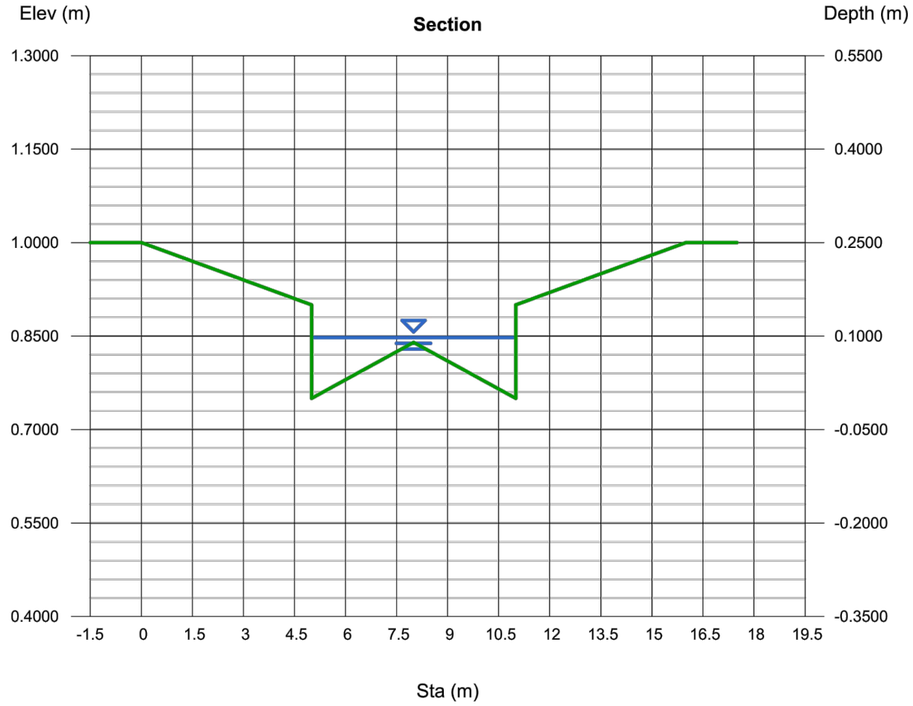
ROAD 4

Hydraflow Express Extension for Autodesk® Civil 3D® by Autodesk, Inc. Wednesday, Oct 30 2024

100Yr OLFP ROAD 4

User-defined		**Highlighted**	
Invert Elev (m)	= 0.7500	Depth (m)	= 0.0975
Slope (%)	= 5.0000	Q (cms)	= 0.5500
N-Value	= 0.016	Area (sqm)	= 0.3152
		Velocity (m/s)	= 1.7448
Calculations		Wetted Perim (m)	= 6.1978
Compute by:	Known Q	Crit Depth, Yc (m)	= 0.1402
Known Q (cms)	= 0.5500	Top Width (m)	= 6.0000
		EGL (m)	= 0.2528

(Sta, El, n)-(Sta, El, n)...
(0.0000, 1.0000)-(5.0000, 0.9000, 0.016)-(5.0000, 0.7500, 0.016)-(8.0000, 0.8400, 0.016)-(11.0000, 0.7500, 0.016)-(11.0000, 0.9000, 0.016)-(16.0000, 1.0000,



ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR s92 RFIs	GT	GZ	SURVEYED	TERRA	-
B	04/12/24	FOR s92 RFIs	GT	GZ	DESIGNED	GZ	12/07/24
					DRAWN	GZ	12/07/24
					TRACED		
					CHECKED	GT	12/07/24

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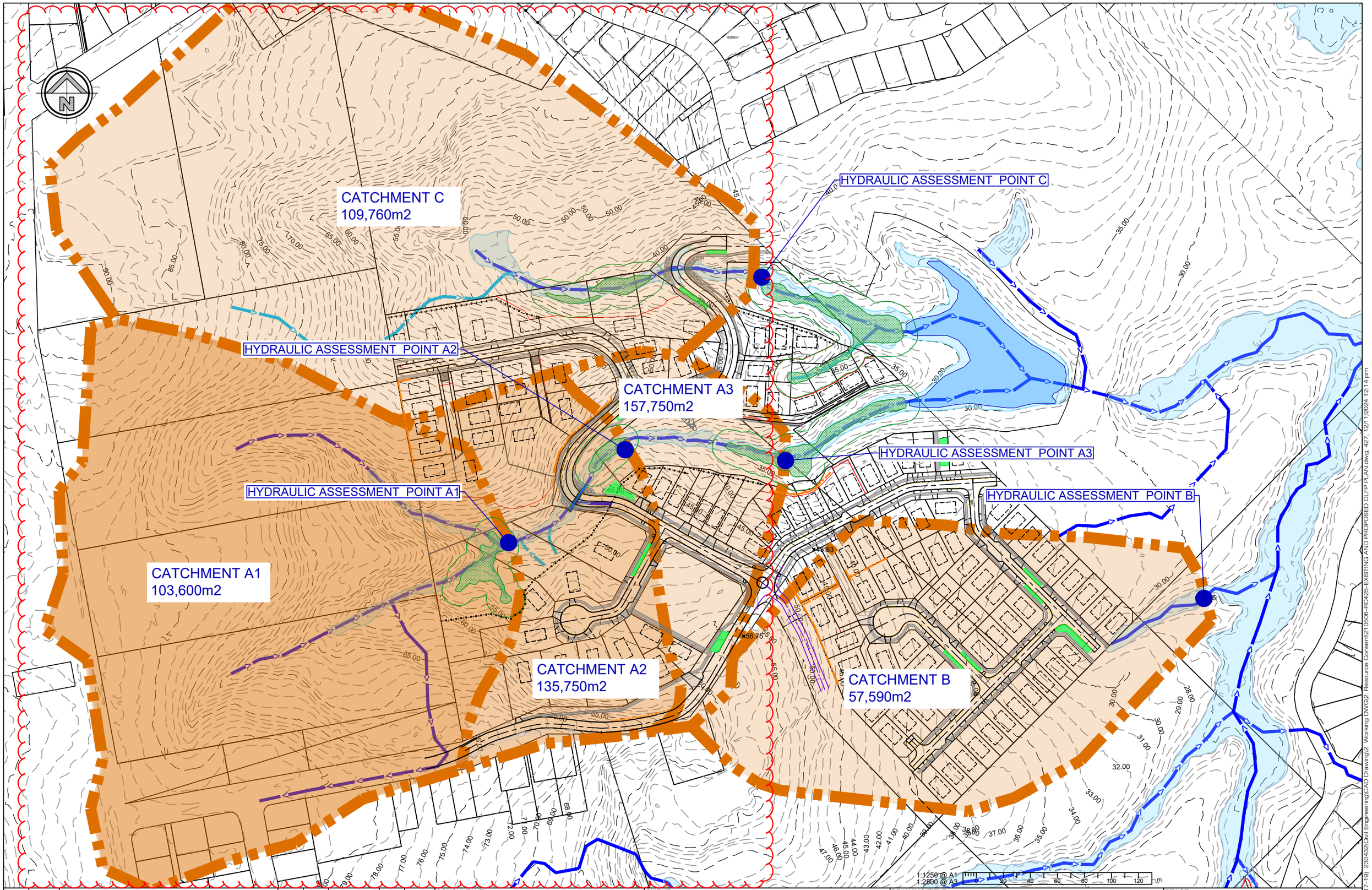
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
PROPOSED OVERLAND FLOW PATH CROSS SECTION CALCULATION - SHEET 4

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER 210506
SCALE A1 N.T.S
A3 N.T.S
DWG NUMBER RC- 426.4
REVISION B

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC425-EXISTING AND PROPOSED OLFP PLAN.dwg, 426.4, 12/10/2024 5:39 pm



ISSUE	DATE	REVISION	CHKD	DRWN
A	30/10/24	FOR S92 RFIs	NM	NM
B	04/12/24	FOR S92 RFIs	NM	NM

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	GZ	12/07/24
DRAWN	GZ	12/07/24
TRACED		
CHECKED	GT	12/07/24

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STREAM AND WETLAND CATCHMENT PLAN
PRE-DEVELOPMENT

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:1250
A3 1:2500

DWG NUMBER
RC- 427

REVISION
B

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC428-EXISTING AND PROPOSED OLFP PLAN.dwg, 427, 12/11/2024 12:14 pm

terra consultants

JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT A1		
BY: Nui McGregor	DATE: 29/10/24	JOB NO:	

WORKSHEET 1: RUNOFF PARAMETERS AND TIME OF CONCENTRATION - EXISTING CATCHMENT

POINT A1

RUNOFF CURVE NUMBER (CN) AND INITIAL ABSTRACTION (Ia):

Soil Classification	Cover Description	Reticulated	CN	Area (ha)	CN x A
Waitemata Class C	Urban Grass	No	74	10.3600	766.64
	Impermeable Areas				0
					0
					0
					0
				10.3600	766.64

CATCHMENT SLOPE

Elevation (m)	h (m)	x (m)	Δx (m)	h (m)	ΔA (m²)
46.15	0.0	0			
84.2	38.1	385	385	19.025	7325
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
		Σ	385	Σ	7325

Slope: S 9.88% *(S = 2.A / L²)*

TIME OF CONCENTRATION

	Reticulated	Unreticulated	
CN (weighted)	0	74	
I_a (weighted)	0.0	5.0	mm
Channelisation Factor	0.8	0.8	
Catchment Length	0.385	0.385	km
Catchment Slope	9.88%	9.88%	%
Runoff Factor	0.00	0.59	
Time of Concentration	**10.0**	**10.0**	**min**
SCS Lag for HEC-HMS	**6.7**	**6.7**	**min**

terra consultants

JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT A1		
BY: Nui McGregor	DATE: 29/10/24	JOB NO:	0

WORKSHEET 2: GRAPHICAL PEAK FLOW RATE - EXISTING CATCHMENT

SUB-BASIN DETAILS:

		Reticulated		Unreticulated		
Catchment Area	A	0.000	km²	0.1036	km²	
Initial Abstraction	I_a	0.0	mm	5.0	mm	10.36
Runoff Curve Number	CN	0		74		
Time of Concentration	t_c	10.0	mins	10.0	mins	
	=	0.17	hrs	0.17	hrs	
Storage	S	0.0	mm	89.2	mm	

STORM DATA:

			2	10	50	100	
Average Recurrence	ARI						
24hr Rainfall Depth	P_{24}		85	135	175	190	mm
Climate Change Adjusted	P_{24}		108.3	176.6	204.4	221.9	mm

RETICULATED RUNOFF

Compute	c*		1.000	1.000	1.000	1.000	
Specific Peak Flow Rate	q*		0.165	0.165	0.165	0.165	(Fig 5.1)
Peak Flow Rate	q_p		0.000	0.000	0.000	0.000	m³/s
Runoff Depth	Q_{24}		108.3	176.6	204.4	221.9	mm
Runoff Volume	V_{24}		0	0	0	0	m³

UNRETICULATED RUNOFF

Compute	c*		0.355	0.483	0.521	0.543	
Specific Peak Flow Rate	q*		0.097	0.122	0.128	0.131	(Fig 5.1)
Peak Flow Rate	q_p		1.088	2.23955	2.718	3.019	m³/s
Runoff Depth	Q_{24}		55.4	112.9	137.7	153.7	mm
Runoff Volume	V_{24}		5741	11694	14271	15922	m³

TOTAL RUNOFF

Peak Flow Rate	q_p		1.088	2.23955	2.718	3.019	m³/s
Runoff Volume	V_{24}		5741	11694	14271	15922	m³

terra consultants

JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT A2		
BY: Nui McGregor	DATE: 29/10/24	JOB NO:	

WORKSHEET 1: RUNOFF PARAMETERS AND TIME OF CONCENTRATION - EXISTING CATCHMENT

POINT A2

RUNOFF CURVE NUMBER (CN) AND INITIAL ABSTRACTION (Ia):

Soil Classification	Cover Description	Reticulated	CN	Area (ha)	CN x A
Waitemata Class C	Urban Grass	No	74	13.5750	1004.55
	Impermeable Areas				0
					0
					0
					0
				13.5750	1004.55

CATCHMENT SLOPE

Elevation (m)	h (m)	x (m)	Δx (m)	h (m)	ΔA (m²)
40.21	0.0	0			
46.15	5.9	115	115	2.97	342
84.2	44.0	500	385	24.965	9612
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
		Σ	500	Σ	9953

Slope: S 7.96% *(S = 2.A / L²)*

TIME OF CONCENTRATION

	Reticulated	Unreticulated	
CN (weighted)	0	74	
I_a (weighted)	0.0	5.0	mm
Channelisation Factor	0.8	0.8	
Catchment Length	0.500	0.500	km
Catchment Slope	7.96%	7.96%	%
Runoff Factor	0.00	0.59	
Time of Concentration	**10.0**	**12.2**	**min**
SCS Lag for HEC-HMS	**6.7**	**8.1**	**min**

terra consultants

JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT A2		
BY: Nui McGregor	DATE: 29/10/24	JOB NO:	0

WORKSHEET 2: GRAPHICAL PEAK FLOW RATE - EXISTING CATCHMENT

SUB-BASIN DETAILS:

		Reticulated		Unreticulated		
Catchment Area	A	0.000	km²	0.13575	km²	
Initial Abstraction	I_a	0.0	mm	5.0	mm	
Runoff Curve Number	CN	0		74		
Time of Concentration	t_c	10.0	mins	12.2	mins	
	=	0.17	hrs	0.20	hrs	
Storage	S	0.0	mm	89.2	mm	

STORM DATA:

			2	10	50	100	
Average Recurrence	ARI						
24hr Rainfall Depth	P_{24}		85	135	175	190	mm
Climate Change Adjusted	P_{24}		108.3	176.6	204.4	221.9	mm

RETICULATED RUNOFF

Compute	c*		1.000	1.000	1.000	1.000	
Specific Peak Flow Rate	q*		0.165	0.165	0.165	0.165	(Fig 5.1)
Peak Flow Rate	q_p		0.000	0.000	0.000	0.000	m³/s
Runoff Depth	Q_{24}		108.3	176.6	204.4	221.9	mm
Runoff Volume	V_{24}		0	0	0	0	m³

UNRETICULATED RUNOFF

Compute	c*		0.355	0.483	0.521	0.543	
Specific Peak Flow Rate	q*		0.091	0.115	0.120	0.123	(Fig 5.1)
Peak Flow Rate	q_p		1.336	2.74837	3.336	3.705	m³/s
Runoff Depth	Q_{24}		55.4	112.9	137.7	153.7	mm
Runoff Volume	V_{24}		7522	15322	18699	20863	m³

TOTAL RUNOFF

Peak Flow Rate	q_p		1.336	2.74837	3.336	3.705	m³/s
Runoff Volume	V_{24}		7522	15322	18699	20863	m³

terra consultants

JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT A3		
BY: Nui McGregor	DATE: 29/10/24	JOB NO:	

WORKSHEET 1: RUNOFF PARAMETERS AND TIME OF CONCENTRATION - EXISTING CATCHMENT

POINT A3

RUNOFF CURVE NUMBER (CN) AND INITIAL ABSTRACTION (Ia):

Soil Classification	Cover Description	Reticulated	CN	Area (ha)	CN x A
Waitemata Class C	Urban Grass	No	74	15.7750	1167.35
	Impermeable Areas				0
					0
					0
					0
				15.7750	1167.35

CATCHMENT SLOPE

Elevation (m)	h (m)	x (m)	Δx (m)	h (m)	ΔA (m²)
32.63	0.0	0			
40.21	7.6	122	122	3.79	462
46.15	13.5	237	115	10.55	1213
84.2	51.6	622	385	32.545	12530
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
		Σ	622	Σ	14205

Slope: S 7.34% *(S = 2.A / L²)*

TIME OF CONCENTRATION

	Reticulated	Unreticulated	
CN (weighted)	0	74	
I_a (weighted)	0.0	5.0	mm
Channelisation Factor	0.8	0.8	
Catchment Length	0.622	0.622	km
Catchment Slope	7.34%	7.34%	%
Runoff Factor	0.00	0.59	
Time of Concentration	**10.0**	**14.4**	**min**
SCS Lag for HEC-HMS	**6.7**	**9.6**	**min**

terra consultants

JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT A3		
BY: Nui McGregor	DATE: 29/10/24	JOB NO:	0

WORKSHEET 2: GRAPHICAL PEAK FLOW RATE - EXISTING CATCHMENT

SUB-BASIN DETAILS:

		Reticulated		Unreticulated		
Catchment Area	A	0.000	km²	0.15775	km²	
Initial Abstraction	I_a	0.0	mm	5.0	mm	0
Runoff Curve Number	CN	0		74		
Time of Concentration	t_c	10.0	mins	14.4	mins	
	=	0.17	hrs	0.24	hrs	
Storage	S	0.0	mm	89.2	mm	

STORM DATA:

			2	10	50	100	
Average Recurrence	ARI						
24hr Rainfall Depth	P_{24}		85	135	175	190	mm
Climate Change Adjusted	P_{24}		108.3	176.6	204.4	221.9	mm

RETICULATED RUNOFF

Compute	c*		1.000	1.000	1.000	1.000	
Specific Peak Flow Rate	q*		0.165	0.165	0.165	0.165	(Fig 5.1)
Peak Flow Rate	q_p		0.000	0.000	0.000	0.000	m³/s
Runoff Depth	Q_{24}		108.3	176.6	204.4	221.9	mm
Runoff Volume	V_{24}		0	0	0	0	m³

UNRETICULATED RUNOFF

Compute	c*		0.355	0.483	0.521	0.543	
Specific Peak Flow Rate	q*		0.086	0.108	0.113	0.116	(Fig 5.1)
Peak Flow Rate	q_p		1.465	3.01437	3.658	4.064	m³/s
Runoff Depth	Q_{24}		55.4	112.9	137.7	153.7	mm
Runoff Volume	V_{24}		8741	17806	21730	0	m³

TOTAL RUNOFF

Peak Flow Rate	q_p		1.465	3.01437	3.658	4.064	m³/s
Runoff Volume	V_{24}		8741	17806	21730	0	m³

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JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT B		
BY: Nui McGregor	DATE: 29/10/24	JOB NO:	

WORKSHEET 1: RUNOFF PARAMETERS AND TIME OF CONCENTRATION - EXISTING CATCHMENT

POINT B

RUNOFF CURVE NUMBER (CN) AND INITIAL ABSTRACTION (Ia):

Soil Classification	Cover Description	Reticulated	CN	Area (ha)	CN x A
Waitemata Class C	Urban Grass	No	74	5.7590	426.166
	Impermeable Areas				0
					0
					0
					0
				5.7590	426.166

CATCHMENT SLOPE

Elevation (m)	h (m)	x (m)	Δx (m)	h (m)	ΔA (m²)
25.25	0.0	0			
63.6	38.4	390	390	19.175	7478
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
		Σ	390	Σ	7478

Slope: S 9.83% *(S = 2.A / L²)*

TIME OF CONCENTRATION

	Reticulated	Unreticulated	
CN (weighted)	0	74	
I_a (weighted)	0.0	5.0	mm
Channelisation Factor	0.8	0.8	
Catchment Length	0.390	0.390	km
Catchment Slope	9.83%	9.83%	%
Runoff Factor	0.00	0.59	
Time of Concentration	**10.0**	**10.0**	**min**
SCS Lag for HEC-HMS	**6.7**	**6.7**	**min**

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JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT B		
BY: Nui McGregor	DATE: 29/10/24	JOB NO:	0

WORKSHEET 2: GRAPHICAL PEAK FLOW RATE - EXISTING CATCHMENT

SUB-BASIN DETAILS:

		Reticulated		Unreticulated		
Catchment Area	A	0.000	km²	0.05759	km²	
Initial Abstraction	I_a	0.0	mm	5.0	mm	5.759
Runoff Curve Number	CN	0		74		
Time of Concentration	t_c	10.0	mins	10.0	mins	
	=	0.17	hrs	0.17	hrs	
Storage	S	0.0	mm	89.2	mm	

STORM DATA:

			2	10	50	100		
Average Recurrence	ARI							
24hr Rainfall Depth	P_{24}		85	135	175	190		mm
Climate Change Adjusted	P_{24}		108.3	176.6	230.8	221.9		mm

RETICULATED RUNOFF

Compute	c*		1.000	1.000	1.000	1.000		
Specific Peak Flow Rate	q*		0.165	0.165	0.165	0.165		(Fig 5.1)
Peak Flow Rate	q_p		0.000	0.000	0.000	0.000		m³/s
Runoff Depth	Q_{24}		108.3	176.6	230.8	221.9		mm
Runoff Volume	V_{24}		0	0	0	0		m³

UNRETICULATED RUNOFF

Compute	c*		0.355	0.483	0.553	0.543		
Specific Peak Flow Rate	q*		0.097	0.122	0.133	0.131		(Fig 5.1)
Peak Flow Rate	q_p		0.605	1.245	1.76339	1.678		m³/s
Runoff Depth	Q_{24}		55.4	112.9	161.9	153.7		mm
Runoff Volume	V_{24}		3191	6500	9322	8851		m³

TOTAL RUNOFF

Peak Flow Rate	q_p		0.605	1.245	1.76339	1.678		m³/s
Runoff Volume	V_{24}		3191	6500	9322	8851		m³

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR S92 RFIs	NM	NM	SURVEYED	TERRA	-
					DESIGNED	GZ	12/07/24
					DRAWN	GZ	12/07/24
					TRACED		
					CHECKED	GT	12/07/24

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: STREAM AND WETLAND CATCHMENT PLAN PRE-DEVELOPMENT CALCULATIONS

STAGE: FOR RESOURCE CONSENT

PROJECT NUMBER: 210506

SCALE: A1 1:1250, A3 1:2500

DWG NUMBER: RC- 427.1

REVISION: A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC425-EXISTING AND PROPOSED OLFP PLAN.dwg, 427.1, 10/30/2024 12:01 am

JOB:	
BABICH ROAD	
SUBJECT:	
STREAM POINT C	
BY: S. SHAH	DATE: 11/12/24 JOB NO:

WORKSHEET 1: RUNOFF PARAMETERS AND TIME OF CONCENTRATION - EXISTING CATCHMENT

RUNOFF CURVE NUMBER (CN) AND INITIAL ABSTRACTION (Ia):

Soil Classification	Cover Description	Reticulated	CN	Area (ha)	CN x A
Waitemata Class C	Urban Grass	No	74	10.9760	812.224
	Impermeable Areas				0
					0
					0
					0
				10.9760	812.224

CATCHMENT SLOPE

Elevation (m)	h (m)	x (m)	Δx (m)	h (m)	ΔA (m²)
34	0.0	0			
87	53.0	561	561	26.5	14867
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
		Σ	561	Σ	14867

Slope: S 9.45% *(S = 2.A / L²)*

TIME OF CONCENTRATION

	Reticulated	Unreticulated	
CN (weighted)	0	74	
I_a (weighted)	0.0	5.0	mm
Channelisation Factor	0.8	0.8	
Catchment Length	0.561	0.561	km
Catchment Slope	9.45%	9.45%	%
Runoff Factor	0.00	0.59	
Time of Concentration	**10.0**	**12.5**	**min**
SCS Lag for HEC-HMS	**6.7**	**8.3**	**min**

JOB:	
BABICH ROAD	
SUBJECT:	
STREAM POINT C	
BY: S. SHAH	DATE: 11/12/24 JOB NO: 0

WORKSHEET 2: GRAPHICAL PEAK FLOW RATE - EXISTING CATCHMENT

SUB-BASIN DETAILS:

		Reticulated		Unreticulated		
Catchment Area	A	0.000	km^2	0.10976	km^2	
Initial Abstraction	I_a	0.0	mm	5.0	mm	5.759
Runoff Curve Number	CN	0		74		
Time of Concentration	t_c	10.0	mins	12.5	mins	
	=	0.17	hrs	0.21	hrs	
Storage	S	0.0	mm	89.2	mm	

STORM DATA:

Average Recurrence	ARI	2	10	50	100		
24hr Rainfall Depth	P_{24}	85	135	175	190		mm
Climate Change Adjusted	P_{24}	108.3	176.6	230.8	221.9		mm

RETICULATED RUNOFF

Compute	c*	1.000	1.000	1.000	1.000		
Specific Peak Flow Rate	q*	0.165	0.165	0.165	0.165		(Fig 5.1)
Peak Flow Rate	q_p	0.000	0.000	0.000	0.000		m^3/s
Runoff Depth	Q_{24}	108.3	176.6	230.8	221.9		mm
Runoff Volume	V_{24}	0	0	0	0		m^3

UNRETICULATED RUNOFF

Compute	c*	0.355	0.483	0.553	0.543		
Specific Peak Flow Rate	q*	0.090	0.114	0.123	0.122		(Fig 5.1)
Peak Flow Rate	q_p	1.071	2.204	3.12145	2.971		m^3/s
Runoff Depth	Q_{24}	55.4	112.9	161.9	153.7		mm
Runoff Volume	V_{24}	6082	12389	17766	16869		m^3

TOTAL RUNOFF

Peak Flow Rate	q_p	1.071	2.204	3.12145	2.971		m^3/s
Runoff Volume	V_{24}	6082	12389	17766	16869		m^3

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	04/12/24	FOR S92 RFIs	NM	NM	SURVEYED	TERRA	-
					DESIGNED	GZ	12/07/24
					DRAWN	GZ	12/07/24
					TRACED		
					CHECKED	GT	12/07/24

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: STREAM AND WETLAND CATCHMENT PLAN PRE-DEVELOPMENT CALCULATIONS SHEET 2 OF 2

STAGE: FOR RESOURCE CONSENT

PROJECT NUMBER: 210506

SCALE: A1 1:1250, A3 1:2500

DWG NUMBER: RC- 427.2

REVISION: A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC425-EXISTING AND PROPOSED OLFP PLAN.dwg, 427.2, 12/11/2024 12:15 pm

POST-DEV
CATCHMENT C
104644 m2

HYDRAULIC ASSESSMENT POINT C

HYDRAULIC ASSESSMENT POINT A2

POST-DEV
CATCHMENT A3
165,310m2

HYDRAULIC ASSESSMENT POINT A3

HYDRAULIC ASSESSMENT POINT A1

HYDRAULIC ASSESSMENT POINT B

CATCHMENT A1
103,600m2
(SAME AS PRE-DEVELOPMENT)

POST - DEV
CATCHMENT A2
118,050m2

POST - DEV
CATCHMENT B
64,100m2

1:1250 @ A1
1:2500 @ A3
0 20 40 60 80 100 120 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR S92 RFIs	NM	NM	SURVEYED	TERRA	-
B	04/12/24	FOR S92 RFIs	NM	NM	DESIGNED	GZ	12/07/24
					DRAWN	GZ	12/07/24
					TRACED		
					CHECKED	GT	12/07/24

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STREAM AND WETLAND CATCHMENT PLAN
POST-DEVELOPMENT

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:1250
A3 1:2500

DWG NUMBER
RC- 428

REVISION
B

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawings\2. Working DWGs\2. Resource Consent\210506-RC425-EXISTING AND PROPOSED OLFP PLAN.dwg, 428, 12/11/2024 12:15 pm

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JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT A1		
BY: Nui McGregor	DATE: 29/10/24	JOB NO: 0	

WORKSHEET 1: RUNOFF PARAMETERS AND TIME OF CONCENTRATION - DEVELOPED CATCHMENT

POINT A1

RUNOFF CURVE NUMBER (CN) AND INITIAL ABSTRACTION (Ia):

Soil Classification	Cover Description	Reticulated	CN	Area (ha)	CN x A
Waitemata Class C	Urban Grass	No	74	4.1440	306.656
-	Impermeable Areas	Yes	98	6.2160	609.168
					0
					0
					0
				10.3600	915.824

CATCHMENT SLOPE

Elevation (m)	h (m)	x (m)	Δx (m)	h (m)	ΔA (m²)
46.15	0.0	0			
84.2	38.1	385	385	19.025	7325
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
		Σ	385	Σ	7325

Slope: S 9.88% *(S = 2.A / L²)*

TIME OF CONCENTRATION

	Reticulated	Unreticulated	
CN (weighted)	98	74	
I_a (weighted)	0.0	5.0	mm
Channelisation Factor	0.8	0.8	
Catchment Length	0.385	0.385	km
Catchment Slope	9.88%	9.88%	%
Runoff Factor	0.96	0.59	
Time of Concentration	**10.0**	**10.0**	**min**
SCS Lag for HEC-HMS	**6.7**	**6.7**	**min**

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JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT A1		
BY: Nui McGregor	DATE: 29/10/24	JOB NO: 0	

WORKSHEET 2: GRAPHICAL PEAK FLOW RATE - DEVELOPED CATCHMENT

SUB-BASIN DETAILS:

		Reticulated		Unreticulated		
Catchment Area	A	0.062	km^2	0.04144	km^2	
Initial Abstraction	I_a	0.0	mm	5.0	mm	10.36
Runoff Curve Number	CN	98		74		
Time of Concentration	t_c	10.0	mins	10.0	mins	
	=	0.17	hrs	0.17	hrs	
Storage	S	5.2	mm	89.2	mm	

STORM DATA:

			2	10	50	100	
Average Recurrence	ARI						
24hr Rainfall Depth	P_{24}		85	135	175	190	mm
Climate Change Adjusted	P_{24}		108.3	176.6	204.4	221.9	mm

RETICULATED RUNOFF

Compute	c*		0.913	0.945	0.952	0.955	
Specific Peak Flow Rate	q*		0.159	0.161	0.162	0.162	(Fig 5.1)
Peak Flow Rate	q_p		1.071	1.768	2.052	2.231	m³/s
Runoff Depth	Q_{24}		103.3	171.5	199.3	216.9	mm
Runoff Volume	V_{24}		6424	10663	12391	13480	m³

UNRETICULATED RUNOFF

Compute	c*		0.355	0.483	0.521	0.543	
Specific Peak Flow Rate	q*		0.097	0.122	0.128	0.131	(Fig 5.1)
Peak Flow Rate	q_p		0.435	0.896	1.087	1.208	m³/s
Runoff Depth	Q_{24}		55.4	112.9	137.7	153.7	mm
Runoff Volume	V_{24}		2296	4677	5708	9553	m³

TOTAL RUNOFF

Peak Flow Rate	q_p		1.506	2.663	3.139	3.439	m³/s
Runoff Volume	V_{24}		8720	15341	18100	23033	m³

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JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT A2		
BY: Nui McGregor	DATE: 29/10/24	JOB NO: 0	

WORKSHEET 1: RUNOFF PARAMETERS AND TIME OF CONCENTRATION - DEVELOPED CATCHMENT

POINT A2

RUNOFF CURVE NUMBER (CN) AND INITIAL ABSTRACTION (Ia):

Soil Classification	Cover Description	Reticulated	CN	Area (ha)	CN x A
Waitemata Class C	Urban Grass	No	74	4.7220	349.428
-	Impermeable Areas	Yes	98	7.0830	694.134
					0
					0
					0
				11.8050	1043.562

CATCHMENT SLOPE

Elevation (m)	h (m)	x (m)	Δx (m)	h (m)	ΔA (m²)
40.21	0.0	0			
46.15	5.9	115	115	2.97	342
84.2	44.0	500	385	24.965	9612
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
		Σ	500	Σ	9953

Slope: S 7.96% *(S = 2.A / L²)*

TIME OF CONCENTRATION

	Reticulated	Unreticulated	
CN (weighted)	98	74	
I_a (weighted)	0.0	5.0	mm
Channelisation Factor	0.8	0.8	
Catchment Length	0.500	0.500	km
Catchment Slope	7.96%	7.96%	%
Runoff Factor	0.96	0.59	
Time of Concentration	**10.0**	**12.2**	**min**
SCS Lag for HEC-HMS	**6.7**	**8.1**	**min**

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JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT A2		
BY: Nui McGregor	DATE: 29/10/24	JOB NO: 0	

WORKSHEET 2: GRAPHICAL PEAK FLOW RATE - DEVELOPED CATCHMENT

SUB-BASIN DETAILS:

		Reticulated		Unreticulated		
Catchment Area	A	0.071	km^2	0.04722	km^2	
Initial Abstraction	I_a	0.0	mm	5.0	mm	0
Runoff Curve Number	CN	98		74		
Time of Concentration	t_c	10.0	mins	12.2	mins	
	=	0.17	hrs	0.20	hrs	
Storage	S	5.2	mm	89.2	mm	

STORM DATA:

			2	10	50	100	
Average Recurrence	ARI						
24hr Rainfall Depth	P_{24}		85	135	175	190	mm
Climate Change Adjusted	P_{24}		108.3	176.6	204.4	221.9	mm

RETICULATED RUNOFF

Compute	c*		0.913	0.945	0.952	0.955	
Specific Peak Flow Rate	q*		0.159	0.161	0.162	0.162	(Fig 5.1)
Peak Flow Rate	q_p		1.220	2.014	2.338	2.542	m³/s
Runoff Depth	Q_{24}		103.3	171.5	199.3	216.9	mm
Runoff Volume	V_{24}		7320	12150	14120	15360	m³

UNRETICULATED RUNOFF

Compute	c*		0.355	0.483	0.521	0.543	
Specific Peak Flow Rate	q*		0.091	0.115	0.120	0.123	(Fig 5.1)
Peak Flow Rate	q_p		0.465	0.956	1.160	1.289	m³/s
Runoff Depth	Q_{24}		55.4	112.9	137.7	153.7	mm
Runoff Volume	V_{24}		2617	5330	6505	10886	m³

TOTAL RUNOFF

Peak Flow Rate	q_p		1.685	2.970	3.498	3.831	m³/s
Runoff Volume	V_{24}		9936	17480	20624	26246	m³

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JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT A3		
BY: Nui McGregor	DATE: 29/10/24	JOB NO: 0	

WORKSHEET 1: RUNOFF PARAMETERS AND TIME OF CONCENTRATION - DEVELOPED CATCHMENT

POINT A3

RUNOFF CURVE NUMBER (CN) AND INITIAL ABSTRACTION (Ia):

Soil Classification	Cover Description	Reticulated	CN	Area (ha)	CN x A
Waitemata Class C	Urban Grass	No	74	6.6124	489.3176
-	Impermeable Areas	Yes	98	9.9186	972.0228
					0
					0
					0
				16.5310	1461.3404

CATCHMENT SLOPE

Elevation (m)	h (m)	x (m)	Δx (m)	h (m)	ΔA (m²)
32.63	0.0	0			
40.21	7.6	125	125	3.79	474
46.15	13.5	240	115	10.55	1213
84.2	51.6	625	385	32.545	12530
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
		Σ	625	Σ	14217

Slope: S 7.28% *(S = 2.A / L²)*

TIME OF CONCENTRATION

	Reticulated	Unreticulated	
CN (weighted)	98	74	
I_a (weighted)	0.0	5.0	mm
Channelisation Factor	0.8	0.8	
Catchment Length	0.625	0.625	km
Catchment Slope	7.28%	7.28%	%
Runoff Factor	0.96	0.59	
Time of Concentration	**11.1**	**14.5**	**min**
SCS Lag for HEC-HMS	**7.4**	**9.7**	**min**

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JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT A3		
BY: Nui McGregor	DATE: 29/10/24	JOB NO: 0	

WORKSHEET 2: GRAPHICAL PEAK FLOW RATE - DEVELOPED CATCHMENT

SUB-BASIN DETAILS:

		Reticulated		Unreticulated		
Catchment Area	A	0.099	km^2	0.066124	km^2	
Initial Abstraction	I_a	0.0	mm	5.0	mm	0
Runoff Curve Number	CN	74				
Time of Concentration	t_c	11.1	mins	14.5	mins	
	=	0.18	hrs	0.24	hrs	
Storage	S	5.2	mm	89.2	mm	

STORM DATA:

			2	10	50	100	
Average Recurrence	ARI						
24hr Rainfall Depth	P_{24}		85	135	175	190	mm
Climate Change Adjusted	P_{24}		108.3	176.6	204.4	221.9	mm

RETICULATED RUNOFF

Compute	c*		0.913	0.945	0.952	0.955	
Specific Peak Flow Rate	q*		0.154	0.156	0.156	0.157	(Fig 5.1)
Peak Flow Rate	q_p		1.654	2.730	3.170	3.447	m³/s
Runoff Depth	Q_{24}		103.3	171.5	199.3	216.9	mm
Runoff Volume	V_{24}		10250	17015	19772	21509	m³

UNRETICULATED RUNOFF

Compute	c*		0.355	0.483	0.521	0.543	
Specific Peak Flow Rate	q*		0.086	0.108	0.113	0.116	(Fig 5.1)
Peak Flow Rate	q_p		0.613	1.261	1.530	1.700	m³/s
Runoff Depth	Q_{24}		55.4	112.9	137.7	153.7	mm
Runoff Volume	V_{24}		3664	7464	9109	15244	m³

TOTAL RUNOFF

Peak Flow Rate	q_p		2.267	3.991	4.700	5.147	m³/s
Runoff Volume	V_{24}		13914	24478	28881	36753	m³

terra consultants

JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT B		
BY: Nui McGregor	DATE: 29/10/24	JOB NO: 0	

WORKSHEET 1: RUNOFF PARAMETERS AND TIME OF CONCENTRATION - DEVELOPED CATCHMENT

POINT B

RUNOFF CURVE NUMBER (CN) AND INITIAL ABSTRACTION (Ia):

Soil Classification	Cover Description	Reticulated	CN	Area (ha)	CN x A
Waitemata Class C	Urban Grass	No	74	2.5628	189.6472
-	Impermeable Areas	Yes	98	3.8442	376.7316
					0
					0
					0
				6.4070	566.3788

CATCHMENT SLOPE

Elevation (m)	h (m)	x (m)	Δx (m)	h (m)	ΔA (m²)
25.25	0.0	0			
53	27.8	455	455	13.875	6313
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
		Σ	455	Σ	6313

Slope: S 6.10% *(S = 2.A / L²)*

TIME OF CONCENTRATION

	Reticulated	Unreticulated	
CN (weighted)	98	74	
I_a (weighted)	0.0	5.0	mm
Channelisation Factor	0.8	0.8	
Catchment Length	0.455	0.455	km
Catchment Slope	6.10%	6.10%	%
Runoff Factor	0.96	0.59	
Time of Concentration	**10.0**	**12.4**	**min**
SCS Lag for HEC-HMS	**6.7**	**8.3**	**min**

terra consultants

JOB:	BABICH ROAD		
SUBJECT:	STREAM POINT B		
BY: Nui McGregor	DATE: 29/10/24	JOB NO: 0	

WORKSHEET 2: GRAPHICAL PEAK FLOW RATE - DEVELOPED CATCHMENT

SUB-BASIN DETAILS:

		Reticulated		Unreticulated		
Catchment Area	A	0.038	km^2	0.025628	km^2	
Initial Abstraction	I_a	0.0	mm	5.0	mm	5.759
Runoff Curve Number	CN	98		74		
Time of Concentration	t_c	10.0	mins	12.4	mins	
	=	0.17	hrs	0.21	hrs	
Storage	S	5.2	mm	89.2	mm	

STORM DATA:

			2	10	50	100		
Average Recurrence	ARI							
24hr Rainfall Depth	P_{24}		85	135	175	190		mm
Climate Change Adjusted	P_{24}		108.3	176.6	230.8	221.9		mm

RETICULATED RUNOFF

Compute	c*		0.913	0.945	0.957	0.955		
Specific Peak Flow Rate	q*		0.159	0.161	0.162	0.162		(Fig 5.1)
Peak Flow Rate	q_p		0.662	1.093	1.436	1.380		m³/s
Runoff Depth	Q_{24}		103.3	171.5	225.8	216.9		mm
Runoff Volume	V_{24}		3973	6595	8678	8336		m³

UNRETICULATED RUNOFF

Compute	c*		0.355	0.483	0.553	0.543		
Specific Peak Flow Rate	q*		0.090	0.114	0.123	0.122		(Fig 5.1)
Peak Flow Rate	q_p		0.251	0.516	0.731	0.695		m³/s
Runoff Depth	Q_{24}		55.4	112.9	161.9	153.7		mm
Runoff Volume	V_{24}		1420	2893	4148	3939		m³

TOTAL RUNOFF

Peak Flow Rate	q_p		0.913	1.609	2.167	2.075		m³/s
Runoff Volume	V_{24}		5393	9487	12827	12275		m³

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR S92 RFIs	NM	NM	SURVEYED	TERRA	-
					DESIGNED	GZ	12/07/24
					DRAWN	GZ	12/07/24
					TRACED		
					CHECKED	GT	12/07/24

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: STREAM AND WETLAND CATCHMENT PLAN POST-DEVELOPMENT CALCULATIONS

STAGE: FOR RESOURCE CONSENT

PROJECT NUMBER: 210506

SCALE: A1 1:1250, A3 1:2500

DWG NUMBER: RC- 428.1

REVISION: A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC425-EXISTING AND PROPOSED OLFP PLAN.dwg, 428.1, 10/29/2024 11:58 pm

terra consultants

JOB:			
BABICH ROAD			
SUBJECT:			
STREAM POINT C			
BY:	S. SHAH	DATE: 11/12/24	JOB NO: 0

WORKSHEET 1: RUNOFF PARAMETERS AND TIME OF CONCENTRATION - DEVELOPED CATCHMENT

RUNOFF CURVE NUMBER (CN) AND INITIAL ABSTRACTION (Ia):

Soil Classification	Cover Description	Reticulated	CN	Area (ha)	CN x A
Waitemata Class C	Urban Grass	No	74	4.1858	309.74624
-	Impermeable Areas	Yes	98	6.2786	615.30672
					0
					0
					0
				10.4644	925.05296

CATCHMENT SLOPE

Elevation (m)	h (m)	x (m)	Δx (m)	h (m)	ΔA (m²)
34	0.0	0			
87	53.0	561	561	26.5	14867
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
	0.0		0	0	0
		Σ	561	Σ	14867

Slope: S 9.45% *(S = 2.A / L²)*

TIME OF CONCENTRATION

	Reticulated	Unreticulated	
CN (weighted)	98	74	
I_a (weighted)	0.0	5.0	mm
Channelisation Factor	0.8	0.8	
Catchment Length	0.561	0.561	km
Catchment Slope	9.45%	9.45%	%
Runoff Factor	0.96	0.59	
Time of Concentration	**10.0**	**12.5**	**min**
SCS Lag for HEC-HMS	**6.7**	**8.3**	**min**

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JOB:			
BABICH ROAD			
SUBJECT:			
STREAM POINT C			
BY:	S. SHAH	DATE: 11/12/24	JOB NO: 0

WORKSHEET 2: GRAPHICAL PEAK FLOW RATE - DEVELOPED CATCHMENT

SUB-BASIN DETAILS:

		Reticulated		Unreticulated	
Catchment Area	A	0.063	km^2	0.0418576	km^2
Initial Abstraction	I_a	0.0	mm	5.0	mm
Runoff Curve Number	CN	98		74	
Time of Concentration	t_c	10.0	mins	12.5	mins
	=	0.17	hrs	0.21	hrs
Storage	S	5.2	mm	89.2	mm

STORM DATA:

Average Recurrence	ARI	2	10	50	100	
24hr Rainfall Depth	P_{24}	85	135	175	190	mm
Climate Change Adjusted	P_{24}	108.3	176.6	230.8	221.9	mm

RETICULATED RUNOFF

Compute	c*	0.913	0.945	0.957	0.955	
Specific Peak Flow Rate	q*	0.159	0.161	0.162	0.162	(Fig 5.1)
Peak Flow Rate	q_p	1.082	1.785	2.346	2.254	m^3/s
Runoff Depth	Q_{24}	103.3	171.5	225.8	216.9	mm
Runoff Volume	V_{24}	6489	10771	14174	13616	m^3

UNRETICULATED RUNOFF

Compute	c*	0.355	0.483	0.553	0.543	
Specific Peak Flow Rate	q*	0.090	0.114	0.123	0.122	(Fig 5.1)
Peak Flow Rate	q_p	0.408	0.840	1.190	1.133	m^3/s
Runoff Depth	Q_{24}	55.4	112.9	161.9	153.7	mm
Runoff Volume	V_{24}	2319	4725	6775	6433	m^3

TOTAL RUNOFF

Peak Flow Rate	q_p	1.490	2.626	3.536	3.387	m^3/s
Runoff Volume	V_{24}	8808	15495	20949	20049	m^3

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	04/12/24	FOR S92 RFIs	NM	NM	SURVEYED	TERRA	-
					DESIGNED	GZ	12/07/24
					DRAWN	GZ	12/07/24
					TRACED		
					CHECKED	GT	12/07/24

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: STREAM AND WETLAND CATCHMENT PLAN POST-DEVELOPMENT CALCULATIONS SHEET 2 OF 2

STAGE: FOR RESOURCE CONSENT

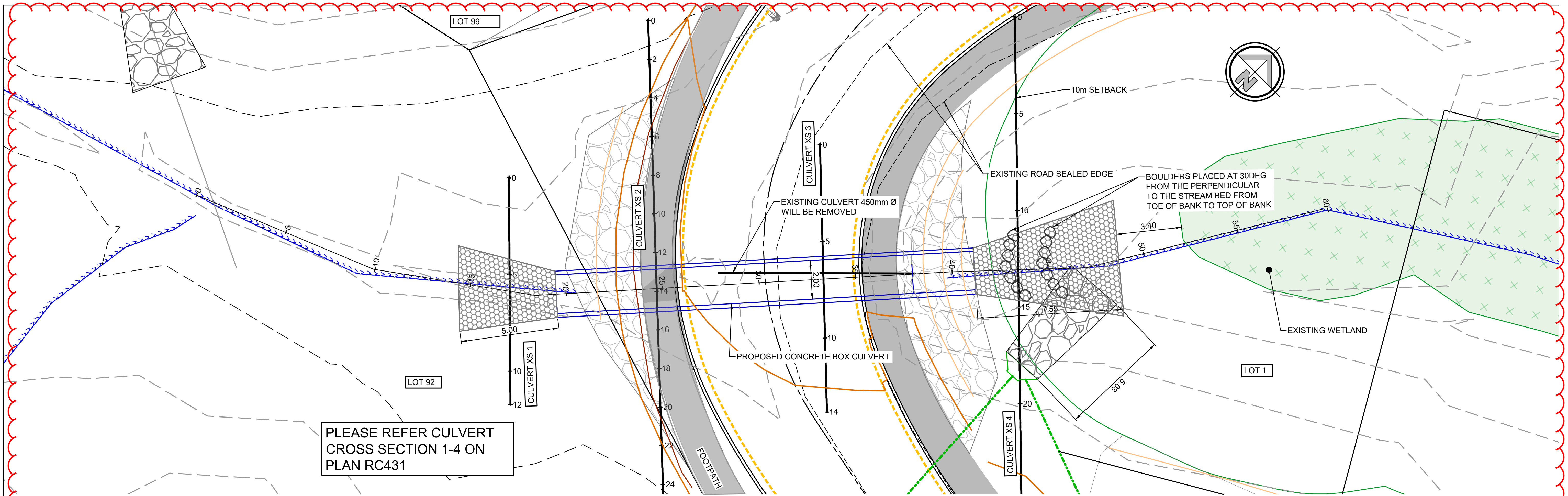
PROJECT NUMBER: 210506

SCALE: A1 1:1250, A3 1:2500

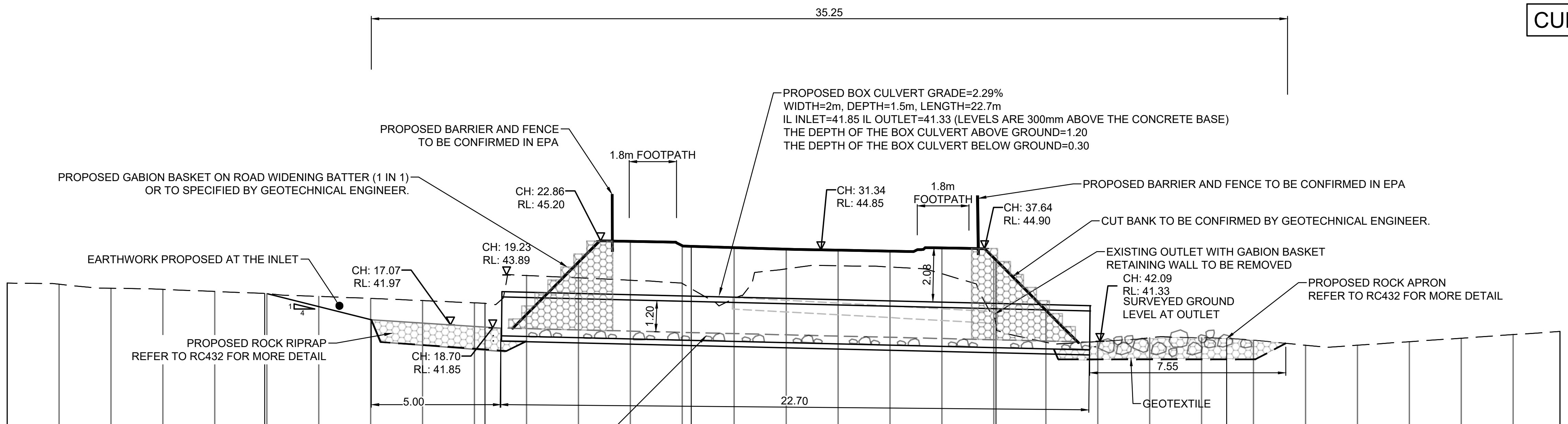
DWG NUMBER: RC- 428.2

REVISION: A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC425-EXISTING AND PROPOSED OLFP PLAN.dwg, 428.2, 12/11/2024 12:16 pm



CULVERT 1



CHAINAGE	EXISTING LEVEL	PROPOSED LEVEL
0.00	43.57	
2.00	43.53	
4.00	43.37	
6.00	43.33	
8.00	43.25	
9.92		
10.00	43.17	
12.00	43.06	
14.00	42.98	
16.00	42.90	
18.00	42.81	
18.40		
20.00	43.87	
22.00	43.77	44.37
24.00	43.68	45.18
26.00	43.56	45.01
26.34		
28.00	42.98	44.94
30.00	44.12	44.88
32.00	44.24	44.84
34.00	44.19	44.80
36.00	43.93	44.93
38.00	42.27	44.54
38.08		
40.00	41.29	42.53
42.00	41.32	
44.00	41.47	
46.00	41.47	
46.96		
48.00	41.37	
50.00	41.18	
52.00	41.18	
54.00	41.32	
56.00	41.45	
58.00	41.59	
59.80	41.71	

CULVERT TO INSTALL BELOW THE STREAM BED LEVEL
STREAM BED MATERIAL INSIDE THE CULVERT
TO BE AGREED WITH ECOLOGIST SPECIALIST
TO IMITATE THE NATURAL STREAM BED
EG. CLAY MATERIAL, AND LARGE ROCKS

CULVERT ALIGNMENT LONGSECTION
CH: 0.00m TO CH: 59.80m
1:100H 1:100V @ A1 (DOUBLE FOR A3)

1:100 @ A1 / 1:200 @ A3 — scale bar 0 1 2 3 4 5 6 7 8 9 10 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	GZ	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RFIS	NM	GZ	DESIGNED	GZ	01/05/24
C	23/08/24	FOR S92	NM	NM	DRAWN	GZ	01/05/24
D	30/10/24	FOR S92	NM	NM	TRACED	GZ	01/05/24
E	04/12/24	FOR S92	NM	NM	CHECKED	NM	01/05/24

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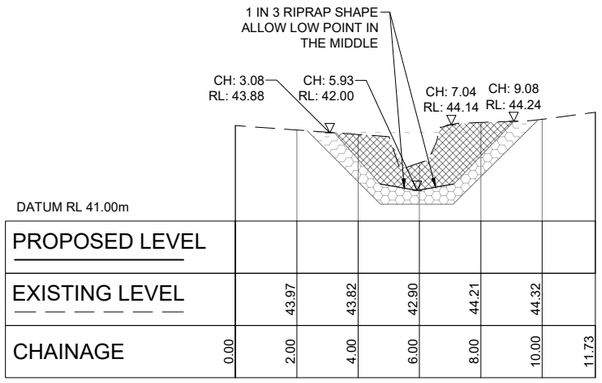
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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

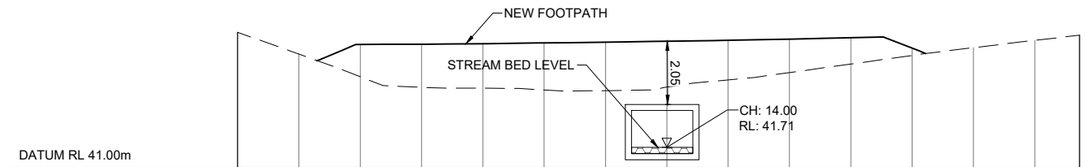
DRAWING TITLE
PROPOSED CULVERT 1 PLAN & LONG SECTION

STAGE	FOR RESOURCE CONSENT		
PROJECT NUMBER 210506	SCALE	A1	1:100
		A3	1:200
DWG NUMBER RC- 430	REVISION E		



PROPOSED LEVEL								
EXISTING LEVEL		43.97	43.82	42.90	44.21	44.32		
CHAINAGE	0.00	2.00	4.00	6.00	8.00	10.00	11.73	

CULVERT XS1 - INLET LONGSECTION
CH: 0.00m TO CH: 11.73m
1:100H 1:100V @ A1 (DOUBLE FOR A3)

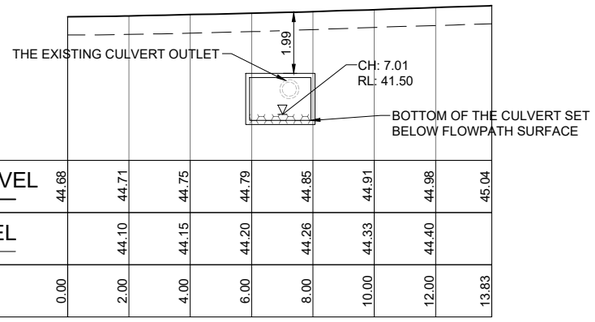


PROPOSED LEVEL			45.06	45.07	45.09	45.11	45.14	45.17	45.20	45.24	45.28	44.95						
EXISTING LEVEL		44.75	44.01	43.67	43.64	43.58	43.56	43.67	43.91	44.15	44.43	44.71	44.96	45.20				
CHAINAGE	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	27.46			

CULVERT XS2 - INLET LONGSECTION
CH: 0.00m TO CH: 27.46m
1:100H 1:100V @ A1 (DOUBLE FOR A3)

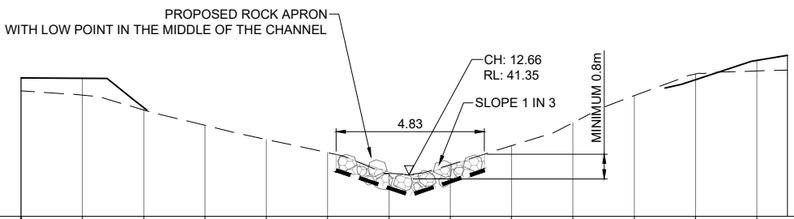
GENERAL NOTES:

1. ACCESS PARKING PLATFORMS SHALL BE PROVIDED AT CULVERT LOCATIONS THAT ALLOW FOR SAFE INSPECTION USING SHORT DURATION MOBILE TEMPORARY TRAFFIC CONTROL. DETAILS SHALL BE AGREED WITH THE AGENCY OIM PRIOR TO CONSTRUCTION
2. PIPE INSTALLATION AS PER AS/NZS 3725:2007.
3. GEOTEXTILE TO BE BIDIM A29 UNLESS NOTED OTHERWISE.
4. FISH HABITAT GROUTED ROCK TO BE CONSTRUCTED WITH LONGITUDINAL SPACING BASED ON DISTANCE BETWEEN = (0.2/CULVERT SLOPE) X 0.8. GROUTED ROCK TO BE PROGRESSIVELY PLACED AS SECTIONS OF PIPE ARE INSTALLED. REFER TO CULVERT LONGITUDINAL SECTIONS FOR EMBEDMENT.



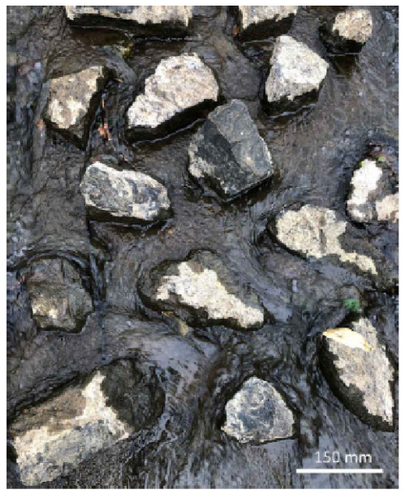
PROPOSED LEVEL	44.68	44.71	44.75	44.79	44.85	44.91	44.98	45.04
EXISTING LEVEL		44.10	44.15	44.20	44.26	44.33	44.40	
CHAINAGE	0.00	2.00	4.00	6.00	8.00	10.00	12.00	13.83

CULVET XS3 OUTLET LONGSECTION
CH: 0.00m TO CH: 13.83m
1:100H 1:100V @ A1 (DOUBLE FOR A3)



PROPOSED LEVEL	44.51	44.50	43.54									44.45	45.08					
EXISTING LEVEL		43.95	43.46	42.96	42.51	42.08	41.40	41.69	42.30	43.05	43.93	44.64	44.74					
CHAINAGE	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	28.00	30.00	30.90	

CULVERT XS4 - OUTLET LONGSECTION
CH: 0.00m TO CH: 30.90m
1:100H 1:100V @ A1 (DOUBLE FOR A3)



EXAMPLE ROCK SIZE AND SPACING FOR FISH PASSAGE
SOURCE : NZ FISH PASSAGE GUIDELINE (NIWA AND DOC)



EXAMPLE OF RIP-RAP APRON OUTLET FOR FISH PASSAGE
SOURCE : NZ FISH PASSAGE GUIDELINE (NIWA AND DOC)

1:100 @ A1
1:200 @ A3
0 1 2 3 4 5 6 7 8 9 10 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	GZ
B	12/07/24	FOR S92 RFIS	NM	GZ
C	30/10/24	FOR S92 RFIS	NM	GZ
D	04/12/24	FOR S92 RFIS	NM	GZ

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	GZ	01/05/24
DRAWN	GZ	01/05/24
TRACED	GZ	01/05/24
CHECKED	NM	01/05/24

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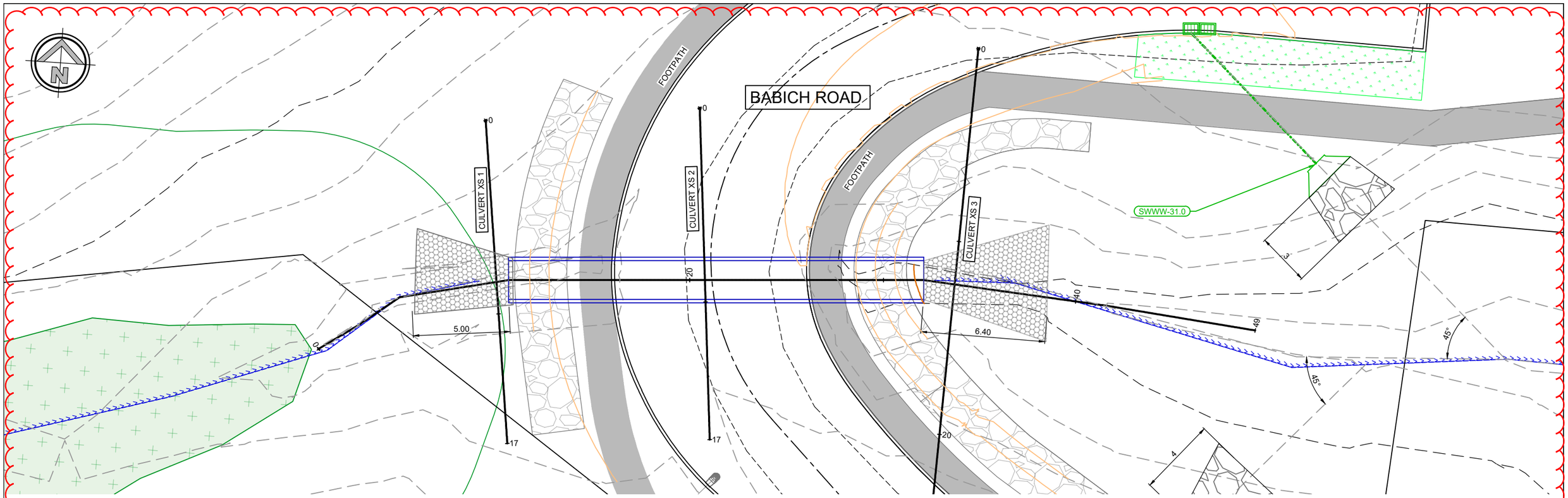
CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
PROPOSED CULVERT 1
CROSS SECTIONS

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER	210506
SCALE	A1 1:100, A3 1:200
DWG NUMBER	RC- 431
REVISION	D



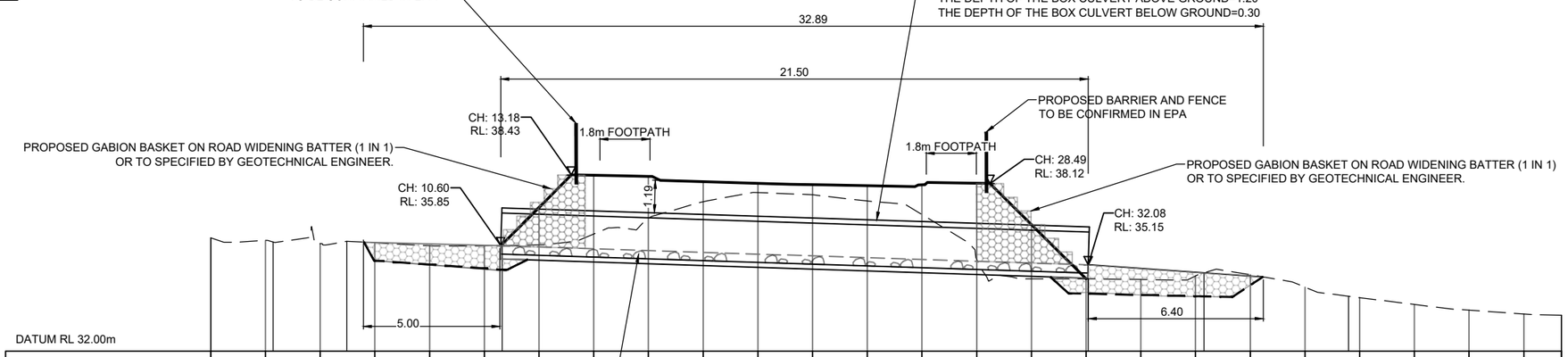
PLEASE REFER CULVERT 2 CROSS SECTION 1-3 ON PLAN RC433

PROPOSED BOX CULVERT GRADE=3.50%
WIDTH=2m, DEPTH=1.5m, LENGTH=21.45m

IL INLET=35.89 IL OUTLET=35.15 (LEVELS ARE 300mm ABOVE THE CONCRETE BASE)
THE DEPTH OF THE BOX CULVERT ABOVE GROUND=1.20
THE DEPTH OF THE BOX CULVERT BELOW GROUND=0.30

PROPOSED BARRIER AND FENCE TO BE CONFIRMED IN EPA

PROPOSED GABION BASKET ON ROAD WIDENING BATTER (1 IN 1) OR TO SPECIFIED BY GEOTECHNICAL ENGINEER.



DATUM RL 32.00m

PROPOSED LEVEL							37.25	38.43	38.39	38.19	38.13	38.08	38.04	38.08	38.13	36.63										
EXISTING LEVEL	36.14	36.04	35.93	35.96	35.85	35.85	35.88	36.28	36.85	37.46	37.79	37.71	37.49	36.99	35.35	34.64	34.64	34.62	34.75	34.79	34.34	33.96	33.71	33.50	33.36	33.32
CUT (-) / FILL (+)							1.37	2.15	1.54	0.73	0.34	0.37	0.56	1.08	2.78	1.98										
CHAINAGE	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00	26.00	28.00	30.00	32.00	34.00	36.00	38.00	40.00	42.00	44.00	46.00	48.00	49.38

CULVERT TO INSTALL BELOW THE STREAM BED LEVEL
STREAM BED MATERIAL INSIDE THE CULVERT TO BE AGREED WITH ECOLOGIST SPECIALIST TO IMITATE THE NATURAL STREAM BED EG. CLAY MATERIAL, AND LARGE ROCKS

CULVERT 2 LONGSECTION
CH: 0.00m TO CH: 49.38m
1:100H 1:100V @ A1 (DOUBLE FOR A3)

CULVERT 2

1:100 @ A1
1:200 @ A3
0 1 2 3 4 5 6 7 8 9 10 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	GZ
B	30/10/24	FOR S92 RFIS	NM	GZ
C	04/12/24	FOR S92	NM	NM

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	GZ	01/05/24
DRAWN	GZ	01/05/24
TRACED	GZ	01/05/24
CHECKED	NM	01/05/24

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
PROPOSED CULVERT 2 PLAN & LONG SECTION

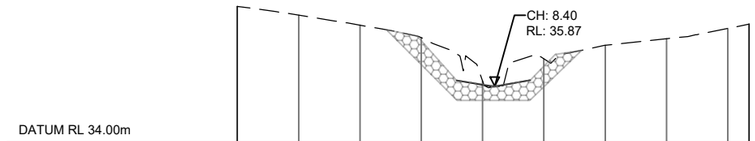
STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:100
A3 1:200

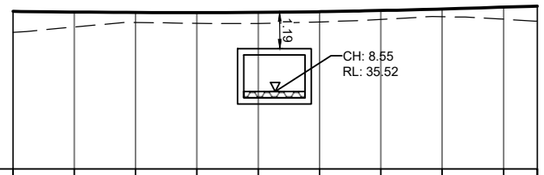
DWG NUMBER
RC- 432

REVISION
C



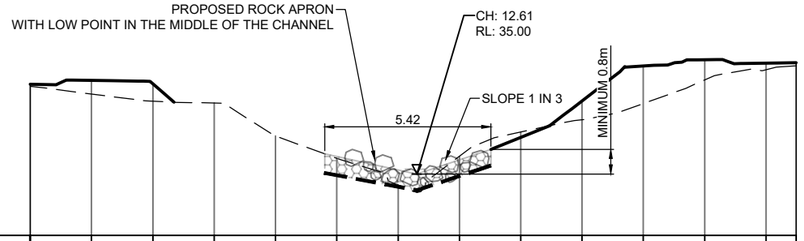
DATUM RL 34.00m										
PROPOSED LEVEL	38.47	38.19	37.86	37.45	36.04	36.76	37.20	37.42	37.75	37.89
EXISTING LEVEL	38.47	38.19	37.86	37.45	36.04	36.76	37.20	37.42	37.75	37.89
CUT (-) / FILL (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CHAINAGE	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	16.70

CULVERT 2 - XS 1 LONGSECTION
CH: 0.00m TO CH: 16.70m
1:100H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 33.00m										
PROPOSED LEVEL	38.14	38.11	38.10	38.09	38.10	38.12	38.16	38.21	38.27	38.31
EXISTING LEVEL	37.45	37.63	37.77	37.74	37.74	37.79	37.87	37.96	37.88	37.82
CUT (-) / FILL (+)	0.68	0.49	0.33	0.35	0.36	0.33	0.29	0.25	0.39	0.49
CHAINAGE	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	17.11

CULVERT 2 - XS 2 LONGSECTION
CH: 0.00m TO CH: 17.11m
1:100H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 33.00m														
PROPOSED LEVEL	37.86	37.61	37.38	37.32	36.24	35.51	34.64	35.58	36.37	36.77	37.30	38.07	38.40	38.53
EXISTING LEVEL	37.86	37.61	37.38	37.32	36.24	35.51	34.64	35.58	36.37	36.77	37.30	38.07	38.40	38.53
CUT (-) / FILL (+)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CHAINAGE	0.00	2.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	22.00	24.00	24.99

CULVERT 2 - XS 3 LONGSECTION
CH: 0.00m TO CH: 24.99m
1:100H 1:100V @ A1 (DOUBLE FOR A3)

1:100 @ A1
1:200 @ A3
0 1 2 3 4 5 6 7 8 9 10 m

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN
A	04/12/24	FOR RESOURCE CONSENT	NM	GZ

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	GZ	01/05/24
DRAWN	GZ	01/05/24
TRACED	GZ	01/05/24
CHECKED	NM	01/05/24

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
PROPOSED CULVERT 2
CROSS SECTIONS

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:100
A3 1:200

DWG NUMBER
RC- 433

REVISION
A

RIP-RAP OUTLET DESIGN CULVERT 1

TP 2013/018: Hydraulic Energy Management: Inlet and Outlet Design for Treatment Devices

BOX CULVERT FLOW RATE

Storm Scenario		1%	AEP
Box Culvert Flow Rate	q	6200	l/s

DESIGN CAPACITY

$V_d = {}^1/n\, R^{2/3} S^{1/2}$ *Manning's Formula*

Culvert Width	w	2000	mm	
Flow Depth	d	1096	mm	
Culvert Slope	S	2.29%		
Number of Barrels		1		
Manning's n	n	0.033		
Culvert Design Flow	Q_d	6,200.0	l/s	OK
Approx Culvert Flow Velocity	v	2.83	m/s	

MAXIMUM FLOW DEPTH WITHIN CULVERT DURING 100YR STORM EVENT (INC 3.8DEG CLIMATE CHANGE).

CHECK CRITICAL FLOW

Froude Number	F_o	0.9	(Subcritical)
Scour Protection		STANDARD OUTLET	

$F_o = v/(g \times d_o)^{0.5}$

RIP-RAP APRON DESIGN

Median Rip-Rap Diameter	d_{50}	432	mm	$d_{50} = 0.25 \times D_o \times F_o$
Minimum Apron Width	W_a	6.00	m	$W_a \geq 3 \times D_o$
Minimum Apron Length	L_a	7.58	m	$L_a = D_o\,(8 + 17 \times \log F_o)$

RIP-RAP OUTLET DESIGN CULVERT 2

TP 2013/018: Hydraulic Energy Management: Inlet and Outlet Design for Treatment Devices

BOX CULVERT FLOW RATE

Storm Scenario		1%	AEP
Box Culvert Flow Rate	q	5150	l/s

DESIGN CAPACITY

$V_d = {}^1/n\, R^{2/3} S^{1/2}$ *Manning's Formula*

Culvert Width	w	2000	mm	
Flow Depth	d	1039	mm	
Culvert Slope	S	3.50%		
Number of Barrels		1		
Manning's n	n	0.033		
Culvert Design Flow	Q_d	5,150.0	l/s	OK
Approx Culvert Flow Velocity	v	2.48	m/s	

MAXIMUM FLOW DEPTH WITHIN CULVERT DURING 100YR STORM EVENT (INC 3.8DEG CLIMATE CHANGE).

CHECK CRITICAL FLOW

Froude Number	F_o	0.8	(Subcritical)
Scour Protection		STANDARD OUTLET	

$F_o = v/(g \times d_o)^{0.5}$

RIP-RAP APRON DESIGN

Median Rip-Rap Diameter	d_{50}	388	mm	$d_{50} = 0.25 \times D_o \times F_o$
Minimum Apron Width	W_a	6.00	m	$W_a \geq 3 \times D_o$
Minimum Apron Length	L_a	6.37	m	$L_a = D_o\,(8 + 17 \times \log F_o)$

GUIDELINE FOR WORKING WITHIN THE STREAM BED WITH FISH PASSAGE

1. THE TIMING OF WORKS DURING INSTALLATION OF ANY IN-STREAM STRUCTURE SHOULD BE CONSIDERED IN RELATION TO THE LIFECYCLES OF THE FISH THAT INHABIT THE WATERCOURSE AND THE FLOW CONDITIONS THAT COULD BE EXPERIENCED DURING INSTALLATION.
2. IT IS IMPORTANT TO KNOW WHICH SPECIES ARE PRESENT AT A PROPOSED SITE IN ORDER TO AVOID UNDERTAKING WORKS DURING MIGRATION PERIODS. AS A GENERAL RULE, AVOIDING THE SEPTEMBER TO FEBRUARY MIGRATION PERIOD IS ADVISABLE WHEN PLANNING INSTALLATION WORKS.
3. INSTALLATION WORKS SHOULD NOT BE UNDERTAKEN DURING HIGH FLOWS AND DURING INSTALLATION, WATER SHOULD BE DIVERTED AROUND, OR THROUGH, THE CONSTRUCTION SITE BUT ALWAYS ENSURING THAT WORKS DO NOT CONTAMINATE WATER DOWNSTREAM
4. ADOPT EROSION AND SEDIMENT CONTROL GUIDELINE FOR LAND DISTURBING ACTIVITIES IN THE AUCKLAND REGION' FOR DETAILS OF WATERCOURSE PROTECTION). ANY TEMPORARY STRUCTURE USED TO MAINTAIN WATER QUALITY DURING INSTALLATION SHOULD NOT ITSELF BE A BARRIER TO FISH MOVEMENT.
5. CONSTRUCTION METHODOLOGY FOR WORK WITHIN STREAM BED SHALL BE PROVIDED IN DETAILED WITH EPA DOCUMENT AND APPROVED BY COUNCIL.

THE GENERAL PRINCIPLES BELOW SHOULD BE ADOPTED BY THE CONTRACTOR DURING THE CONSTRUCTION OF STRUCTURES WITHIN THE STREAM

1. PRIOR TO WORKS COMMENCING NEAR WETLAND OR WITHIN THE STREAM, THE CONTRACTOR WILL MEET WITH PROJECT ECOLOGIST ON SITE TO AGREE EXTENT OF WORKS AND REVIEW CONSENT CONDITIONS.
2. CLEARLY MARK EXTENT OF WORKS AND FENCE AROUND THE WETLAND. PROJECT ECOLOGIST AND CONTRACTOR TO BRIEF ALL STAFF INVOLVED WITH WORKS ON PROCESS AND THE IMPORTANCE OF PROTECTION OF STREAM NATURAL GROUND CONDITION AND THE ADJACENT WETLAND.
3. COMMENCE REMOVAL OF VEGETATION PRIOR TO EARTHWORKS STARTING, NOTE POTENTIAL ADDITIONAL MANAGEMENT PROCESSES FOR WORKING ADJACENT TO THE WETLAND AREAS. ECOLOGIST TO BE ACTIVELY INVOLVED IN THIS PROCESS.
4. ONCE VEGETATION IS REMOVED, SEDIMENT CONTROLS WILL NEED TO ESTABLISHED.
5. ONCE ALL SEDIMENT CONTROL MEASURES ARE IN PLACE THE AREA IS TO BE REVIEWED BY THE PROJECT ENGINEER AND COUNCIL ENVIRONMENTAL COMPLIANCE OFFICER AND IF AGREED, GROUND DISTURBING ACTIVITIES TO COMMENCE. ECOLOGIST TO BRIEF ALL CONSTRUCTION STAFF PRIOR TO WORKS COMMENCEMENT ADJACENT OF THE WETLAND.
6. ONCE PRIMARY SEDIMENT CONTROLS ARE ESTABLISHED AND APPROVED, ESTABLISHMENT OF MATERIALS AND EQUIPMENT FOR CULVERT AND APRON CONSTRUCTION CAN BE UNDERTAKEN. ALL MATERIALS AND MACHINERY ARE TO BE STORED OUTSIDE THE STREAM AREAR. PLANT AND MACHINERY SHOULD ALWAYS BE WELL MAINTAINED AND KEPT CLEAN.
7. MATERIALS AND MACHINERY ARE TO BE IN AN AREA BUNDED OFF FROM ANY POTENTIAL SEDIMENT LADEN RUNOFF FLOWS.
8. SUPERSILT FENCE TO REMAIN IN PLACE UNTIL THE CONSTRUCTION COMPLETED.
9. SEDIMENT CONTROL MEASURES ARE TO BE INSPECTED DAILY AND IMMEDIATELY PRIOR TO PERIODS OF FORECAST RAIN AND ANY DEFECTS REMEDIED.
10. ONCE THE CONSTRUCTION IS COMPLETED AND EXPOSED AREAS ARE STABILISED SEDIMENT CONTROLS (E.G., SUPERSILT FENCE) CAN BE REMOVED.

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	04/12/24	FOR S92 RFIS	NM	NM	SURVEYED	TERRA	-
					DESIGNED	NM	12/07/24
					DRAWN	NM	12/07/24
					TRACED	NM	12/07/24
					CHECKED	GT	12/07/24

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: CULVERT 1 AND 2 RIP RAP CALCULATION

STAGE: FOR RESOURCE CONSENT

PROJECT NUMBER: 210506

SCALE: A1 N.T.S, A3 N.T.S

DWG NUMBER: RC- 434

REVISION: A

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

ROAD 6
ROAD 5
ROAD 1
ROAD 2
ROAD 3
ROAD 4
BABICH ROAD

RG 1
RG 2
RG 3
RG 4
RG 5
RG 6
RG 7
RG 8
RG 9
RG 10
RG 11
RG 12
RG 13

Lot 100 4708m²
Lot 101 1537m²
Lot 102 1259m²
Lot 103 1647m²
Lot 104 450m²
Lot 105 450m²
Lot 106 450m²
Lot 107 450m²
Lot 108 450m²
Lot 109 450m²
Lot 110 450m²
Lot 112 600m²
Lot 113 450m²
Lot 114 450m²
Lot 115 450m²
Lot 116 450m²
Lot 117 489m²
Lot 118 1268m²
Lot 119 1250m²
Lot 120 1948m²
Lot 121 1562m²
Lot 122 1936m²
Lot 123 463m²
Lot 124 459m²
Lot 125 484m²
Lot 126 466m²
Lot 128 592m²
Lot 129 451m²
Lot 130 779m²
Lot 131 561m²
Lot 132 451m²
Lot 133 451m²
Lot 134 608m²
Lot 135 558m²
Lot 136 495m²
Lot 137 501m²
Lot 139 469m²
Lot 500 6441m² (Drainage) Reserve
Lot 501 (Drainage) Reserve
Lot 503 3700m² Park Reserve
LOT 1 2911m²
LOT 96 4745m²
LOT 98 2976m²
Lot 1 450m²
Lot 2 450m²
Lot 3 450m²
Lot 4 450m²
Lot 5 465m²
Lot 6 514m²
Lot 7 618m²
Lot 8 510m²
Lot 9 501m²
Lot 10 528m²
Lot 11 484m²
Lot 12 474m²
Lot 13 455m²
Lot 14 450m²
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Lot 74 450m²
Lot 75 451m²
Lot 76 451m²
Lot 77 1256m²
Lot 78 1253m²
Lot 79 1261m²
Lot 80 1293m²
Lot 81 457m²
Lot 82 492m²
Lot 91 461m²
Lot 97 1250m²
Lot 138 485m²

ISSUE	DATE	REVISION	CHKD	DRWN
A	30/10/24	FOR S92 RESPONSE	GT	GZ
B	04/12/24	FOR S92 RESPONSE	GT	SS

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	GCAI	02/04/24
DRAWN	GCAI	02/04/24
TRACED		
CHECKED	GT	02/04/24

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CLIENT
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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
RAIN GARDENS PLAN

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 435

REVISION
B

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC437-RG Details dwg, 435, 12/10/2024 11:16 am

Rain garden #	Impervious area	volume req for 34.5mm (m3) - no offset existing volume runoff	raingarden area	ponding depth	Planting Media Depth	Transition Layer Depth	Drainage Layer Depth	RG volume
RG1	2424	84	123	0.2	0.6	0.1	0.8	85
RG2	702	24	36	0.2	0.6	0.1	0.8	25
RG3	717	25	36	0.2	0.6	0.1	0.8	25
RG4	874	30	44	0.2	0.6	0.1	0.8	30
RG5	714	25	38	0.2	0.6	0.1	0.8	26
RG6	2405	83	110	0.4	0.6	0.1	0.5	86
RG7	1590	55	75	0.2	0.6	0.1	0.6	57
RG8	1206	42	53	0.2	0.6	0.1	1.1	42
RG9	1667	58	85	0.2	0.6	0.1	0.8	59
RG10	2548	88	110	0.2	0.6	0.1	1.2	91
RG11	2469	85	93	0.2	0.6	0.1	1.5	87
RG12	1279	44	70	0.2	0.6	0.1	0.7	46
RG13	820	28	37	0.2	0.6	0.1	1	28

RAINGARDEN 13
IMPERVIOUS AREA
820 m²

RAINGARDEN 12
IMPERVIOUS AREA
1243 m²

RAINGARDEN 11
IMPERVIOUS AREA
2469 m²

RAINGARDEN 10
IMPERVIOUS AREA
2548 m²

RAINGARDEN 07
IMPERVIOUS AREA
1590 m²

RAINGARDEN 08
IMPERVIOUS AREA
1206 m²

RAINGARDEN 09
IMPERVIOUS AREA
1667 m²

RAINGARDEN 06
IMPERVIOUS AREA
2405 m²

RAINGARDEN 03
IMPERVIOUS AREA
717 m²

RAINGARDEN 02
IMPERVIOUS AREA
702 m²

RAINGARDEN 01
IMPERVIOUS AREA
2424 m²

RAINGARDEN 05
IMPERVIOUS AREA
714 m²

RAINGARDEN 04
IMPERVIOUS AREA
874 m²

Lot 500 6445m² (Drainage) Reserve

Lot 501 (Drainage) Reserve

Lot 503 3700m² Park Reserve

1:750 @ A1
1:1500 @ A3

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	NM
B	23/08/24	FOR S92 RFIS	NM	NM
C	30/10/24	FOR S92 RFIS	NM	NM
D	04/12/24	FOR S92 RFIS	GT	SS

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	GZ	01/05/24
DRAWN	GZ	01/05/24
TRACED	GZ	01/05/24
CHECKED	NM	01/05/24

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CLIENT
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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
RAIN GARDEN CATCHMENT PLAN

STAGE
FOR RESOURCE CONSENT

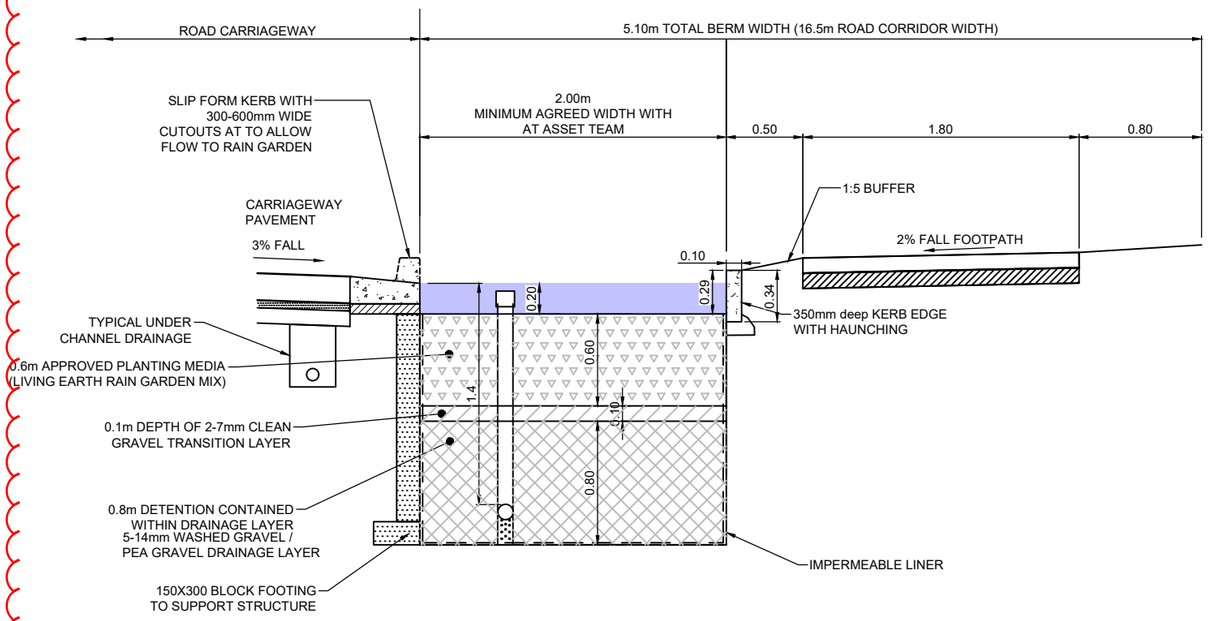
PROJECT NUMBER
210506

SCALE
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A3 1:1500

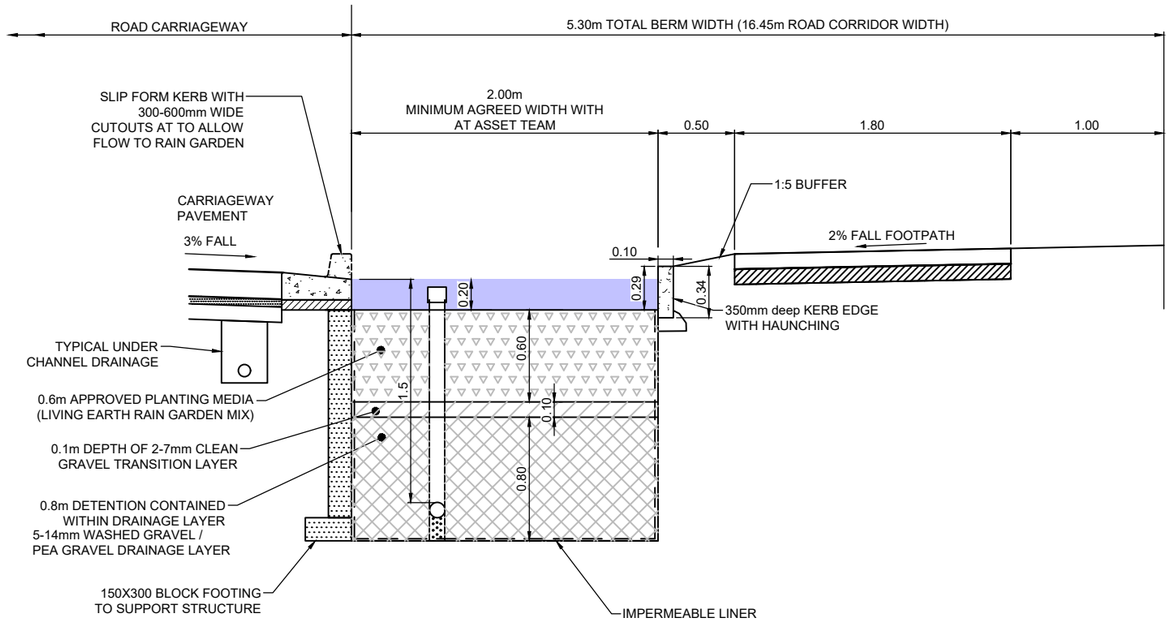
DWG NUMBER
RC- 436

REVISION
D

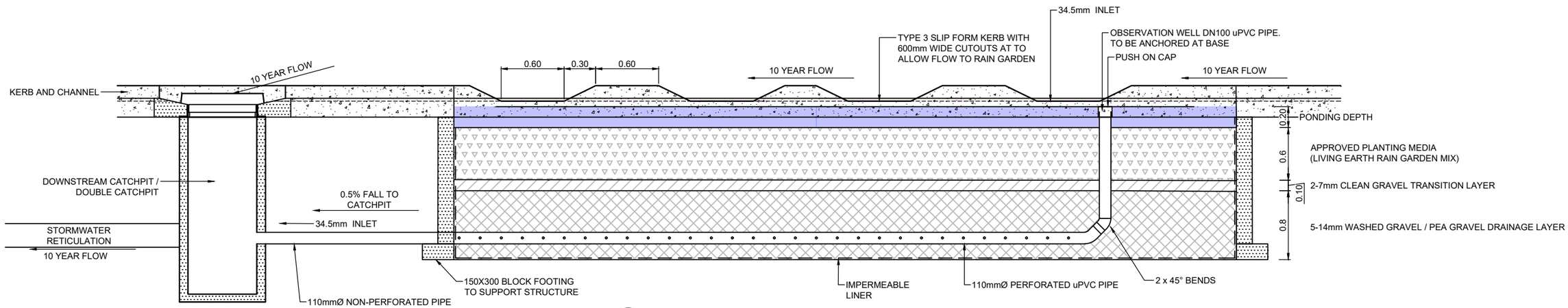
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RG2, RG3 , RG4 AND RG 5 AT ROAD 2 AND ROAD 4
ROAD SIDE RAIN GARDENS - WIDTH 2.0m



RAIN GARDEN 8 AT ROAD 5
ROAD SIDE RAIN GARDENS - WIDTH 2.0m



B / - TYPICAL RAINGARDEN WITH <5% SLOPE LONG SECTION DETAIL- WITHOUT CHECK DAM
SCALE1: 20 (A1) 1:40 (A3)

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	12/07/24	FOR S92 RFIs	GT	GZ	SURVEYED		
B	30/10/24	FOR S92 RFIs	GT	GCAI	DESIGNED		
C	04/12/24	FOR S92 RFIs	GT	SS	DRAWN		
					TRACED		
					CHECKED		

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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: RAIN GARDEN 2, 3, 4, 5 & 8 TYPICAL DETAILS

STAGE: FOR RESOURCE CONSENT

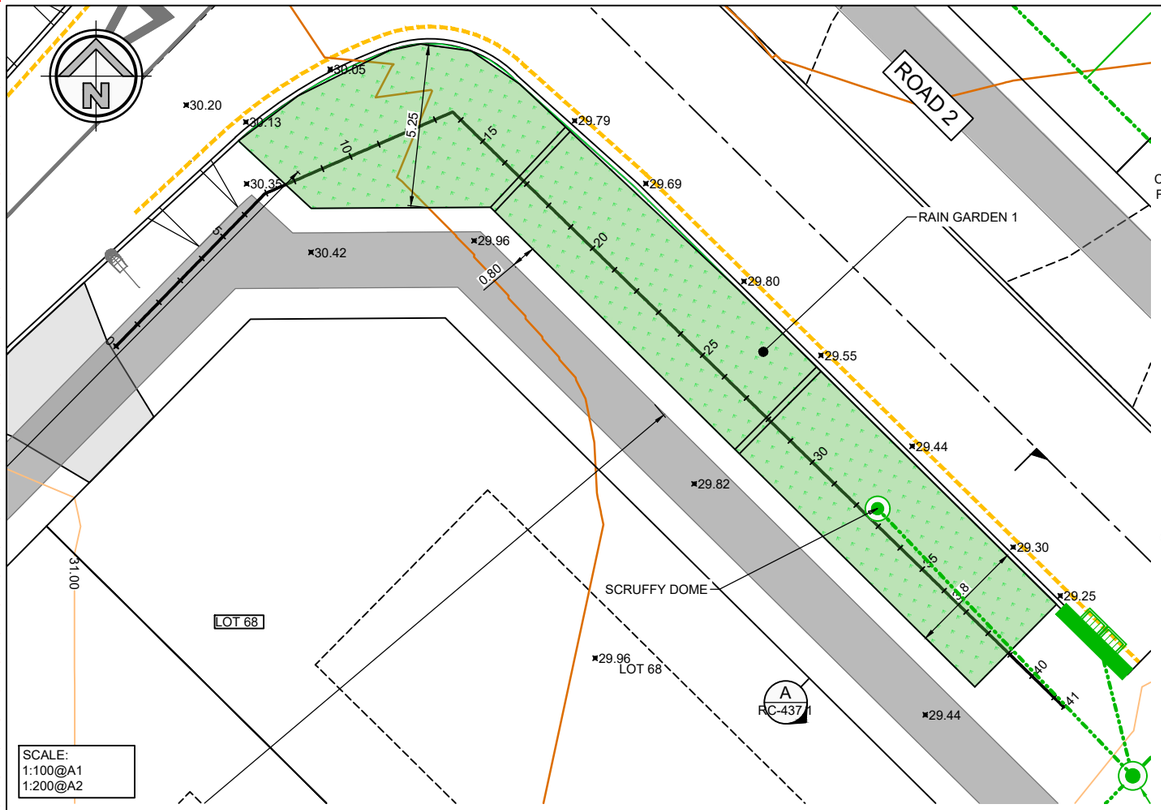
PROJECT NUMBER: 210506

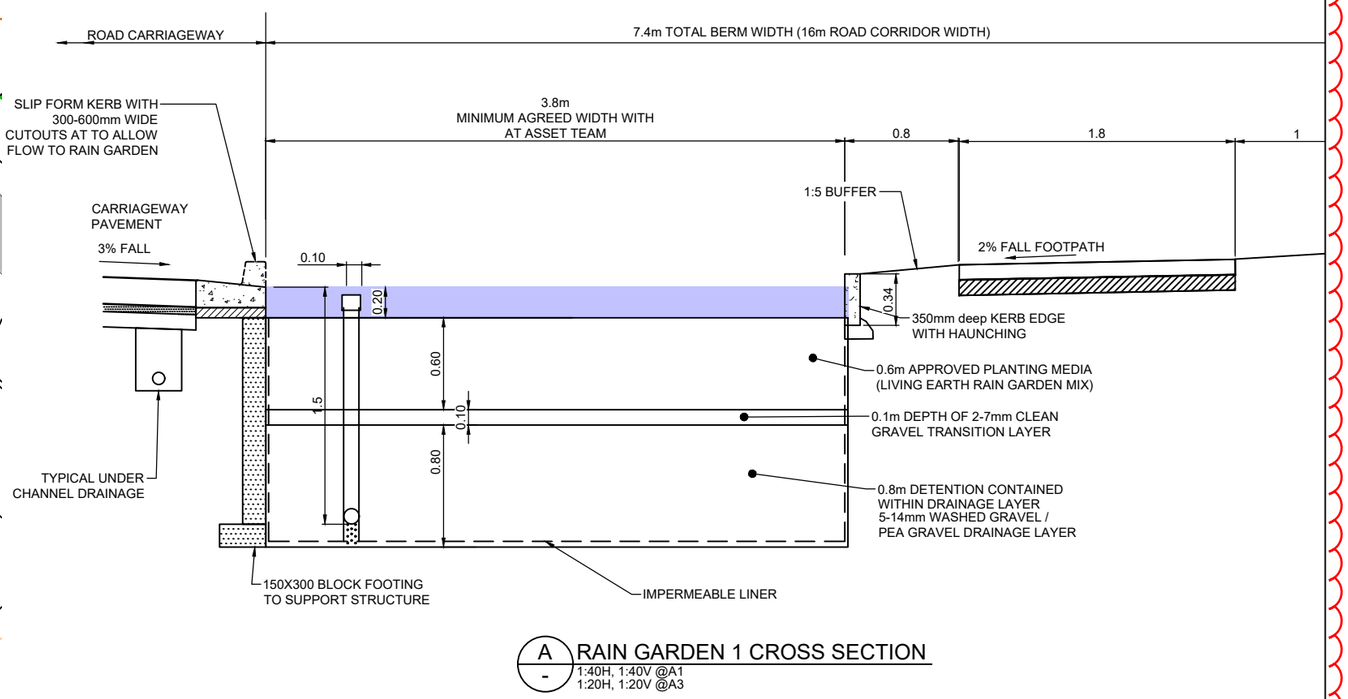
SCALE: A1 1:20, A3 1:40

DWG NUMBER: RC- 437

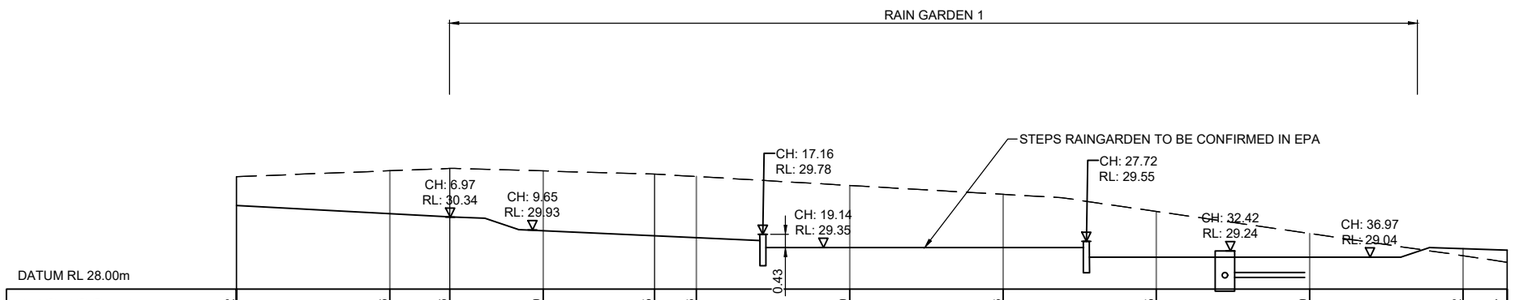
REVISION: C

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC460-DRAINAGE STANDARD DETAILS.dwg, 437, 12/9/2024 8:37 pm





A - RAIN GARDEN 1 CROSS SECTION
1:40H, 1:40V @A1
1:20H, 1:20V @A3



PROPOSED LEVEL	30.72	30.46	30.36	30.09	29.95	29.93	29.89	29.83	29.65	29.49	29.32	29.27
EXISTING LEVEL	31.66	31.86	31.93	31.85	31.75	31.67	31.38	31.09	30.53	29.81	29.09	28.87
CUT (-) / FILL (+)	-0.94	-1.40	-1.57	-1.76	-1.79	-1.74	-1.49	-1.26	-0.88	-0.32	0.23	0.40
CHAINAGE	0.00	5.00	6.95	10.00	13.63	15.00	20.00	25.00	30.00	35.00	40.00	41.44

RAIN GARDEN 1 LONG SECTION
CH: 0.00m TO CH: 41.44m
1:100H 1:100V @ A1 (DOUBLE FOR A3)

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR S92 RESPONSE	GT	GZ	SURVEYED	TERRA	-
B	04/12/24	FOR S92 RESPONSE	GT	SS	DESIGNED	GCAI	02/04/24
					DRAWN	GCAI	02/04/24
					TRACED		
					CHECKED	GT	02/04/24

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PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: RAIN GARDEN 1 SECTION PLAN

STAGE: FOR RESOURCE CONSENT

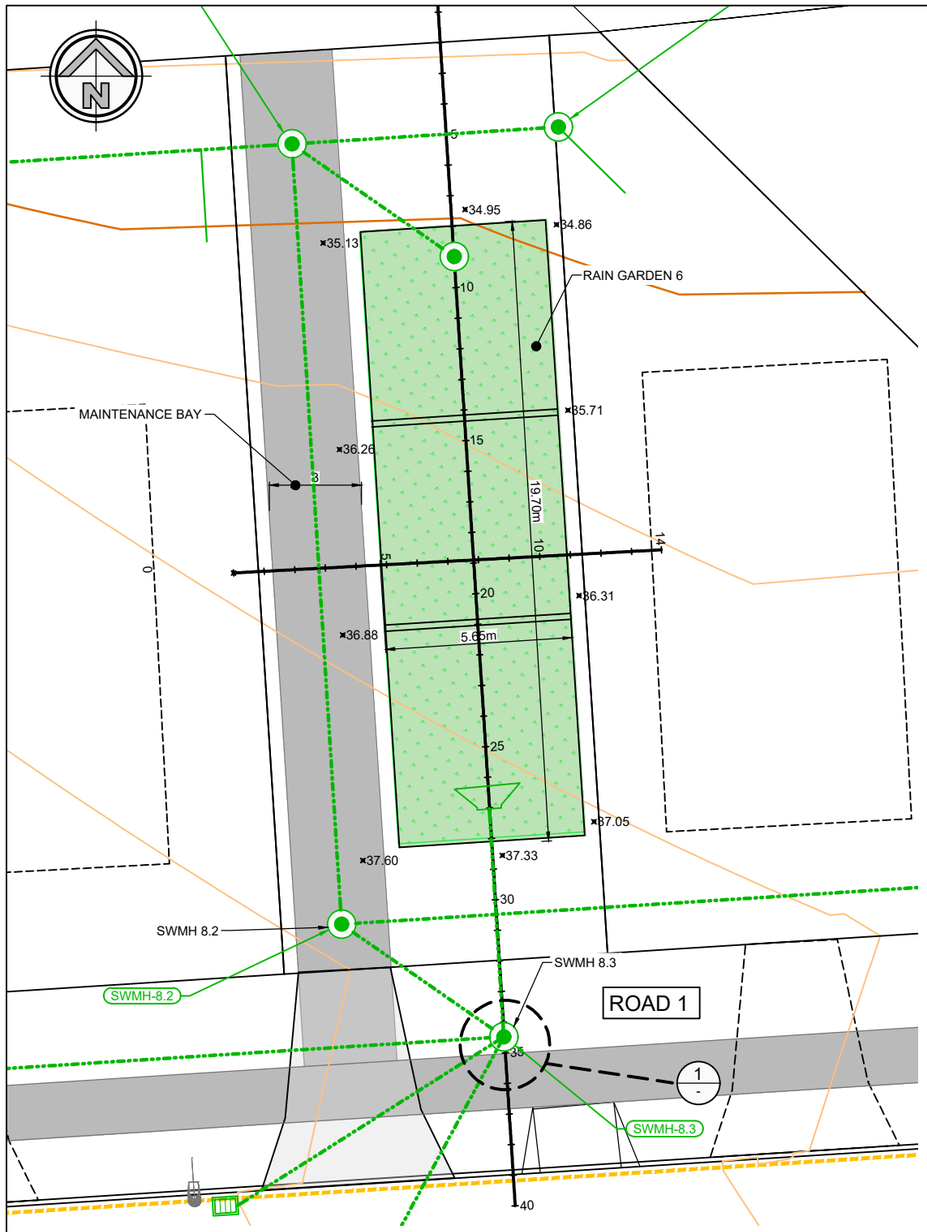
PROJECT NUMBER: 210506

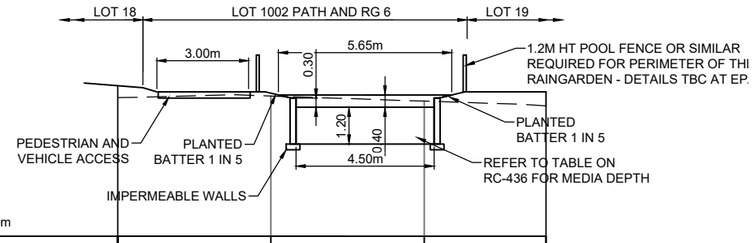
SCALE: A1 AS SHOWN; A3 AS SHOWN

DWG NUMBER: RC- 437.1

REVISION: B

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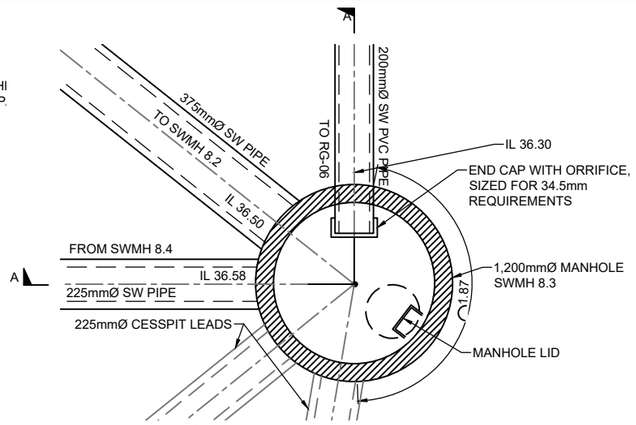




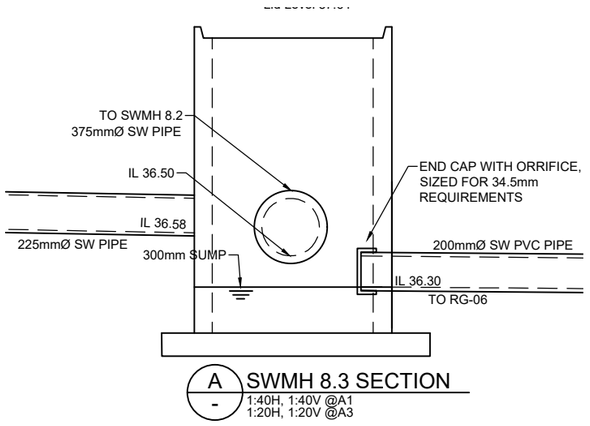
DATUM RL 32.00m

PROPOSED LEVEL	36.51	36.57	36.40	36.24	
EXISTING LEVEL	36.89	36.56	36.25	36.02	
CUT (-) / FILL (+)	-0.38	0.01	0.15	0.22	
CHAINAGE	0.00	5.00	10.00	13.97	

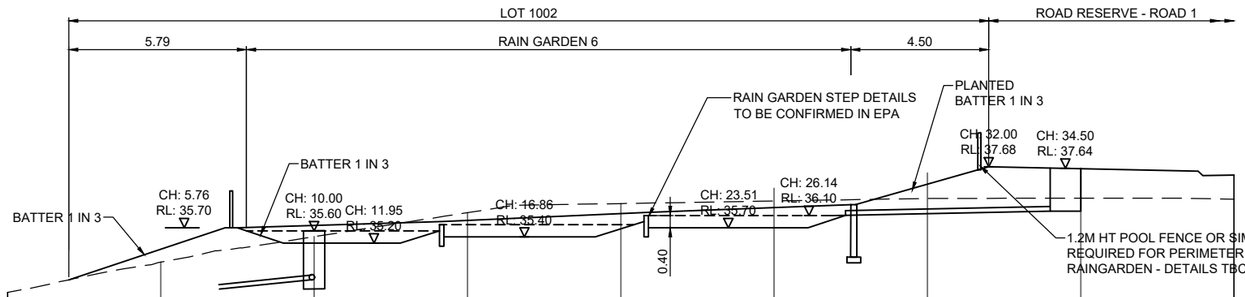
RAIN GARDEN 6 CROSS SECTION
CH: 0.00m TO CH: 13.97m
1:100H 1:100V @ A1 (DOUBLE FOR A3)



1 / - SWMH 8.3 CONNECTION DETAILS
1:40H, 1:40V @A1
1:20H, 1:20V @A3



A / - SWMH 8.3 SECTION
1:40H, 1:40V @A1
1:20H, 1:20V @A3



DATUM RL 32.00m

PROPOSED LEVEL	33.59	34.58	35.41	36.19	36.49	36.57	36.65	36.66	36.63
EXISTING LEVEL		34.48	35.33	35.99	36.49	36.99	37.49	37.62	37.42
CUT (-) / FILL (+)		0.10	0.08	0.20	0.00	-0.42	-0.83	-0.96	-0.79
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	35.00	40.00

RAIN GARDEN 6 LONG SECTION
CH: 0.00m TO CH: 40.00m
1:100H 1:100V @ A1 (DOUBLE FOR A3)

1:100 @ A1
1:200 @ A3

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR S92 RESPONSE	GT	GZ	SURVEYED	TERRA	-
B	04/12/24	FOR S92 RESPONSE	GT	SS	DESIGNED	GCAI	02/04/24
					DRAWN	GCAI	02/04/24
					TRACED		
					CHECKED	GT	02/04/24

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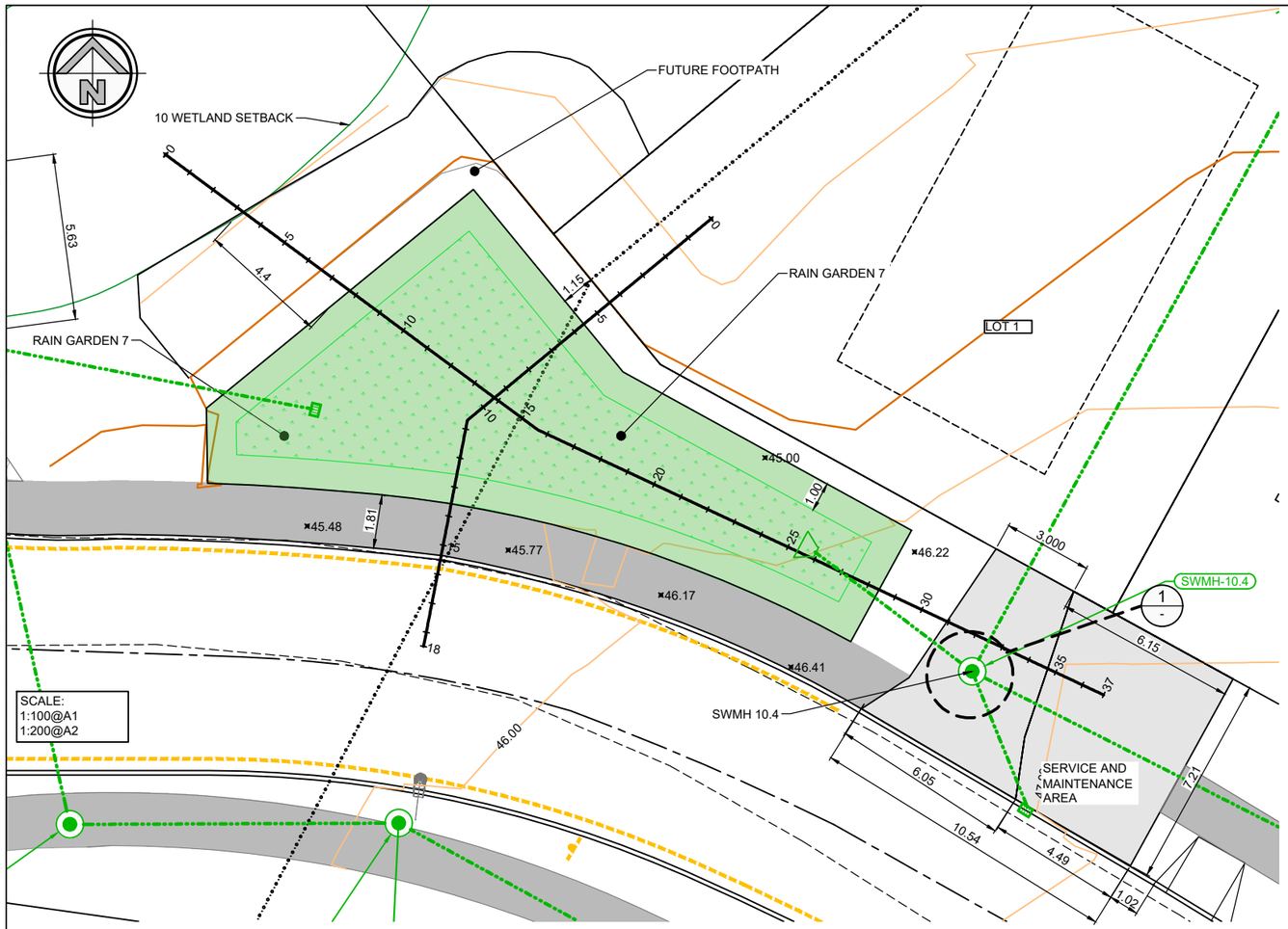
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

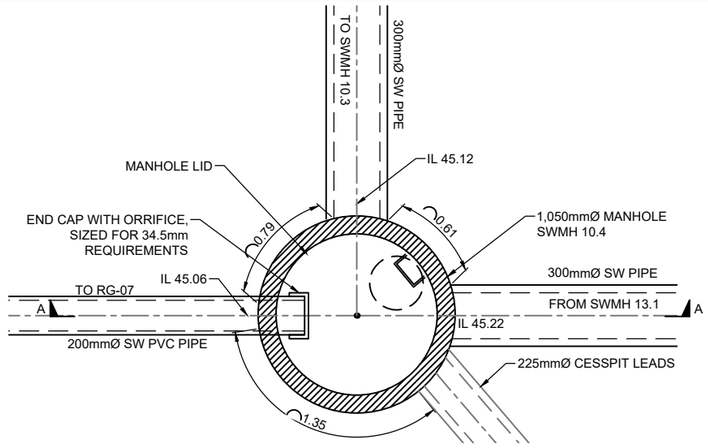
DRAWING TITLE
RAIN GARDEN 6
SECTION PLAN

STAGE
FOR RESOURCE CONSENT

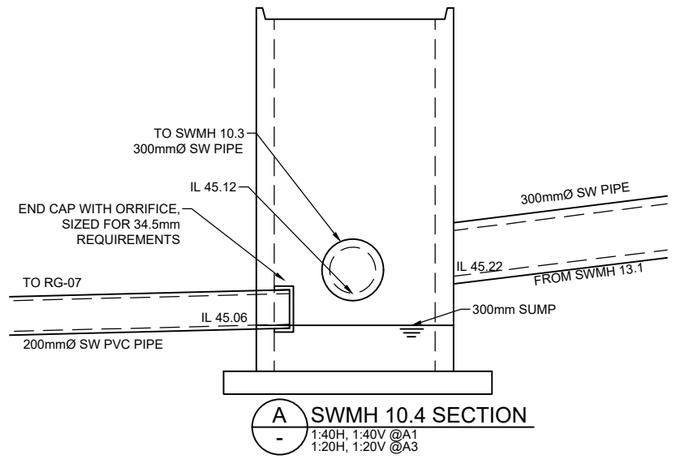
PROJECT NUMBER	SCALE	
210506	A1	AS SHOWN
	A3	AS SHOWN
DWG NUMBER	REVISION	
RC- 437.2	B	

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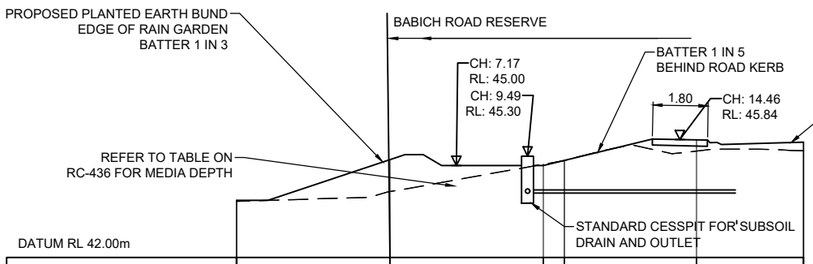




1 / - SWMH 10.4 CONNECTION DETAILS
1:40H, 1:40V @A1
1:20H, 1:20V @A3

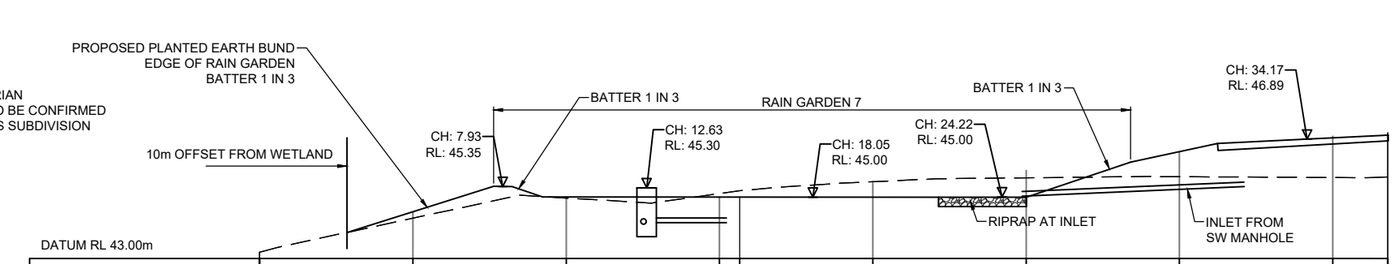


A / - SWMH 10.4 SECTION
1:40H, 1:40V @A1
1:20H, 1:20V @A3



PROPOSED LEVEL	43.86	45.19	45.00	45.00	45.83	45.76	
EXISTING LEVEL	43.83	44.14	45.04	45.16	45.47	45.48	
CUT (-) / FILL (+)	0.03	1.04	-0.04	-0.16	0.36	0.28	
CHAINAGE	0.00	5.00	10.00	10.69	15.00	18.49	

RAIN GARDEN 7 CROSS SECTION
CH: 0.00m TO CH: 18.49m
1:100H 1:100V @ A1 (DOUBLE FOR A3)



PROPOSED LEVEL	44.50	45.00	45.00	45.00	45.35	45.86	46.47	46.98	47.09	
EXISTING LEVEL	43.20	44.31	44.97	45.11	45.20	45.50	45.63	45.66	45.64	45.66
CUT (-) / FILL (+)	0.19	0.03	-0.11	-0.20	-0.15	0.24	0.81	1.35	1.43	
CHAINAGE	0.00	5.00	10.00	15.00	15.66	20.00	25.00	30.00	35.00	36.79

RAIN GARDEN 7 LONG SECTION
CH: 0.00m TO CH: 36.79m
1:100H 1:100V @ A1 (DOUBLE FOR A3)

1:100 @ A1
1:200 @ A3
0 1 2 3 4 5 6 7 8 9 10 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR S92 RESPONSE	GT	GZ	SURVEYED	TERRA	-
B	04/12/24	FOR S92 RESPONSE	GT	GZ	DESIGNED	GCAI	02/04/24
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					TRACED		
					CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
RAIN GARDEN 7 PLAN, LONG SECTION AND CROSS SECTION

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER	SCALE	
210506	A1	AS SHOWN
	A3	AS SHOWN
DWG NUMBER	REVISION	
RC- 437.3	B	

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ROAD 6

ONE WAY CROSS FALL

DUAL CROSS FALL

ONE WAY CROSS FALL

BABICH ROAD

WWMH-L.2

RAIN GARDEN 11

RAIN GARDEN 10

PLANTED BATTER AREA

HYNDS MEGAPIT

SWMH 19.2

SWMH-19.2

SWMH 19.1

SWMH-19.1

FOOTPATH

SERVICE AND MAINTENANCE AREA

SERVICE AND MAINTENANCE AREA

1:100 @ A1
1:200 @ A3

0 1 2 3 4 5 6 7 8 9 10 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR S92 RESPONSE	GT	GZ	SURVEYED	TERRA	-
B	04/12/24	FOR S92 RESPONSE	GT	SS	DESIGNED	GCAI	02/04/24
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					TRACED		
					CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
RAIN GARDEN 10 AND 11 PLAN

STAGE
FOR RESOURCE CONSENT

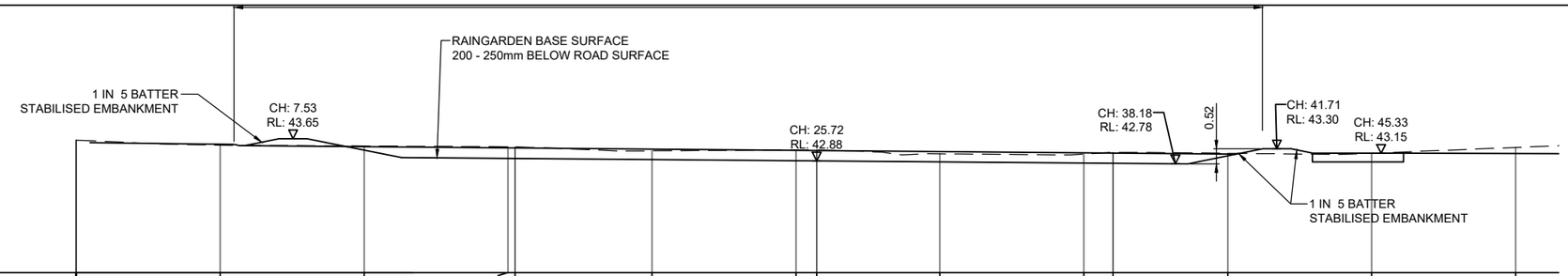
PROJECT NUMBER
210506

SCALE
A1 1:100
A3 1:200

DWG NUMBER
RC- 437.4

REVISION
B

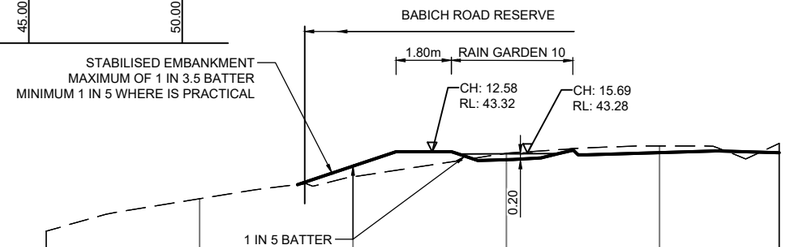
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DATUM RL 39.00m

PROPOSED LEVEL		43.48	43.27	43.06	43.06	43.04	43.10	43.12	43.12	43.12	43.12	43.15	43.13
EXISTING LEVEL	43.60	43.42	43.40	43.37	43.37	43.23	43.26	43.26	43.13	43.12	43.18	43.15	43.15	43.35
CUT (-) / FILL (+)		0.06	-0.13	-0.31	-0.31	-0.19	-0.15	-0.15	-0.01	0.00	-0.06	-0.03	0.00	-0.22
CHAINAGE	0.00	5.00	10.00	15.00	15.24	20.00	25.00	25.72	30.00	35.00	36.01	40.00	45.00	50.00

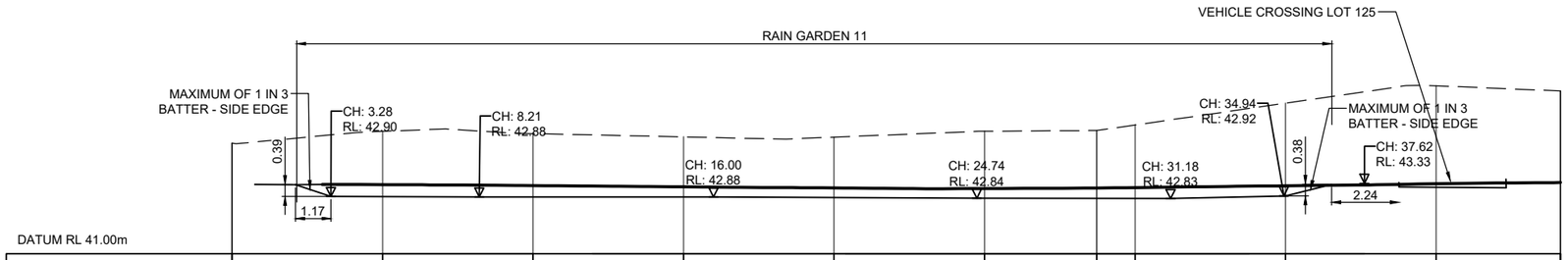
RAIN GARDEN 10 LONG SECTION
CH: 0.00m TO CH: 55.00m
1:100H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 40.00m

PROPOSED LEVEL			42.85	43.06	43.29	43.29
EXISTING LEVEL	40.73	41.78	42.50	43.27	43.50	43.59
CUT (-) / FILL (+)			0.36	-0.21	-0.21	-0.31
CHAINAGE	0.00	5.00	10.00	15.00	20.00	23.90

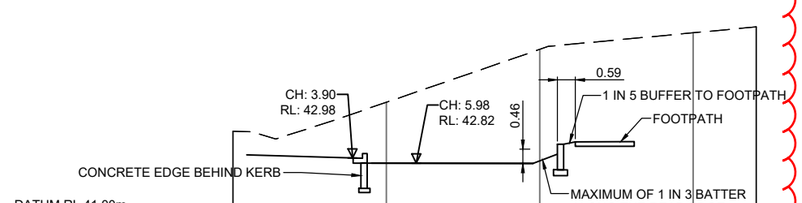
RAIN GARDEN 10 CROSS SECTION
CH: 0.00m TO CH: 23.90m
1:100H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 41.00m

PROPOSED LEVEL		43.29	43.26	43.22	43.18	43.16	43.18	43.19	43.25	43.32	43.36
EXISTING LEVEL	44.67	45.06	44.99	44.88	44.87	45.07	45.09	45.27	46.00	46.58	46.40
CUT (-) / FILL (+)		-1.77	-1.73	-1.66	-1.69	-1.90	-1.91	-2.08	-2.74	-3.25	-3.04
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	28.72	30.00	35.00	40.00	44.13

RAIN GARDEN 11 LONGSECTION
CH: 0.00m TO CH: 44.13m
1:100H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 41.00m

PROPOSED LEVEL	43.10	43.17	43.33	43.72	43.88	
EXISTING LEVEL	43.85	44.80	46.52	47.06	47.26	
CHAINAGE	0.00	5.00	10.00	15.00	17.06	

RAIN GARDEN 11 CROSS SECTION
CH: 0.00m TO CH: 17.06m
1:100H 1:100V @ A1 (DOUBLE FOR A3)

1:100 @ A1
1:200 @ A3
0 1 2 3 4 5 6 7 8 9 10 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR S92 RESPONSE	GT	GZ	SURVEYED	TERRA	-
B	04/12/24	FOR S92 RESPONSE	GT	SS	DESIGNED	GCAI	02/04/24
					DRAWN	GCAI	02/04/24
					TRACED		
					CHECKED	GT	02/04/24

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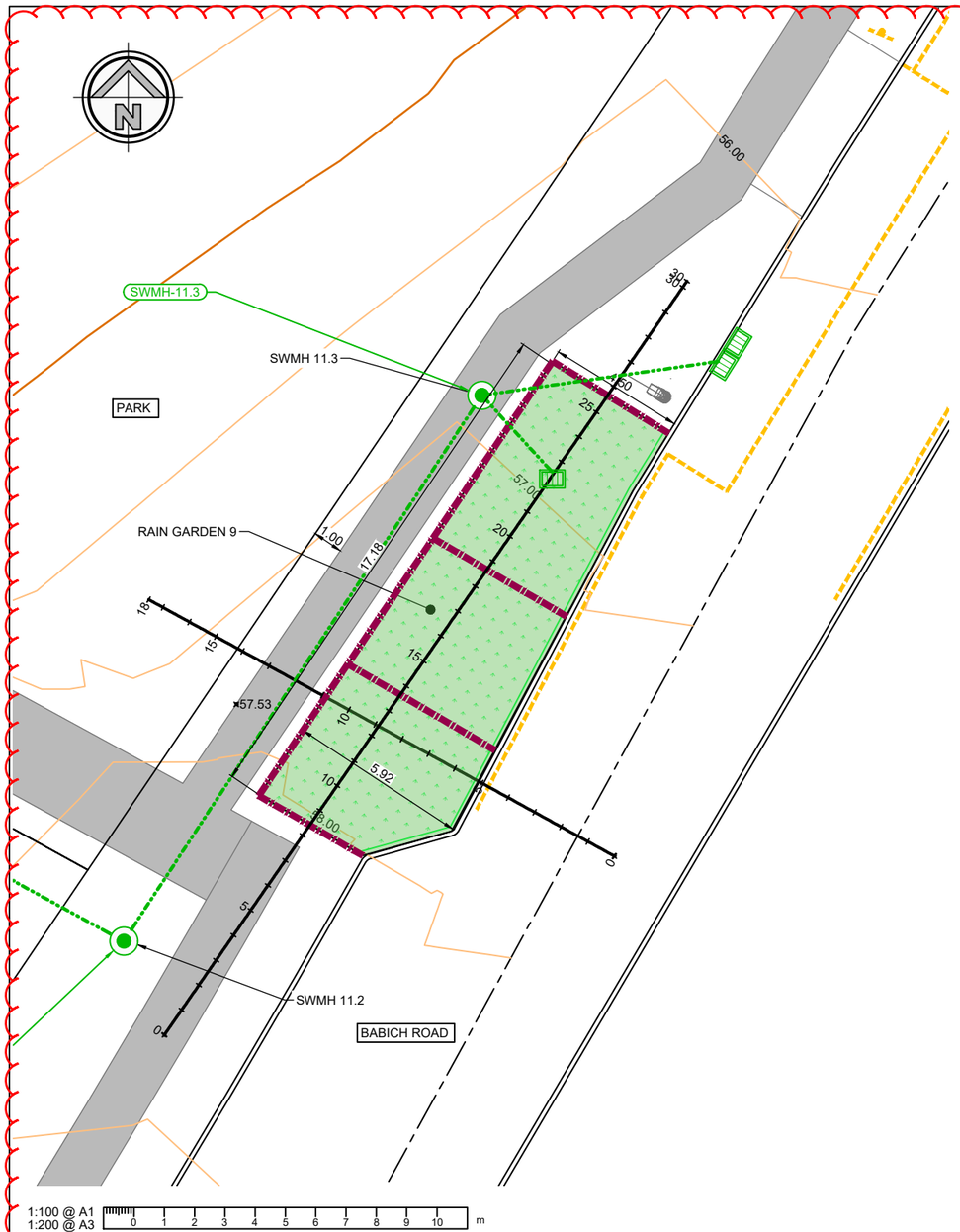
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

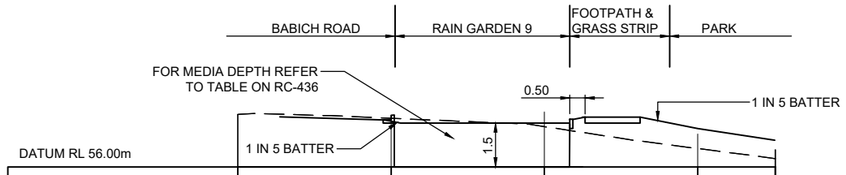
DRAWING TITLE
RAIN GARDEN 10 AND 11
SECTIONS PLAN

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER	SCALE	
210506	A1	AS SHOWN
DWG NUMBER	A3	AS SHOWN
RC- 437.5	REVISION	B

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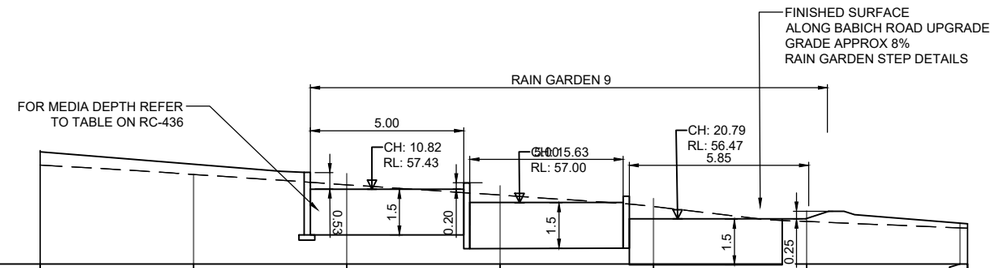




DATUM RL 56.00m

PROPOSED LEVEL		57.67	57.78	57.06	56.56
EXISTING LEVEL	57.71	57.59	57.32	56.60	56.27
CUT (-) / FILL (+)		0.09	0.47	0.46	0.28
CHAINAGE	0.00	5.00	10.00	15.00	17.54

RAIN GARDEN 9 CROSS SECTION
CH: 0.00m TO CH: 17.54m
1:100H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 55.00m

PROPOSED LEVEL	58.70		57.95	57.55	57.13	56.73	56.33	56.31
EXISTING LEVEL	58.23	57.92	57.58	57.24	56.87	56.38	56.18	56.16
CUT (-) / FILL (+)	0.47		0.37	0.30	0.26	0.34	0.16	0.15
CHAINAGE	0.00	5.00	10.00	15.00	20.00	25.00	30.00	30.25

RAIN GARDEN 9 LONG SECTION
CH: 0.00m TO CH: 30.25m
1:100H 1:100V @ A1 (DOUBLE FOR A3)

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	30/10/24	FOR S92 RESPONSE	GT	GZ	SURVEYED	TERRA	-
B	04/12/24	FOR S92 RESPONSE	GT	SS	DESIGNED	GCAI	02/04/24
					DRAWN	GCAI	02/04/24
					TRACED		
					CHECKED	GT	02/04/24

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PROJECT / LOCATION
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HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
RAIN GARDEN 9
SECTIONS PLAN

STAGE
FOR RESOURCE CONSENT

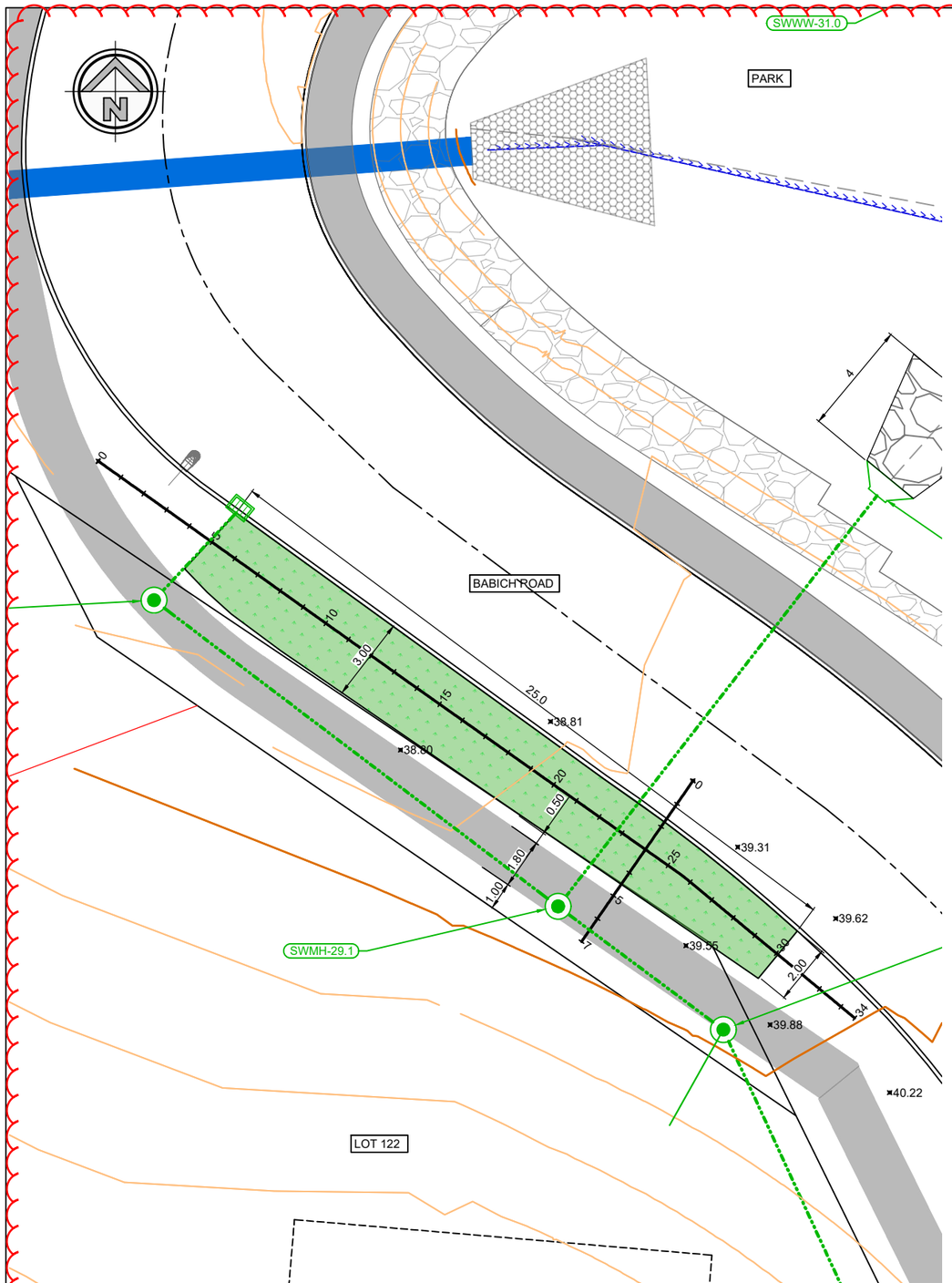
PROJECT NUMBER
210506

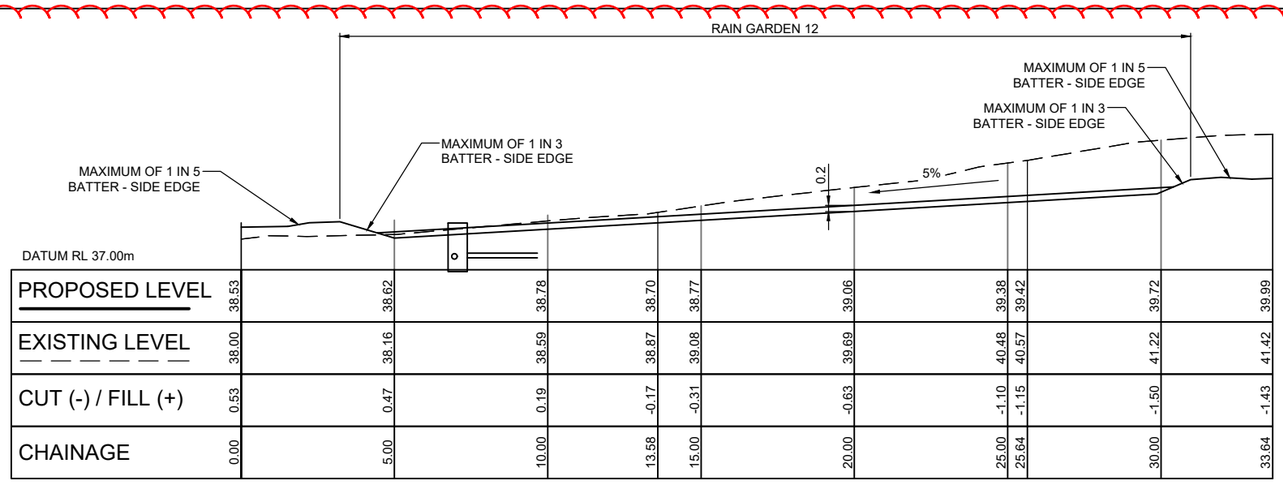
SCALE
A1 1:100
A3 1:200

DWG NUMBER
RC- 437.6

REVISION
B

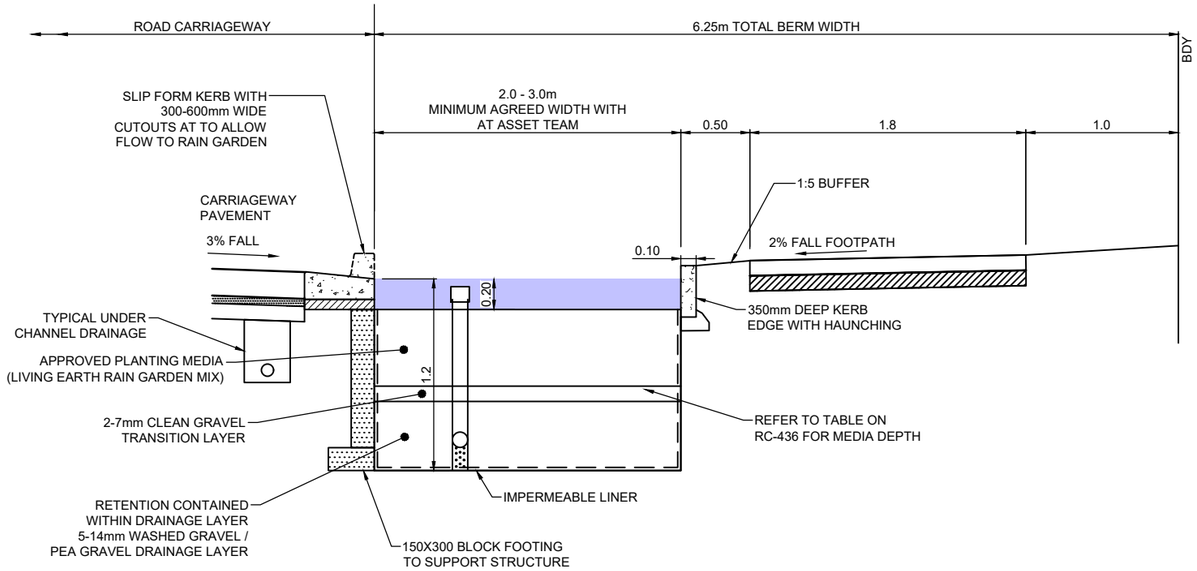
Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC437-RG Details.dwg, 437.6, 12/10/2024 12:24 pm





PROPOSED LEVEL	38.53	38.62	38.78	38.70	38.77	39.06	39.38	39.42	39.72	39.99
EXISTING LEVEL	38.00	38.16	38.59	38.87	39.08	39.69	40.48	40.57	41.22	41.42
CUT (-) / FILL (+)	0.53	0.47	0.19	-0.17	-0.31	-0.63	-1.10	-1.15	-1.50	-1.43
CHAINAGE	0.00	5.00	10.00	13.58	15.00	20.00	25.00	25.64	30.00	33.64

RAIN GARDEN 12 LONG SECTION
CH: 0.00m TO CH: 33.64m
1:100H 1:100V @ A1 (DOUBLE FOR A3)



RAIN GARDEN 12 AT BABICH ROAD
ROAD SIDE RAIN GARDENS - WIDTH 2.0 - 3.0m

1:100 @ A1
1:200 @ A3
0 1 2 3 4 5 6 7 8 9 10 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	04/12/24	FOR S92 RESPONSE	GT	SS	SURVEYED	TERRA	-
					DESIGNED	GCAI	02/04/24
					DRAWN	GCAI	02/04/24
					TRACED		
					CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
RAIN GARDEN 12 PLAN, LONG SECTIONS AND CROSS SECTIONS

STAGE
FOR RESOURCE CONSENT

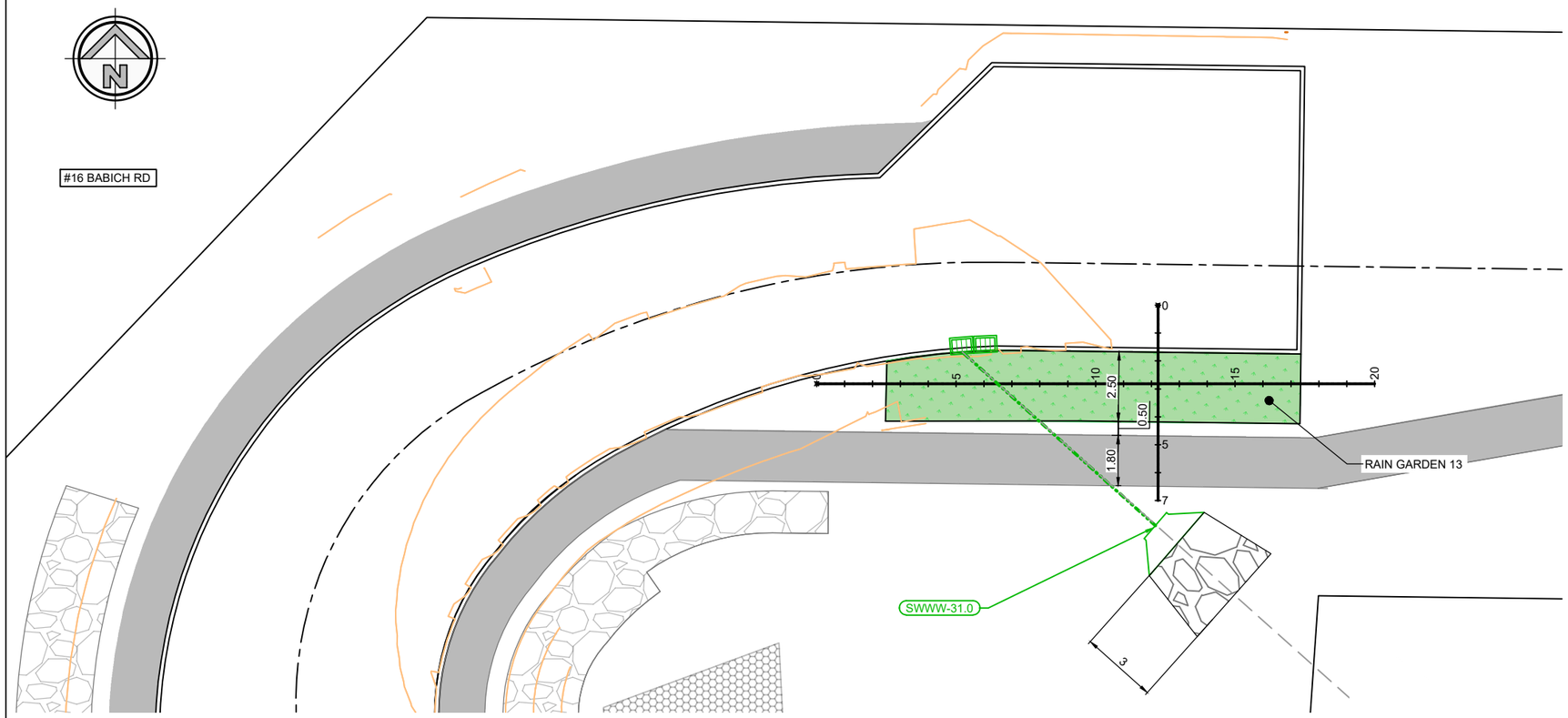
PROJECT NUMBER
210506

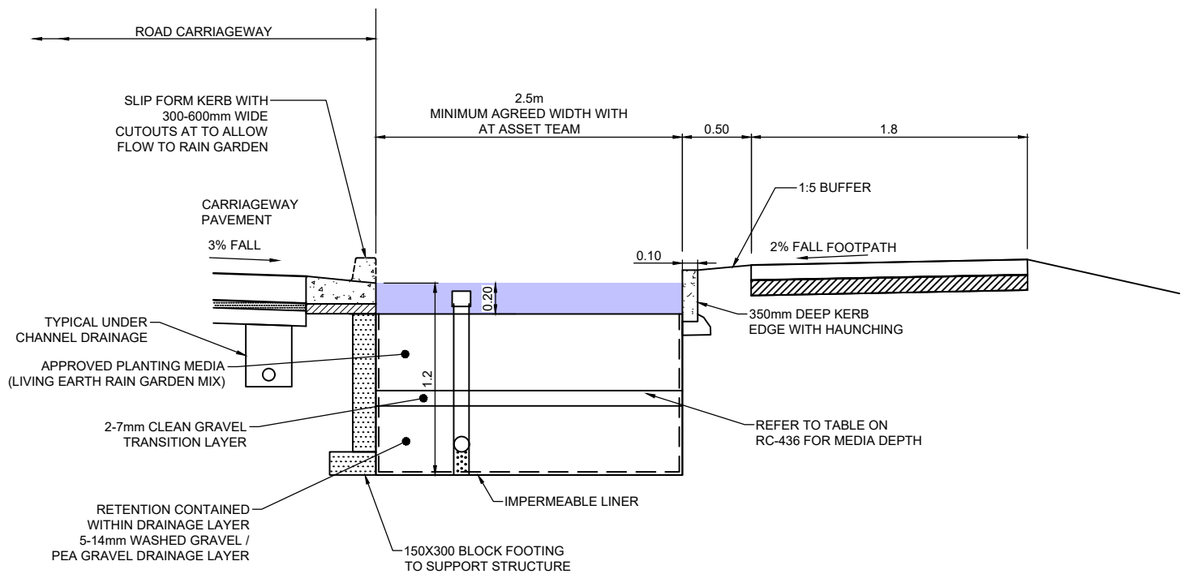
SCALE
A1 1:100
A3 1:200

DWG NUMBER
RC- 437.7

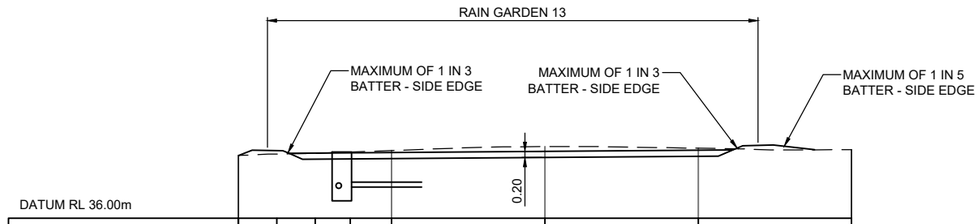
REVISION
A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC437-RG Details.dwg, 437.7, 12/9/2024 7:58 pm





RAIN GARDEN 13 AT BABICH ROAD
ROAD SIDE RAIN GARDENS - WIDTH 2.5m



DATUM RL 36.00m

PROPOSED LEVEL	38.03	38.02	38.14			
EXISTING LEVEL			38.20	38.33	38.28	
CUT (-) / FILL (+)	-0.06	-0.10	-0.01			
CHAINAGE			5.00	10.00	15.00	

RAINGARDEN 13 LONG SECTION
CH: 0.00m TO CH: 20.00m
1:100H 1:100V @ A1 (DOUBLE FOR A3)

1:100 @ A1
1:200 @ A3
0 1 2 3 4 5 6 7 8 9 10 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	04/12/24	FOR S92 RESPONSE	GT	SS	SURVEYED	TERRA	-
					DESIGNED	GCAI	02/04/24
					DRAWN	GCAI	02/04/24
					TRACED		
					CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
RAIN GARDEN 13 PLAN, LONG SECTION AND CROSS SECTIONS

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:100
A3 1:200

DWG NUMBER
RC- 437.8

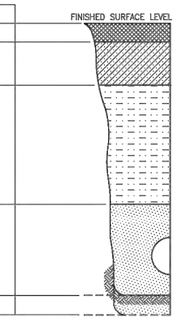
REVISION
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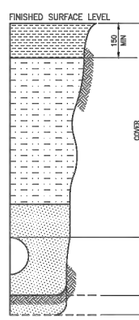
NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETRES.
2. EMBEDMENT, TRENCH FILL AND COMPACTION SHALL MEET THE REQUIREMENT OF DESIGN DRAWINGS OR SPECIFICATIONS.
3. SIDES OF EXCAVATION SHALL BE KEPT VERTICAL TO AT LEAST 150mm ABOVE THE PIPE.

MATERIAL	ZONE
TO AUCKLAND TRANSPORT REQUIREMENTS	SURFACE COURSE
TO MATCH EXISTING ROAD BASE OR TO AUCKLAND TRANSPORT REQUIREMENTS	ROAD BASE
TRENCH FILL MATERIALS IN ACCORDANCE WITH SW02 AND SW03, COMPACTED IN LAYERS OF NOT MORE THAN 300mm OR AS SPECIFIED	TRENCH FILL (AS SPECIFIED IN DESIGN DRAWINGS)
EMBEDMENT MATERIAL IN ACCORDANCE WITH SW02 AND SW03	EMBEDMENT
	OVER-EXCAVATION



VEHICULAR LOADING (CARRIAGEWAY)



ZONE	MATERIAL
TOPSOIL OR PAVEMENT	ORIGINAL OR IMPORTED MATERIAL TO MATCH EXISTING
TRENCH FILL (AS SPECIFIED IN DESIGN DRAWINGS)	INORGANIC FILL MATERIAL PLACED IN LAYERS NOT MORE THAN 300mm OR AS SPECIFIED
EMBEDMENT	EMBEDMENT MATERIAL IN ACCORDANCE WITH SW02 AND SW03
OVER-EXCAVATION	

NO VEHICULAR LOADING (NON CARRIAGEWAY)
INCLUDES LOCATIONS WHERE OCCASIONAL VEHICLE LOADING OCCURS

STORMWATER CODE OF PRACTICE
STANDARD DETAILS
REVISION: 3
REV DATE: 17 JANUARY 2022
CAD FILENAME: AC-STD-SW01.DWG

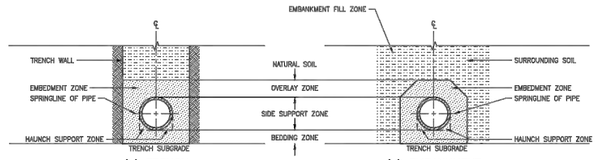
AUCKLAND COUNCIL

EMBEDMENT & TRENCHFILL
TYPICAL ARRANGEMENT

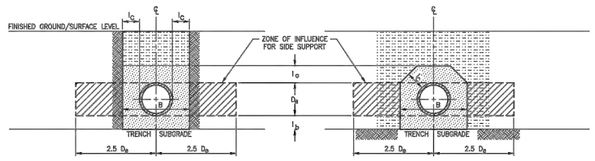
ENVIRONMENTAL-SW
ORIGINAL SCALE: A3
SCALE: N.T.S.
DRAWING SET: SWCoP
SHEET: 1 OF 1
DRAWING No.: SW01
REV: 3

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH SW01.
2. FLEXIBLE PIPES INCLUDES PVC, GRP, PP AND PE.
3. PLACEMENT OF EMBEDMENT, TRENCHFILL, & COMPACTION SHALL MEET THE REQUIREMENTS OF DRAWINGS AND SPECIFICATIONS.
4. EXCAVATE OR COMPACT TRENCH FLOOR TO PROVIDE A FLAT FIRM BASE TO SUPPORT BEDDING MATERIAL AND MINIMISE PIPELINE SETTLEMENT. REPLACE EXCAVATED MATERIAL WITH SUITABLE GRANULAR MATERIAL FOR BEDDING.
5. ENSURE THAT THE BEDDING IS DEEP ENOUGH SO THAT PIPE JOINT PROJECTIONS (SOCKETS, FLANGES) DO NOT TOUCH THE TRENCH FLOOR (SEE DETAIL BELOW).
6. BEDDING MATERIALS SHALL BE GAP/SAP < 12.
7. THIS DRAWING IS BASED ON AS/NZS 2566 PART 2: 2002 "BURIED FLEXIBLE PIPELINES & INSTALLATION" AND REPRODUCED WITH THE PERMISSION OF STANDARDS NEW ZEALAND.



(a) TRENCH (b) EMBANKMENT



(a) TRENCH (b) EMBANKMENT



PIPE JOINT BEDDING POCKETS
FOR JOINT PROJECTIONS

MINIMUM EMBEDMENT ZONE DIMENSIONS

D_e (mm)	MINIMUM DIMENSION (mm)			
	l_b	l_c	l_o	$B=D_e+2l_c$
$75 \le D_e \le 150$	75	100	100	275 – 350
$150 < D_e \le 300$	100	150	150	450 – 600
$300 < D_e \le 450$	100	200	150	700 – 850
$450 < D_e \le 900$	150	300	150	1050 – 1500
$900 < D_e \le 1500$	150	350	200	1600 – 2200
$1500 < D_e \le 4000$	150	$0.25D_e$	300	2250 – 6000

DEFINITIONS OF SYMBOLS USED:

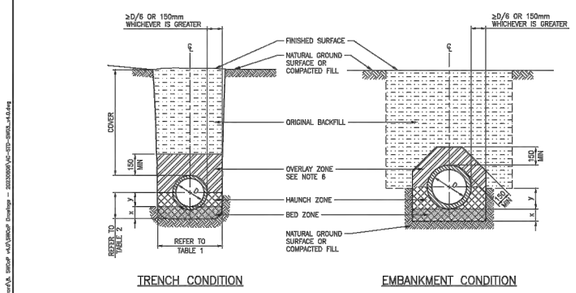
- B TRENCH WIDTH
- D_e EXTERNAL DIAMETER OF PIPELINE.
- l_b DEPTH OF BEDDING UNDER BARREL OF PIPELINE.
- l_c MINIMUM DISTANCE BETWEEN SPRINGLINE OF PIPE AND PERMANENT SIDE OF TRENCH.
- l_o MINIMUM DEPTH OF COVER OVER SOFFIT OF PIPELINE.

STORMWATER CODE OF PRACTICE
STANDARD DETAILS
REVISION: 3
REV DATE: 17 JANUARY 2022
CAD FILENAME: AC-STD-SW02.DWG

AUCKLAND COUNCIL

PIPE EMBEDMENTS
STANDARD EMBEDMENT FOR FLEXIBLE PIPES

ENVIRONMENTAL-SW
ORIGINAL SCALE: A3
SCALE: N.T.S.
DRAWING SET: SWCoP
SHEET: 1 OF 1
DRAWING No.: SW02
REV: 3



TRENCH CONDITION EMBANKMENT CONDITION

H2 TYPE BEDDING – CONCRETE PIPES

TABLE 1

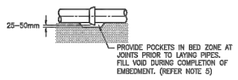
MAXIMUM PERMISSIBLE TRENCH WIDTHS (IF TRENCH WIDER, USE EMBANKMENT CONDITION)															
NORMAL INTERNAL PIPE DIAMETER (mm)	150	225	300	375	450	525	600	675	750	825	900	975	1050	1200	>1200
MAXIMUM TRENCH WIDTH (mm)	600	600	700	800	900	1000	1100	1200	1300	1400	1500	1500	1600	1800	OD+700

TABLE 2

H2 SUPPORT TYPE	MINIMUM DEPTH (mm)	
	x BED ZONE (mm)	y HAUNCH ZONE (mm)
	100 IF D ≤ 1500 150 IF D > 1500	0.3D

NOTES:

1. THIS DRAWING SHALL BE READ IN CONJUNCTION WITH SW01.
2. CONCRETE PIPE CLASS SHALL BE DESIGNED IN ACCORDANCE WITH AS/NZS 3725: 2007, USING H2 BEDDING, TO CONSTRUCTION OR FINAL CONDITION LOADINGS, WHICHEVER IS GREATER.
3. PLACEMENT OF EMBEDMENT, TRENCHFILL, & COMPACTION SHALL MEET THE REQUIREMENTS OF DRAWINGS AND SPECIFICATIONS.
4. EXCAVATE OR COMPACT TRENCH FLOOR TO PROVIDE A FLAT FIRM BASE TO SUPPORT BEDDING MATERIAL AND MINIMISE PIPELINE SETTLEMENT. REPLACE EXCAVATED MATERIAL WITH SUITABLE GRANULAR MATERIAL FOR BEDDING.
5. ENSURE BEDDING IS DEEP ENOUGH THAT PIPE JOINT PROJECTIONS (SOCKETS) DO NOT TOUCH TRENCH FLOOR (SEE DETAIL BELOW).
6. OVERLAY ZONE AGGREGATE TO BE IN ACCORDANCE WITH AS/NZS 3725:2007.
7. MATERIAL SHALL BE COMPACTED AS NECESSARY TO PREVENT EXCESSIVE SETTLEMENT IN THE GROUND SURFACE LEVEL OVER THE INSTALLED PIPE.
8. WHERE REQUIRED BY SITE CONDITIONS SPECIFIC DESIGN OF PIPE EMBEDMENT MAY BE REQUIRED. THIS SHOULD BE UNDERTAKEN IN ACCORDANCE WITH AS/NZS 3725: 2007 TO THE APPROVAL OF AUCKLAND COUNCIL.
9. EMBEDMENT FOR 'RIGID PIPES' OTHER THAN CONCRETE IS SUBJECT TO SPECIFIC DESIGN AND APPROVAL.



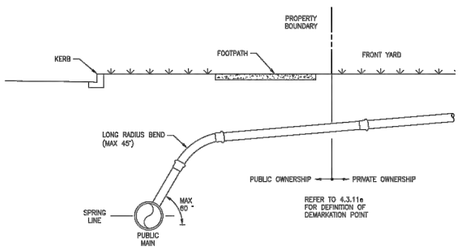
PIPE JOINT BEDDING POCKETS
FOR JOINT PROJECTIONS

STORMWATER CODE OF PRACTICE
STANDARD DETAILS
REVISION: 4
REV DATE: 18 DECEMBER 2023
CAD FILENAME: AC-STD-SW03_V4.0.DWG

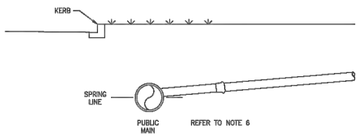
AUCKLAND COUNCIL

PIPE EMBEDMENTS
STANDARD EMBEDMENT FOR CONCRETE PIPES

ENVIRONMENTAL-SW
ORIGINAL SCALE: A3
SCALE: N.T.S.
DRAWING SET: SWCoP
SHEET: 1 OF 1
DRAWING No.: SW03
REV: 4



LATERAL CONNECTION – DEEP PUBLIC MAIN
(SINGLE LOT CONNECTION SHOWN)



LATERAL CONNECTION – SHALLOW PUBLIC MAIN

NOTES:

GENERAL NOTES:

1. REFER SWCoP SECTION 4.3.9.5 FOR MINIMUM PIPE DIAMETERS.
2. REFER SWCoP SECTION 4.3.11 FOR PUBLIC/PRIVATE DEMARKATION DEFINITIONS.
3. REFER SWCoP SECTION 4.3.12 FOR LATERAL CONNECTION REQUIREMENTS.
4. REFER SWCoP SECTION4.3.13 FOR CATCHPIT CONNECTIONS DETAILS.
5. A RODDING POINT OR CHAMBER SHALL BE PROVIDED ON THE PUBLIC OR PRIVATE SECTION OF THE LATERAL TO ALLOW CCTV ACCESS. WHERE THIS CANNOT BE PROVIDED, THE CONNECTION SHALL BE MADE AT A MANHOLE.
6. THE CENTRELINE OF THE LATERAL SHALL BE ABOVE THE SPRING LINE OF THE PUBLIC MAIN IT CONNECTS TO.
7. THE LATERAL CONNECTION SHALL BE FULLY SUPPORTED WITH COMPACTED BEDDING MATERIAL, WHICH SHALL EXTEND FROM THE BEDDING OF THE PUBLIC MAIN TO AT LEAST THE SPRING LINE OF THE LATERAL CONNECTION PIPE THROUGH ITS LENGTH UNTIL BEYOND THE TRENCH WALL OF THE PUBLIC MAIN.

NOTES FOR CONNECTION TO A PVC PUBLIC MAIN:

1. LATERAL CONNECTIONS SHALL BE CONSTRUCTED USING A REINFORCED MOULDED PVC SWEPT TEE OR Y-JUNCTION FITTING WHERE SUCH FITTINGS ARE NORMALLY AVAILABLE WITHIN THE LOCAL MARKET. SADDLE CONNECTIONS ARE PERMITTED ONLY WHEN SWEPT TEE OR Y-JUNCTIONS ARE UNAVAILABLE.

NOTES FOR CONNECTION TO A REINFORCED CONCRETE PUBLIC MAIN:

1. LATERAL CONNECTIONS SHALL BE CONSTRUCTED USING A FLANGED VITREOUS CLAY SADDLE INSERT APPROPRIATELY SIZED TO MATCH THE PUBLIC MAIN.
2. THE HOLE INTO THE EXISTING PUBLIC MAIN SHALL BE DRILLED.
3. THE SADDLE INSERT SHALL BE SEALED VIA EPOXY MORTAR TO THE PUBLIC MAIN.
4. THERE SHALL BE NO PROTRUSION OF THE SADDLE INSERT INSIDE THE BORE OF THE PUBLIC MAIN.

NOTES FOR CONNECTION TO A PE PUBLIC MAIN:

1. LATERAL CONNECTIONS SHALL BE CONSTRUCTED USING A JUNCTION CUT IN WITH ELECTROFUSION COUPLERS. ALTERNATIVELY A SADDLE MAY BE ELECTROFUSED ONTO THE PIPE. SPECIFIC APPROVAL FROM AUCKLAND COUNCIL IS REQUIRED TO SADDLE INTO A PE MAIN.
2. ELECTROFUSION FITTINGS SHALL BE SELECTED TO MATCH SDR AND RESIN OF HOST PIPE, AND SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH THE MANUFACTURER'S SPECIFICATION.

STORMWATER CODE OF PRACTICE
STANDARD DETAILS
REVISION: 4
REV DATE: 17 JANUARY 2022
CAD FILENAME: AC-STD-SW04.DWG

AUCKLAND COUNCIL

STORMWATER LATERAL CONNECTIONS
DIRECT CONNECTIONS

ENVIRONMENTAL-SW
ORIGINAL SCALE: A3
SCALE: N.T.S.
DRAWING SET: SWCoP
SHEET: 1 OF 1
DRAWING No.: SW04
REV: 4

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	GZ	SURVEYED		
					DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STORMWATER STANDARD DETAILS
SHEET 1 OF 3

STAGE
FOR RESOURCE CONSENT

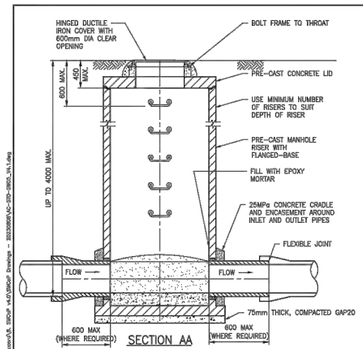
PROJECT NUMBER
210506

SCALE
A1 N.T.S
A3 N.T.S

DWG NUMBER
RC- 440

REVISION
A

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STANDARD MANHOLE UP TO 4.0m DEPTH TO INVERT – ELEVATION

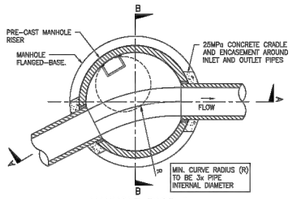
NOTES:

1. MANHOLES SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH THIS DRAWING AND SECTION 4.3.10 OF THE SWCoP AND IN COMPLIANCE WITH MANUFACTURERS SPECIFICATION.
2. MANHOLE RISER DIAMETER IS TO ALLOW FOR A MINIMUM CURVE RADIUS BETWEEN THE INLET AND OUTLET PIPES OF THREE TIMES THE INTERNAL DIAMETER OF THE OUTLET PIPE.
3. PRECAST LID ADJUSTMENT RINGS TO BE INSTALLED TO MANUFACTURER'S SPECIFICATION.
4. FOR FLEXIBLE PIPELINES, UP TO 300mm DIA. ON GRADIENTS OF 10% AND GREATER, REQUIRED BENCHING DEPTHS WITHIN THE DOWNSTREAM MANHOLE CAN BE REDUCED, BY THE REDUCTION OF THE GRADIENT IMMEDIATELY OUTSIDE THE MANHOLE. THIS MAY BE ACHIEVED BY INSTALLING A MANUFACTURED, PRE-FORMED BEND WITH VERTICAL RADIUS MIN. 8x INSIDE PIPE DIAMETER.
5. MANHOLE COVERS ON ROADS SHALL BE ALIGNED SO THAT A VEHICLE STRIKING A HINGED COVER IN A PARTIALLY OPEN POSITION SHALL PUSH THAT COVER TOWARDS ITS CLOSED POSITION.
6. REFER SWCoP SECTION 4.3.10.10 FOR MANHOLE SAFETY GRILLE REQUIREMENTS AND DETAILS.

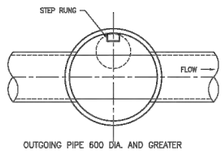
MINIMUM MANHOLE RISER DIAMETER

PIPE DIA	DEFLECTION: 0°	15°	30°	45°	60°	75°
450	1050	1050	1050	1200	1500	2050
525	1050	1050	1050	1350	1800	2300
600	1050	1050	1200	1500	2050	SD
750	1200	1200	1350	1800	SD	SD
825	1350	1350	1500	2050	SD	SD
900	1500	1500	1800	2300	SD	SD
1050	1800	1800	1800	SD	SD	SD

SD = Specific Design:
>75° deflection requires specific design.

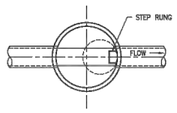


MANHOLE BASE & BENCHING PLAN



OUTGOING PIPE 600 DIA. AND GREATER

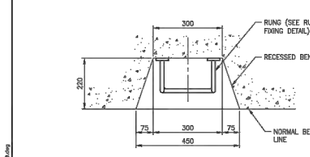
MANHOLE COVER AND RUNG ORIENTATION PLAN



OUTGOING PIPE LESS THAN 600 DIA. (OR WHERE DEPTH TO INVERT ≤1.5m)

MANHOLE COVER AND RUNG ORIENTATION PLAN

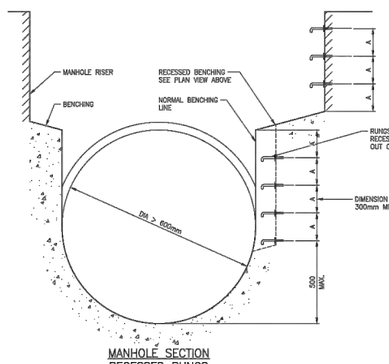
STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 4 REV DATE: 18 DECEMBER 2023 CAD FILENAME: AC-STD-SW05_V4.1.DWG	AUCKLAND COUNCIL STANDARD STORMWATER MANHOLE SUITABLE FOR UP TO 4.0m DEPTH TO INVERT	ENVIRONMENTAL-SW ORIGINAL SCALE: N.T.S. A3 DRAWING SET: SWCoP SHEET: 1 OF 1 DRAWING No.: SW05 REV: 4



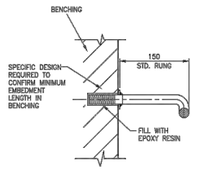
PLAN – RECESSED RUNG DETAIL

NOTES:

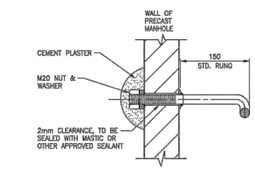
1. RECESSED RUNGS SHALL BE USED FOR PIPE DIAMETERS > 600mm.
2. RECESSED RUNGS SHALL BE LOCATED ON INSIDE CURVE OF BENCHING AND SHALL ALIGN WITH MANHOLE ACCESS RUNGS.
3. ALL STEELWORK SHALL BE 'HOT DIPPED GALVANISED' AFTER FABRICATION HAS BEEN COMPLETED, WITH A MINIMUM AVERAGE COATING WEIGHT OF ZINC=610g/sqm TO AS/NZS 4680–2006.
4. STEEL PARTS WITH THREADS THAT ARE CENTRIFUGED AFTER THE GALVANISATION TO MAINTAIN THE THREADING SHALL HAVE A MINIMUM AVERAGE COATING MASS FOR THOSE PARTS IS 390g/m².
5. BELOW RL 4.00m OR IN SEVERE EXPOSURE CONDITIONS, PE COATED HOT DIPPED GALVANISED STEEL OR PE COATED 316 STAINLESS STEEL RUNGS SHALL BE USED.
6. STAINLESS STEEL RUNGS MAY BE 16mm DIA SUBJECT TO AUCKLAND COUNCIL APPROVAL.
7. OTHER RUNG SYSTEMS MAY BE UTILISED SUBJECT TO AUCKLAND COUNCIL APPROVAL.
8. ALL MATERIALS TO BE USED AND INSTALLED AS PER MANUFACTURERS SPECIFICATIONS.



MANHOLE SECTION RECESSED RUNGS

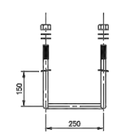


TYPICAL SECTION RUNG CONNECTION BY EPOXY RESIN
(FOR RECESSED STEPS AND RETRO ONLY)

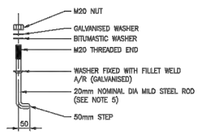


TYPICAL SECTION RUNG CONNECTION BY NUT

RUNG CONNECTIONS



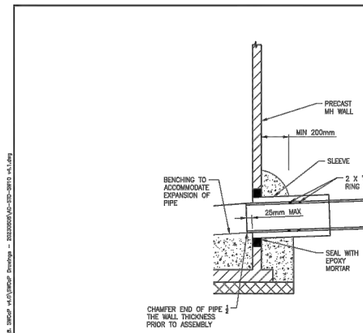
PLAN



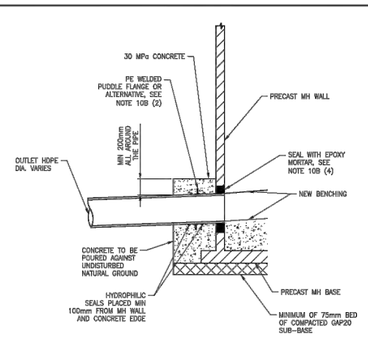
SIDE ELEVATION

TYPICAL RUNG ASSEMBLY

STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW09.DWG	AUCKLAND COUNCIL STORMWATER MANHOLE ACCESS RECESSED RUNGS AND GENERAL ACCESS RUNGS DETAILS	ENVIRONMENTAL-SW ORIGINAL SCALE: N.T.S. A3 DRAWING SET: SWCoP SHEET: 1 OF 1 DRAWING No.: SW09 REV: 3



HDPE SLIDING JOINT (DOWNSTREAM)



RESTRAINED JOINT (UPSTREAM)

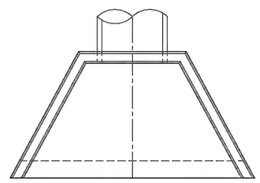
10A: SLIDING JOINT NOTES

1. THE SLIDING SLEEVE IS TO BE MADE OF PVC, FRP OR VITRIFIED CLAY AND THE EXTERIOR SURFACE OF THE SLEEVE SHALL BE PRE-TREATED TO ALLOW CONCRETE TO BOND.
2. THE PE PIPE SHALL BE ALLOWED TO COOL DOWN FOR A PERIOD OF 24HRS PRIOR TO INSTALLATION OF THE SLIDING JOINT.
3. SPECIFIC DESIGN AND APPROVAL IS REQUIRED FOR PE PIPES GREATER THAN DN450.

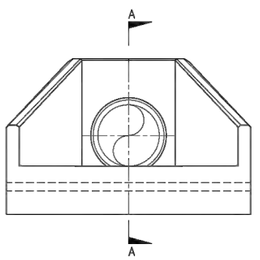
10B: RESTRAINED JOINT NOTES

1. THE CONCRETE CAST AROUND THE PUDDLE FLANGE SHALL BE AT LEAST 150mm BETWEEN THE OUTSIDE FACE OF THE PUDDLE FLANGE AND THE OUTSIDE OF THE CONCRETE BLOCK.
2. AN ELECTROFUSION COUPLER OR PE FLEX RESTRAINT FITTING (GEORGE FISCHER OR SIMILAR APPROVED) CAN BE USED INSTEAD OF THE PUDDLE FLANGE PROVIDED THAT THE 150mm MIN DISTANCE BETWEEN THE OUTSIDE END OF COUPLER/RESTRAINT FITTING AND THE OUTSIDE FACE OF CONCRETE IS MAINTAINED.
3. SPECIFIC DESIGN AND APPROVAL FOR PE PIPES GREATER THAN DN450.
4. THE GAP BETWEEN MH WALL AND PIPE SHALL BE A MIN. OF 30mm TO ALLOW FOR EPOXY MORTAR TO FILL THE VOID.

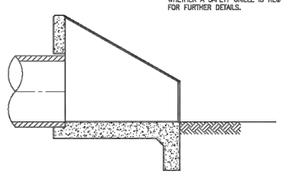
STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 4 REV DATE: 18 DECEMBER 2023 CAD FILENAME: AC-STD-SW10 V4.1.DWG	AUCKLAND COUNCIL STORMWATER MANHOLE–PE PIPE JOINT (FOR PE PIPES LESS THAN DN450)	ENVIRONMENTAL-SW ORIGINAL SCALE: N.T.S. A3 DRAWING SET: SWCoP SHEET: 1 OF 1 DRAWING No.: SW10 REV: 4



PLAN



FRONT ELEVATION



SECTION AA

NOTES:

1. THIS DRAWING IS INTENDED TO PROVIDE AN OVERVIEW OF A TYPICAL CONFIGURATION FOR INLET/OUTLET STRUCTURES. WHERE STANDARD PRE-CAST PRODUCTS ARE NOT SUITABLE, SPECIFIC DESIGN IS REQUIRED.
2. DESIGN OF PRE-CAST INLET/OUTLET STRUCTURES SHALL INCLUDE ASSESSMENT OF THE STRUCTURE LOCATION AND THE VISIBILITY OF THE STRUCTURE. IT MAY BE NECESSARY TO SPECIFICALLY DESIGN THE STRUCTURE AND USE BASALT ROCKS EMBEDDED IN CONCRETE OR APPROVED ALTERNATIVE IN HIGH VISIBILITY AREAS.
3. FOR OUTLET STRUCTURES, SPECIFIC DESIGN OF SCOUR PREVENTION AND ENERGY DISSIPATION WILL BE REQUIRED IN ACCORDANCE WITH AUCKLAND COUNCIL TECHNICAL REPORT TR2013/018. ENERGY DISSIPATORS MAY INCLUDE BAFFLES, ROCK RIP-RAP OR RENO MATTRESSES (OR GABIONS).
4. FOR INLET STRUCTURES, SPECIFIC DESIGN OF SCOUR PREVENTION MEASURES SHALL BE REQUIRED IN ACCORDANCE WITH AUCKLAND COUNCIL TECHNICAL REPORT TR2013/018.
5. ALL CONCRETE SHALL BE ORDINARY GRADE 40MPa.
6. THERE SHALL BE AT LEAST TWO BARS OF REINFORCING (WHETHER MESH OR MILD STEEL BARS), OVER THE TOP OF THE PIPE.
7. ALL REINFORCING BARS SHALL BE "GRADE 500E" AND MESH SHALL BE "GRADE 500L".
8. THE ENGINEER SHALL ENSURE THE STRUCTURE IS PLACED ON ADEQUATE FOUNDATION MATERIAL.
9. FENCING AROUND INLET/OUTLET STRUCTURES IS REQUIRED UNLESS IT CAN BE DEMONSTRATED THAT HUMAN ACCESS TO THE INLET/OUTLET STRUCTURE IS UNLIKELY AND/OR THE HEIGHT OF THE STRUCTURE IS LESS THAN 1.0m. FENCING SHALL BE IN ACCORDANCE WITH DRAWING SW20.
10. INLETS TO THE STORMWATER NETWORK SHALL BE FITTED WITH A SAFETY GRILLE. THE GRILLE SHALL BE SPECIFICALLY DESIGNED AND REQUIRES AUCKLAND COUNCIL APPROVAL. FOR CULVERT INLETS, A RISK ASSESSMENT SHOULD BE COMPLETED TO DECIDE WHETHER A SAFETY GRILLE IS REQUIRED. SEE SECTION 4.3.9.9 FOR FURTHER DETAILS.

STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 3 REV DATE: 17 JANUARY 2022 CAD FILENAME: AC-STD-SW19.DWG	AUCKLAND COUNCIL STORMWATER INLET/OUTLET STRUCTURES TYPICAL CONFIGURATION	ENVIRONMENTAL-SW ORIGINAL SCALE: N.T.S. A3 DRAWING SET: SWCoP SHEET: 1 OF 1 DRAWING No.: SW19 REV: 3

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
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					DRAWN		
					TRACED		
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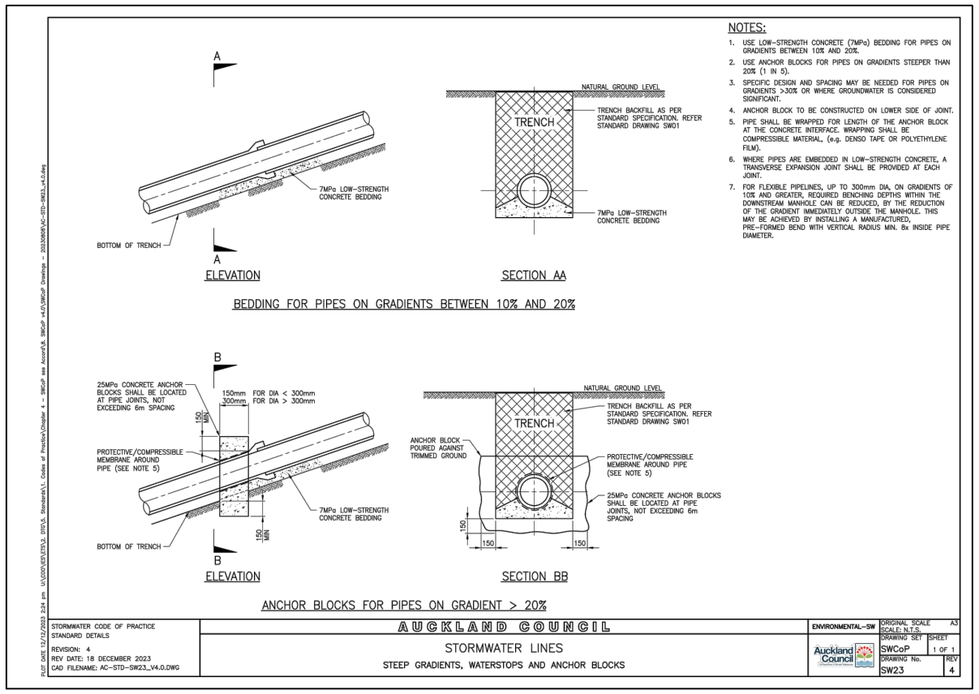
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
STORMWATER STANDARD DETAILS
SHEET 2 OF 3

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER 210506
SCALE A1 N.T.S
A3 N.T.S
DWG NUMBER RC-441
REVISION A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC460-DRAINAGE STANDARD DETAILS.dwg, 441, 5/2/2024 11:00 pm

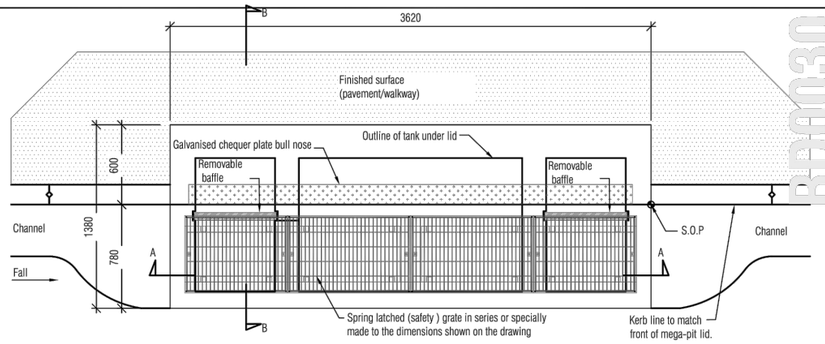


NOTES:

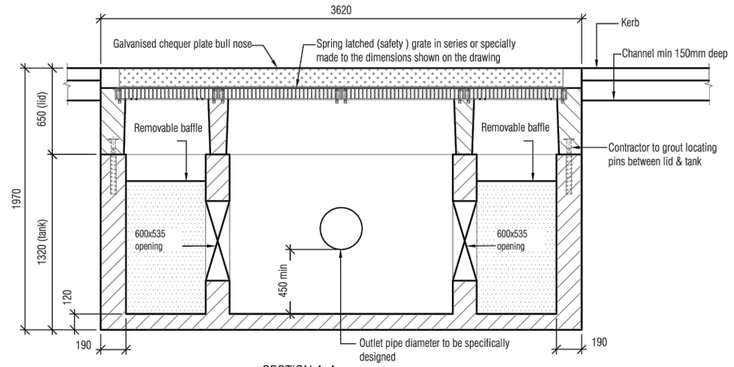
1. USE LOW-STRENGTH CONCRETE (7MPa) BEDDING FOR PIPES ON GRADIENTS BETWEEN 10% AND 20%.
2. USE ANCHOR BLOCKS FOR PIPES ON GRADIENTS STEEPER THAN 20% (1 IN 5).
3. SPECIFIC DESIGN AND SPACING MAY BE NEEDED FOR PIPES ON GRADIENTS >30% OR WHERE GROUNDWATER IS CONSIDERED SIGNIFICANT.
4. ANCHOR BLOCK TO BE CONSTRUCTED ON LOWER SIDE OF JOINT.
5. PIPE SHALL BE WRAPPED FOR LENGTH OF THE ANCHOR BLOCK AT THE CONCRETE INTERFACE. WRAPPING SHALL BE COMPRESSIBLE MATERIAL, (e.g. DENSO TAPE OR POLYETHYLENE FILM).
6. WHERE PIPES ARE EMBEDDED IN LOW-STRENGTH CONCRETE, A TRANSVERSE EXPANSION JOINT SHALL BE PROVIDED AT EACH JOINT.
7. FOR FLEXIBLE PIPELINES, UP TO 300mm DIA, ON GRADIENTS OF 10% AND GREATER, REQUIRED BENCHING DEPTHS WITHIN THE DOWNSTREAM MANHOLE CAN BE REDUCED, BY THE REDUCTION OF THE GRADIENT IMMEDIATELY OUTSIDE THE MANHOLE. THIS MAY BE ACHIEVED BY INSTALLING A MANUFACTURED, PRE-FORMED BEND WITH VERTICAL RADIUS MIN. 8x INSIDE PIPE DIAMETER.

STORMWATER CODE OF PRACTICE STANDARD DETAILS REVISION: 4 REV DATE: 18 DECEMBER 2023 CAD FILENAME: AC-STD-SW23_V4.0.DWG	AUCKLAND COUNCIL STORMWATER LINES STEEP GRADIENTS, WATERSTOPS AND ANCHOR BLOCKS	ENVIRONMENTAL-SW	ORIGINAL SCALE: N.T.S. A3 DRAWING SET: SWCoP SHEET: 1 OF 1 DRAWING No.: SW23 REV: 4

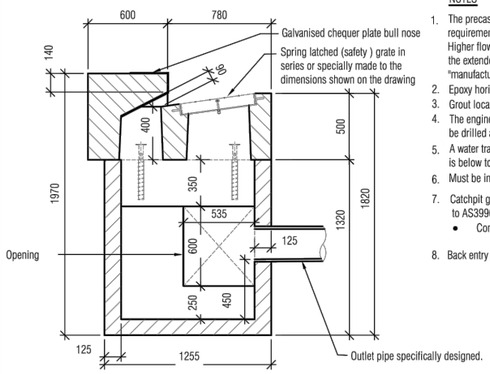
PLOT DATE: 10/13/2023 2:04 pm U:\SW\SWSTDS\ STDs Standards\1. Codes of Practice\Chapter 4 - SWCoP aaa Accord\4. SWCoP v4.0\SWCoP Drawings - 2023\SW23_AC-STD-SW23_v4.0.dwg



MEGA-PIT LID PLAN



SECTION A-A



SECTION B-B (WITHOUT MASS CONCRETE) FOR UNITS WITHOUT ENVIROPOD

NOTES

1. The precast 'mega-pit' tank sections are supplied in two configurations depending on the specific site requirements.
   Higher flows are catered for by increasing the depth & width of the tank section. The lid section contains the extended custom made grate at road level and the extended kerb with the back entry inlet. Refer "manufactures mega-pit specifications".
2. Epoxy horizontal joint between lid and tank units.
3. Grout locating pins between lid & tank units.
4. The engineer shall determine the size and position of the outlet pipe. The hole for the outlet pipe shall be drilled and positioned to allow for a minimum sump depth of 450mm.
5. A water trap outlet must be installed if connected to combined sewer. Design to ensure trapped water level is below top of weir walls.
6. Must be installed in semi-recessed configuration where traffic or cycle lane is adjacent to the kerbline.
7. Catchpit grates should be spring - latched (safety) grate should be Class D to AS3996 with a minimum weight of 62.5kg
   - Comply with EDC - Road drainage & surface water control, Clause 6.5
8. Back entry plates and galvanised lintel edges should have rounded edges to minimise worker injury.

Table for mega-pit dimensions (in mm)

Unit	Length	Breadth	Depth	Weight
Tank standard	3620	1255	1320	6640 kg
Tank (extra deep)	3620	1820	1840	8400 kg
Lid	3620	1380	650/500	3760 kg

Transport Design Manual | Standard Engineering Details

RD0030

CHIEF ENGINEER APPROVED

TDM TECHNICAL STANDARDS
Mega-pit

Date: 30/11/2021
SED No. RD0030 | Version B

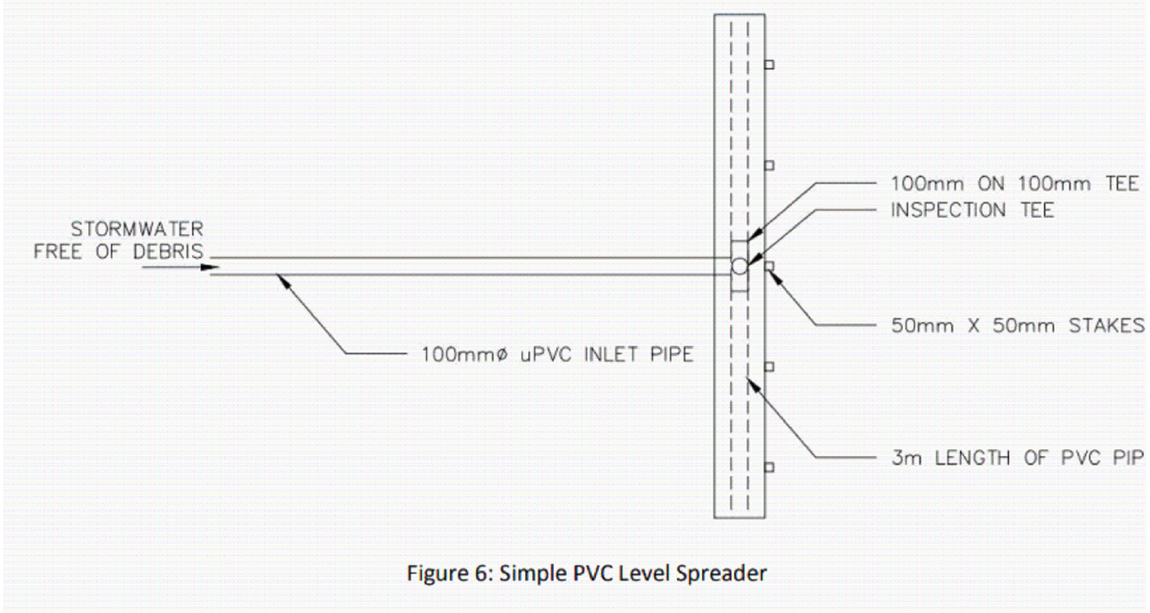


Figure 6: Simple PVC Level Spreader

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GZ	SURVEYED		
B	23/08/24	FOR S92 RESPONSE	GT	GCAI	DESIGNED		
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PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: STORMWATER STANDARD DETAILS SHEET 3 OF 3

STAGE: FOR RESOURCE CONSENT

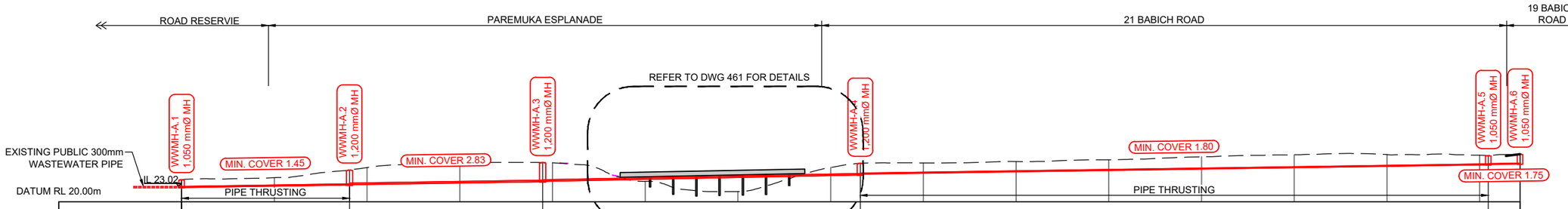
PROJECT NUMBER: 210506

SCALE: A1 N.T.S, A3 N.T.S

DWG NUMBER: RC- 442

REVISION: B

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC460-DRAINAGE STANDARD DETAILS.dwg, 442, 10/29/2024 6:47 pm



LID LEVEL	24.81	26.87	28.50	28.33	29.99		30.31
DEPTH TO STRUCTURE SUMP	1.79	3.33	4.25	2.63	2.09		2.23
INVERT LEVEL AT INSIDE EDGE	23.09	23.64 / 23.72	24.35 / 24.43	25.80 / 26.00	28.00	28.08	28.18
DISTANCE	36.22	41.67	68.52	135.46		6.87	
GRADIENT	1.50%	1.50%	2.00%	1.48%		1.50%	
PIPE SIZE AND MATERIAL	355mm (OD) PE 100	300 mmØ (DN) uPVC SN16	300mm (ID) CONCRETE LINE STEEL (CLS)	180mm (OD) PE 100		150 mmØ (DN) uPVC SN16	
FLOW DETAIL							

WW-A LONGSECTION
CH: 0.00m TO CH: 288.73m
1:500H 1:500V @ A1 (DOUBLE FOR A3)

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
B	12/07/24	FOR S92	GT	GCAI	DESIGNED	GCAI	02/04/24
C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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DRAWING TITLE: WASTEWATER LONGSECTION SHEET 1 OF 9

STAGE: FOR RESOURCE CONSENT

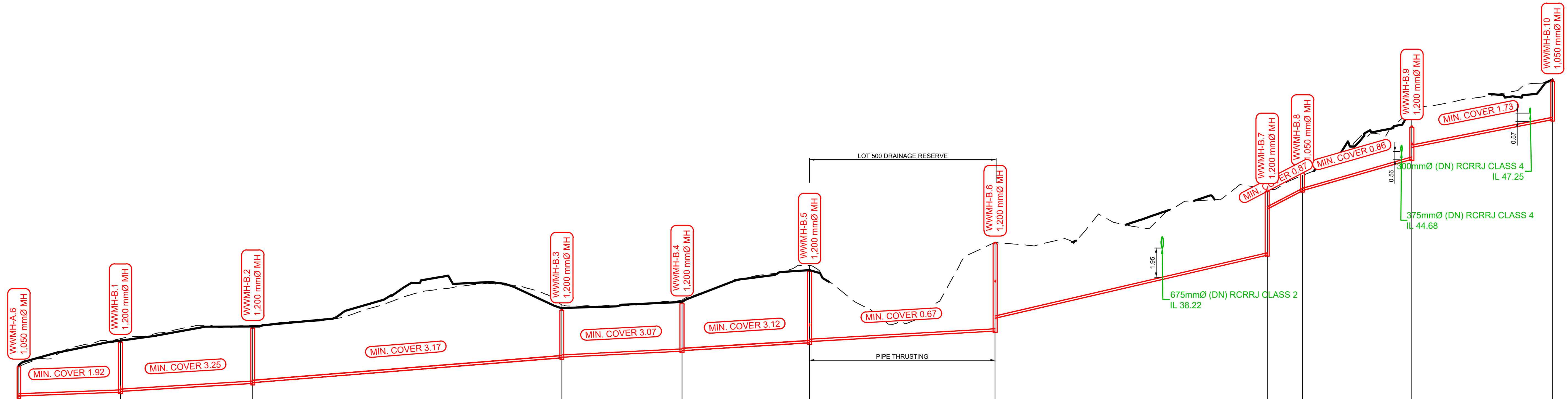
PROJECT NUMBER: 210506

SCALE: A1 1:500, A3 1:1000

DWG NUMBER: RC- 450

REVISION: E

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LID LEVEL	30.31	31.97	32.91	34.09	34.55	36.71	38.57	42.09	43.32	46.38	49.47
DEPTH TO STRUCTURE SUMP	2.23	3.56	3.90	3.37	3.39	4.98	6.06	4.45	1.38	2.33	2.75
INVERT LEVEL AT INSIDE EDGE	28.26	28.52 / 28.57	29.11 / 29.16	30.82 / 30.86	31.27 / 31.30	31.83 / 31.92	32.62 / 33.48	37.71 / 40.80	42.04 / 42.05	44.15 / 44.95	46.81

	A.6–B.1	B.1–B.2	B.2–B.3	B.3–B.4	B.4–B.5	B.5–B.6	B.6–B.7	B.7–B.8	B.8–B.9	B.9–B.10
DISTANCE	34.10	44.40	103.77	40.35	42.81	62.29	91.32	11.88	36.71	47.27
GRADIENT	0.75%	1.21%	1.60%	1.01%	1.23%	1.12%	4.64%	10.42%	5.72%	3.95%
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16
FLOW DETAIL										

WW-B - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI
B	12/07/24	FOR S92 RESPONSE	GT	GCAI
C	23/08/24	FOR S92 RESPONSE	GT	GCAI
D	30/10/24	FOR S92 RESPONSE	GT	SS
E	04/12/24	FOR S92 RESPONSE	GT	SS

	NAME	DATE
SURVEYED	TERRA	-
DESIGNED	GCAI	02/04/24
DRAWN	GCAI	02/04/24
TRACED		
CHECKED	GT	02/04/24

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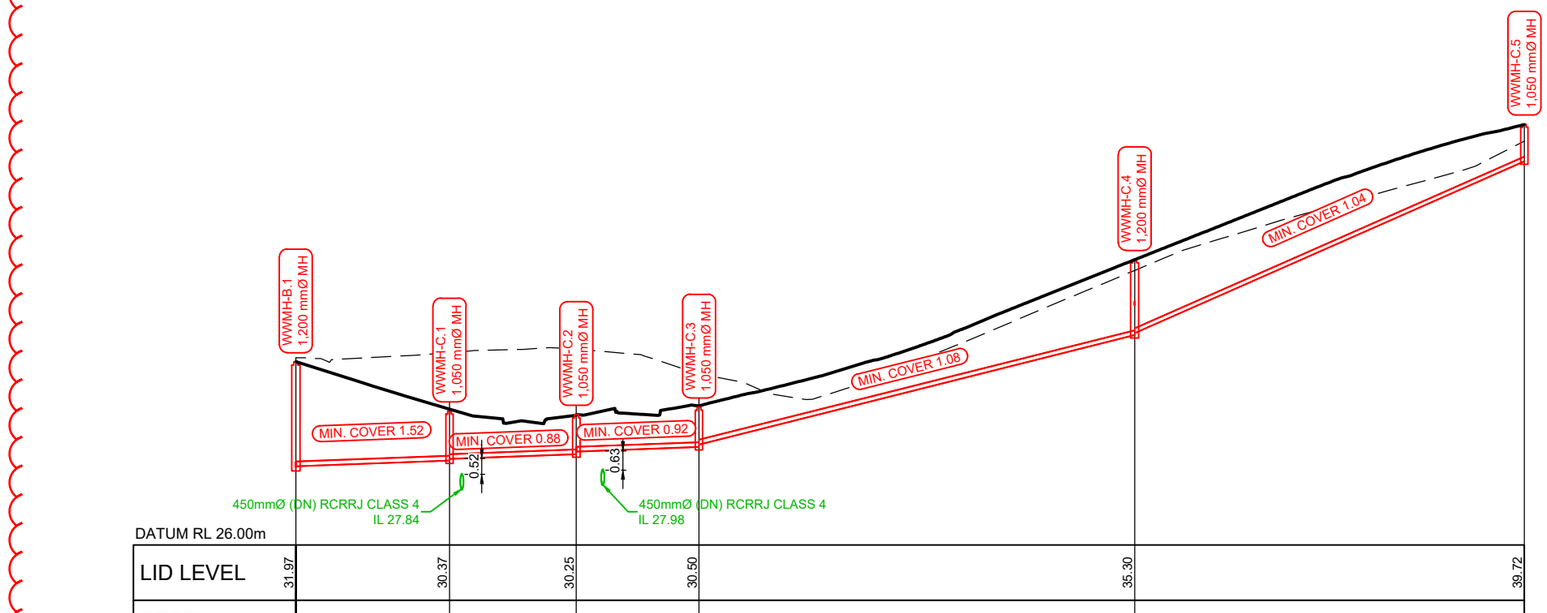
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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WASTEWATER LONGSECTION SHEET 2 OF 9

STAGE: FOR RESOURCE CONSENT
PROJECT NUMBER: 210506
SCALE: A1 1:500, A3 1:1000
DWG NUMBER: RC- 451
REVISION: E

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC450-WASTEWATER LONGSECTION.dwg, 451, 12/9/2024 8:12 pm



DATUM RL 26.00m

LID LEVEL	31.97	30.37	30.25	30.50	35.30	39.72
DEPTH TO STRUCTURE SUMP	3.56	1.71	1.39	1.40	2.55	1.31
INVERT LEVEL AT INSIDE EDGE	28.57	28.76	28.81	28.97	29.05	29.20	29.28	32.85	32.91	38.51
DISTANCE		25.07		20.68	20.02	71.04		63.56	
GRADIENT		0.75%		0.75%	0.75%	5.02%		8.81%	
PIPE SIZE AND MATERIAL		150 mmØ (DN) uPVC SN16		150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16		150 mmØ (DN) uPVC SN16	
FLOW DETAIL									

WW-C - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RESPONSE	GT	GCAI	DESIGNED	GCAI	02/04/24
C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WASTEWATER LONGSECTION
SHEET 3 OF 9

STAGE
FOR RESOURCE CONSENT

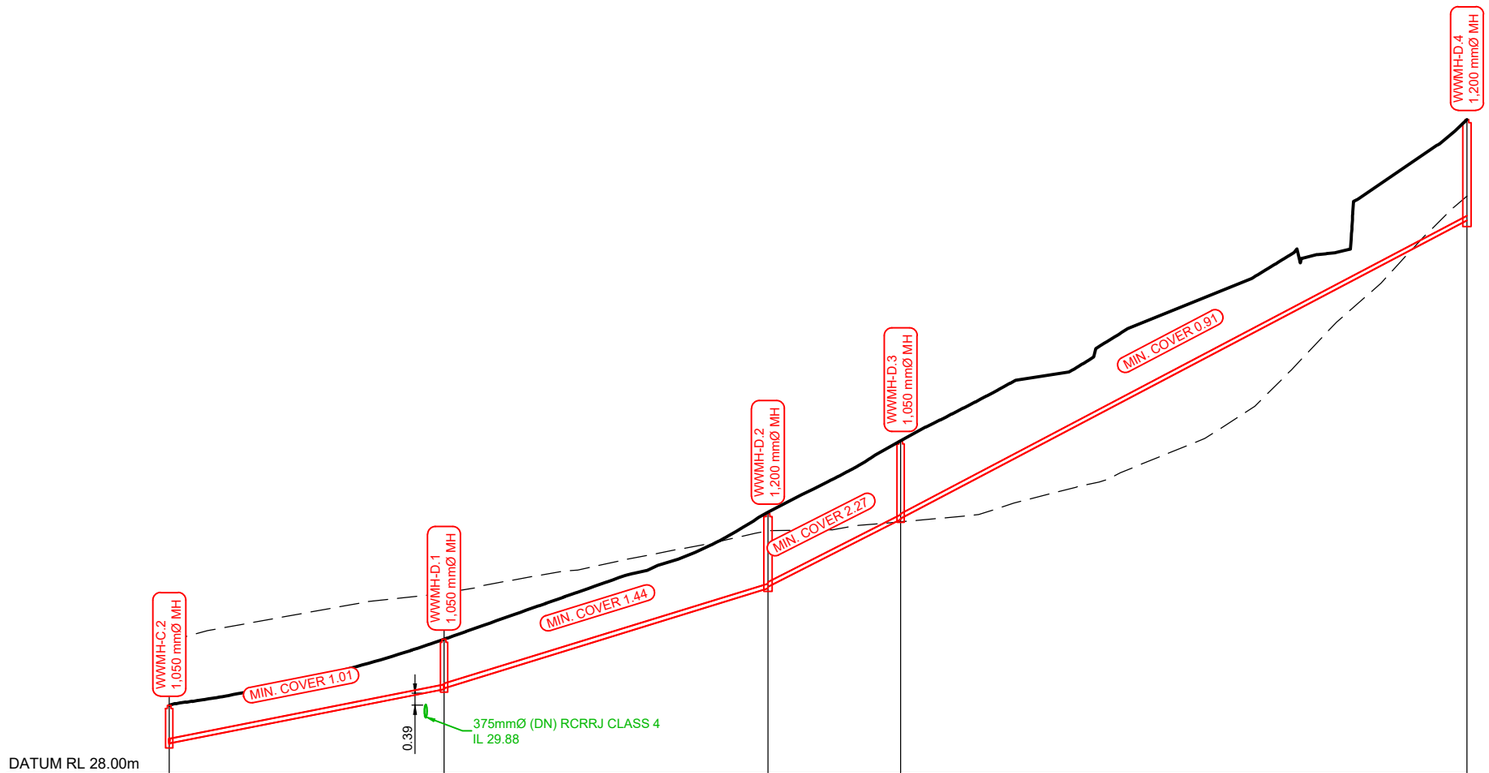
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210506

SCALE
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A3 1:1000

DWG NUMBER
RC- 452

REVISION
E

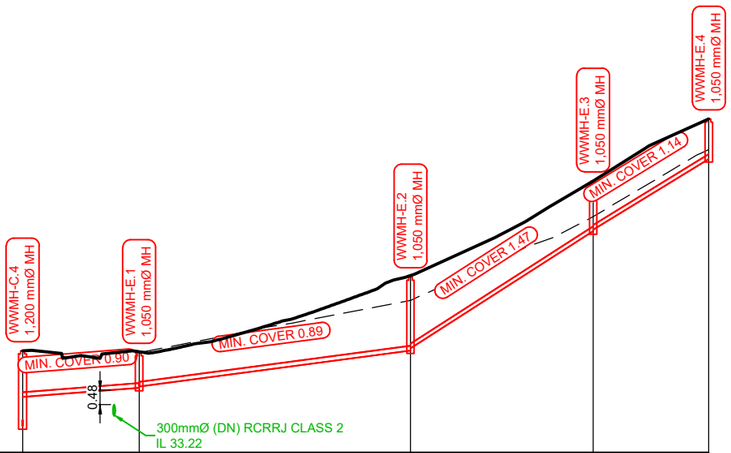
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DATUM RL 28.00m

LID LEVEL	30.25	32.41	36.51	38.88	49.35
DEPTH TO STRUCTURE SUMP	1.39	1.73	2.54	2.66	3.49
INVERT LEVEL AT INSIDE EDGE	29.02	30.78 / 30.82	34.07 / 34.12	36.32 / 36.35	46.07
DISTANCE		44.80	52.83	21.64	92.36
GRADIENT		3.95%	6.16%	10.15%	10.52%
PIPE SIZE AND MATERIAL		150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16
FLOW DETAIL					

WW-D - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 32.00m

LID LEVEL	35.30	35.25	37.71	40.84	42.86
DEPTH TO STRUCTURE SUMP	2.55	1.25	2.49	1.73	1.40
INVERT LEVEL AT INSIDE EDGE	33.81	34.10 / 34.14	35.32 / 35.39	39.21 / 39.26	41.57
DISTANCE		19.00	44.23	29.77	18.87
GRADIENT		1.57%	2.66%	12.84%	12.23%
PIPE SIZE AND MATERIAL		150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16
FLOW DETAIL					

WW-E - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RESPONSE	GT	GCAI	DESIGNED	GCAI	02/04/24
C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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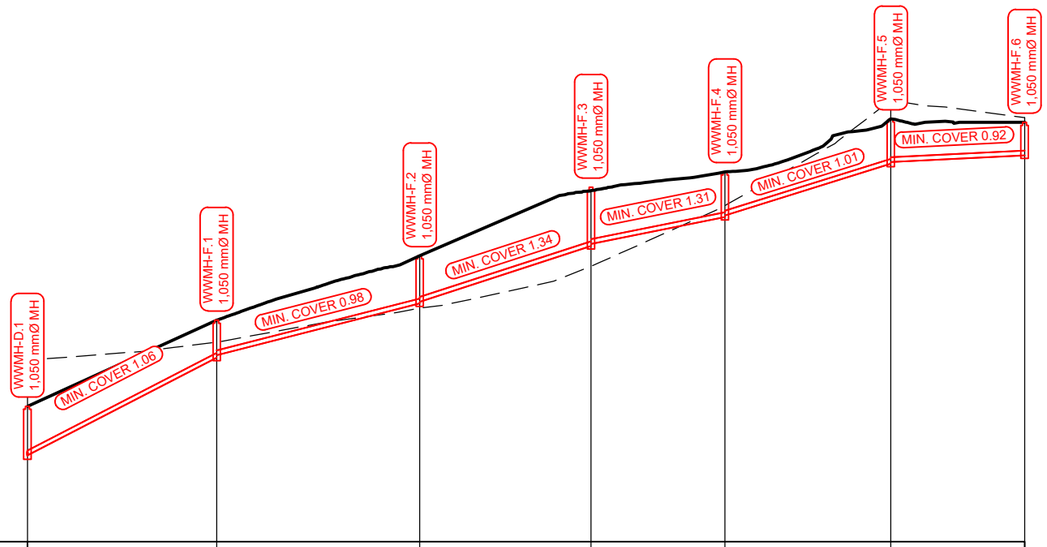
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WASTEWATER LONGSECTION
SHEET 4 OF 9

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER 210506
SCALE A1 1:500 A3 1:1000
DWG NUMBER RC- 453
REVISION E

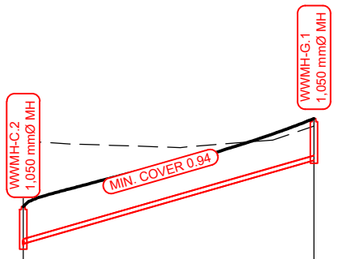
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DATUM RL 28.00m

LID LEVEL	32.41	35.22	37.32	39.55	40.05	41.78	41.67
DEPTH TO STRUCTURE SUMP	1.73	1.32	1.65	2.01	1.57	1.55	1.17
INVERT LEVEL AT INSIDE EDGE	30.82	34.00	34.08	35.77	35.82	37.64	37.71	38.58	38.63	40.32	40.38	40.59
DISTANCE	30.86	33.10	27.93	21.84	27.03	21.81
GRADIENT	10.31%	5.10%	6.50%	4.01%	6.26%	1.00%
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16
FLOW DETAIL						

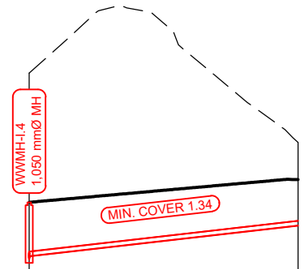
WW-F - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 28.00m

LID LEVEL	30.25		33.12
DEPTH TO STRUCTURE SUMP	1.39		1.46
INVERT LEVEL AT INSIDE EDGE	29.04		31.76
DISTANCE	47.40
GRADIENT	5.74%
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16
FLOW DETAIL	

WW-G - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 50.00m

LID LEVEL	53.16		
DEPTH TO STRUCTURE SUMP	1.97		
INVERT LEVEL AT INSIDE EDGE	51.40		52.40
DISTANCE	43.83
GRADIENT	2.29%
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16
FLOW DETAIL	

WW-H - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
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C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WASTEWATER LONGSECTION
SHEET 5 OF 9

STAGE
FOR RESOURCE CONSENT

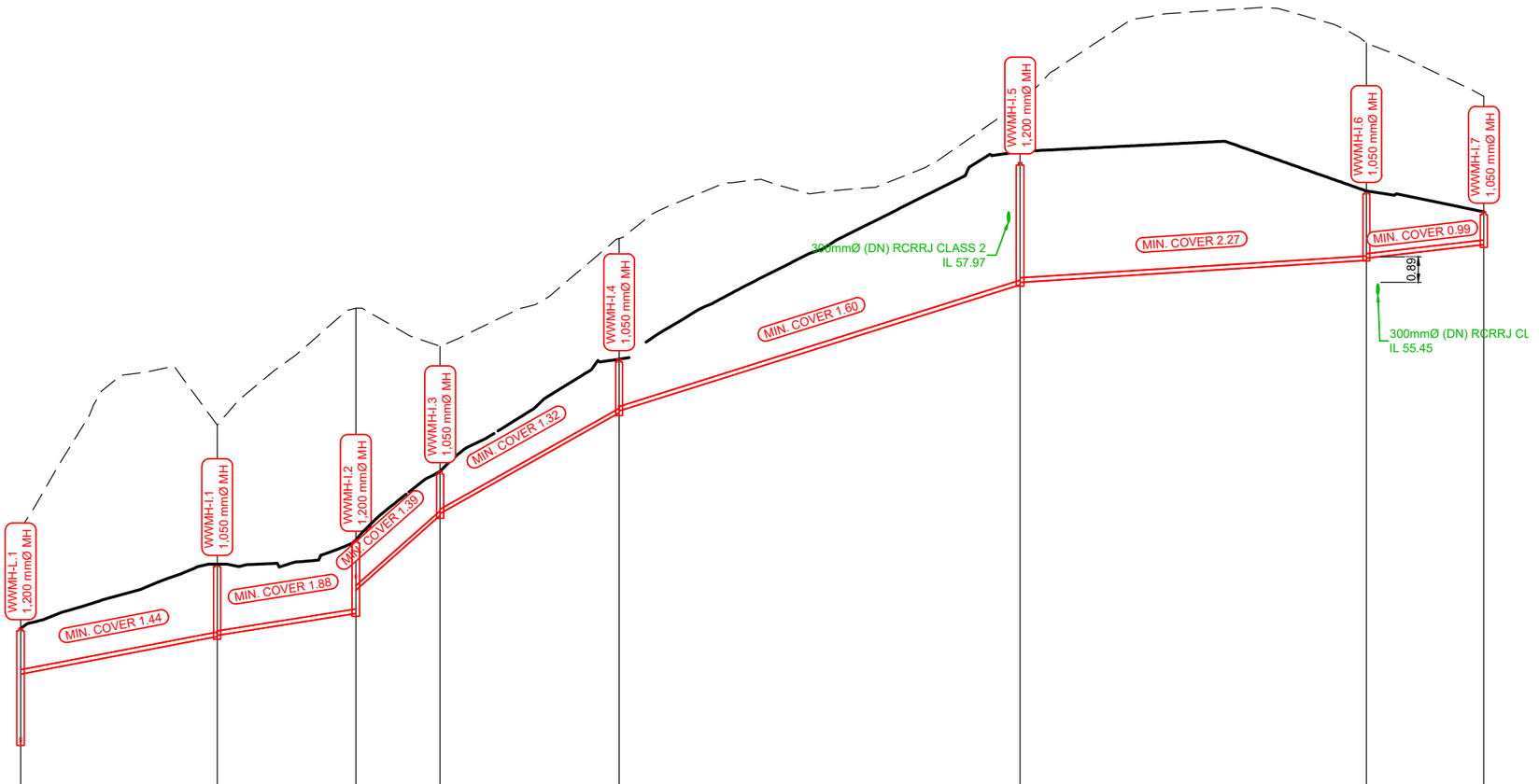
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 454

REVISION
E

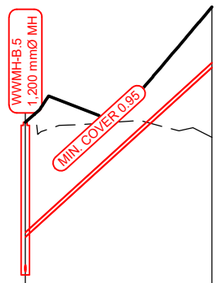
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DATUM RL 38.00m

LID LEVEL	43.76	46.00	46.84	49.24	53.16	60.03	59.03	58.31
DEPTH TO STRUCTURE SUMP	4.09	2.63	2.67	1.64	1.97	4.32	2.44	1.24
INVERT LEVEL AT INSIDE EDGE	42.16	43.47	43.51	44.28	45.09	47.70	47.76	51.29	51.35	55.76	55.84	56.61	56.69	57.16
DISTANCE	34.33	24.21	14.73	31.26	70.01	60.49	20.51
GRADIENT	3.83%	3.16%	17.72%	11.27%	6.30%	1.27%	2.31%
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16
FLOW DETAIL							

WW-I - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 30.00m

LID LEVEL	36.71	
DEPTH TO STRUCTURE SUMP	4.98	
INVERT LEVEL AT INSIDE EDGE	32.96	38.50
DISTANCE	30.43
GRADIENT	18.18%
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16
FLOW DETAIL	

WW-K - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

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C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WASTEWATER LONGSECTION
SHEET 6 OF 9

STAGE
FOR RESOURCE CONSENT

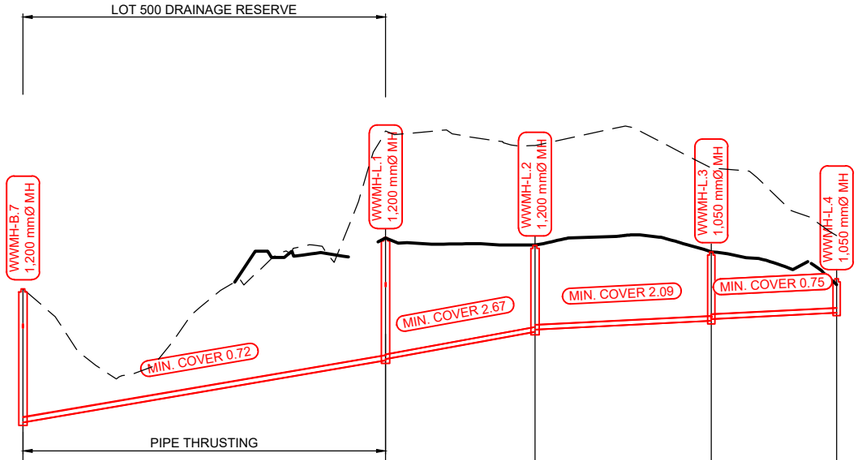
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 455

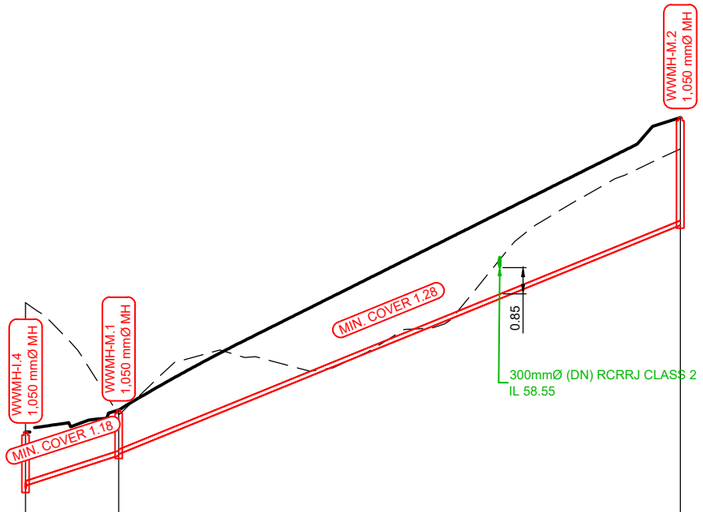
REVISION
E

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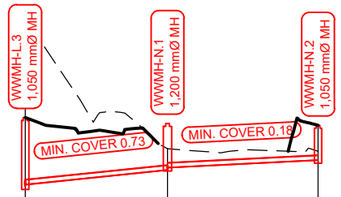
DATUM RL 36.00m				
LID LEVEL	42.09	43.76	43.52	43.30	42.42
DEPTH TO STRUCTURE SUMP	4.45	4.09	2.92	2.34	1.21
INVERT LEVEL AT INSIDE EDGE	37.74	39.76	39.80	40.70	40.77	41.05	41.11	41.32
DISTANCE	59.13	24.35	28.75	20.44
GRADIENT	3.42%	3.67%	1.00%	1.00%
PIPE SIZE AND MATERIAL	180 mm PE100 SDR 17	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16
FLOW DETAIL				

WW-L - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 50.00m			
LID LEVEL	53.16	53.88	63.41
DEPTH TO STRUCTURE SUMP	1.97	1.58	3.61
INVERT LEVEL AT INSIDE EDGE	51.41	52.40	52.44	59.90
DISTANCE	15.18	91.59
GRADIENT	6.50%	8.15%
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16
FLOW DETAIL		

WW-M - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 40.00m			
LID LEVEL	43.30	43.10	43.04
DEPTH TO STRUCTURE SUMP	2.34	1.55	1.24
INVERT LEVEL AT INSIDE EDGE	41.11	41.59	41.66	41.91
DISTANCE	23.20	24.53
GRADIENT	2.06%	1.00%
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16
FLOW DETAIL		

WW-N - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RESPONSE	GT	GCAI	DESIGNED	GCAI	02/04/24
C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WASTEWATER LONGSECTION
SHEET 7 OF 9

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

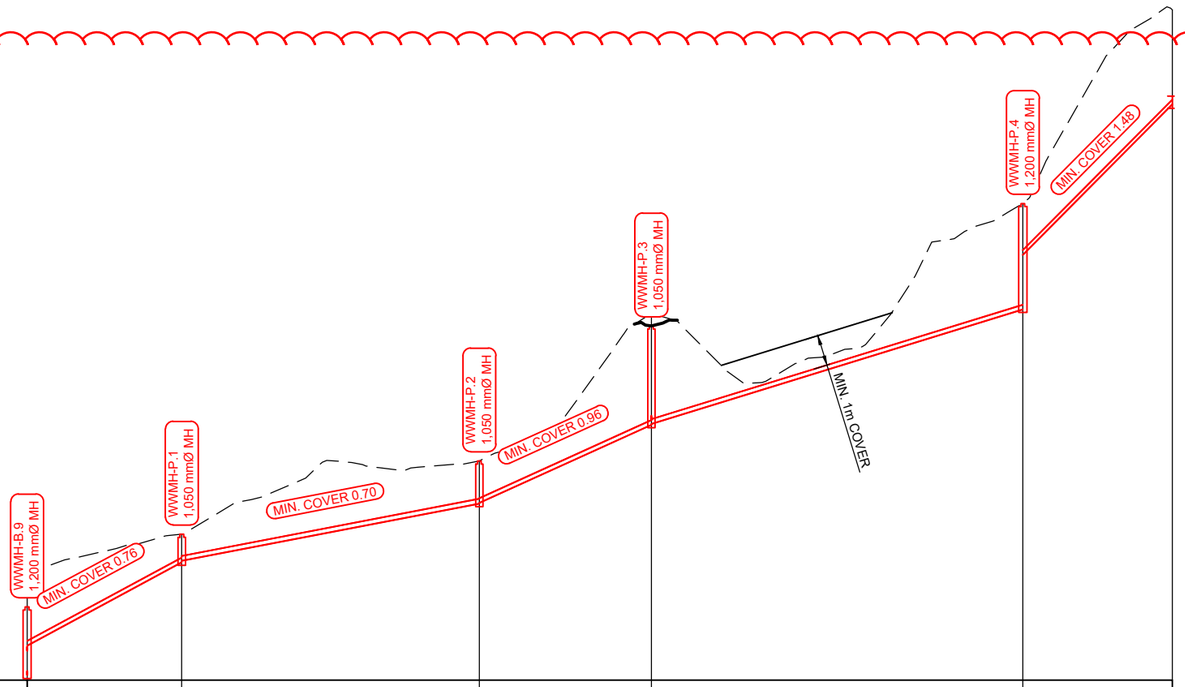
SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 456

REVISION
E

Auckland Council | Approved Resource Consent Plan | BUN60432511 | 06/03/2025 | Page 149 of 177

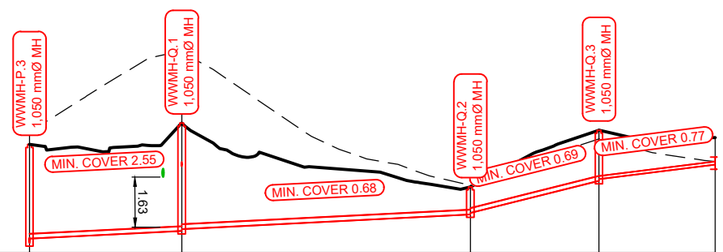
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DATUM RL 44.00m

LID LEVEL	46.38	48.75	51.14	55.54	59.54
DEPTH TO STRUCTURE SUMP	2.33	1.02	1.49	3.32	3.55
INVERT LEVEL AT INSIDE EDGE	45.12 / 47.84	47.89	49.76 / 49.78	52.32 / 52.35	56.08 / 57.86
DISTANCE	25.23	48.53	28.05	60.58	24.37
GRADIENT	10.77%	3.84%	9.08%	6.16%	20.14%
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16
FLOW DETAIL					

WW-P - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 52.00m

LID LEVEL	55.54	56.23	54.16	56.00
DEPTH TO STRUCTURE SUMP	3.32	3.61	1.00	1.75
INVERT LEVEL AT INSIDE EDGE	52.47 / 52.72	52.78	53.26 / 53.31	54.36 / 54.41 / 54.88
DISTANCE	24.81	47.06	20.98	18.92
GRADIENT	1.00%	1.01%	5.00%	2.50%
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	150 mmØ (DN) uPVC SN16	100 mmØ (DN) uPVC SN16
FLOW DETAIL				

WW-Q - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

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ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
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HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WASTEWATER LONGSECTION
SHEET 8 OF 9

STAGE
FOR RESOURCE CONSENT

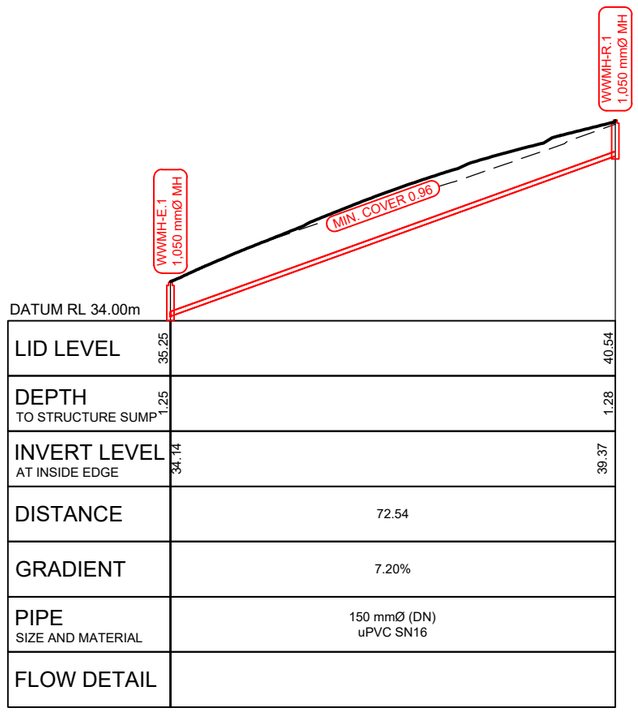
PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 457

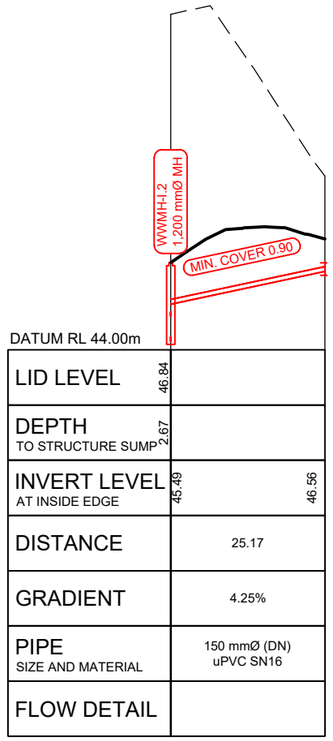
REVISION
E

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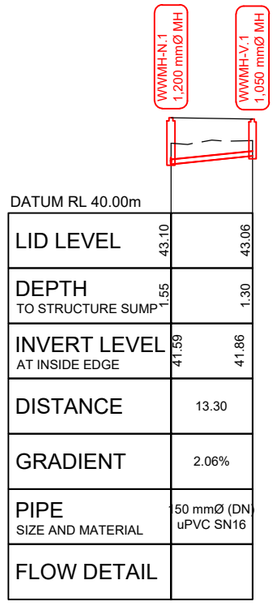
DATUM RL 34.00m		
LID LEVEL	35.25	40.54
DEPTH TO STRUCTURE SUMP	1.25	1.28
INVERT LEVEL AT INSIDE EDGE	34.14	39.37
DISTANCE	72.54	
GRADIENT	7.20%	
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16	
FLOW DETAIL		

WW-R - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



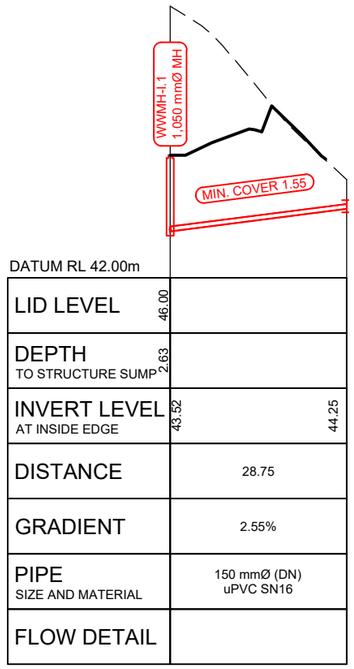
DATUM RL 44.00m		
LID LEVEL	46.84	
DEPTH TO STRUCTURE SUMP	2.67	
INVERT LEVEL AT INSIDE EDGE	45.49	46.56
DISTANCE	25.17	
GRADIENT	4.25%	
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16	
FLOW DETAIL		

WW-U - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 40.00m		
LID LEVEL	43.10	43.06
DEPTH TO STRUCTURE SUMP	1.55	1.30
INVERT LEVEL AT INSIDE EDGE	41.59	41.86
DISTANCE	13.30	
GRADIENT	2.06%	
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16	
FLOW DETAIL		

WW-V - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)



DATUM RL 42.00m		
LID LEVEL	46.00	
DEPTH TO STRUCTURE SUMP	2.63	
INVERT LEVEL AT INSIDE EDGE	43.52	44.25
DISTANCE	28.75	
GRADIENT	2.55%	
PIPE SIZE AND MATERIAL	150 mmØ (DN) uPVC SN16	
FLOW DETAIL		

WW-W - LONGSECTION
1:500H 1:100V @ A1 (DOUBLE FOR A3)

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D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WASTEWATER LONGSECTION
SHEET 9 OF 9

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE
A1 1:500
A3 1:1000

DWG NUMBER
RC- 458

REVISION
E

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Channel Report

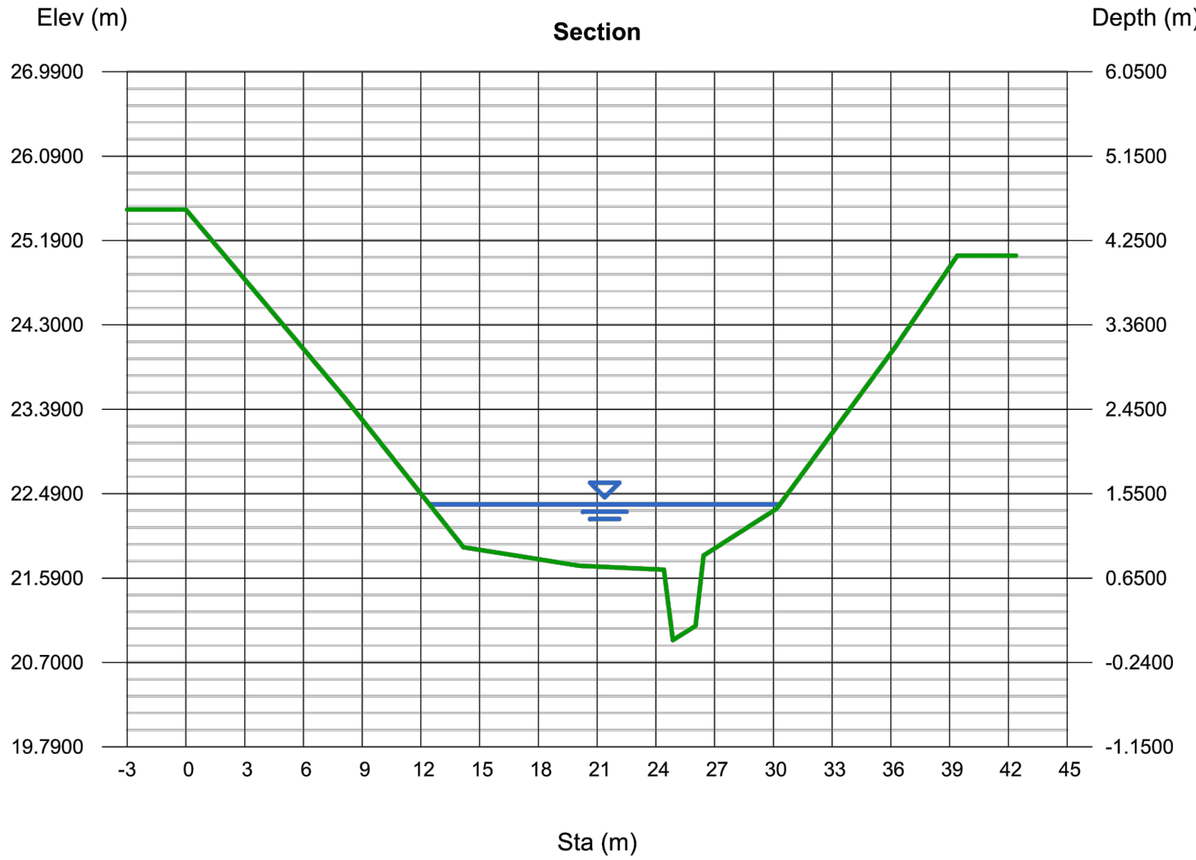
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100Yr OLFP Assessemnt

User-defined		**Highlighted**	
Invert Elev (m)	= 20.9400	Depth (m)	= 1.4448
Slope (%)	= 2.2500	Q (cms)	= 33
N-Value	= 0.030	Area (sqm)	= 10.1542
		Velocity (m/s)	= 3.2929
Calculations		Wetted Perim (m)	= 18.8658
Compute by:	Known Q	Crit Depth, Yc (m)	= 1.5972
Known Q (cms)	= 33.4370	Top Width (m)	= 17.8897
		EGL (m)	= 1.9979

(Sta, El, n)-(Sta, El, n)...

(0.0000, 25.5300)-(8.1500, 23.5100, 0.030)-(14.1700, 21.9300, 0.030)-(20.0900, 21.7300, 0.030)-(24.4100, 21.6900, 0.030)-(24.8700, 20.9400, 0.030)-(26.0300, 21
-(26.4400, 21.8400, 0.030)-(30.1700, 22.3400, 0.030)-(36.1700, 24.0500, 0.030)-(39.3900, 25.0400, 0.030)



HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	12/07/24	FOR S92 RFIs	GT	GCAI	SURVEYED		
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					DRAWN		
					TRACED		
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CLIENT: CARRACK CAPITAL LIMITED

PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: FLOOD LEVEL AT PIPE BRIDGING CALCULATION

STAGE: FOR RESOURCE CONSENT

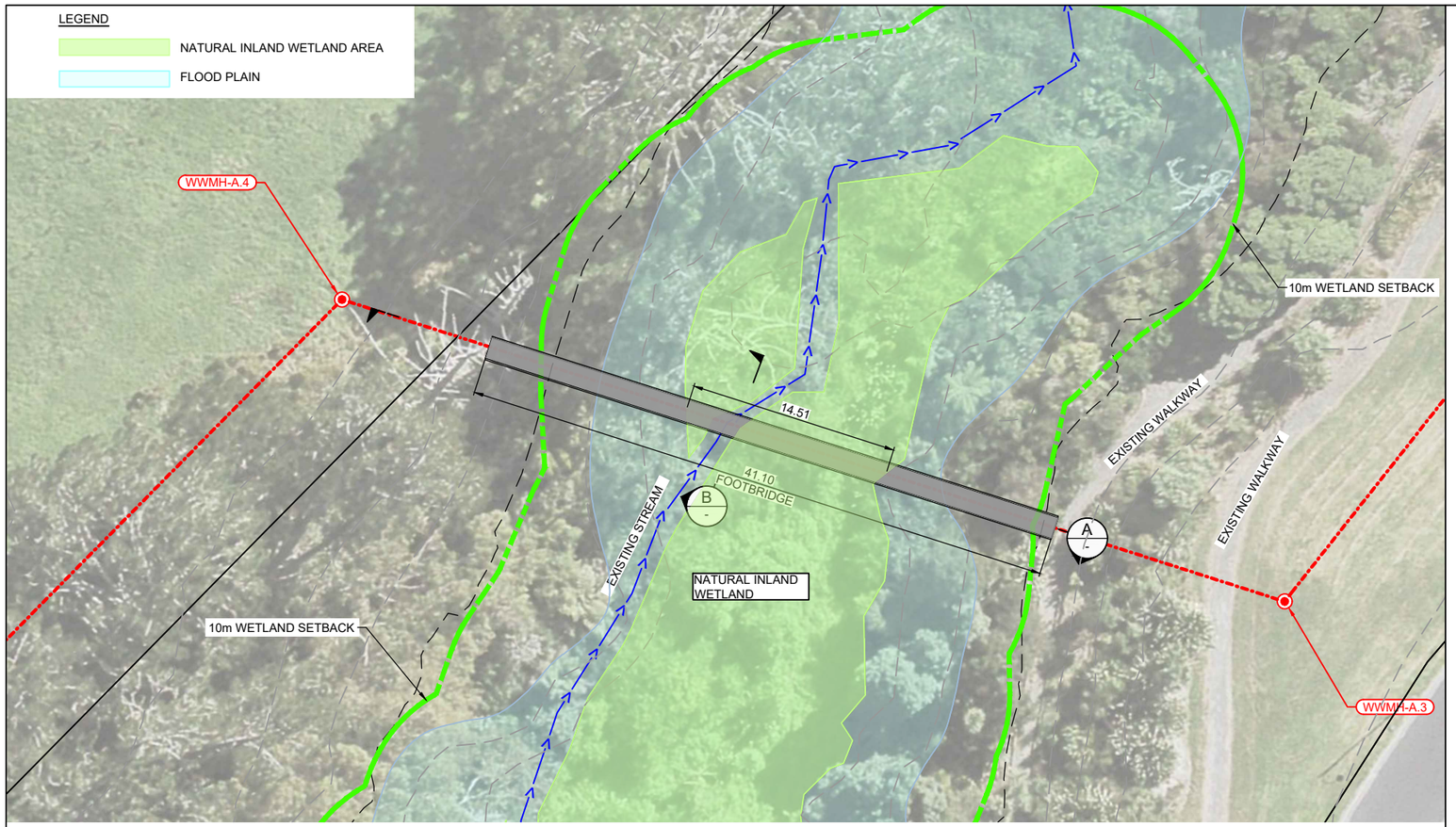
PROJECT NUMBER: 210506

SCALE: A1 1:20, A3 1:40

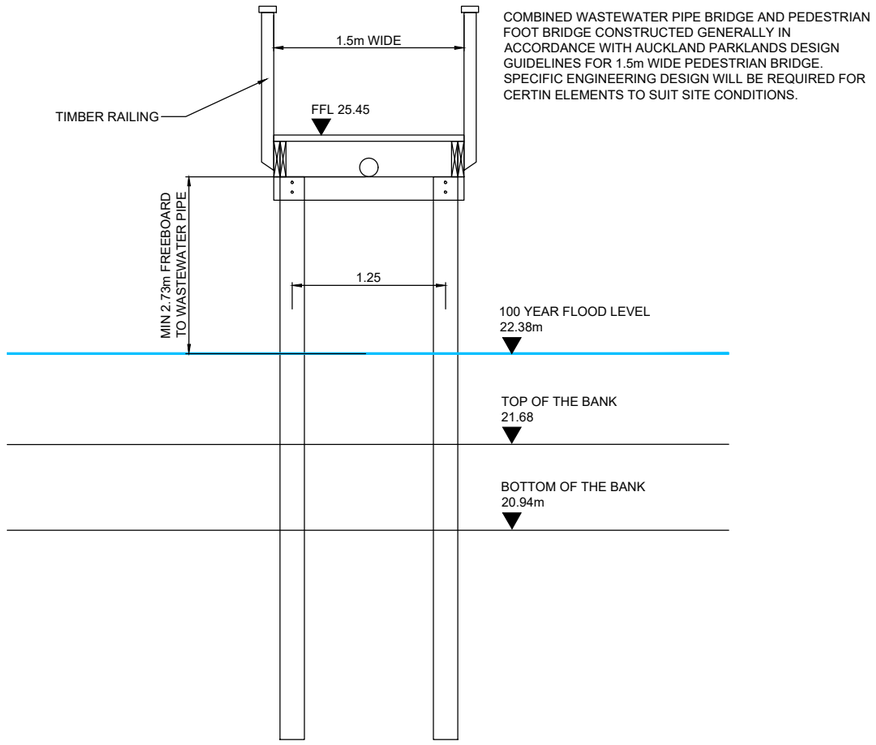
DWG NUMBER: RC- 460

REVISION: A

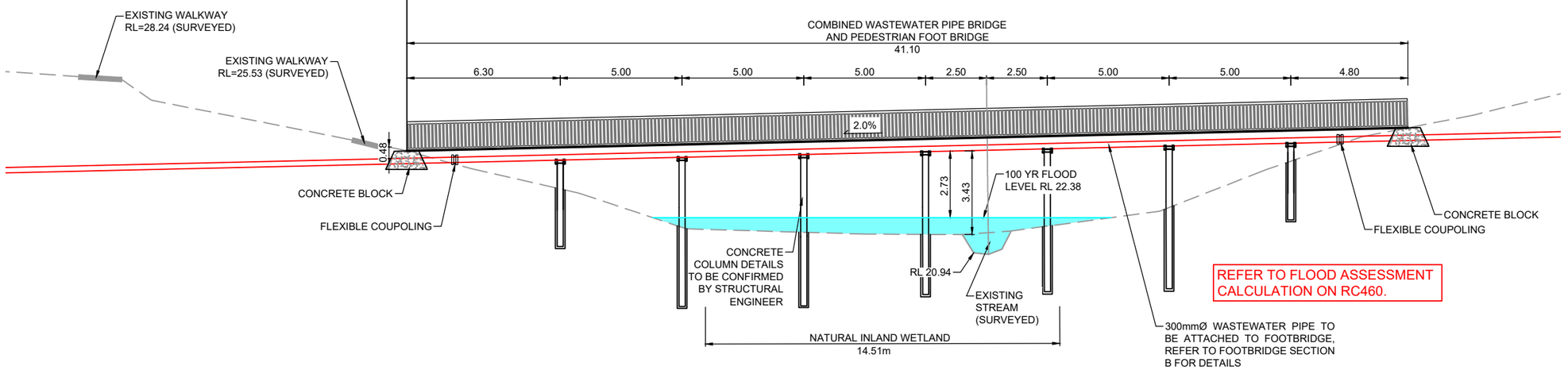
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- FOOTBRIDGE PLAN (POTENTIAL)
SCALE 1:200 (A1), 1:400 (A3)



B - FOOTBRIDGE SECTION (POTENTIAL)
SCALE 1:25 (A1), 1:50 (A3)



A - FOOTBRIDGE SECTION (POTENTIAL)
1:100H, 1:100V @A1
1:200H, 1:200V @A3

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM8 DP 404605 RL 81.10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	23/08/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
B	30/10/24	FOR S92	GT	GZ	DESIGNED	GCAI	02/04/24
					DRAWN	GCAI	02/04/24
					TRACED		
					CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
PEDESTRIAN FOOTBRIDGE DETAILS
(INDICATIVE ONLY)

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER	SCALE	
210506	A1	AS SHOWN
	A3	AS SHOWN
DWG NUMBER	REVISION	
RC- 461	B	

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JOB:		
8-14, 17-19 Babich Road, Henderson, Auckland		
SUBJECT:		
100 Year SW Riprap Calculation - Wingwall 1.0A		
BY:	DATE:	JOB NO:
Gallagher Cai	23/08/24	210506

RIP-RAP OUTLET DESIGN

TP 2013/018: Hydraulic Energy Management: Inlet and Outlet Design for Treatment Devices

PIPE FLOW RATE

Storm Scenario		**100%**	AEP
Pipe Flow Rate	**q**	**1485**	**l/s**

DESIGN CAPACITY

$V_d = {}^1/n\ R^{2/3}\ S^{1/2}$ *Manning's Formula*

Pipe Material		**Concrete**		
Pipe Size	D_o	**825**	mm	
Pipe Slope	S	**1.10%**		
Number of Barrels		**1**		
Manning's n	n	0.012		
Pipe Design Flow	**Q_d**	**1,631.0**	**l/s**	**OK**

PARTIAL PIPE FLOW

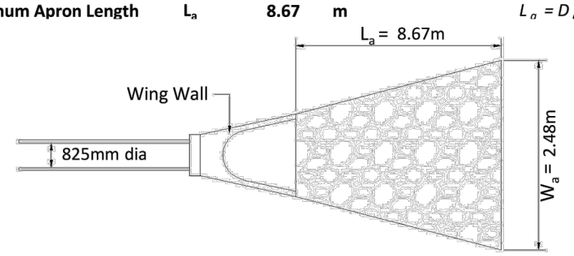
Flow Depth	y	**618**	mm	
Relative Depth	y/D	0.75		
Angle	Θ	4.18	rad	
Flow Area	A	0.43	m^2	
Wetted Perimeter	P	1.73	m	
Partial Pipe Flow Velocity	**V**	**3.5**	**m/s**	**OK**

CHECK CRITICAL FLOW

Froude Number	F_o	1.4	(Supercritical)	$F_o = v/(g \times d_p)^{0.5}$
Scour Protection	**STANDARD OUTLET**			

RIP-RAP APRON DESIGN

Median Rip-Rap Diameter	**d_{50}**	**290**	**mm**	$d_{50} = 0.25 \times D_o \times F_o$
Minimum Apron Width	**W_a**	**2.48**	**m**	$W_a \geq 3 \times D_o$
Minimum Apron Length	**L_a**	**8.67**	**m**	$L_a = D_o\ (8 + 17 \times \log F_o)$



of 1
024 8:43 pm

Sheet: Rip-Rap Pipe Outlet
File: SW-AKCL-TP2013-018 Outfall Design.xlsm

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					DRAWN	GCAI	02/04/24
					TRACED		
					CHECKED	GT	02/04/24

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PROJECT / LOCATION: 8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE: RIPRAP CALCULATION

STAGE: FOR RESOURCE CONSENT

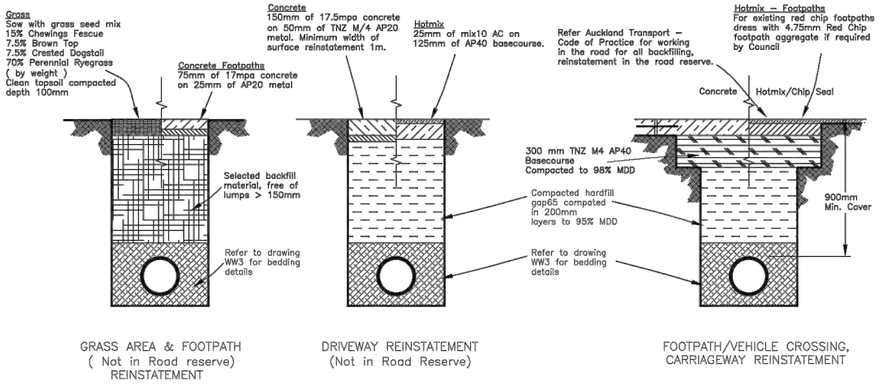
PROJECT NUMBER: 210506

SCALE: A1 AS SHOWN; A3 AS SHOWN

DWG NUMBER: RC- 462

REVISION: A

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GRASS AREA & FOOTPATH
(Not in Road reserve)
REINSTATEMENT

DRIVEWAY REINSTATEMENT
(Not in Road Reserve)

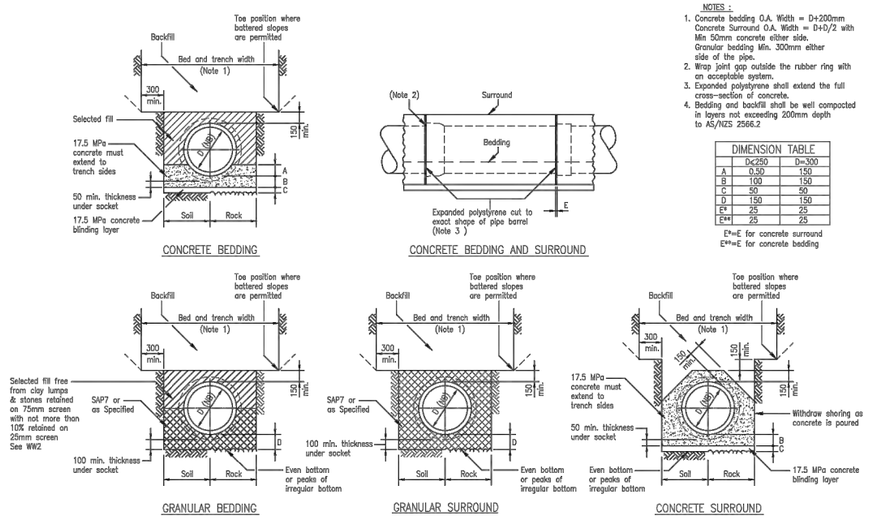
FOOTPATH/VEHICLE CROSSING,
CARRIAGEWAY REINSTATEMENT

NOTES

1. All trench surface reinstatement within the road reserve shall comply with Auckland Transport requirements.
   The details shown are typical expectations for reinstatements.
2. Backfill shall be compacted in 200mm layers to obtain maximum density as described in Watercare's Construction Standards.
3. Where concrete or other stabilized layers exist in the roadway, the trench shall be reinstated with similar material or as directed by the roading engineer.

SCALE:	N.T.S.
ISSUE DATE:	06-03-2017
DWG No.	2010070.001C
REFERENCE No.	WW 2

TYPICAL TRENCH REINSTATEMENT
DETAILS FOR WASTEWATER



CONCRETE BEDDING

CONCRETE BEDDING AND SURROUND

NOTES :

1. Concrete bedding O.A. Width = D+200mm
   Concrete Surround O.A. Width = D+D/2 with Min 50mm concrete either side.
   Granular bedding Min. 300mm either side of the pipe.
2. Wrap joint gap outside the rubber ring with an acceptable system.
3. Expanded polystyrene shall extend the full cross-section of concrete.
4. Bedding and backfill shall be well compacted in layers not exceeding 200mm depth to AS/NZS 2566.2

DIMENSION TABLE		
	D≤250	D>300
A	0.50	150
B	100	150
C	50	50
D	150	150
E*	25	25
E**	25	25

E*=E for concrete surround
E**=E for concrete bedding

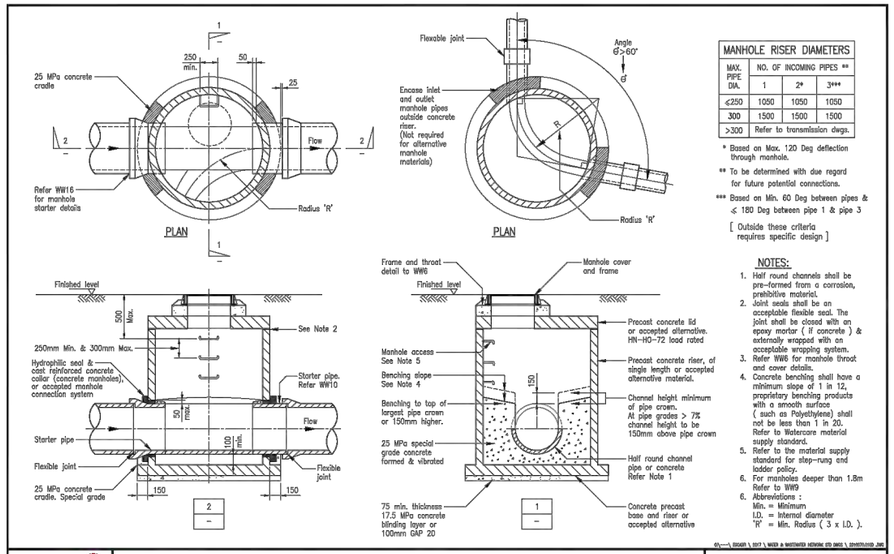
GRANULAR BEDDING

GRANULAR SURROUND

CONCRETE SURROUND

SCALE:	N.T.S.
ISSUE DATE:	23-01-2017
DWG No.	2010070.005C
REFERENCE No.	WW 3

BEDDING DETAILS



MANHOLE RISER DIAMETERS			
MAX. PIPE DIA.	NO. OF INCOMING PIPES **		
	1	2*	3***
≤250	1050	1050	1050
300	1500	1500	1500
>300	Refer to transmission dwgs.		

* Based on Max. 120 Deg deflection through manhole.

** To be determined with due regard for future potential connections.

*** Based on Min. 60 Deg between pipes & ≤ 180 Deg between pipe 1 & pipe 3

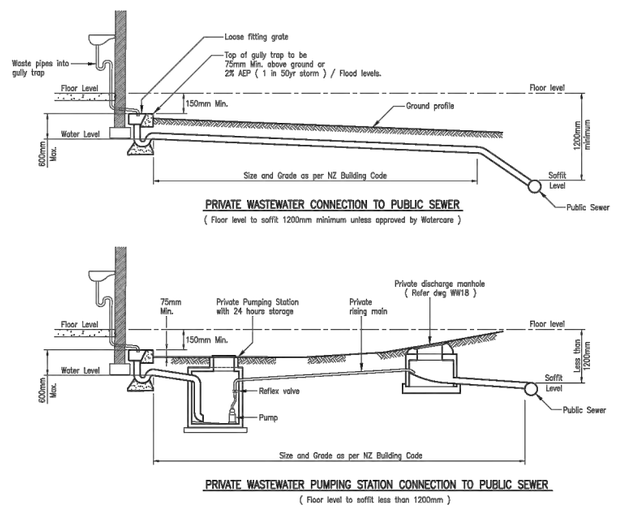
[Outside these criteria requires specific design]

NOTES:

1. Half round channels shall be pre-formed from a corrosion, prehibitive material.
2. Joint seals shall be an acceptable flexible seal. The joint shall be closed with an epoxy mortar (If concrete) & externally wrapped with an acceptable wrapping system.
3. Refer WW6 for manhole throat and cover details.
4. Concrete benching shall have a minimum slope of 1 in 12, proprietary benching products with a smooth surface (such as Polyethylene) shall not be less than 1 in 20. Refer to Watercare material supply standard.
5. Refer to the material supply standard for step-rung and ladder policy.
6. For manholes deeper than 1.8m Refer to WW9
6. Abbreviations :
   Min. = Minimum
   I.D. = Internal diameter
   'R' = Min. Radius (3 x I.D.).

SCALE:	N.T.S.
ISSUE DATE:	13-07-2018
DWG No.	2010070.010D
REFERENCE No.	WW 5

MANHOLE GENERAL DETAILS AND LAYOUT
FOR MANHOLES UP TO 1.8m DEEP



PRIVATE WASTEWATER CONNECTION TO PUBLIC SEWER
(Floor level to soffit 1200mm minimum unless approved by Watercare)

PRIVATE WASTEWATER PUMPING STATION CONNECTION TO PUBLIC SEWER
(Floor level to soffit less than 1200mm)

NOTE:

EXAMPLE OF HOUSE SERVICE CONNECTION TO A PUBLIC SEWER

1. Minimum requirements are satisfied when the floor level is at least 1200mm above the soffit of the receiving sewer.
2. Where the receiving sewer is less than 1200mm a private pumping station and discharge manhole shall be installed.
3. Ground around gully trap shall be at least 75mm below the gully trap or 2% of the AEP (Annual exceedence probability) – Rain fall flood levels.
4. Building floor shall be at least 150mm above the gully trap. Gully traps shall not be placed in over land flow paths.

SCALE:	N.T.S.
ISSUE DATE:	02-08-2018
DWG No.	2010070.037B
REFERENCE No.	WW 17

PRIVATE CONNECTIONS
MINIMUM FLOOR LEVEL TO SOFFIT OF WASTEWATER

ISSUE	DATE	REVISION	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	NM	GZ

	NAME	DATE
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DESIGNED		
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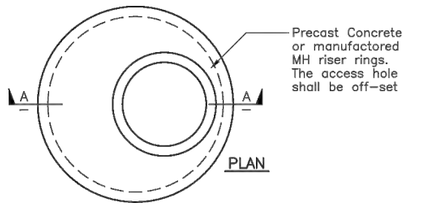
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

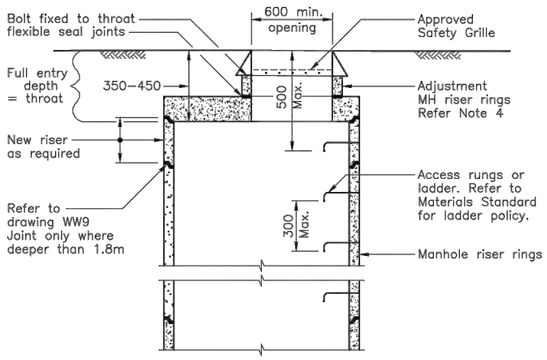
DRAWING TITLE
WASTEWATER STANDARD DETAILS
SHEET 1 OF 4

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER	210506	SCALE	A1 N.T.S A3 N.T.S
DWG NUMBER	RC- 470	REVISION	A

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TYPICAL SECTION A–A
THROUGH MANHOLE

NOTES:

1. Lid supplied to HN–HO–72 loading and compliance certified.
2. When the throat depth is greater than 450mm, a new manhole riser is required with a new adjustment ring.
3. Refer drawing WW9 for manholes deeper than 1.8m
4. Refer drawing WW7 for sloping ground.
5. Refer drawing WW5 for manhole details.
6. Approved Safety Grille below access manhole cover.
7. Manhole covers in the road shall be constructed so that the cover hinge is facing the oncoming traffic. (Refer Fig 1)
8. For all other covers the orientation should be so that the cover hinge is at 90 degrees from the ladder, Either side. (Refer Fig 2)

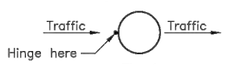


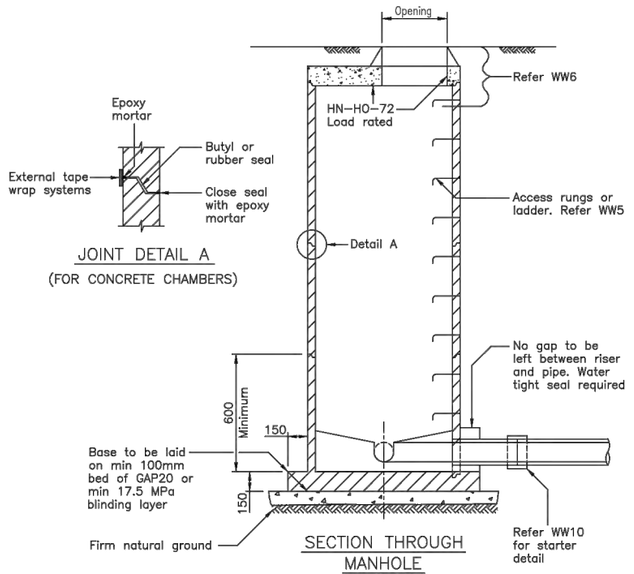
Fig 1



Fig 2

O:\---\ ESCADI \ 2017 \ WATER & WASTEWATER NETWORK STD DWGS \ 2010070.029C .DWG

Watercare	TYPICAL MANHOLE THROAT AND COVER DETAILS	SCALE: N.T.S.
		ISSUE DATE: 13–07–2018
		DWG No. 2010070.029C
		REFERENCE No. WW 6



JOINT DETAIL A
(FOR CONCRETE CHAMBERS)

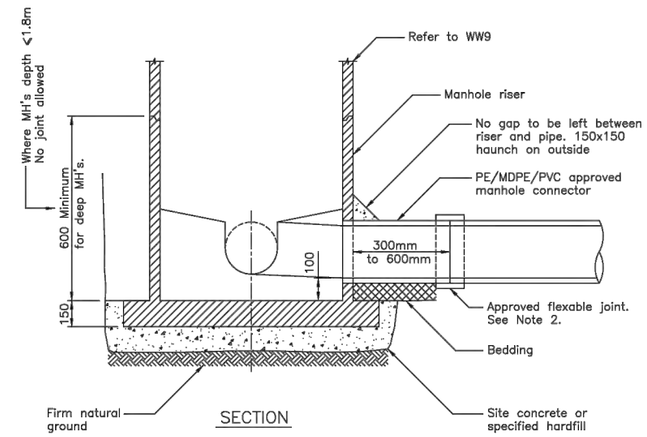
SECTION THROUGH MANHOLE

Notes:

1. Refer to WW5 for general details.
2. Channel through manhole to be lined.
3. All manhole openings must be cut.
4. For droppers refer to WW13
5. The manhole diameter shall be increased to minimum internal 1200mm for all manholes greater than 3.0 metres deep.
6. For manholes > 6.0 meters deep the minimum internal diameter shall be 1500mm.
7. Refer WW6 for manhole throat and cover details.
8. Manholes greater than 6m deep must be installed with landing platforms. Refer drawing in (Transmission drawing set)

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Watercare	MANHOLES > 1.8m DEEP	SCALE: N.T.S.
		ISSUE DATE: 13–03–2017
		DWG No. 2010070.012D
		REFERENCE No. WW 9



SECTION

Notes:

1. This drawing shall be read with WW5.
2. For PE pipe connections to a concrete manhole refer to WW11 and WW12 for acceptable solutions.
3. Detail may differ for accepted proprietary manhole systems other than concrete.

O:\---\ ESCADI \ 2017 \ WATER & WASTEWATER NETWORK STD DWGS \ 2010070.013D .DWG

Watercare	MANHOLE CONNECTION & STARTER DETAIL	SCALE: N.T.S.
		ISSUE DATE: 06–03–2017
		DWG No. 2010070.013D
		REFERENCE No. WW 10

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
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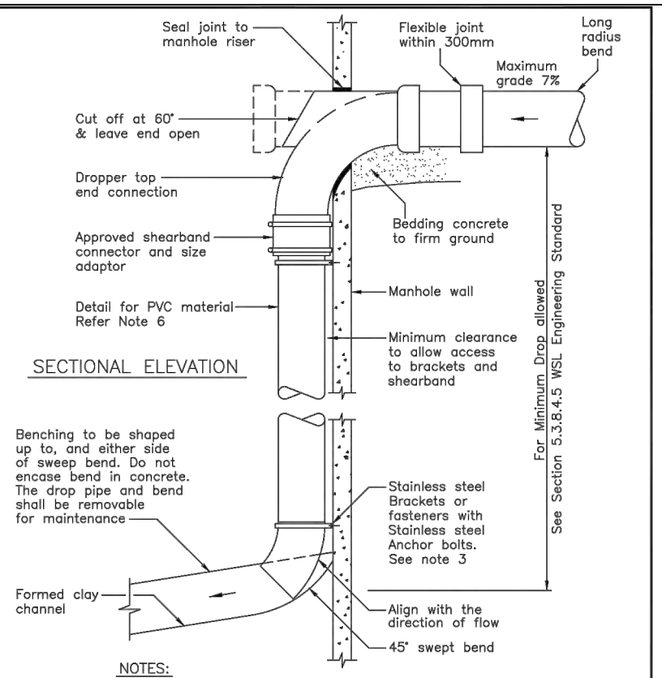
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WASTEWATER STANDARD DETAILS
SHEET 2 OF 4

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER	210506	SCALE	A1 N.T.S
			A3 N.T.S
DWG NUMBER	RC- 471	REVISION	A

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SECTIONAL ELEVATION

NOTES:

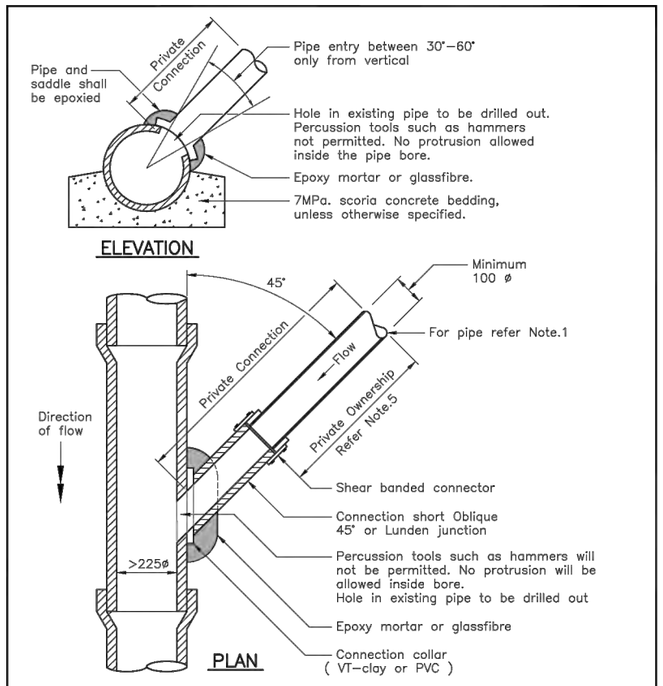
1. Specific approval is required from Watercare for all internal drop connections to existing manholes. Considerations include space available in the existing manhole and number of existing internal drop connections.
2. Internal drop shall be clear of Manhole rungs/ladders.
3. 100ø to 300ø PVC drop pipe held in place by Stainless steel brackets or fasteners with M10 Stainless steel anchor bolts every 600 mm.
4. Specific design is required where the incoming grade exceeds 7%, high velocity or where deep manholes make plunge–droppers unsuitable.
5. The minium clear diameter in the manhole shall be 1m. Vertical droppers are not allowed in manholes under 1200mm diameter.
6. This detail is suitable for GRP. For PE, joints shall be butt–welded. The PE top end connections shall be fabricated to fit over the incoming pipe with an O–ring seal.

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INTERNAL MANHOLE PLUNGE–DROP PIPE

SCALE:	N.T.S.
ISSUE DATE:	06–03–2017
DWG No.	2010070.018C
REFERENCE No.	WW 13



ELEVATION

PLAN

NOTES:

1. Applies to concrete, VT–clay, or PVC pipe saddle connections only. For other materials refer WW15.
2. The maximum lateral pipe size shall be less than half of the main.
3. For pipe lateral to main ratio outside the above parameters, refer to WW15, or a manhole shall be constructed where approved.
4. If the existing sewer pipe has PE or CIPP liner, specific design & approval required from Watercare.
5. Refer to Watercare Point–of–Supply Policy.

G:\——\ EGCADR \ 2017 \ WATER & WASTEWATER NETWORK STD DWGS \ 2010070.036C .DWG

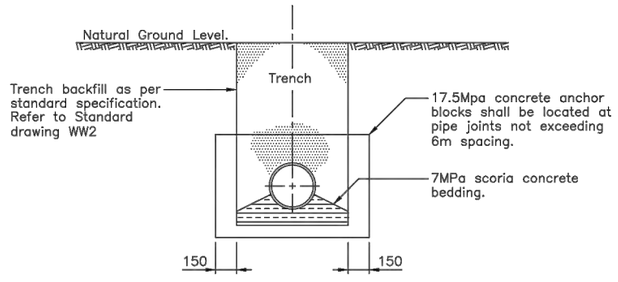
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SADDLE CONNECTIONS TO GRAVITY PUBLIC WASTEWATER

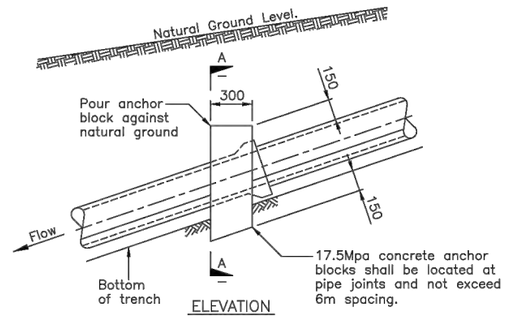
SCALE:	N.T.S.
ISSUE DATE:	13–07–2018
DWG No.	2010070.036C
REFERENCE No.	WW 14

NOTE:

For wastewater lines laid at grades steeper than 10% (including service connections) the bedding and surround material shall be of a low–grade (7MPa) scoria concrete. For lines exceeding a grade of 20% anchor blocks shall be located at pipe joints, and not exceed 6m spacing.



SECTION A–A



ELEVATION

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BULKHEADS FOR STEEP GRADES

SCALE:	N.T.S.
ISSUE DATE:	01–03–2017
DWG No.	2010070.049A
REFERENCE No.	WW 16

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	GZ	SURVEYED		
					DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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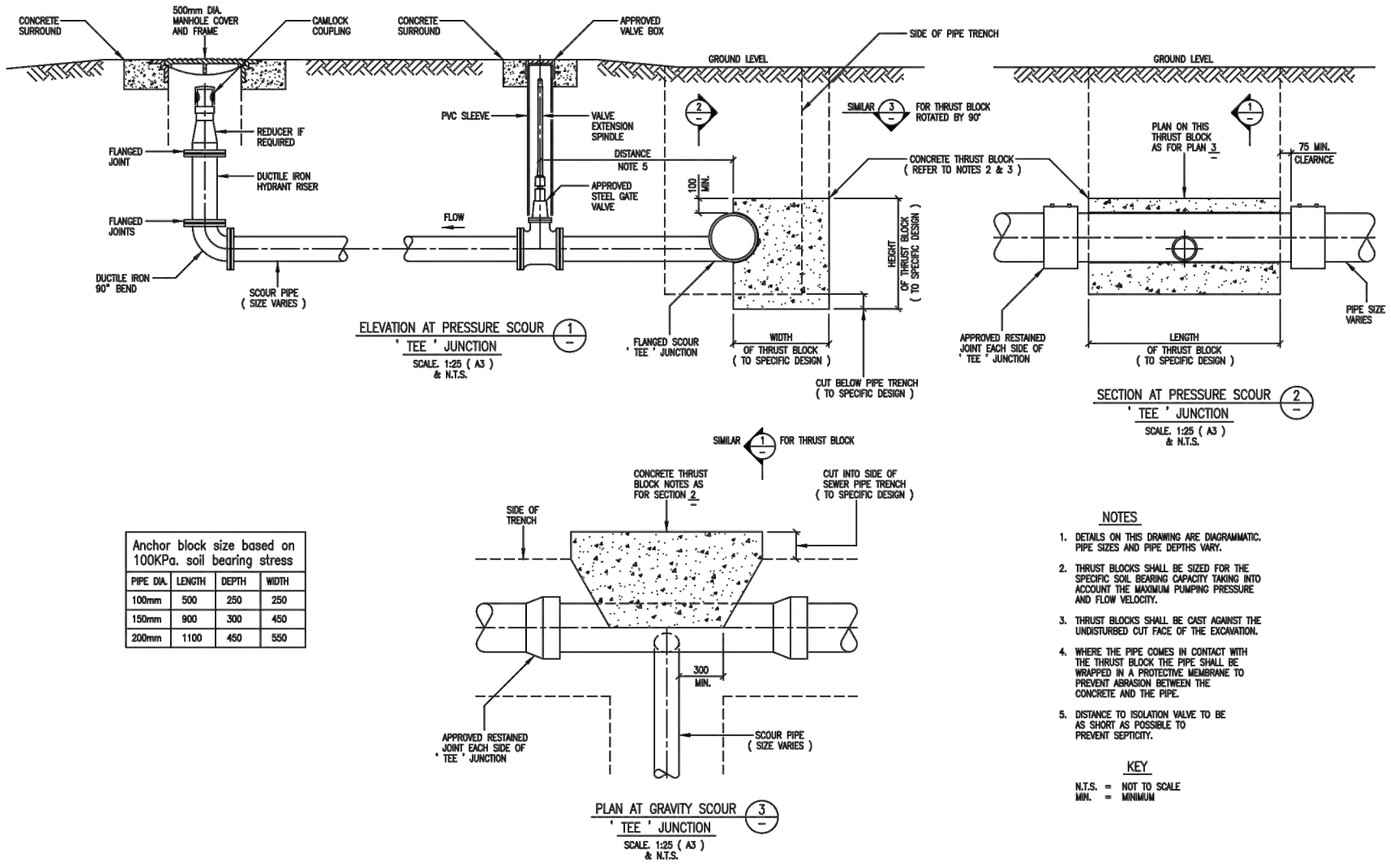
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WASTEWATER STANDARD DETAILS SHEET 3 OF 4

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER	210506	SCALE	A1 N.T.S A3 N.T.S
DWG NUMBER	RC- 472	REVISION	A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC460-DRAINAGE STANDARD DETAILS.dwg, 472, 5/2/2024 11:01 pm



Anchor block size based on 100KPa. soil bearing stress			
PIPE DIA.	LENGTH	DEPTH	WIDTH
100mm	500	250	250
150mm	900	300	450
200mm	1100	450	550

NOTES

1. DETAILS ON THIS DRAWING ARE DIAGRAMMATIC. PIPE SIZES AND PIPE DEPTHS VARY.
2. THRUST BLOCKS SHALL BE SIZED FOR THE SPECIFIC SOIL BEARING CAPACITY TAKING INTO ACCOUNT THE MAXIMUM PUMPING PRESSURE AND FLOW VELOCITY.
3. THRUST BLOCKS SHALL BE CAST AGAINST THE UNDISTURBED CUT FACE OF THE EXCAVATION.
4. WHERE THE PIPE COMES IN CONTACT WITH THE THRUST BLOCK THE PIPE SHALL BE WRAPPED IN A PROTECTIVE MEMBRANE TO PREVENT ABRASION BETWEEN THE CONCRETE AND THE PIPE.
5. DISTANCE TO ISOLATION VALVE TO BE AS SHORT AS POSSIBLE TO PREVENT SEPTICITY.

KEY

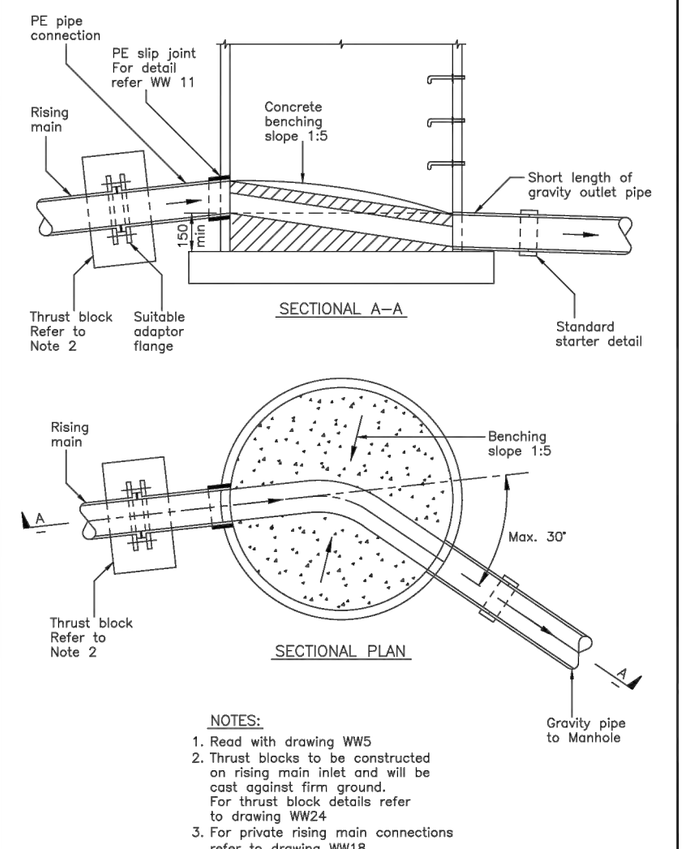
N.T.S. = NOT TO SCALE
MIN. = MINIMUM

G:\---\ ESCADY \ 2017 \ WATER & WASTEWATER NETWORK STD DWGS \ 2010070.055 .DWG

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PRESSURE WASTEWATER
FLUSH-OUT / SCOUR

SCALE:	AS SHOWN
ISSUE DATE:	21-03-2017
DWG No.	2010070.055
REFERENCE No.	WW 20



NOTES:

1. Read with drawing WW5
2. Thrust blocks to be constructed on rising main inlet and will be cast against firm ground. For thrust block details refer to drawing WW24
3. For private rising main connections refer to drawing WW18

G:\---\ ESCADY \ 2017 \ WATER & WASTEWATER NETWORK STD DWGS \ 2010070.041A .DWG

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PRESSURE SEWER OUTLET
TO GRAVITY PUBLIC

SCALE:	N.T.S.
ISSUE DATE:	06-03-2017
DWG No.	2010070.041A
REFERENCE No.	WW 19

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	GZ	SURVEYED		
					DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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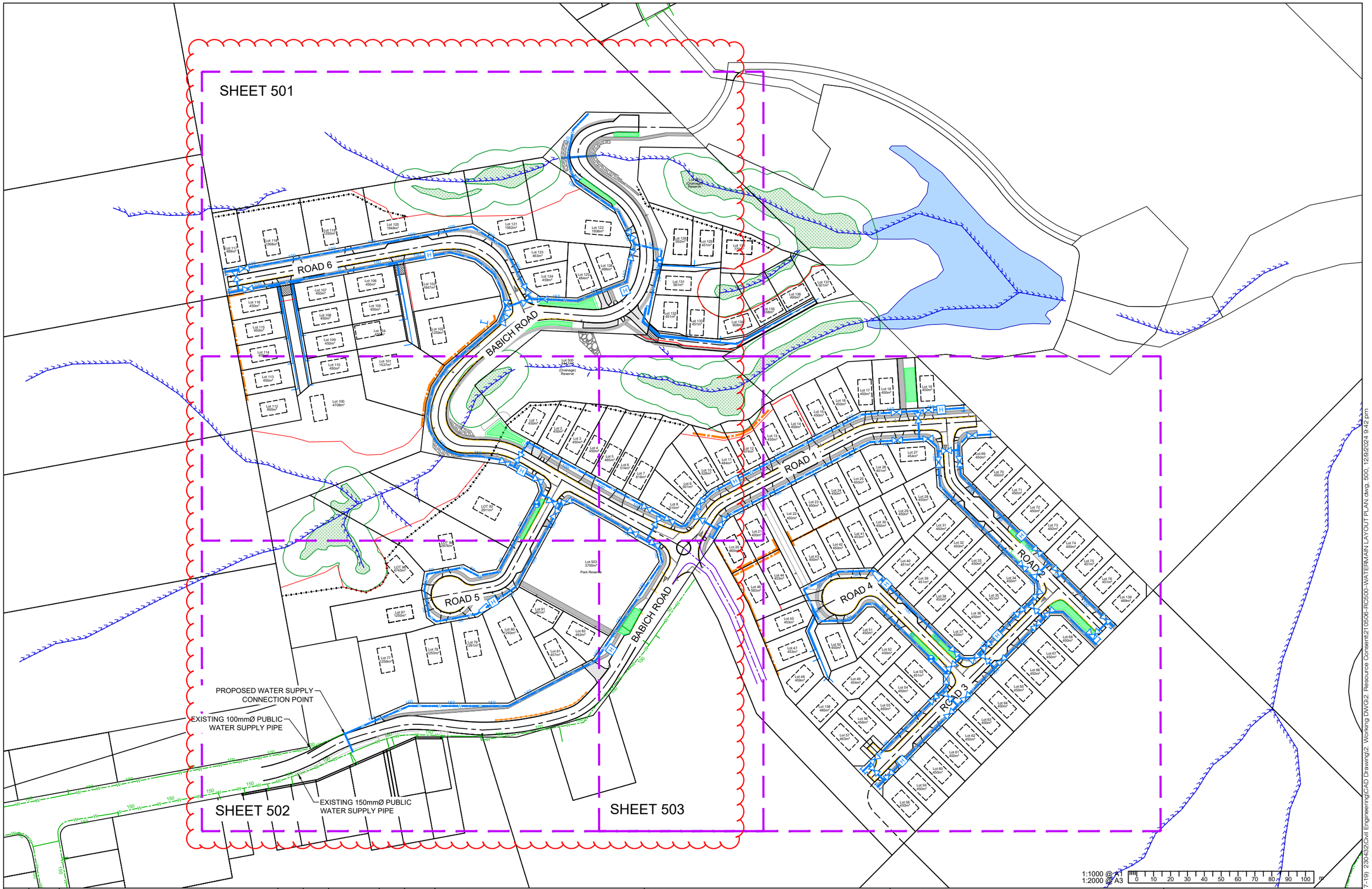
PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WASTEWATER STANDARD DETAILS
SHEET 4 OF 4

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER 210506	SCALE	A1 N.T.S A3 N.T.S
DWG NUMBER RC- 473	REVISION	A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC460-DRAINAGE STANDARD DETAILS.dwg, 473, 5/2/2024 11:01 pm



ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI	SURVEYED	TERRA	-
B	12/07/24	FOR S92 RESPONSE	GT	GCAI	DESIGNED	GCAI	02/04/24
C	23/08/24	FOR S92 RESPONSE	GT	GCAI	DRAWN	GCAI	02/04/24
D	30/10/24	FOR S92 RESPONSE	GT	SS	TRACED		
E	04/12/24	FOR S92 RESPONSE	GT	SS	CHECKED	GT	02/04/24

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WATERMAIN OVERALL LAYOUT PLAN

STAGE
FOR RESOURCE CONSENT

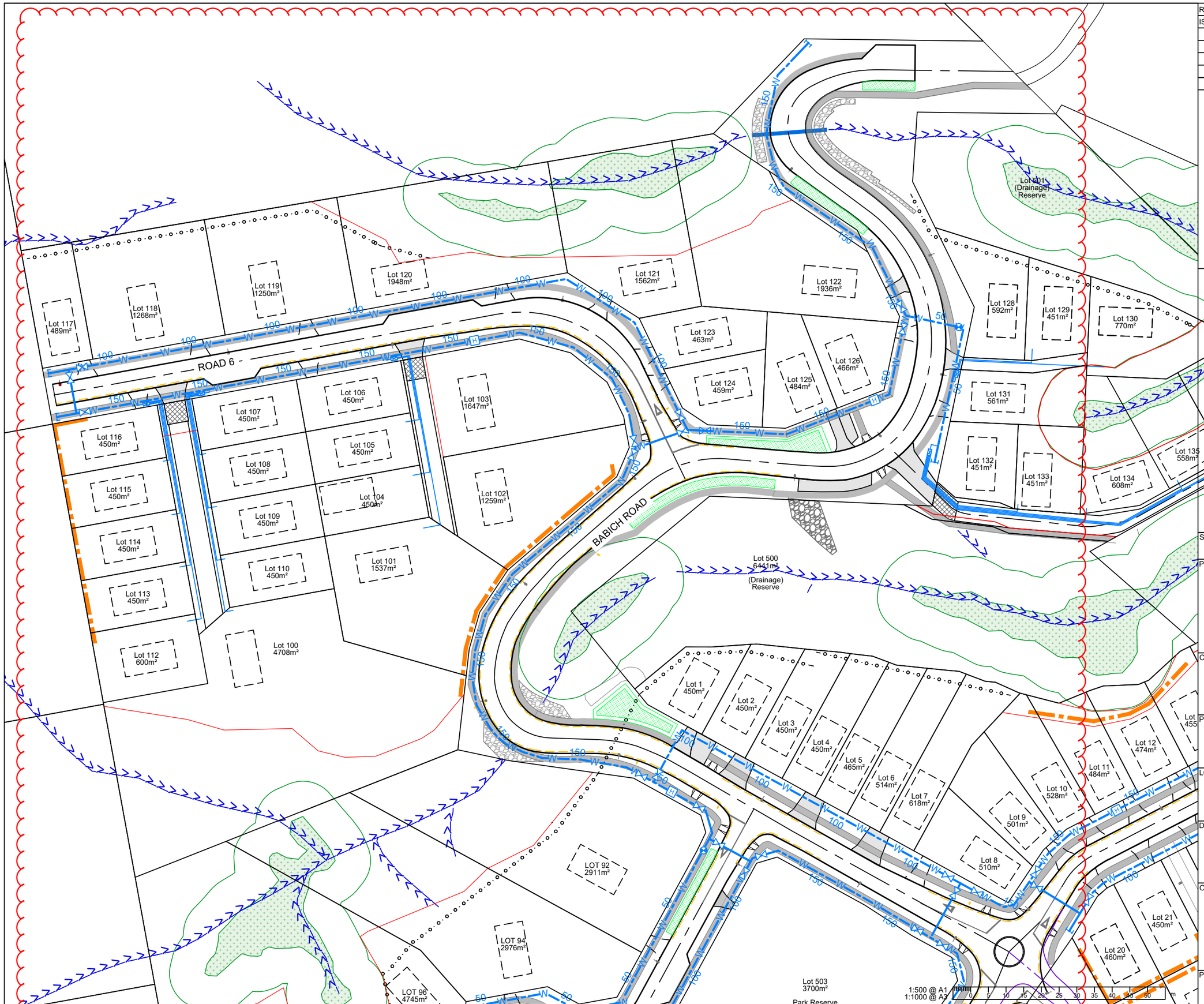
PROJECT NUMBER
210506

SCALE
A1 1:1000
A3 1:2000

DWG NUMBER
RC- 500

REVISION
E

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC500-WATERMAIN LAYOUT PLAN.dwg, 500, 12/9/2024 9:42 pm



REVISION

ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI
B	12/07/24	FOR S92 RESPONSE	GT	GCAI
C	23/08/24	FOR S92 RESPONSE	GT	GCAI
D	30/10/24	FOR S92 RESPONSE	GT	SS
E	04/12/24	FOR S92 RESPONSE	GT	SS

LEGEND - PROPOSED SERVICES:

- DN100 WATER PIPE (PUBLIC)
- DN50 WATER PIPE (PUBLIC)
- WATER PIPE (PUBLIC)
- WATER PIPE (PRIVATE)
- PEAT / SLUICE VALVE
- REDUCER / BACKING CAP

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE

FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

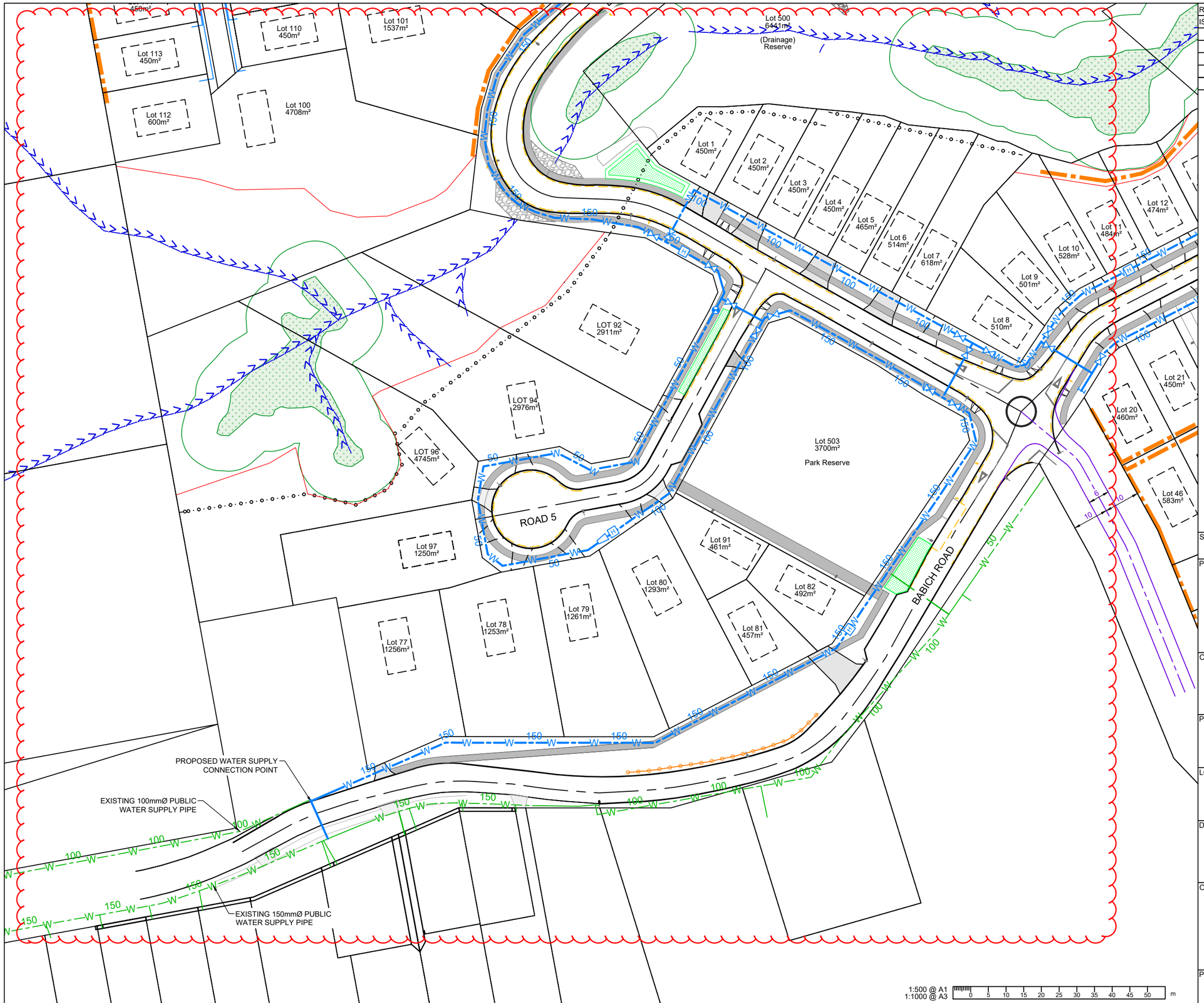
WATERMIAN LAYOUT PLAN
SHEET 1 OF 3

ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		GCAI
DRAWN		GCAI
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 501	E

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REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI
B	12/07/24	FOR S92 RESPONSE	GT	GCAI
C	2308/24	FOR S92 RESPONSE	GT	GCAI
D	30/10/24	FOR S92 RESPONSE	GT	SS
E	04/12/24	FOR S92 RESPONSE	GT	SS

LEGEND - PROPOSED SERVICES:

- DN100 WATER PIPE (PUBLIC)
- DN50 WATER PIPE (PUBLIC)
- WATER PIPE (PUBLIC)
- WATER PIPE (PRIVATE)
- PEAT / SLUICE VALVE
- REDUCER / BACKING CAP
- FIRE HYDRANT / WATER METER

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE

FOR RESOURCE CONSENT

PROJECT CONSULTANTS

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PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD, HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

WATERMIAN LAYOUT PLAN SHEET 2 OF 3

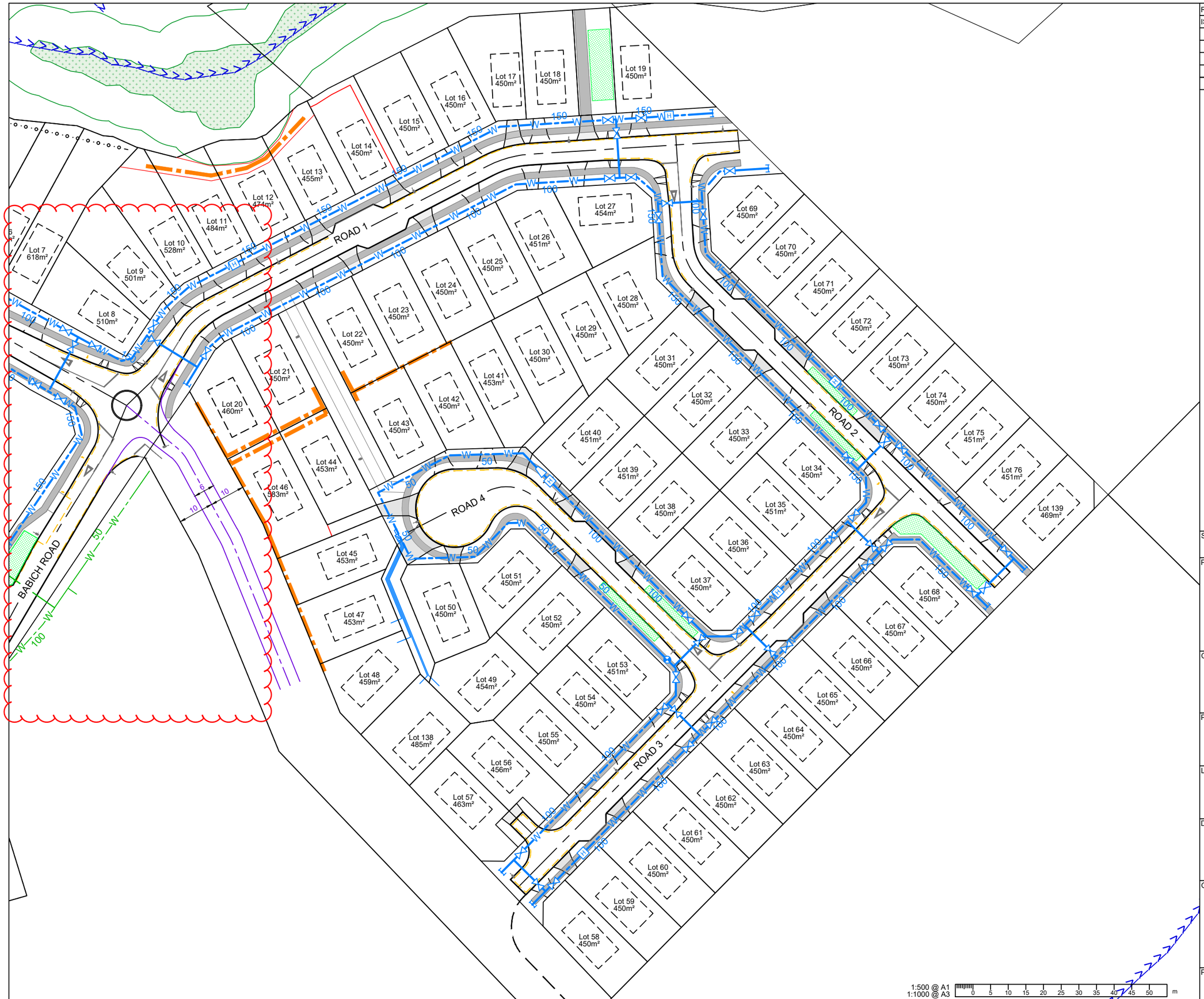
ORIENTATION

SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		GCAI
DRAWN		GCAI
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 502	E

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC-500-WATERMAIN LAYOUT PLAN.dwg, 502, 12/9/2024 9:42 pm



REVISION				
ISSUE	DATE	DETAIL	CHKD	DRWN
A	01/05/24	FOR RESOURCE CONSENT	GT	GCAI
B	12/07/24	FOR S92 RESPONSE	GT	GCAI
C	23/08/24	FOR S92 RESPONSE	GT	GCAI
D	30/10/24	FOR S92 RESPONSE	GT	SS
E	04/12/24	FOR S92 RESPONSE	GT	SS

LEGEND - PROPOSED SERVICES:

- DN100 WATER PIPE (PUBLIC)
- DN50 WATER PIPE (PUBLIC)
- WATER PIPE (PUBLIC)
- WATER PIPE (PRIVATE)
- PEAT / SLUICE VALVE
- REDUCER / BACKING CAP
- FIRE HYDRANT / WATER METER

HEIGHT DATUM IS IN TERMS OF AUCKLAND VERTICAL DATUM 1946 (MSL). ORIGIN: RM 8 DP 404605 RL 81.10

STAGE

FOR RESOURCE CONSENT

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PROJECT

BABICH RISE

LOCATION

8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE

WATERMIAN LAYOUT PLAN
SHEET 3 OF 3

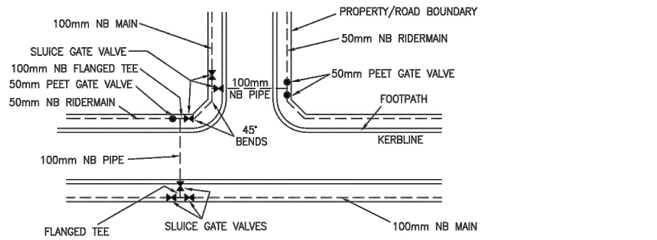
ORIENTATION

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

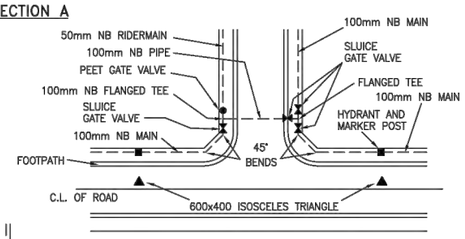
SCALE	A1	1:500
	A3	1:1000
DATE		01/05/2024
SURVEYED		TERRA
DESIGNED		GCAI
DRAWN		GCAI
CHECKED		GT

PROJECT NUMBER	DWG NUMBER	REVISION
210506	RC- 503	E

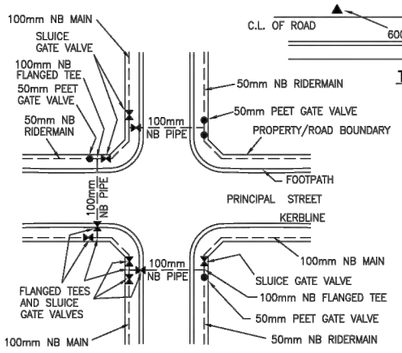
Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC500-WATERMAIN LAYOUT PLAN.dwg, 503, 12/9/2024 9:42 pm



TEE INTERSECTION A



TEE INTERSECTION B



CROSS INTERSECTION

NOTES

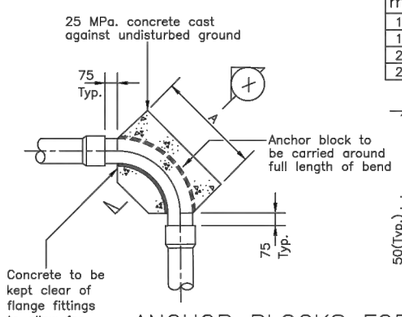
1. PIPES SHALL BE LAID PARALLEL WITH THE BOUNDARY.
2. ALL PRINCIPAL MAIN ROAD CROSSINGS SHALL BE 100mm DIA. (OR LARGER) DI, STEEL OR PE100, PIPES EXTENDING FROM MAIN TO MAIN.
3. BENDS SHALL BE LONG RADIUS BENDS.
4. ALL JOINTS UNDER ROADS SHALL BE FIELD WELDED OR FLANGED JOINTS (WRAPPED IN APPROVED WRAPPING SYSTEM
5. THESE DETAILS APPLY TO 100mm NB AND 150mm NB PRINCIPAL MAINS. LARGER DIAMETER MAINS SHALL GENERALLY PASS STRAIGHT THROUGH INTERSECTIONS.
6. REFER TO WS4 FOR CROSSING DETAILS.

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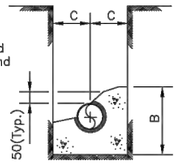
TYPICAL WATERMAIN INTERSECTION LAYOUT	SCALE: N.T.S.
	ISSUE DATE: 13-03-2017
	DWG No. 2010069.003B
	REFERENCE No. WS 3

Notes :

1. Thrust block dimensions are based on firm soil conditions.
2. The dimensions to be increased or decreased for variation in soil conditions.
3. Allowable bearing stress used – 100KPa.
4. As built locations to be obtained prior to backfill.
5. Protective membrane (Polythene) between concrete & pipe.
6. 75mm clearance between fittings/flanges and concrete casting.
7. All fittings to be wrapped with a suitable wrapping system.

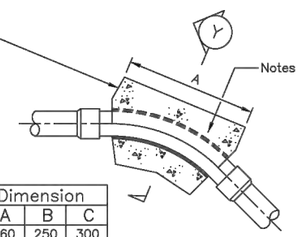


Dia. mm	Dimension A	B	C
100	670	250	450
150	1250	300	450
200	1500	450	550
250	1750	600	600

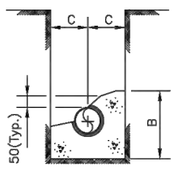


SECTION X

ANCHOR BLOCKS FOR 90° BENDS



Dia. mm	Dimension A	B	C
100	360	250	300
150	680	300	400
200	800	450	500
250	1000	600	600

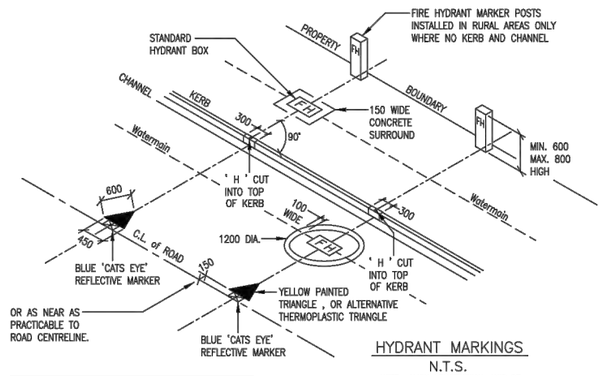


SECTION Y

ANCHOR BLOCKS FOR 45° BENDS

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ANCHOR BLOCK DETAILS FOR 90° & 45° BENDS	SCALE: N.T.S.
	ISSUE DATE: 10-02-2017
	DWG No. 2010069.013B
	REFERENCE No. WS 8



HYDRANT MARKINGS

N.T.S.

NOTE: ALIGN LONGITUDINAL AXIS OF HYDRANT BOX WITH WATERMAIN

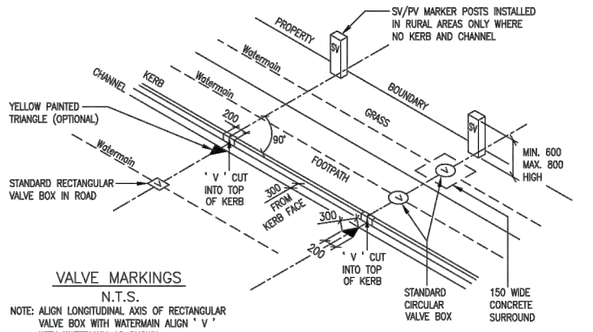
NOTES

PAINT USED FOR ALL MARKINGS AND CI/DI LIDS SHALL BE TRANSIT "ROAD MARKING PAINT" AS FOLLOWS:-

HYDRANTS – YELLOW
PROTECTIVE PAINTS LTD.- WAY CODE: 880-403
OR – RESENE M7-W ;
(ALTERNATIVE OPTION THERMOPLASTIC TRIANGLE)

VALVES (PV, SV, AV"s) – WHITE

SPECIAL CONTROL VALVES (SHUT) – RED
RESENE RED OXIDE – VINYL ETCH
ADHESION PRIMER



VALVE MARKINGS

N.T.S.

NOTE: ALIGN LONGITUDINAL AXIS OF RECTANGULAR VALVE BOX WITH WATERMAIN ALIGN ' V ' WITH WATERMAIN AS SHOWN

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VALVE AND HYDRANT MARKINGS	SCALE: N.T.S.
	ISSUE DATE: 10-02-2017
	DWG No. 2010069.006B
	REFERENCE No. WS 7

1:500 @ A1
1:1000 @ A3

0 5 10 15 20 25 30 35 40 45 50 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	GZ	SURVEYED	TERRA	
					DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WATER SUPPLY STANDARD DETAILS
SHEET 1 OF 3

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER
210506

SCALE A1 N.T.S
A3 N.T.S

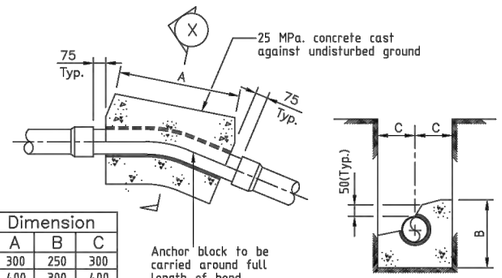
DWG NUMBER
RC- 510

REVISION
A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC510-WATER SUPPLY STANDARD DETAILS.dwg, 5/2/2024 10:56 pm

Notes :

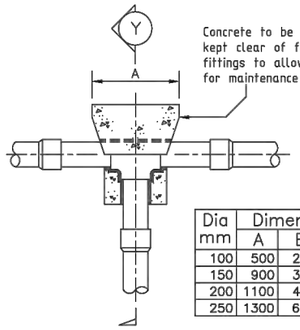
1. Thrust block dimensions are based on firm soil conditions.
2. The dimensions to be increased or decreased for variation in soil conditions.
3. Allowable bearing stress used - 100KPa.
4. As built locations to be obtained prior to backfill.
5. Protective membrane (Polythene) between concrete & pipe.
6. 75mm clearance between fittings/flanges and concrete casting.
7. All fittings to be wrapped with a suitable wrapping system.

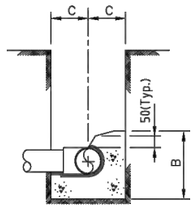


SECTION X

Dia mm	Dimension A	B	C
100	300	250	300
150	400	300	400
200	500	450	500
250	600	600	600

ANCHOR BLOCKS FOR 22½° & 11¼° BENDS





SECTION Y

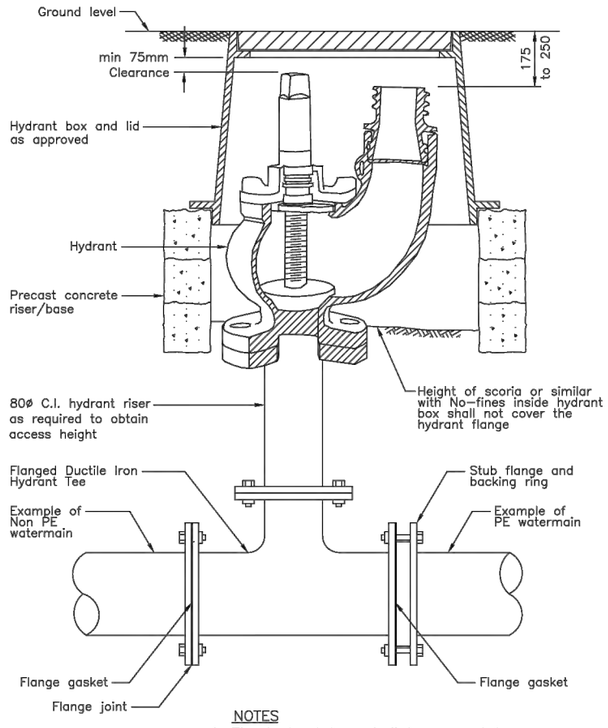
Dia mm	Dimension A	B	C
100	500	250	450
150	900	300	450
200	1100	450	550
250	1300	600	600

ANCHOR BLOCKS TEE JUNCTION & END CAPS

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ANCHOR BLOCK DETAILS FOR 22½° & 11¼° BENDS AND TEE JUNCTION

SCALE:	N.T.S.
ISSUE DATE:	10-02-2017
DWG No.	2010069.014B
REFERENCE No.	WS 9



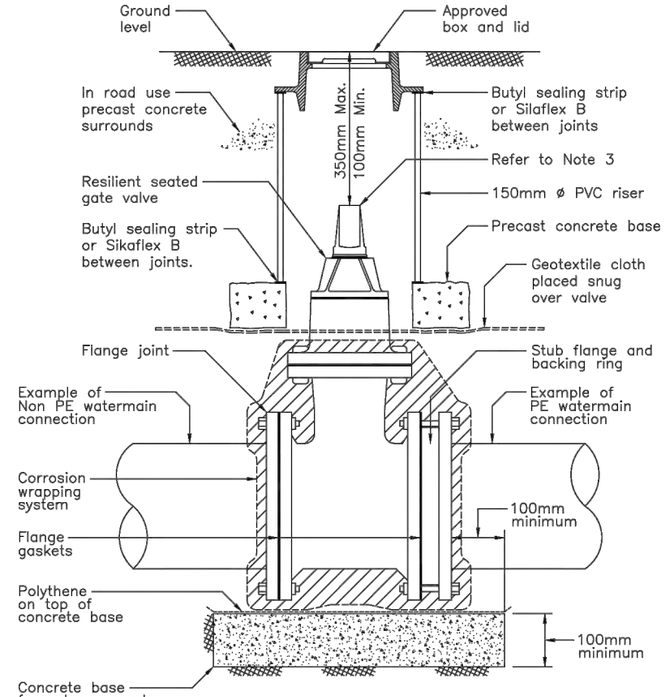
NOTES

1. The hydrant box shall be spaced to provide clear access to the valve spindle and outlet.
2. All flanges and fittings shall be wrapped with suitable corrosion protection wrapping to the manufacturers requirements. Refer WS11
3. Concrete support to be provided under hydrant Tee. Refer WS9. (The concrete overbear can be ignored)

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HYDRANT DETAIL

SCALE:	N.T.S.
ISSUE DATE:	06-03-2017
DWG No.	2010069.027A
REFERENCE No.	WS 12



NOTES

1. The valve, including flanges shall be completely wrapped in approved corrosion protected wrapping system to the wrapping manufacturers requirements.
2. Refer WS11 for typical notes on flange bolting .
3. An extension spindle shall be incorperated as required to ensure the top of the spindle is no more than 350mm below the finished surface level.
4. For valves 150mm and greater the valve shall be supported on a in-situ cast concrete base of suitable dimension to prevent any loads transfered to the pipe.

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FLANGED SLUICE VALVE DETAIL

SCALE:	N.T.S.
ISSUE DATE:	26-05-2017
DWG No.	2010069.029B
REFERENCE No.	WS 13

1:500 @ A1
1:1000 @ A3

0 5 10 15 20 25 30 35 40 45 50 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	GZ	SURVEYED	TERRA	
					DESIGNED		
					DRAWN		
					TRACED		
					CHECKED		

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CLIENT
CARRACK CAPITAL LIMITED

PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

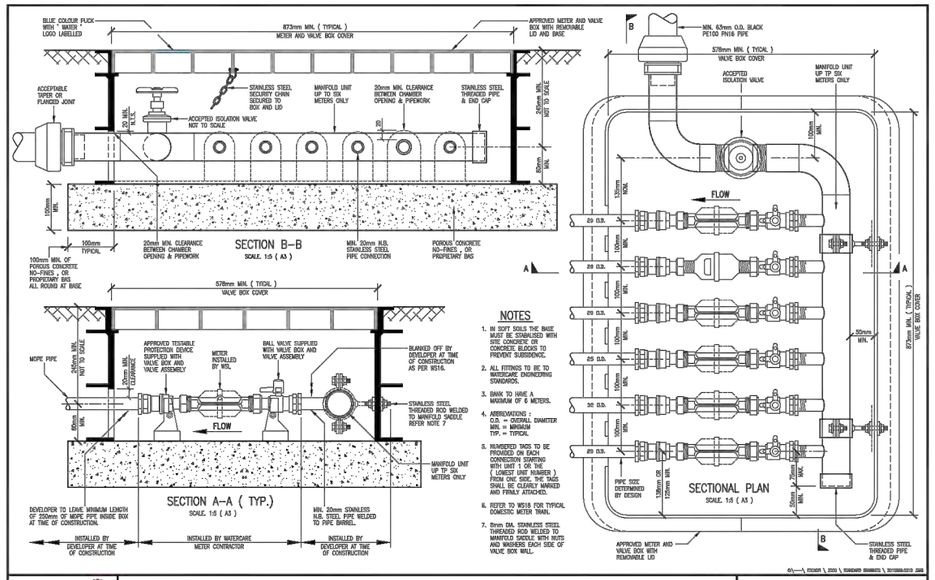
DRAWING TITLE
WATER SUPPLY STANDARD DETAILS
SHEET 2 OF 3

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER	SCALE	
210506	A1	N.T.S
	A3	N.T.S

DWG NUMBER	REVISION
RC- 511	A

Z:\Babich Road (8-14, 17-19) 230432\Civil Engineering\CAD Drawing\2. Working DWG\2. Resource Consent\210506-RC510-WATER SUPPLY STANDARD DETAILS.dwg, 511, 5/2/2024 10:58 pm

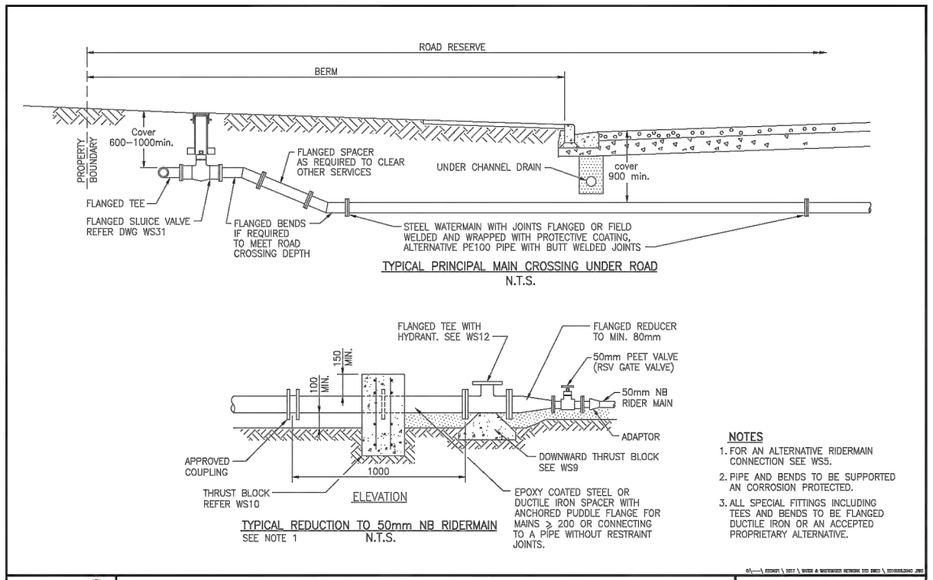


DRAFT

SCALE:	1:5 & N.T.S. (A3)
ISSUE DATE:	10-08-2020
DWG No.	2010069.021D
REFERENCE No.	WS 22

DOMESTIC MANIFOLD METER BANK
LESS THAN 50mmØ

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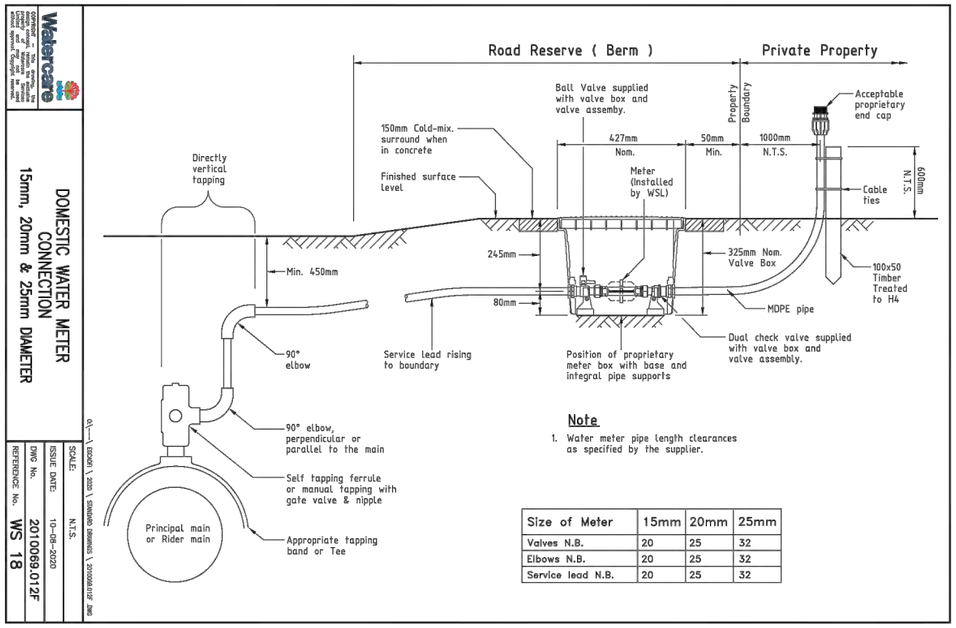


NOTES
1. FOR AN ALTERNATIVE RIDERMAIN CONNECTION SEE WS5.
2. PIPE AND BENDS TO BE SUPPORTED AN CORROSION PROTECTED.
3. ALL SPECIAL FITTINGS INCLUDING TEES AND BENDS TO BE FLANGED DUCTILE IRON OR AN ACCEPTED PROPRIETARY ALTERNATIVE.

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SCALE:	N.T.S.
ISSUE DATE:	13-07-2018
DWG No.	2010069.004C
REFERENCE No.	WS 4

ROAD CROSSING DETAILS AND PRINCIPAL MAIN
TO RIDER MAIN CONNECTIONS

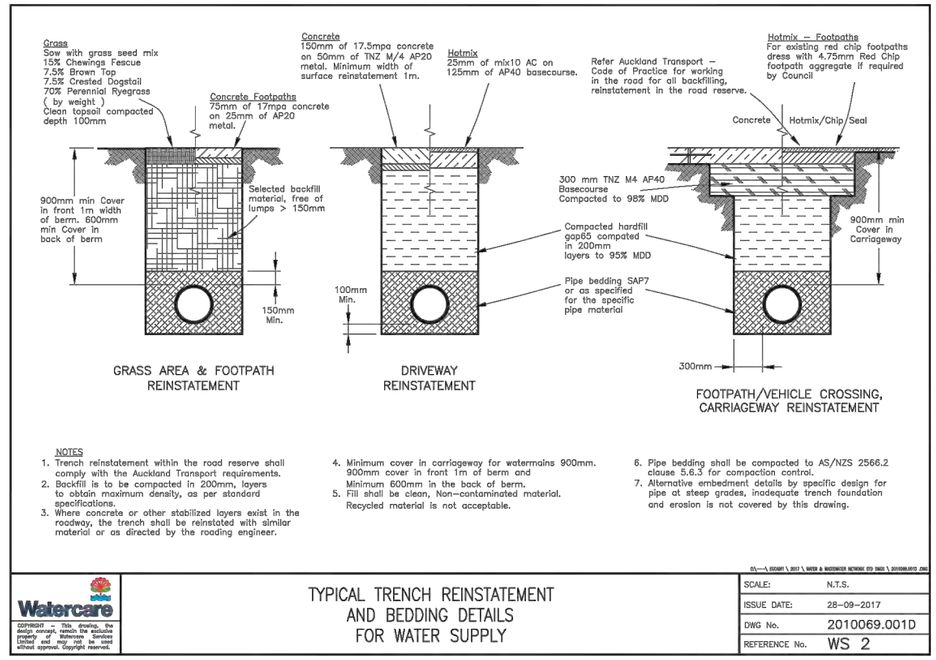


Note
1. Water meter pipe length clearances as specified by the supplier.

Size of Meter	15mm	20mm	25mm
Valves N.B.	20	25	32
Elbows N.B.	20	25	32
Service lead N.B.	20	25	32

SCALE:	N.T.S.
ISSUE DATE:	10-08-2020
DWG No.	2010069.012F
REFERENCE No.	WS 18

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NOTES
1. Trench reinstatement within the road reserve shall comply with the Auckland Transport requirements.
2. Backfill is to be compacted in 200mm, layers to obtain maximum density, as per standard specifications.
3. Where concrete or other stabilized layers exist in the roadway, the trench shall be reinstated with similar material or as directed by the roading engineer.
4. Minimum cover in carriageway for watermains 900mm. 900mm cover in front 1m of berm and Minimum 600mm in the back of berm.
5. Fill shall be clean, Non–contaminated material. Recycled material is not acceptable.
6. Pipe bedding shall be compacted to AS/NZS 2566.2 clause 5.6.3 for compaction control.
7. Alternative embedment details by specific design for pipe at steep grades, inadequate trench foundation and erosion is not covered by this drawing.

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SCALE:	N.T.S.
ISSUE DATE:	28-09-2017
DWG No.	2010069.001D
REFERENCE No.	WS 2

TYPICAL TRENCH REINSTATEMENT
AND BEDDING DETAILS
FOR WATER SUPPLY

1:500 @ A1
1:1000 @ A3
0 5 10 15 20 25 30 35 40 45 50 m

ISSUE	DATE	REVISION	CHKD	DRWN		NAME	DATE
A	01/05/24	FOR RESOURCE CONSENT	NM	GZ	SURVEYED	TERRA	
					DESIGNED		
					DRAWN		
					TRACED		
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CLIENT
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PROJECT / LOCATION
8-14, 17-19 BABICH ROAD,
HENDERSON VALLEY, AUCKLAND

DRAWING TITLE
WATER SUPPLY STANDARD DETAILS
SHEET 3 OF 3

STAGE
FOR RESOURCE CONSENT

PROJECT NUMBER	210506	SCALE	A1 N.T.S A3 N.T.S
DWG NUMBER	RC- 512	REVISION	A

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LANDSCAPE PLAN SET

8-14, 17-19 Babich Rd, Henderson Valley, Auckland

DRAWING INDEX

DWG CODE	SCALE
0.0 STREETSCAPE PLAN- *With Services*	1:1800 @ A3
0.1 STREETSCAPE PLAN- *Without Services*	1:1800 @ A3
0.2 STREETSCAPE PLAN- *Sheet Key*	1:1800 @ A3
1.1 STREETSCAPE PLAN	1:1000 @ A3
1.2 STREETSCAPE PLAN	1:1000 @ A3
1.3 STREETSCAPE PLAN	1:1000 @ A3
2.0 TYPICAL DETAILS- TREE PITS	1:100 As shown@ A3
2.1 TYPICAL DETAILS- RAIN GARDEN	1:100 As shown@ A3
3.0 PLANTING SCHEDULE	1:100 As shown@ A3

COVER PAGE

8-14, 17-19 Babich Rd, Henderson Valley, Auckland

CLIENT	CARRACK CAPITAL Ltd
SCALE	N/A
DATE	01.11.24
PAGE	0
REVISION	07

N

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KEY

SERVICES

- Underground services
- Underground services
- Street lights *(Street trees set back 5m)*
- Retaining wall
- Palisade Retaining wall
- Guard rail barrier
- Ecological features *(Refer to ecological report)*
- Covenant *(Refer to ecological report)*
- Footpath
- Road
- Access to build
- Indicative Access
- Speed tables
- Pram crossing

STREETSCAPE PLANTING

(Street trees- Contain root barriers. Trees to be 1m minimum away from services in road reserve & Joal)

- 19 x Titoki
- 18 x Puriri
- 10 x Rewarewa
- 13 x Red Maple

- *Rain Gardens- Carex Virgata 'Pukio' Centre & Carex flagellifera on edge 777 m2 (See detail)*
- *Lomandra 281 m2 Adjacent to pedestrian access*
- *Revegetation Planting 860 m2*

Lot Planting

- *Muehlenbeckia or similar creeper (Lot 101, 102, on top of retaining wall)*
- *Corokia 'Bronze King' 110 m2 (Lots 20, 45, 46, 47) Soften retaining wall*



INDICATIVE STREETSCAPE PLAN-*With Services*

8-14, 17-19 Babich Rd, Henderson Valley, Auckland

NOTE: Species & location indicative only to be finalised at EPA stage with AT

CLIENT	CARRACK CAPITAL Ltd
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INDICATIVE STREETSCAPE PLAN - *Without Services*

8-14, 17-19 Babich Rd, Henderson Valley, Auckland

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INDICATIVE STREETSCAPE PLAN - *Sheet Key*

8-14, 17-19 Babich Rd, Henderson Valley, Auckland

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STREETSCAPE PLANTING

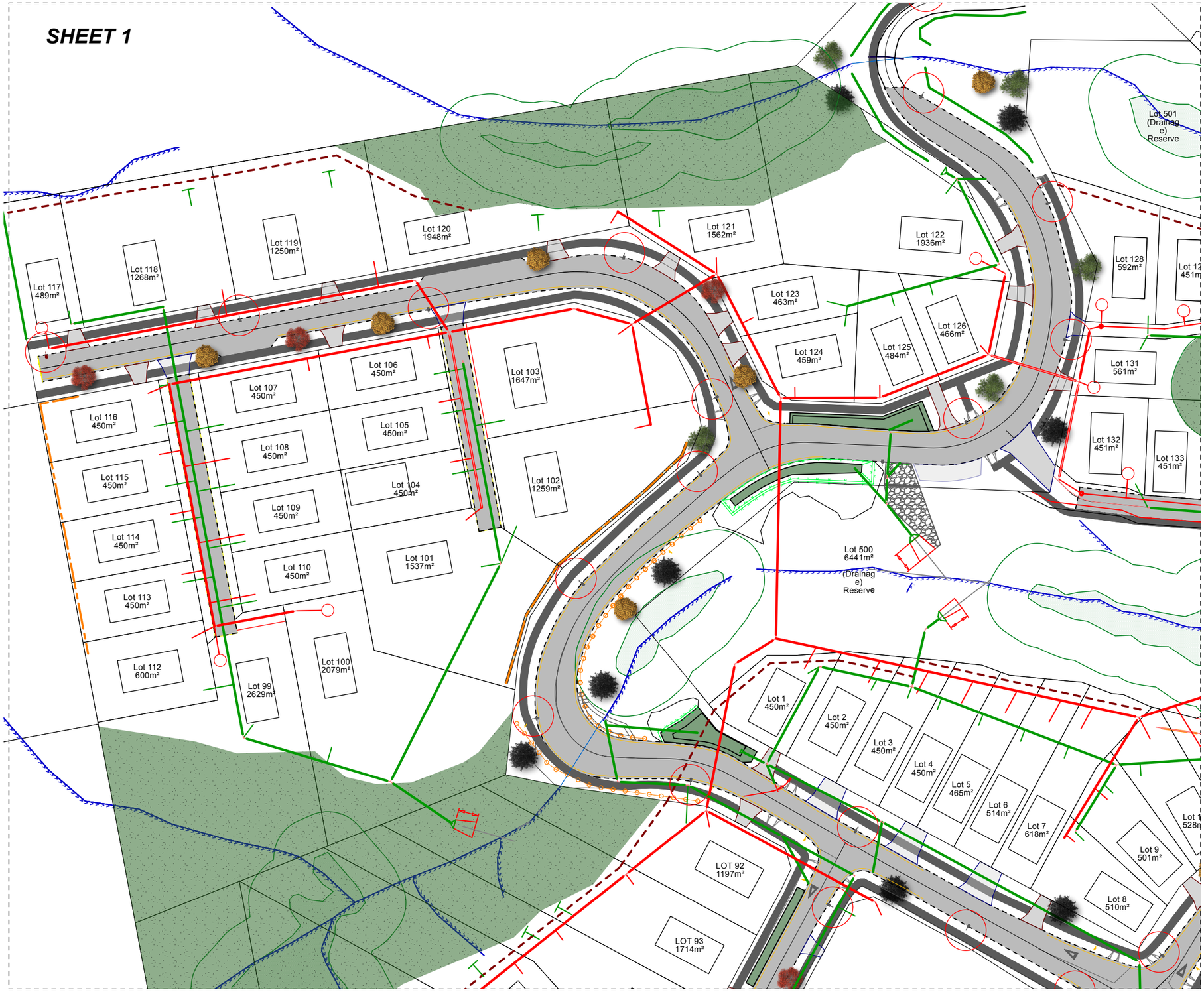
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INDICATIVE STREETSCAPE PLAN

8-14, 17-19 Babich Rd, Henderson Valley, Auckland

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INDICATIVE STREETSCAPE PLAN

8-14, 17-19 Babich Rd, Henderson Valley, Auckland

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INDICATIVE STREETSCAPE PLAN

8-14, 17-19 Babich Rd, Henderson Valley, Auckland

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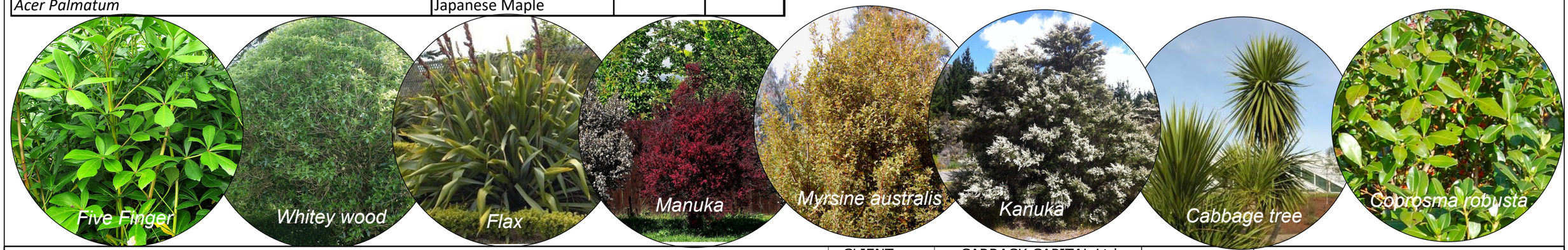
CLIENT	CARRACK CAPITAL Ltd
SCALE	1:1800
DATE	01.11.24
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Botanical Name	Common Name	Spacing	Plant Size
Streetscape Trees			
Alectryon excelsus	Titoki	As per plan	45 Litre
Vitex Lucens	Puriri	As per plan	45 Litre
Knightia excelsa	Rewarewa	As per plan	45 Litre
Acer Rubrum	Red Maple	As per plan	45 Litre
JOAL Trees			
Sophora microphylla	kowhai	As per plan	45 Litre
Rain Gardens			
Carex flagellifera	Carex	600mm	Pb5
Carex flagellifera	Carex	600mm	Pb5
Pedestrian Access Planting			
Lomandra Lime Tuff		800mm	Pb5
Retaining Wall Screen Planting			
Corokia "Bronze King"	Corokia	1m	pb18
Corokia "frosted chocolate"	Corokia	1m	pb18
Muehlenbeckia complexa	Pohuehue	800mm	pb5
Revegetation Retaining Planting			
Phormium tenax	Flax	1.4m	1 litre
Coprosma robusta	Karamu	1.4m	1 litre
Cordyline australis	Ti Kouka	1.4m	1 litre
Pseudopanax lessonii	Five Finger	1.4m	1 litre
Leptopermum scoparium	Manuka	1.4m	1 litre
Kunzea ericoides	Kanuka	1.4m	1 litre
Melicytus ramiflorus	Mahoe	1.4m	1 litre
Myrsine australis	Mapou	1.4m	1 litre
Speices for Lots - 107-116 in front yard adjacent to COAL 400 to be planted as consent notice requirement			
Sophora fluvida	Waitakere Kowhai	NA	45 litre
Liquidamber "Gumball"		NA	45 litre
Pseudopanax laetus			
Robinia pseudoacacia	Frisia		
Acer Palmatum	Japanese Maple		





PLANTING SCHEDULE + PALETTE

8-14, 17-19 Babich Rd, Henderson Valley, Auckland

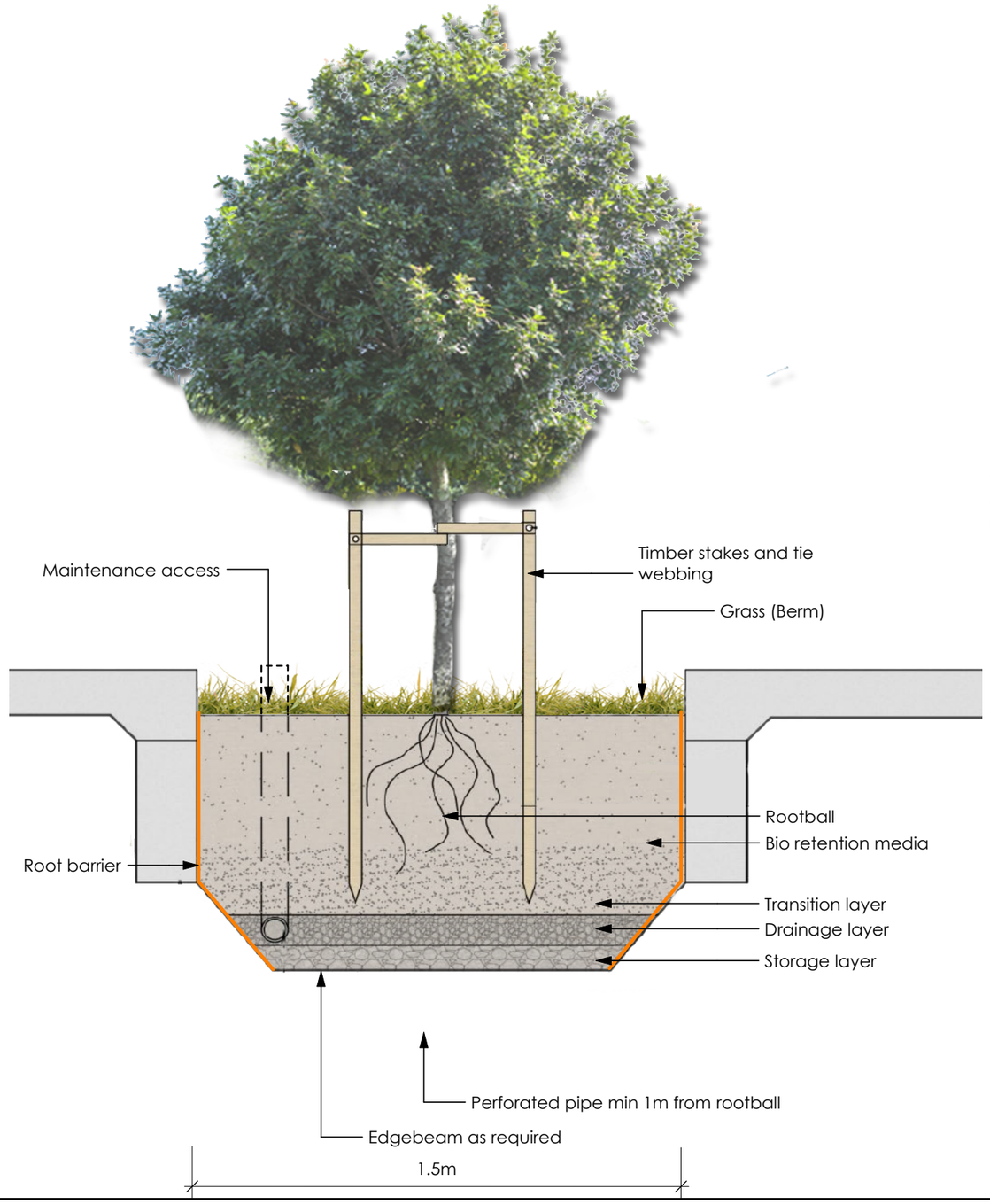
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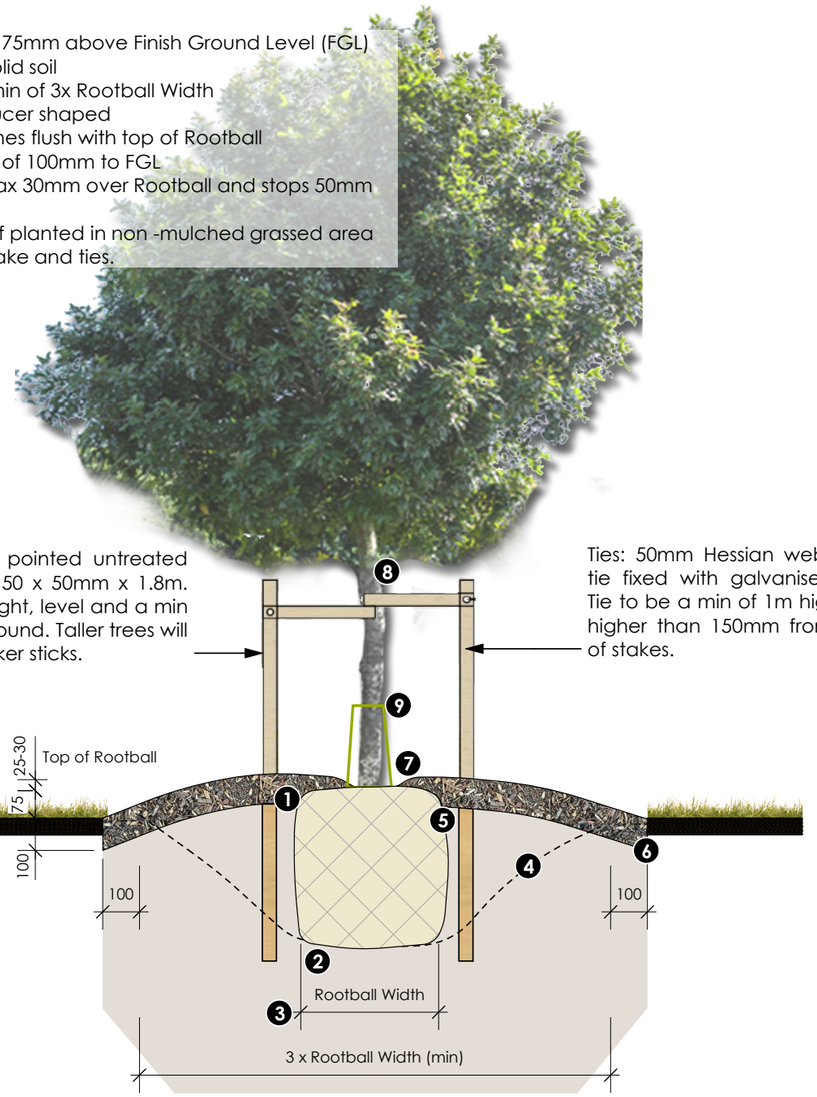
TYPICAL DETAIL - STREET TREE - STORMWATER TREE PIT

(Where required)



AUCKLAND COUNCIL TYPICAL TREEPLANTING DETAIL

1. Rootball sits min of 75mm above Finish Ground Level (FGL)
2. Rootball rests on solid soil
3. Planting hole is a min of 3x Rootball Width
4. Planting Hole is saucer shaped
5. Backfill media finishes flush with top of Rootball
6. Mulch is cut-in min of 100mm to FGL
7. Mulch tapers to max 30mm over Rootball and stops 50mm from trunk flare
8. Install trunk guard if planted in non -mulched grassed area
9. Remove nursery stake and ties.



NOTE:

Root bariers to be used and trees to be 1m or more from underground services

TYPICAL TREE PIT DETAIL

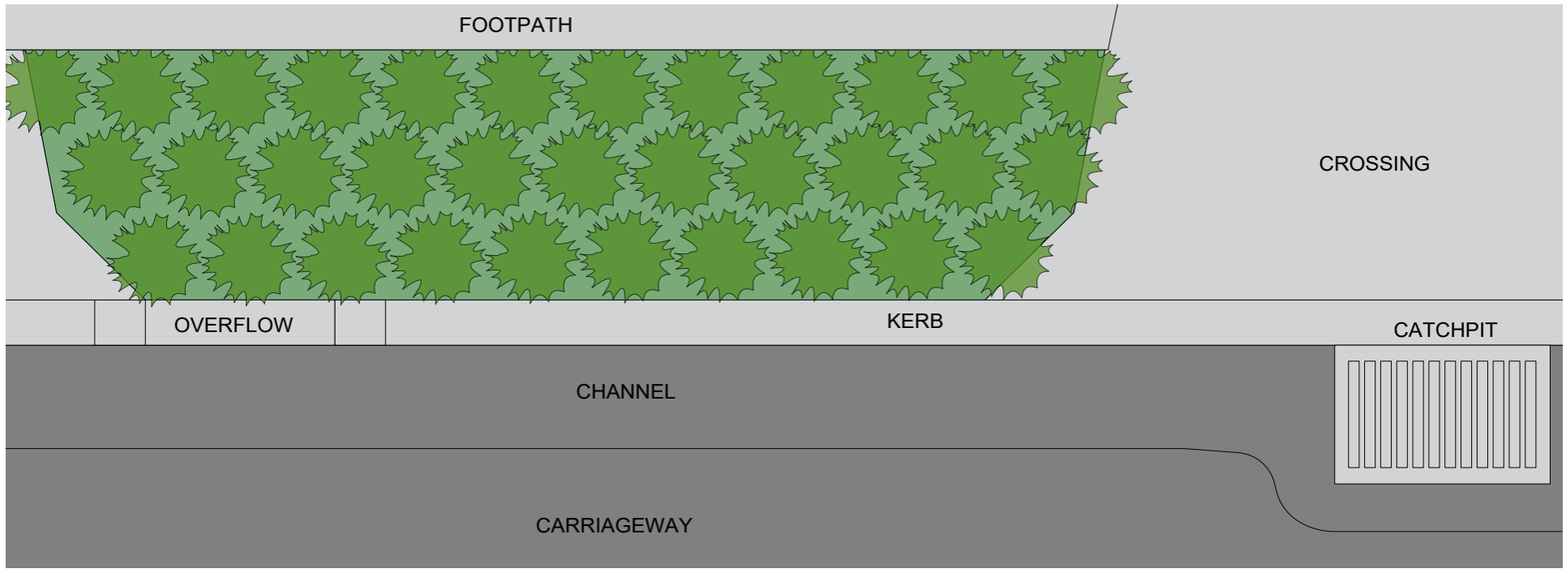
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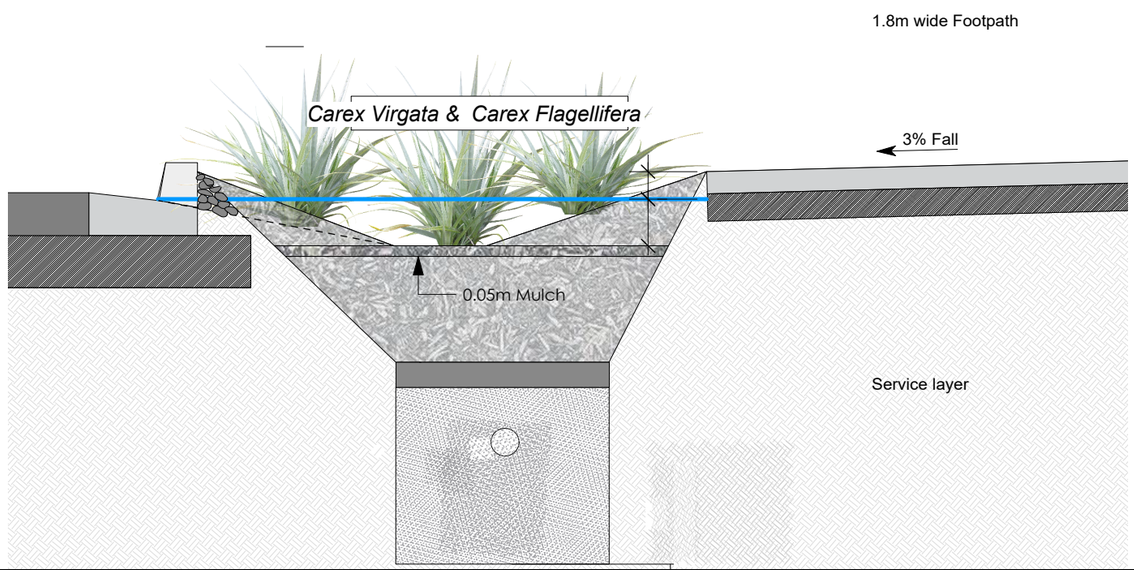
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TYPICAL DETAIL RAIN GARDEN EXAMPLE - PLAN VIEW Scale 1:50 *(Refer to Engineering Plans for actual engineering detail)*

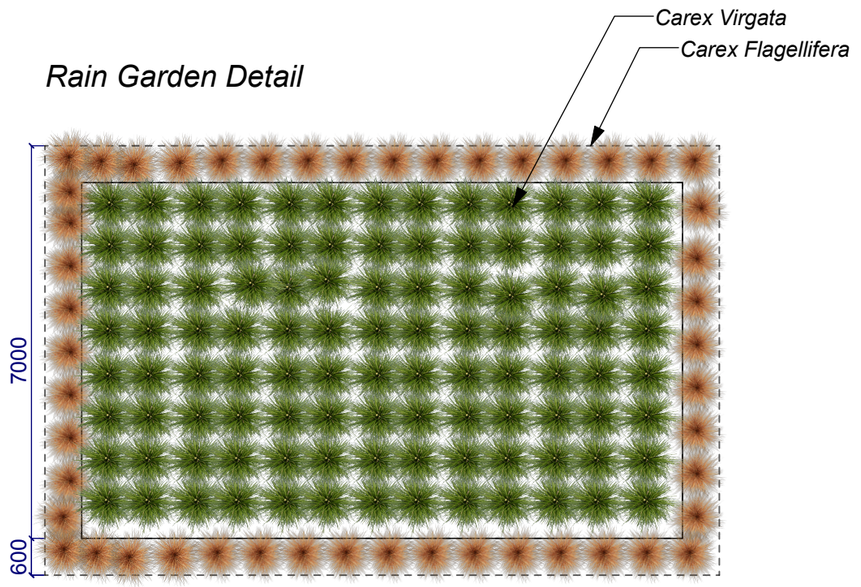


RAINGARDEN PLANTING - Phormium Green Dwarf
(Emerald Gem) - 800mm Spacing

TYPICAL CROSS SECTION RAINGARDEN - Scale 1:25
(Refer to Engineering Plans for actual engineering detail)



Rain Garden Detail



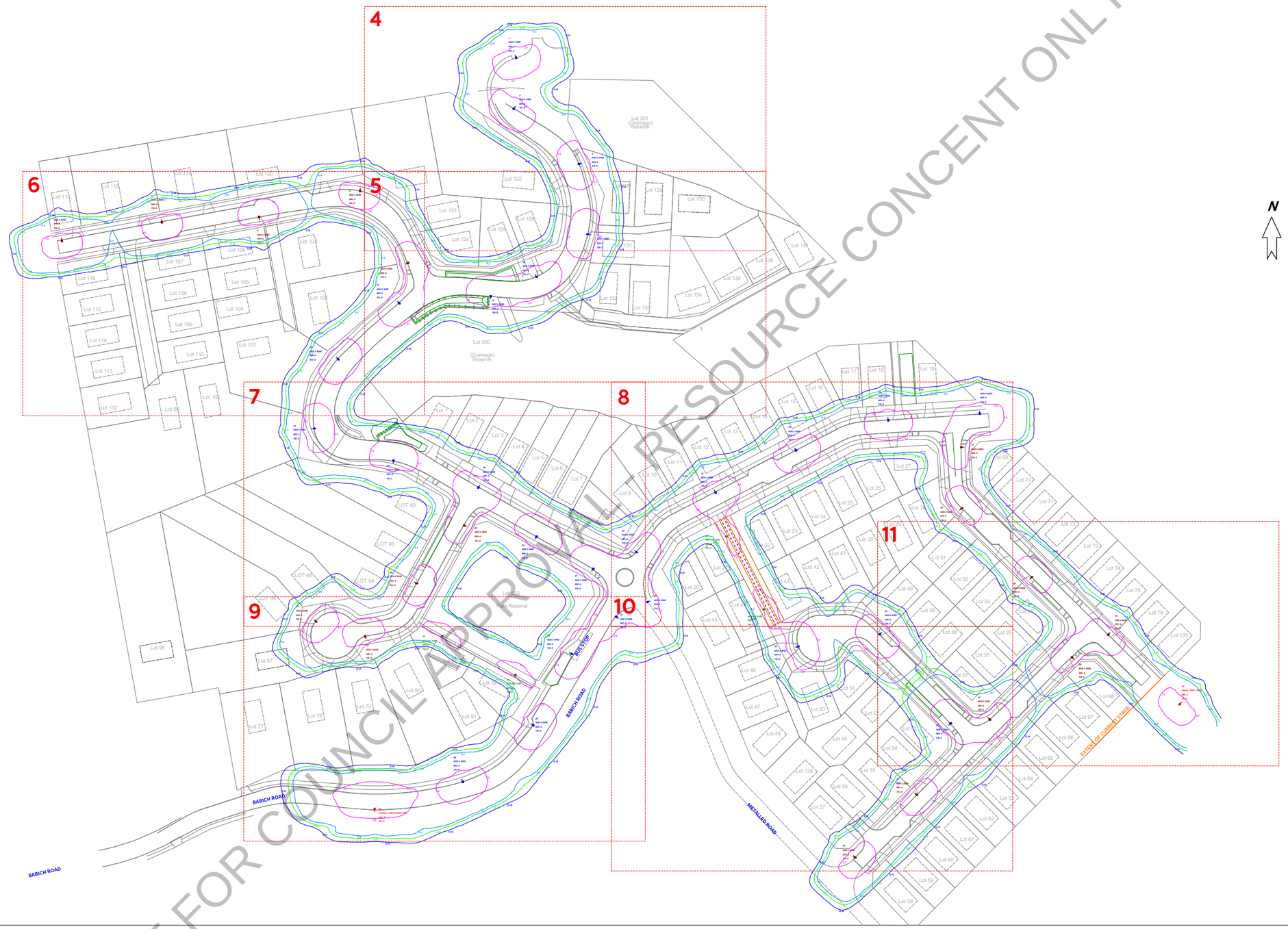
TYPICAL RAIN GARDEN DETAIL

8-14, 17-19 Babich Rd, Henderson Valley, Auckland

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PAGE	2.1
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NOT FOR COUNCIL APPROVAL
RESOURCE CONCENT ONLY

PROJECT NUMBER		PROJECT	DRAWING INFORMATION	COMPANY	AS PREPARED FOR
9589		8-14 17-19 BABICH ROAD HENDERSON VALLY	ROADWAY LIGHTING PLAN - ISOLUX PLOTS	IBEX LIGHTING L1 THE PRECINCT, 40 ONEHUNGA MALL, AUCKLAND 1061 2 MATARAWA PLACE, TAURIKO, TAURANGA 3171 NZ FREEPHONE 0800 63 65 67 www.ibexlighting.com	Citadel. terra consultants
DRAWING NO. : 1	REVISION: D		Scale : 1 : 1600 @ A3 DESIGNED BY: SF Date:29-October-2024 CHECKED BY: /		

ibex

Luminaire Schedule					
Project: 10 - Luminaires - Proposed					
Symbol	Qty	Label	Mounting Height	Outreach Length	Lum. Tilt Angle
	4	NOX W1 1500	6 metres	N/A	0 degrees
	17	NOX S 2600	6 metres	1 metre	0 degrees
	26	NOX S 3900	6 metres	1 metre	0 degrees

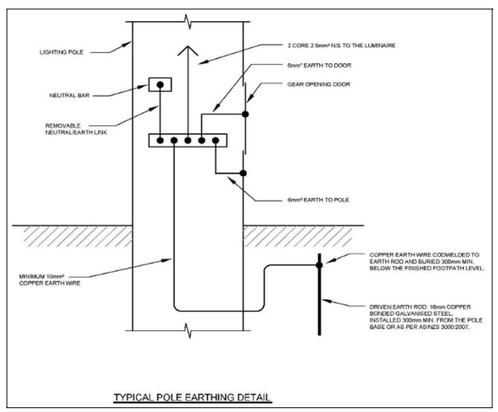
Luminaire Schedule					
Project: 11 - Luminaires - Existing & Future					
Symbol	Qty	Label	Mounting Height	Outreach Length	Lum. Tilt Angle
	1	Existing - ITALO 2 STA1 76W	8 metres	1 metre	0 degrees
	1	Future - NOX S 2600	6 metres	1 metre	0 degrees

Luminaire Details	**"NOX W1 1500"**	**"NOX S 2600"**	**"NOX S 3900"**
Manufacturer and Product Name	NOX S Walkway LL062304PH	NSS-08-026-740-P1	NSS-16-039-740-P1
Lamp type and Rating	LED 12.9W	LED 18.6W	LED 26.6W
Luminous flux	1500 Lumens (4000K)	2636 Lumens (4000K)	3907 Lumens (4000K)
Origin of Photometric Data	LL062304PH scaled	NSS-08-014-740-P1 scaled	NSS-16-027-740-P1 Scaled
Upward Waste Light Ratio	0.0% at 0 degree tilt	0.0% at 0 degree tilt	0.0% at 0 degree tilt
Maintenance factor used	0.80	0.80	0.80
Peak Luminous Intensity (Glare) : 60-80 degrees	1297 Candela	1236 Candela	1804 Candela
Peak Luminous Intensity (Glare) : 80 degrees	398 Candela	342 Candela	396 Candela

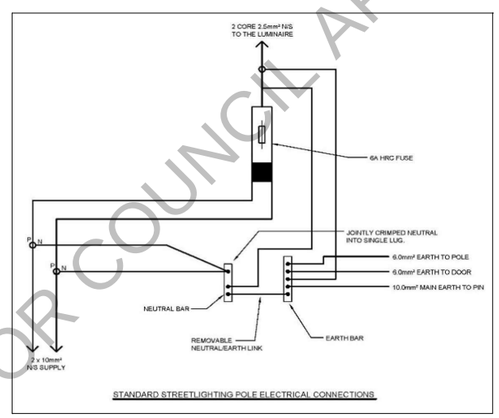
Calculation of Maintenance Factor:

* Lamp Lumen Maintenance Factor (LLMF) =	0.964	from TM21 / ISTMT / LM80 test data
* Luminaire Electronic Failure (LEF) =	0.99	A.T. specified figure
* Luminaire Optical Depreciation for Visor (LODV) =	1.00	A.T. figure for Toughened Glass Visor
* Luminaire Optical Depreciation for Reflector (LODR) =	0.99	A.T. figure for Aluminium Reflector behind Glass Visor
* Luminaire Optical Depreciation for Lens (LODL) =	0.99	A.T. figure for UVS-PMMA behind Glass Visor
* Luminaire Maintenance Factor (LMF) =	0.92	A.T. figure for Visor equipped luminaire

MF = LLMF x LEF x LODV x LODR x LODL x LMF = 0.860
Maintenance Factor for calculations is capped at 0.80



TYPICAL POLE EARTHING DETAIL



STANDARD STREETLIGHTING POLE ELECTRICAL CONNECTIONS

GENERAL NOTES
1. Liaise with Vector with regard to extending the existing street lighting circuit to supply the new installation.
2. All work shall conform to the requirements of Vector or Counties Power (as appropriate), Auckland Transport and the requirements of Electrical (Safety) Regulations 2010, AS/NZS 3008 and AS/NZS 1158.
3. Liaise with Vector / Counties Power (as appropriate) to ensure all poles are well clear of underground services. If necessary, positions may be altered up to 1m while retaining general pole arrangement to avoid clashes with underground services. Confirm with engineer first.
4. The contractor shall be a Auckland Transport accredited contractor and approved by Auckland Transport to install assets on the appropriate network.
5. Ensure the RAMM and SLIM database is accurately updated for every new or modified streetlight location, and liaise with Auckland Transport to ensure records are appropriately completed.
6. These works shall include the removal and disposal of old luminaires/mounting brackets and lamps. Remove all existing concrete columns and luminaires.
7. All columns and luminaires specified in this design are listed on the Auckland Transport Approved product lists. Luminaires are to be labelled as per the requirements of setion 12.5.1 of version 11 of the AT-TDM.

DESIGN NOTES:
1. These lighting calculations are based on the Initial Lamp Lumens as described in the product information tables(s) with the appropriate Maintenance Factor applied (in accordance with AS/NZS1158).
2. The Isoplots shown are the representation of the Illuminance value at Ground Level.
3. The Luminaire Mounting Height and Tilt Angle (Upcast) are indicated on the drawing.
4. The typical luminaire Tilt Angle for this design is 0 (zero) degrees, i.e. horizontal.
5. These lighting calculations are subject to accuracies and tolerances in accordance with AS/NZS3827.1:1998 and AS/NZS 3827.2:1998.
6. Final design locations will have been agreed to by the client and the appropriate local authority (council).

INSTALLATION NOTES
1. The contractor shall be responsible for the fixing of outreaches taking into account work on or near existing services. The contractor shall liaise with the appropriate service provider in relation to working on or near services, giving appropriate notice period.
2. The internal wiring between the terminal blocks and the luminaire shall be circular 2C 2.5sq.mm Neutral Screen cable.
3. Wiring shall be in accordance with AS/NZS3000 and AS/NZS3008:1.2
4. Minimum street lighting supply cable shall be 1C 10sq.mm Neutral Screen cable.
5. Cable protection shall be implemented as per Vector / Counties Power requirements.
6. Each column must be earthed by means of 10mm2 copper insulated wire, exothermically welded to a driven earth electrode (16mm diameter copper-bonded steel earth rod) located 300mm from the column base. Sherlock Connectors are approved for burying. The connector must be buried 300mm below the pavement surface. AS/NZS 3000 applies. (See diagram on this page)
   Where it is not possible to install a driven earth electrode due to rock for example, the following horizontal earth electrode is acceptable:
   - a six metre (6m) length of 35mm2 (19/16) bare (uninsulated) copper conductor buried to a depth of 600mm below the surface. The conductor must be embedded in Bentonite slurry or Ground Enhancement Material (GEM). The buried conductor should be placed with 3m either side of the lighting column. The horizontal earth electrode to column connection shall be the same as described above for the driven earth electrode.
7. The contractor is responsible for all cable design, liaison with Vector / Counties Power, and updating of Vector / Counties Power and Auckland Transport records.
8. Final pole locations are to be confirmed on site prior to installation.
9. Mounting heights are to be measured with respect to the luminaires above the carriageway. Final location to be coordinated on site.
10. Where a pole is within five metres of a tree, assess whether the tree requires trimming to minimise shadowing, and notify the engineer for further action if required.
11. A minimum ten (10) year warranty from date of on site installation shall be provided for the luminaire and electronic control gear.
12. In general, columns are to be installed 1.0m behind kerb (between kerb face and the face of the column). Variations to this may be required to meet the requirements of AT-TDM Volume 4 Chapter12 section 12.4.2 and/or AS/NZS 1158. Columns should also have at least 1.0m clearance to driveways to prevent damage by manoeuvring vehicles.
13. The contractor shall be responsible for the final location of the lighting poles taking into account
    a. Location of existing services. The contractor shall be responsible for locating all underground services and Land Information NZ markers before work commences. Any damage caused to underground services shall be repaired at the contractor's expense.
    b. Work on or near existing services. The contractor shall liaise with the appropriate service provider in relation to working on or near services, giving appropriate notice period.
    c. Permitted location tolerance
       i. 0.5m parallel to the carriageway
       ii. 0.2m perpendicular to the carriageway
       iii. 0.2m vertically
    If the final pole location exceeds the permitted tolerance further lighting design may be required.
14. Pole details shall be as per Auckland Transport Engineering Standards. Departing from the standard installation due to ground conditions shall be confirmed by a written approval prior to installation.
15. Each luminaire must be fitted with either a 5 or 7 contact NEMA receptacle, compliant with ANSI C136.41:2013. The NEMA receptacle shall be fitted with blanking cap at the time of installation. The Light Point Controller will be installed at the time the streetlights are entered into RAMM by AT approved contractor.
16. New LED luminaires shall be provided with electronic DALI dimmable control gear.
17. As per AT requirements, columns are to be supplied with a 6 Amp Type C HRC Fuse link for connection of the luminaire to the incoming supply. (Wiring diagram on this page)

Design Revision Summary		
Rev.	Date	Comment
-	03/05/24	Original design
A	03/05/24	Relocate few Poles to the opposte side
B	05/09/24	Update the design based on the latest drawing
C	09/09/24	Add the design of the Accessways
D	29/10/24	Redesign based on the updated Drawing

NOT FOR COUNCIL APPROVAL
NOT FOR CONSENT ONLY

PROJECT NUMBER	PROJECT	DRAWING INFORMATION	COMPANY	AS PREPARED FOR
9589	8-14 17-19 BABICH ROAD HENDERSON VALLY	ROADWAY LIGHTING PLAN - ISOLUX PLOTS	IBEX LIGHTING L1 THE PRECINCT, 40 ONEHUNGA MALL, AUCKLAND 1061 2 MATARAWA PLACE, TAURIKO, TAURANGA 3171 NZ FREEPHONE 0800 63 65 67 www.ibexlighting.com	Citadel. terra consultants
DRAWING NO. : 2 / REVISION: D		Scale : n / a / DESIGNED BY: SF Date:29-October-2024 / CHECKED BY: /		

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