

Before the Gisborne District Council

In the matter of The Resource Management Act 1991

And

In the matter of An application by NZHG Gisborne Limited to construct eight dwellings and create an eight-lot fee simple subdivision of the property at 99A Stanley Road, Gisborne and for resource consents for point source water discharge and pursuant to Regulation 10 of the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health

STATEMENT OF EVIDENCE OF TAKUDZWA MAPETA FOR NZHG GISBORNE LIMITED

Dated 6 September 2024

INTRODUCTION

- 1 My name is Takudzwa Mapeta. I am a Civil Engineer at LDE Limited. I hold a Washington Accord accredited Bachelor's Degree in Civil Engineering (Hons) from the University of Johannesburg in South Africa, conferred in 2018.
- 2 I have approximately six years' experience in traffic engineering planning and design for industrial and residential land development, comprising five years in South Africa and 8 months in New Zealand at LDE. I have completed traffic planning and impact assessments on multiple projects, an example of which was the traffic planning and impact assessment for a 23-lot subdivision development in South Africa.

CODE OF CONDUCT

- 3 I confirm that I have read and agree to comply with the 'Expert Witnesses Code of Conduct' contained in the Environment Court of New Zealand Practice Note 2023. My evidence has been prepared in compliance with that Code in the same way as if I was giving evidence in the Environment

Court. In particular, unless I state otherwise, this evidence is within my sphere of expertise, and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

PURPOSE AND SCOPE OF EVIDENCE

- 4 In my evidence I will:
 - 4.1 Provide a technical opinion regarding the traffic engineering aspects of the proposed development at 99A Stanley Road, Gisborne. In particular I will assess the impacts of the development on the traffic in Stanley Road, and at the intersections at Childers and Gladstone Roads directly to the south and north of the subject site respectively. My assessment also addresses the impact of the increased traffic on Gisborne Boys High School;
 - 4.2 Respond to matters raised in the Section 42A Report; and
 - 4.3 Respond to matters raised by submitters.

TECHNICAL REPORT - SUMMARY OF CONCLUSIONS

- 5 My report *24729-CIV-Infrastructure Assessment-Transport Impact Assessment-432608 dated 07 March 2024 (the TIA Report)* is in Appendix 1.
- 6 In this report, I investigated the short (construction period) and long-term (in-service over the life of the development) impacts of the proposed development on the Stanley Road and Childers Road Traffic Circle and Gisborne Boys High School (located across the road from the proposed development) taking into account cyclist and pedestrian safety. The findings are based on a qualitative on-site assessment and quantitative analysis including traffic data obtained from www.mobileroad.org and without site-specific traffic counts and modelling. Hazards were identified and the risk was assessed for the pre-development and post-development stages.
- 7 The traffic impact assessment confirms several key findings in both the short and long terms. Firstly, the most recent five-year crash statistics from *Waka Kotahi NZ Transport Crash Analysis System* were used to identify high-

risk locations and monitor trends. The analysis shows that the safety record in the vicinity of the site is deemed acceptable as per *Waka Kotahi NZ Transport Agency's Vision Zero* approach, which is that no one is killed or seriously injured in road crashes. Importantly, there have been no recorded crashes involving pedestrians or cyclists in the immediate area and no crashes directly in front of the subject site or lot accesses onto Stanley Road between Childers and Gladstone Roads.

- 8 Secondly, in the long term, the major traffic stream on Stanley Road was analysed based on *Austrroads Guide to Traffic Management Part 2*, to confirm whether it has the capacity to absorb the increased traffic which will be generated by the proposed development. The *Practical Absorption Capacity* calculation indicates that Stanley Road can absorb 761 vehicles per hour in the peak period. *The NZTA Planning Policy Manual, Appendix 5b* indicates that the proposed development will generate a maximum of 10 vehicles per hour during the peak periods. This is well below 761 mentioned previously; therefore, Stanley Road can absorb the traffic generated by the proposed development.
- 9 Furthermore, the safety implications of the position of the cycleway adjacent to the carriageway and the roadside parking was assessed, and recommendations were provided. The assessment recommends visibly marking the cycleway throughout the length of the road and addition of a 'no parking' zone downstream of the proposed subject site access, to improve cyclist safety. In addition, some recommendations were provided for consideration by GDC for future traffic planning works, based on the general traffic observations. These recommendations include, in the long term, enforcing an intersection speed limit of 25kph for traffic exiting the Childers Road Traffic Circle and discouraging drivers from parking on the street immediately after exiting the traffic circle onto Stanley Road. In the short term, a construction traffic management plan with associated permits must be prepared, submitted for approval and implemented during the construction phase of the proposed development.
- 10 The proposed development includes 10 parking spaces. Currently the district plan does not contain any objectives, policies, rules or assessment

criteria for minimum car park requirements; however, the Council, at this stage, recommended 1.5 carparks per dwelling, which results in an excess parking demand of two vehicles.

- 11 In my opinion, the 10 parking spaces will provide sufficient parking for the proposed development. As noted above a maximum of two vehicles will be required to park on the street and, in my opinion, the potential associated risk on the external road environment is no more than minor.
- 12 Further to the report mentioned above, I also provided a memorandum *24729-CIV-RFI Response-Transport Impact Assessment Report-473755 dated 07 June 2024* in response to a Request for Further Information, (see Appendix 2 of this evidence statement).
- 13 In the RFI noted above GDC recommended that the parking demand be based on 1.6 to 1.7 vehicles per dwelling unit. In this memorandum, I responded to this query of unmet parking demand and undertook a sightline assessment, considering the vehicles parked on both sides of the proposed vehicle crossing at 99A Stanley Road. I concluded that the on-street parking capacity along Stanley Road could accommodate the unmet parking demand of 2.8 to 3.6 vehicles. I acknowledge that the sight lines for traffic approaching from the Childers Road Traffic Circle in the Northbound lane could potentially be obstructed by parking adjacent to that lane, and on the south side of the vehicle crossing. To mitigate this risk, I suggested that a 'no parking' zone of approximately 4 metres be created south of the vehicle crossing and adjacent to the Northbound lane to improve sightlines from the proposed vehicle crossing.
- 14 Alternatively, the width of the berm on either side of the vehicle crossing could be reduced to shift the kerb line closer to the footpath thereby creating a recessed parking bay. This would ensure that visibility from the crossing is not obstructed by vehicles parked on either side of the crossing.

RESPONSE TO MATTERS RAISED IN THE SECTION 42A REPORT

15 I have reviewed the Section 42A Report issued on 30 August 2024. Matters relating to traffic engineering are addressed primarily in paragraphs 39, 167 to 187 of that report. These matters are as follows:

15.1 Non-compliance with General Standards c2.17.1(H)(2) in respect of clear and unobstructed sight lines, caused by the expected overflow parking onto Stanley Road;

15.2 The effects on visibility on Stanley Road due to the 3-vehicle overflow parking on Stanley Street and the proposed recessed on-street parking;

15.3 Potential safety concerns raised concerning the width of the proposed accessway in proximity to the pedestrian footpath.

15.4 What standard of vehicle was used in the tracking curves provides and what side clearance is provided for the vehicle swept paths.

I address these matters below.

Non-compliance with General Standards c2.17.1(H)(2) in respect of clear and unobstructed sight lines, caused by the expected overflow parking onto Stanley Road

16 There is a potentially unmet parking demand which can only be accommodated by kerbside parking. Kerbside parking has the potential to obstruct visibility for vehicles exiting the site. This issue is not unique to this development. It also potentially arises for most existing vehicle crossings along the street, when other vehicles are parked on the roadside, adjacent to vehicle crossings. The difference between pre-development and post-development scenarios is that the proposed development may generate a higher parking demand which could result in up to three cars being parked on the roadside for an extended period of time, particularly during off-peak periods on weekends and at night.

- 17 Due to the existing vehicle crossings and intersections, Stanley Road has an interrupted flow characteristic and does not permit high flow speeds. The posted speed on the road is 50km/hour at all times, except before and after school where the speed is reduced 40km/hour. I calculated that with an operating speed of 40km/hour on principal road frontage a minimum safe sight intersection distance (SSID) of 70m is required which is the same as the TRMP provisions *TRMP Part C2.1.7.1 H2* for a principal road frontage. Based on my traffic observations and preliminary analysis, it may not be feasible for vehicles in the Northbound Lane to reach a speed of 40km/hour within 30m from the Childers/Stanley Road Traffic Circle, assuming that all vehicles yield when approaching the Traffic Circle. Based on a more realistic vehicle speed of 20km/hour, an SSID of 30m is required for vehicles in the Northbound Lane, approaching from Childers Road Traffic Circle into Stanley Road. Based on the 30km/hour vehicle speed on the Southbound Lane, a 50m SSID is required.
- 18 In the TIA I made recommendations that will improve sightlines to acceptable standards based on the calculated SSID. On page 14 of the TIA report and page 3 of the memorandum *24729-CIV-RFI Response-Transport Impact Assessment Report-473755*, I suggested that a 'no parking' zone approximately 4m in length be created on the south side of the proposed vehicle crossing. Alternatively, the width of the grassed berm can be reduced to approximately 0.4m to shift the parking zone boundary closer to the footpath and improve visibility via a recessed parking bay. These are common methods implemented to address visibility obstruction; however, I understand from the Section 42A Report that the mitigation measures were not accepted by the Council because they are within the road reserve and not within the subject lot boundary.

Potential safety concerns raised concerning the width of the accessway

- 19 The accessway width is adequate for the proposed site. Based on the latest site plan, the legal width of the accessway is 6m and the carriageway width is 5.5m for approximately 7m from the property boundary into the site. This portion of the accessway complies with the requirements of the *TRMP Part C2.1.7.1 I8 Figure C2.10* as it will serve 8 dwellings. There is adequate

space for two vehicles to move past each other and there is no need for any vehicle to reverse back onto Stanley to accommodate another vehicle exiting the site. As the accessway passes Lot 1, the access lot has a carriageway width of 4m and a legal width of 5.7m. At this point the accessway is serving 7 lots and the dimensions of the carriageway are compliant with *TRMP Part C2.1.7.1 I8 Figure C2.10*. Where the portion of the accessway serves proposed Lots 5, 6, 7 and 8, the width of the carriageway narrows to 3.5m, and again this is compliant with the *TRMP Part C2.1.7.1 I8 Figure 2.10* for the servicing of four dwellings. Therefore, the proposed accessway complies with the requirements of the TRMP.

- 20 Narrowing the road width is one of the solutions I am proposing to lower traffic speeds, and I would consider the possibility of severe crashes no more than minimal. I acknowledge that the decrease in the proposed accessway width provides challenges with the manoeuvrability of vehicles, however, considering that on the rare occasion that 10 vehicles are moving, the traffic generated may be bi-directional. This is not expected to cause unnecessary delays and I consider there is minimum risk of accidents within the site.
- 21 The on-site safety of pedestrians may give rise to some concerns due the proximity of the pedestrian pathway to the carriageway, however the pedestrian path will be physically separated from the carriageway by raising it with a standard kerb so that vehicles manoeuvring along the accessway will not accidentally drive onto their path. Therefore, the risk of collisions involving pedestrians on site is no more than minimal.

The vehicle tracking curves provided and their side clearance for the vehicle swept paths

- 22 The GDC tracking on the proposed site plans is based on the 90-percentile GDC Figure C2.14. The minimum recommended clearance for each side of the vehicle is 600mm. The recommended side clearance is not achieved in some circumstances for the tracking curves. The least side clearance on some of the tracking curves is in the range between 50mm to 100mm.

Comparison of the existing site, proposed development and permitted baseline

- 23 I have considered the impacts of traffic generation by the proposed development (8 dwellings) as being more than a permitted baseline scenario. This baseline scenario (comprising four sites with a total of seven dwellings) is discussed further in the evidence of Ms Beachen (Planner for the Applicant). I rely on her assessment of the potential development permitted by the plan in my analysis below.
- 24 Table 1 below has been prepared to illustrate the impact of each development scenario (the permitted baseline compared to the proposed development). I have also included in the second column the existing pre-development situation – one dwelling on one lot.

Table 1 Comparison of the existing site, proposed development, permitted baseline

Site characteristics			
	Existing 1 lot	Permitted Baseline 4 lots	Proposed 8 lots
Number of lots			
Number of 4-bedroom dwellings	0	2	0
Number of 3-bedroom dwellings	1	2	2
Number of 2-bedroom dwellings	0	1	6
Number of 1-bedroom dwellings	0	2	0
Total dwellings	1	7	8
Estimated occupancy	5	30	34
ADT vehicle trip Generation at 10.4 vpd	10.4	72.8	83.2
Peak hour generated traffic (10% of ADT)	1.04	7.28	8.32
Estimated Northbound peak flow (vph)	237.5	243.74	244.78
Percentage increase in peak flow	0.44%	2.99%	3.40%
Percentage increase in ADT	0.15%	1.08%	1.23%
Percentage of available absorption capacity utilised vph	31.2%	32.03%	32.16%
Safe intersection sight distance (m) (Northbound)	30	30	30
Safe intersection sight distance (m) (Southbound)	50	50	50

- 25 Table 1 above shows there is a 1.08% increase in average daily traffic (ADT) when the permitted baseline activity is adopted. The proposed development results in an increase in ADT of 1.23%. The risk profile is not expected to change due to the increase of 0.15% of ADT.

26 Moreover, the peak hour traffic flow is expected to increase by 3% adopting the permitted baseline activity. The proposed development will result in an increase of 3.44% in the peak-hour flow. The absorption capacity of Stanley Road was calculated at 761 vehicles per hour (vph) on the Northbound Lane, which is more than the estimated peak hour flow of 678 vph for both directions. The utilised absorption capacity is in the order of 32% for both the permitted baseline and the proposed development activities. In summary, I do not expect that the proposed development will alter the performance of the Stanley Road environment in comparison with the permitted baseline activity, due to the low traffic generation rates in both scenarios.

RESPONSE TO MATTERS RAISED IN SUBMISSIONS

27 I have read the submissions received from neighbours in response to this application. Several submitters have raised concerns about the traffic planning and impacts due to the traffic generated by the proposed development. The concerns are as follows:

- 27.1 Close proximity of the site to the Childers/Stanley Road traffic circle and the traffic volumes during morning and afternoon hours.
- 27.2 Potential to block traffic for vehicles travelling on Stanley Road due to traffic exiting and entering the site.
- 27.3 Reduction in sightline visibility due to vehicles parked on the roadside adjacent to the vehicle crossing.
- 27.4 Inadequate onsite parking resulting in roadside parking.
- 27.5 Pedestrian safety considering the residents and the students from the nearby school.
- 27.6 The potential for reverse manoeuvring onto Stanley Road presents a challenge to pedestrian and motorist safety.

I address those issues below.

Proximity to the Childers/Stanley Road traffic circle

28 The site is located approximately 35 metres from the Childers traffic circle. The traffic circle is designed for channelized entry to reduce vehicle speeds, calm and improve traffic flow. Pages 5 and 6 of the TIA summarizes the findings of the traffic observations undertaken by a team of professionals on Childers/Stanley Road Traffic Circle during the morning peak hour. There is temporary 40km/hour speed reduction signage. Typically, there is queuing traffic of four to five vehicles in the Southbound lane approaching Childers Road Traffic Circle which clears quickly enough to not block the accessway to neighbouring properties in the Southbound direction. This is a good example of a traffic circle functioning as intended. On page 13 of the same report, I recommended that traffic generated by the new development proceed in the Northbound direction on Stanley Road when exiting the site (i.e., no turning across the oncoming traffic).

Traffic exiting and entering the site blocks traffic

29 As previously mentioned, all vehicles travelling on Stanley Road are expected to move at slow speeds in both the pre-development and post-development scenarios due to the existing vehicle crossings which act as traffic calming devices. The flow characteristic of Stanley Road is an interrupted flow. The practical absorption capacity calculation completed on the Northbound Lane in the TIA for vehicles entering the major stream traffic confirms that Stanley Road has an absorption capacity of 761 vehicles per hour. A post-development traffic generation of 10 vehicles per hour is anticipated according to the *NZTA Planning Policy Manual Appendix 5B (TLA, page 10)*. With a current peak capacity of 637 vehicles per hour, it is unlikely that the traffic generated by the proposed development will cause traffic blockages due to vehicles exiting and entering the site. Based on my traffic observations, during the peak hours more vehicles are travelling in the Southbound direction, and there is enough capacity for vehicles to be absorbed into the Northbound Lane.

Reduction in sightlines due to roadside parking

- 30 As previously explained in Section 16, this is not unique to this development. It also potentially arises for most of the existing vehicle crossings along the Stanley Road when vehicles are parked on the roadside adjacent to vehicle crossings. The difference between the pre-development and post-development scenarios is that the proposed development may generate a higher parking demand, which could result in one or two cars being parked on the roadside, particularly during off-peak periods on weekends and at night.
- 31 In the TIA I made recommendations which will improve sightlines to acceptably safe standards. On page 14 of the TIA report and page 3 of the memorandum *24729-CIV-RFI Response-Transport Impact Assessment Report-473755*, I suggest that a ‘no parking’ zone of approximately 4m in length be created on the southside of the vehicle crossing. Alternatively, the width of the grassed berm may be reduced to approximately 0.4m to facilitate shifting the parking zone boundary closer to the footpath to improve visibility. These are generally acceptable methods that are typically used to address these concerns.

Parking overflow onto the street

- 32 As discussed in previous sections, there is a potential unmet parking demand that may have to be accommodated. This overflow parking is expected to be for periods during the off-peak periods typically on the weekend and at night. The overflow parking increases the risk due to obstruction of sightlines for vehicles exiting the site and mitigation measures may be implemented. This matter has been addressed in Paragraph 30 above.

Pedestrian safety

- 33 According to the *NZTA Waka Kotahi NZ Transport Agency Crash Analysis System*, there have been no crashes involving pedestrians and cyclists at Childers Road traffic circle or along Stanley Road in proximity to Gisborne Boys High School in the past five years. The proposed development will

not alter pedestrian safety risk due to the minimal impact on the existing road environment. The TIA report summarises the traffic observations undertaken under Section 2.2 on pages 5 and 6. Observations undertaken on 15 February 2024 indicated that pedestrians were comfortable using the footpaths. Sight lines were sufficient to enable drivers exiting the site to see pedestrians using the footpath. The driver-to-pedestrian sightlines meet the *Austroads and NZTA RT6*. A 50% visually permeable timber batten fence proposed in the design allows the driver sufficient visibility to see pedestrians on the footpath based on a 5-metre approach site distance.

- 34 Based on the general traffic observations undertaken by my teammates and I, I noted that it may be beneficial for the Council to consider a designated pedestrian crossing at Gisborne Boys High School. This is not due to the proposed development but rather, in my opinion, it would greatly improve pedestrian safety for the students in the current existing (i.e. pre-development) environment.
- 35 As for the onsite safety of pedestrians, I note that the driveways within the site will be separated from the outdoor areas by a 1.8m timber paling fence. As previously mentioned in section 21, the pedestrian path will be physically separated from the carriageway by raising it with a standard kerb so that vehicles manoeuvring along the accessway will not accidentally drive onto their path. Therefore, the risk of collisions involving pedestrians on site is no more than minimal.

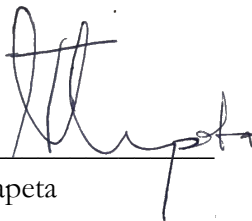
Reverse manoeuvring

- 36 The proposed development discourages reverse manoeuvring onto Stanley Road and the layout of the lots encourages forward entry and exit to the development. Vehicles will reverse out of the driveways and onto the shared accessway when leaving the lots. In my opinion, there is sufficient room within the shared accessway for this manoeuvre to be performed safely. This is a better design than the existing driveway arrangements of neighbouring lots near 99A Stanley Road, as most vehicles exiting these driveways can only safely reverse onto Stanley Road.

CONCLUSIONS AND RECOMMENDATIONS

- 37 The proposed development generates more traffic than currently exists, however, in my opinion, the traffic generated has a minimal impact on the overall safety and performance of the road environment. There is a potentially unmet parking demand which may need to be accommodated by kerbside parking. The kerbside parking may result in obstruction of visibility for vehicles exiting the site, therefore I recommend a recessed parking bay and no parking zones to be considered for the mitigation of this impact.
- 38 I acknowledge that these recommendations can only be implemented with the agreement of the road controlling authority (GDC).
- 39 The non-motorised traffic facilities (pedestrian path and cycle lane) have adequate capacity to accommodate the new development. The driver-to-pedestrian sight lines will not be obstructed for vehicles exiting the site.
- 40 The accessway has been designed to meet the needs of the proposed development per the rules for dimensions specified in the *Tairāwhiti Resource Management Plan*. The onsite pedestrian safety has been improved by implementing a raised path with standard kerb. Lastly, driveways within the site will be separated from the outdoor areas by a 1.8m timber paling fence which is another measure implemented to improve the onsite safety of pedestrians and particularly children.

[Signature]



Takudzwa Mapeta

Appendices

Appendix 1 - 24729-CIV-Infrastructure Assessment-Transport Impact Assessment-432608

Appendix 2 - 24729-CIV-RFI Response-Transport Impact Assessment Report-473755 dated 07 June 2024

APPENDIX 1

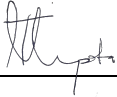



NZHG Gisborne Limited
TRAFFIC IMPACT ASSESSMENT
99A Stanley Road, Gisborne

Project Reference: 24729
March 7, 2024

DOCUMENT CONTROL

Version	Date	Comments
A	2024-03-07	For Resource Consent

Version	Issued For	Prepared By	Reviewed & Authorised By
A	Issued for Consent	<p>X </p> <p>Takudzwa Mapeta BEng (Hons), MEngNZ Civil Engineer</p>	<p>X </p> <p>Greg Bush BEng (Hons), MSc, MEngNZ Geotechnical/Civil Engineer</p>

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1 INTRODUCTION

Land Development & Engineering Ltd (LDE) has been engaged by NZHG Gisborne Limited to undertake a Traffic Impact Assessment of a site located at 99A Stanley Road, Gisborne (Figure 1).

This report provides the traffic impact assessment for a proposed development of eight dwellings on the property at 99A Stanley Street, Te Hapara, northwest of Gisborne Central. The area of the site is approximately 1,590m² and this will be divided into units with carparks, accessway and landscaping features. The project is aimed at developing medium density housing with ground floor areas of 90.2m² for the smaller units and 112.8m² to 113.7m² for the larger units. There is a proposed right of way that provides vehicular and pedestrian access to the lots from Stanley Road. The proposed development fronts a busy principal road, Stanley Road. The site is in proximity to the Childers Road traffic circle and there is Gisborne Boys High School within the vicinity of the site. The project is not meant to effect any change in the principal road characteristics such as geometry (lanes, road alignment etc). Figure 1 below shows the locality of the project.



Figure 1 Site Locality Plan

We understand that the purpose of this Traffic Impact Assessment is to investigate the impact of the proposed development along the affected road from a safety perspective as part of a Resource Consent application requirement. The level of assessment adopted for the project will be a neighbourhood transport impact assessment meaning the proposed development should have a minor transport impact on the local transport network. We also note that the assessment must take cognisance of the following as requested by the Client:

- Cyclist and pedestrian safety
- Gisborne High School across the road from the development
- Childers traffic circle near the site
- The site fronts a busy road, Stanley Road

2 SITE INVESTIGATIONS

2.1 Surrounding Road Environment

Currently the site has an existing dwelling with a single accessway to the property on 99A Stanley Road. The access width is approximately 3m. The site is located along Stanley Road which runs in the north to south direction and connects to Childers Road in the Southwest end and Gladstone Road on the Northeast end. This section of Stanley Road within the vicinity of the site also connects to School Road along the Northbound Lane close to Gisborne Boys High School and Bayly Road further along the Southbound Lane just before Gladstone traffic circle. *Figure 2* below shows the surrounding road environment.

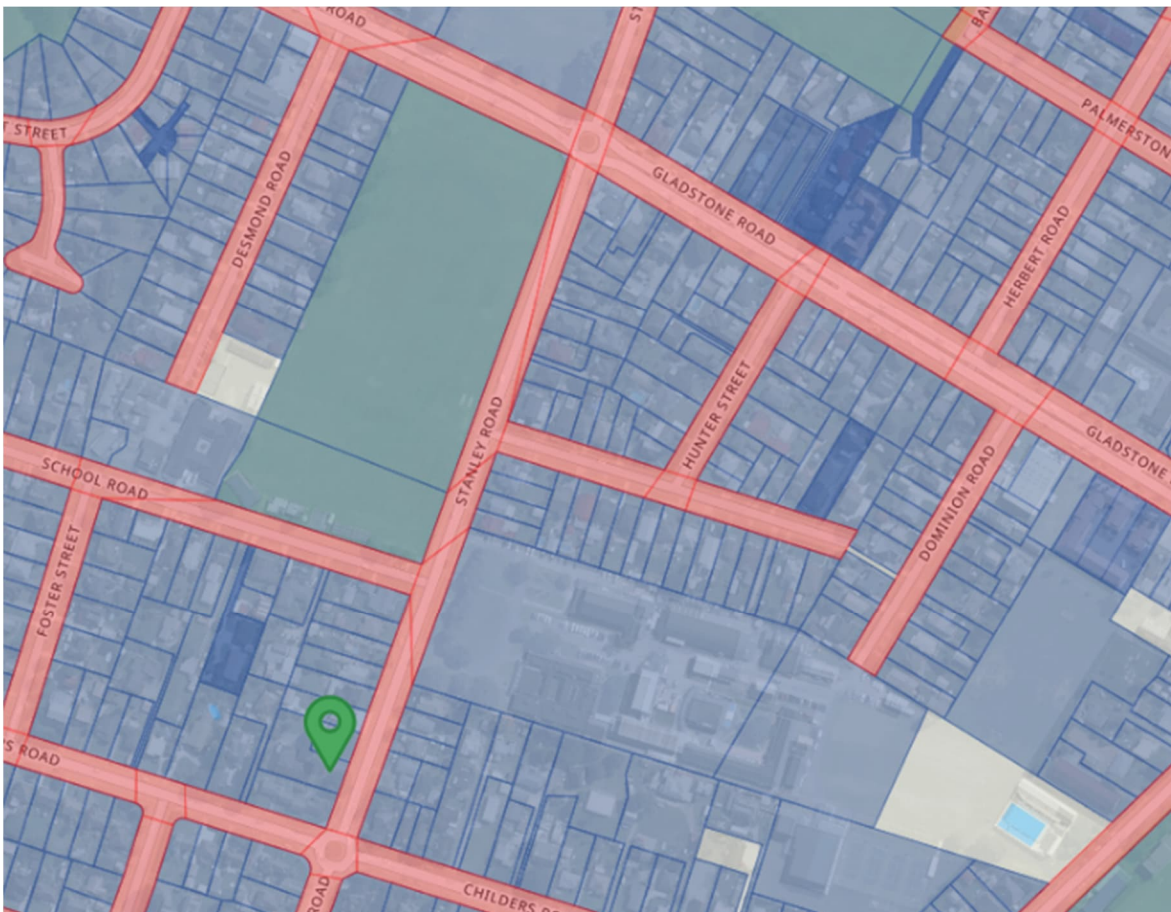


Figure 2 Surrounding Road environment.

Table 1 summarises the characteristics of the nearby road environment consisting of different roads with various functional classifications, operating speeds, and dimensions.

Table 1 Characteristics of the nearby road environment

Road Name	Road reserve width (m)	Carriageway width (m)	Posted Speed (kmh)	Cycleway width	Footway Width (m)	Distance from site (m)	Other features
Stanley Road	22	12.4	50	1.5m*	2m		<ul style="list-style-type: none"> • Berms which are grassed. • Standard kerb and channel combination on edges. • Streetlighting
Childers Road	20	12.9	50	1.5m*	2m	35m	
School Road	20	6.1	30	1.5m*	1m	140m	
Bayly Road	20	5.8	30	1.5m*	1m	250m	
Gladstone Road	30	10.5	50	1.5m*	1.5m	420	

*Combined with off-street parking

2.2 Traffic data

The following table shows the traffic volumes which were established for the roads within the vicinity of the site according to the Mobile Road website:

Table 2 2021 Traffic Data, collated from Mobile Roads.

Road	ONRC	Average Daily Traffic (estimated)	Mode split		Peak hour flow*
			Heavy vehicles	Light vehicles	
Stanley Road	Arterial (Principal according to GDC Code of Practice)	6,000 vpd	3%	97%	600vph
School Road	Secondary collector	109 vpd	6%	94%	11vph
Childers Road	Arterial	10,000 vpd	3%	97%	1000vph
Bayly Road	Access	275 vpd	6%	94%	28vph
Gladstone Road	Arterial	7,500 vpd	4%	96%	750vph

*Peak hour volume based on 10% of the AADT for urban situations according to Austroads Guide to Traffic Management Part 6: Intersections, Interchanges and Crossing Management

Traffic observations were conducted for the midweek AM Peak hour on Thursday 15th of February 2024. The reason for opting to observe traffic for the morning peak hour is that traffic generated along Stanley Road will include the trips generated by school drop offs at Gisborne High School and the traffic generated by people going to work in the morning. Appendix B shows some of the images taken during the site visit. The aims of the site observations were as follows:

- to gain an understanding of the flow and characteristics of school-related traffic and at the nearest intersection (Childers traffic circle) during peak hour.
- To visually assess the safety of the road by identifying un-safe behaviours and locations of concern.

Observations were taken at selected locations on and around the site. Locations with higher volumes of pedestrians, cyclists, and vehicles were prioritized. The following observations were noted for the traffic Circle at Childers Road:

- There is minor queuing traffic of four to five vehicles on the Southbound towards Childers Road on Stanley Street during the peak hour. The queuing traffic clears relatively fast enough to not block accessways to properties on the Southbound direction.
- Most vehicle destinations were Eastbound on Childers Road.
- Modal split of the road users is estimated to be 90% private cars, 3% walking, 2% cycling, 5% public buses (school buses included), 1% heavy commercial vehicles.
- Traffic safety rules were being observed at the traffic circle by all road users.
- The directional split during the AM peak hour is estimated at 80%:20% with 80% in the Eastbound flow and 20% in the Westbound flow.

The traffic observations at Gisborne High School resulted in the following findings:

- There are no loading bays on both sides of the road and most passenger cars and buses utilise on street parking. In the Southbound Lane, approximately 80% of vehicles (passenger cars and buses) park along the street downstream of the accessway while 20% of vehicles utilise the accessway leading to the school gate to drop off students. In the Northbound Lane, all vehicles park on the roadside downstream of the accessway entry point.
- During the school pick up and drop off times, the speed reduces to 40km/hr and there is a speed limit sign in place. See *Figure 12*.
- A speed limit of 15kmh for the accessway leading to the school gate makes the traffic management more efficient and safer.
- The Waka Kura School buses safely drop off students at Gisborne High School starting from 07:50am according to the bus timetable.
- There is no queuing traffic caused by the school drop offs along Stanley Road. There is a queuing traffic of 2 to 3 vehicles which are turning left onto Stanley Road from the School's accessway during the peak hour.
- School staff have adequate parking within the school premises and along School Road.
- Residents within the vicinity of the site have adequate off-street parking within their lots.
- Modal split of the students arriving at the school is approximately 80% private car passengers, 8% walking, 2% cycling, 10% public buses passengers.
- The directional split is observed during the AM peak hour along Stanley Road is estimated to be 65%:35% with 65% in the Southbound Lane and 35% in the Northbound Lane.
- The cycleway's positioning adjacent to the carriageway and the presence of on street parking may not be desirable from a safety perspective.

2.3 Road safety

The history of the road safety of the existing road environment was reviewed using the Waka Kotahi Crash Analysis System. The study area encompasses Childers Road, Stanley Road, School Road, Bayly Road and Gladstone Road. Figure 3 below shows the study area and the type of crashes for the period between 2019 and 2023.



Figure 3 Crash Analysis Data showing all data from 2019 – 2023.

The table below shows the total number of crashes reported in the period between 2019 and 2023 along Stanley Road and the nearby road environment.

Table 3 Crash Analysis data for the period 2019-2024

Type of Crash	Color Code on CAS Map	Number of Crashes
Fatal		0
Serious		0
Minor		2
Non-Injury		21

In the last 5 years, 6 crashes have been reported at the Childers traffic circle. Five of the crashes are non-injury crashes involving two vehicles for each crash. There was only 1 minor crashing between two vehicles causing minor injury to one person. There are no crashes involving pedestrians and cyclists. The Figure below shows the crashes at Childers traffic circle.



Figure 4 Childers Traffic Circle

The proposed site vehicle is approximately 35m from the Traffic circle. There is another vehicle crossing closer to the Childers traffic circle. As evidenced in *Figure 4*, no crashes have been reported in front of vehicle crossings in the last 5 years. With no serious or fatal crashes reported during the last five years at Childers Traffic Circle, it is considered that the section has a reasonably acceptable safety record.

Within the vicinity of Gisborne Boys High School, four minor crashes have been reported. Most of these crashes involved vehicle manoeuvrability issues as cars were leaving on street parking or making turns. Only one minor crash was reported with two people getting minor injuries. There are no crashes involving pedestrians and cyclists. *Figure 5* below shows the crashes near Gisborne Boys High School.



Figure 5 Gisborne High School nearby road environment.

With no serious or fatal crashes reported during the last five years within the vicinity of the site, it is considered that the roads have an acceptable safety record.

3 PROPOSED DEVELOPMENT DETAILS

The proposed development shown in Appendix A has the following attributes:

Table 4 Proposed development attributes.

Zone	General Residential
Land Use Category	Live and play
JOAL Legal width	- 5.7m - 7.2m
Site area	1,590m ²
Number of Private Carparks	10
Pedestrian footpaths width	1m

The proposed site plan shows that there are two 3 bedroomed lots and six 2 bedroomed lots. The proposed site plan is attached in Appendix A. An estimation of the dwelling occupancy was done in accordance with one of GDC Design Guidelines with occupancy allowances as follows:

Table 5 Dwelling occupancy guidelines.

Number of bedrooms	Occupancy for design purposes
1	2
2	4
3	5

Therefore, the expected occupancy for all the lots is approximately 34. This population will generate traffic based on their desired destination from the origin (home). It will be noted that the subdivision configuration is designed in accordance with new environmentally sustainable design practice that is intended to maintain low vehicle speeds as appropriate within residential developments.

3.1 Predicted vehicle trip generation.

According to the NZTA Planning Policy Manual Appendix 5B, the estimated trip generation rates for new development proposals for dwelling houses are estimated as shown in Table 6:

Table 6 Estimates for Trip generates rates (NZTA Planning Policy Manual)

Land Use	Trip Generation rates	
	Daily (vpd)	Peak hour (vph)
Dwelling houses	10.4/dwelling	1.2/dwelling

Therefore, the current and future trip generation rates for the site in the pre-development and post development era are as shown in Table 7:

Table 7 Existing and Future trip generation rates for the site

Case	Trip Generation rates	
	Daily (vpd)	Peak hour (vph)
Existing (pre-development)	10.4	1.2
Proposed Development (post development)	83.2	9.6
Increase in Trip Generation	72.8	8.4

3.2 Parking

The proposed plan has 10 parking lots within the property. The parking lots will have a minimum length of 5m. Vehicles will reverse onto the shared accessway when leaving the lots. The layout of the lots is in such a way that forward entry and exit to the development is encouraged. The driveways where cars reverse is separated from the play areas by a 1.8m timber paling fence thus the risk of accidents is reduced in this low-speed environment.

Currently the district plan does not contain any objectives, policies, rules, or assessment criteria for minimum car parks requirement for a particular development, however, the Council recommends provision of an average of 1.5

carparks per dwelling based on experience with similar development density thus, the number of parking lots to serve the proposed development would be 12.

According to Stats NZ, the Census 2018 demographic studies for Te Hapara indicate that only 59% of the population is economically active and this directly translates to the portion of the population which may afford or want to procure a vehicle per household. Furthermore, the site is in proximity to Gisborne Central and other essential services, and this encourages other modes of transport to be preferred such walking and cycling. There are also public buses which are accessible nearby. Therefore, it is expected that not all households will own vehicles. This significantly reduces the potential of residential carparking within the site to overflow on the street.

Loading and unloading vehicles for regular deliveries may be accommodated within the remaining parking spaces off-street and on-street parking should there be an overflow. The parking arrangement is not expected to affect the pre-development parking patterns since all vehicles may be accommodated within the site. On street Refuse collection is proposed for the development. Kerbside collection will be done for the waste generated by the lots.

The proposed parking must allow for parking of emergency vehicles. The accessway shall comply with the standards set out in New Zealand Fire Service Firefighting Water Supplies Code of Practice SNZ PAS 4509:2008 which requires the height clearance to exceed 4 metres, roading width to be more than 4 metres. The proposed access width is compliant with this requirement.

3.3 Jointly Owned Access Lot

A Jointly owned access lot is proposed to connect to the existing road network and provide access to the individual lots. The width of the JOAL will be at least 5.5m, which is sufficient for two-way vehicle movement, and it can accommodate a medium rigid truck with ease. The width of the JOAL is 7.2m at the vehicle crossing.

The proposed development's vehicle crossing does not qualify for intersection design according to NZTA Access intersection design criteria since the development will not generate more than 100 vpd or have peak flows more than 20 vph. Consequently, the vehicle crossing will not be expected to comply with the intersection spacing policy and design standards. The Minimum accessways spacing requirements according to the NZTA Policy Planning Manual Appendix 5B are as shown in the Table below:

Table 8 Minimum accessways spacing requirements

Posted speed limit (km/h)	85 th percentile operating speed km/hr	Recommended minimum distance between local road accessway and intersection (m)
50	60	30
40*	45	-

*Posted speed during school drop off/pick up times

Currently the nearest intersection to 99A Stanley Road is more than 30m away from the accessway, therefore the accessway will be compliant with the spacing requirements based on the NZTA Policy Planning Manual Appendix 5B. Sight lines and speed for the JOAL are expected to not cause accidents due to pedestrian activity and the

vehicles. According to Austroads Research report AP-R472-15, the approach site distance for approach vehicle speed of 10km/h is 5m. Furthermore, the document RTS 6 Guidelines for visibility at driveways highlight a 5 metres x 2.5 metres visibility splay for vehicle crossing as shown in the Figure below:

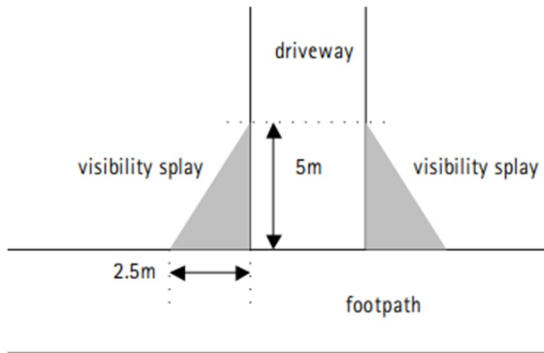


Figure 6 Recommended visibility splay for driveways crossing footways.

The proposed site plan in Appendix A shows that the 50% visually permeable timber batten fence provided in the design allows the driver enough visibility to look out for any pedestrians on the footway thus achieving the recommended approach sight distance. A speed limit of 10km/h is recommended for vehicle movement within the access lot.

For lanes which fall under the classification with less than 200 vehicles per day for a residential development with 8 dwelling units, there are conditions for accessways which must be met according to NZS 4404:2010 Table 3.2. The following illustrates the maximum allowable values and the proposed development target values for these attributes:

Table 9 Conditions for vehicle accessways

Attribute	Maximum allowable	Proposed development target
Grade	16%	2%*
Road width	9m	7.2m
Movement lane width (excluding shoulder)	5.5m	4m

*Based on the visual observation of the flat terrain of the site and existing development.

The JOAL for the proposed site development meets all the access lot criteria for the proposed development as shown in Table 9.

4 EFFECTS AND MITIGATION ON ROAD NETWORK

4.1 Effects on the existing road network

To assess the effects of the generated traffic from the site, a preliminary comparison of the average daily traffic generated on Stanley Road and the expected traffic generated was done. Currently, the generated traffic by the site during the AM peak hour is estimated at 1.2 vehicle per hour and 10.4 vehicles per day according to the NZ

Transport Agency Planning Policy Manual. The Table below shows the estimated traffic generated along Stanley Road before and just after the development has been established.

Table 10 Current versus Future Traffic

	Current	Future (2027)
ADT generated on Stanley Road	6367 vpd	6757 vpd
AM Peak hour generated on Stanley Road	637 vph	676 vph

The following assumptions were made in the calculations for traffic growth projections:

- Base year for traffic volume is 2024.
- Estimated traffic growth rate is 2%.
- The units will be ready for occupation by 2027.

Based these assumptions, there is a 6% increase in ADT anticipated on Stanley Road. Considering the 65%:35% (Southbound: Northbound) directional split observed during the peak hour, it is recommended that the traffic generated by the new development must only turn left onto Stanley Road in the Northbound direction for better flow of traffic exiting the site. This would mean that the peak hour flow for the Northbound Lane increases to 246 vph from 236 vph. This is a 4% increase in the peak hour flow.

Practical absorption capacity for the vehicles generated by the site into the major traffic stream, Stanley Road was calculated under the following assumptions:

- Negative exponential headway distribution
- Random arrivals in both major and minor traffic streams
- Gap acceptance situation applies.
- Practical absorption capacity factor 0.8
- Follow up headway = 3s/veh
- Critical lag=critical gap = 5s/veh

Using Equation 5.4 and 5.5 from Austroads Guide to Traffic Management Part 2, the practical absorption capacity is 0.2116veh/s which is equal to 761vph. This means that Stanley has the capacity to absorb 762 vehicles per hour. The site is only capable of generating 10 vehicles per hour therefore the development is likely to have minimal impact on the major traffic stream on Stanley Road.

4.2 Construction traffic

Owing to the magnitude of the construction activity which will take place, traffic within the nearby road network may potentially impacted during this phase. We recommend mitigation measures are put in place to minimise the potential impacts of construction traffic for that short period of time. We recommend Traffic management plan must be developed and approved prior to commencement of the work. The following will be considered in this plan:

- Times of operation to avoid peak periods.
- The routes used that will be utilised by construction traffic.
- Traffic generated by trucks during site clearance, earth, and civil works.
- Traffic generated by construction employees may be minimised by using public transport to get them to and from site.

5 CONCLUSION

The traffic impact assessment for the proposed development confirms several key findings. Firstly, the estimated traffic generation rate for the proposal is 84 vehicles per day and 10 vehicles per hour during the peak hour. The expected occupancy of the proposed development is approximately 34 people. Therefore, we assess the generated trips result in traffic which can be accommodated by the site and the adjacent road network.

Additionally, the proposed parking lots have been determined to be sufficient to accommodate the needs of the development. We also note the design of the Jointly Owned Access Lot (JOAL) meets all relevant requirements, ensuring safe and efficient access. Measures have been taken to provide safe pedestrian and cyclist access to the site, including the implementation of designated pathways. Furthermore, a vehicle crossing has been carefully designed to prioritize safety, minimizing potential conflict points, and ensuring adequate visibility for both drivers and pedestrians. In terms of waste management, kerbside collection will be implemented to handle generated waste. Finally, the accessway meets the standards necessary for emergency vehicle access, including sufficient height clearance and roading width. Overall, the assessment confirms that appropriate measures have been taken to mitigate potential traffic impacts associated with the proposed development.

The assessment of the existing road environment near 99A Stanley Road has yielded several conclusions. Over the past 5 years, a total of 23 crashes have been reported, with the majority being non-injury incidents and only 2 minor crashes. These minor crashes occurred at Childers traffic circle and near Gisborne Boys High School, respectively. Notably, there have been no recorded crashes involving pedestrians or cyclists within the area. Furthermore, no crashes have occurred directly in front of the access to the proposed site or nearby lot accesses on Stanley Road. Overall, the safety record of the road environment in the vicinity of the site is deemed acceptable.

Conformation by means of absorption calculations has determined the major traffic stream in the area can absorb the traffic anticipated from the proposed development. Additionally, footways in the area have been found to have adequate capacity for the pedestrian volumes generated. However, concerns have been raised regarding the safety implications of the cycleway's positioning adjacent to the carriageway and the presence of on-street parking on Stanley Road. To mitigate these concerns, we recommend a no parking zone is created downstream of the proposed access. We assess that this will remove a single on-street parking space that is very rarely used and will improve road safety markedly for all road users of the turning circle and Stanley Road residents. Alternatively, additional analysis could be undertaken to determine other measures to reduce risk.

There are recommendations based on the general traffic observations undertaken in the nearby road environment that are not specifically caused by the proposed development, but they may assist in reducing the risk to road users. The following recommendations may be considered by GDC during future transport planning works:

- Intersection speed limit may be reduced to 25km/h. Traffic exiting Childers traffic circle onto Stanley Road on the Northbound Lane must have this speed limit.
- Discouraging drivers from parking on street immediately after exiting the Childers traffic circle onto Stanley Road on the Northbound Lane to avoid potential clashes with cyclists.
- The cycleway may be visibly marked throughout the length of the road.
- Encourage safe, consistent, and compliant behaviour through well informed and educated road users.
- Provide for construction traffic management plan which may include road use management strategies such as such as transportation of construction workers to and from site using public transport.

6 LIMITATIONS

This report should be read and reproduced in its entirety including the limitations to understand the context of the opinions and recommendations given.

This report has been prepared exclusively for NZGH Gisborne Ltd in accordance with the brief given to us or the agreed scope and they will be deemed the exclusive owner on full and final payment of the invoice. Information, opinions, and recommendations contained within this report can only be used for the purposes with which it was intended. LDE accepts no liability or responsibility whatsoever for any use or reliance on the report by any party other than the owner or parties working for or on behalf of the owner, such as local authorities, and for purposes beyond those for which it was intended.

We note that our findings are based on qualitative on-site assessment, as such we have not undertaken any traffic counts, modelling, or detailed analysis owing to the level of assessment required for the proposed development as requested by the Client.

This report was prepared in general accordance with current standards, codes, and best practice at the time of this report. These may be subject to change.

7 REFERENCES

1. *Land Transport Management Act 2003 (LTMA) - Transit NZ*
2. *Resource Management Act 1991*
3. *Transit New Zealand Planning Policy manual.*
4. *The Tarawhaiti Resource Management Plan*
5. *New Zealand Fire Service Firefighting Water Supplies Code of Practice SNZ PAS 4509:2008.*
6. *New Zealand Standard NZS 4121:1985: Design for Access and Use of Buildings and Facilities by Disabled Persons.*
7. *National Policy Statement on Urban Development 2020 (NPS-UD)*
8. *Australian/New Zealand Standard AS/NZS 2890.1:2004, Part 1 off-streetcar parking*
9. *Guidelines for visibility at driveways RT6*
10. *Gisborne Engineering Code of Practice*
11. *New Zealand Standard NZS 4404:2010 Land Development and subdivision Infrastructure*
12. *Austrroads Research report AP-R472-15*
13. *Austrroads Guide to Traffic Management PART 2 Traffic Theory*

APPENDIX A

Sheet Index

Layout ID	Layout Name	Status Code
02	Site Aerial and Existing Plan	KO
03	Neighbourhood Context	KO
04	Proposed Site Plan	KO
05	Unit Plan & Coverage	KO
06	Site Fencing & Landscaping	KO
07	Proposed Floor Plans	KO
08	Site Outer Elevations	KO
9	3D Images	KO
09	Site Inner Elevations	KO



Resource Consent

Issue Date: 16/02/2024
99a Stanley Road
Gisborne
New Zealand

NZHG Stanley Road



ATKINSON HARWOOD
ARCHITECTURE

e: sol@atkinsonharwood.co.nz
p: 027 465 9236

SITE INFORMATION

Site Address: 99a Stanley Road
 Gisborne
 New Zealand

Site Legal: Lot 1 DP 5799

ZONE

General Residential

WIND ZONE

Medium

EXPOSURE ZONE

Zone C

EARTHQUAKE ZONE

Zone 3

SOIL TYPE

Refer Geotech

RAINFALL INTENSITY

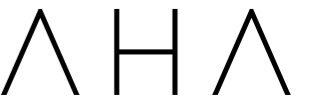
60 - 70

SITE AREA

1,590m²

EXISTING SERVICES

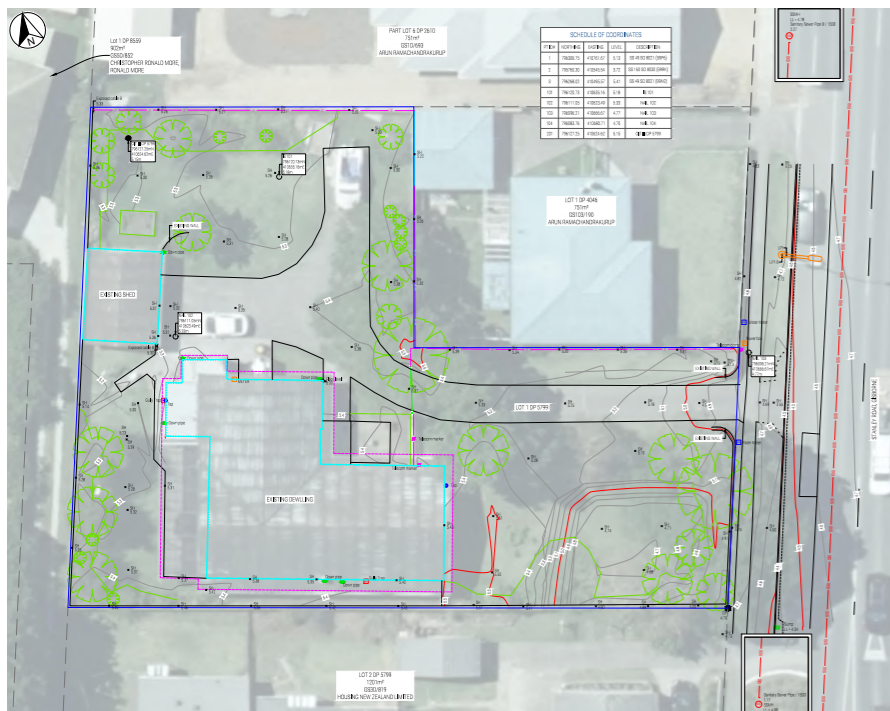
- SS — Sewer
- SW — Stormwater
- WM — Water Supply



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ARCHITECTURE



Site Aerial



Existing Site Survey Plan



Existing Site Plan

Scale 1:300

Rev	Revision	Date

Site Aerial and Existing Plan

Resource Consent

NZHG Stanley Road

99a Stanley Road

Revision:

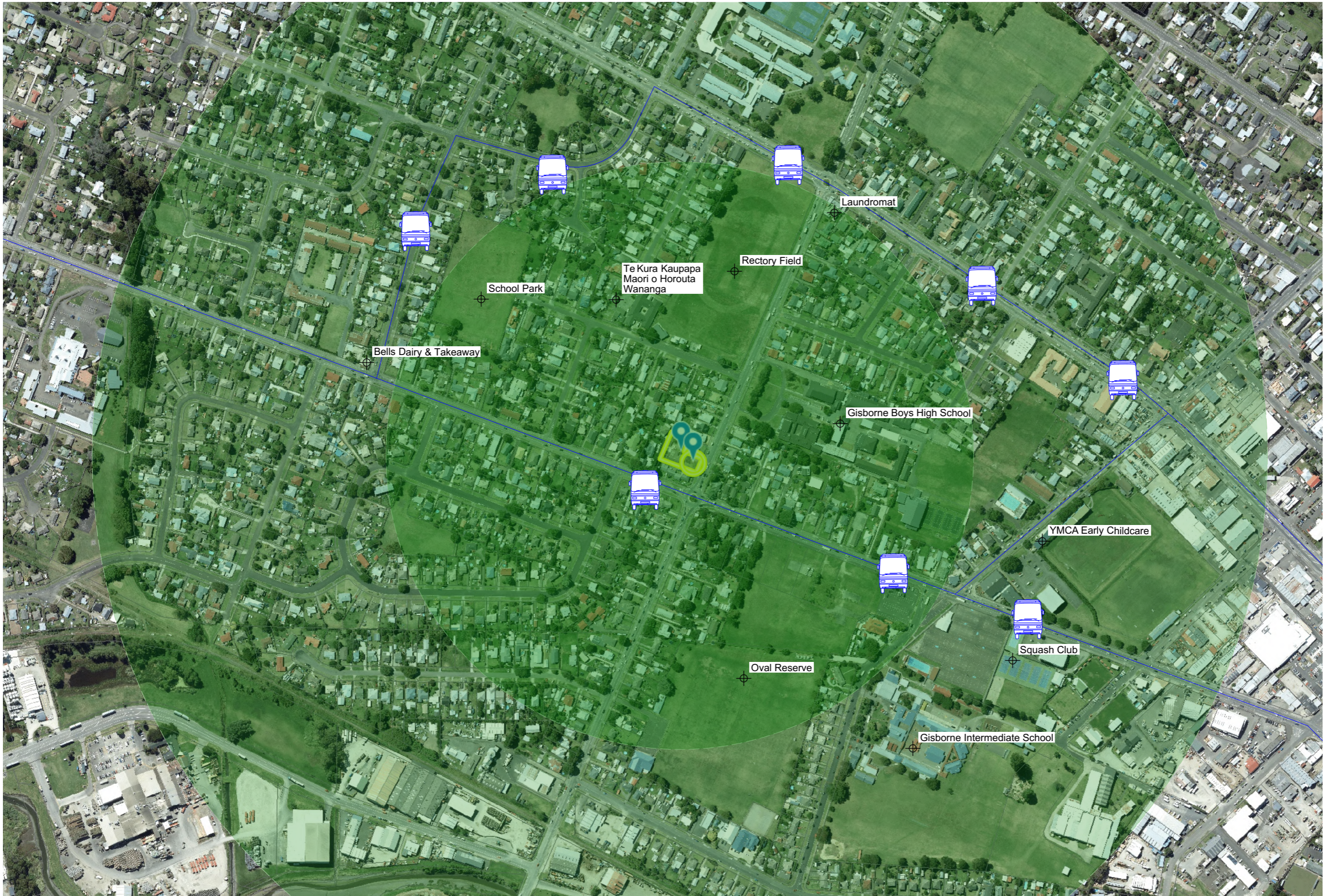
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1:6.0209, 1:300

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Neighbourhood Context

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99a Stanley Road

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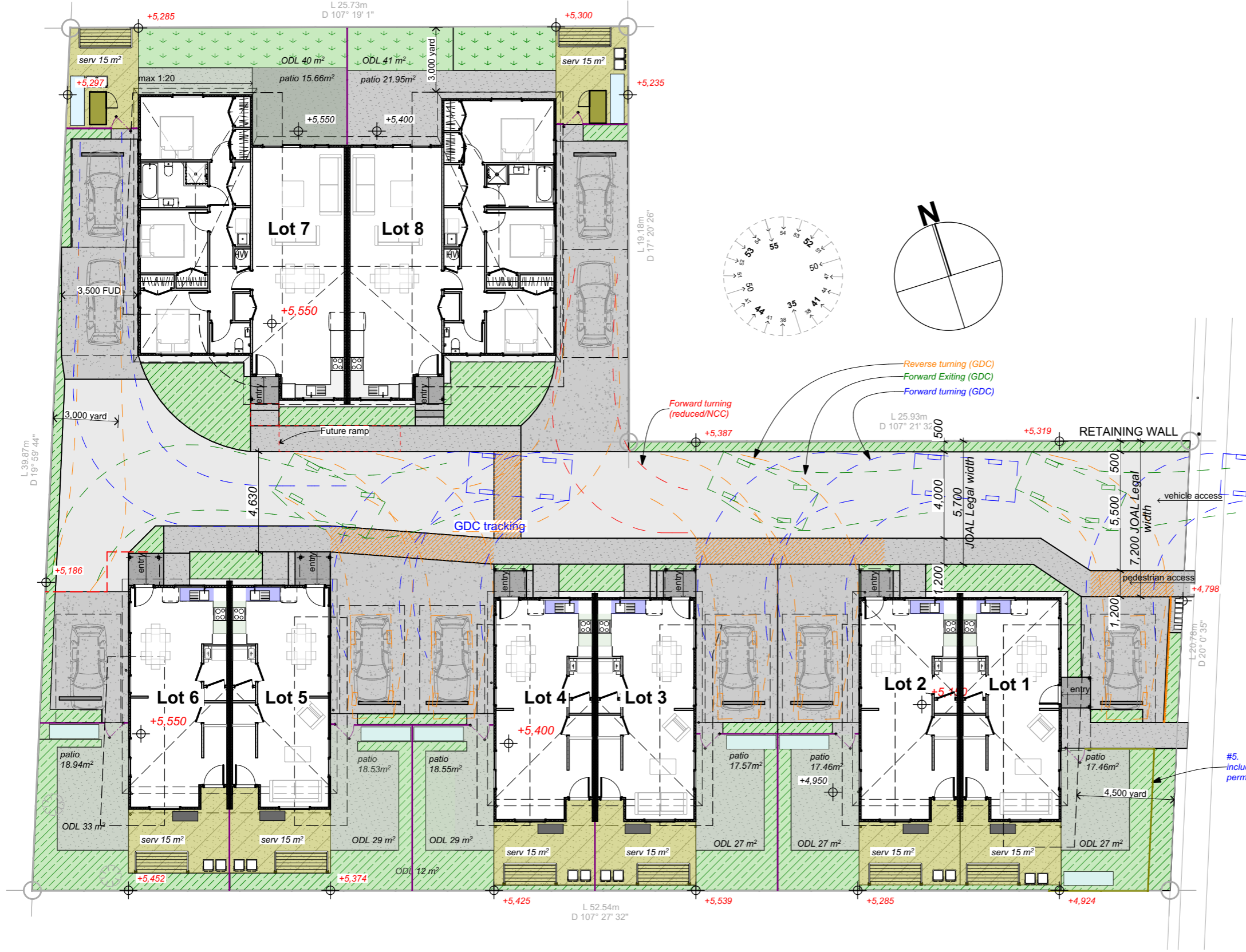
Indicates bus stop

Fence Key	
2D Plan Preview	Element ID
	#1. 1.2m Timber Batten Fence 50% visually permeable
	#4. 1.8m Timber Pailing Fence
	#5. 1.8m Timber Fence including 300mm visually permeable upper section
	Existing Boundary Fence
	Gate - 1.2m Aluminium
	Gate - 1.8m Timber Pailing on Metal frame

Site Works	
2D Plan	Element ID
	Concrete Paving (Broom Finish with 4% Oxide)
	Concrete Private Carpark (Broom Finished with Sawcuts)
	Concrete Service Court (Broom Finish)
	Garden Bed with Mulch
	Shared Driveway - refer Civil

Site Features	
2D Plan Preview	Element ID
	28m Washing Line
	2000L APD Tank
	Garden Master Shed 1.53 x 0.785
	Garden Storage Box
	Misc: Letter Box
	Rubbish Bins

SITE INFORMATION
 Site Address: 99a Stanley Road
 Gisborne
 New Zealand
 Site Legal: Lot 1 DP 5799
ZONE
 General Residential
WIND ZONE
 Medium
EXPOSURE ZONE
 Zone C
EARTHQUAKE ZONE
 Zone 3
SOIL TYPE
 Refer Geotech
RAINFALL INTENSITY
 60 - 70
SITE AREA
 1,590m²
PERMITTED COVERAGE
 35% of NET



Typologies		
ID	Typology	GF Area (m ²)
Lot 1	I2 Two-story Duplex	90.2
Lot 2	I2 Two-story Duplex	90.2
Lot 3	I2 Two-story Duplex	90.2
Lot 4	I2 Two-story Duplex	90.2
Lot 5	I2 Two-story Duplex	90.2
Lot 6	I2 Two-story Duplex	90.2
Lot 7	Z3 Duplex FUD	113.7
Lot 8	Z3 Duplex	112.8

Outdoor Living Space		
ID	KO M-255	Area Achieved (m ²)
Lot 1 ODL	20m ²	27.33
Lot 2 ODL	20m ²	27.06
Lot 3 ODL	20m ²	27.06
Lot 4 ODL	20m ²	28.56
Lot 5 ODL	20m ²	28.55
Lot 6 ODL	20m ²	32.87
Lot 7 ODL	35m ²	39.95
Lot 8 ODL	35m ²	41.02

Rev	Revision	Date

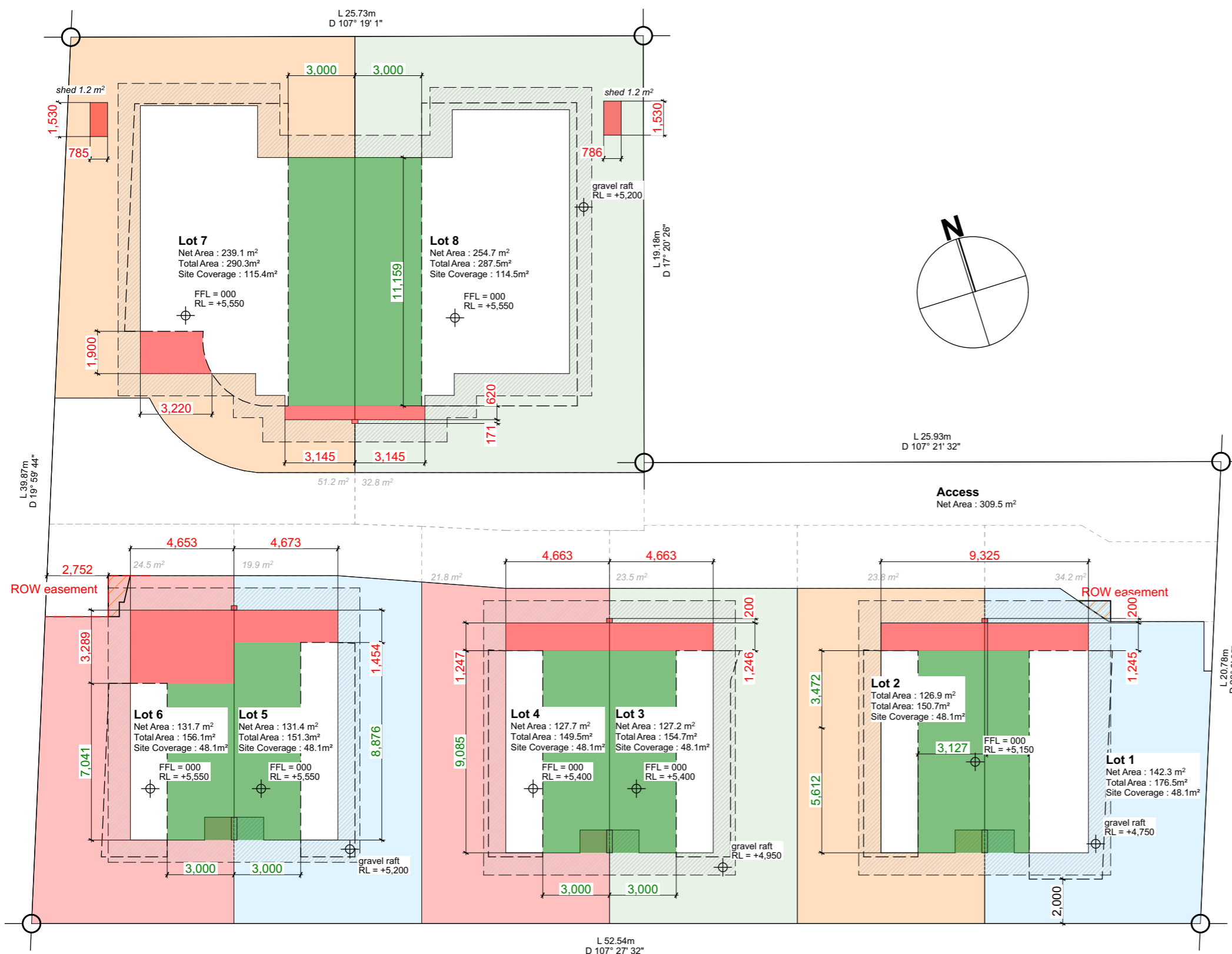
Proposed Site Plan

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 NZHG Stanley Road
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Lot Sizes and HDC Site Coverage - 35% allowed					
Lot	Lot Area (m ²)	Total Area in ROW portion (m ²)	35% GDC Coverage (m ²)	Proposed Building Coverage (m ²)	Proposed Site Coverage (%)
Lot 1	142.26	176.5	61.78	48.1	27.3
Lot 2	126.89	159.6	52.75	48.1	30.1
Lot 3	127.19	154.7	54.1	48.1	31.1
Lot 4	127.73	149.5	52.3	48.1	32.2
Lot 5	131.42	151.3	54.3	48.1	31.7
Lot 6	131.68	156.1	55.9	48.1	30.8
Lot 7	239.07	290.3	99.6	115.4	39.6
Lot 8	254.69	287.5	98.9	114.5	39.9

Total site coverage: 518.5m²
 Total site area: 1,590.4m²
Overall Site Coverage: 32.6%



Rev	Revision	Date

Unit Plan & Coverage

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YARDS
 2m side and rear yards, 4.5m front yard for front sites
 3m all yards for rear sites

- Indicates yard infringement
- Indicates yard infringement with adjoining duplex wall



Fence Key	
2D Plan Preview	Element ID
	#1. 1.2m Timber Batten Fence 50% visually permeable
	#4. 1.8m Timber Pailing Fence
	#5. 1.8m Timber Fence including 300mm visually permeable upper section
	Existing Boundary Fence
	Gate - 1.2m Aluminium
	Gate - 1.8m Timber Pailing on Metal frame

Rev	Revision	Date

Site Planting							
2D Plan Preview	Element ID	Common Name	PB Size	Clearance / Spacing	Mature (H)	Mature (W)	Sun or Shade
	Large Underplanting: Pittosporum Tenuifolium	Pittosporum	3	750	500	500	Full sun
	Large Underplanting: Trachelospermum Jasminoides	Star Jasmine	3	600	Climbing	5,000	Full sun / part shade
	Large Underplant: Arthropodium Cirratum	Rengarenga	3	600	1,000	1,000	Part shade / full shade
	Large Underplant: Astelia Nervosa	Mountain Astelia	3	600	1,000	1,000	Full sun / part shade
	Large Underplant: Chionochloa Flavicans	Miniature Toe Toe	3	750	1,200	1,500	Full sun / part shade
	Large Underplant: Dietes Grandiflora	Wild Iris	3	750	1,000	600	Full sun
	Large Underplant: Hebe Topiara	Hebe	3	600	1,000	1,000	Full sun
	Large Underplant: Lomandra Longifolia	Lomandra	3	750	400 - 900	400 - 900	Full sun / part shade / shade
	Large Underplant: Phormium Cookianum 'Emerald Green'	Dwarf Mountain Flax	3	750	800	800	Part shade / full shade
	Large Underplant: Phormium Cookianum 'Emerald Green'	Mountain Astelia	3	600	1,000	1,000	Full sun / part shade

Site Planting							
2D Plan Preview	Element ID	Common Name	PB Size	Clearance / Spacing	Mature (H)	Mature (W)	Sun or Shade
	Large Underplanting: Coprosma Repens 'Middlemore'	Mirror Plant	3	750	1500	1000	Part Shade
	Small Underplant: Carex Dissita	Forest Sedge	3	500	500	500	Part shade / full shade
	Small Underplant: Libertia Peregrinans	Tukauki	3	500	500	500	Full sun / part shade / full shade
	Small Underplant: Phormium Tenax 'Sweet Mist'	Sweet Mist	3	400	400	400	Full sun / part shade
	Specimen Tree: Citrus 'Harwoods Late'	Orange	40	750	2,000	2,000	Full sun / part shade
	Specimen Tree: Citrus 'Harwoods Late'	West Coast Kōwhai	95	1,000	4,000	2,000	Full sun / part shade (deciduous)
	Specimen Tree: Citrus x meyeri	Meyer Lemon	40	1,000	2,000	2,000	Full sun / part shade
	Specimen Tree: Meryta sinclairii 'Puka'	Puka	95	1,500	4,000	2,000	Full sun / part shade (evergreen)
	Specimen tree: Pyrus Candelabra	Ornamental Pear	95		6,000	4,000	Full sun
	Specimen Tree: Sophora Fulvida 'West Coast Kōwhai'	West Coast Kōwhai	95	1,000	4,000	2,000	Full sun / part shade (deciduous)

Site Fencing & Landscaping

Resource Consent

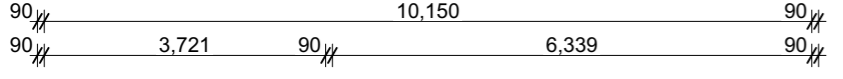
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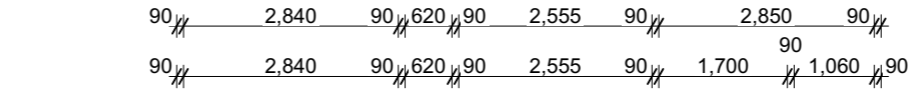
Z3 Duplex Floor Plan: Lot 7 FUD

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Lot 1 & 2 I2 Duplex Ground Floor Plan

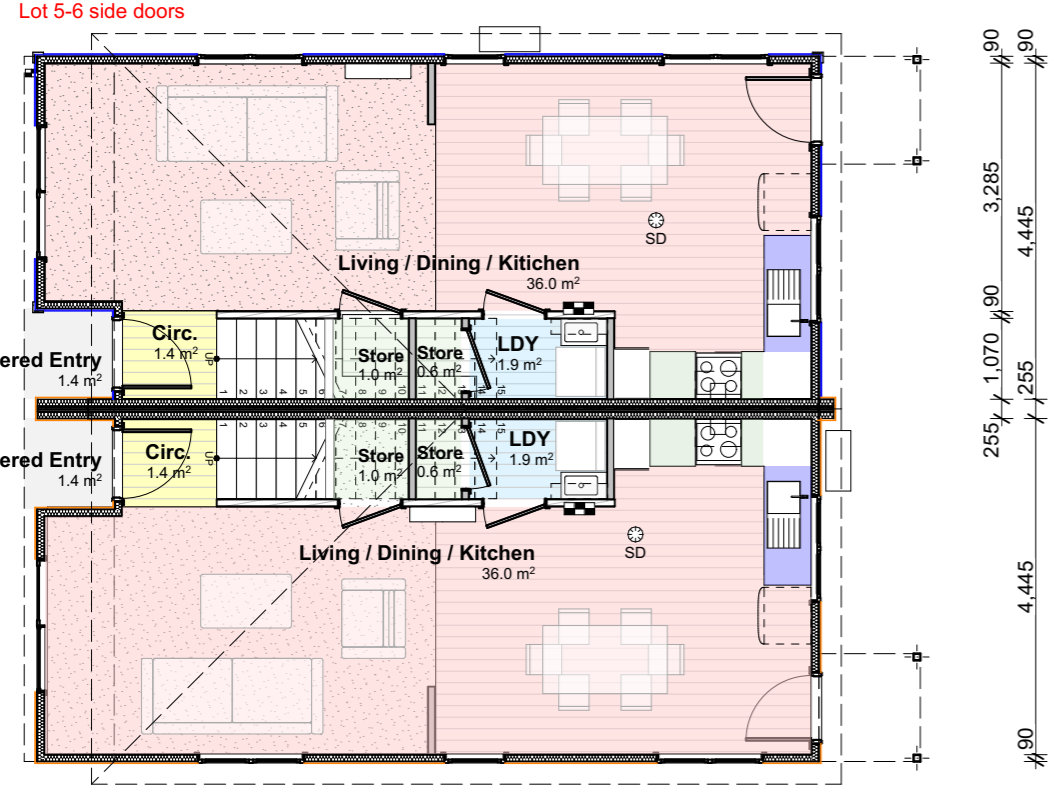
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I2 Duplex First Floor Plan

Scale 1:100

Areas		
Space Name	Area (m ²)	
Footprint Per Unit		
First Floor Footprint	43.4	
Ground Floor Footprint	46.8	
	90.2 m ²	
Unit 1		
Bath	4.1	
Bedroom 1	10.0	
Bedroom 2	9.2	
Circ.	1.4	
Covered Entry	1.4	
Hall	5.3	
HWC	0.7	
LDY	1.9	
Liner	0.7	
Living / Dining / Kitchen	36.0	
Stair Void	5.2	
Store	1.0	
Store	0.6	
Str.	0.4	
WR 1	0.7	
WR 2	1.3	
	79.9 m ²	
Unit 2		
Bath	4.1	
Bedroom 1	10.0	
Bedroom 2	9.2	
Circ.	1.4	
Covered Entry	1.4	
Hall	5.3	
HWC	0.7	
LDY	1.9	
Liner	0.7	
Living / Dining / Kitchen	36.0	
Stair Void	5.2	
Store	0.6	
Store	1.0	
Str.	0.4	
WR 1	0.7	
WR 2	1.3	
	79.9 m ²	



I2 Duplex Ground Floor Plan

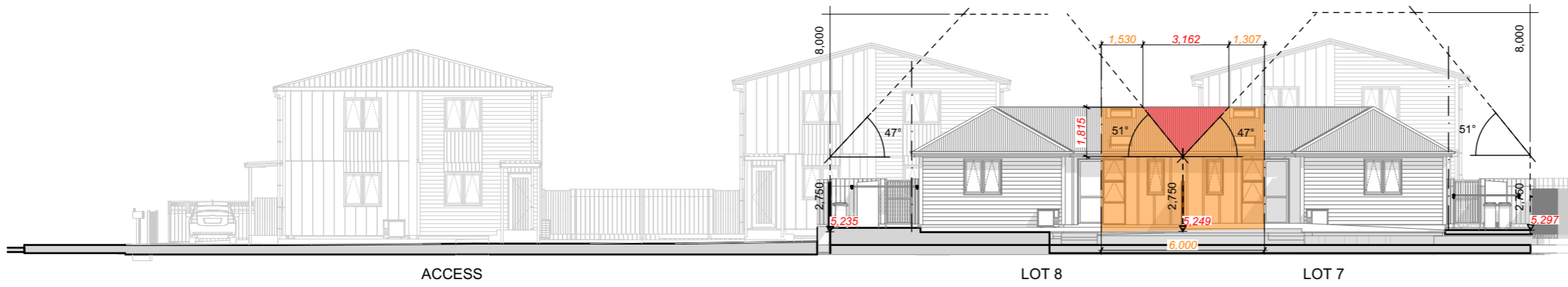
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Rev	Revision	Date

Proposed Floor Plans

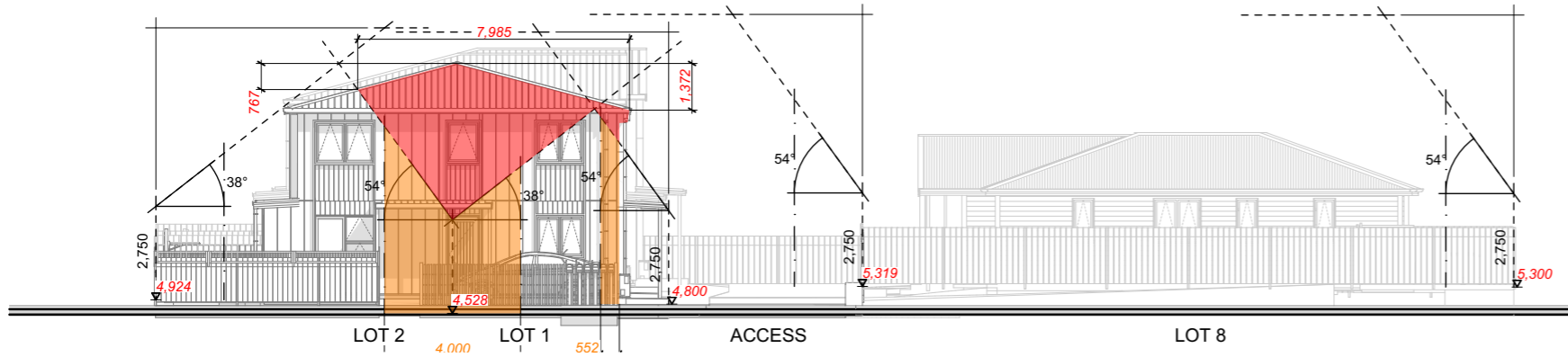
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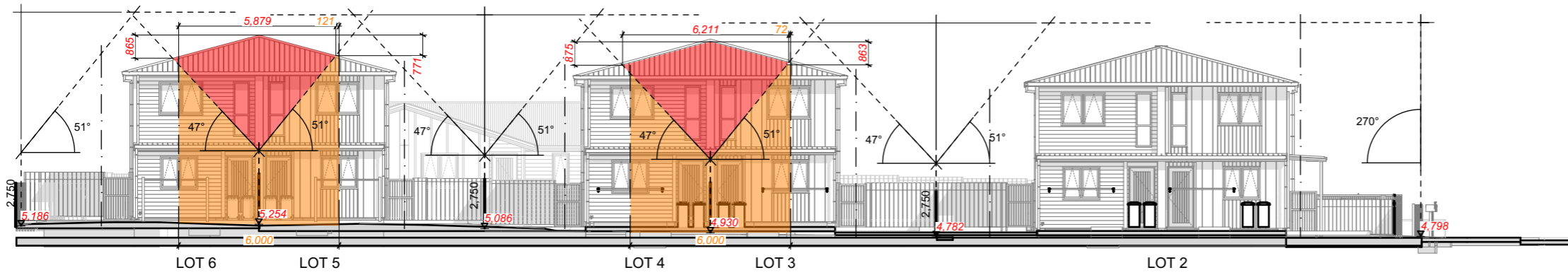
North Elevation

Scale 1:200



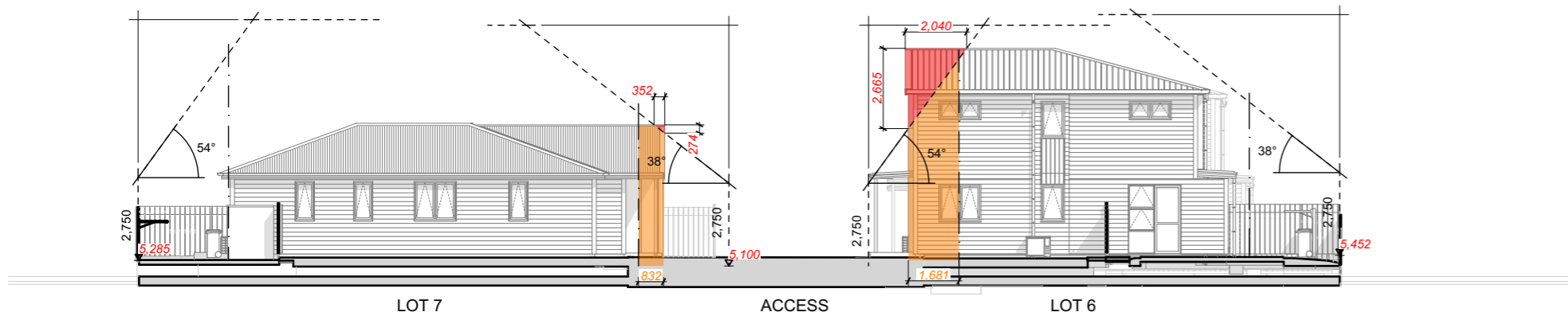
East Elevation

Scale 1:200



South Elevation

Scale 1:200



West Elevation

Scale 1:200

Rev	Revision	Date

Site Outer Elevations

Resource Consent

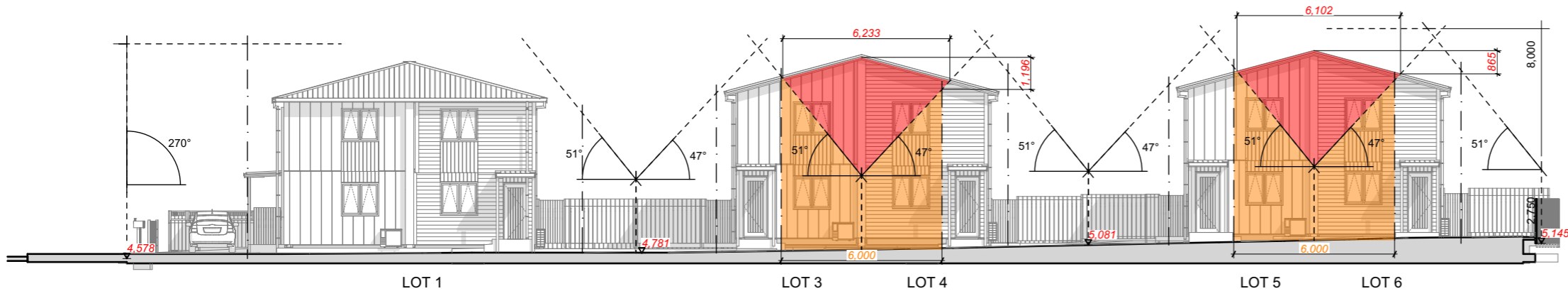
NZHG Stanley Road
99a Stanley Road

Revision:

Scale at A3: 1:200

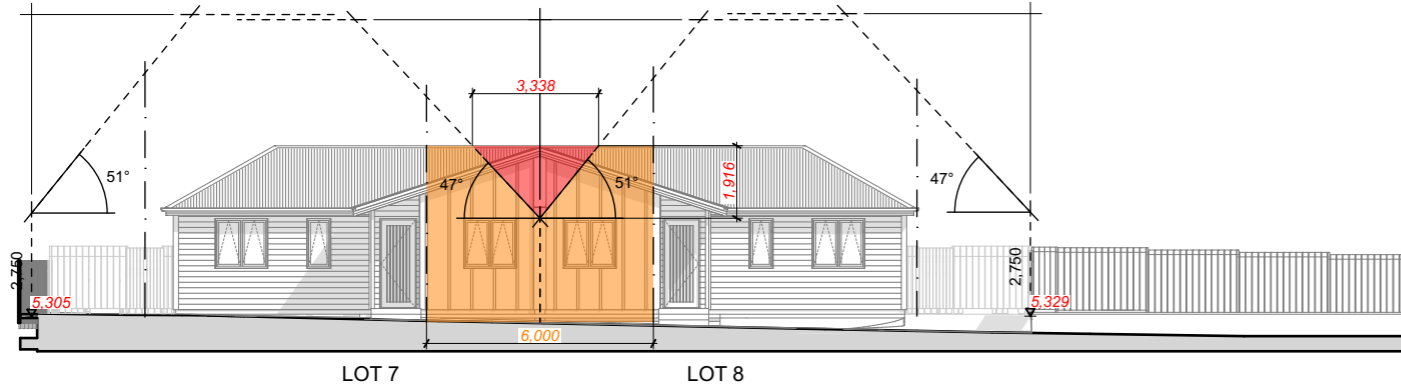
Date Issued: 16/02/2024

e: sol@atkinsonharwood.co.nz
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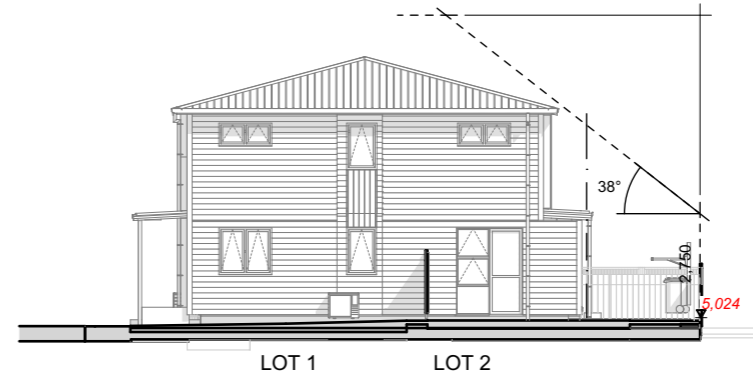
North Inner Elevation

Scale 1:200



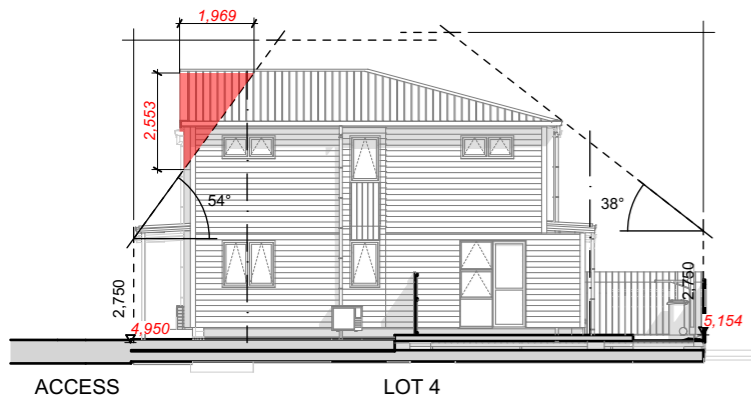
South Inner Elevation

Scale 1:200



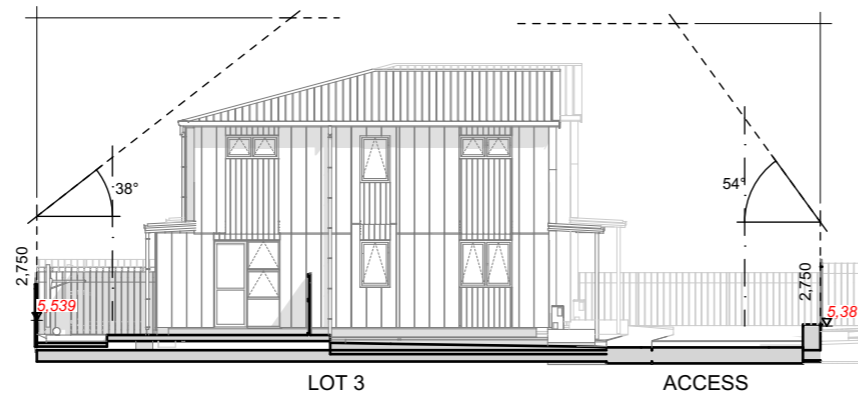
West Elevation Lot 1 & 2

Scale 1:200



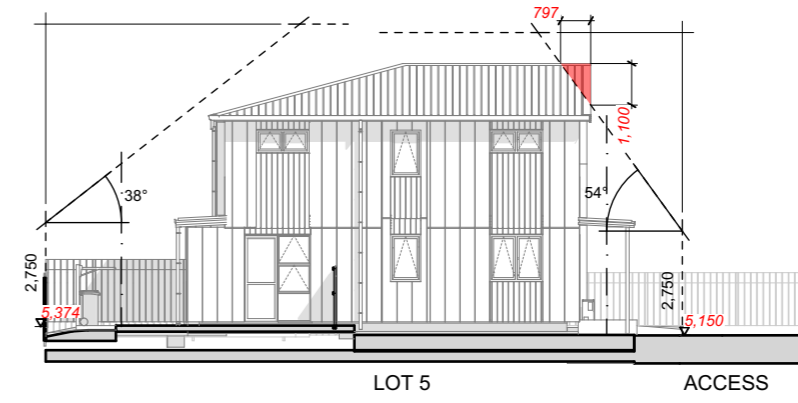
West Elevation Lot 4

Scale 1:200



East Elevation Lot 3

Scale 1:200



East Elevation Lot 5

Scale 1:200

Rev	Revision	Date

Site Inner Elevations

Resource Consent

NZHG Stanley Road
99a Stanley Road

Revision:
Scale at A3: 1:200
Date Issued: 16/02/2024

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PROPOSED COLOUR SCHEME

Lot 01 & 02

Gull Grey



Roof: Gull Grey
Joinery: Matt Appliance White Joinery
Front Door: Matt Flaxpod
Bevelback Weatherboard: Double Sea Fog
Sheet Cladding: Pale Leaf

Lot 03 & 04

Gull Grey



Roof: Gull Grey
Joinery: Matt Appliance White Joinery
Front Door: Matt Flaxpod
Bevelback Weatherboard: Double Sea Fog
Sheet Cladding: Dingley

Lot 05 & 06

Gull Grey



Roof: Gull Grey
Joinery: Matt Appliance White Joinery
Front Door: Scoria
Bevelback Weatherboard: Double Sea Fog
Sheet Cladding: Coral Tree

Lot 07 & 08

Gull Grey



Roof: Gull Grey
Joinery: Matt Appliance White Joinery
Front Door: New Denim Blue
Bevelback Weatherboard: Double Sea Fog
Sheet Cladding Lot 7: Yuma
Sheet Cladding Lot 8: Streetwise



ARTISTIC IMPRESSION ONLY, REFER ELEVATIONS FOR PROPOSED COLOURS



ARTISTIC IMPRESSION ONLY, REFER ELEVATIONS FOR PROPOSED COLOURS

Rev	Revision	Date

3D Images

Resource Consent

NZHG Stanley Road
99a Stanley Road

Revision:

Scale at A3:

Date Issued: 16/02/2024

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APPENDIX B



Figure 7 Pedestrians crossing Stanley Road at Gisborne High School. On street parking is used when dropping off students with private cars



Figure 8 Site photo along Stanley Road adjacent to Gisborne High School



Figure 9 15kmh speed limit for the accessway leading to the school's main entrance.



Figure 10 School bus exiting the accessway after dropping students at the school entrance.



Figure 11 Vehicle crossing at the property adjacent to the site. Posted speed is 50km/hour when the school zone ends.



Figure 12 School zone speed is 40km/hr as posted



Figure 13 The site entrance before construction



Figure 14 Childers Road Traffic Circle



Figure 15 Vehicles approaching Childers Road Traffic Circle



Figure 16 2 to 3 vehicles from Stanley Street queue for a few seconds.



Figure 17 5 to 6 queuing vehicles along Childers Road heading Eastbound.



Figure 18 Safety Handrailing at Childers Traffic Circle to protect pedestrians



Figure 19 Cyclists crossing Childers Traffic circle



Figure 20 A view of School Road



Figure 21 Gladstone Road Traffic Circle



Figure 22 Queueing traffic for a few seconds heading Eastbound.

APPENDIX 2

To:	Robin Beale (Gisborne District Council)
From:	Takudzwa Mapeta (LDE Ltd)
Copy:	Mitch Jackson (TW Property)
Subject:	99a Stanley Road - RFI Response for Traffic Impact Assessment (LU-2023-112110-00)
Date:	7/06/2024
Project Ref:	24729
Document ID:	473755
Revision Status:	0
Reviewer:	Andrew Appleby

1 INTRODUCTION

LDE has been requested to provide further comment on the request for information pertaining to the Resource Consent application (LU-2023-112110-00) for the proposed development at 99a Stanley Road, Te Hapara, Gisborne. Our scope is to respond to the queries relating to the Traffic Impact Assessment Report.

2 QUERIES AND RESPONSES

2.1 Query 1

The report discounts the parking demand of the development due to the socioeconomic status of the tenants.

- *A recent survey in Auckland at several similar medium density housing developments found an average parking demand of 1.7 vehicles per dwelling unit.*
- *The NZTA RRU report 453 Trips and Parking related to land use has a value of 1.6 vehicles per dwelling unit.*

LDE Response

LDE Ltd have undertaken a review of the reports and confirm the validity of the suggested parking demand rates of 1.6 to 1.7 vehicles per dwelling unit for the proposed suburban development. Based on these parking demand rates, there is an unmet parking demand of 2.8 to 3.6 vehicles. This parking demand will have to be accommodated by on street parking. Our assessment of the road traffic environment established that the nearby dwellings have sufficient off-street parking based on the same parking demand rates therefore the on-street parking capacity along Stanley Road is adequate for the 2.8 to 3.6 vehicles. An assessment of the safety considerations associated with the roadside parking will be made in this response.

The resulting roadside parking on either side of the vehicle crossing impacts the sight lines for vehicles exiting the site and this is critical during peak hour traffic. The Safe Intersection Sight Distance (SISD) calculated from Equation 2 Austroads Guide to Road Design Part 4A: Unsignalized Intersections is roughly 70 m.

The calculation is based on the adoption of the following parameters:

- Decision time = observation time (3 sec) + reaction time (1.5 sec)
- Coefficient of deceleration = 0.46
- Longitudinal grade = 2%
- Operating speed = 40km/hr (during peak hour)

The calculation is in line with the requirements of Part C2.1.7 H2 of the Tairawhiti Resource Management Plan -Part C2 and NZTA RT6 Guidelines for visibility at driveways. A SISD of 70 m means that there is a safety risk associated with reduced visibility of oncoming traffic approaching from both directions on Stanley Road for traffic exiting the site turning left or right as a result of roadside parking.

Based on our observations and preliminary analysis, it may not be feasible for vehicles on the northbound lane to have reached a speed of 40km/hour within the 30m from the Childers/Stanley Road round-about, assuming that all vehicles yield when approaching the round-a-bout as required. Therefore, the SSID required is much lower than 70m for this scenario. Based on a 20km/hr vehicle speed, a SSID of 30m is required for vehicles on the northbound Lane and 50m SSID is required for vehicles on the southbound lane travelling at 30km/hr. The sight lines and distances are as shown in Figure 1.



Figure 1 Indicative plan showing sight lines, distances, and parking layout.

Despite the considerations above, the sight lines for traffic approaching from the Childers Road round-a-bout on the northbound lane may still be obstructed by parking adjacent to that lane, on the south side of the vehicle crossing. To mitigate this risk, it is proposed that a no parking zone is created just south of the vehicle crossing adjacent to the northbound lane. The no parking zone length would need to be approximately 4 metres in length. This will improve the SSID thus intervisibility is also improved. Figure 2 and Figure 2 show the proposed location of the no parking zone and the indicative sight line.

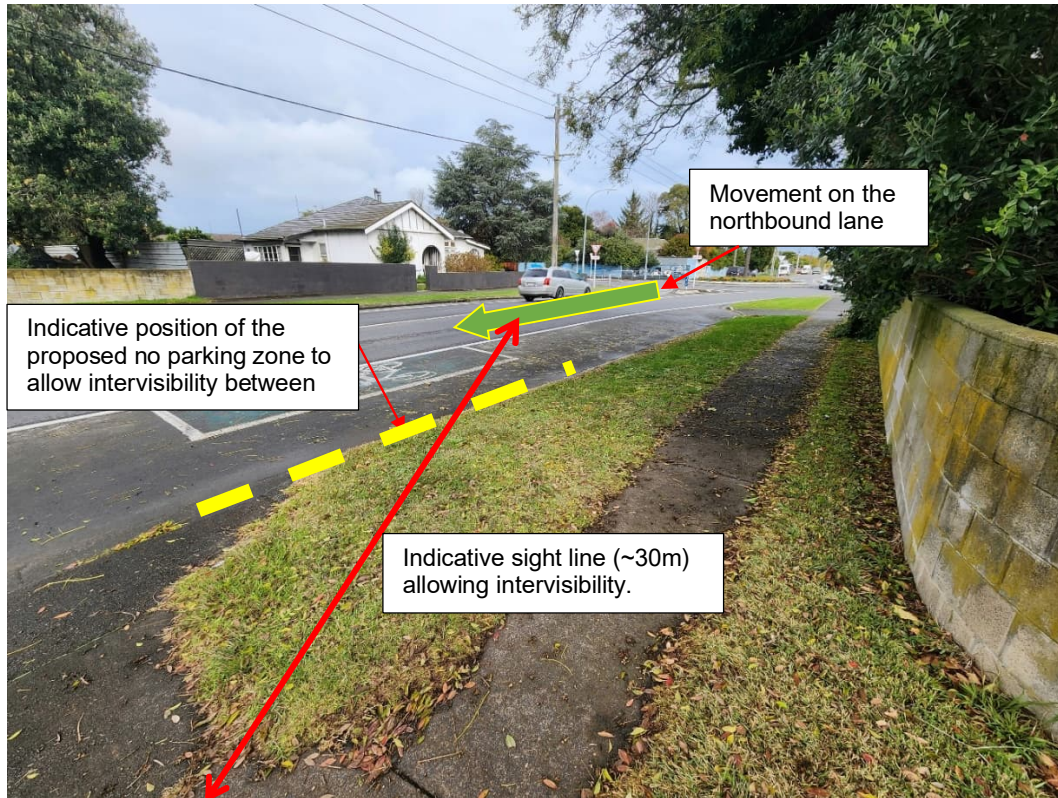


Figure 2 View south from the vehicle crossing. Parking in the marked area will obscure visibility of oncoming vehicles.

Alternatively, the width of the berm may be reduced to approximately 0.4m so as to shift the parking zone boundary (kerb line) closer to the footway, thus the visibility will not be obstructed by vehicles parked on the roadside. This cost of implementing this solution is considerably higher than the previous option. Figure 2 illustrates the sight lines, sight distance, the existing and proposed parking zone boundary positions on the edge adjacent to the footway.

Furthermore, the sight lines for vehicles approaching from the southbound lane are obstructed by the vehicles which could be parked on the north side of the vehicle crossing as shown in Figure 1 and Figure 3. To reduce the risk to road users, it is proposed that all vehicles exiting the site must only turn left onto Stanley Road and prohibit right turning.

On street parking immediately adjacent to the vehicle crossing to the north should allow for vehicles turning onto the northbound lane. Our capacity analysis has accounted for the possibility that all vehicles exiting the site may be absorbed onto the existing traffic network. Figure 3 illustrates the visibility of oncoming vehicles on the southbound lane.

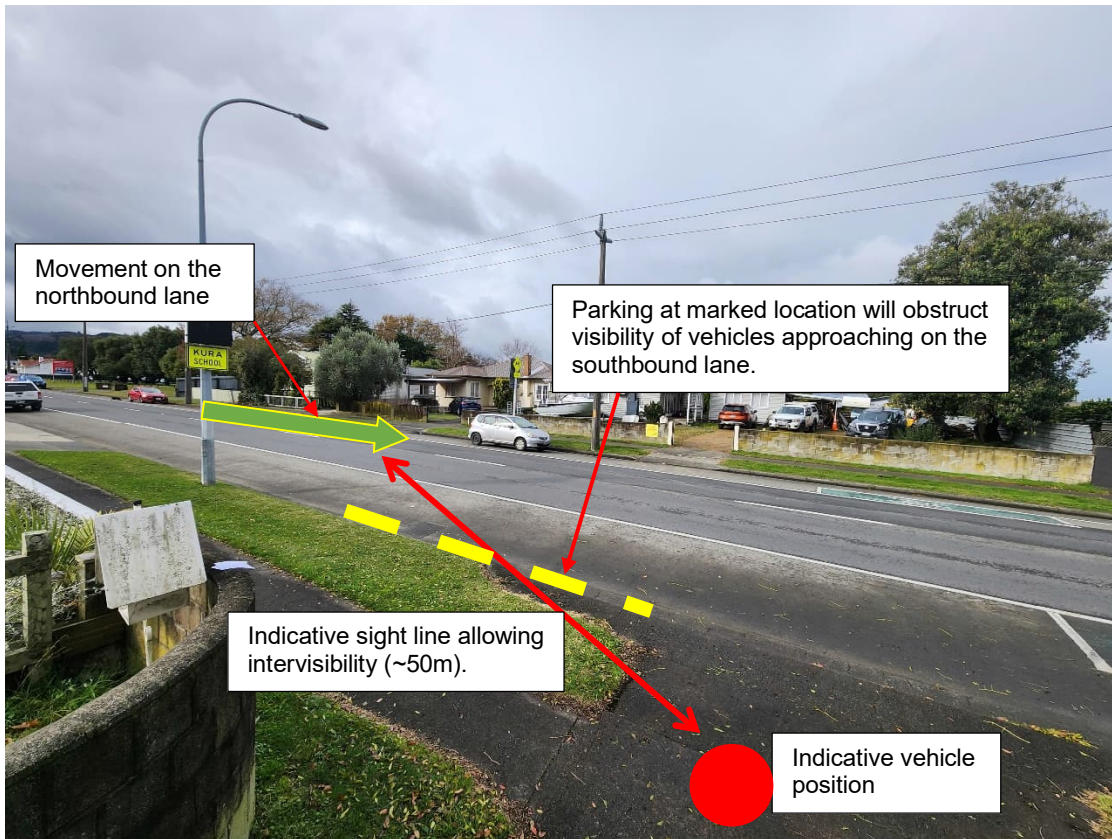


Figure 3 View north from the vehicle crossing. Parking in the marked area will obscure visibility of oncoming vehicles on the southbound lane.

As discussed above, the width of the berm may be reduced so as to shift the parking zone boundary (kerb line) closer to the footway, thus the visibility will not be obstructed by vehicles parked on the roadside. However, an existing streetlight may have to be relocated to a suitable location on the new berm location or rather the berm is shaped around the streetlight. This option is relatively more costly to implement.

Based on these considerations, the roadside parking capacity along Stanley Road is marginally affected by the safety implications of the sight lines being obscured.

2.2 Query 2.2

The report assesses the visibility from the driveway to the footpath on Stanley Road as compliant. However, the report is silent about the sightlines from the vehicle crossing to the traffic lanes on Stanley Road.

The sightline assessment should consider the proximity of parked cars, and the likelihood of tall vehicles like Utilities and SUV with bonnet heights higher than the 1.15m drivers eye height for a car. It is expected that site photographs will be included showing drivers eye views in each direction.

LDE Response

As previously mentioned in the response for query 1, sightlines for vehicles exiting the site will be obstructed by vehicles which will be parked on both sides of the vehicle crossings particularly utility vehicles, SUVs with high bonnets

higher than 1.15 m. It is proposed that a no parking zone be introduced adjacent to the northbound lane on the south side of the vehicle crossing and prohibition of vehicles turning right onto the southbound lane upon exiting the site of Stanley Road. Alternatively, the width of the berm may be reduced so as to shift the parking zone boundary (kerb line) closer to the footway, thus the visibility will not be obstructed by vehicles parked on the roadside.

3 LIMITATIONS

This memorandum should be read and reproduced in its entirety including the limitations to understand the context of the opinions and recommendations given.

This report has been prepared exclusively for NZHG Gisborne Limited in accordance with the brief given to us or the agreed scope and they will be deemed the exclusive owner on full and final payment of the invoice. Information, opinions, and recommendations contained within this report can only be used for the purposes with which it was intended. LDE accepts no liability or responsibility whatsoever for any use or reliance on the report by any party other than the owner or parties working for or on behalf of the owner, such as local authorities, and for purposes beyond those for which it was intended.

We note that our findings are based on qualitative on-site assessment, as such we have not undertaken any traffic counts, modelling, or detailed analysis owing to the level of assessment required for the proposed development as requested by the Client.

This report was prepared in general accordance with current standards, codes and best practice at the time of this report. These may be subject to change.