

1 September 2026

**SOUTHERN LINKS 1 – RESIDENTIAL DEVELOPMENT
HAMILTON**

GEOTECHNICAL INVESTIGATION REPORT

Colliers Project Leaders

HAM2025-0056AD Rev 5



EXECUTIVE SUMMARY

This report presents the results of geotechnical investigations and a geohazards assessment to support the substantive application for the Southern Links 1 project ("SL1" or the "Project") under the Fast-track Approvals Act 2024 ("FTAA"). This report relates to the residential portion of the SL1 Project, referred to as the "Residential Area", "Residential Development" in this report.

The 46Ha Residential Area site, as shown in **Figure 1**, is located on the southern boundary of the current Hamilton City limits in Hamilton, New Zealand. The Residential Development proposal is for a range of residential and associated development, as conceptually summarised in **Figure 2**.

The existing topography of the Residential Area site is generally level between RL38m and RL43m. The regional groundwater table is generally within 3 metres of the surface. The geology typically consists of interbedded sands and silts of the Hinuera Formation.

The assessment of natural hazard risk for the site is assessed as low to medium for all hazards considered. We consider that the Residential Area is suitable for the proposed Residential Development from a geotechnical/geohazards perspective, subject to the adoption of the geohazard and geotechnical recommendations summarised below, which we understand have been incorporated into the project design and resource consent conditions as appropriate. In other words, we consider: the construction of the Residential Development is feasible from a geotechnical perspective; there are satisfactory techniques available to address the geotechnical constraints identified within the Residential Area; and that any potential geotechnical/geohazard effects/risks can be appropriately managed.

Key recommendations from our geotechnical investigations and geohazards assessment include:

(1) Slope Stability:

- Proposed artificial wetland batter slopes of 1V:3H were assessed for stability. Results indicated proposed batters are generally stable;
- During liquefaction, lateral stretch of less than 50mm across foundations is recommended to be accounted for during detailed foundation design.
- Mangakotukutuku stream bank is marginally stable and future buildings should remain outside the 20m wide stream corridor.

(2) Earthworks and Filling

- The site is to be filled with either site won silts or sands to form level building sites with maximum proposed Scut levels of 5m and proposed fill levels of up to 2m.
- Fill-induced ground settlements are predicted to be generally <25mm, with the exception of a few isolated areas with up to 40mm predicted settlement. Settlement is anticipated to be elastic and built out rapidly during construction.

(3) Road Subgrades

- Where pavements are constructed over granular engineered fill, a design subgrade CBR of 10% is considered appropriate. Where over natural sands/silts, a subgrade CBR of 2% to 3% are predicted. Conventional earthworks quality control, together with excavation observations, will be required during construction.

(4) Shallow Foundations

- The potential ULS liquefaction risk is moderate for the Hinuera Formation soils. These effects can be reduced to acceptable levels by utilising TC2 raft foundations.

- Following the preliminary assessment that has been undertaken, it is considered that most of the site is suitable for TC2 raft foundations, with localised areas of higher predicted settlements that will require TC2/TC3 hybrid foundations. This is to be further refined during future investigations and detailed earthworks design. Alternative foundation solutions, such as geogrid-reinforced gravel rafts or piled foundations, may also be suitable.
- A preliminary geotechnical ultimate bearing pressure of 300kPa should be available in the static case for shallow strip and pad foundations constructed within both the natural cut ground and engineered fill areas.

(5) Artificial Wetlands

- The WGA Hydrogeological Effects Assessment¹ identified a low permeability aquitard layer running beneath the site which has a confining effect on the underlying deep aquifer, putting it under some degree of pressure. Excavating the proposed stormwater ponds will remove the existing soil overburden pressure and the uplift pressure from the confined aquifer could rupture the aquitard layer and destabilise the ponds.
- A separate design memorandum has been prepared by CMW in collaboration with WGA and Maven Associates, to address this specific issue, and provide options for mitigation, and presented in **Appendix I**.



Figure 1: SL1 Residential Development Masterplan prepared by Barkers & Associates (Ref: 25546 & 26111, dated February 2026)

¹ Southern Links 1 Residential Stage 1 Southern Block Hydrogeological Effects Assessment, prepared by WGA, Ref: WGA242463-RP-HG-0003_B, dated May 2026

STATEMENT OF QUALIFICATIONS AND EXPERIENCE

Mark McVinnie

I am an Engineering Geologist at CMW Geotechnical NZ Limited, trading as CMW Geosciences. CMW Geosciences is a specialist geotechnical engineering and geological services consultancy with offices in New Zealand and Australia. I have been employed at CMW Geosciences since March 2022.

I hold the qualifications of BSc(Tech) in Earth Sciences from the University of Waikato, which I completed in 2016.

I have 8 years of professional experience in geotechnical engineering in the Waikato and Auckland regions. My experience has been primarily in land development, infrastructure, and landslide mitigation, and for the last several years, I have been focused on projects in the Waikato.

David MacPherson

I am an Associate Geotechnical Engineer at CMW Geotechnical NZ Limited, trading as CMW Geosciences. I have been employed at CMW Geosciences since August 2017.

I hold the qualifications of MEngSc from the University of New South Wales, which I completed in 2022, as well as an MSc from the University of Waikato, which I completed in 2016. I am a Chartered Professional Engineer and a Chartered Member of Engineering New Zealand.

I have over 8 years of experience as a geotechnical engineer, including in project management, design solutions, and team leadership. My background includes extensive work in infrastructure projects. My experience includes managing and participating in site investigations, instrumentation and monitoring, slopes and geotechnical hazard assessments, and slope stability design for major infrastructure projects such as the Peacockes Bridge in Hamilton.

Dave Sullivan

I am a Principal Engineering Geologist at CMW Geotechnical NZ Limited, trading as CMW Geosciences. I have been employed at CMW Geosciences since May 2025.

I hold the qualifications of a BSc in Geological Engineering from Mackay School of Mines at the University of Nevada, which I completed in 1997, and a Master of Business Administration from the University of Phoenix, which I completed in 2023. I am a Chartered Professional Engineer and a Chartered Member of Engineering New Zealand, as well as a Category 1 Geoprofessional (TCC), and a Licensed Civil Engineer in California and Nevada, USA.

I have over 30 years of professional experience in engineering geology and geotechnical engineering. My experience has been primarily in land and building development, disaster relief, and linear infrastructure. The years in New Zealand have been focused on the Christchurch rebuild, the Waikato Expressway, and land development in the Waikato and Bay of Plenty.

HAM2025-0056AD

Date	Revision	Comments
27 May 2025	A	Internal Review
6 June 2025	0	Report Issue
24 April 2026	1	Revised report Issue
11 June 2026	2	Revised report Issue
17 July 2026	3	Revised report Issue
28 August 2026	4	Revised report Issue
1 September 2026	5	Revised report Issue

	Name	Signature	Position
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1 INTRODUCTION

CMW Geosciences (CMW) was engaged Colliers Project Leaders to carry out a geotechnical investigation of a site located at Hamilton, which is being considered for the construction of a 938 Lot residential subdivision (the Residential Development). This site is denoted as the Residential Area as part of the wider Southern Links 1 (SL1) Development situated along the south-western boundary of Hamilton City (the “Project”). CMW have previously undertaken a desktop study of the wider southern links development.²

This report has been prepared to assess the suitability of the Residential Area land for the Residential Development, to support a substantive application for the Project under the FTAA. It incorporates relevant information from the previous desktop study and from subsequent site investigations.

1.1 Project Description

The SL1 Residential South development forms part of the residential component of Southern Links 1, a listed project under FTAA 2024. The Southern Links 1 project is a combined 106ha development, including residential and industrial activities. The residential component comprises circa 46ha and is in single ownership and is currently used for rural farming activities. The landholding includes five land parcels legally described as Lot 2 DP 589463 (22.21 ha); Part Lot 2 DP 25668 and Part Lot 1 DP 25668 (33.64 ha); Lot 3 DP 394366 and Lot 1 DP South Auckland 51518 (7.58 ha); Lot 1 DPSA 69842, Lot 2 DPSA 11357, Lot 1 DPSA 75305 and Section 1 SO 60814 (26.13 ha); and Part Lot 1 DP 25668 (26.50 ha). This site is part of the wider Southern Links Growth Cell, a circa 440ha contiguous land area that stretches the south-western edge of Hamilton that includes the Hamilton Southern Links (RoNS) designation.

The proposal seeks approval for a Substantive Application under the Fast-Track Approvals Act 2024 for a comprehensively master planned and staged residential development. This includes all necessary resource consents under the Resource Management Act 1991, including regional, district approvals where required.

The residential component provides for the establishment of circa 938 residential units, together with a neighbourhood commercial node, open spaces, waterbodies, and infrastructure devices including wetlands and roading.

The proposal includes substantial enabling works to establish developable land, including bulk earthworks across the site. An integrated stormwater management system including wetlands, detention/attenuation devices and treatment ponds supports the development. Ecological restoration is integrated via riparian and corridor planting with appropriate design measures being adopted to enhance and protect key features including the upper tributaries of the Mangakōtukutuku Stream and associated drains.

Access and integration with the surrounding Hamilton area is provided through connected transport framework, including the establishment of intersections, roading, and walking and cycle networks, along with upgrades to existing transport infrastructure. The residential development is proposed to be serviced via a coordinated strategy, including the extension of public networks, upgrades, and installation of appropriate infrastructure.

2 SITE DETAILS

2.1 Site Description

The Residential Area site comprises an area of approximately 44.5ha and is located on Saxby Road, as shown within **Figure 2**. Details of the site are as follows:

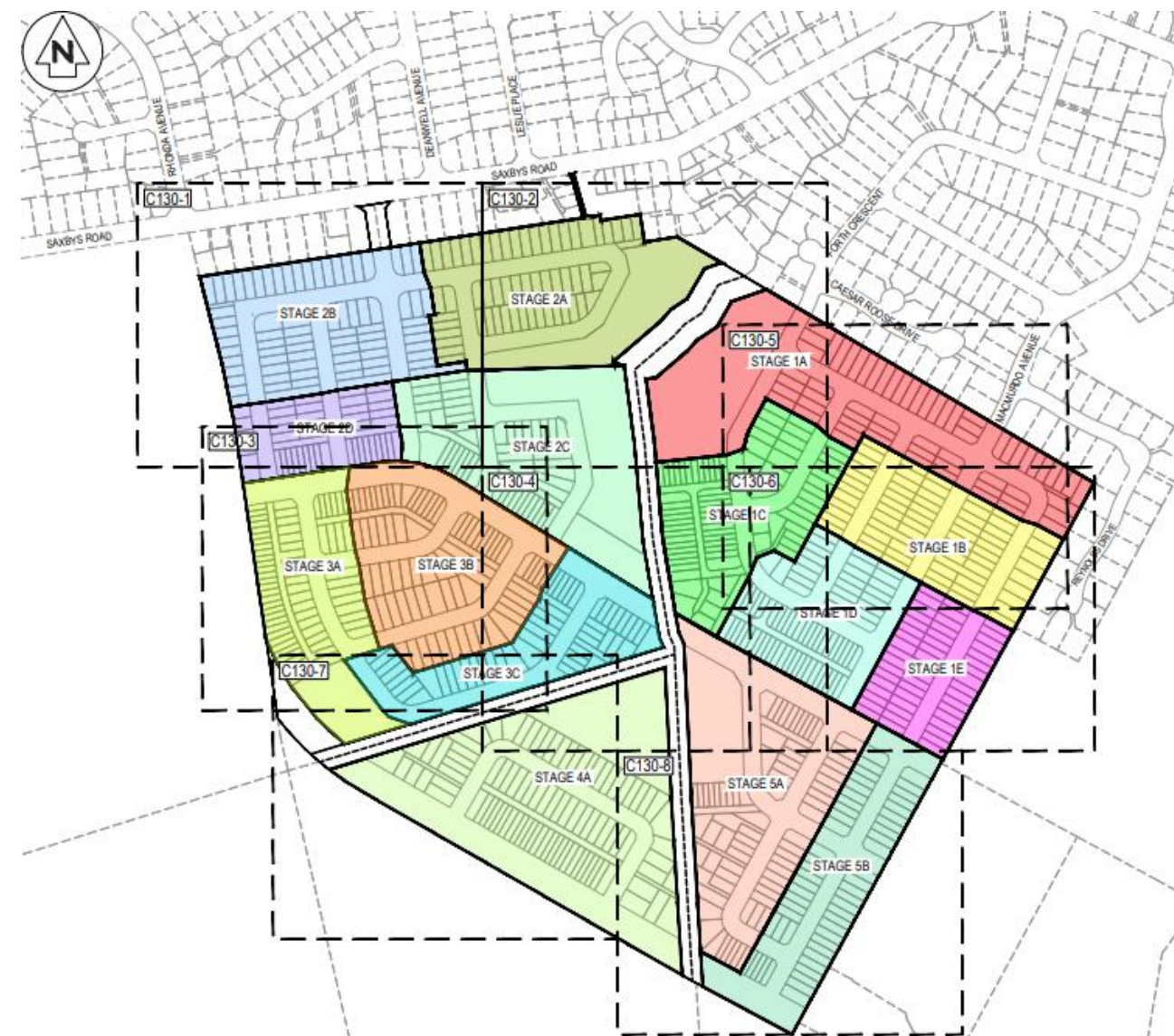


Figure 2: Proposed Staging Plan prepared by Maven (Ref: 298001-R1 SL1, Drawing No: R1-C130 Rev A, dated June 2026)

The site is accessed by Saxby Road in the north and is bound by high-density residential houses to the north and east, and pastoral land and rural properties to the west and south. At the time of our 2025 investigation, a residential dwelling and sheds were present in the northern corner of the site. Current land use is primarily grazing pasture.

2.2 Landform

The Residential Area site is situated on flat, low-lying land with open drains between Relative Levels 38 and 43m (ASL). The drains were noted as being up to approximately 2m in depth and were observed running from the west to east, draining into the Mangakotukutuku Stream, which runs from south to north through the centre of the site.

² Ref. HAM2024-0017AB, dated 15 March 2024

2.3 Site History

Based on our review of aerial images available on Retrolens³ and Google Earth, the Residential Area site appears to have been used primarily for pasture and farmland since the early 1940's (earliest available aerial photograph). The large open drains that discharge to the Mangakotukutuku Stream must have been formed prior to 1943. Subsoil drains were installed in 2024.

3 PROPOSED DEVELOPMENT

The proposed Residential Development extent is shown within **Figure 1** and **Figure 2**. Development drawings are presented in **Appendix B**.

Details for the Residential Development are as follows:

- The Residential Area comprises 941 residential lots of varying size with an associated access road extending from Saxbys Road and Croft Lane with an additional five roads to provide access to the proposed lots.
- Residential buildings are proposed to comprise stand-alone and terraced one to two storey buildings.
- The existing landform will need to be modified by raising the ground level with up to 2m fill; and cuts up to 5m will also be required.
- Minor slopes are proposed across the site in the form of swale drains. Preliminary plans indicate these drains will be to a maximum depth of 5m, with slope gradients of approximately 1V:3H.
- Minor fill batters requiring retaining walls up to 2.27m are also proposed.

4 INVESTIGATION SCOPE

Following a dial before you dig search, and onsite service location, the site investigation was carried out on 22 April 2025 during mid-autumn conditions. The scope of fieldwork completed is summarised in **Table 1** below:

Table 1: Investigation Summary		
Test ID	Test Type	Depth (m)
TP25-01 to TP25-15	Test Pits (TP)	3.4m (hole collapsing) to 6.3m
CPT25-01 to CPT25-11	Cone Penetrometer Tests (CPT)	20m
Notes: Refer to Section 6.1 for details		

These tests were supplemented by existing publicly available (New Zealand Geotechnical Database) data, which included ten CPTs and four shallow hand augers within the Residential Area.

The approximate locations of the respective investigation sites referred to above are shown on the Geotechnical Investigation Plan as **Drawing 1** attached in **Appendix A**.

5 GEOLOGY

The local published geological map⁴ details the Residential Area site to be partially underlain by Holocene Swamp deposits and partially by Hinuera Formation interbedded silt and sand soils. Walton Subgroup forms

the base of the hills to the east and is expected to underlie the Hinuera Formation at depth as shown in **Figure 3** below.

However, based on our onsite observations and 3D Leapfrog modelling of subsurface soil conditions, the site is completely underlain by Hinuera Formation soils and the Peat (swamp deposits) soils are located further to the south-west, outside the Residential Area. The modelled geology is presented on **Drawing 2, Appendix A**.

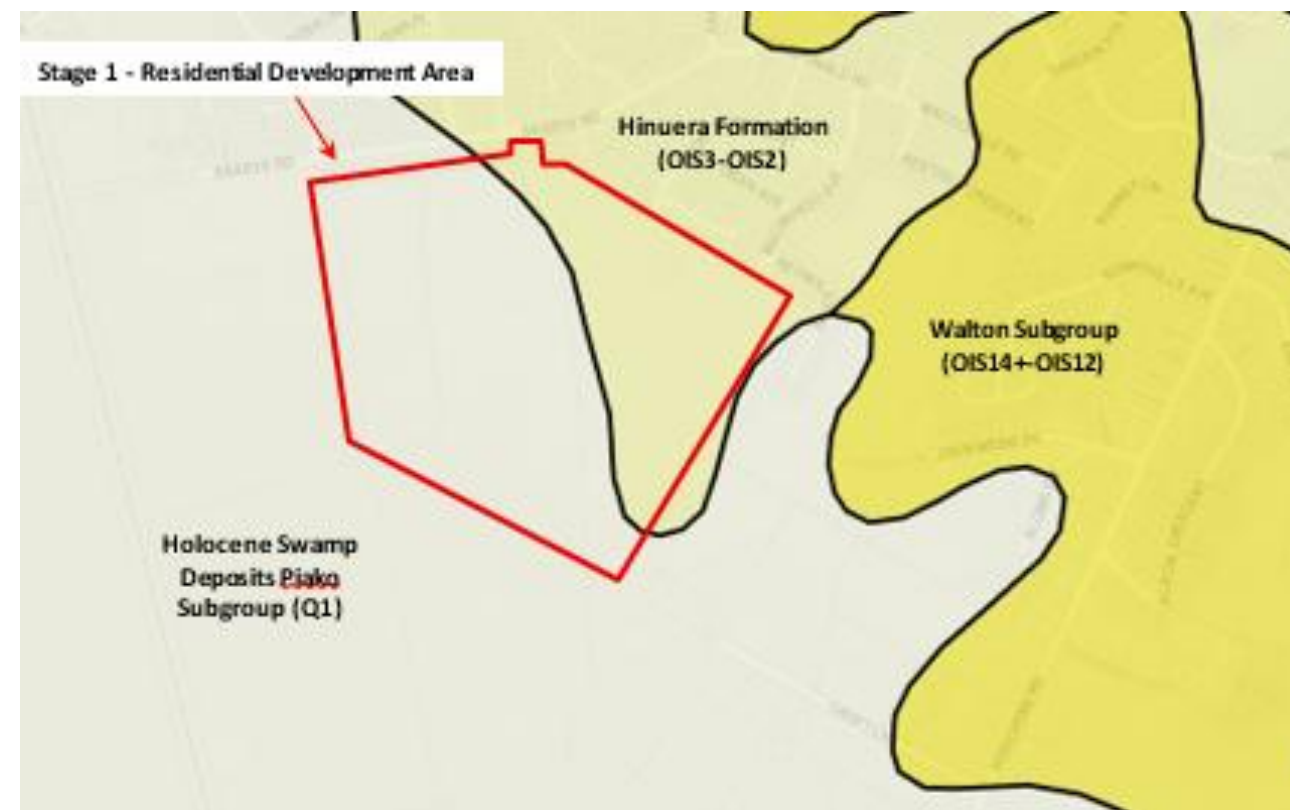


Figure 3: Regional Geology (GNS Science Web Geology Map)

6 GEOTECHNICAL MODEL

6.1 Stratigraphic Units

The distribution of the stratigraphic layers at our specific investigation locations are presented in Table 2 below. Variations can be anticipated between these locations. Our findings are illustrated on the appended Geological Sections (**Drawings 3 and 4**) presented in **Appendix A**.

Table 2: Ground Model			
Geological Unit	Depth to top of soil unit (m)		Thickness (m)
	Min	Max	
Topsoil	0		0.1 to 0.5
Interbedded loose to dense Sands and firm to very stiff Silts (Hinuera Formation)	0.1	0.5	1.9 to 18.0
Stiff to very stiff Clayey Silt (Hamilton Ash/Walton Subgroup)	1.9	18.0	*
*NOTE: base of unit not encountered			

³ <https://retrolens.co.nz/Map/>

⁴ Edbrooke, S.W. (compiler) 2005: Geology of the Waikato area. Institute of Geological & Nuclear Sciences 1:250000 geological map 4.

A description of the soils encountered is given below:

- **Topsoil:** Encountered from ground level to between 0.1m and 0.5m below ground level in all test pits.
- **Interbedded loose to dense Sands and firm to very stiff Silts:**
Between 1.9m and 18.0m of interbedded silts and sands underlie the topsoil. The Sands were generally loose to dense with dynamic cone penetrometer (DCP) blow counts of between 3 and 20 blows per 100mm with an average of 4 blows per 100mm. The Silts generally exhibited peak vane shear strengths (VSS) of between 41 and >140kPa with an average of 60kPa. Residual VSS range from 21 to 37kPa, indicating the Silts are moderately sensitive to sensitive.

Some isolated firm to very stiff Organic Silt layers were present within this unit, ranging from 0.1 to 0.5m thick, at depths between 0.5 and 3.5m below the existing ground level.

CPT cone resistance (qc) values were generally medium dense, between 5 to 10 MPa, and up to 15 MPa within this unit.
- **Stiff to very stiff Clayey Silt:** This is the lower-most soil unit which extends below the 20m deep CPT tests. This soil unit is exposed across low rolling hills to the east and dips below Hinuera and was encountered at the surface in Test Pit TP25-10 with peak shear strengths between 83 and 127kPa.

CPT qc readings in this layer were generally stiff to very stiff between 50 and 150kPa. Thick medium dense to dense sand beds are present within this layer, with CPT qc readings typically around 10 to 15 MPa.
- **Uncontrolled fill:** Variable strength Silt, Sand and Topsoil was encountered in TP25-02, 03, 05B, 07. It is thought this material was leftover from subsoil drains installed in 2024.

Soft to firm peat was not encountered in the investigations for the Residential Area, but nearby historic testing indicates this unit as soft to firm and up to 8m thick.

6.2 Groundwater

During the investigation, groundwater was encountered at depths ranging from 1.7 to 5.5m below existing ground levels. Groundwater observations from the CPTs and test pits are listed in Table 3 below.

Table 3: Groundwater Depths		
	Depth to groundwater (m)	Groundwater Relative Level RL(m)
TP25-01	3.5	36.5
TP25-02	2.8	37.8
TP25-03	2.8	36.8
TP25-04	5	36.6
TP25-05	5.5	36.5
TP25-05 B	2.8	38.8
TP25-06	2.5	37.5
TP25-07	1.7	38.3
TP25-08	3.9	36.8
TP25-09	4.5	38
TP25-10	3.1	39.2
TP25-11	2	38.5

⁵ Southern Links 1 Residential Stage 1 Southern Block Hydrogeological Effects Assessment, prepared by WGA, Ref: WGA242463-RP-HG-0003_B, dated May 2026

TP25-12	3.2	36.8
TP25-13	3.7	38.8
TP25-14	2	38.4
TP25-15	3.5	37.2
CPT25-01	3.5	36.5
CPT25-02	2.8	37.2
CPT25-03	2.8	39
CPT25-04	2.5	37.5
CPT25-05	5	35.9
CPT25-06	2.8	39.2
CPT25-07	4.5	37.8
CPT25-08	2	38
CPT25-09	3.2	36.8
CPT25-10	3.7	38.8
CPT25-11	3.5	39
Average depth	3.3	37.7
Minimum depth	1.7	39.2
Maximum depth	5.5	35.9

The historic New Zealand Geotechnical Database (NZGD) test logs indicated water levels between 1 and 4.6m below existing ground level, however those tests were undertaken before the 2024 drainage upgrades to the site so those measurements have been disregarded.

Additionally, groundwater monitoring has been carried out by WGA from mid 2025 (winter conditions) to early 2026 (summer conditions), with findings presented findings in the WGA hydrogeological report⁵. The maximum groundwater level height experienced during monitoring was 38.73 mRL. During the summertime, levels dropped as low as 36.96 mRL.

Additionally, WGA noted a thin organic silt band, 0.1-0.4m thick at approximately 36.36-36.56mRL (typically 5-6m below existing ground level) was acting as a low permeability aquitard that separated the soil profile into an upper unconfined aquifer and a lower confined aquifer. Slug testing and site observations indicated that the lower confined aquifer is under some pressure.

Pressure in the confined aquifer is discussed in Section 7.6.2, and a separate design memorandum⁶ has been prepared by CMW in collaboration with WGA and Maven Associates and is attached in **Appendix I** to address this specific issue and provide options for mitigation.

⁶ Wetland Design Memorandum Ref:HAM2025-0056AK Rev 4, dated August, 2026

6.3 Geotechnical Design Parameters

The various geological strata encountered across the site have been rationalised based on geotechnical engineering properties and grouped into broad units to define a geotechnical model used in subsequent assessments and analyses. The Hinuera formation is split into granular and cohesive units in Table 4 below to account for differing soil behaviours.

Parameters are based on the results of the investigations, known correlations from literature, and our experience with similar soils in the Hamilton area.

The geotechnical design parameters adopted are presented below:

Table 4: Geotechnical Parameters					
Soil Unit	ϕ' (deg)	c' (kPa)	C _u (kPa)	E _v ' (MPa)	γ kN/m ³
Stiff to Very Stiff Clayey Silt (Hinuera Formation)	28	2	80	25	17
Generally Medium Dense Sand (Hinuera Formation)	35	0	NA	40	18
Stiff to very stiff Clayey Silt (Hamilton Ash/Walton Subgroup)	30	5	140	40	17
Where: ϕ' = angle of internal friction, c' = drained cohesion, C _u = Undrained Shear Strength, E _v ' = drained elastic modulus (vertical), γ = bulk unit weight					

7 GEOHAZARDS ASSESSMENT

7.1 Geohazard Risk Register

Section 106 of the Resource Management Act 1991 (RMA) requires an assessment of the risk from natural hazards to be carried out when considering the granting of a subdivision consent. S106 of the RMA specifically states that the assessment must consider the combined effect of the natural hazard likelihood and relevant material damage to land or structures (consequence).

Table 5 below is a summary of the assessment of the potential geohazards for this site based on information available to date. This risk register of the geohazards at this site is a live document that will be updated as the Project progresses. A summary of the natural hazard risk classification is provided within Appendix D.

Item	Geotechnical Hazard	Description	Area Affected	Assessment Outcome	Existing Risk of Damage to Land / Structures			Mitigation Measure	Residual Risk of Damage to Land / Structures		
					Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating
1	Earthquake	Seismicity	Whole Site	Site subsoil class = Class D ULS PGA = 0.25g Importance Level 2 or 3	1	5	5	Not applicable	1	5	5
		Fault Rupture	Whole site	Nearest active fault approximately 3km east of the site (Te Tatua o Wairere Fault). Recurrence interval 100,000 years	1	5	5	Mitigation not required	1	5	5
		Liquefaction Damage	Whole site	Refer to Section 7.4	3	4	12	Liquefaction-induced settlement should be accounted for within the foundation designs. These will be lot-specific and need to be carried out prior to building consent and reviewed by a suitably qualified geotechnical engineer.	2	4	8
		Lateral Spread Damage	Area in vicinity of Artificial Wetlands and Mangakotukutuku Stream	Refer to Section 7.6	3	3	9	Lateral spreading risk is assessed to be minor, and sufficient setbacks are currently in place to mitigate potential risk to structures; the lateral spreading risk should be reviewed during detailed design.	2	3	6
		Cyclic Softening	Entire Site	Not anticipated.	1	4	4	Mitigation not required.	1	4	4
2	Slope Instability / Landslide	Global Instability	Whole Site	Refer to Section 7.3. Due to the general near-level landforms, slope instability is not anticipated across the wider site; it is a risk for the swale drain and fill batters with proposed retaining walls. It is noted that the swale drain and fill batters with proposed retaining walls met the required Factor of Safety requirements.	2	4	8	Slope stability should be reviewed during detailed design within areas adjacent to retaining walls, Artificial Wetlands and the Mangakotukutuku Stream.	2	4	8
3	Problematic Soils	Expansive Soils	Entire Site	Experience in similar soils indicates that the soils on the site are non-expansive.	1	3	3	Mitigation not required.	1	3	3

Table 5: Geohazard Assessment Summary

Item	Geotechnical Hazard	Description	Area Affected	Assessment Outcome	Existing Risk of Damage to Land / Structures			Mitigation Measure	Residual Risk of Damage to Land / Structures		
					Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating
		Uncontrolled Fill	Entire Site	Thin isolated pockets of uncontrolled fill were encountered in the northern corner of the site during our site investigation and may be encountered during earthworks elsewhere on the site. It is noted that this also includes the geotechnical exploratory testpit backfill material.	2	3	6	Undercut and replace materials.	1	3	3
5		Debris and Existing Improvements	Entire Site	Existing foundation elements, burn piles, offal pits, abandoned underground utilities, soak holes and septic systems may be encountered during earthworks.	2	3	6	Undercut and replace materials if encountered.	1	3	3
6	Settlement	Compressible Soils	Entire Site	Compressible soils are present across the site.	2	3	6	Construction monitoring by geotechnical engineer to ensure top-up fill is placed where necessary.	1	3	3
		Bearing Capacity Failure	Building Platforms	Loose or unsuitable material may be encountered beneath the building platforms.	2	3	6	Densify or undercut and replace low strength materials beneath building platforms, use appropriate foundation design.	1	3	3
7	Erosion	Soil Erosion	Swale Drains	Some minor erosion is possible to the banks of pond and swale drains during construction	2	3	6	Construction monitoring by geotechnical engineer to ensure good earthworks practices are in place to prevent erosion	1	3	3
8	Groundwater	Groundwater Impacts	Stormwater Controls	Groundwater was encountered at shallow depths below the site. Therefore, any formation of stormwater ponds, swales etc. will require stability analyses.	2	4	8	Stability analysis required at design stage and mitigation measures implemented as required.	2	4	8
9	Geothermal activity	Site not within geothermal area.									
10	Construction Risks	Excavatability	Building Platforms	Given the site is being built up with engineered fill, excavation is expected to be readily achieved with normal earthworks plant.	3	3	9	Construction monitoring by geotechnical engineer to ensure good earthworks practices.	1	3	3
		Sediment Retention Ponds	Building Platforms	Depending on their size sediment retention ponds may require geotechnical input at design stage to ensure batter stability is achievable.	2	3	6	Consideration given to batter stability of proposed ponds at design and construction phase.	1	3	3
		Subgrade Preparation	Building Platforms and Road Alignment	Topsoil and existing vegetation within the building footprints and road alignments will be cleared as part of the proposed development earthworks. In particular buried rootballs from felled trees and	5	2	10	Undercut to remove topsoil and roots and other materials. For saturated subgrade, allow to dry or undercut and replace.	1	2	2

Table 5: Geohazard Assessment Summary

Item	Geotechnical Hazard	Description	Area Affected	Assessment Outcome	Existing Risk of Damage to Land / Structures			Mitigation Measure	Residual Risk of Damage to Land / Structures		
					Likelihood	Consequence	Risk Rating		Likelihood	Consequence	Risk Rating
				hedgerows in the eastern half of the site. Saturated, over optimum moisture condition causing pumping and yielding of the subgrade.							
		Service Trenches (trench collapse / long term settlement)	Building Platforms and Road Alignment	Trench collapse may occur in surficial soils / if proposed service trenches extend below GW level.	3	3	9	Mitigation should be considered in the form of: -trench support -temporary dewatering, in the form of regular spaced pumps	1	3	3
		Short term erosion of swale drains	Swale drains	Erosion of swale drains may occur, due to the battered slope gradient on unvegetated slopes	2	3	6	Mitigation may comprise rapid revegetation, erosion control matting. This is to be confirmed in the design phase.	1	3	3
		Low road/pavement subgrade strengths	Roads and Paths	Low subgrade strengths and/or saturation of pavement subgrade	3	4	12	Further site investigations and specific pavement design is required.	1	4	4

Appendix D contains references for the assessment methods used.

7.2 Seismicity

The seismic subsoil class has been assessed as Class D, deep soil, in accordance with NZS1170.5 Section 3.1.1.⁷

The Peak Ground Acceleration (PGA) for this development was calculated based on a 50-year design life in accordance with the New Zealand Building Code⁸ and importance level (IL) 2 and IL (3) structures. The seismic design and analysis for this site should consider two earthquake events in accordance with NZ1170, which are the serviceability limit state (SLS) and ultimate limit state (ULS) earthquakes. The calculated PGAs for these events are summarised in Table 6 below.

Table 6: Peak Ground Acceleration (PGA) for Two Limit States				
Limit State	AEP	PGA(g) IL2	PGA(g) IL3	Magnitude _{eff}
SLS	1/25	0.06	0.06	5.9
ULS	1/500	0.25	0.32	5.9

Note: SLS = serviceability limit state; ULS = ultimate limit state; AEP = annual exceedance probability

7.3 Fault Rupture

As indicated on the GNS Community Fault Model the nearest known active fault to site is the Te Tatua o Wairere Fault, located approximately 3km to the east. Kututaruhe Fault is also noted to the west approximately 4.6km from the site. We consider the site to be at 'very low' risk with respect to fault rupture. The low return period of the Te Tatua o Wairere Fault has been considered within our analysis.

7.4 Liquefaction

7.4.1 Methodology

In accordance with MBIE/NZGS guidance, the liquefaction susceptibility of the soils at this site was assessed with respect to geological age and compositional (soil fabric and density) criteria, based on the following assumptions:

- Only saturated soils below an assessed seasonal average groundwater level were modelled as being susceptible to liquefaction. A perched water table was considered, due to the bands of stiff silt encountered at a depth of approximately 4m within CPT01, CPT02, and CPT05.
- In accordance with MBIE/NZGS guidance⁴ and in the absence of site-specific shear wave velocity measurements, no aging / strength gain factor has been applied to the Pleistocene aged soils.
- Soils are also classified with respect to their grain size and plasticity to assess liquefaction susceptibility. For this Project, a cut-off threshold soil behaviour type index value (I_c) of 2.6 was used to distinguish between liquefiable (I_c<2.6) and non-liquefiable (I_c>2.6) soils.
- Specific liquefaction analyses were undertaken for IL2 structures, using the software package CLiq and the Boulanger and Idriss (2014) method. The cyclic stress ratio (CSR), being a function of the PGA corrected for the relevant magnitude for the design return period event, was compared to the cyclic resistance ratio (CRR), being a function of the CPT data.
- Free-field liquefaction induced settlements were determined in accordance with Zhang et al. (2002). With respect to liquefaction response, consideration was given to a 10m cut-off depth to estimate index settlements as per MBIE⁹ guidance (foundation technical categories). These were compared to

liquefaction settlement estimates over the full depth range of the CPT's with a depth weighting factor (e_v) applied ranging from 1 at the ground surface to 0 at 20m depth.

7.4.2 Results

Results are presented in **Appendix F** and are summarised in Table 7 below.

Table 7: Liquefaction Analyses Results						
CPT No.	SLS Settlement (mm)	Total ULS Settlement IL2 (mm)	Liquefaction Severity Number (LSN) IL2	Index ULS Settlement	Total ULS Settlement IL3 (mm)	Depth to Liquefied Layer (m)
CPT25-01	<10	65	6	25	80	8
CPT25-02	<10	75	11	60	95	3.1
CPT25-03	<10	110	20	80	120	2.8
CPT25-04	<10	65	7	30	85	6.2
CPT25-05	<10	45	5	25	65	7.8
CPT25-06	<10	85	14	65	110	3
CPT25-07	<10	45	6	35	60	4.5
CPT25-08	<10	110	17	75	135	2.2
CPT25-09	<10	75	8	35	95	6.2
CPT25-10	<10	115	17	80	130	3.7
CPT25-11	<10	100	12	55	120	3.3
CPT_181275	<10	55	11	50	80	2.8
CPT_181276	<10	55	10	40	75	2.8
CPT_87648	<10	95	14	65	115	3
CPT_87654	<10	90	18	80	125	2
CPT_87660	<10	105	20	70	125	2.2
CPT_87655	<10	70	7	35	85	4.6
CPT_87650	<10	80	10	45	105	4
CPT_87646	<10	40	8	35	50	3.2
CPT_87661	<10	130	20	80	150	2.4
CPT_87659	<10	80	10	45	95	3.5
CPT_87652	<10	70	10	40	95	3.7

Note: All settlements and depths based on existing ground profile.

Index settlements are calculated based on the upper 10m of the soil profile using no depth weighting factor.

Total ULS settlements are based on the full depth of the CPT trace with a depth weighting factor applied.

Index settlements are for assessment of the site against the MBIE site Technical Category guidelines and are not comparable to the total ULS settlements.

⁷ NZS 1170.5: 2004 Structural Design Actions Part 5 Earthquake Actions – New Zealand

⁸ Earthquake Geotechnical Engineering Practice, Module 3: Identification, assessment and mitigation of liquefaction hazards", (November 2021)

⁹ Repairing and Rebuilding House affected by the Canterbury Earthquakes", (December 2012)

The calculations indicate that liquefaction may occur in some soil layers during a ULS earthquake event. Affected layers are shown within the liquefaction report attached within **Appendix F**.

Results indicate liquefaction is triggered at a seismic load of PGA 0.14, which is slightly above the 100-year return period PGA of 0.12 for the Hamilton area as per MBIE guidance.

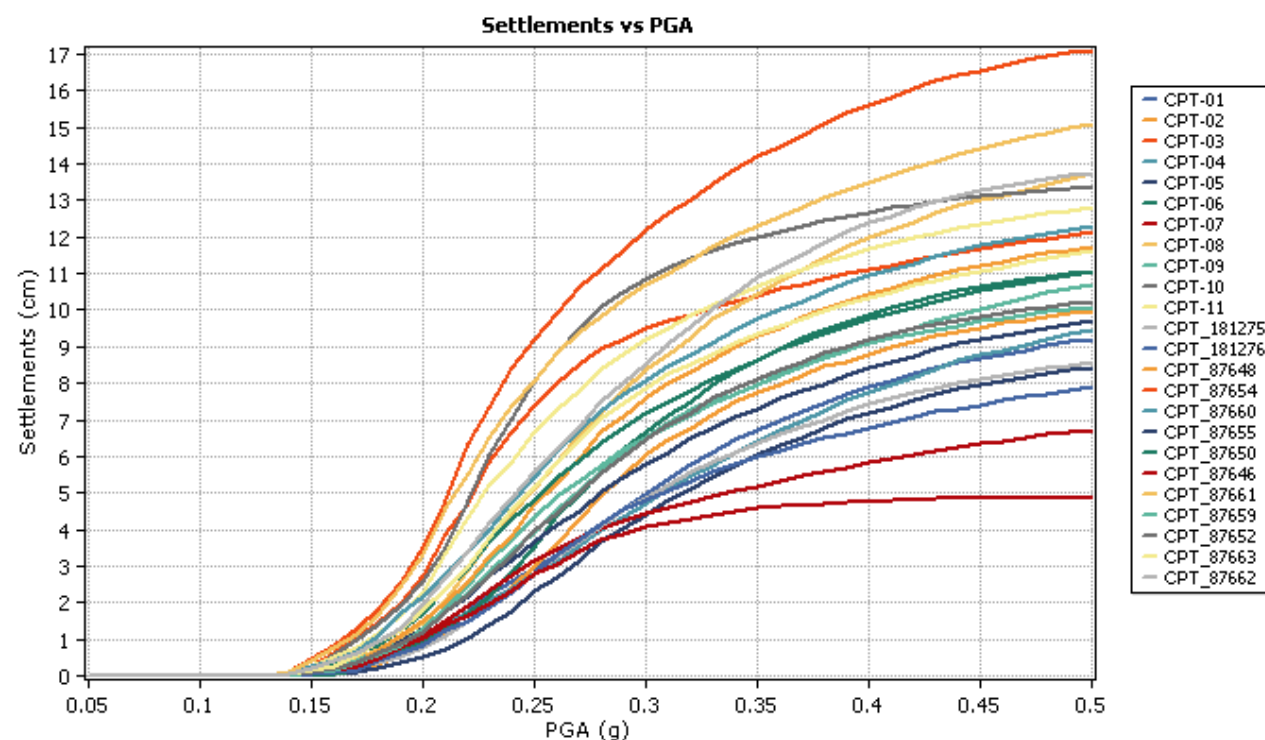


Figure 4: Parametric Summary of predicted vertical settlements from soil liquefaction following a ULS seismic event (IL3: PGA 0.32g)

In the ULS case liquefaction analyses results using the full depth of the CPT testing indicate a moderate to high risk of liquefaction occurring at the site. Recommendations follow in Section 8.6.

7.5 Lateral Spread

Following the onset of liquefaction, the liquefied soils behave as a very weak undrained material, which can give rise to lateral spreading where a free face is present within the vicinity of the site or where proposed cut and fill batters are proposed over or within liquefied soils.

However, preliminary results of the liquefied slope stability analyses estimate 13-35mm lateral spread displacement during the ULS event (within 30m of the top of slope). The estimated lateral spread is within the 50mm limit for TC2 Foundation Technical Category outlined within Table 3.1 of the MBIE Canterbury rebuild guidelines Part A. A summary of this is attached within **Appendix G**.

Although not anticipated to be excessive, the potential lateral spread risk should be reviewed during detailed design.

7.6 Slope Stability

7.6.1 Overview

Minor slopes are proposed across the site in the form of stormwater ponds, with maximum slope gradients of 1V:3H, and may be prone to small scale instability and erosion.

Additionally, Maven have indicated that there will be some minor slope batters requiring retaining up to 2.5m high (refer to Maven preliminary drawings presented in **Appendix B**).

To assess this hazard further, a preliminary slope stability assessment was undertaken.

7.6.2 Design Criteria

The stability of the swale drains under a range of design conditions is expressed in terms of a factor of safety, which is defined as ratio of the resisting forces to destabilising forces acting on a slope. Table 8 below presents the recommended performance standards¹⁰ for slope stability assessment:

Table 8: Slope Stability Factor of Safety Criteria	
Condition	Required Factor of Safety
Static long-term conditions (drained soil conditions, normal groundwater)	1.5
Transient short-term conditions (elevated groundwater and pore water pressures)	1.3
Seismic (ULS) case*	1.0
Note: *Factor of safety < 1.0 acceptable where displacement-based approach is adopted.	

7.6.3 Slope Stability Analysis

Slope stability analyses were undertaken using the Morgenstern-Price method of slices under both circular and translational failure mechanisms using the proprietary software Slide2. Analyses were completed for the various conditions stated in *Error! Reference source not found.* based on the following:

- Static long-term conditions were analysed for the prevailing case with the groundwater table based on the modelled groundwater table.
- When analysing transient conditions, an elevated groundwater table using measured winter flood levels along with an excess pore water pressure of $r_u = 0.3$ above the water table.
- Seismic displacements were estimated based on a Newmark Sliding Block approach using 50th percentile correlations published in Ambraseys & Srbulov (1995)¹¹ and Jibson (2007)¹² for thin, translational rigid sliding block cases, and Bray & Travarasrou (2007)¹³ and Bray and Macedo (2019)¹⁴ for flexible sliding mass cases.
- A 10 kPa dead load was used to model typical residential dwelling loads.

The following slopes have been assessed:

- Section A: 4.8m deep stormwater pond (Wetland A – Section A2 on Maven Associates drawings) embankment with a maximum cut slope of 1V:3H. Note, there are several proposed ponds; however, Wetland A is representative of all of them, as the maximum slope angle in all ponds is 1V:3H, and the geologic profile is laterally consistent between ponds.
- Section B: 3.5m deep Mangakotukutuku stream gully with an existing maximum slope of 1V:1.6H.

¹⁰ CoLab, (October 2025). Regional Infrastructure Technical Specification (RITS) V2, Table 16: Proposed factors for safety for different slope stability scenarios

¹¹ Ambraseys, N. and Srbulov, M. (1995) Earthquake induced displacement of slopes, Journal of Soil Dynamics and Earthquake Engineering, Vol 14

¹² Jibson, R.W., (2007) Regression models for estimating coseismic landslide displacement, Journal of Engineering Geology, Vol 91

¹³ Bray, J. D., & Travarasrou, T. (2007). Simplified procedure for estimating earthquake-induced deviatoric slope displacements. *Journal of geotechnical and geoenvironmental engineering*, 133(4), 381-392.

¹⁴ Bray, J.D., and Macedo, J. (2019) "Procedure for Estimating Shear-Induced Seismic Slope Displacement for Shallow Crustal Earthquakes," J. of Geotechnical and Geoenvironmental Engineering, ASCE, V. 145(12), doi: 10.1061/(ASCE)GT.1943-5606.0002143.

- Preliminary Retaining Wall Section: 2.27m high fill embankment supported by a timber retaining wall. This wall is the largest (and worst-case) of the proposed retaining walls.

7.6.4 Results

Selected stability printouts are attached in **Appendix E** with the factor of safety for each scenario outlined in **Table 9**.

Table 9: Slope Stability Analyses Results					
Location	Slope Stability Factor of Safety				Lateral Stretch (mm) within 30m of Top of Slope
	Prevailing	Transient	Seismic (ULS)	Yield Acceleration	
Wetland A Section A	1.64	1.3	<1	0.07 - 0.09	15-35
Mangakotukutuku Stream Section B	1.26	0.84	<1	0.15	<15
Retaining Wall	2.65	1.68	1.8	-	NA

The results show that the Section B transient case as well as the seismic and yield acceleration cases do not meet the requisite factor of safety. Recommendations are discussed in Section 8.1.

Mavens' preliminary retaining wall plans achieve the required factor of safety and are provisionally suitable, subject to detailed design.

7.6.5 Potential Pond Uplift

The WGA Hydrogeological Effects Assessment¹⁵ identified a low permeability aquitard layer running beneath the site which has a confining effect on the underlying deep aquifer, putting it under some degree of pressure. Excavating the proposed stormwater ponds will remove the existing soil overburden pressure and the uplift pressure from the confined aquifer could rupture the aquitard layer and destabilise the ponds.

A separate design memorandum has been prepared by CMW in collaboration with WGA and Maven Associates, to address this specific issue, and provide options for mitigation, and presented in **Appendix I**.

7.6.6 Mangakotukutuku Stream

The Mangakotukutuku Stream and gully system extends through the site and beyond the northern boundary. Beyond the northern boundary, the stream and gully are within the 'Waikato Riverbank and Gully Hazard Area' outlined in the Hamilton City Council Operative District Plan. Stability of the stream and gully needs to be considered, such that the proposed development does not exacerbate the Gully Hazard Area.

The development has no proposed works within the 20m wide stream corridor (or within 8-10m of the stream), therefore, there should be no additional stability risk to the stream and gully system from the proposed development.

7.7 Load Induced Settlement

Proposed fill and future building loads will induce settlements within the underlying subsoils. CPT data was used to assess the soil modulus parameters for preliminary load induced settlement analyses.

Load induced elastic settlements for the proposed fill and anticipated building loads were estimated using the software CPeT-IT and CPT data with the following correlation:

$$S_{CPT} = \sum \frac{\Delta\sigma_v}{M_{CPT}} \Delta z$$

Where S_{CPT} = Primary settlement,

$\Delta\sigma_v$ = Change in vertical stress or load applied,

M_{CPT} = Constrained modulus calculated from CPT trace, and

Δz = Change in depth.

Where $M_{CPT} = a_m \times (q_t - s_{vo})$ where a_m is dependent on the I_c .

Secondary creep settlements were calculated using the simplified approach by Mesri (1994) where:

$$S = C_a \times \Delta z \times \log(t)$$

Where $C_a = 0.04 \times \left(\frac{C_c}{1+e_0}\right) \approx 0.1 \times \frac{\sigma'_v}{M_{CPT}}$

t = time

Results are attached within **Appendix H** and summarised in Tables 10 and 11. Two cases have been considered: 10kPa load (lightweight 1-2 storey residential dwellings with widespread loads) with a 50 year design life, and no load with a 100 year design life (roads and council buried infrastructure).

Calculation elements presented in the summary tables are outlined below;

- Proposed Cut/Fill depths were adapted from Maven Plans presented in **Appendix B**.
- Fill Load. A unit weight of 19kN/m³ was assumed for the fill, rounded up to the nearest metre.
- Building Loads. A 10kPa building load has been applied (Table 10 only), suitable for lightweight one to two storey residential buildings with widespread loads.
- Applied working pressure is combined fill load plus the building load (or just the fill load in Table 11).
- Settlement was only calculated where the induced stress increase from the load was more than 20% of the existing overburden stress.
- Calculations account for total fill including minor top up fill required post consolidation.

Table 10: Preliminary Settlement Analyses Results for Building Loads - 50 year design life						
CPT No.	Proposed Cut or Fill Depth (m) (Cut is negative)	Fill Load (kPa)	Building Load(kPa)	Applied Working Pressure (kPa)	Primary Earthworks Settlement (Total) mm	Secondary Post Construction Settlement (Total) mm
CPT25-01	0.5	19	10	29	<5	<5
CPT25-02	1	19	10	29	<5	<5
CPT25-03	-0.3	0	10	10	<5	<5
CPT25-04	1	19	10	29	10	5
CPT25-05	1.1	19	10	29	5	5

¹⁵ Southern Links 1 Residential Stage 1 Southern Block Hydrogeological Effects Assessment, prepared by WGA, Ref: WGA242463-RP-HG-0003_B, dated May 2026

Table 10: Preliminary Settlement Analyses Results for Building Loads - 50 year design life

CPT No.	Proposed Cut or Fill Depth (m) (Cut is negative)	Fill Load (kPa)	Building Load(kPa)	Applied Working Pressure (kPa)	Primary Earthworks Settlement (Total) mm	Secondary Post Construction Settlement (Total) mm
CPT25-06	0	0	10	10	<5	<5
CPT25-07	0.7	19	10	29	5	5
CPT25-08	1.5	38	10	48	40	20
CPT25-09	2	38	10	48	55	35
CPT25-10	0	0	10	10	<5	<5
CPT25-11	-1.2	0	10	10	<5	<5
CPT_87646	1	19	10	29	55	30
CPT_87648	-0.3	0	10	10	<5	<5
CPT_87650	0.9	19	10	29	20	5
CPT_87652	-0.5	0	10	10	<5	<5
CPT_87654	0.5	19	10	29	10	5
CPT_87655	2	38	10	48	60	30
CPT_87659	0.5	19	10	29	50	25
CPT_87660	1	19	10	29	15	5
CPT_87661	1.5	38	10	48	70	15
CPT_181275	0	0	10	10	<5	<5
CPT_181276	-0.4	0	10	10	<5	<5

Table 11: Preliminary Settlement Analyses Results for Infrastructure – 100 year design life

CPT No.	Proposed Cut or Fill Depth (m) (Cut is negative)	Pavement Load (kPa)	Fill Load = Applied Working Pressure (kPa)	Primary Earthworks Settlement (Total) mm	Secondary Post Construction Settlement (Total) mm
CPT25-01	0.5	5	24	25	10
CPT25-02	1	5	24	15	10
CPT25-03	-0.3	5	5	<5	<5
CPT25-04	1	5	24	15	<5
CPT25-05	1.1	5	24	10	<5
CPT25-06	0	5	5	<5	<5
CPT25-07	0.7	5	24	10	<5

Table 11: Preliminary Settlement Analyses Results for Infrastructure – 100 year design life

CPT No.	Proposed Cut or Fill Depth (m) (Cut is negative)	Pavement Load (kPa)	Fill Load = Applied Working Pressure (kPa)	Primary Earthworks Settlement (Total) mm	Secondary Post Construction Settlement (Total) mm
CPT25-08	1.5	5	43	45	25
CPT25-09	2	5	43	65	40
CPT25-10	0	5	5	<5	<5
CPT25-11	-1.2	5	5	<5	<5
CPT_87646	1	5	24	75	40
CPT_87648	-0.3	5	5	<5	<5
CPT_87650	0.9	5	24	30	<5
CPT_87652	-0.5	5	5	<5	<5
CPT_87654	0.5	5	24	15	<5
CPT_87655	2	5	43	65	35
CPT_87659	0.5	5	24	65	30
CPT_87660	1	5	24	20	10
CPT_87661	1.5	5	43	75	20
CPT_181275	0	5	5	15	<5
CPT_181276	-0.4	5	5	10	<5

Results indicate that the majority of the settlement is primary and, due to the granular nature of the Hinuera Formation silts and sands, will be elastic and built out during construction. The balance of the settlement is estimated to be less than 25mm across 6m and within the Building Code limit across most of the site, with the exception of a few CPTs. In these areas, much of the settlement is predicted to occur within the Hinuera Formation silts, which are sensitive and therefore prone to being disturbed during CPT testing, resulting in inflated settlement predictions.

In our experience, the CPeT-iT over estimates settlement within these soils. Therefore, in these areas, settlement monitoring is recommended during construction to confirm that differential settlement across future building platforms is within building code limits (for residential dwellings) or is within serviceability limits for infrastructure.

Further assessment of settlement is required at the detailed design phase once design loads are known.

7.8 Cross Boundary Effects

7.8.1 Proposed Earthworks

Settlements caused by proposed earthworks along the site boundaries are predicted to be minor. As per Section 2 of the RITS Guidance¹⁶ an impact assessment will be carried out during the detailed design stage to

¹⁶ CoLab (October 2025) Regional Infrastructure Technical Specification (RITS)

confirm the acceptability of impacts on the nearby structures, once fill heights and building loads are confirmed.

Retaining walls are needed where cuts/fill exceed 1m along the boundary, such as the 2.3m high fill in the northwestern corner of the site. These areas will require retaining walls, as depicted on Maven's Proposed Retaining Wall plans presented in **Appendix B**.

7.8.2 Groundwater Drawdown

The WGA Hydrogeological Effects Assessment¹⁷ highlights that the potential worst-case drawdown during construction of WWPS A may induce ground subsidence beneath neighbouring properties to the north of WWPS A, but that drawdown below that magnitude is considered to be effectively indistinguishable from natural fluctuations.

Additionally, an assessment has been made of the potential groundwater drawdown induced settlement due to the change in effective stress below these neighbouring properties. We have estimated the change in stress based on the groundwater drawdown modelling presented in the WGA report. Based on this change in stress, the settlement was estimated using the following equation:

$$s = \frac{\sigma'_v \cdot H}{E'}$$

Where s is settlement, $\Delta\sigma'_v$ is change in effective stress, H is the thickness of the layer, and E' is the elastic modulus of the soil.

Furthermore, the groundwater table will have been subject to seasonal fluctuations in the past, therefore at least some of the stresses felt by the soil due to this drawdown will have been experienced previously.

Based on this, we have estimated settlement beneath the neighbouring properties to be less than 5mm. This is considered negligible.

8 RECOMMENDATIONS

8.1 Slope Stability

Results of the slope stability analyses in Section 7.6.4 demonstrate that the design gradients for the proposed wetlands meet the requisite slope stability factors of safety.

Foundation designs will need to account for <50mm of predicted lateral stretch.

The existing Mangakotukutuku stream bank is marginally stable in its existing state and we expect some minor translational failures during future storm events. These are not anticipated to affect adjacent structures as the proposed buildings are to be constructed outside the 20m wide stream corridor. However, if in future buildings are built in the vicinity of the stream they should either be setback at least 3m from the top of slope, or where they are within 3m they will require specific foundation design.

8.2 Earthworks and Filling

Fill-induced ground settlements are predicted to be generally <25mm, with the exception of a few isolated areas with up to 40mm predicted settlement. Settlement is anticipated to be elastic and built out rapidly during construction.

Cross-boundary effects of fill will need to be assessed during detailed design.

All earthwork activities must be carried out in general accordance with the requirements of NZS 4431:2022¹⁸ and the requirements of the Waikato District Council, Waikato R.I.T.S. and under the guidance of a Chartered Geo-professional.

The subgrade of the site will predominantly comprise engineered fill from site won material (Hinuera Formation sands and Silts). Alternatively, imported granular fill such as pit sand or rockfill would be suitable, with appropriate compaction specifications, including geotechnical testing and certification to be confirmed during detailed earthworks design.

The natural subgrade soils can be sensitive to remoulding and moisture ingress. Care will be required to avoid over working and trafficking of these materials, and to protect them from moisture ingress. Pumping and yielding conditions may be encountered near the groundwater level or during particularly rainy periods.

Other areas of unsuitable materials such as variable strength uncontrolled fill present within road or building areas should be undercut and may be used as landscape fill in reserve areas or be removed from site. This may include the geotechnical test pit excavation locations.

8.3 Road Subgrades

Based on the site investigation results, low strength near-surface silts and loose sands with typical Dynamic Cone Penetrometer values of 1 to 2 blows per 100mm penetration are present to a depth of up to approximately 1.0m over the majority of the site. These equate to an estimated CBR of 2% to 3%.

For road subgrades, after topsoil stripping and cutting to design subgrade levels the following should be undertaken:

- Proof rolling should be carried out prior to placement of any filling/hardfill to check for any areas of excessive deflection. Where clean sandy soils are exposed, moisture conditioning may be required to achieve optimum water contents and enable subgrade compaction.
- Where low strength uncontrolled fill or natural soils are exposed at subgrade levels, an allowance for undercut and replacement with clean compacted sand should be allowed for.

It is recommended that a programme of penetration resistance testing is carried out at routine intervals along road alignments as part of the road pavement design prior to road construction to confirm actual CBR values.

8.4 Trench and Open Drain Backfilling

All services trenches and open drains beneath road carriageways and within a 45 degree zone of influence of any building foundation should be backfilled with compacted trench spoil or imported pit-sand to meet engineered fill standards.

8.5 Culverts

Culverts/Arch Culverts will be required where roads cross swales and existing streams. Constructing these is feasible from a geotechnical perspective but will require careful geotechnical assessment and construction staging. Concept design philosophy is outlined below:

- Slope batter stability to be accounted for in geotechnical design. Geogrids and/or a rock buttress could be required depending on final batter configuration.
- Culverts may need to be constructed on top of a geogrid reinforced gravel raft to mitigate against seismic bearing capacity risks.

¹⁷ Southern Links 1 Residential Stage 1 Southern Block Hydrogeological Effects Assessment, prepared by WGA, Ref: WGA242463-RP-HG-0003_B, dated May 2026

¹⁸ Standards New Zealand (2022) Engineered fill construction for lightweight structures, NZS 4431:2022

- Fill embankment loads will need to be assessed by the geotechnical engineer. If settlements are greater than those allowed in the NZTA Bridge Manual, surcharging or ground improvement may be required.
- If culvert loads exceed the shallow bearing capacity of the soil, loads may need to be transferred to the underlying denser strata via piles or ground improvement elements. This will be subject to seismic design, including liquefaction induced down-drag, kinematic loads, loss of shaft friction, and lateral loads.

Culverts are subject to detailed design.

8.6 Shallow Foundations

The Residential Development proposes one and two-story buildings.

As discussed in Section 7.4.2, there is potential for liquefaction induced ground deformation to occur at the site and differential settlement is likely to occur in the subgrade soils following a ULS earthquake.

However, the actual potential for liquefaction hazard will be somewhat reduced due to the 1m to 2m layer of engineered fill which will provide a non-liquefiable crust reducing surface manifestation of liquefaction and differential settlement.

A preliminary geotechnical ultimate bearing pressure of 300kPa should be available in the static case for shallow strip and pad foundations constructed within both the natural cut ground and engineered fill areas.

Specific site investigation and foundation suitability assessments including bearing capacity and static settlement should be carried out prior to Building Consent application for any buildings larger than single-family residential structures.

Following the preliminary assessment it is considered that most of the site is suitable for TC2 raft foundations, with localised areas of higher predicted settlements that will require TC2/TC3 hybrid foundations, in the vicinity of CPT25-09, CPT_87646 and CPT_87655 where there is >25mm predicted secondary settlement. This is to be further assessed during future investigations and detailed earthworks design.

9 SUITABILITY STATEMENT AND CONCLUSIONS

The site investigation carried out is considered suitable for this assessment of geotechnical constraints and associated requirements in support of the substantive application for the Residential Development under the FTAA.

The assessment of natural hazard risk for the site is assessed as low to medium for all hazards considered.

It is our opinion that the Residential Area is geotechnically suitable for the proposed development as depicted on the Maven Scheme Plans (**Appendix B**) and subject to the recommendations contained herein.

10 CLOSURE

Additional important information regarding the use of this CMW report is provided in the '*Using your CMW Report*' document attached to this report.

This report has been prepared for use by the client Colliers Project Leaders in relation to the substantive application for the Project under the FTAA in accordance with the scope, proposed uses and limitations described in the report.

Appendix A: Drawings

Title	Reference No.	Date	Revision
Site Investigation Plan	01	09/06/2026	1
Geology Plan	02	04/06/2025	0
Geological Cross Section A-A	03	04/06/2025	0
Geological Cross Section B-B	04	04/06/2025	0



LEGEND:

- CPT25-01** CONE PENETROMETER TEST (CPT) LOCATION (2025 CMW INVESTIGATION)
- TP25-01** TEST PIT (TP) LOCATION (2025 CMW INVESTIGATION)
- BH01** DEEP MACHINE BOREHOLE (BH) LOCATION (HISTORIC TESTING - NZGD)
- CPT_01** CONE PENETROMETER TEST (CPT) LOCATION (HISTORIC TESTING - NZGD)
- CROSS SECTIONS**
- STAGE 1 RESIDENTIAL AREA EXTENT**
- SITE BOUNDARIES WITHIN WIDER SOUTHERN LINKS DEVELOPMENT**

NOTES:

- BASE CONTOUR PLAN IS ADAPTED FROM MAVEN DRONE IMAGE.
- GEOLOGY ADAPTED FROM GNS 1:250,000 QMAPS DATABASE.
- HISTORIC TEST LOCATIONS SOURCED FROM NZGD DATABASE AND ARE INDICATIVE ONLY.

0 50 100 150 200 250 m

1:5000

CLIENT:	SAXBYS ROAD JV LIMITED	DRAWN:	MM	PROJECT:	HAM2025-0056
PROJECT:	SOUTHERN LINKS DEVELOPMENT STAGE 1 - RESIDENTIAL AREA	CHECKED:	DS	DRAWING:	01
TITLE:	SITE INVESTIGATION PLAN	REVISION:	1	SCALE:	1:5000
		DATE:	09/06/2026	SHEET:	A3 L



LEGEND:

CPT25-01
CONE PENETROMETER TEST (CPT) LOCATION
(2025 CMW INVESTIGATION)

TP25-01
TEST PIT (TP) LOCATION
(2025 CMW INVESTIGATION)

BH01
DEEP MACHINE BOREHOLE (BH) LOCATION
(HISTORIC TESTING - NZGD)

CPT_01
CONE PENETROMETER TEST (CPT) LOCATION
(HISTORIC TESTING - NZGD)

CROSS SECTIONS

STAGE 1 RESIDENTIAL AREA EXTENT

SITE BOUNDARIES WITHIN WIDER SOUTHERN LINKS DEVELOPMENT

SOFT TO FIRM PEAT (HOLOCENE SWAMP DEPOSITS)

INTERBEDDED LOOSE TO DENSE SAND AND FIRM TO VERY STIFF SILT (HINUERA FORMATION)

STIFF TO VERY STIFF CLAYEY SILT (HAMILTON ASH / WALTON SUBGROUP)

NOTES:

1. BASE CONTOUR PLAN IS ADAPTED FROM LINZ DATA SERVICE DIGITAL ELEVATION MODEL.
2. CONTOURS AT 1m INTERVALS..
3. GEOLOGY ADAPTED FROM GNS 1:250,000 QMAPS DATABASE.
4. HISTORIC TEST LOCATIONS SOURCED FROM NZGD DATABASE AND ARE INDICATIVE ONLY.

1:5000

0 50 100 150 200 250 m

CLIENT: SAXBYS ROAD JV LIMITED

PROJECT: SOUTHERN LINKS DEVELOPMENT
STAGE 1 - RESIDENTIAL AREA

TITLE: GEOLOGY PLAN

DRAWN: MM

CHECKED: DS

REVISION: 0

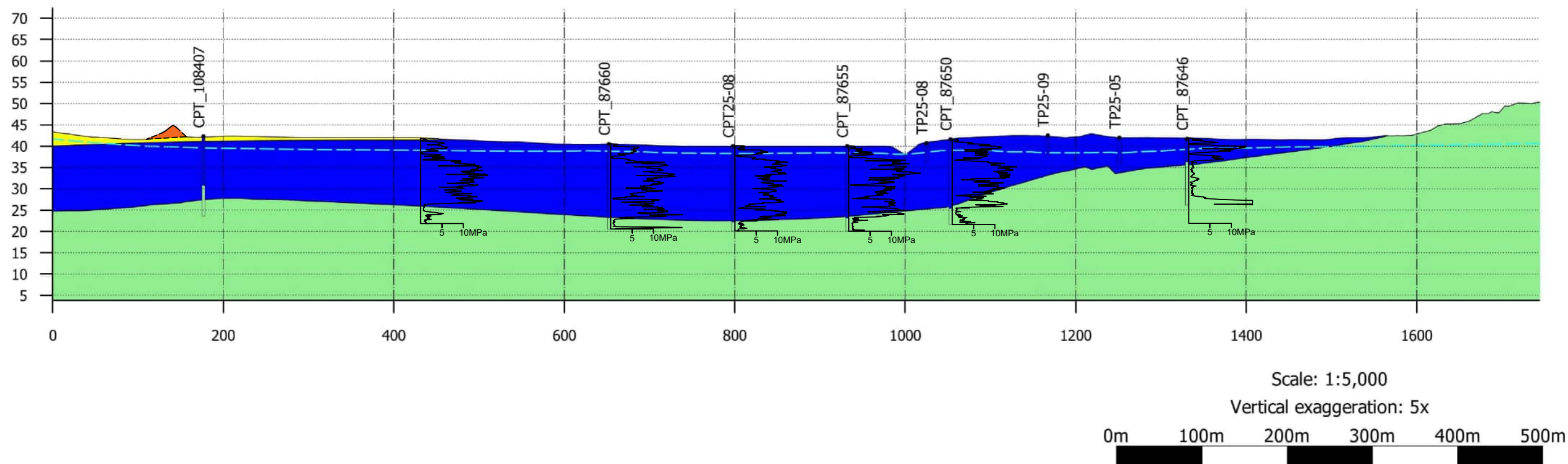
DATE: 04/06/2025

PROJECT: HAM2025-0056

DRAWING: 02

SCALE: 1:5000

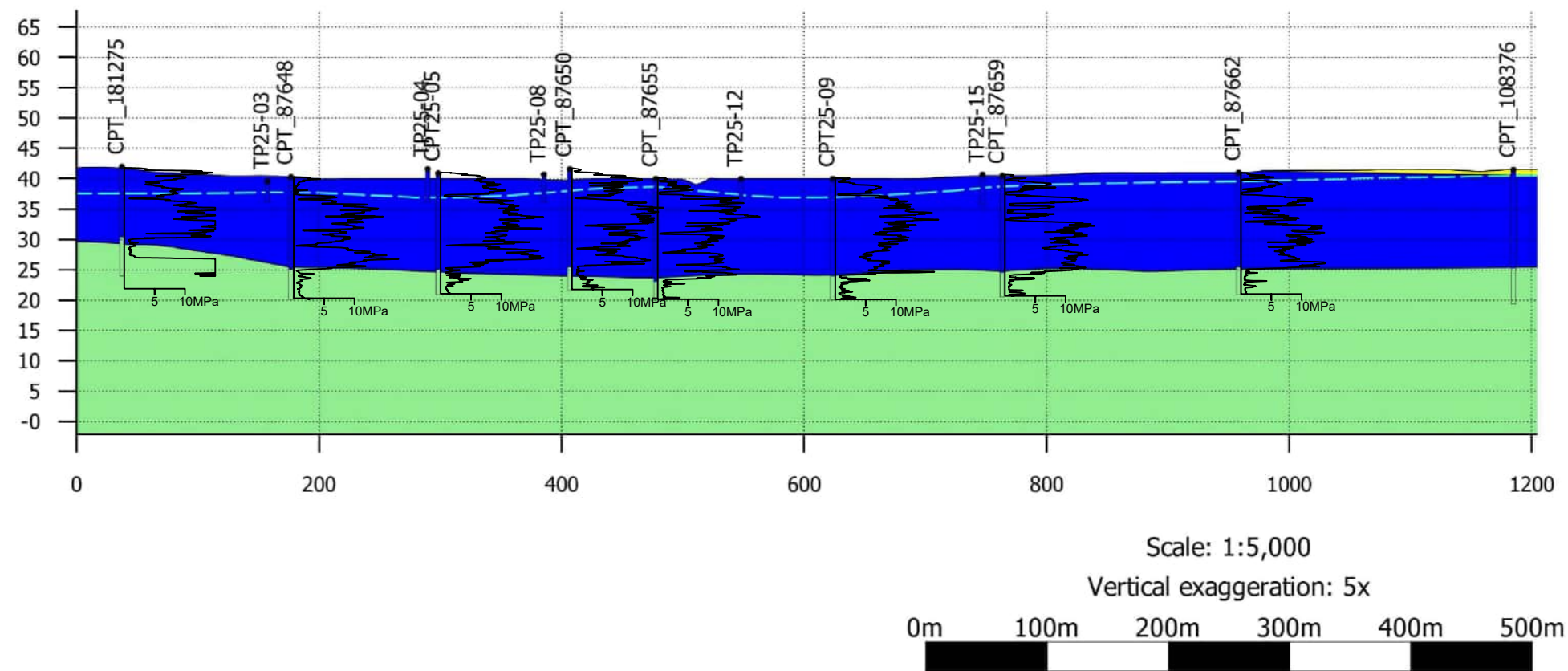
SHEET: A3 L



LEGEND:	
	SOFT TO FIRM PEAT (HOLOCENE SWAMP DEPOSITS)
	INTERBEDDED LOOSE TO DENSE SAND AND FIRM TO VERY STIFF SILT (HINUERA FORMATION)
	STIFF TO VERY STIFF CLAYEY SILT (HAMILTON ASH / WALTON SUBGROUP)
	GRAVEL FILL (RAILWAY BALLAST)
	GROUNDWATER

- NOTES:
- CROSS SECTION DERIVED FROM LEAPFROG 3D MODELLING SOFTWARE UTILISING EXISTING NZGD DATA. THE GEOLOGIC SURFACES ARE INDICATIVE ONLY.
 - ALL TESTS WITHIN 100M OF THE CROSS SECTION HAVE BEEN PRESENTED. AS SUCH, DISCREPANCIES BETWEEN TEST GEOLOGY AND MODEL SURFACES ARE DUE TO SETBACK.
 - GROUND SURFACE DERIVED FROM DRONE SURVEY DATA COURTESY OF MAVEN CONSULTANTS.
 - VERTICAL DATUM NZVD2016.

CMW Geosciences	CLIENT:	SAXBYS ROAD JV LIMITED		DRAWN:	MM	PROJECT:	HAM2025-0056
	PROJECT:	SOUTHERN LINKS DEVELOPMENT STAGE 1 RESIDENTIAL AREA		CHECKED:	DS	DRAWING:	03
	TITLE:	GEOLOGICAL CROSS SECTION A		REVISION:	0	SCALE:	1:5000
				DATE:	04/06/2025	SHEET:	A3 L



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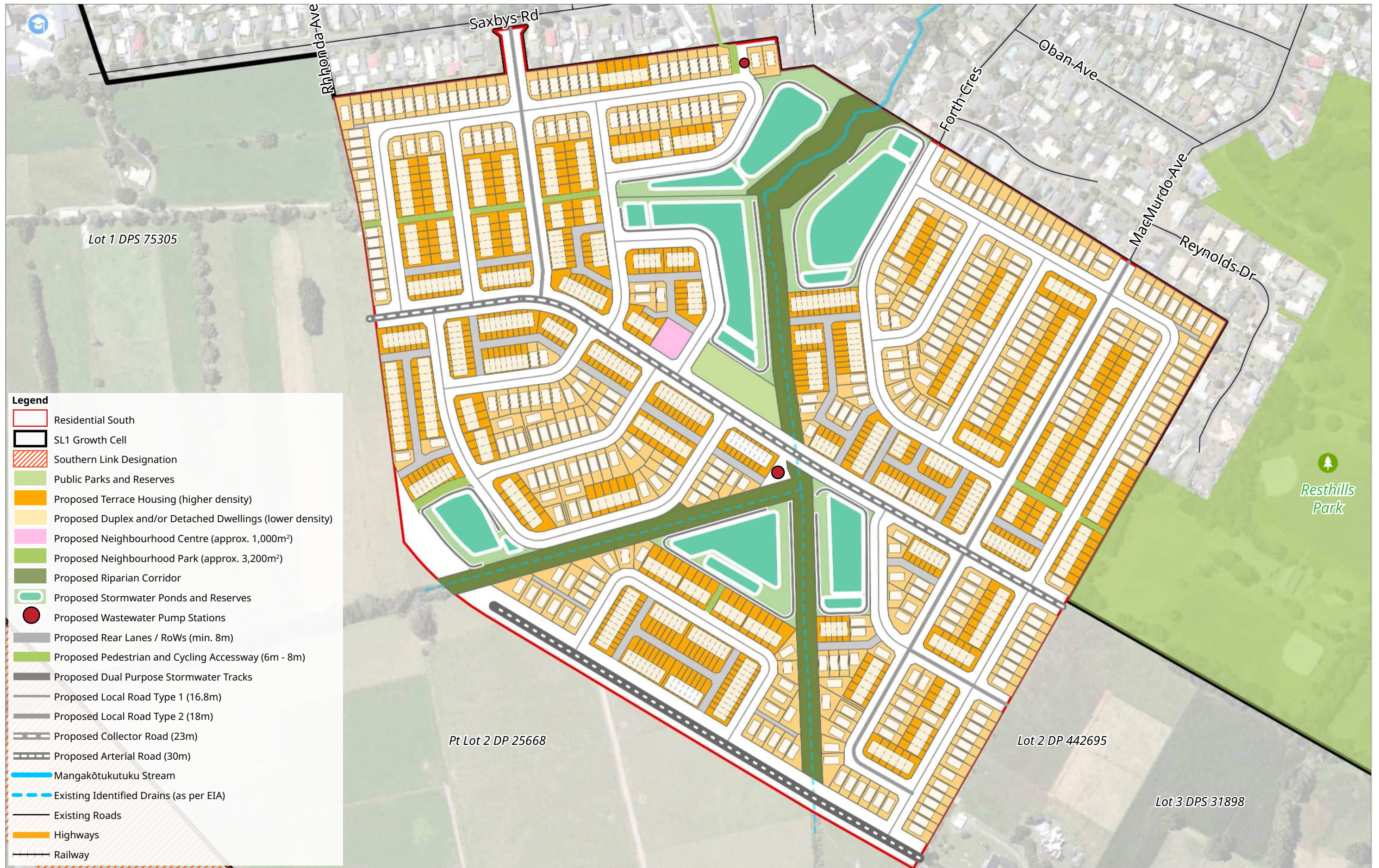
- SOFT TO FIRM PEAT (HOLOCENE SWAMP DEPOSITS)
- INTERBEDDED LOOSE TO DENSE SAND AND FIRM TO VERY STIFF SILT (HINUERA FORMATION)
- STIFF TO VERY STIFF CLAYEY SILT (HAMILTON ASH / WALTON SUBGROUP)
- GROUNDWATER

NOTES:

- CROSS SECTION DERIVED FROM LEAPFROG 3D MODELLING SOFTWARE UTILISING EXISTING NZGD DATA. THE GEOLOGIC SURFACES ARE INDICATIVE ONLY.
- ALL TESTS WITHIN 100M OF THE CROSS SECTION HAVE BEEN PRESENTED. AS SUCH, DISCREPANCIES BETWEEN TEST GEOLOGY AND MODEL SURFACES ARE DUE TO SETBACK.
- GROUND SURFACE DERIVED FROM DRONE SURVEY DATA COURTESY OF MAVEN CONSULTANTS.
- VERTICAL DATUM NZVD2016.

	CLIENT:	SAXBYS ROAD JV LIMITED		DRAWN:	MM	PROJECT:	HAM2025-0056
	PROJECT:	SOUTHERN LINKS DEVELOPMENT STAGE 1 RESIDENTIAL AREA		CHECKED:	DS	DRAWING:	03
	TITLE:	GEOLOGICAL CROSS SECTION B		REVISION:	0	SCALE:	1:5000
				DATE:	04/06/2025	SHEET:	A3 L

Appendix B: Development Plans



Client: Saxby Rd JV Ltd, Industrie Property Tahī
& South Park Agri Development Ltd
Job Number: 25546 & 26111

Drawing: Residential South Proposed Masterplan
Version: Draft
Date: 13/07/2026

File Path: I:\Jobs\13000-13999 General Jobs\025546 SL1 Industrial and Residential Stage 1\UD\GIS\SL1 Stage 1 Residential\

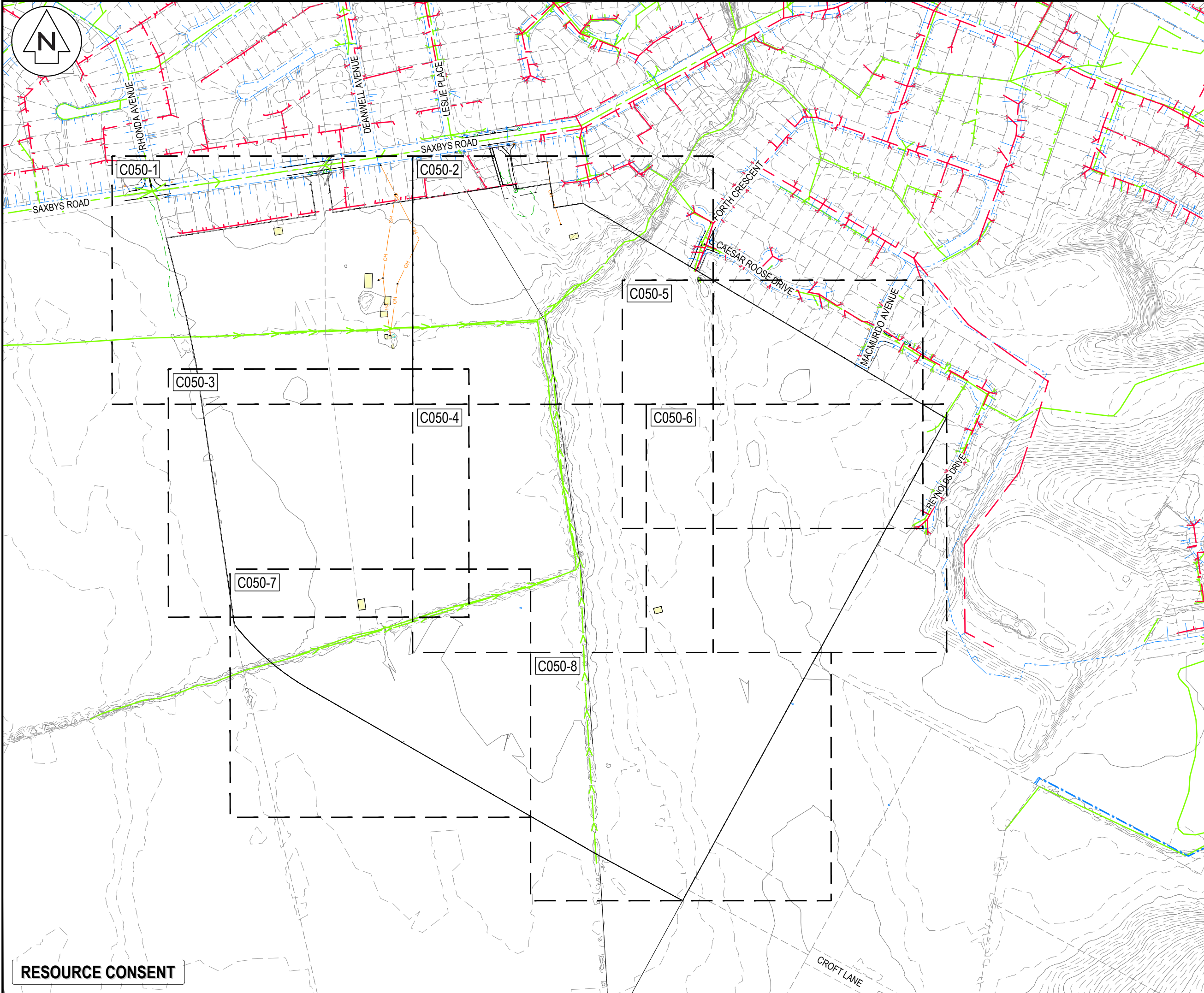
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Scale: 1:3,500 @ A3
Sheet: 1 of 1



SL1 Residential South & Industrial North Substantive Application

49A and 49B Saxbys Road, Saxbys Road, 18, 20 & 24 Wickham Street, 160 & 162 Higgins Road, Waikato

B&A
Urban & Environmental



NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
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5. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.
6. GROUND CONTOURS WERE CAPTURED USING A LIDAR SURVEY UNDERTAKEN IN MAY 2021.

LEGEND

---	EX BDY
---	EX EASEMENT
RT --- RT	EX TITLE BDY
---	EX MAJOR CONTOUR
---	EX MINOR CONTOUR
---	EX WASTEWATER
---	EX STORMWATER
W --- W	EX WATER MAIN
OH --- OH	EX OVERHEAD POWER
---	EX ROAD KERB TOP
---	EX TOP OF BANK
---	EX FENCE
---	EX BUILDING
FH	EX FIRE HYDRANT
WM	EX WATER METER
---	EX VALVE
---	EX SW / WW MANHOLE
---	EX CESSPIT
---	EX TELECOM PLINTH
---	EX TELECOM PILLAR BOX
---	EX POWER TRANSFORMER
---	EX POWER POLE
---	EX POWER PILLAR BOX
---	EX STREET LIGHT
---	EX STREET SIGN
---	EX TREE
---	EX SLUICE VALVE

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025

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New Zealand

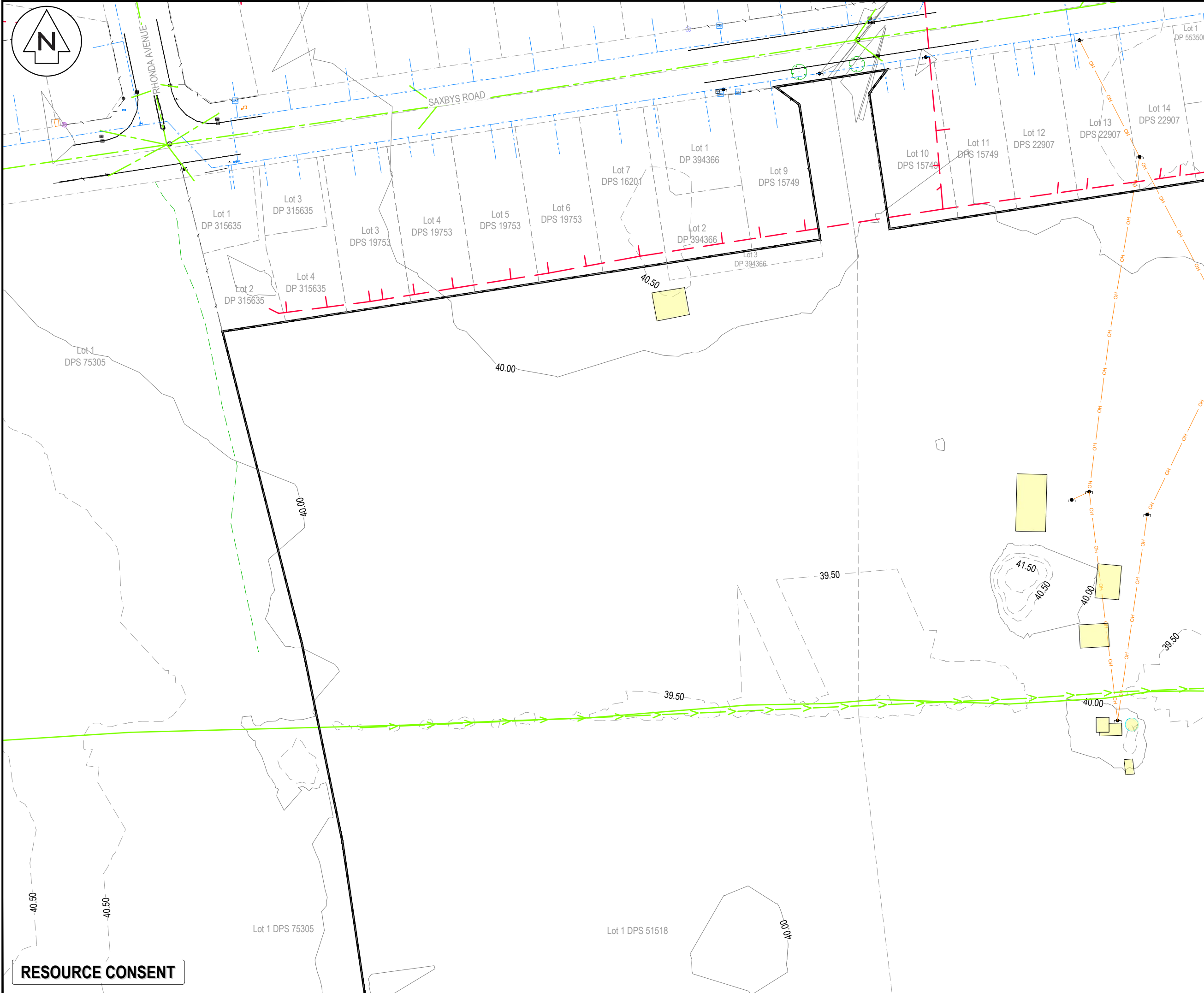
Project

**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**EXISTING
TOPOGRAPHICAL
OVERVIEW PLAN**

Project no.	298001-R1 SL1		
Scale	1:4000 @ A3		
Cad file	298001-R1-C050 TOPO.DWG		
Drawing no.	R1- C050	Rev	A



NOTES

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LEGEND

EX BDY	EX EASEMENT
EX TITLE BDY	EX MAJOR CONTOUR
EX MINOR CONTOUR	EX WASTEWATER
EX STORMWATER	EX WATER MAIN
EX OVERHEAD POWER	EX ROAD KERB TOP
EX TOP OF BANK	EX FENCE
EX BUILDING	EX FIRE HYDRANT
EX WATER METER	EX VALVE
EX SW / WW MANHOLE	EX CESSPIT
EX TELECOM PLINTH	EX TELECOM PILLAR BOX
EX POWER TRANSFORMER	EX POWER POLE
EX POWER PILLAR BOX	EX STREET LIGHT
EX STREET SIGN	EX TREE
EX SLUICE VALVE	

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
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New Zealand

Project

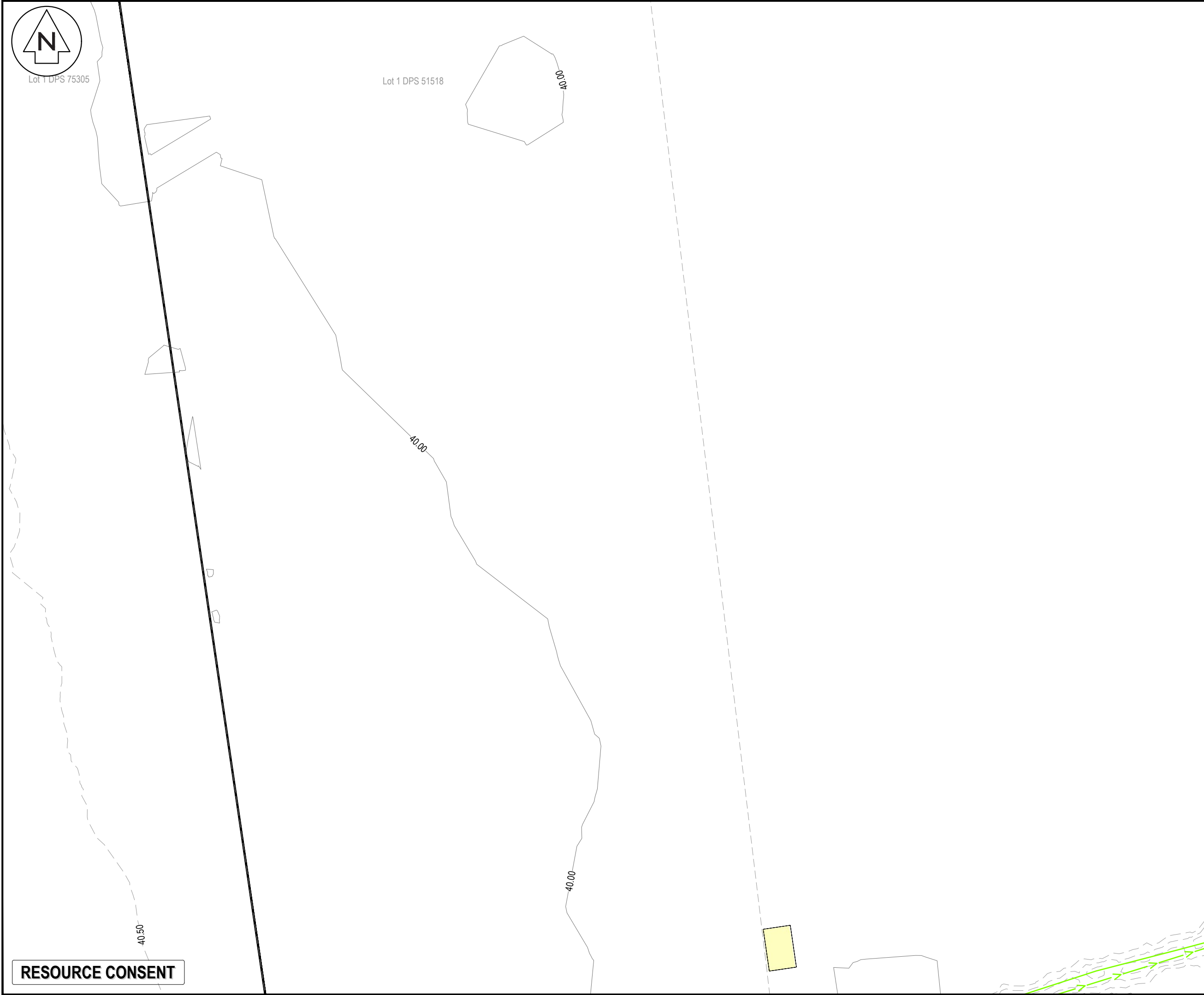
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**EXISTING
TOPO
PLAN**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C050 TOPO.DWG		
Drawing no.	R1- C050-1	Rev	A

RESOURCE CONSENT



NOTES

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LEGEND

EX BDY

EX EASEMENT

EX TITLE BDY

EX MAJOR CONTOUR

EX MINOR CONTOUR

EX WASTEWATER

EX STORMWATER

EX WATER MAIN

EX OVERHEAD POWER

EX ROAD KERB TOP

EX TOP OF BANK

EX FENCE

EX BUILDING

EX FIRE HYDRANT

EX WATER METER

EX VALVE

EX SW / WW MANHOLE

EX CESSPIT

EX TELECOM PLINTH

EX TELECOM PILLAR BOX

EX POWER TRANSFORMER

EX POWER POLE

EX POWER PILLAR BOX

EX STREET LIGHT

EX STREET SIGN

EX TREE

EX SLUICE VALVE

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
	By	Date	
Survey	MAVEN	06/2025	
Design	MKS	07/2025	
Drawn	MKS	07/2025	
Checked	DJM	07/2025	

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Project

SOUTHERN LINKS 1

RESIDENTIAL STAGE 1

HAMILTON, WAIKATO

FOR

SAXBY RD JV LIMITED

Title

EXISTING

TOPO

PLAN

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C050 TOPO.DWG		
Drawing no.	R1- C050-3	Rev	A

DATE: 6/9/25 FILEPATH: F:\MAVEN\HAMILTON6 PROJECTS\298001 - SOUTHERN LINKS 1\STG R1\DWG\298001-R1-C050 TOPO.DWG



NOTES

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LEGEND

	EX BDY
	EX EASEMENT
	EX TITLE BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	EX WASTEWATER
	EX STORMWATER
	EX WATER MAIN
	EX OVERHEAD POWER
	EX ROAD KERB TOP
	EX TOP OF BANK
	EX FENCE
	EX BUILDING
	EX FIRE HYDRANT
	EX WATER METER
	EX VALVE
	EX SW / WW MANHOLE
	EX CESSPIT
	EX TELECOM PLINTH
	EX TELECOM PILLAR BOX
	EX POWER TRANSFORMER
	EX POWER POLE
	EX POWER PILLAR BOX
	EX STREET LIGHT
	EX STREET SIGN
	EX TREE
	EX SLUICE VALVE

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN	06/2025	
Design	MKS	07/2025	
Drawn	MKS	07/2025	
Checked	DJM	07/2025	

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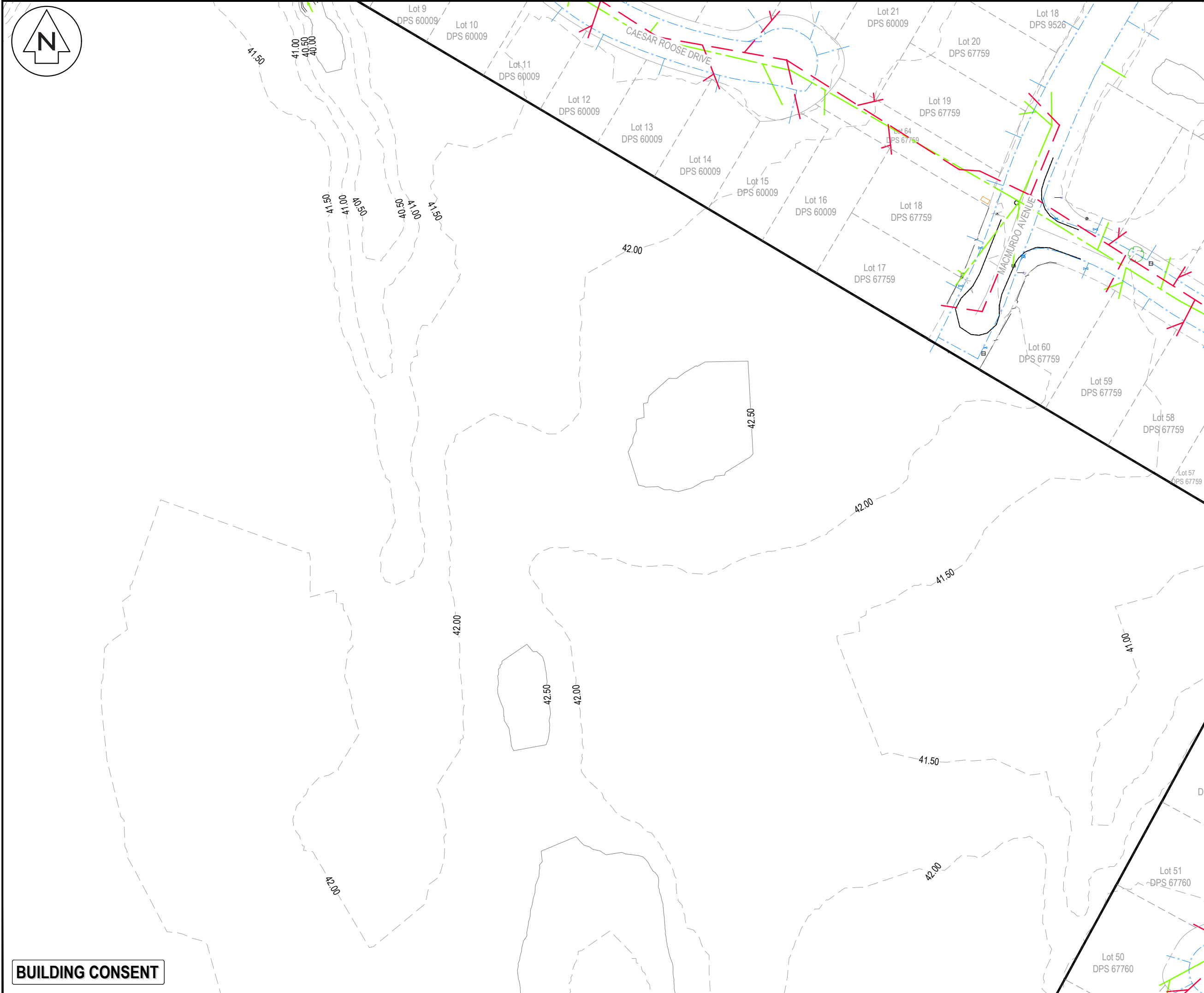
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**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**EXISTING
TOPO
PLAN**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C050 TOPO.DWG		
Drawing no.	R1- C050-4	Rev	A



NOTES

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LEGEND

	EX BDY
	EX EASEMENT
	EX TITLE BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	EX WASTEWATER
	EX STORMWATER
	EX WATER MAIN
	EX OVERHEAD POWER
	EX ROAD KERB TOP
	EX TOP OF BANK
	EX FENCE
	EX BUILDING
	EX FIRE HYDRANT
	EX WATER METER
	EX VALVE
	EX SW / WW MANHOLE
	EX CESSPIT
	EX TELECOM PLINTH
	EX TELECOM PILLAR BOX
	EX POWER TRANSFORMER
	EX POWER POLE
	EX POWER PILLAR BOX
	EX STREET LIGHT
	EX STREET SIGN
	EX TREE
	EX SLUICE VALVE

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025

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Project

**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**EXISTING
TOPO
PLAN**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C050 TOPO.DWG		
Drawing no.	R1- C050-5	Rev	A

BUILDING CONSENT



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
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LEGEND

	EX BDY
	EX EASEMENT
	EX TITLE BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	EX WASTEWATER
	EX STORMWATER
	EX WATER MAIN
	EX OVERHEAD POWER
	EX ROAD KERB TOP
	EX TOP OF BANK
	EX FENCE
	EX BUILDING
	EX FIRE HYDRANT
	EX WATER METER
	EX VALVE
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	EX TELECOM PLINTH
	EX TELECOM PILLAR BOX
	EX POWER TRANSFORMER
	EX POWER POLE
	EX POWER PILLAR BOX
	EX STREET LIGHT
	EX STREET SIGN
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A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
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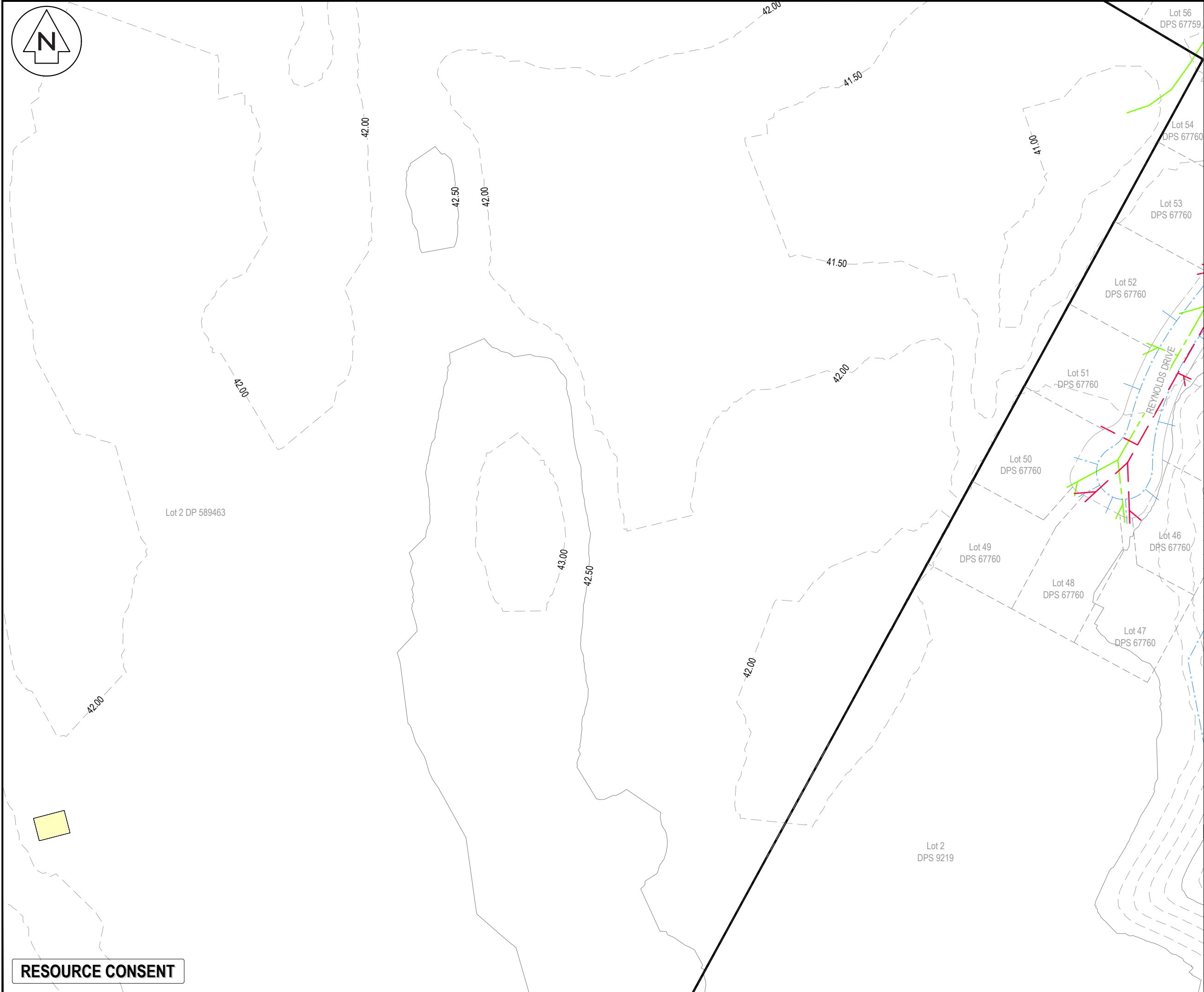
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**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

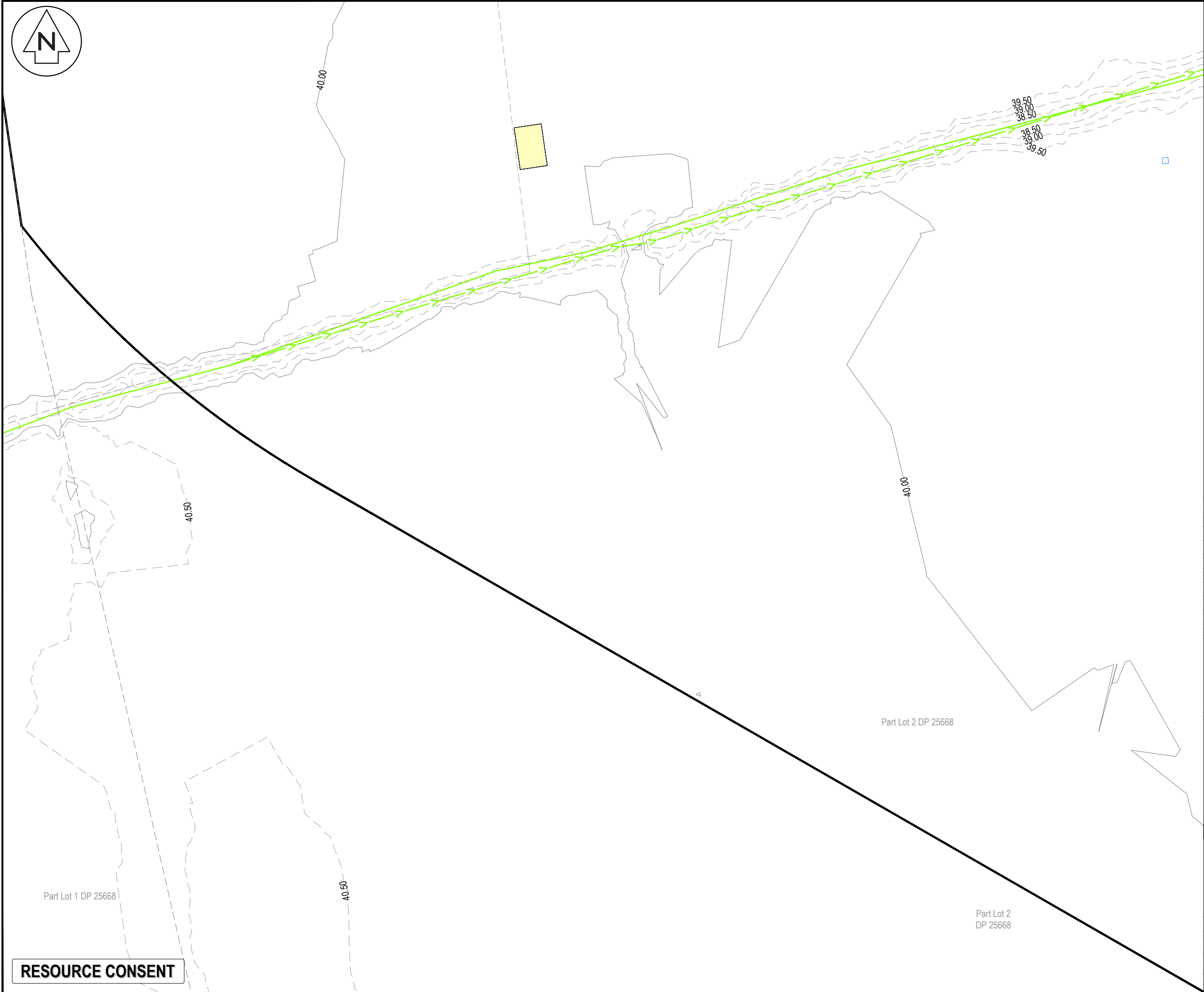
Title

**EXISTING
TOPO
PLAN**

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Scale	1:1000 @ A3		
Cad file	298001-R1-C050 TOPO.DWG		
Drawing no.	R1- C050-6	Rev	A



RESOURCE CONSENT



NOTES

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LEGEND

EX BDY

EX EASEMENT

EX TITLE BDY

EX MAJOR CONTOUR

EX MINOR CONTOUR

EX WASTEWATER

EX STORMWATER

EX WATER MAIN

EX OVERHEAD POWER

EX ROAD KERB TOP

EX TOP OF BANK

EX FENCE

EX BUILDING

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EX TELECOM PILLAR BOX

EX POWER TRANSFORMER

EX POWER POLE

EX POWER PILLAR BOX

EX STREET LIGHT

EX STREET SIGN

EX TREE

EX SLUICE VALVE

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
	By	Date	
Survey	MAVEN	06/2025	
Design	MKS	07/2025	
Drawn	MKS	07/2025	
Checked	DJM	07/2025	

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Project

SOUTHERN LINKS 1

RESIDENTIAL STAGE 1

HAMILTON, WAIKATO

FOR

SAXBY RD JV LIMITED

Title

EXISTING

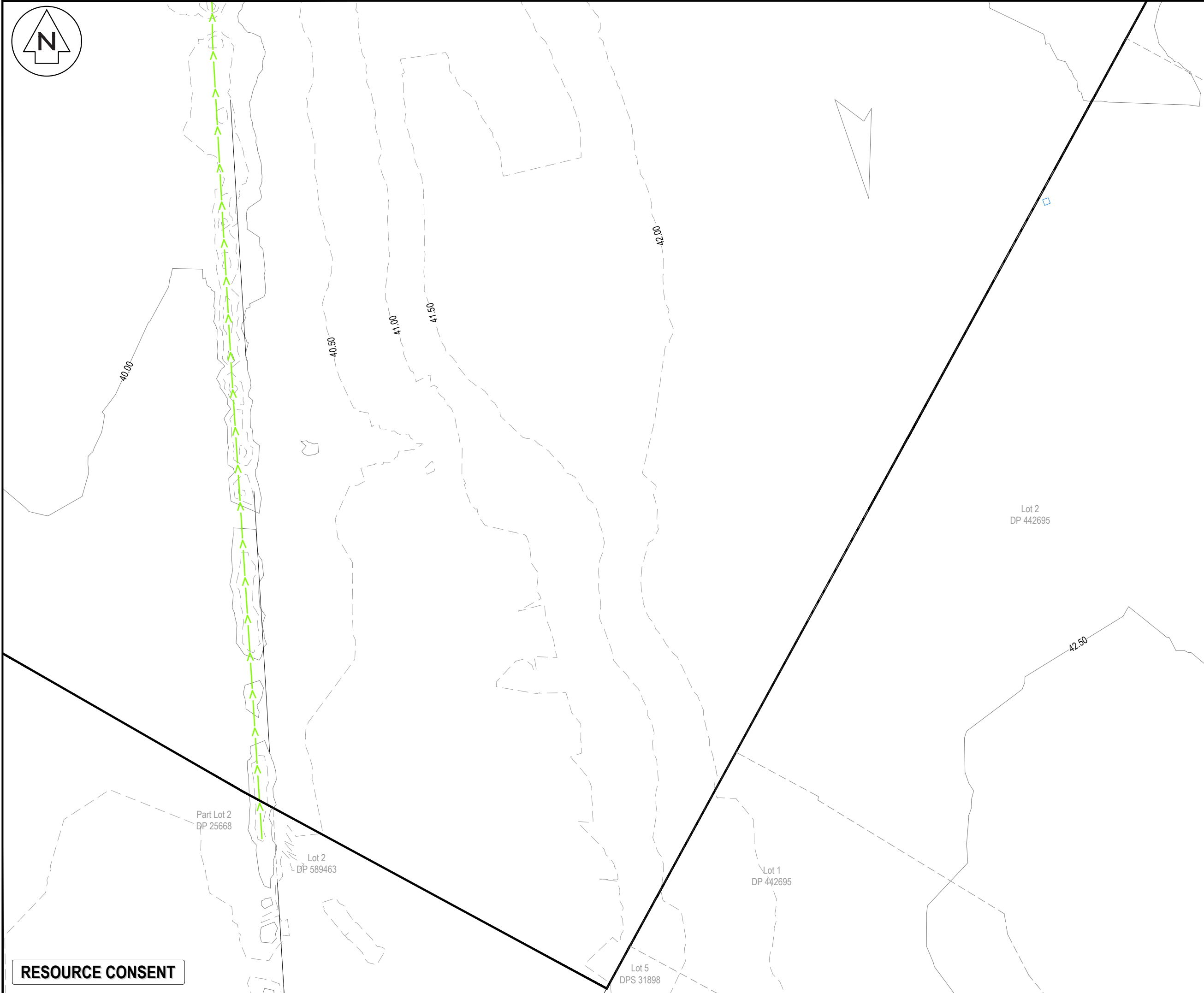
TOPO

PLAN

Project no.	298001-R1 SL1		
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Cad file	298001-R1-C050 TOPO.DWG		
Drawing no.	R1- C050-7	Rev	A

RESOURCE CONSENT

DATE: 6/2/25 FILEPATH: F:\MAVEN\HAMILTON6 PROJECTS\298001 - SOUTHERN LINKS 1\STG R1\DWG\298001-R1-C050 TOPO.DWG



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LEGEND

EX BDY

EX EASEMENT

EX TITLE BDY

EX MAJOR CONTOUR

EX MINOR CONTOUR

EX WASTEWATER

EX STORMWATER

EX WATER MAIN

EX OVERHEAD POWER

EX ROAD KERB TOP

EX TOP OF BANK

EX FENCE

EX BUILDING

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EX POWER POLE

EX POWER PILLAR BOX

EX STREET LIGHT

EX STREET SIGN

EX TREE

EX SLUICE VALVE

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025

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New Zealand

Project

SOUTHERN LINKS 1

RESIDENTIAL STAGE 1

HAMILTON, WAIKATO

FOR

SAXBY RD JV LIMITED

Title

EXISTING

TOPO

PLAN

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C050 TOPO.DWG		
Drawing no.	R1- C050-8	Rev	A

DATE: 6/9/25 FILEPATH: F:\MVEN\HAMILTON6 PROJECTS\298001 - SOUTHERN LINKS 1\STG R1\DWG\298001-R1-C050 TOPO.DWG



RHONDA AVENUE

DEANWELL AVENUE

LESLIE PLACE

SAXBYS ROAD

FORTH CRESCENT

CAESAR ROOSE DRIVE

MACMURDO AVENUE

REYNOLDS DRIVE

CROFT LANE

C130-1

C130-2

C130-5

C130-3

C130-4

C130-6

C130-7

C130-8

STAGE 2B

STAGE 2A

STAGE 1A

STAGE 2D

STAGE 2C

STAGE 1C

STAGE 3A

STAGE 3B

STAGE 1B

STAGE 3C

STAGE 1D

STAGE 1E

STAGE 4A

STAGE 5A

STAGE 5B

NOTES

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LEGEND

	EX BDY
	PR BDY
	STAGE BDY
	STAGE 1A
	STAGE 1B
	STAGE 1C
	STAGE 1D
	STAGE 1E
	STAGE 2A
	STAGE 2B
	STAGE 2C
	STAGE 2D
	STAGE 3A
	STAGE 3B
	STAGE 3C
	STAGE 4A
	STAGE 5A
	STAGE 5B

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025

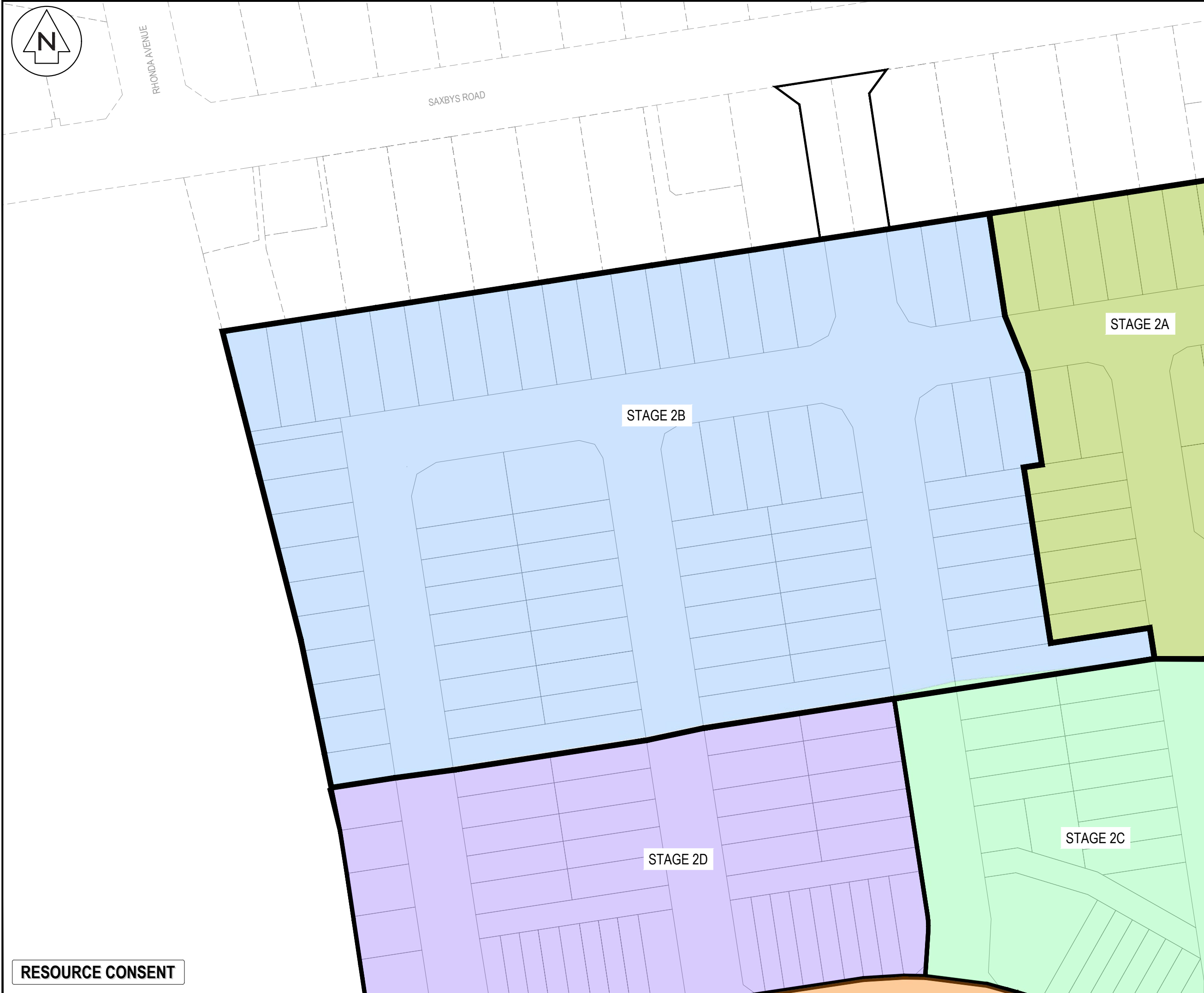


Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
STAGING PLAN
OVERVIEW PLAN**

Project no.	298001-R1 SL1		
Scale	1:4000 @ A3		
Cad file	298001-R1-C130 STAGING PLAN.DWG		
Drawing no.	R1- C130	Rev	A

RESOURCE CONSENT



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LEGEND

	EX BDY
	PR BDY
	STAGE BDY

	STAGE 1A
	STAGE 1B
	STAGE 1C
	STAGE 1D
	STAGE 1E
	STAGE 2A
	STAGE 2B
	STAGE 2C
	STAGE 2D
	STAGE 3A
	STAGE 3B
	STAGE 3C
	STAGE 4A
	STAGE 5A
	STAGE 5B

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025

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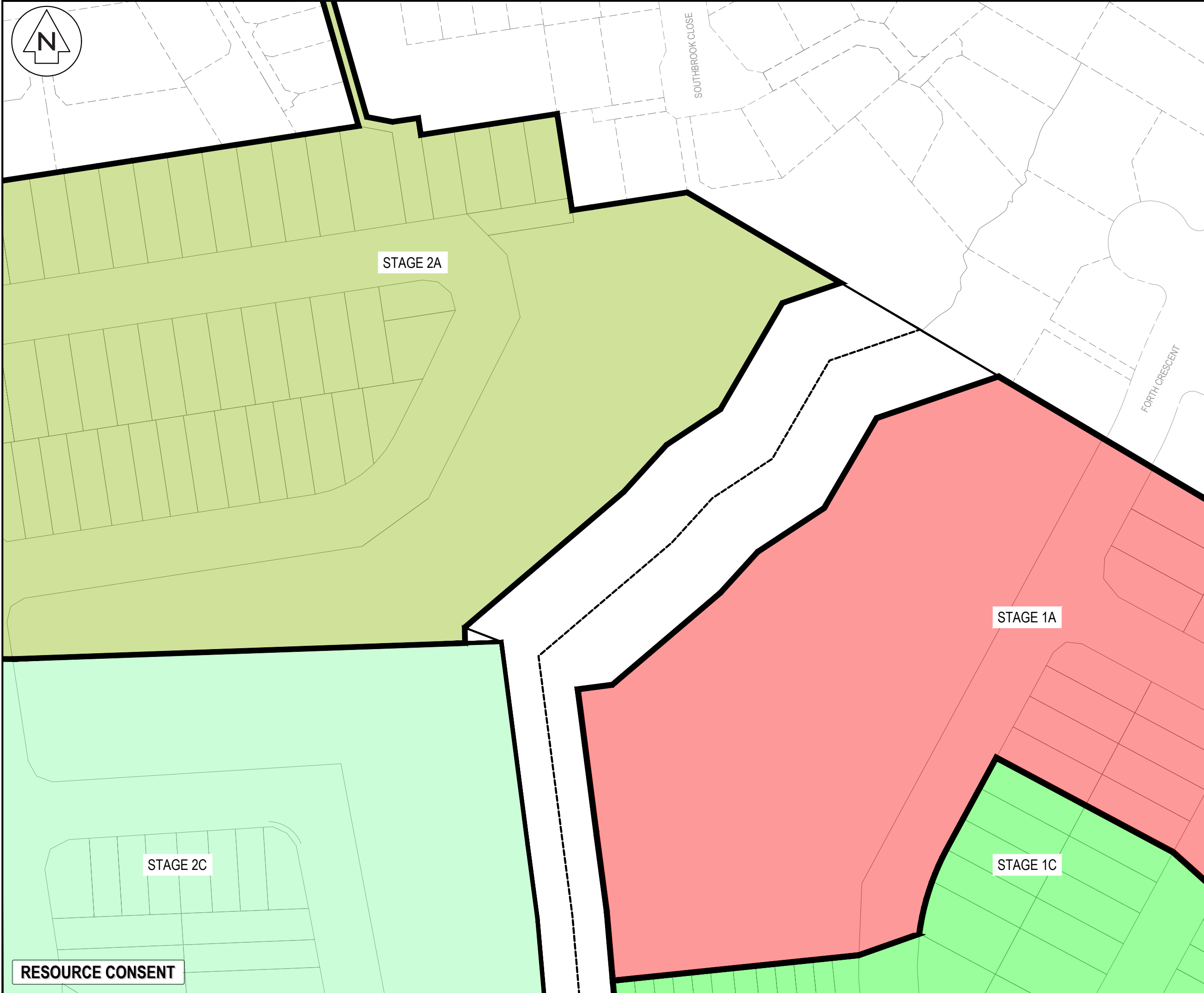
Project

**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**PROPOSED
STAGING PLAN
PLAN**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C130 STAGING PLAN.DWG		
Drawing no.	R1- C130-1	Rev	A



NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000.
3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016.
4. ORIGIN OF LEVELS = PIN 1 SO 537357 PUBLISHED RL=39.788, SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
5. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.

LEGEND

---	EX BDY
---	PR BDY
---	STAGE BDY

█	STAGE 1A
█	STAGE 1B
█	STAGE 1C
█	STAGE 1D
█	STAGE 1E
█	STAGE 2A
█	STAGE 2B
█	STAGE 2C
█	STAGE 2D
█	STAGE 3A
█	STAGE 3B
█	STAGE 3C
█	STAGE 4A
█	STAGE 5A
█	STAGE 5B

A	FAST TRACK APP	MKS	06/2025
Rev	Description	By	Date
Survey	MAVEN	06/2025	
Design	MKS	07/2025	
Drawn	MKS	07/2025	
Checked	DJM	07/2025	

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Project

**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**PROPOSED
STAGING PLAN
PLAN**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C130 STAGING PLAN.DWG		
Drawing no.	R1- C130-2	Rev	A



STAGE 2D

STAGE 2C

STAGE 3A

STAGE 3B

STAGE 3C

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
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LEGEND

EX BDY
PR BDY
STAGE BDY

- STAGE 1A
STAGE 1B
STAGE 1C
STAGE 1D
STAGE 1E
STAGE 2A
STAGE 2B
STAGE 2C
STAGE 2D
STAGE 3A
STAGE 3B
STAGE 3C
STAGE 4A
STAGE 5A
STAGE 5B

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025

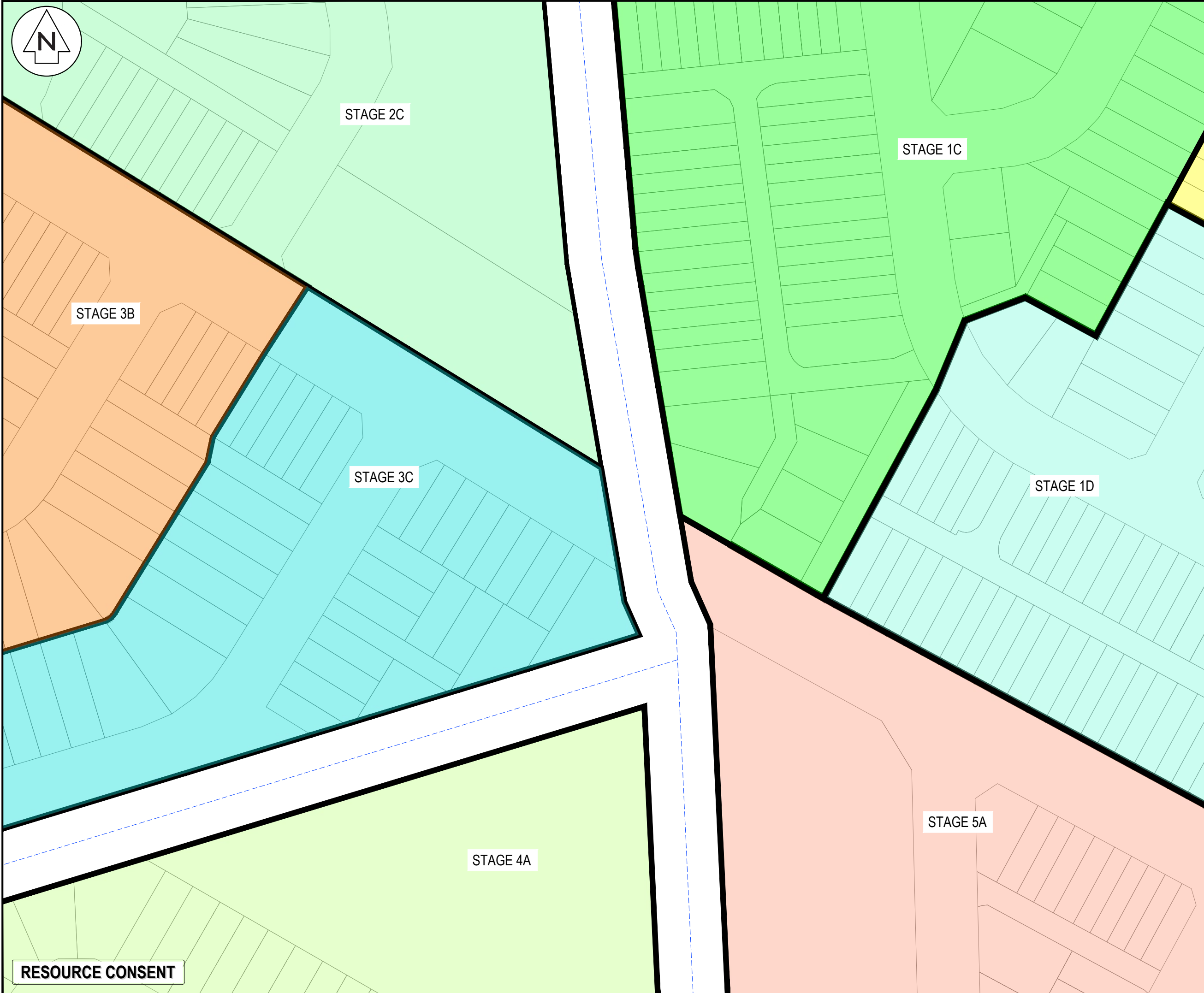
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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
STAGING PLAN
PLAN**

Project no.	298001-R1 SL1
Scale	1:1000 @ A3
Cad file	298001-R1-C130 STAGING PLAN.DWG
Drawing no.	R1- C130-3
Rev	A

RESOURCE CONSENT



NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
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3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016.
4. ORIGIN OF LEVELS = PIN 1 SO 537357 PUBLISHED RL=39.788, SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
5. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.

LEGEND

EX BDY

PR BDY

STAGE BDY

STAGE 1A

STAGE 1B

STAGE 1C

STAGE 1D

STAGE 1E

STAGE 2A

STAGE 2B

STAGE 2C

STAGE 2D

STAGE 3A

STAGE 3B

STAGE 3C

STAGE 4A

STAGE 5A

STAGE 5B

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025

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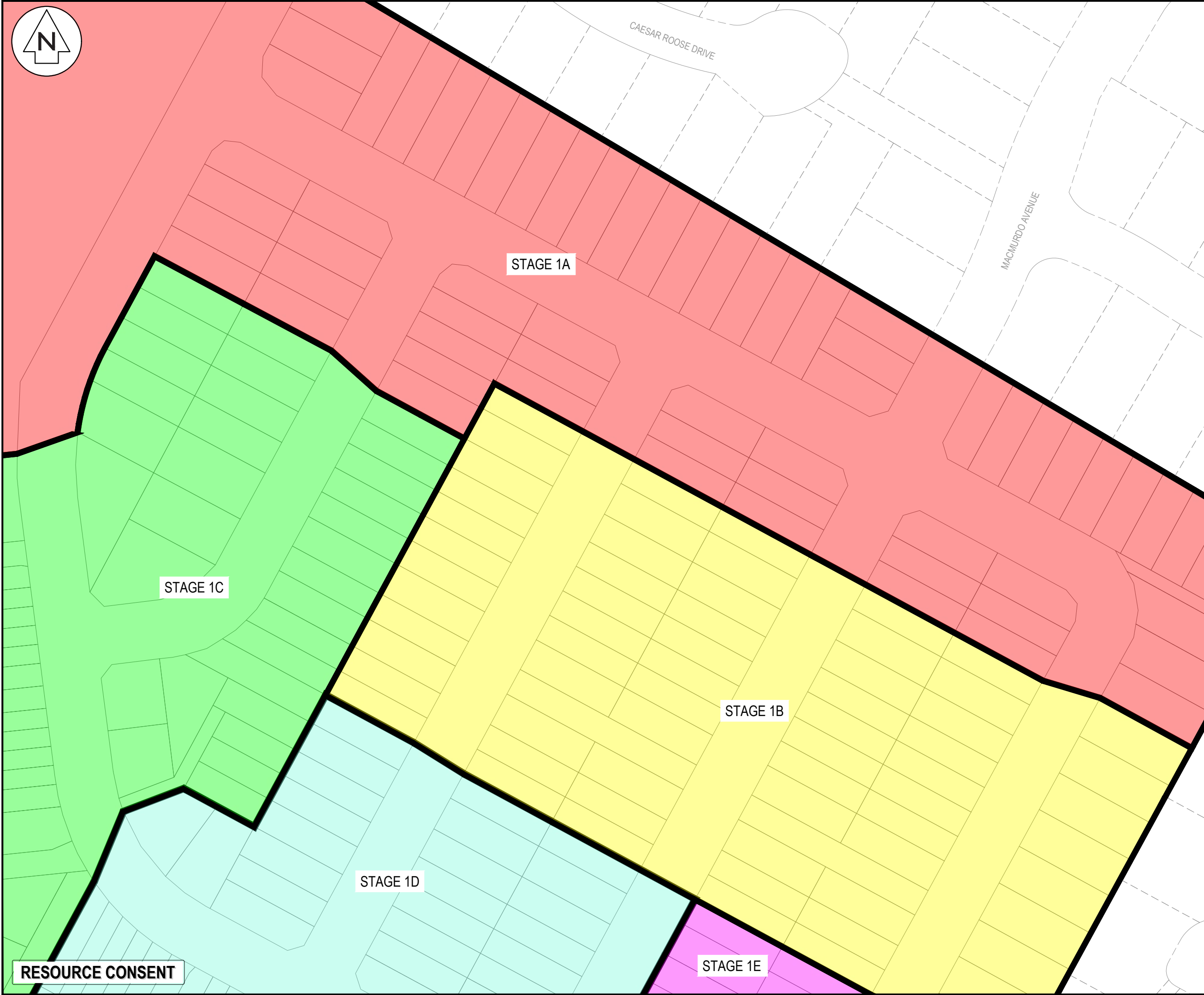
Project

**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**PROPOSED
STAGING PLAN
PLAN**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C130 STAGING PLAN.DWG		
Drawing no.	R1- C130-4	Rev	A



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000.
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LEGEND

	EX BDY
	PR BDY
	STAGE BDY

	STAGE 1A
	STAGE 1B
	STAGE 1C
	STAGE 1D
	STAGE 1E
	STAGE 2A
	STAGE 2B
	STAGE 2C
	STAGE 2D
	STAGE 3A
	STAGE 3B
	STAGE 3C
	STAGE 4A
	STAGE 5A
	STAGE 5B

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025



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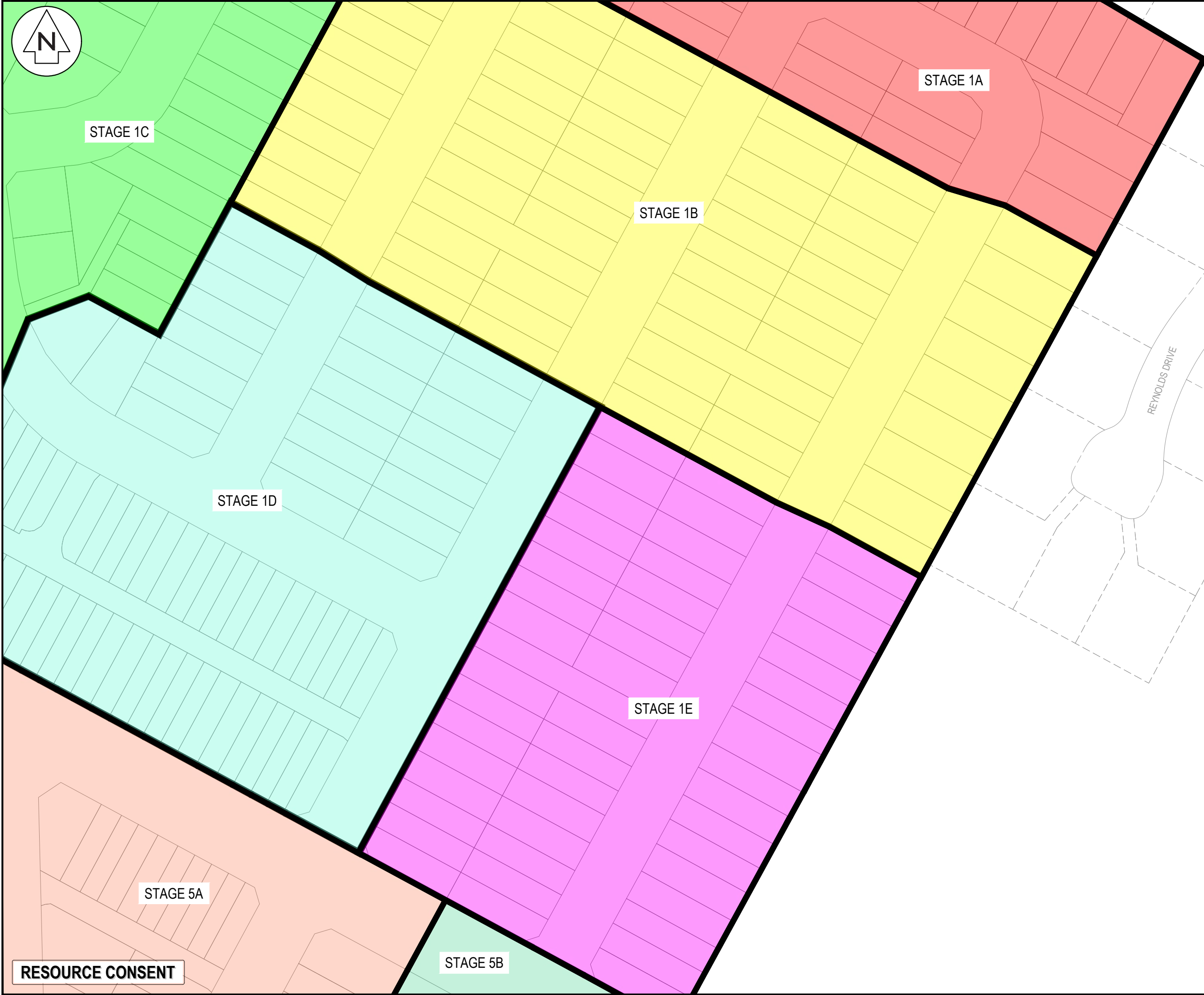
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**PROPOSED
STAGING PLAN
PLAN**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C130 STAGING PLAN.DWG		
Drawing no.	R1- C130-5	Rev	A

DATE: 6/2/25 FILEPATH: F:\MAVEN\HAMILTON6 PROJECTS\298001 - SOUTHERN LINKS 1\STAGING PLAN\DWG\298001-R1-C130 STAGING PLAN.DWG



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
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LEGEND

EX BDY

PR BDY

STAGE BDY

STAGE 1A

STAGE 1B

STAGE 1C

STAGE 1D

STAGE 1E

STAGE 2A

STAGE 2B

STAGE 2C

STAGE 2D

STAGE 3A

STAGE 3B

STAGE 3C

STAGE 4A

STAGE 5A

STAGE 5B

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025

M

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Project

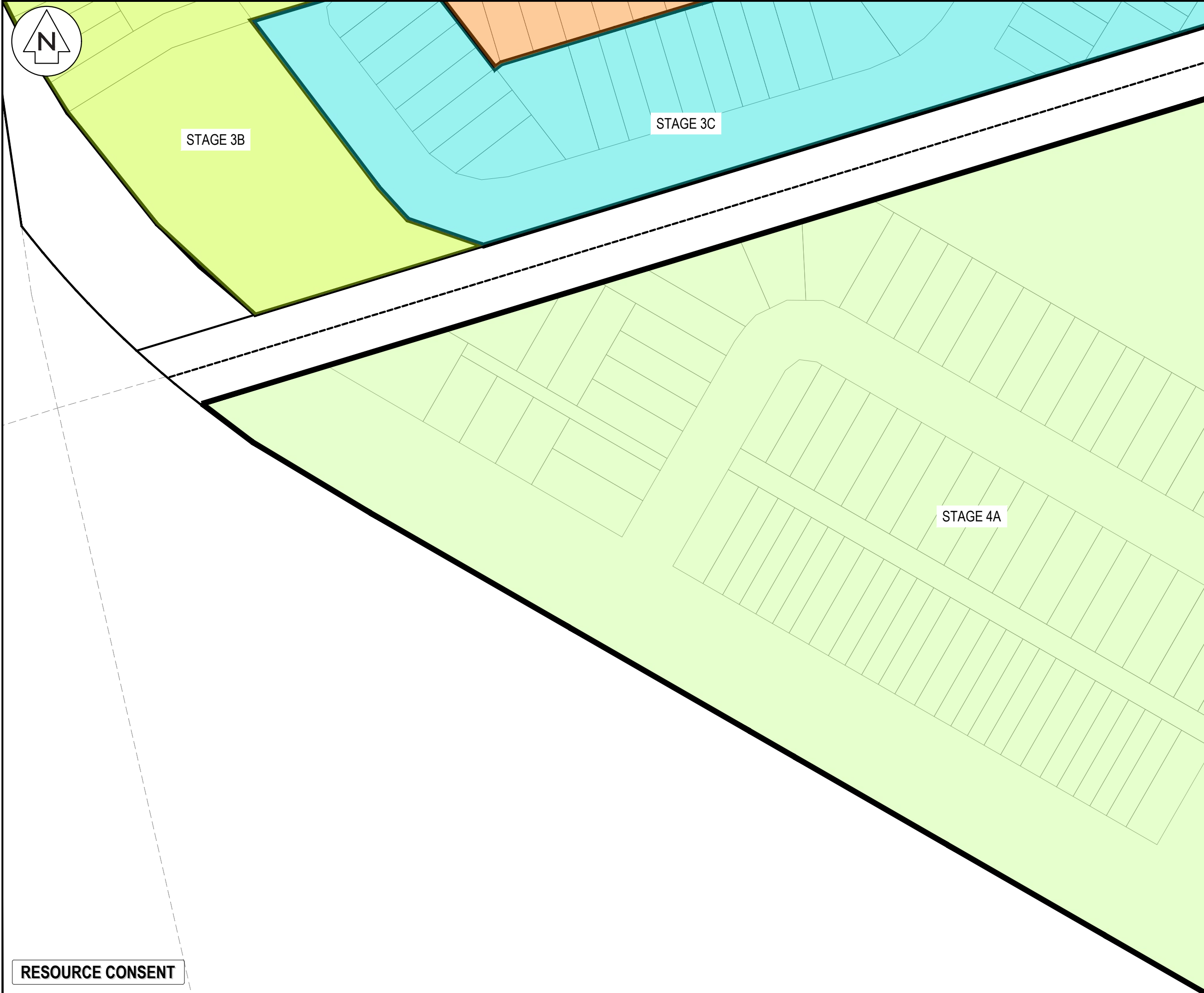
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**PROPOSED
STAGING PLAN
PLAN**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C130 STAGING PLAN.DWG		
Drawing no.	R1- C130-6	Rev	A

RESOURCE CONSENT



NOTES

1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
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4. ORIGIN OF LEVELS = PIN 1 SO 537357 PUBLISHED RL=39.788, SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
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LEGEND

EX BDY

PR BDY

STAGE BDY

STAGE 1A

STAGE 1B

STAGE 1C

STAGE 1D

STAGE 1E

STAGE 2A

STAGE 2B

STAGE 2C

STAGE 2D

STAGE 3A

STAGE 3B

STAGE 3C

STAGE 4A

STAGE 5A

STAGE 5B

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025

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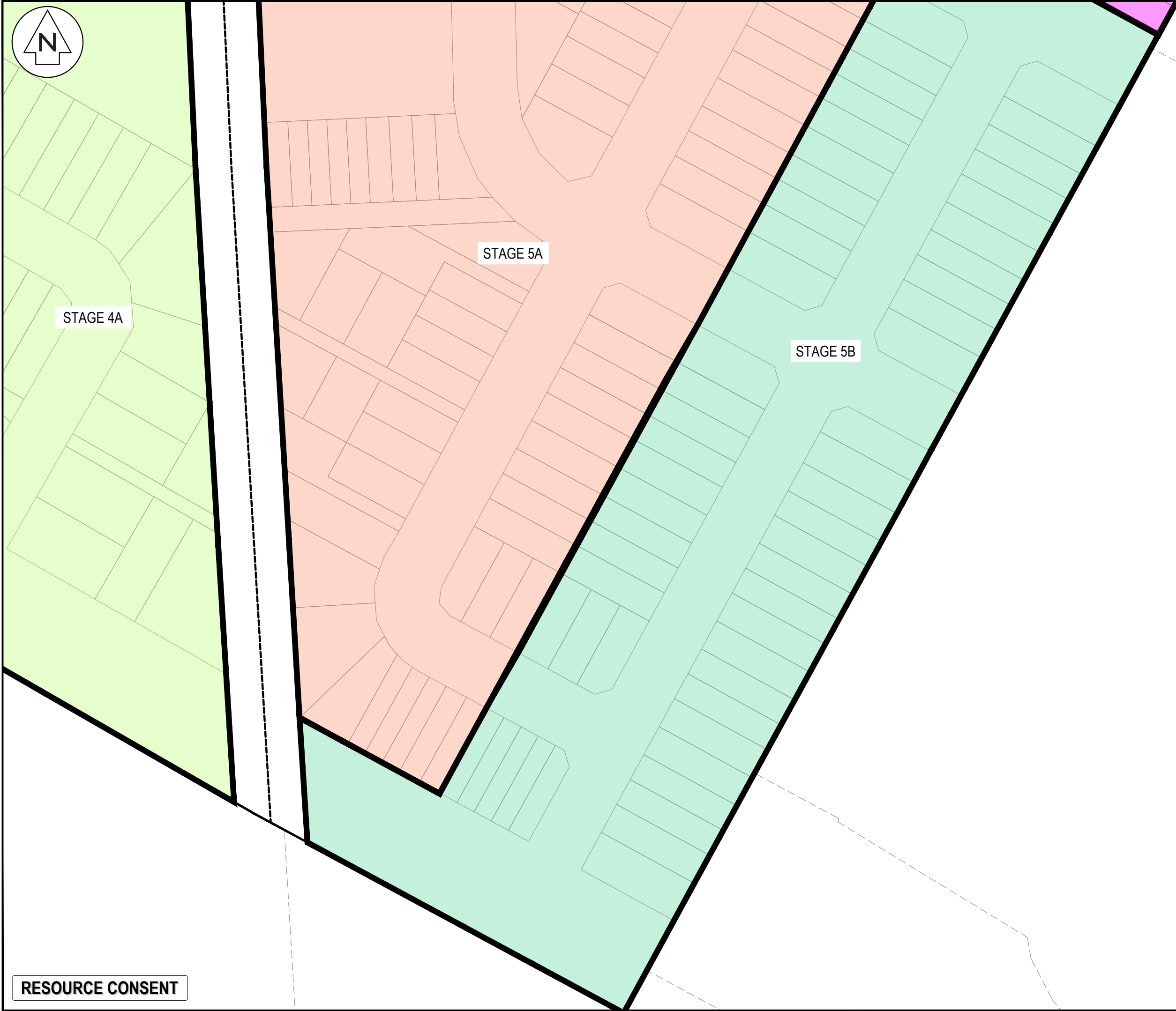
Project

**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**PROPOSED
STAGING PLAN
PLAN**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C130 STAGING PLAN.DWG		
Drawing no.	R1- C130-7	Rev	A



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000.
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 5. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.

LEGEND	
	EX BDY
	PR BDY
	STAGE BDY
	STAGE 1A
	STAGE 1B
	STAGE 1C
	STAGE 1D
	STAGE 1E
	STAGE 2A
	STAGE 2B
	STAGE 2C
	STAGE 2D
	STAGE 3A
	STAGE 3B
	STAGE 3C
	STAGE 4A
	STAGE 5A
	STAGE 5B

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025



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Project

**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**PROPOSED
STAGING PLAN
PLAN**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C130 STAGING PLAN.DWG		
Drawing no.	R1- C130-8	Rev	A

RESOURCE CONSENT



RHONDA AVENUE

DEANWELL AVENUE

LESLIE PLACE

SAXBYS ROAD

FORTH CRESCENT

CAESAR

SE DRIVE

MACMURDO AVENUE

REYNOLDS DRIVE

CROFT LANE

C150-2B

C150-2A

C150-1A

C150-1A(2)

C150-2D

C150-2C

C150-1C

C150-1B

C150-3A

C150-3B

C150-3C

C150-1D

C150-1E

C150-4A

C150-5A & 5B

STAGE 2B

STAGE 2A

STAGE 1A

STAGE 2D

STAGE 2C

STAGE 1C

STAGE 3A

STAGE 3B

STAGE 1D

STAGE 1B

STAGE 1E

STAGE 3C

STAGE 4A

STAGE 5A

STAGE 5B

RT

RT

RT

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RESOURCE CONSENT

- NOTES
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A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025



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**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**PROPOSED
SCHEME
OVERVIEW PLAN**

Project no.	298001-R1 SL1		
Scale	1:4000 @ A3		
Cad file	298001-R1-C150 SCHEME.DWG		
Drawing no.	R1- C150	Rev	A



- LEGEND
- EX BDY
- PR BDY
- SITE BDY

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Title

**PROPOSED
SCHEME PLAN
STAGE 1A**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C150 SCHEME.DWG		
Drawing no.	R1- C150-1A-1	Rev	A



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
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 5. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.

LEGEND

	EX BDY
	PR BDY
	SITE BDY

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025



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Project

**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**PROPOSED
SCHEME PLAN
STAGE 1A(2)**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C150 SCHEME.DWG		
Drawing no.	R1- C150-1A-2	Rev	A



LOCAL PURPOSE
RESERVE TO BE
VESTED TO HCC
(ACCESS)

STAGE 1C

ROAD 2

ROAD 5

ROAD 4

REYNOLDS DRIVE

LEGEND

— — — — — EX BDY

————— PR BDY

————— SITE BDY

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Title

**PROPOSED
SCHEME PLAN
STAGE 1B**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C150 SCHEME.DWG		
Drawing no.	R1- C150-1B	Rev	A



STAGE 2C

STAGE 3C

STAGE 1A

STAGE 1C

STAGE 1B

STAGE 1D

STAGE 5A

RESOURCE CONSENT

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000.
 3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016.
 4. ORIGIN OF LEVELS = PIN 1 SO 537357 PUBLISHED RL=39.788, SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
 5. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.

LEGEND

--- EX BDY
--- PR BDY
--- SITE BDY

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025

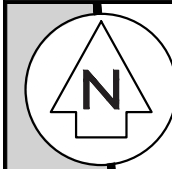


Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
SCHEME PLAN
STAGE 1C**

Project no.	298001-R1 SL1
Scale	1:1000 @ A3
Cad file	298001-R1-C150 SCHEME.DWG
Drawing no.	R1- C150-1C
Rev	A

DATE: 6/9/25 FILEPATH: F:\MVEN\HAMILTON6 PROJECTS\298001 - SOUTHERN LINKS 1\STG1\RD\02\298001-R1-C150 SCHEME.DWG



STAGE 1A

STAGE 1B

STAGE 2C

STAGE 3C

LOT 4007
19508m²
LOCAL PURPOSE
RESERVE TO BE VESTED
TO HCC (STORMWATER)

STAGE 4A

STAGE 5A

RESOURCE CONSENT

STAGE 1D

STAGE 1E

STAGE 5B

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
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 5. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.

LEGEND

--- EX BDY
--- PR BDY
--- SITE BDY

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025



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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
SCHEME PLAN
STAGE 1D**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C150 SCHEME.DWG		
Drawing no.	R1- C150-1D	Rev	A



STAGE 1D

STAGE 1B

STAGE 5A

STAGE 5B

RESOURCE CONSENT

STAGE 1B

ROAD TO BE
VESTED TO HCC

ROAD 2

STAGE 1E

Lot 2
DPS 9219

Lot 52
DPS 67760

Lot 51
DPS 67760

Lot 50
DPS 67760

Lot 49
DPS 67760

Lot 48
DPS 67760

Lot 46
DPS 67760

Lot 47
DPS 67760

REYNOLDS DRIVE

NOTES

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LEGEND

- EX BDY
--- PR BDY
--- SITE BDY

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025



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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
SCHEME PLAN
STAGE 1E**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C150 SCHEME.DWG		
Drawing no.	R1- C150-1E	Rev	A



- NOTES
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LEGEND

--- EX BDY
--- PR BDY
--- SITE BDY

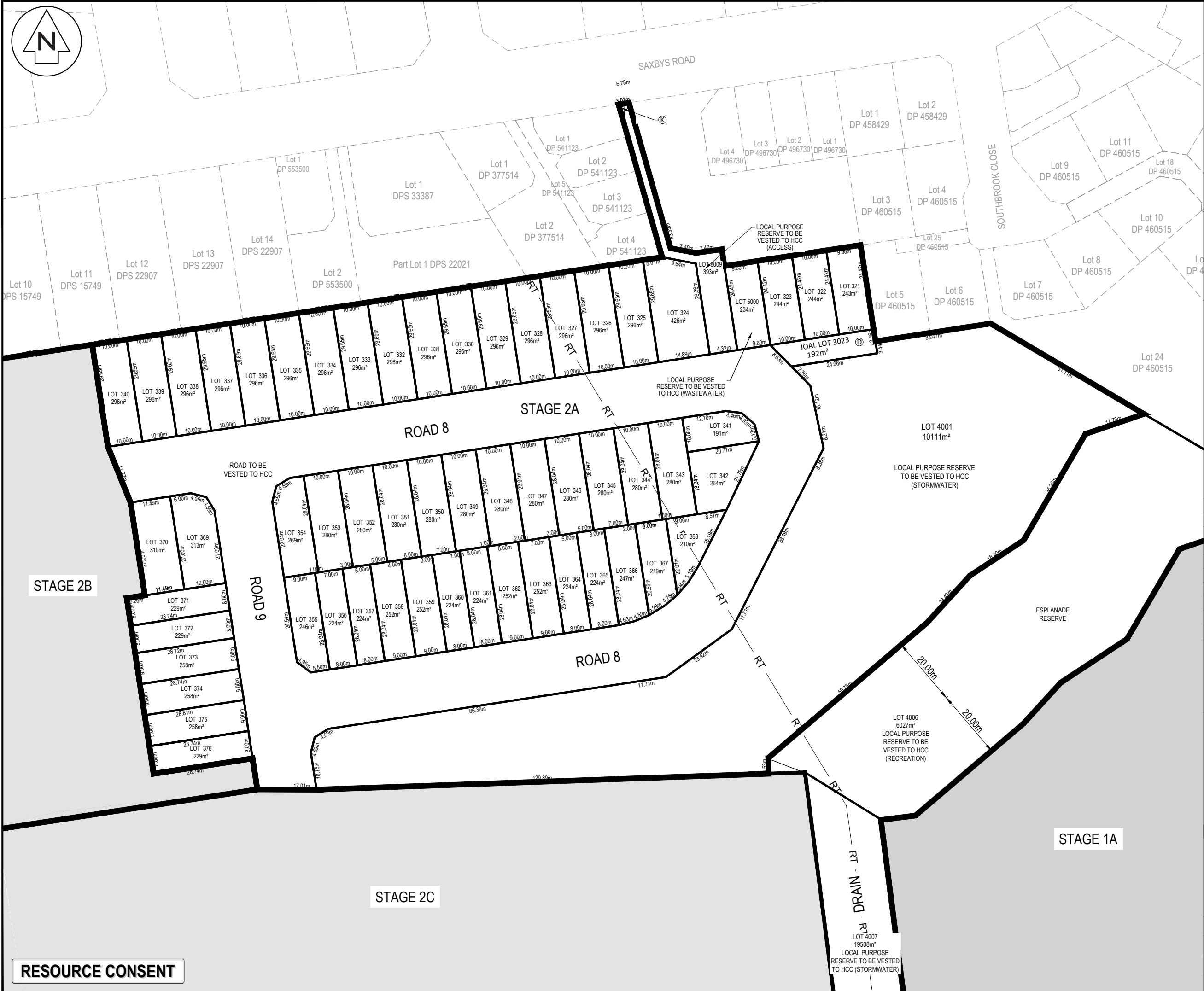
A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025



Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
SCHEME PLAN
STAGE 2A**

Project no.	298001-R1 SL1
Scale	1:1000 @ A3
Cad file	298001-R1-C150 SCHEME.DWG
Drawing no.	R1- C150-2A
Rev	A



STAGE 2B

STAGE 1A

STAGE 2C

RESOURCE CONSENT



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000.
 3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016.
 4. ORIGIN OF LEVELS = PIN 1 SO 537357 PUBLISHED RL=39.788, SOURCED FROM THE LINZ DIGITAL GEODETIC DATABASE.
 5. BOUNDARIES ARE SUBJECT TO FINAL SURVEY.

LEGEND

---	EX BDY
---	PR BDY
---	SITE BDY

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025

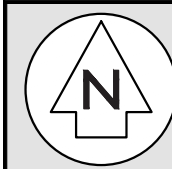
M **MAVEN** **Waikato**
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New Zealand

Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
SCHEME PLAN
STAGE 2B**

Project no.	298001-R1 SL1
Scale	1:1000 @ A3
Cad file	298001-R1-C150 SCHEME.DWG
Drawing no.	R1- C150-2B
Rev	A

RESOURCE CONSENT



STAGE 2B

STAGE 2A

STAGE 2C

STAGE 1A

STAGE 2D

ROAD 6

ROAD 9

ROAD 10

DRAIN

STAGE 3

RESOURCE CONSENT

- NOTES
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LEGEND

--- EX BDY
--- PR BDY
--- SITE BDY

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025

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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
SCHEME PLAN
STAGE 2C**

Project no.	298001-R1 SL1
Scale	1:1000 @ A3
Cad file	298001-R1-C150 SCHEME.DWG
Drawing no.	R1- C150-2C
Rev	A



RESOURCE CONSENT

Lot 1
DPS 75305

STAGE 2B

STAGE 2A

STAGE 2C

STAGE 2D

STAGE 3

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
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LEGEND

--- EX BDY
--- PR BDY
--- SITE BDY

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025



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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
SCHEME PLAN
STAGE 2D**

Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C150 SCHEME.DWG		
Drawing no.	R1- C150-2D	Rev	A



STAGE 2D

ROAD 11

ROAD 12

STAGE 3A

STAGE 3B

STAGE 2C

STAGE 3C

STAGE 4

LOT 4003
4764m²
LOCAL PURPOSE RESERVE
TO BE VESTED TO HCC
(STORMWATER)

LOT 4007
19508m²
LOCAL PURPOSE
RESERVE TO BE VESTED
TO HCC (STORMWATER)

LOCAL PURPOSE
RESERVE TO BE
VESTED TO HCC
(ACCESS)

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH HAMILTON CITY COUNCIL STANDARDS.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000.
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LEGEND

--- EX BDY
--- PR BDY
--- SITE BDY

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025



Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
SCHEME PLAN
STAGE 3A**

Project no.	298001-R1 SL1
Scale	1:1000 @ A3
Cad file	298001-R1-C150 SCHEME.DWG
Drawing no.	R1- C150-3A
Rev	A

RESOURCE CONSENT



STAGE 2D

STAGE 2C

STAGE 3B

STAGE 3A

STAGE 3C

STAGE 4

RESOURCE CONSENT

- NOTES
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LEGEND

--- EX BDY
--- PR BDY
--- SITE BDY

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025



Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
SCHEME PLAN
STAGE 3B**

Project no.	298001-R1 SL1
Scale	1:1000 @ A3
Cad file	298001-R1-C150 SCHEME.DWG
Drawing no.	R1- C150-3B
Rev	A

DATE: 6/2/25 FILEPATH: F:\MVEN\HAMILTON\6. PROJECTS\298001 - SOUTHERN LINKS 1\STG1\RD\298001-R1-C150 SCHEME.DWG



FUTURE
ARTERIAL ROAD

STAGE 4

LEGEND

— — — — — EX BDY
————— PR BDY
————— SITE BDY

M
M A N

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Project no.	298001-R1 SL1		
Scale	1:1000 @ A3		
Cad file	298001-R1-C150 SCHEME.DWG		
Drawing no.	R1- C150-3C	Rev	A



STAGE 3C

STAGE 4A

LOT 4007
19508m²

LOT 4007
19508m²
LOCAL PURPOSE
RESERVE TO BE VESTED
TO HCC (STORMWATER)

LOT 4004
9459m²

LOT 4004
9459m²
LOCAL PURPOSE RESERVE
TO BE VESTED TO HCC
(STORMWATER)

LOCAL PURPOSE
RESERVE TO BE
VESTED TO HCC
(ACCESS)

ROAD TO BE
VESTED TO HCC

ROAD 15

ROAD TO BE
VESTED TO HCC

FUTURE
ARTERIAL ROAD

Part Lot 2
DP 25668

LOT 4007
19508m²
LOCAL PURPOSE
RESERVE TO BE
VESTED TO HCC
(STORMWATER)

- NOTES
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LEGEND

--- EX BDY
--- PR BDY
--- SITE BDY

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025



Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
SCHEME PLAN
STAGE 4A**

Project no.	298001-R1 SL1
Scale	1:1000 @ A3
Cad file	298001-R1-C150 SCHEME.DWG
Drawing no.	R1- C150-4A
Rev	A

RESOURCE CONSENT



DRAIN

STAGE 4

FUTURE
ARTERIAL ROAD

RESOURCE CONSENT



NOTES

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LEGEND

EX BDY

PR BDY

SITE BDY

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		07/2025
Drawn	MKS		07/2025
Checked	DJM		07/2025

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Maven Waikato

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Project

SOUTHERN LINKS 1

RESIDENTIAL STAGE 1

HAMILTON, WAIKATO

FOR

SAXBY RD JV LIMITED

Title

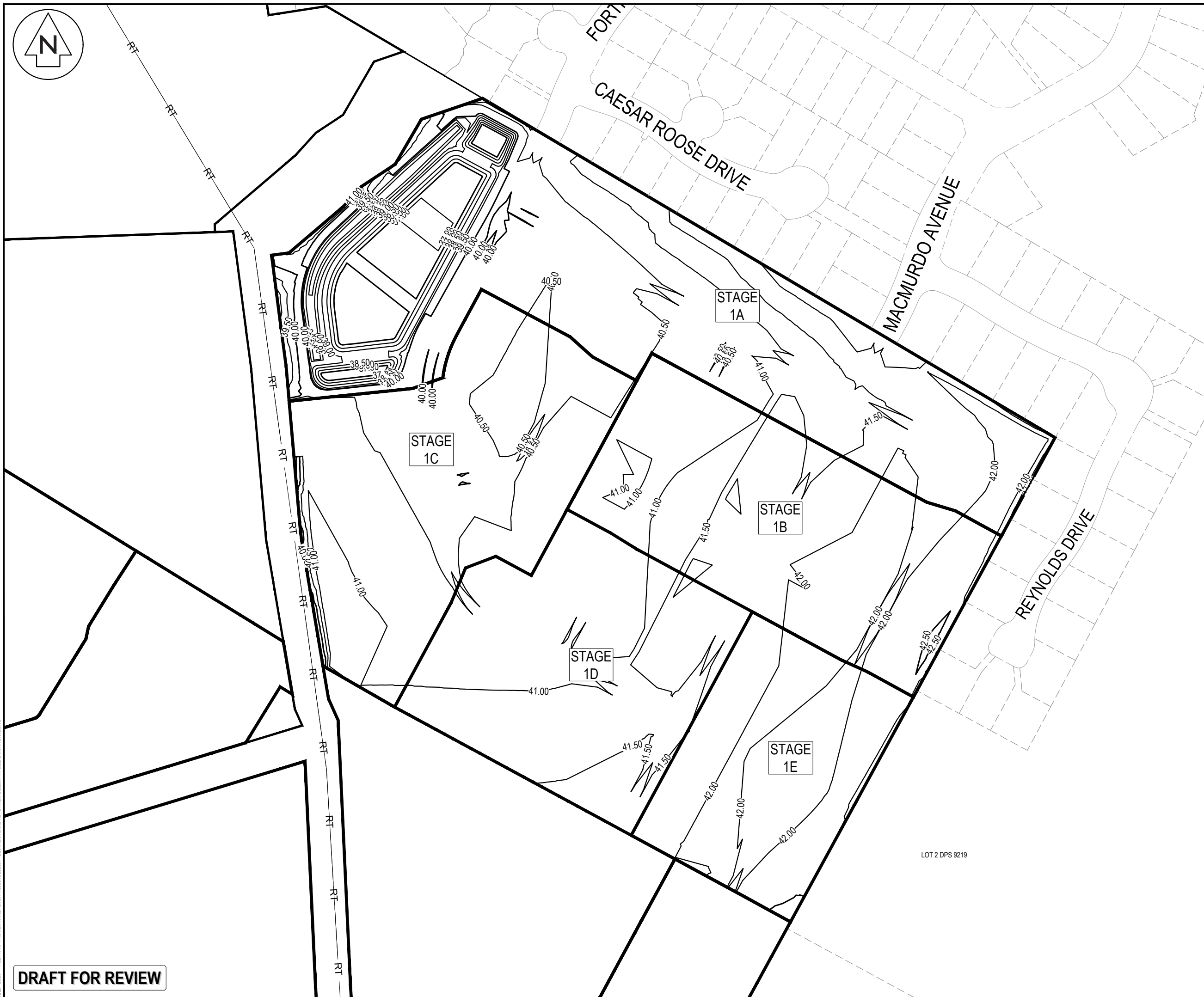
PROPOSED

SCHEME PLAN

STAGE 5A & 5B

Project no.	298001-R1 SL1
Scale	1:1250 @ A3
Cad file	298001-R1-C150 SCHEME.DWG
Drawing no.	R1- C150-5A&5B
Rev	A

DATE: 6/9/25 FILEPATH: F:\MAVEN\HAMILTON\6. PROJECTS\298001 - SOUTHERN LINKS 1\STG1 R1\DWG\298001-R1-C150 SCHEME.DWG



1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
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7. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVAL FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
8. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.

LEGEND

-
- Legend:
- EX BDY
 - PROP BDY
 - EX MAJOR CONTOUR
 - EX MINOR CONTOUR
 - PR MAJOR CONTOUR
 - PR MINOR CONTOUR
 - PROP EXTENT WORK
 - PROP CLEANWATER
 - PROP DIRTYWATER
 - PROP SILT FENCE
 - PROP STOCKPILE
 - PROP DECANT
 - PROP DECANT BAR

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
	By	Date	
Survey	MAVEN	06/2025	
Design	RJM	11/2025	
Drawn	RJM	11/2025	
Checked	DJM	11/2025	



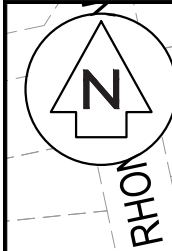
Project

**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**PROPOSED
STAGE 1
CONTOUR PLAN**

Project no.	298001-R1 SL1		
Scale	1:4000 @ A3		
Cad file	298001-R1-C200 EARTHWORKS.DWG		
Drawing no.	R1-C200-1	Rev	A



RHON

DEANWEL

LESLI

SAXBYS ROAD



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
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- LEGEND
- EX BDY
 - PROP BDY
 - EX MAJOR CONTOUR
 - EX MINOR CONTOUR
 - PR MAJOR CONTOUR
 - PR MINOR CONTOUR
 - PROP EXTENT WORK
 - PROP CLEANWATER
 - PROP DIRTYWATER
 - PROP SILT FENCE
 - PROP STOCKPILE
 - PROP DECANT
 - PROP DECANT BAR

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
Survey	MAVEN		06/2025
Design	RJM		11/2025
Drawn	RJM		11/2025
Checked	DJM		11/2025

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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
STAGE 1
CONTOUR PLAN**

Project no.	298001-R1 SL1
Scale	1:4000 @ A3
Cad file	298001-R1-C200 EARTHWORKS.DWG
Drawing no.	R1-C200-2
Rev	A

DATE: 8/05/25 FILEPATH: F:\MAVEN\HAMILTON6 PROJECTS\298001 - SOUTHERN LINKS 1\STG R1\DWG\298001-R1-C200 EARTHWORKS.DWG

DRAFT FOR REVIEW



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
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- LEGEND
- EX BDY
 - PROP BDY
 - EX MAJOR CONTOUR
 - EX MINOR CONTOUR
 - PR MAJOR CONTOUR
 - PR MINOR CONTOUR
 - PROP EXTENT WORK
 - PROP CLEANWATER
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 - PROP SILT FENCE
 - PROP STOCKPILE
 - PROP DECANT
 - PROP DECANT BAR

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	RJM		11/2025
Drawn	RJM		11/2025
Checked	DJM		11/2025

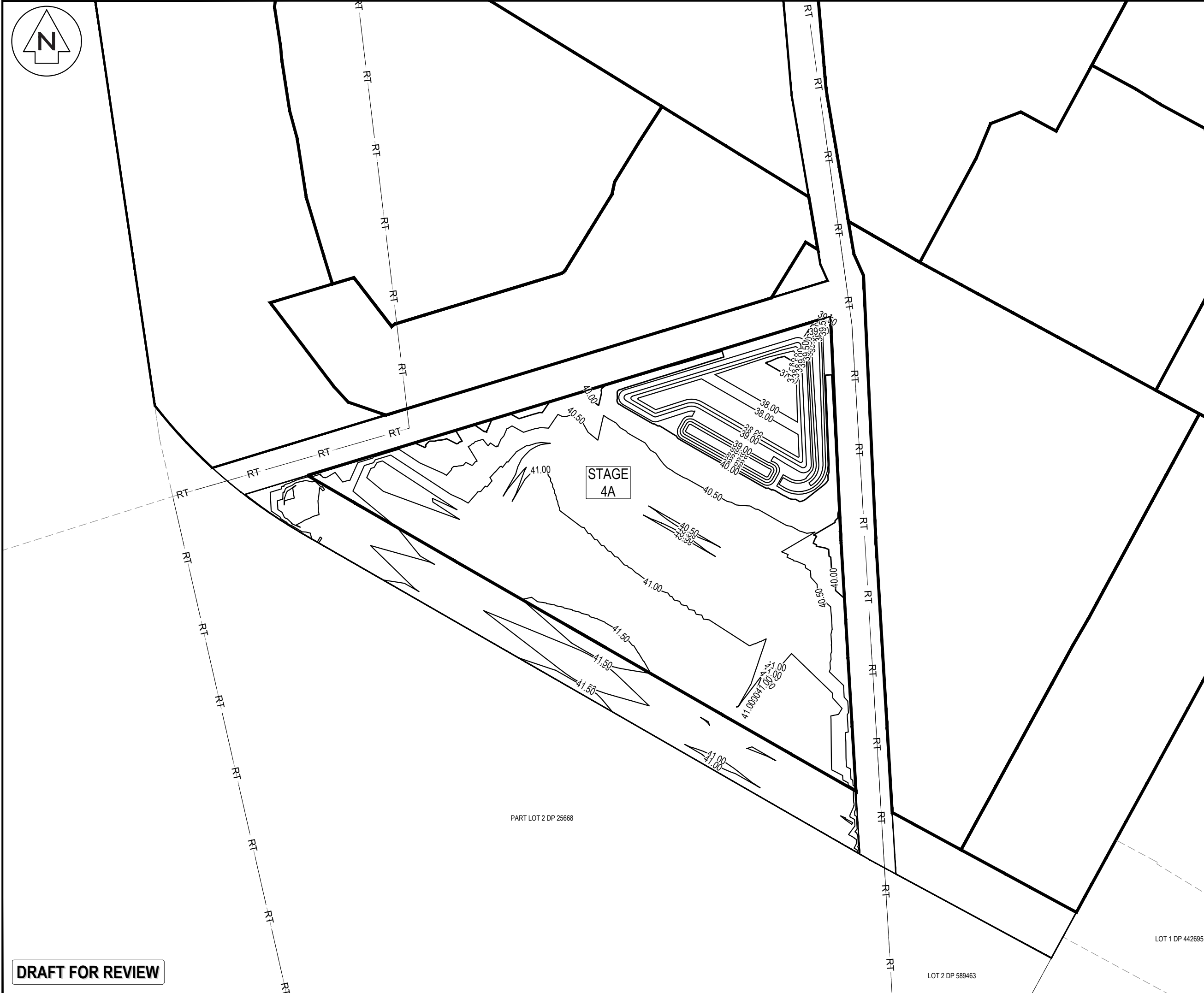
M Maven Waikato
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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
STAGE 1
CONTOUR PLAN**

Project no.	298001-R1 SL1
Scale	1:4000 @ A3
Cad file	298001-R1-C200 EARTHWORKS.DWG
Drawing no.	R1-C200-3
Rev	A

DRAFT FOR REVIEW



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
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LEGEND	
	EX BDY
	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PROP EXTENT WORK
	PROP CLEANWATER
	PROP DIRTYWATER
	PROP SILT FENCE
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	PROP DECANT BAR

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
Survey	MAVEN		06/2025
Design	RJM		11/2025
Drawn	RJM		11/2025
Checked	DJM		11/2025



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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
STAGE 1
CONTOUR PLAN**

Project no.	298001-R1 SL1		
Scale	1:4000 @ A3		
Cad file	298001-R1-C200 EARTHWORKS.DWG		
Drawing no.	R1-C200-4	Rev	A

DRAFT FOR REVIEW



- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
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LEGEND

	EX BDY
	PROP BDY
	EX MAJOR CONTOUR
	EX MINOR CONTOUR
	PR MAJOR CONTOUR
	PR MINOR CONTOUR
	PROP EXTENT WORK
	PROP CLEANWATER
	PROP DIRTYWATER
	PROP SILT FENCE
	PROP STOCKPILE
	PROP DECANT
	PROP DECANT BAR

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
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Survey	MAVEN		06/2025
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Project

**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title

**PROPOSED
STAGE 1
CONTOUR PLAN**

Project no.	298001-R1 SL1		
Scale	1:4000 @ A3		
Cad file	298001-R1-C200 EARTHWORKS.DWG		
Drawing no.	R1-C200-5	Rev	A

DRAFT FOR REVIEW



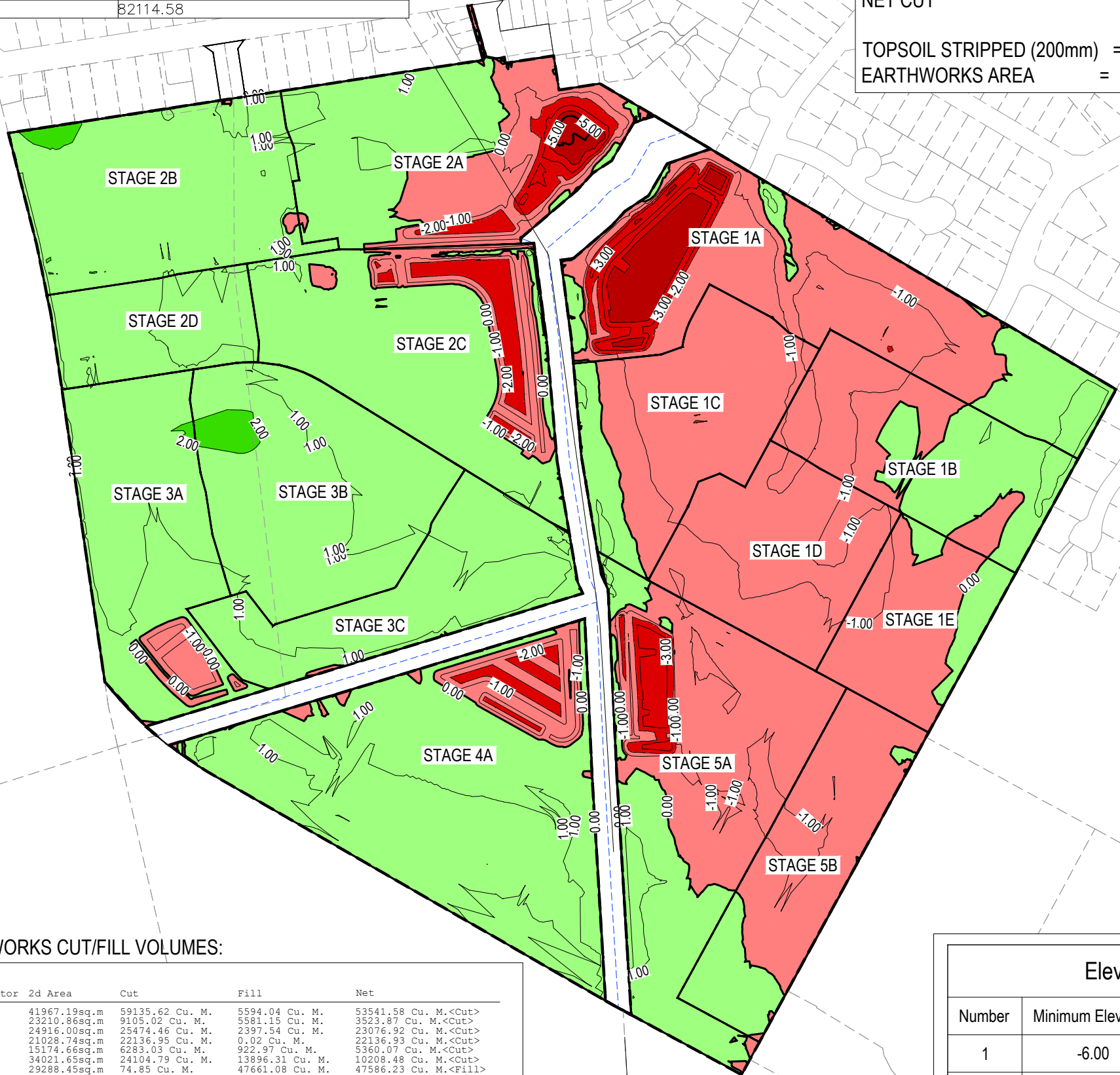
Extrapolated/Estimated Spoils Excavated (cu.m.)	
SW Pipe Embedment Spoils	6110.71
SW Manhole Spoils	260.25
WW Pipe Embedment Spoils	1449.78
WW Manhole Spoils	426.02
WS Pipe Spoils	301.88
Road Paving Excavated	47103.37
Footpath Paving Excavated	10585.03
JOAL Paving Excavated	15877.54
Total	82114.58

WHOLE SITE EARTH WORKS (SURFACE PSGL COMPARISON WITH SURFACE ESGL)

CUT VOLUME	207,910 m ³
CUT VOLUME (FROM SPOILS)	82,100 m ³
FILL VOLUME	272,850 m ³
NET CUT	17,160 m ³

TOPSOIL STRIPPED (200mm)	= 86,690 m ³
EARTHWORKS AREA	= 433,460 m ² / 43.34 Ha

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000
 3. LEVELS IN TERMS OF THE NEW ZEALAND VERTICAL DATUM 2016.
 4. IT IS THE CONTRACTORS RESPONSIBILITY TO LOCATE ALL SERVICES THAT MAY BE AFFECTED BY THEIR OPERATIONS.
 5. THE CONTRACTOR SHALL COMPLY WITH ALL RELEVANT HEALTH AND SAFETY REQUIREMENTS.
 6. THE CONTRACTOR SHALL OBTAIN ALL NECESSARY APPROVAL FROM UTILITY OPERATORS BEFORE COMMENCING WORK UNDER OR NEAR THEIR SERVICES.
 7. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.



WHOLE SITE STAGING BULK EARTHWORKS CUT/FILL VOLUMES:

Cut/Fill Summary						
Name	Cut Factor	Fill Factor	2d Area	Cut	Fill	Net
PSGL vs ESGL - STAGE 1A	1.000	1.200	41967.19sq.m	59135.62 Cu. M.	5594.04 Cu. M.	53541.58 Cu. M.<Cut>
PSGL vs ESGL - STAGE 1B	1.000	1.200	23210.86sq.m	9105.02 Cu. M.	5581.15 Cu. M.	3523.87 Cu. M.<Cut>
PSGL vs ESGL - STAGE 1C	1.000	1.200	24916.00sq.m	25474.46 Cu. M.	2397.54 Cu. M.	23076.92 Cu. M.<Cut>
PSGL vs ESGL - STAGE 1D	1.000	1.200	21028.74sq.m	22136.95 Cu. M.	0.02 Cu. M.	22136.93 Cu. M.<Cut>
PSGL vs ESGL - STAGE 1E	1.000	1.200	15174.66sq.m	6283.03 Cu. M.	922.97 Cu. M.	5360.07 Cu. M.<Cut>
PSGL vs ESGL - STAGE 2A	1.000	1.200	34021.65sq.m	24104.79 Cu. M.	13896.31 Cu. M.	10208.48 Cu. M.<Cut>
PSGL vs ESGL - STAGE 2B	1.000	1.200	29288.45sq.m	74.85 Cu. M.	47661.08 Cu. M.	47586.23 Cu. M.<Fill>
PSGL vs ESGL - STAGE 2C	1.000	1.200	35498.51sq.m	13851.66 Cu. M.	15068.12 Cu. M.	1216.46 Cu. M.<Fill>
PSGL vs ESGL - STAGE 2D	1.000	1.200	12606.45sq.m	0.00 Cu. M.	16847.56 Cu. M.	16847.56 Cu. M.<Fill>
PSGL vs ESGL - STAGE 3A	1.000	1.200	27326.55sq.m	2719.46 Cu. M.	32129.16 Cu. M.	29409.70 Cu. M.<Fill>
PSGL vs ESGL - STAGE 3B	1.000	1.200	31286.41sq.m	0.00 Cu. M.	46036.93 Cu. M.	46036.93 Cu. M.<Fill>
PSGL vs ESGL - STAGE 3C	1.000	1.200	21113.31sq.m	7.92 Cu. M.	25662.40 Cu. M.	25654.48 Cu. M.<Fill>
PSGL vs ESGL - STAGE 4A	1.000	1.200	53087.67sq.m	8623.46 Cu. M.	49833.35 Cu. M.	41209.90 Cu. M.<Fill>
PSGL vs ESGL - STAGE 5A	1.000	1.200	41521.63sq.m	27600.06 Cu. M.	9305.01 Cu. M.	18295.05 Cu. M.<Cut>
PSGL vs ESGL - STAGE 5B	1.000	1.200	21410.89sq.m	8792.78 Cu. M.	1913.89 Cu. M.	6878.90 Cu. M.<Cut>
Totals			433458.96sq.m	207910.08 Cu. M.	272849.54 Cu. M.	64939.46 Cu. M.<Fill>

Elevations Table

Number	Minimum Elevation	Maximum Elevation	Color
1	-6.00	-4.00	Red
2	-4.00	-2.00	Red
3	-2.00	0.00	Light Red
4	0.00	2.00	Light Green
5	2.00	4.00	Green

RESOURCE CONSENT

Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

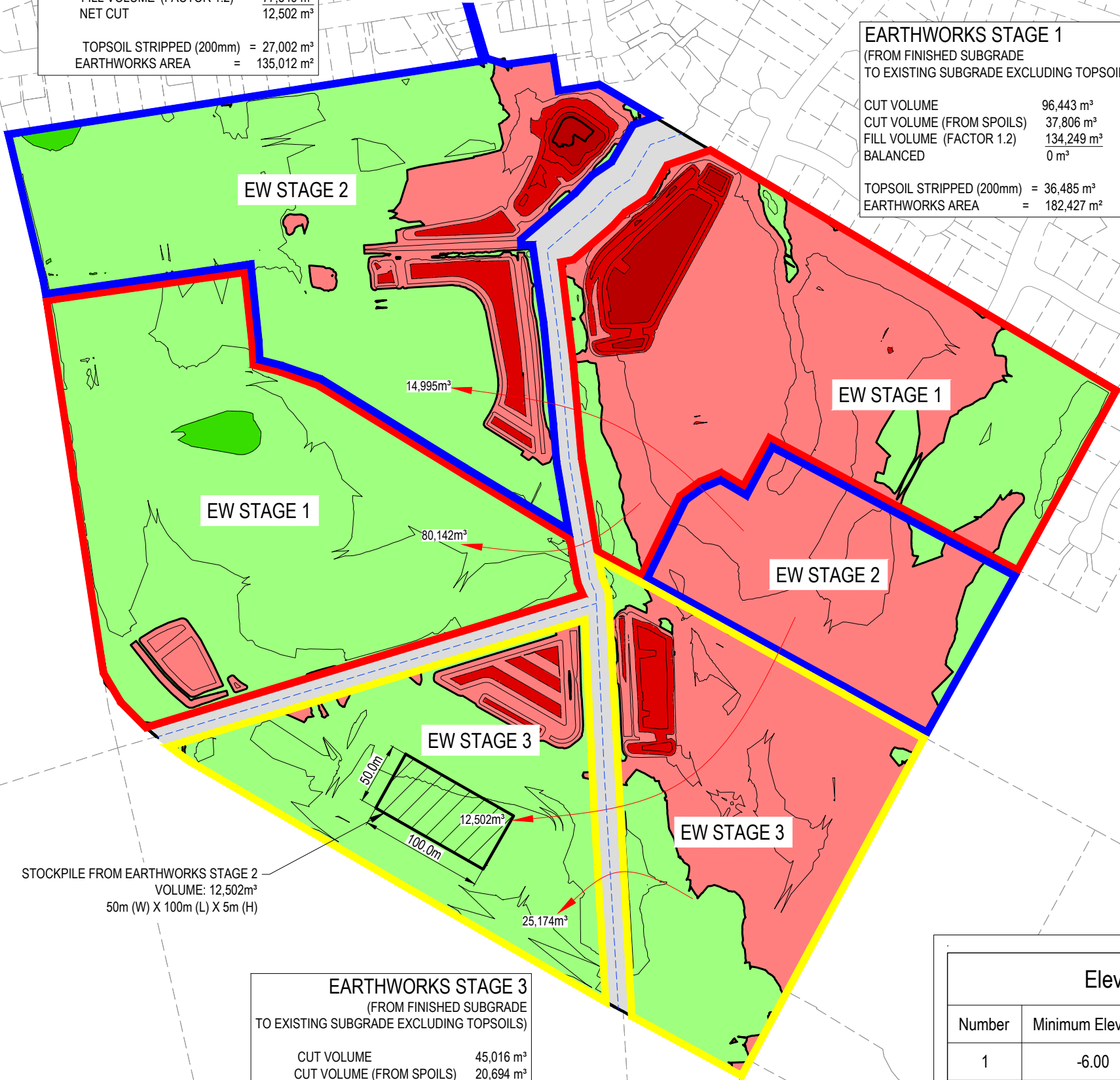
Title
**PROPOSED
CUT/FILL
OVERVIEW PLAN**

Project no.	298001-R1 SL1
Scale	1:4000 @ A3
Cad file	298001-R1-C220 EW CUT&FILL.DWG
Drawing no.	R1-C220
Rev	A



EARTHWORKS STAGE 2	
(FROM FINISHED SUBGRADE TO EXISTING SUBGRADE EXCLUDING TOPSOILS)	
CUT VOLUME	66,451 m³
CUT VOLUME (FROM SPOILS)	23,600 m³
FILL VOLUME (FACTOR 1.2)	77,549 m³
NET CUT	12,502 m³
TOPSOIL STRIPPED (200mm)	= 27,002 m³
EARTHWORKS AREA	= 135,012 m²

EARTHWORKS STAGE 1	
(FROM FINISHED SUBGRADE TO EXISTING SUBGRADE EXCLUDING TOPSOILS)	
CUT VOLUME	96,443 m³
CUT VOLUME (FROM SPOILS)	37,806 m³
FILL VOLUME (FACTOR 1.2)	134,249 m³
BALANCED	0 m³
TOPSOIL STRIPPED (200mm)	= 36,485 m³
EARTHWORKS AREA	= 182,427 m²



STOCKPILE FROM EARTHWORKS STAGE 2
VOLUME: 12,502m³
50m (W) X 100m (L) X 5m (H)

EARTHWORKS STAGE 3	
(FROM FINISHED SUBGRADE TO EXISTING SUBGRADE EXCLUDING TOPSOILS)	
CUT VOLUME	45,016 m³
CUT VOLUME (FROM SPOILS)	20,694 m³
FILL VOLUME (FACTOR 1.2)	61,052 m³
NET CUT	4,658 m³
TOPSOIL STRIPPED (200mm)	= 23,204 m³
EARTHWORKS AREA	= 116,020 m²

Elevations Table			
Number	Minimum Elevation	Maximum Elevation	Color
1	-6.00	-4.00	Dark Red
2	-4.00	-2.00	Red
3	-2.00	0.00	Light Red
4	0.00	2.00	Light Green
5	2.00	4.00	Green

- NOTES
1. ALL WORKS TO BE IN ACCORDANCE WITH WAIKATO REGIONAL COUNCIL EROSION AND SEDIMENT CONTROL: GUIDELINES FOR SOIL DISTURBING ACTIVITIES TR 2009/02.
 2. COORDINATES IN TERMS OF NZ GEODETIC DATUM MT EDEN 2000
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 7. CONTRACTOR SHALL PROVIDE AS-BUILT OF WORKING SEDIMENT CONTROL DEVICES AND CONFIRMATION OF POND/DECENT VOLUMES TO ENGINEER.

A	FAST TRACK APP	MKS	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MKS		11/2025
Drawn	MKS		11/2025
Checked	DJM		11/2025

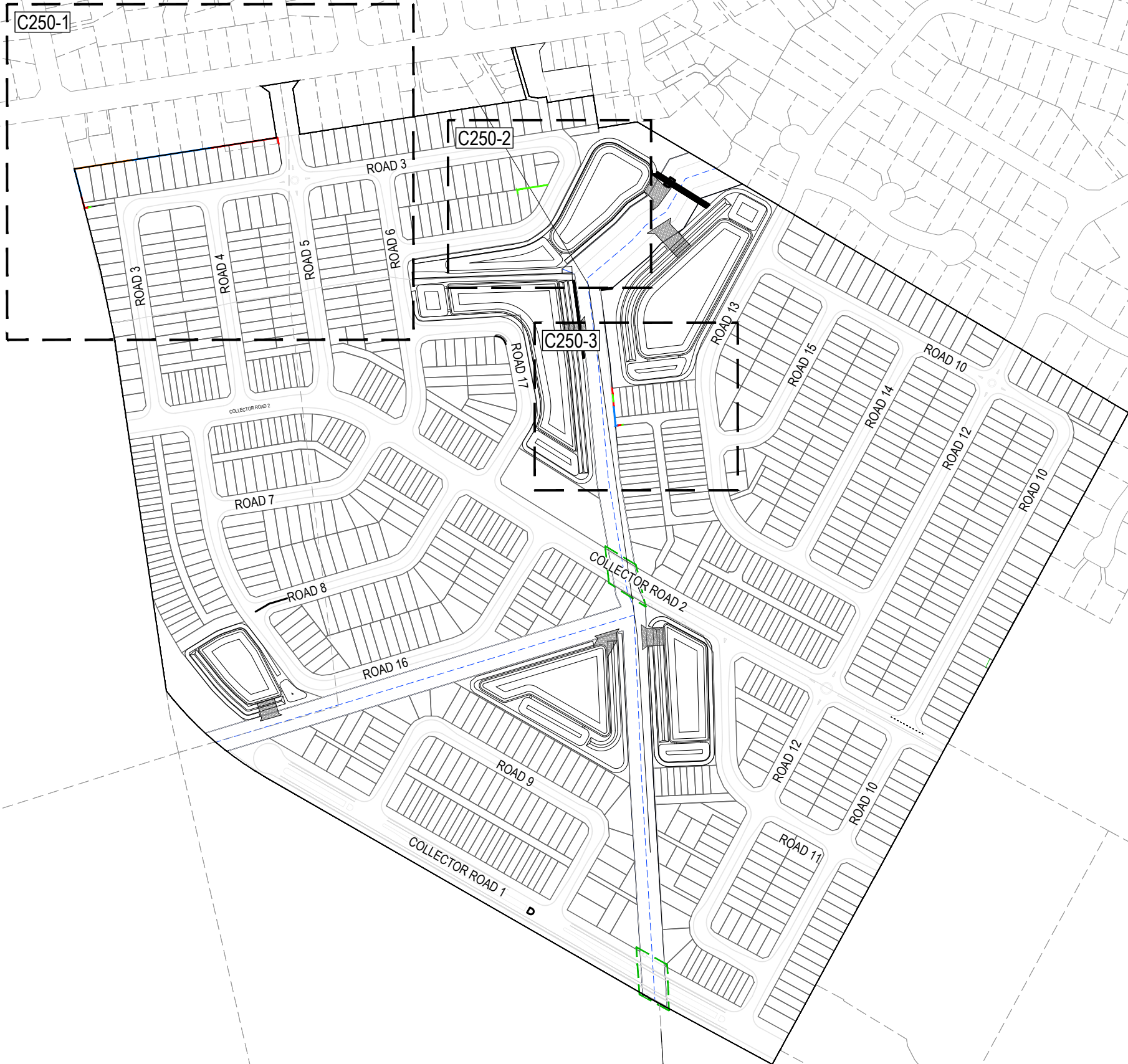


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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SL1 CONSORTIUM GROUP**

Title PROPOSED CUT/FILL STAGING PLAN	
Project no.	298001-R1 SL1
Scale	1:4000 @ A3
Cad file	298001-R1-C220-1 EW CUT&FILL.DWG
Drawing no.	C220-1
Rev	A

RESOURCE CONSENT



- The maximum retained height shall be as specified on the drawing and shall not be exceeded unless approved by Maven in writing.
- The concrete encasement shall be adequately vibrated with a pencil vibrator to avoid "honey combing".
- Excavations for foundations shall be taken out by augering to the dimensions detailed with all surplus soil being disposed of away from the site.
- Allowance shall be made in positioning augered holes for the slope of the wall and for concrete surround to poles.
- Driving of poles is not acceptable as an alternative to auguring.
- The Contractor shall verify the position of all underground services and confirm that there are no clashes prior to construction.
- The Contractor shall refer to Maven as soon as possible for further instruction should any unforeseen circumstance or abnormal site condition be encountered during construction.
- Inspections are required by Geotechnical Engineer during construction to confirm assumed ground conditions.
- Maven shall inspect and approve the founding depth and condition of all pile holes prior to installation of the poles and pouring of concrete.
- Any groundwater and associated sediment/sludge within the pile holes shall be removed prior to installing the timber poles and the pouring of concrete.
- If there is potential for hole collapse e.g. due to weak ground condition or groundwater ingress, it is recommended that alternate holes be drilled initially and backfilled with concrete prior to the drilling of the remaining holes.
- Concrete encasement to extend to toe of permanent retaining wall i.e. post future backfilling in front of wall.
- Building Consent to be done by others.

Notes

- All works to be in accordance with Matamata-Piako District Council standards.
- All existing and proposed services shall be marked and protected during construction works.
- The extent of excavation required shall be marked out on the ground having regard to the positions of poles, working space for construction, backfill and drainage provisions.
- The retaining wall should be backfilled to its full height with 'no fines' concrete, fully wrapped by a separation geotextile Bidim A14 or approved similar.
- Timber pole wall
 - All timber poles shall be H5 treated radiata pine in accordance with NZS 3603 unless otherwise specified.
 - All timber poles shall have concrete encasement below the ground level with a minimum of 75mm side cover. The characteristic compressive strength of the concrete encasement shall be $f_c = 20$ MPa unless otherwise noted.
 - Poles are expressed as a minimum small end diameter $\emptyset$ (SED) and shall be installed small end upwards. Cut ends shall not be put into the ground.
 - The timber railing shall be H4 treated Radiata Pine and shall be fixed to the rear of the poles with CCA resistant coated screws or nails. Rails shall have minimum 10mm gap between them.
 - Cutting of timbers shall be avoided wherever possible. If cutting is necessary, the exposed surfaces shall be flooded with a copper naphthenate type wood preservative.

Legend

- EX BDY
- PROP BDY
- RETAINING WALL 0.0-1.0m
- RETAINING WALL 1.0-1.5m
- RETAINING WALL 1.5-2.0m
- RETAINING WALL 2.0-2.5m

A	FAST TRACK APP	MJRA	06/2026
Rev	Description	By	Date
Survey	MAVEN		06/2025
Design	MJRA		04/2026
Drawn	MJRA		04/2026
Checked	MKJ/DJM		04/2026



Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
RETAINING WALL
OVERVIEW PLAN**

Project no.	298001-R1 SL1		
Scale	1:4000 @ A3		
Cad file	298001-R1-C250 RETAINING WALL.DWG		
Drawing no.	R1-C250	Rev	A

RESOURCE CONSENT



Notes
1. See plan C250 for all notes.

Legend	
	EX BDY
	PROP BDY
	RETAINING WALL 0.0-1.0m
	RETAINING WALL 1.0-1.5m
	RETAINING WALL 1.5-2.0m
	RETAINING WALL 2.0-2.5m

A	FAST TRACK APP	MJRA	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MJRA		04/2026
Drawn	MJRA		04/2026
Checked	MKJ/DJM		04/2026



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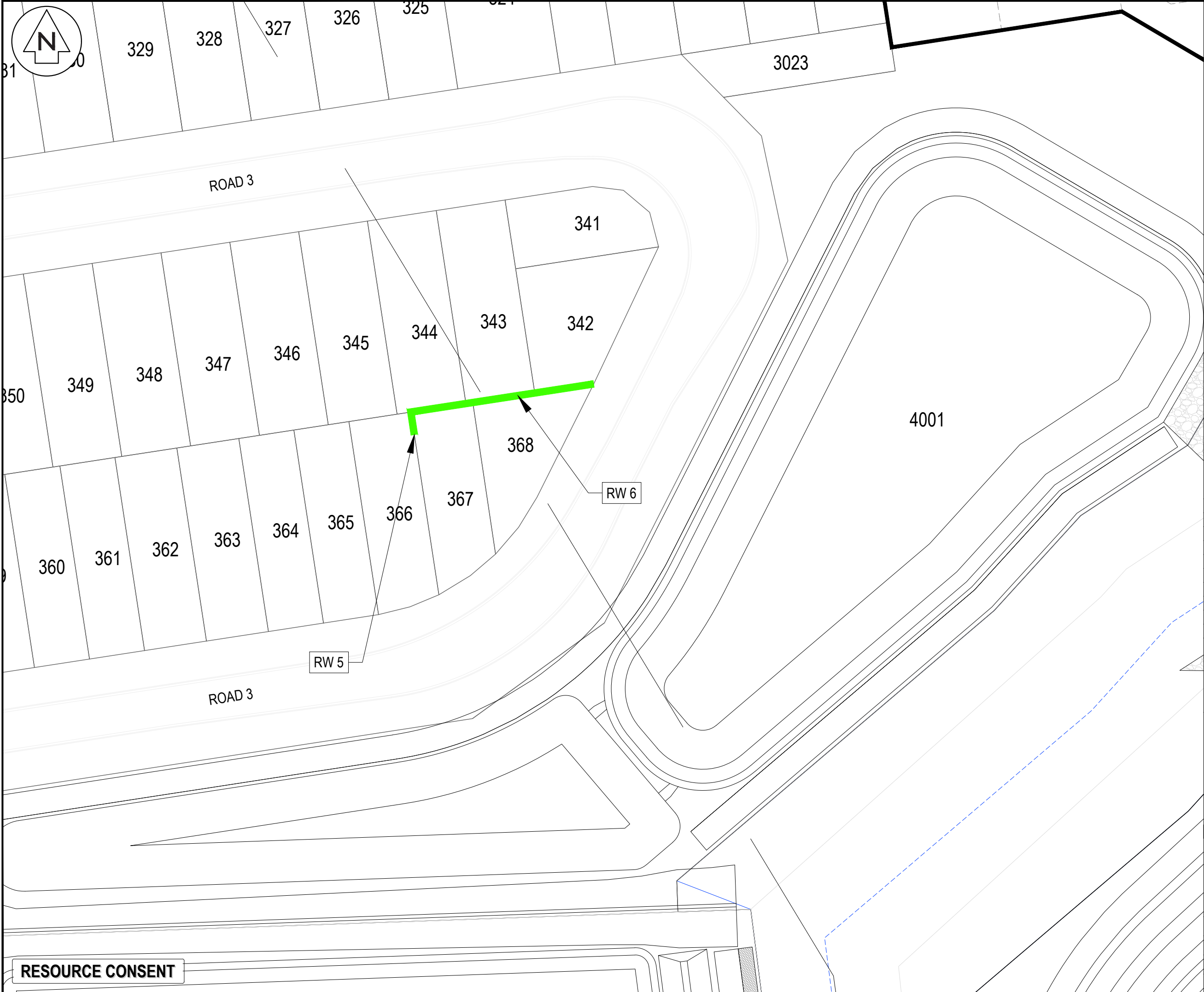
Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
RETAINING WALL
PLAN**

Project no.	298001-R1 SL1
Scale	1:1000 @ A3
Cad file	298001-R1-C250 RETAINING WALL.DWG
Drawing no.	R1-C250-1
Rev	A

RW 1
NOTE: BUILD BACK OF
RETAINING WALL ON THE
EDGE OF JOAL & LOT
BOUNDARY. NO NEED TO
APPLY THE 0.5m SETBACK
SPECIFIED ON THE RETAINING
WALL TYPICAL SECTION

RESOURCE CONSENT



Notes

1. See plan C250 for all notes.

Legend

EX BDY

PROP BDY

RETAINING WALL 0.0-1.0m

RETAINING WALL 1.0-1.5m

RETAINING WALL 1.5-2.0m

RETAINING WALL 2.0-2.5m

A	FAST TRACK APP	MJRA	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MJRA		04/2026
Drawn	MJRA		04/2026
Checked	MKJ/DJM		04/2026

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New Zealand

Project

SOUTHERN LINKS 1

RESIDENTIAL STAGE 1

HAMILTON, WAIKATO

FOR

SAXBY RD JV LIMITED

Title

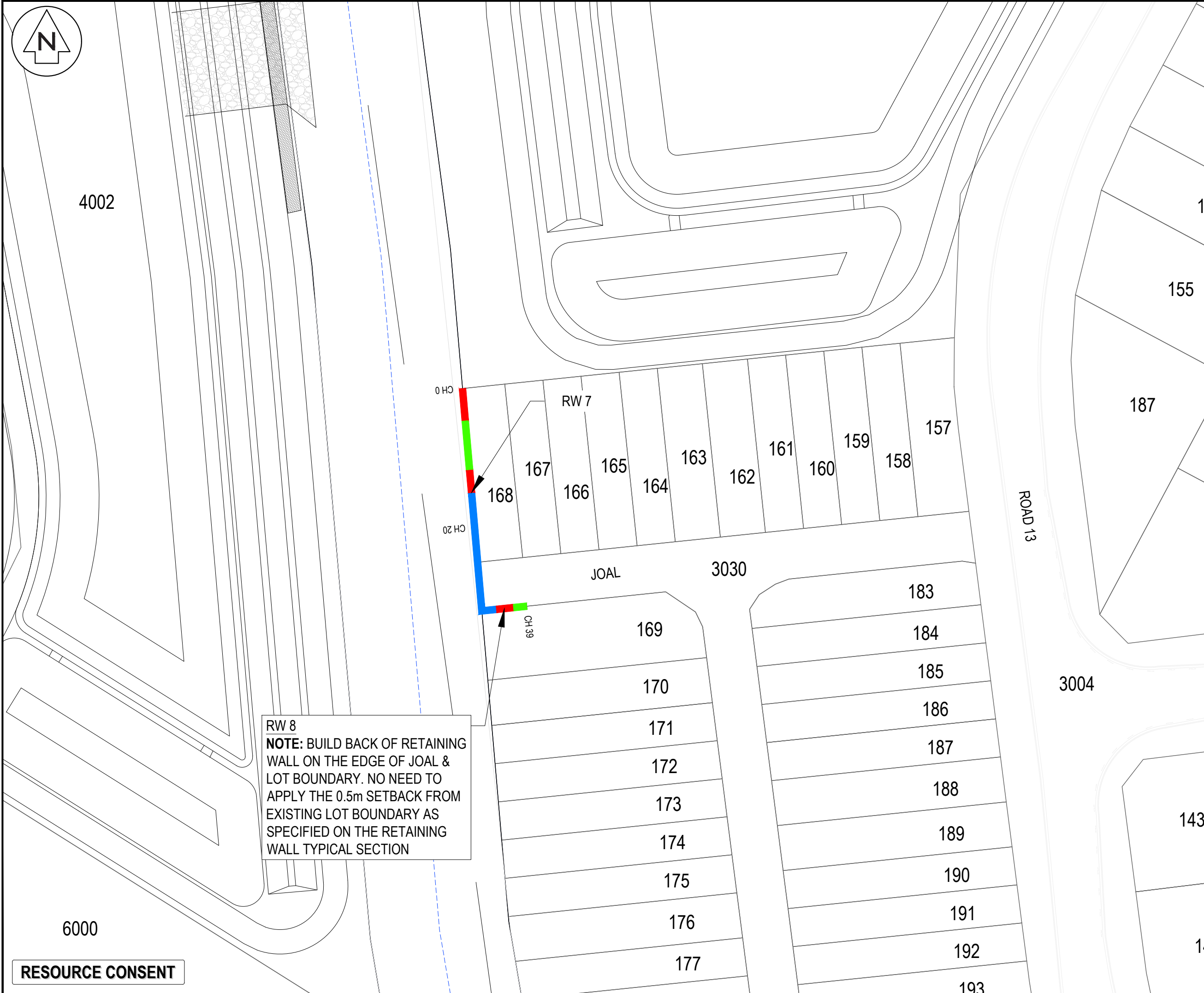
PROPOSED

RETAINING WALL

PLAN

Project no.	298001-R1 SL1		
Scale	1:500 @ A3		
Cad file	298001-R1-C250 RETAINING WALL.DWG		
Drawing no.	R1-C250-2	Rev	A

DATE: 6/9/25 FILEPATH: F:\MVEN\HAMILTON6 - PROJECTS\298001 - SOUTHERN LINKS 1\STG R1\DWG\298001-R1-C250 RETAINING WALL.DWG



Notes

1. See plan C250 for all notes.

Legend

EX BDY

PROP BDY

RETAINING WALL 0.0-1.0m

RETAINING WALL 1.0-1.5m

RETAINING WALL 1.5-2.0m

RETAINING WALL 2.0-2.5m

A	FAST TRACK APP	MJRA	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MJRA		04/2026
Drawn	MJRA		04/2026
Checked	MKJ/DJM		04/2026

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Project

SOUTHERN LINKS 1

RESIDENTIAL STAGE 1

HAMILTON, WAIKATO

FOR

143 SAXBY RD JV LIMITED

Title

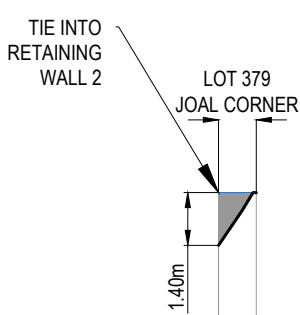
PROPOSED

RETAINING WALL

PLAN

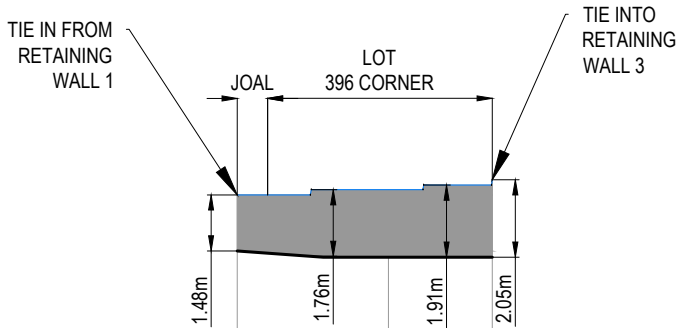
Project no.	298001-R1 SL1		
Scale	1:500 @ A3		
Cad file	298001-R1-C250 RETAINING WALL.DWG		
Drawing no.	R1-C250-3	Rev	A

RESOURCE CONSENT



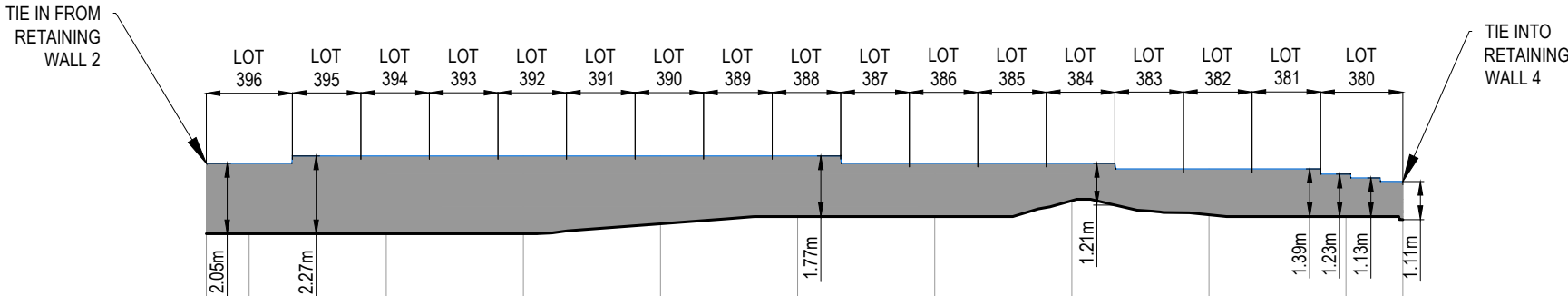
DATUM 36.00m	
TOP OF WALL	41.45
TOE OF WALL	40.05 41.44
WALL HEIGHT	1.40
CHAINAGE	0.00 5.00

Retaining Wall 1
SCALE: HORI 1:1000 VERT 1:200



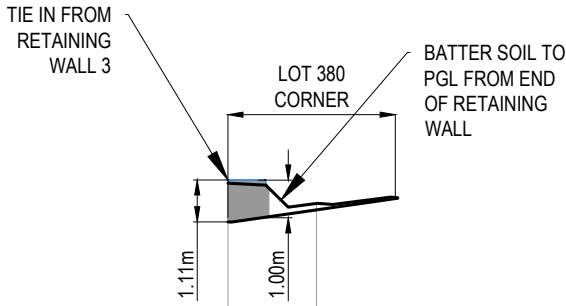
DATUM 36.00m	
TOP OF WALL	41.38 41.52 41.78
TOE OF WALL	39.90 39.74 39.74
WALL HEIGHT	1.48 1.78 2.05
CHAINAGE	0.00 20.00 33.74

Retaining Wall 2
SCALE: HORI 1:1000 VERT 1:200



DATUM 36.00m	
TOP OF WALL	41.78 41.78 42.00 42.00 42.00 42.00 42.00 41.78 41.78 41.62 41.47 41.25
TOE OF WALL	39.74 39.74 39.74 39.74 40.02 40.24 40.24 40.69 40.29 40.24 40.14
WALL HEIGHT	2.05 2.05 2.27 2.27 1.98 1.77 1.55 1.09 1.33 1.23 1.11
CHAINAGE	33.74 40.00 60.00 80.00 100.00 120.00 140.00 160.00 180.00 200.00 208.29

Retaining Wall 3
SCALE: HORI 1:1000 VERT 1:200



DATUM 36.00m	
TOP OF WALL	41.25 40.46
TOE OF WALL	40.14
WALL HEIGHT	1.11
CHAINAGE	208.29 220.00 237.97

Retaining Wall 4
SCALE: HORI 1:1000 VERT 1:200

RESOURCE CONSENT

Notes
1. See plan C250 for all notes.

Rev	A	FAST TRACK APP	MJRA	06/2026
Rev		Description	By	Date
Survey		MAVEN		06/2025
Design		MJRA		04/2026
Drawn		MJRA		04/2026
Checked		MKJ/DJM		04/2026

M

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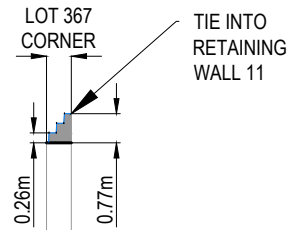
New Zealand

Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
RETAINING WALL
LONGSECTION**

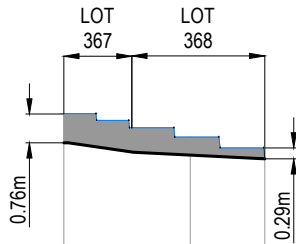
Project no.	298001-R1 SL1
Scale	AS SHOWN
Cad file	298001-R1-C250 RETAINING WALL.DWG
Drawing no.	R1-C250-4
Rev	A

DATE: 6/9/25 FILEPATH: F:\MAVEN\HAMILTON6 - PROJECTS\298001 - SOUTHERN LINKS 1\STG R1\DWG\298001-R1-C250 RETAINING WALL.DWG



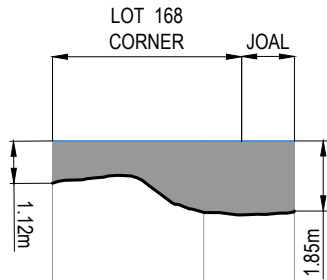
DATUM 36.00m	
TOP OF WALL	39.80 40.57
TOE OF WALL	39.80 39.80
WALL HEIGHT	0.00 0.77
CHAINAGE	0.00 3.29

Retaining Wall 5
SCALE: HORI 1:1000 VERT 1:200



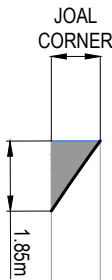
DATUM 36.00m	
TOP OF WALL	40.57 39.95 39.38
TOE OF WALL	39.80 39.47 39.37
WALL HEIGHT	0.77 0.47 0.01
CHAINAGE	3.29 20.00 29.86

Retaining Wall 6
SCALE: HORI 1:1000 VERT 1:200



DATUM 36.00m	
TOP OF WALL	40.91 40.91 40.91
TOE OF WALL	39.76 39.02 39.06
WALL HEIGHT	1.12 1.89 1.85
CHAINAGE	0.00 20.00 32.02

Retaining Wall 7
SCALE: HORI 1:1000 VERT 1:200



DATUM 36.00m	
TOP OF WALL	40.91 40.91
TOE OF WALL	39.06 40.91
WALL HEIGHT	1.85 0.00
CHAINAGE	32.02 38.51

Retaining Wall 8
SCALE: HORI 1:1000 VERT 1:200

RESOURCE CONSENT

Notes
1. See plan C250 for all notes.

A	FAST TRACK APP	MJRA	06/2026
Rev	Description	By	Date
	By	Date	
Survey	MAVEN	06/2025	
Design	MJRA	04/2026	
Drawn	MJRA	04/2026	
Checked	MKJ/DJM	04/2026	

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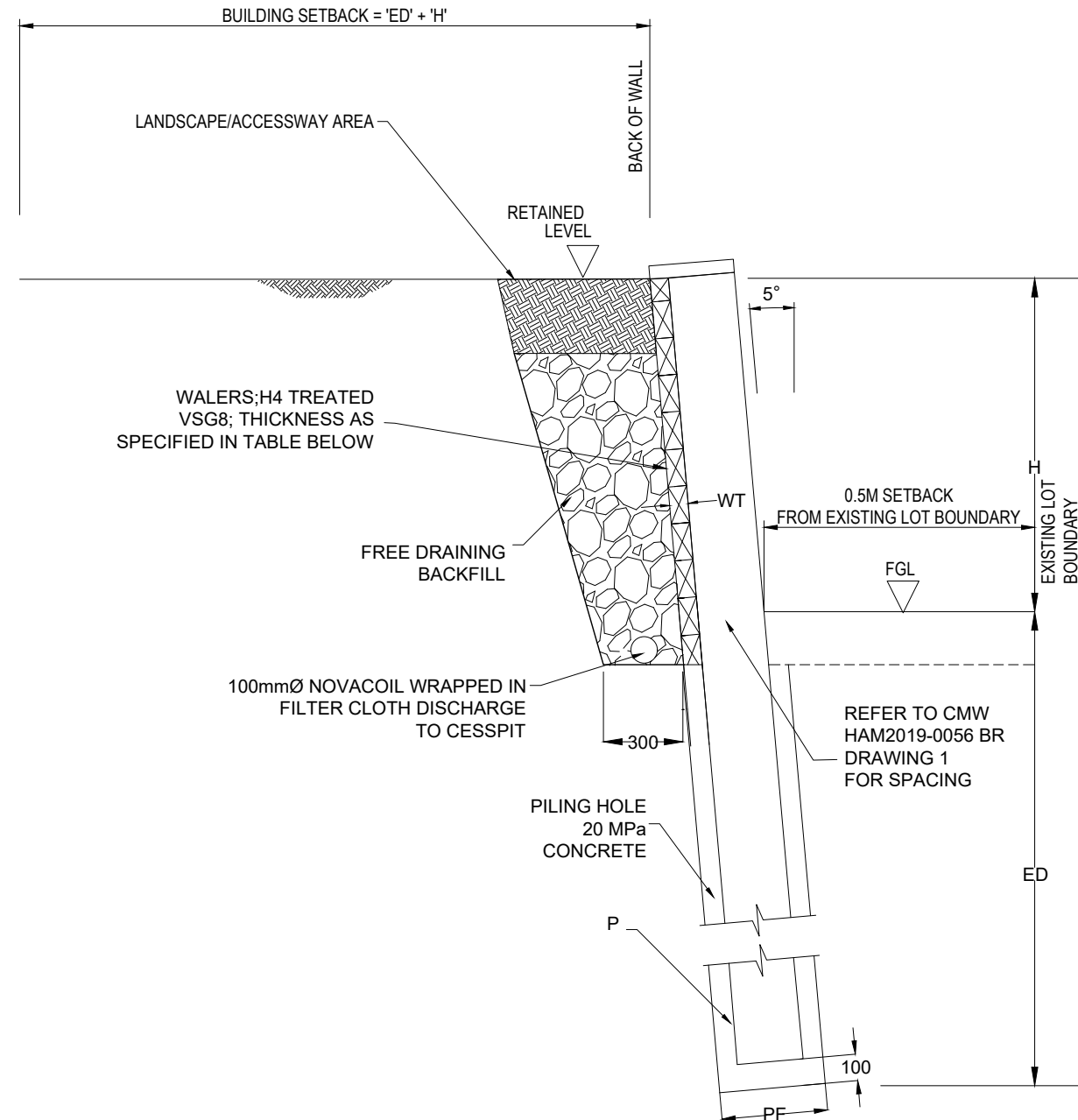
New Zealand

Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
RETAINING WALL
LONGSECTION**

Project no.	298001-R1 SL1		
Scale	AS SHOWN		
Cad file	298001-R1-C250 RETAINING WALL.DWG		
Drawing no.	R1-C250-5	Rev	A

DATE: 6/9/26 FILEPATH: F:\MAVEN\HAMILTON6 PROJECTS\298001 - SOUTHERN LINKS 1\STG R1\DWG\298001-R1-C250 RETAINING WALL.DWG



RETAINING HEIGHT 'H' 'm' MAX.	MINIMUM SMALL END DIA (H5 TREATED) IN 'mm'	PILE FOOTING Ø 'PF' IN 'mm'	MIN. EMBEDMENT DEPTH 'ED' IN 'm'	SPACING 'm'	WALER THICKNESS WT 'mm'
1.00	200	350	1.6	1.0	(<1.5m) 45
1.50	275	425	2.1	1.0	(<1.5m) 45
2.00	325	475	2.7	1.0	(>1.5m) 90
2.30	350	500	3.0	1.0	(>1.5m) 90

NOTES:

- RETAINING WALL DESIGNED FOR BACK SLOPE = 0° MAX; SURCHARGE = 12 kPa
- DESIGN PARAMETERS FROM CMW GEOTECHNICAL INVESTIGATION REPORT. SOIL DENSITY = 17.0 kN/m³, ANGLE OF SOIL FRICTION = 28°, Su = 60 kPa.
- WALER SHALL BE CONTINUOUS OVER MINIMUM 2 SPANS.

- The maximum retained height shall be as specified on the drawing and shall not be exceeded unless approved by Maven in writing.
- The concrete encasement shall be adequately vibrated with a pencil vibrator to avoid "honey combing".
- Excavations for foundations shall be taken out by augering to the dimensions detailed with all surplus soil being disposed of away from the site.
- Allowance shall be made in positioning augered holes for the slope of the wall and for concrete surround to poles.
- Driving of poles is not acceptable as an alternative to auguring.
- The Contractor shall verify the position of all underground services and confirm that there are no clashes prior to construction.
- The Contractor shall refer to Maven as soon as possible for further instruction should any unforeseen circumstance or abnormal site condition be encountered during construction.
- Inspections are required by Geotechnical Engineer during construction to confirm assumed ground conditions.
- Maven shall inspect and approve the founding depth and condition of all pile holes prior to installation of the poles and pouring of concrete.
- Any groundwater and associated sediment/sludge within the pile holes shall be removed prior to installing the timber poles and the pouring of concrete.
- If there is potential for hole collapse e.g. due to weak ground condition or groundwater ingress, it is recommended that alternate holes be drilled initially and backfilled with concrete prior to the drilling of the remaining holes.
- Concrete encasement to extend to toe of permanent retaining wall i.e. post future backfilling in front of wall.
- Building Consent to be done by others.

Notes

- All works to be in accordance with Matamata-Piako District Council standards.
- All existing and proposed services shall be marked and protected during construction works.
- The extent of excavation required shall be marked out on the ground having regard to the positions of poles, working space for construction, backfill and drainage provisions.
- The retaining wall should be backfilled to its full height with 'no fines' concrete, fully wrapped by a separation geotextile Bidim A14 or approved similar.
- Timber pole wall
 - All timber poles shall be H5 treated radiata pine in accordance with NZS 3603 unless otherwise specified.
 - All timber poles shall have concrete encasement below the ground level with a minimum of 75mm side cover. The characteristic compressive strength of the concrete encasement shall be f_c = 20 MPa unless otherwise noted.
 - Poles are expressed as a minimum small end diameter Ø (SED) and shall be installed small end upwards. Cut ends shall not be put into the ground.
 - The timber railing shall be H4 treated Radiata Pine and shall be fixed to the rear of the poles with CCA resistant coated screws or nails. Rails shall have minimum 10mm gap between them.
 - Cutting of timbers shall be avoided wherever possible. If cutting is necessary, the exposed surfaces shall be flooded with a copper naphthenate type wood preservative.

A	FAST TRACK APP	MJRA	06/2026
Rev	Description	By	Date
		By	Date
Survey	MAVEN		06/2025
Design	MJRA		04/2026
Drawn	MJRA		04/2026
Checked	MKJ/DJM		04/2026



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Project
**SOUTHERN LINKS 1
RESIDENTIAL STAGE 1
HAMILTON, WAIKATO
FOR
SAXBY RD JV LIMITED**

Title
**PROPOSED
RETAINING WALL
TYPICAL SECTION**

Project no.	298001-R1 SL1
Scale	1:25 @ A3
Cad file	298001-R1-C250 RETAINING WALL.DWG
Drawing no.	R1-C250-6
Rev	A

RESOURCE CONSENT