APPENDIX 4:

TRAFFIC IMPACT ASSESSMENT

INGHAMS ENTERPRISES (NZ) PTY LTD

Waitoa Plant Plan Change
Traffic Impact Assessment (Revision 1)

October 2014

BLOXAM BURNETT & OLLIVER

ENGINEERS • PLANNERS • SURVEYORS

Inghams Enterprises (NZ) PTY Ltd

Waitoa Plant Plan Change
Traffic Impact Assessment (Revision 1)

October 2014

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DOCUMENT HISTORY AND STATUS

Issue	Rev.	Issued To	Qty	Date	Prepared	Reviewed	Approved
1	Draft	Inghams Enterprises NZ	1E	02/08/12	T Hills	C Inder	J Olliver
2	Draft	NZTA	1E	24/08/12	T Hills	C Inder	J Olliver
3	Draft	Inghams Enterprises NZ	1E	19/04/13	T Hills	C Inder	J Olliver
4	Final	Inghams Enterprises NZ	1	03/09/13	C Inder	S Bigwood	J Olliver
5	Final (R1)	Inghams Enterprises NZ	1	28/10/14	C Inder	S Bigwood	J Olliver

Printed:	28 October, 2014
Last Saved:	28 October, 2014
File Name:	K:\140510 Ingham Ent Plan Change\Traffic\TIA\Inghams TIA_FINAL.docx
Project Manager:	Steve Bigwood
Name of Organisation:	Inghams Enterprises (NZ) PTY Ltd
Name of Project:	Waitoa Plant Plan Change
Name of Report:	Traffic Impact Assessment; October 2014
Report Version:	Final (Revision 1)
Project Number:	140510

CONTENTS

1.0 Executive Summary

Inghams Enterprises (NZ) Pty Ltd ('Inghams') is proposing a change to the Matamata-Piako District Plan in relation to its existing site on Waihekau Road, Waitoa. The Plan Change allows for intensification of on-site activities with a maximum proposed production increase from 160,000 birds/day to 250,000 birds/day (1.25 million per week). This assessment finds that the transportation related affects of the increased production can be mitigated through implementation of the following recommendations:

- Construction of a new access (Gate 6) off Seddon Road to separate all HCV traffic from the staff and visitor car park access. This should be constructed to the 'Large Vehicle Entrance – Rural Zone' standard (Drawing DG307c) of the Matamata-Piako District Council (MPDC) Development Manual 2010 and be located at least 75m from the Waihekau Road / Seddon Road intersection.
- Inghams introduce a company policy that requires all heavy vehicles using the Seddon Road access to travel via Waikekau Road if travelling to or from locations south, west or north of the site. Only Eastbound heavy vehicles should remain using Seddon Road via SH 26.
- Gate 2 be relocated to at least 75m south of the existing location, and be designed to a 'Large Vehicle Entrance – Rural Zone' standard (Drawing DG307c) of the Matamata-Piako District Council (MPDC) Development Manual 2010 and include local shoulder widening on Waihekau Road in the vicinity of the access to allow for extension of the painted central median. A physical screen is recommended along the boundary of Waihekau Road between Gate 2 and the pallet storage area at the south end of the site to ensure that vehicle's headlights within the site do not cause confusion for northbound drivers on Waihekau Road.
- Ingham's staff and visitor car park should be extended to provide a minimum 564 car park spaces for the proposed maximum production of 250,000 birds/day. If development proceeds in stages the number of spaces should be increased at a rate of 15 spaces per 10,000 birds/day over the present baseline 160,000 birds/day. All car park areas should be sealed and spaces line marked to an all-weather standard to the satisfaction of the MPDC Transportation Manager.

With implementation of these recommendations BBO considers that the traffic effects associated with the proposed increased production (to 250,000 birds/day) will be mitigated to well within the capacity of the surrounding road network to maintain the current level of safety provided.

2.0 Introduction

Inghams Enterprises (NZ) Pty Limited is a fully-owned subsidiary of the Australian company Inghams Enterprises Pty Limited. They have been operating as a fully integrated chicken company in New Zealand since 1990 when Inghams purchased the operations of Harvey Farms. This acquisition established Inghams as a comprehensive operator and chicken producer in New Zealand and as the second largest player in the New Zealand poultry market.

Inghams employs approximately 1,000 people and is based in the Waikato Region. They operate a fully integrated poultry business - from feed milling and chicken farming, to processing and distribution of chickens and chicken products.

The Waitoa plant is consented to process 160,000 birds per day, a level which exceeds the stipulated thresholds of the 'Development Concept Plan' contained within the Matamata-Piako District Plan. Further development and intensification of on-site activities is predicted within the next 10 years. The intensity of that development goes beyond the current expectations of the District Plan.

This Traffic Impact Assessment (TIA) by Bloxam Burnett and Olliver Ltd (BBO) reports the traffic impacts associated with intensification of on-site activities at Ingham's Waitoa plant on Waihekau Road. It is intended to support a Private Plan Change application by Inghams Enterprises (NZ) Pty Ltd.

3.0 Proposal

The Plan Change is proposed to enable intensification of the present on-site activities and to support an increase in the production threshold to 250,000 birds per day.

From a transport perspective this increase will result in more staff trips and inbound and outbound HCV movements from the site each day. Accordingly, an increase is proposed to the parking provisions on site along with changes to the existing vehicle entrances.

4.0 Site Description and Surrounding Road Network

The application site is located approximately 13km east of Morrinsville and 10km south-west of Te Aroha in the Matamata-Piako District. The settlements of Waitoa and Waihou lie 4km north-west and 4.2km due north of the Waitoa plant respectively. Waitoa has a population of just over 300 people (2006 census). Figure 1 illustrates the location of the Inghams Waitoa plant relative to the surrounding locality.

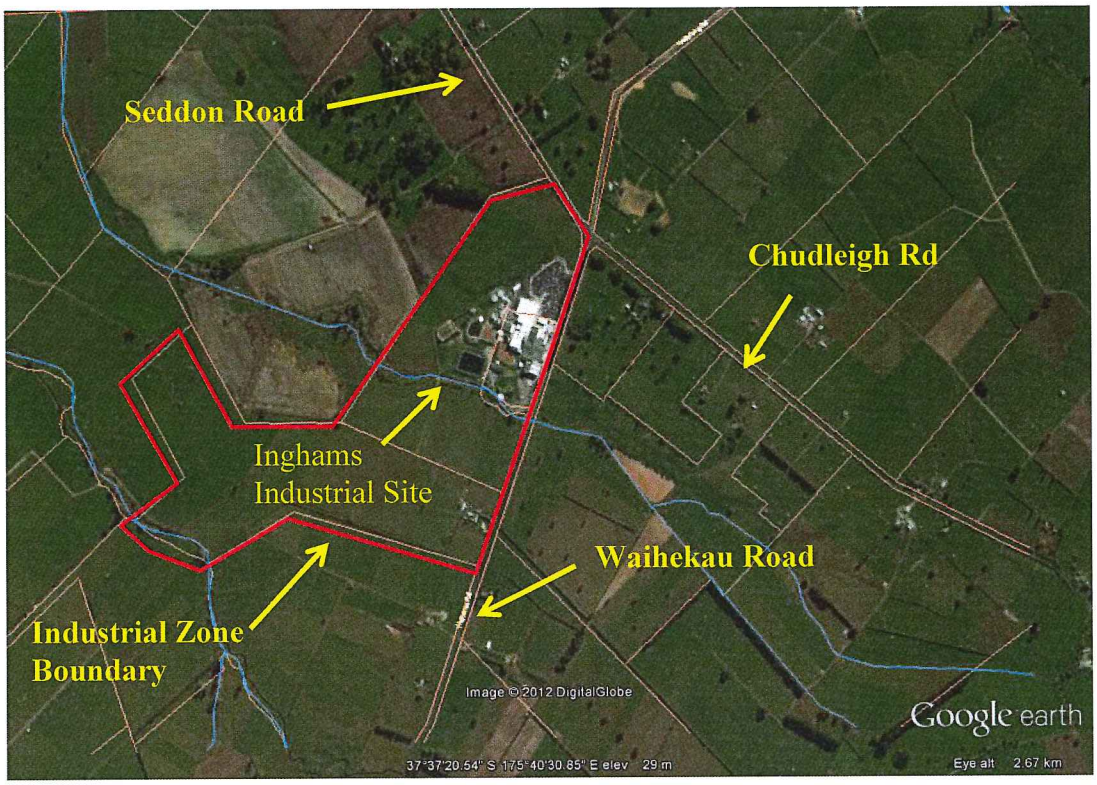


Figure 1: Locality Plan

The locality is characterized by a mixture of agricultural and rural-residential land uses. Although rural in appearance, the environment is heavily modified and intensively farmed for dairying purposes. Industrial activities in the locality include the Inghams plant and the Fonterra dairy factory, located in Waitoa.

Ingham's Waitoa site has frontage to both Seddon Road and Waihekau Road, both of which are rural roads administered by Matamata Piako District Council. All accesses to the site are on Waihekau Road which is classified as a Collector Road by the Matamata-Piako District Plan. The two lane carriageway comprises 3.5m lane widths with a 3m wide central flush median extending past the Inghams site. Seddon Road is also a two lane sealed rural road comprising lane widths of approximately 3.5m, and is a Local road in the District Plan.

Waihekau Road has a posted speed limit of 100kph and provides connectivity with State Highway 26 (via Seddon Road) 4.5 km to the north and to State Highway 27 (via Ngarua Road) 3.9 km to the south. Site observations indicate that the operating speed on Waihekau Road in the vicinity of the Ingham's site is less than 100kph (approximately 80kph) due to the proximity of the site to the Waihekau Road / Seddon Road intersection and presence of the Inghams factory and entrances. The average daily volume of traffic on Waihekau Road is 800vph, with 7% HCV, and peak hour traffic from 2-3pm of 120-130vph (Traffic Design Group report "Inghams Enterprises Ngarua, Transportation Assessment of Proposed Dispatch Access", June 2010).

Seddon Road marks the northern boundary of the Inghams site and intersects with Waihekau Road in the form of a controlled crossroads before continuing south-east as Chudleigh Road. Vehicles on Waihekau Road have through priority over vehicles travelling on either Seddon Road or Chudleigh Road. The traffic volume on Seddon Road was last counted by MPDC in 2010 and found to be 500-600 vpd.

A painted central median extends north and south of the intersection providing a safe refuge for vehicles turning in to Seddon Road or Chudleigh Road. The median extends the entire length of the Inghams site (shown in Figures 2 and 3) so also provides a safe right turn refuge for vehicles entering the site.

5.0 Site Access

The Ingham's site historically had four accesses (Gates), three of which are currently operational. The accesses are all located on Waihekau Road and labelled Gates 1 to 4 on the existing Development Concept Plan (CDP) contained within the Matamata-Piako District Plan.

Appendix A to this report includes the proposed update of the Development Concept Plan that illustrates two new accesses and a renumbering of the access points from 1 to 6 referred to herein this report. The District Plan refers to the MPDC Development Manual 2010 to determine appropriate sight distance requirements for vehicle accesses. The minimum sight distance for vehicle crossings in rural areas is 170 m where the operating speed is 100km/h.

Gate 6 is a proposed new access on Seddon Road and is discussed further in Section 10.

Gate 5 is the existing primary site access (Gate 4 on the existing CDP) for all staff and visitor vehicles. This entrance presently also provides access for the delivery of all live poultry to the site and other service vehicles.

Gate 5 has a sight distance in excess of 200m in a southerly direction and 117m in a northerly direction towards the intersection of Waihekau Road and Seddon Road. The proximity of Gate 5 to the Waihekau Road / Seddon Road intersection means that the operating speed in this location is typically less than 80km/h as vehicles accelerate from or decelerate towards the intersection. The sight distance requirement is 115m for 80 kph. Accordingly, the sight distance in both directions from Gate 5 is considered to be appropriate and compliant with the Development Manual standard.

Figure 2: Sightline looking south from Gate 5 (main access)

Figure 3: Sightline looking north from Gate 5 (main access)

A new gate established by consent in 2011 provides heavy vehicle access for the dispatch of processed goods but is not shown on the existing Development Concept Plan. The new Development Concept Plan in Appendix A labels this as Gate 4. Future use of this access is expected to be infrequent only with the proposed relocation of the dispatching facility. The access is to be kept for contingency use only. At present HCV's must enter the dispatch gate from the south due to physical layout constraints. Therefore any HCV's approaching Gate 4 from the north must travel past and enter Gate 3 where a u-turn is performed within the site and the HCV then enters Gate 4 from the south.

Figure 4: Dispatch Gate (renumbered Gate 4) looking south

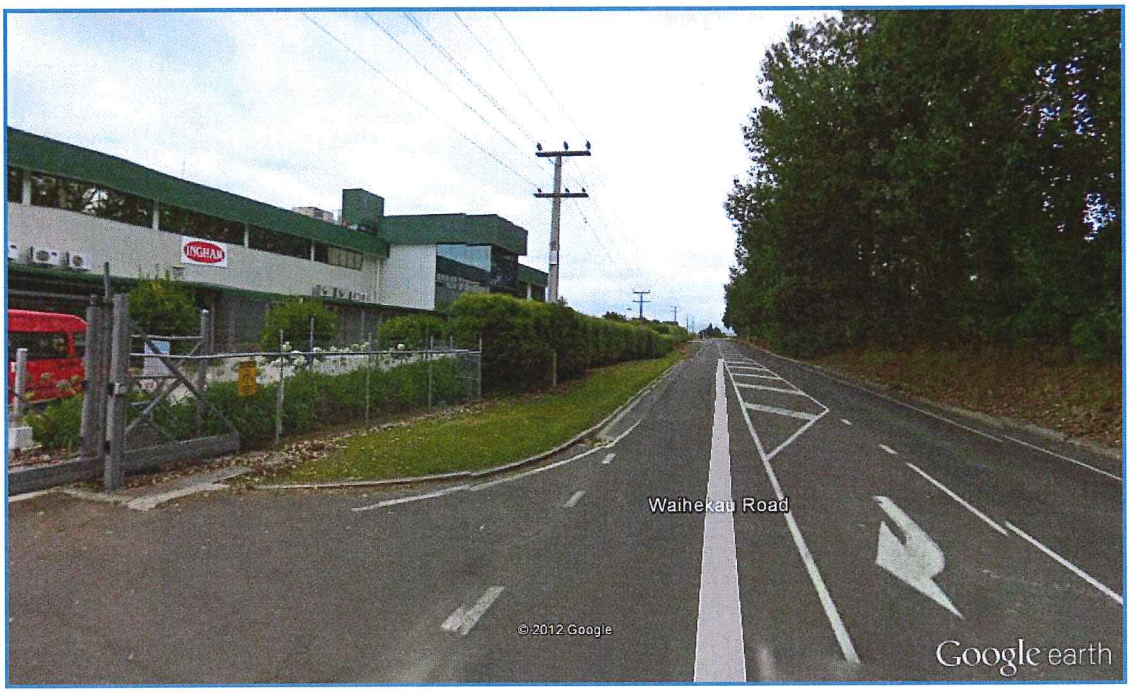


Figure 5: Gate 4 looking north

Figures 4 and 5 (above) illustrate the achievable sight distance of approximately 300m in both directions from the Dispatch Gate. This comfortably achieves MPDC requirements.

The dispatching facility is to be relocated approximately 110m south of its current location with access via a new entrance shown as Gate 2 in Appendix A. The existing Gate 3 has restricted sight lines looking to the north so will be closed and replaced by Gate 2. Locating Gate 2 a minimum of 75m to the south of the existing Gate 3 location will provide significantly improved sight lines and enable greater turning space for heavy vehicles within the new dispatch site.

Figure 6: Looking North from Proposed Gate 2 Position

Figure 7: Looking South from Proposed Gate 2 Position

Figures 6 and 7 demonstrate the sight distances of approximately 200m in a northerly direction and in excess of 500m in a southerly direction respectively at the proposed Gate 2 location. This comfortably complies with the minimum 170 m sight distance requirement in both directions. Gate 2 being the new dispatch access will cater for less than 200 vehicle movements per day.

The new Gate 2 position is adjacent to the 'tapered' southern-most end of the Waihekau Road flush central median. It will be necessary to widen Waihekau Road and extend the painted flush central median a further 90m south of the new access position to assist right turn movements into the dispatch area.

The MPDC Development Manual 2010 identifies the standard required for Heavy Vehicle entrances. Whilst a specification is provided for industrial activities this is considered more appropriate for urban areas and not suitable for Ingham's current and future needs. Instead, it is recommended that the new dispatch entrance be formed to the 'Large Vehicle Entrances - Rural Zone' standard (Drawing DG307c MPDC Development Manual). The relevant standard is illustrated in Figure 8 below.

An amendment to the design standard is recommended for Gate 2 in that the access width through the gate should be suitable for two semi-trailer HCV's to pass by one another comfortably. The width at the gate should therefore be a minimum of 7 metres for two way movement. This design is consistent with the size and form of the existing entrance at Gate 3 that is being replaced. A physical screen will be required along Waihekau Road between Gate 2 and the pallet storage area at the south end of the site to ensure that vehicle's headlights within the site do not cause confusion for drivers on Waihekau Road.

Gate 1 on the Development Concept Plan is situated 220m south of Gate 2 and provides access to the power sub-station only. No change is proposed to its location or present use.

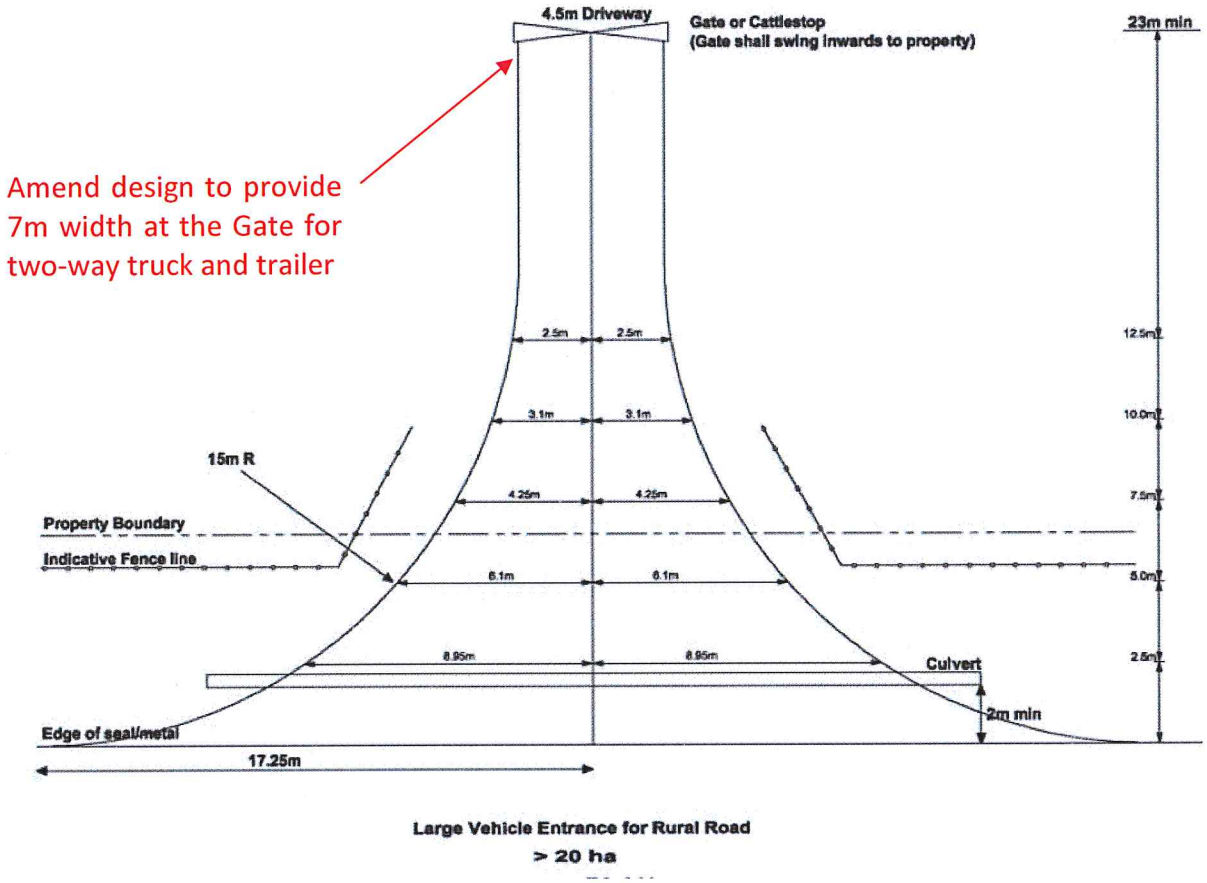


Figure 8: MPDC Large Vehicle Entrance - Rural Zone

6.0 Crash Record

A review of the New Zealand Transport Agency's Crash Analysis System shows that two crashes occurred on Waihekau Road within 500m of the Inghams Waitoa plant in the last 10 years. The details of these crashes is provided in Appendix B.

One crash occurred at the Seddon Road / Waihekau Road intersection. This involved a southbound vehicle on Seddon Road hitting a car crossing at a right angle from Waihekau Road. This crash resulted in a minor injury. The second crash occurred near the northern access to the Inghams site, and involved a Heavy Commercial Vehicle (HCV) which lost control and went off the road.

The number and types of accidents recorded indicate that there are no underlying road safety issues associated with Waihekau Road in the vicinity of Inghams' Waitoa plant.

7.0 Traffic Generation

Traffic generation resulting from on-site activities stems from a combination of staff vehicles, visitors and HCV deliveries and collections. Staff vehicles account for the largest number of movements, with approximately 530 staff presently employed on a daily two-shift basis. The morning shift from 6.00am to 2.30pm employs 350 staff, and the afternoon shift from 3.00pm to 11.30pm employs 180 staff. In addition, management and administration staff hours are typically from 8am until 5pm or 6pm.

Surveyed parking demand on a typical weekday was found to be 272 occupied parking spaces during the morning shift, and 117 occupied spaces in the afternoon shift, giving average car occupancies of 1.3 persons/vehicle and 1.5 persons/vehicle for the morning and afternoon shifts respectively.

Table 1 below provides a breakdown of typical existing vehicle movements (inbound and outbound), as recorded on site by Inghams Enterprises Ltd. Where appropriate, the table differentiates between daily, weekly and monthly movements. The predicted vehicle movements for the proposed production of 250,000 birds/day are also given. Staff numbers to process this new maximum daily bird threshold are predicted by Inghams to be a maximum of 500 during the morning shift and 400 during the evening shift.

Total staff vehicle trips have been determined using the identified average car occupancy rates and total number of staff in each shift, doubled to allow for each vehicle to enter and exit the site, with an allowance of 10% extra trips to allow for staff trips away from the site during the shift. The minimal allowance for extra trips is based on the relatively remote location of this site.

Table 1: Existing and Predicted Daily Traffic Generation

Access	Description	Existing		Predicted	
		Daily Movements	Gate Total	Daily Movements	Gate Total
Gate 5	Staff vehicles (surveyed staff parking + 10% extra trips)	858	898	1,430	1470
	Visitor cars	40		40	
Gate 5 HCVs	Live bird deliveries (HCV's)	50-56 (average 53)	63	102	120
	Waste management (HCV's)	2		4	
	Cardboard recycling (HCV's)	0.8 (4 per week)		2	
	Milk delivery	2		4	
	Bread delivery	2		4	
	Clothing / laundry	2		4	
	Drinks vending machine	0.4 (2 per week)		1	
	Food vending machine	0.4 (2 per week)		1	
	Document shredding service	0.2 (1 per week)		0.4	
Gate 3 South access (HCVs)	Chemical delivery	3.5 (70 per week)	29	7	55
	Collection of offal / feathers	8-10 (average 9)		17	
	Collection for petfood	6		12	
	Effluent removal	6		12	
	Sludge disposal	4		8	
Dispatch Gate 4	Outbound processed	20	20	40	40
Total Average Daily Movements		**1,010**		**1,685**	

The existing average daily traffic generation at the site is around 1,010 vehicle movements per day (vpd) of which 112 are Heavy Commercial Vehicles (HCV). Most movements occur

at Gate 5 and are generated by staff. These current volumes relate to a production of 130,000 birds processed per day.

On a pro-rated basis, the current consented threshold of 160,000 birds per day would generate traffic of approximately 1,245 vpd at the site.

The proposed production of 250,000 birds per day represents a 56% increase above the current consented baseline. Table 1 shows this new threshold is expected to increase the daily traffic generation at the site by approximately 35%.

The above existing and predicted increase in staff trips and HCV movements has been based on Inghams management figures. All other predicted trips have been prorated using the proposed increase in bird production.

8.0 Peak Period Flow Patterns

8.1 Existing Flow Patterns

The majority of site vehicles enter and exit the Inghams site through the northern-most entrance (Gate 5), located approximately 70m south of the Waihekau Road / Seddon Road intersection. This entrance provides access to the staff and visitor carpark, and access for inbound delivery of live birds and outbound offal and bird feathers.

Inghams staff undertook a traffic count at Gate 5 during a 2 hour period on Tuesday 8th May 2012 to determine arrival and departure flow patterns at the busiest period of the day. The results of this traffic count are summarised in Table 2 below. The increase in vehicle movements between 2.30pm and 3.00pm coincides with the shift change-over.

Table 2: Gate 5 Existing Traffic Flows and Directional Split from Traffic Count

Time	Incoming Traffic		Outgoing Traffic		Total
	From North	From South	To North	To South	
1.00 – 1.30pm	8	10	9	14	41
1.30 – 2.00pm	4	11	4	11	30
2.00 – 2.30pm	12	17	6	7	42
2.30 – 3.00pm	5	15	65	66	151
2-3pm Surveyed Peak Hour Total	17	32	71	73	193
Directional Split	9%	16%	37%	38%	

Table 2 shows that the majority of vehicles entering Gate 5 approach from the south of Waihekau Road, and turn left into the site. These trips are most likely from the catchments of Morrinsville to the southwest, and Matamata to the southeast. The directional split for outgoing traffic is almost even, with slightly more traffic travelling in a southbound direction (turning right out of the site).

The 193 surveyed trips in the peak hour is considered low relative to the 500+ staff entering and leaving the site over the day. Most staff travel to work by car due to the rural location of the site. However it was observed during surveys that carpooling with 3 or more people per vehicle is popular and Inghams propose to continue to encourage car pooling via company notice boards and promotions.

A survey of parked vehicles undertaken by Inghams on a different weekday identified 272 occupied spaces during the dayshift and 117 occupied spaces in the evening shift. Approximately 30-60 parked vehicles are related to management, admin, maintenance and visitors depending on the shift, so potentially about 300 vehicles would use the access during the shift change over period increasing to about 370 vph for the consented baseline. On that basis the following Table 2a summarises the potential baseline peak hour movements at the access according to the directional splits identified in Table 2.

Table 2a: Gate 5 Existing Peak Hour Traffic Flows based on Number of Parked Cars

Time	Incoming Traffic		Outgoing Traffic		Total
	From North	From South	To North	To South	
Existing PM Peak Hour Total Trips Based on Parking	33	59	137	141	370

The peak hour staff traffic total of 370 vph has been used for calculating the future staff trip generation for the proposed Plan Change production threshold.

8.2 Heavy Commercial Vehicle Travel Patterns

Traffic movements to and from Gates 3 and the Gate 4 (Dispatch) are mostly heavy vehicles. A current consent condition requires all dispatch HCV's to access the site to and from the south only, avoiding the use of Seddon Road.

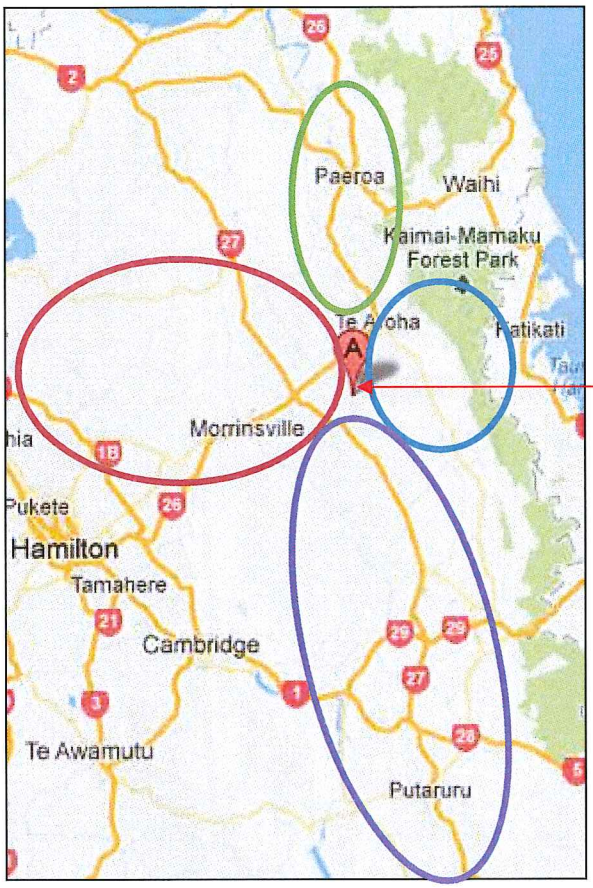
The circled map in Figure 9 and supporting information below has been provided by Inghams to demonstrate the general locality of the chicken farms and therefore the routes taken by delivery trucks accessing Gate 5 at present. In addition Inghams have indicated the target growth for each area over the next 5 years.

- Green circle: Left into Seddon Road and right turn to SH 26 from Seddon Road, approximately 1237 loads per year increasing by 10% in 5 years
- Blue circle: Continue down Waihekau Road (no entry onto SH26 or SH27), currently collecting about 595 loads per year and plan to increase by 15% in 5 years
- Red circle: Turn right onto SH27 currently collecting about 1942 loads per year and plan to increase by 8% in 5 years
- Purple circle: Turn left onto SH27 currently collecting about 3359 loads per year and plan to increase by 12% in 5 years

From this information the average number of live bird loads is 25.5 (51 movements) per day assuming a typical year for the plant involves 280 working days. This is proposed to increase to 28 loads (56 movements) per day in 5 years.

Occasionally live bird trucks travelling to and from the west (red circled area) use SH 26 / Seddon Road intersection instead of SH 27. Inghams propose as policy, to help offset future traffic increases at the SH 26 intersection, that all trucks travelling to or from the west will use the SH 27 / Ngarua Road intersection. This will result in no Inghams heavy vehicles performing right turns into Seddon Road or left turns out of Seddon Road. However, the locality of farms in the northeast (green circle area) means that delivery involving right turns out and left turns in to Seddon Road will remain.

Figure 9: Typical Live Bird Delivery Origins



The SH 26 / Ngarua Road intersection is situated approximately 2 km to the west of Seddon Road. The intersection has an existing right turn bay although few Inghams trucks use this intersection as there is little benefit over SH 27 nearby if travelling to and from the west. However, occasionally live bird delivery trucks will travel northwards on No.1 Road. In such cases SH 26 / Ngarua Road is more direct to the site than back tracking to SH 27. Figure 10 illustrates the intersection locality within the network as described and Figure 11 shows a more detailed view of the intersection.

The SH 26 / Ngarua Road intersection is situated in a 70 kph speed limit zone and includes a 27m long right turn bay on SH 26 with a 70m taper. Sight distance looking from Ngarua Road to the east is shorter than to the west but at 222 m it exceeds the Austroads Design Guide SISD requirement for a 90kph speed environment (214m). Therefore, on the basis that use of the intersection by Inghams trucks will remain low and infrequent and because there is good sight distance in both directions and an existing right turn bay suitable for

HCVs, it is considered that the intersection in its current form is unlikely to experience any increase in adverse traffic effects as a result of the proposed Inghams plan change.

Figure 10: Ngarua Road, SH 26, SH 27 Aerial View

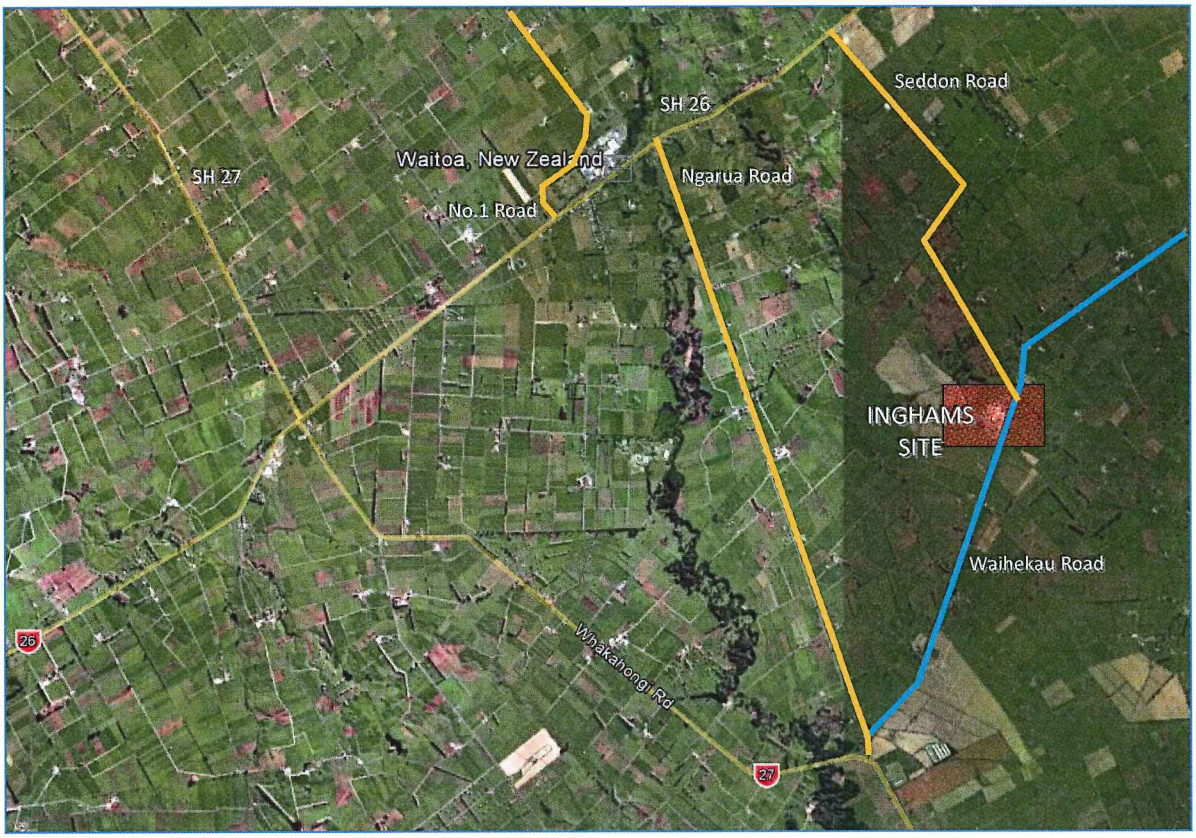


Figure 11: SH 26 / Ngarua Road Intersection

The information above combined with figures in Table 1 illustrates that approximately 74% of the directional split for heavy vehicles is to the south and west of the site accessing from SH 27. A further 17% is to the northeast using SH26 / Seddon intersection while 9% travels east of the site on Waihekau Road. Inghams expects these distribution percentages will remain reasonably consistent as production increases.

8.3 Future Flow Patterns Post Plan Change

The location of the proposed new dispatch area will result in all dispatch traffic using Gate 2. The current Dispatch Gate 4 will remain but used on an infrequent basis such as during unscheduled maintenance.

The proposed plan change includes provision for a new access for HCV traffic on Seddon Road, located at least 75m north-west of the Seddon/Waihekau Road intersection. This access is necessary to enable separation of staff and visitor vehicles from the heavy freight and servicing vehicles, which is an undesirable situation at present. The vehicles that will use the Seddon Road access (referred herein as Gate 6) include all future live bird deliveries and waste management, plus the other day to day deliveries currently using Gate 5. The typical traffic volume using Gate 6 will be 120 heavy vehicles per day at future full production based on the traffic assigned to Gate 5 in Table 1. It is expected that the HCVs using the new access will retain the current travel routes as described above in 8.2.

Table 3 and 4 below summarise the predicted future peak hour traffic volumes. Based on the baseline staff traffic total of 370 vph and 650 daily staff, the future peak hour staff trips at full production (250,000 birds/day) for the combined shift total of 900 staff members will increase by 140 vpd to approximately 510 vph. All other traffic generation figures (freight and servicing etc) at Gates 2 and 5 have been based on the predicted daily trips given in Table 1, which are averaged over a 10 hour day.

Table 3: Future Traffic Flows and Directional Splits with no Seddon Road access

Gate	Future Peak Hour Flows (vph)	Incoming Traffic		Outgoing Traffic	
		From North	From South	To North	To South
Gate 5	522 (510 staff, 12 commercial)	47	83	193	199
Gate 2	10	1	4	1	4

Table 4: Future Traffic Flows and Directional Splits with Seddon Road access

Gate	Future Peak Hour Flows (vph)	Incoming Traffic		Outgoing Traffic	
		From North	From South	To North	To South
Gate 5	510	46	78	192	194
Seddon Road (Gate 6)	12	1	5	1	5
Gate 2	10	1	4	1	4

Daily traffic volumes at the present dispatch Gate are expected to become negligible once the dispatching facility is relocated to access from Gate 2, so this access has not been considered further in the remainder of this report.

9.0 Access Traffic Effects

Based on Table 1 and 2 data, approximately 650 vehicles out of the current 800 daily traffic movements on Waihekau Road south of the site are associated with the Inghams facility. The traffic generation for 250,000 birds/day would see the Waihekau Road volume south of the site increase by about 500 vpd to 1300 vpd, while traffic volumes to the north of the site, would increase by about 300 vpd. However traffic volumes using Seddon Road would remain relatively low and remain light vehicles only.

No capacity issues are expected as a result of the increased volumes. Gate 5 will accommodate the majority of the traffic movements as shown in Tables 3 and 4 with 630-660 vph. Due to the low through-traffic volumes on Waihekau Road the maximum practical turning capacity into the site exceeds 1,200 vph. The Austroads 2005 delay formula indicates an average delay of less than 1 second per vehicle turning out of the site, and is therefore negligible.

Austroads Part 4A, Table 4.14, also indicates that the existing right turn bay at Gate 5 will have sufficient capacity for the predicted future traffic volumes for full production. This intersection / access is therefore expected to operate well with a less than minor adverse traffic effects on local traffic.

Right turn bays are not considered necessary at the relocated Gate 2 and the proposed Gate 6 (Seddon Road) access given the relatively low traffic volumes predicted and the expected absence of heavy traffic right turn movements into these accesses.

10.0 Proposed Seddon Road Access: Gate 6

The proposed new Gate 6 (Seddon Road) access should be constructed and made operable upon extension of the car park when production exceeds 160,000 birds/day. As identified earlier in this report, the access will accommodate an average of 120 heavy vehicle movements per day including approximately 12 per hour in the peak hour at full production (250,000 birds/day). This volume of HCVs combined with the low traffic volumes on Seddon Road is not expected to cause more than minor adverse traffic effects provided the appropriate access standards as follows, are complied with.

In accordance with Matamata Piako Development Manual guidelines, the new access must be designed and located to achieve at least the minimum required 60m separation distance to the Waihekau Road intersection. It must also achieve a minimum sight distance of 170 m for 100 kph posted speed limit. An appropriate access location for the site is no closer than 75m from Waihekau Road intersection due to topography constraints. This achieves a sight distance of over 400m in a north-westerly direction on Seddon Road and unimpeded access to the Waihekau/Seddon Road intersection. A sight distance of 75m to the intersection is sufficient as vehicle speeds turning into Seddon Road from Waihekau Road are no greater than 40 kph.

A painted central median or right turn bay on Seddon Road at this access is not considered necessary if all HCV's are required to approach the site from the south on Waihekau Road

and turn left into the site. However, road widening of 3m may be required according to the assessment criteria of section 3.9.4 of the Development Manual to avoid damage to the road shoulders as HCVs turn in and out of the new access.

The appropriate formation standard for Gate 6 is the 'Large Vehicle Entrances - Rural Zone' (Drawing DG307c MPDC Development Manual) as shown in Figure 8 in this report. As for Gate 2 the entrance width at Gate 6 should be 7m to enable two semi-trailer trucks to pass through safely together.

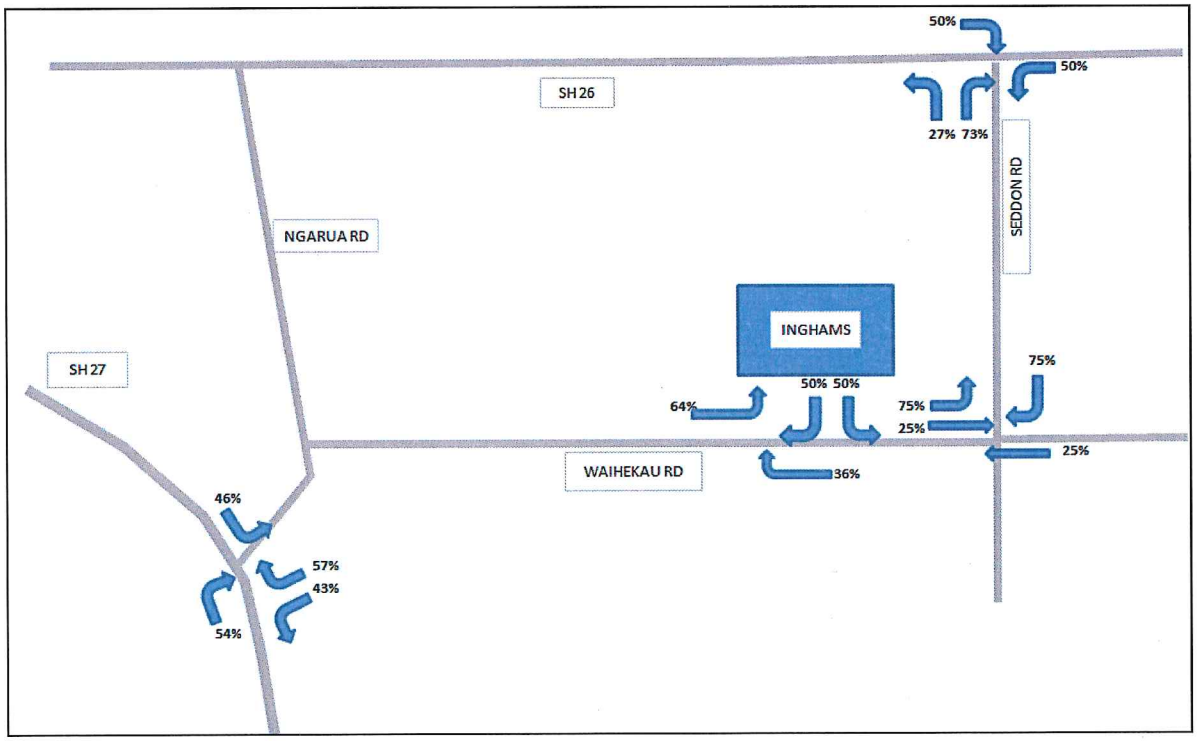
11.0 Intersection Effects

11.1 Turning Movements

Inghams traffic disperses to the surrounding rural road network primarily through two district road intersections, one being 3.7 km south the site (Ngarua Road / Waihekau Road) and one 125 m north (Seddon Road / Waihekau Road) of the Gate 5. From these intersections traffic accesses SH 27 via Ngarua Road to the southwest, SH 26 via Seddon Road to the northeast and other district roads via Waihekau Road to the east.

Intersection traffic counts for the 2-3:30 pm shift changeover period were recorded in November 2012 by BBO and Inghams staff. The information combined with the Gate 5 survey data provides a snapshot in Figure 12 of the light traffic distribution in the network, which is expected to remain similar for future traffic flows.

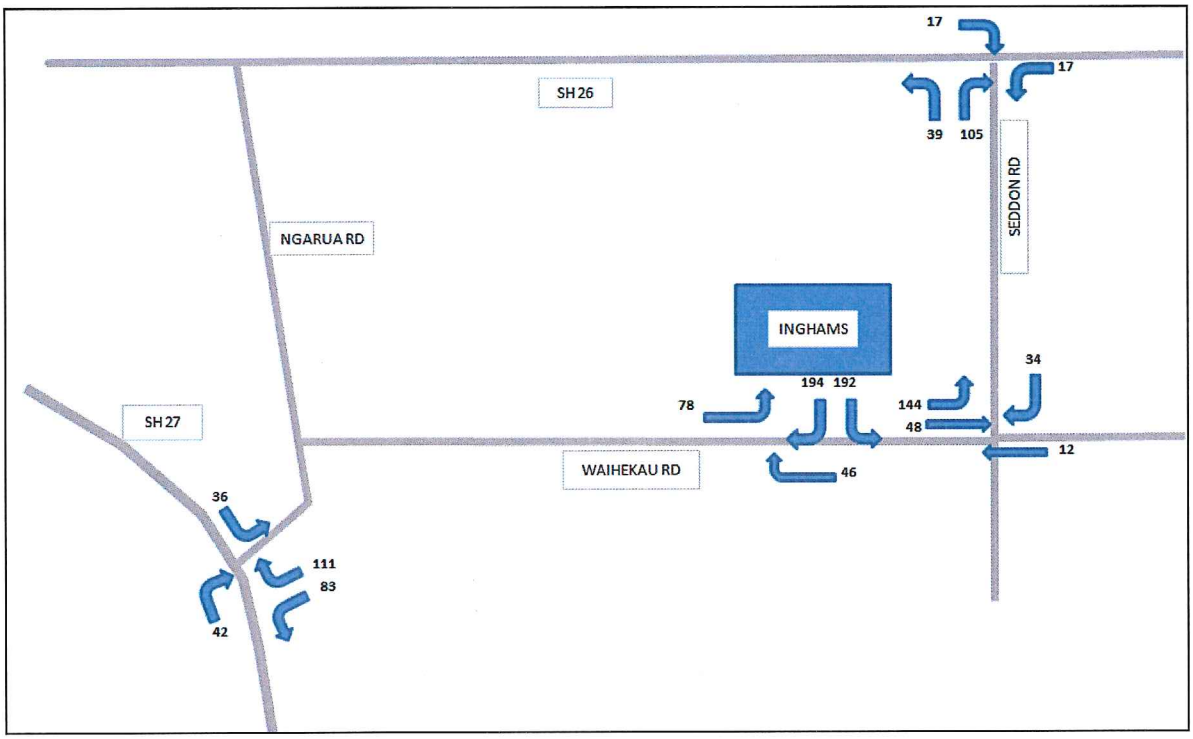
Figure 12: Light Vehicle Trip Distribution (3pm peak hour)



The recorded traffic survey data for SH 27 / Ngarua Road intersection, Waihekau Road / Seddon Road intersection and SH 26 / Seddon Road intersection is attached in Appendix B.

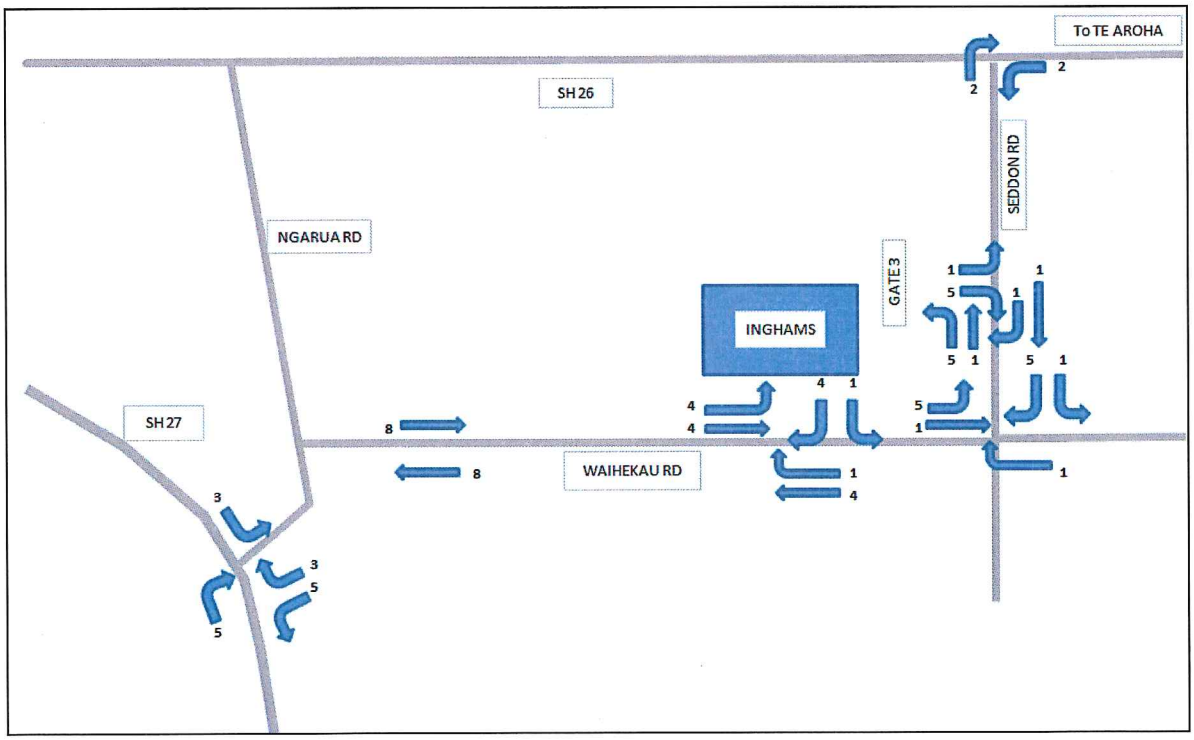
Figure 13 displays the future maximum peak hour light vehicle movements at full development (630 trips/hr).

Figure 13: Inghams Full Development Light Vehicle Trips (3pm peak hour)



The following Figure 14 diagram displays the projected pm peak hour HCV movements based on Section 8.2 distribution percentages and Table 4 (22 vph). This accounts for the proposed Seddon Road access and the proposed Inghams policy that requires all of their heavy traffic travelling west or south to arrive and depart using the SH 27 / Ngarua Road intersection.

Figure 14: Inghams Full Development HCV Trips (3pm peak hour)



11.2 SH 26 / Seddon Road Intersection

The State Highway intersection of SH 26 / Seddon Road is shown below in Figure 15. Sightlines are excellent in both directions due to the straight approaches on SH 26 and the flat topography. The NZTA CAS database records three crashes at this intersection in the past 5 year period. All three were non-injury light vehicle crashes and one was attributed to alcohol. The information suggests that no performance or safety issue presently exist at this intersection. A copy of the NZTA CAS database results for the intersection is included in Appendix B. The SH 26 AADT volume recorded near Seddon Road was 4647 vpd in 2011.

The weekday pm traffic survey undertaken at the intersection recorded total turning traffic movements of 90 vph. This is predicted to increase by 135 vph based on the distribution percentages in Figure 9 with Inghams at the proposed maximum daily production (250,000 birds/day).

The performance of the intersection under existing surveyed volumes and predicted future traffic volumes has been modelled using SIDRA. Future Inghams volumes are from Figure 10 while SH 26 volumes have been factored at 1.5% growth per year to 2026 despite NZTA records revealing no growth has occurred at this location over the last 5 years. The results are summarised in Figure 16 and key SIDRA files are included in Appendix D for reference.

Figure 15: SH 26 / Seddon Road Intersection

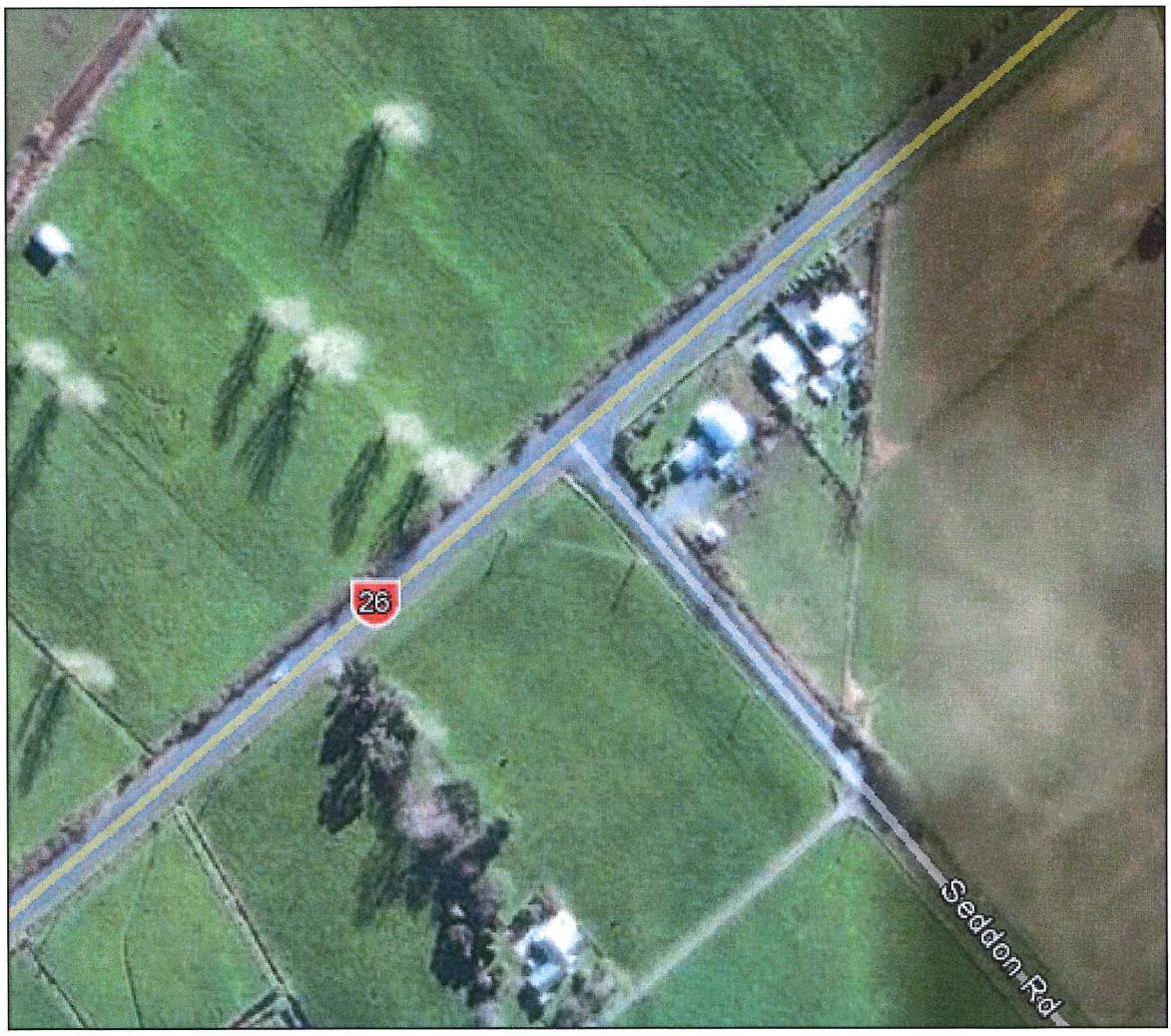


Figure 16: SH 26 / Seddon Road Existing and Future Performance Results

LANE SUMMARY — Site: SH 26 / Seddon Existing PM

SH 26 / Seddon Road
2012 Surveyed PM Peak Hour Volumes
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows L veh/h	T veh/h	R veh/h	Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Lane Length m	SL Type	Cap. Adj. %	Prob. Block. %
South: Seddon Road																
Lane 1	22	0	51	73	10.1	469	0.155	100	12.4	LOS B	0.6	4.4	500	–	0.0	0.0
Approach	22	0	51	73	10.1		0.155		12.4	LOS B	0.6	4.4				
East: SH 26 E																
Lane 1	12	208	0	220	15.3	1769	0.124	100	0.3	LOS A	0.0	0.0	500	–	0.0	0.0
Approach	12	208	0	220	15.3		0.124		0.3	NA	0.0	0.0				
West: SH 26 W																
Lane 1	0	228	11	239	11.0	1764	0.135	100	1.6	LOS A	1.0	7.3	500	–	0.0	0.0
Approach	0	228	11	239	11.0		0.135		1.6	NA	1.0	7.3				
Intersection				532	12.7		0.155		2.5	NA	1.0	7.3				

LANE SUMMARY — Site: SH 26 / Seddon 2026 PM

SH 26 / Seddon Road
2026 Predicted PM Peak Hour Volumes
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows L veh/h	T veh/h	R veh/h	Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Lane Length m	SL Type	Cap. Adj. %	Prob. Block. %
South: Seddon Road																
Lane 1	56	0	140	196	4.8	394	0.497	100	18.8	LOS C	2.9	20.8	500	–	0.0	0.0
Approach	56	0	140	196	4.8		0.497		18.8	LOS C	2.9	20.8				
East: SH 26 E																
Lane 1	25	252	0	277	15.4	1764	0.157	100	0.6	LOS A	0.0	0.0	500	–	0.0	0.0
Approach	25	252	0	277	15.4		0.157		0.6	NA	0.0	0.0				
West: SH 26 W																
Lane 1	0	276	23	300	10.6	1722	0.174	100	2.1	LOS A	1.3	9.6	500	–	0.0	0.0
Approach	0	276	23	300	10.6		0.174		2.1	NA	1.3	9.6				
Intersection				773	10.9		0.497		5.8	NA	2.9	20.8				

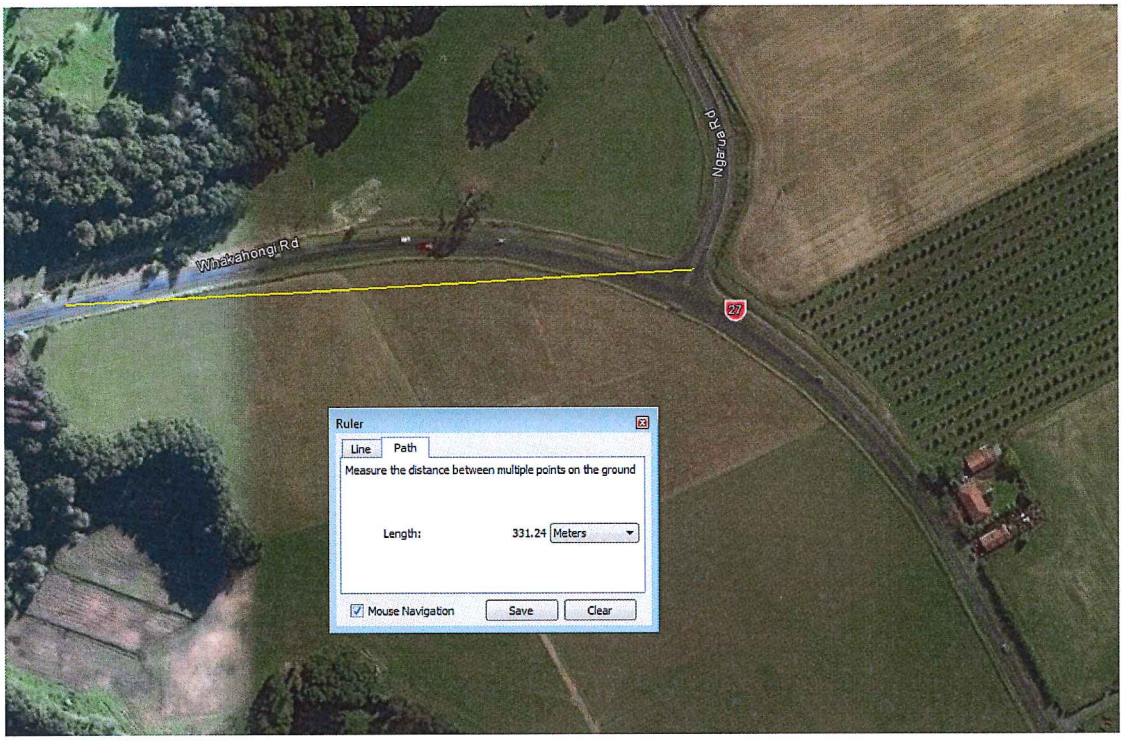
The capacity tests show that the average delay to Seddon Road traffic will increase from 12 to 19 seconds/veh with a 95th percentile queue of 3 vehicles. Delay to SH 27 traffic and right turners into Seddon Road will remain negligible at 2 seconds/veh while the 95th percentile queue is 1 vehicle.

These results indicate that the intersection presently has significant reserve capacity to accommodate the increased traffic volume on Seddon Road associated with proposed development of the Inghams site. The predicted delay increases are minor despite our assessment having applied conservative growth projections and not comparing against the permitted baseline flows. Given these results and the excellent sight distances and lack of crash history we consider that the safety and performance of the intersection with Inghams development traffic will largely remain similar to the current situation. So intersection improvements are not necessary to mitigate effects of the proposed Inghams expansion.

11.3 SH 27 / Ngarua Road Intersection

This intersection is located on a bend in SH 27 as shown in Figure 17, with Ngarua Road connecting on the outside of the bend near the curve apex. A right turn bay exists on SH 27 for traffic turning into Ngarua Road. The SH 27 AADT recorded south of Tatuanui in 2011 by NZTA was 4938 vpd with 21% HCV.

Figure 17: SH 27 / Ngarua Road Intersection



Sight distance from drivers eye height on Ngarua Road to the west is approximately 330m and to the south is more than 400m, so both easily exceed the NZTA minimum standard for Safe Intersection Sight Distance of 282 m for a 100 kph speed limit area.

Figure 18 and 19 show the sight line taken from drivers view to the west and south respectively. The NZTA CAS database records four crashes at this intersection in the past 5 year period. Two were non-injury crashes, one minor injury and one serious injury crash. Three of the four crashes were due to inattention attributed to alcohol. The serious injury crash was the only JA code crash (right turn from side road failing to Give Way) that has occurred. Over representation of this type of crash typically indicates that a safety issue exists. However, no performance or safety issues are evident at this intersection from the crash records. The NZTA CAS record for the intersection is included in Appendix B.

Figure 18: Driver Sightline Looking West from Ngarua Road

Figure 19: Driver Sightline Looking South from Ngarua Road

The traffic distribution in Figure 13 and 14 relating to Inghams proposed maximum production indicates approximately 340 vph plus 18 HCV movements passing through this intersection to and from the site during the pm peak hour shift change.

The present weekday pm traffic flows surveyed at the intersection demonstrate an average of 163 vph total turning traffic volume, and therefore the increase with development is approximately 195 vph (assuming other local traffic flow increase is negligible during this off-peak period). However, current production is at 80% of the consented maximum so the effective increase above the baseline is therefore 155 vph.

A SIDRA Intersection capacity test model has been run for both the existing flows (not consented baseline) and proposed full development at Inghams site in future. This is estimated to be in 2026, and a highway growth of 1.5% pa has been applied despite NZTA records show zero growth has occurred on SH 27 since 2007. The results are summarised in Figure 20 and key input files are included in Appendix D for reference.

Figure 20: SH27 / Ngarua Road Existing and Future Performance Results

LANE SUMMARY — **Site: Existing PM Peak Hour**

SH 27 / Ngarua Road
2012 Surveyed PM Peak Hour Volumes
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows L veh/h	T veh/h	R veh/h	Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Lane Length m	SL Type	Cap. Adj. %	Prob. Block. %
South: SH 27 South																
Lane 1	0	138	0	138	19.1	1735	0.079	100	5.0	LOS A	0.0	0.0	500	–	0.0	0.0
Lane 2	0	0	34	34	21.9	489[1]	0.069	100	17.1	LOS C	0.2	2.0	30	Turn Bay	0.0	0.0
Approach	0	138	34	172	19.6		0.079		7.4	NA	0.2	2.0				
North East: Ngarua Road																
Lane 1	53	0	63	116	6.4	629	0.184	100	10.6	LOS B	0.7	5.4	500	–	0.0	0.0
Approach	53	0	63	116	6.4		0.184		10.6	LOS B	0.7	5.4				
North West: SH27 N																
Lane 1	24	145	0	169	19.3	1573	0.108	100	6.9	LOS A	0.6	5.0	500	–	0.0	0.0
Approach	24	145	0	169	19.3		0.108		6.9	NA	0.6	5.0				
Intersection				457	16.1		0.184		8.0	NA	0.7	5.4				

LANE SUMMARY — **Site: 2026 100% Development PM Peak Hour**

SH 27 / Ngarua Road
2026 2-3pm at Inghams Proposed Max. Operating Capacity
Giveway / Yield (Two-Way)

Lane Use and Performance

	Demand Flows L veh/h	T veh/h	R veh/h	Total veh/h	HV %	Cap. veh/h	Deg. Satn v/c	Lane Util. %	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Lane Length m	SL Type	Cap. Adj. %	Prob. Block. %
South: SH 27 South																
Lane 1	0	166	0	166	19.0	1736	0.096	100	5.0	LOS A	0.0	0.0	500	–	0.0	0.0
Lane 2	0	0	64	64	14.8	480	0.134	100	18.6	LOS C	0.5	4.1	30	Turn Bay	0.0	0.0
Approach	0	166	64	231	17.8		0.134		8.8	NA	0.5	4.1				
North East: Ngarua Road																
Lane 1	117	0	148	265	4.8	541	0.490	100	15.0	LOS C	3.2	23.2	500	–	0.0	0.0
Approach	117	0	148	265	4.8		0.490		15.0	LOS C	3.2	23.2				
North West: SH27 N																
Lane 1	52	176	0	227	18.5	1720	0.132	100	7.1	LOS A	0.0	0.0	500	–	0.0	0.0
Approach	52	176	0	227	18.5		0.132		7.1	NA	0.0	0.0				
Intersection				723	13.2		0.490		10.5	NA	3.2	23.2				

Comparison of the above lane performance results shows that Ngarua Road average delay increases by 5 seconds/veh over the existing flows, which is the threshold point from LOS B to C. The 95th percentile queue is short at just 23 m (3 vehicles).

Delay to SH 27 traffic is negligible and relatively unchanged by the traffic increase. The right turn bay capacity from SH 27 into Ngarua Road is sufficient such that the average delay increases by just 2 seconds/veh while the 95th percentile queue of 1 vehicle is easily contained in the 30m stacking length. The left turn volume increase from SH 27 to Ngarua

Road has negligible impact on through traffic delay as this movement is not required to give way to any other traffic.

The predicted delay increases are minor despite our assessments having applied conservative growth projections for the highway in the future model and not comparing against the permitted baseline flows. The model results and the excellent sight distances at this intersection indicate that the safety and performance should remain similar to the current situation; therefore we consider that there is no need for improvements to mitigate effects of the proposed Inghams expansion.

11.4 District Road Intersections

The topography at the district road intersections of Seddon Road / Waihekau Road and Ngarua Road / Waihekau Road is flat and the approaches are relatively straight with good sight distance from the side roads. The NZTA crash database records just two non-injury crashes at both intersections in the 2002 to 2011 10 year period, which indicates there is no crash problem at either intersection.

No capacity assessments have been undertaken for either intersection as the existing traffic volumes are very low and no operational issues have been observed during site visits. Our assessment is that there is significant reserve capacity at each intersection to accommodate the predicted future traffic increases associated with Inghams plan change.

12.0 Road Pavement Impacts

BBO has consulted with Council asset management staff over the potential for increased deterioration to the pavement of Waihekau Road in the vicinity of the Inghams site, as a result of the increased heavy vehicle volumes relating to development. There is no pavement information available in Council's RAMM database for Waihekau Road, so discussions resulted in agreement between Inghams and Council staff (May 2014) that MPDC will undertake pavement testing and analysis to determine the current residual life before pavement rehabilitation is required. From there a prediction of any accelerated deterioration from increased heavy vehicle volumes can be determined.

To date the testing has not been completed by Council and therefore no further analysis or calculation of a heavy vehicle impact fee can be concluded.

The assessment of pavement impacts is not considered critical to the outcome of the Plan Change as such can be addressed as a rule in the Plan Change or negotiated as a development contribution later at the time of development.

13.0 Parking Requirements

Parking of 435 spaces is currently provided on site, accessed via Gate 5. Inghams advise that this parking is sufficient for the present level of operation, and that typical parking demand is 332 spaces. It is clear that the parking capacity of 435 spaces is sufficient for the consented 160,000 birds/day production threshold.

On-site parking and loading requirements are specified in Section 9.1.4 of the Matamata-Piako District Plan (incorporating the decisions of Plan Change 43). The required standard for industrial activities is one parking space per 100m2 gross floor area (gfa). Inghams

current gfa is approximately 17,900m2, which requires a minimum of 179 spaces to meet District Plan requirements. This is currently exceeded on site. The existing parking demand has been taken from a parking count undertaken at the site at 2:15pm, between shifts when the parking demand is greatest.

Full development of the site will increase the total floor area of on-site buildings by approximately 4,000m2 gfa to 21,900 m2 gfa, requiring 219 parking spaces to comply with the District Plan requirements.

Real parking demand, where available, is the better benchmark for determining parking supply. For Inghams, this will be related to peak staff numbers for which Table 5 shows a peak demand increase from 332 to 564 spaces. The updated Development Concept Plan incorporates an area towards Seddon Road that indicatively shows up to 820 car park spaces can be created if need be. This clearly significantly exceeds the minimum requirements of the District Plan and the predicted parking demand, so on-site parking provision is not a constraint on site.

Table 5: Parking Demand

Rate Source	**Parking Demand**			
	Existing (17,900m2 gfa and 350 am staff)		**Proposed (21,900m2 gfa and 500 am staff)**	
	Rate	**# Spaces**	**Rate**	**# Spaces**
District Plan Requires	1/50m^2 gfa	358	1/50m^2 gfa	438
Parking Demand	0.63/staff (530 staff)	332	0.63 / staff (900 staff)	564
Parking Supply	1/41 m^2 gfa 1.24 / staff	435	1/39m^2 gfa 0.63/ staff	Min. 565

Accordingly, BBO recommend a minimum of 564 car parking spaces be provided to meet the parking demand for the proposed production threshold of 250,000 birds/day.

It is likely that production will increase to this new threshold over a period of years, so it would be practical to increase the car parking supply in stages from the current 435 capacity. Therefore, for every 10,000 birds/day increase over 160,000 birds/day the car parking on site should be increased by 15 spaces.

The District Plan requires that loading facilities and turning areas comply with the 90 percentile design two axle truck swept path. The updated Development Concept Plan provides for the relocation of the dispatch facility towards the south-eastern corner of the site. Adequate area is shown on the Development Concept Plan for 90 percentile manoeuvring without the need for HCV's to reverse onto or off Waihekau Road.

14.0 Car Park Design

An indicative car park design has been provided on the Development Concept Plan to show the locality and capacity available for the intended car park extension. It is recommended that the overall car park design and plans for staged construction be approved by Council prior to construction.

All parking and loading areas on site should be formed and paved with a sealed surface to avoid dust nuisance to neighbouring properties. Parking spaces should be marked and aligned such that no reverse manoeuvring will be required on to or off a public road. Storm water should be drained and collected from the impervious surfaces and reticulated in accordance with Council design standards. Lighting should also be provided for security of vehicles and staff at night. Appropriate foot path and crossing facilities should be integrated in the design to safely convey pedestrians to the reception area.

Other site specific considerations for the car park are discussed below.

- Staff cars should not be directed upon arrival past reception at the front of the car park, as is the case at present. This unnecessarily increases the potential for vehicle/pedestrian conflicts. It can be avoided with an improvement to car park circulation by constructing an east/west orientated lane though the two parking rows on the south side of the car park. Some car park spaces will be lost as a result which will need to be reformed elsewhere.
- It is recommended that the new car park on the north side uses perpendicular spaces instead of angle spaces. The use of angle spaces constrains the direction that vehicles can travel in, requiring a one way aisle system that increases circulation volumes in the car park. Allowing vehicles to travel in both directions is more efficient for access and slows vehicle speeds, although requires wider aisles.
- While HCV traffic continues to use Gate 5 it is recommended that side friction along the HCV route through the car park be minimised. In particular, the layout is altered so there is only one exit from the southern car park on to the main access road.
- Provision for pedestrians along the west side of the southern car park is recommended.

15.0 Conclusion

The proposed maximum production associated with the Inghams Plan Change has the potential to increase the daily traffic generation at the site from 1245 vpd to 1685 vpd and the peak hour flow rate from 370 vph to 510 vph. Although these volume increases appear significant, the traffic effect on the performance of the surrounding road network can be mitigated to be no more than minor provided the proposed accesses on Waihekau Road and Seddon Road are constructed/upgraded as recommended. The change in operational performance predicted on the wider network is minor such that it does not warrant any other upgrades. This is largely due to the standard of existing road infrastructure, the route choice options within the network which disperses traffic, and the times of day that Inghams peak traffic flows occur (not coinciding with traditional peak flow periods).

The existing 435 parking spaces on site and the future 564 spaces both exceed the minimum parking requirement of the District Plan (incorporating the decisions of Plan Change 43) for an industrial facility of this size. The Inghams site has sufficient area to

construct the additional parking spaces in a paddock adjacent and north of the existing car park.

16.0 Recommendations

BBO make the following recommendations on the basis of this Traffic Impact Assessment:

- A new access is recommended off Seddon Road to separate all HCV traffic from the staff and visitor car park access at Gate 5. The access on Seddon Road should be located a minimum 75 m from the Seddon Road / Waihekau Road intersection and be design to the 'Large Vehicle Entrance – Rural Zone' standard in accordance with the requirements of the MPDC Development Manual 2010 and the recommended 7 metre wide gate amendment in Figure 8 of this report. The new access should be constructed and made operable following an increase in production over 160,000 birds/day.
- All heavy vehicles travelling south, west or northwest to and from the site must be required by Inghams to travel via Waikekau Road and SH 27. Only heavy vehicles with destinations to the north east should be permitted to use Seddon Road / SH 26 intersection. The intersection of SH 26 / Ngarua Road is unlikely to experience any noticeable increase in traffic, and given the existing standard of intersection is appropriate no upgrades are recommended to it.
- A new Gate 2 entrance should be designed to a 'Large Vehicle Entrance – Rural' standard in accordance with the requirements of the MPDC Development Manual 2010 and the 7 metre wide gate amendment in Figure 8 of this report, and located at least 75m south of Gate 3 as shown on the proposed DCP in Appendix A. The existing painted flush median on Waihekau Road should be extended to a point 90m south access. This will require some localised sealed shoulder widening of the carriageway. A physical screen is recommended along the boundary of Waihekau Road between Gate 2 and the pallet storage area at the south end of the site to ensure that vehicle's headlights within the site do not cause confusion for northbound drivers on Waihekau Road.
- Ingham's main car park should be extended in stages as production increases to ultimately provide a minimum 564 car park spaces at the production threshold of 250,000 birds/day. Car parking spaces should be increased at a rate of 15 spaces per 10,000 birds/day above the present baseline 160,000 birds/day. All car park areas should be sealed and spaces line marked to an all-weather standard in accordance with the requirements of the Matamata-Piako District Plan and to the satisfaction of the Transportation Manager, Matamata-Piako District Council.

Appendix A

Proposed Development Concept Plan

ACTIVITY SCHEDULE

PERMITTED ACTIVITIES:

Subject to compliance with the relevant performance standards within Section 1.1 the following activities are permitted:

IRRIGATION MANAGEMENT AREA:
- Irrigation spraying of wastewater produced from onsite poultry processing and manufacture activities.
- Farming excluding intensive farming.
- Alterations and additions to the existing dwelling shown on this DCP.

BUILDING AND PLANT MANAGEMENT AREA:
- Processing of up to 160,000 poultry per day.
- Manufacture and packaging of primarily poultry based products, but not including rendering operations.
- Associated and Ancillary plant and buildings.
- Vehicular access numbered ① – ⑥ parking, loading, and manoeuvring areas.
- Workshops and the repair and servicing of vehicles and machinery associated with the site.

TOTAL DCP:
- Any activity identified in the activity table as a Permitted Activity in the Rural Zone not otherwise provided for in this DCP.
- Wastewater and water treatment facilities.
- Any structure in, on, under or over the Waipuna Stream
- Unlimited earthworks.
- Unlimited hazardous substances.
- Facilities for the storage and handling of hazardous substances and dangerous goods.

CONTROLLED ACTIVITIES:

The following activities are controlled:

BUILDING AND PLANT MANAGEMENT AREA:
- Processing of between 160,000 and 250,000 poultry per day.
- Associated and Ancillary plant and buildings.

TOTAL DCP:
- Any activity identified in the activity table as a Controlled Activity in the Rural Zone not otherwise provided for in this DCP.

The matters of control within Section 1.2 shall apply.

RESTRICTED DISCRETIONARY ACTIVITIES:

The following activities are restricted discretionary:

TOTAL DCP:
- Any permitted or controlled activity which is provided for in this DPC and does not meet the relevant performance standards within Section 1.1.
- Any activity identified in the activity table as a Restricted Discretionary Activity in the Rural Zone not otherwise provided for in this DCP.

The matters of discretion within Section 1.3.1 shall apply.

DISCRETIONARY ACTIVITIES:

The following activities are discretionary:

BUILDING AND PLANT MANAGEMENT AREA:
- Processing in excess of 250,000 poultry per day.
- Associated and Ancillary plant and buildings.
- Manufacture and packaging of other food products not primarily poultry based, but not including rendering activities.

TOTAL DCP:
- Any activity which is provided for in this DCP as a Restricted Discretionary Activity and does not meet the performance standards within Section 1.1.
- Any activity that is not provided for in this DCP as a Permitted, Controlled, or Restricted Discretionary Activity but which can meet the performance standards within Section 1.1.
- Any activity which is not located in accordance with this DCP but which can meet the performance standards within Section 1.1.

The matters of discretion within Section 1.3.2 shall apply.

NON-COMPLYING ACTIVITIES:

The following activities are non-complying:

TOTAL DCP:
- Any activity which is not provided for in this DCP as a Permitted, Controlled, Restricted Discretionary or Discretionary Activity and cannot meet all of the performance standards within Section 1.1.
- Any activity which is not located in accordance with this DCP and cannot meet all of the performance standards within Section 1.1.
- Rendering Activities.

KEY:
- DEVELOPMENT CONCEPT PLAN BOUNDARY
- IRRIGATION MANAGEMENT AREA
- BUILDING AND PLANT MANAGEMENT AREA
- RIPARIAN MANAGEMENT
- SCREEN PLANTING
- ② LOCATION OF VEHICLE ACCESSES
- IRRIGATION BUFFER (20m)
- NOISE EMISSION CONTROL BDY

NOTE: LOT 1 DP446379 (SUBSTATION) IS NOT PART OF THE DCP AREA

SUPERSEDED

SECT 28 BLK IV MAUNGAKAWA SD SA 49C/356

SECT 29 BLK IV MAUNGAKAWA SD SO 51635

20m WIDE STRIP

WAIPUNA STREAM

WAIHEKAU STREAM

PT LOT 1 DP 23161

PT LOT 2 DP 23161

20m

SECT 19 BLK IV MAUNGAKAWA SD SA 1049/235

15m WIDE STRIP

5m WIDE STRIP

NOISE EMISSION CONTROL BOUNDARY

SEDDON ROAD

LOT 5 DP 23161

20m

LOT 2 DP 446379

PT LOT 4 DP 7322

BUFFER

WAIHEKAU ROAD

EXISTING DWELLING

LOT 1 DP 446379 (SUBSTATION)

LOT 1 DP 35427

LOT 3 DP 35427

LOT 2 DP 12904

PT LOT 35 DP 12904

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DEVELOPMENT CONCEPT PLAN

Poultry Processing and Manufacturing Site, Waihekau Road, Waitoa

October 2014

Sheet 1

1.1 PERFORMANCE STANDARDS

1. Use of Land for Wastewater produced from onsite poultry processing and manufacture activities	(a) Any effluent disposal system (including disposal onto land by way of spray irrigation) associated with the disposal of non-human waste shall comply with the following: (i) All disposal/spraying shall be within the Irrigation Management Area shown on the DCP. (ii) No spraying shall occur from a public road or place. (iii) Any mud or materials deposited on the roadway from vehicles associated with the disposal of waste shall be removed immediately.
2. Building Envelope for the existing dwelling shown on this DCP and associated accessory buildings.	(a) Maximum Height: 10m. (b) Height relative to site boundary: No part of any building shall exceed a height of 3m plus the shortest horizontal distance between that part of the building and the nearest site boundary. (c) Front yard: Any extension or addition to the existing dwelling shall be erected behind the front line of the dwelling. (d) Rear and side yards: 10m.
3. Building Envelope for all buildings associated and accessory to a permitted activity listed in this DCP.	(a) Maximum height: 20m. (b) Yards adjoining any road or non-Industrial Zone: 20m. (c) All other yards: 10m. (d) Height relative to boundary: Height shall not exceed one quarter of the distance (d) to the closest boundary adjoining (h=d/4) for boundaries adjoining any non-Industrial Zone.
4. Access	(a) Vehicular accesses shall be located in accordance with the DCP. (b) Vehicular accesses shall be designed and constructed in accordance with the MPDC Development Manual 2010. (c) When formed, Gate 2 shall be designed to a 'Large Vehicle Entrance - Rural' (MPDC DG307c: October 2011) standard in accordance with the requirements of the MPDC Development Manual 2010, inclusive of the minimum 7m access width through the gate amendment in Figure 8 of the Inghams 'Traffic Impact Assessment Waitoa Plant Plan Change' report, August 2013, prepared by Bloxam Burnett & Olliver Ltd, and be located at least 75m south of Gate 3 as shown on the DCP. The existing painted flush median on Waihekau Road shall also be extended 90m south of the access along with any local shoulder widening in accordance with the MPDC Development Manual 2010. (d) All vehicle access via the Gate 4 entrance shall be carried out in accordance with a Management Plan approved by Council. The management plan shall detail the processes and protocols in place to ensure that no vehicles manoeuvre in the Waihekau Road traffic lanes and no conflict occurs between vehicles using the entranceway. The Management Plan must provide for the following: (i) That all vehicles greater than 5.2m in length shall enter the entranceway from a southern direction from Waihekau Road. (ii) That no more than two service vehicles shall be permitted to use the dispatch area at any one time. (iii) The vehicle movements shall be managed to prevent any more than one poultry truck and two service vehicles from needing to use the dispatch area and entranceway at any one time. (iv) That the area north of the entrance shall be maintained to a fully formed and sealed part of the entranceway. (v) That the existing "Poultry product truck" signage to the north and south of the site shall be maintained. (vi) That loose material shall not be tracked onto the carriageway of Waihekau Road that may cause a hazard/nuisance to road users. Any proposed variation to the Management Plan shall be approved in accordance with the above by Council prior to implementation of the amendment(s). (e) That the manoeuvring area served by the wastewater access (Gate 3) shall be kept clear of all impediments and obstructions to vehicle manoeuvring. (f) All heavy vehicles travelling south, west or northwest to and from the site shall travel via Waikekau Road and SH27. Only heavy vehicles with destinations to the northeast shall be permitted to use the Seddon Road / SH26 intersection. Traffic routes and number of vehicles using the routes shall be recorded and be available upon request by Council.
5. Car Parking, Formation and Manoeuvring	(a) 435 parking spaces shall be provided on site where production is at or below 160,000 birds. (b) All parking and loading spaces, and access and manoeuvring areas shall be formed and surfaced in accordance with the MPDC Development Manual 2010. (c) All parking and loading spaces shall be maintained and line marked to the standards of the Matamata-Piako District Plan. (d) All parking and loading spaces shall be provided on-site exclusive of land required for any screen planting area required by the DCP, access, or any manoeuvring area, including the manoeuvring areas required for vehicles accessing the dispatch area (Gate 4). (e) Parking and loading spaces are to be either visible from the public road or clearly signposted at the road frontage. (f) Parking and loading spaces shall be provided so that sufficient space is provided on-site so that no reverse manoeuvring onto or from a road is needed. The manoeuvring space provided shall take into account the type of vehicle anticipated.
6. Odour	(a) The management of activities shall ensure that there is no odour nuisance at or beyond the boundary of the property. For the purpose of this rule an odour nuisance is defined as one that can be detected and determined to be a nuisance by three observers who are neutral to the issue, able to apply the frequency, intensity, duration and offensiveness to their observations and who are able to report these accurately; or an appropriately experienced Council or Regional Council Officer after having considered objectives, policies and guidelines of assessment as provided in the relevant sections of a Regional Air Plan or consideration of the provisions in Section 17 and Part XII of the RMA.
7.	(a) The 'existing screen and riparian planting' shown on the Mitigation Strategy Plans L1 revision R3 dated 18 April 2013 and L2 revision R4 dated 23 May 2014 prepared by Mansergh Graham Landscape Architects Ltd shall be retained and maintained.

8. Noise	(a) That the corrected noise level measured at the Noise Emission Control Boundary shall not exceed: • Monday to Saturday (5 am to 9 pm) 50 dB LA_{eq}, • All other times including Sundays and Public Holidays 45 dB LA_{eq} and 75 dB LA_{max}. (b) That the corrected noise level measured at the notional boundary of any dwelling which exists at the date of the DCP (October 2014), except dwellings on the Lots detailed in (c) following, shall not exceed: • Monday to Saturday (5 am to 9 pm) 50 dB LA_{eq}, • All other times including Sundays and Public Holidays 40 dB LA_{eq} and 75 dB LA_{max}. (c) The performance standard in (b) above does not apply to the following Lots: • Section 3 SO 432231 • Part Lot 4 DP 7322 • Lot 1 DPS 35427 • Lot 3 DP 7322 • Lot 2 DP 473506 (d) That, all noise levels shall be measured and assessed in accordance with the requirements of New Zealand Standard NZS 6801:2008 "Acoustics – Measurement of Environmental Sound" and New Zealand Standard NZS 6802:2008 "Acoustics - Environmental Noise" (e) All construction noise shall comply with the relevant noise levels stated in New Zealand Standard NZS 6803:1999, section 7.2 'Recommended numerical limits for construction noise' and shall be measured and assessed in accordance with New Zealand Standard NZS 6803:1999 "Acoustics - Construction Noise"
9. Vibration	(a) Vibration shall not exceed the following average levels: (i) At or within the boundary of any site zoned residential, or within 20m of any dwelling in the rural or rural-residential zones: Time: Monday to Saturday 7.00 - 6.00pm (0700 - 1800) — Average Weighted Vibration Level (Wb or Wd): 45 mm/s2 Time: At all other times — Average Weighted Vibration Level (Wb or Wd): 15 m/s2 (ii) At or within the boundary of any adjacent site zoned business or industrial: Time: At all times — Average Weighted Vibration Level (Wb or Wd): 60 m/s2 (b) The weighted vibration levels Wb and Wd shall be measured according to BS6841:1987. The average vibration shall be measured over a time period not less than 60 seconds and not longer than 30 minutes. The vibration shall be measured at any point where it is likely to affect the comfort or amenity of persons occupying an adjacent site.
10. Lighting and Glare	(a) At no time between 7.00am and 10.00pm shall any outdoor lighting be used in a manner that causes an added illuminance in excess of 125 lux, measured horizontally or vertically at the boundary of any non-industrial zoned site adjoining. (b) At no time between the hours of 10.00pm and 7.00am shall any outdoor lighting be used in a manner that causes: (i) An added illuminance in excess of 10 lux measured horizontally or vertically at any window of an adjoining building within a non-industrial zone. (ii) An added illuminance in excess of 20 lux measured horizontally or vertically at any point along any non-industrial zone boundary. (c) Where measurement of any added illuminance cannot be made because any person refuses to turn off outdoor lighting, measurements may be made in locations of a similar nature which are not affected by such outdoor lighting. (d) The outdoor lighting on any site adjoining any non-industrial zoned site shall be so selected, located, aimed, adjusted and screened as to ensure that glare resulting from the lighting does not cause a significant level of discomfort to any occupants of the non-industrial site. (e) No reflective material or unpainted surfaces should be used which could cause glare. For the purposes of this rule the discomfort level is defined as one that can be detected and determined to be a nuisance by an appropriately experienced Council officer who is able to apply the frequency, intensity, duration and offensiveness to their observations and who is able to report these accurately.
11. Signage	(a) Signs attached to or forming part of the principal building, its walls or canopies: (i) A maximum of 3 signs. (ii) Each sign shall not exceed 6.0m^2 in area. (b) Naming or directional signs displayed at each entrance to the site: each sign shall not exceed 3.0m^2. (c) Any painted or similar sign, or static illuminated sign which is not visible from beyond the site: no size maximum. (d) Safety signs to meet legislative requirements: no size maximum. (e) Temporary signs: no size maximum. (f) The size of letters on signs shall comply with the following minimum height standards in relation to speed limits: 50 km/hr ..... 75mm 100 km/hr 175mm
Note: Earthworks and Facilities for the storage and handling of hazardous substances and dangerous goods' are covered under the Waikato Regional Plan and Hazardous Substances and New Organisms Act 1996 respectively.	

SUPERSEDED

DEVELOPMENT CONCEPT PLAN

Poultry Processing and Manufacturing Site, Waihekau Road, Waitoa

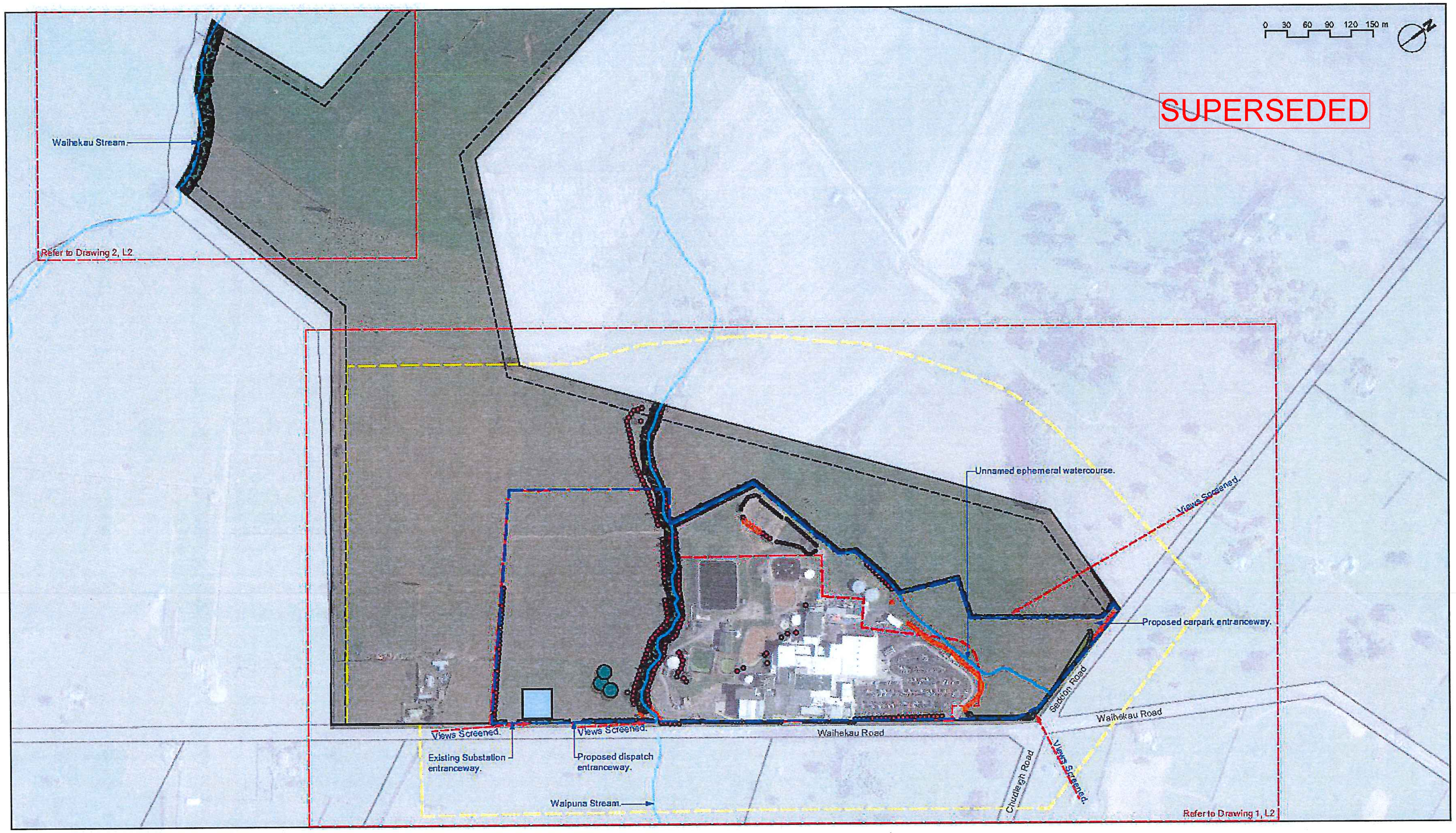
OCTOBER 2014

1.2 MATTERS OF CONTROL

1. Controlled Activities provided for in the Development Concept Plan	A. General: (a) Location relative to the DCP. (b) Extent to which activity complies with Development Controls and Performance Standards of the District Plan. B. Visual: (a) The visual effect of buildings, structures and accesses and manoeuvring areas and earthworks, landscaping or other activities will be assessed in terms of the likely effects on or of: (i) The surrounding environment and general landscape character; (ii) Design elements in relation to the locality; (iii) The mitigating effects of proposed landscaping. (b) In making an assessment of visual impact regard shall be had to: (i) The scale of the facility or building; (ii) Height, cross sectional area, colour and texture of structures and buildings; (iii) Distance to site boundaries and compatibility with surrounding properties; (iv) Proposed planting, fencing and landscaping; (v) Signage; (vi) The intensity of lighting when viewed from a distance; (vii) Effect of lighting on neighbouring amenity; (viii) The opportunity for co-siting of facilities. (c) Assessment of landscaping: (i) Whether existing landscape features are integrated into the new development; (ii) Whether the layout and design are of a high standard, and provide a visual environment that is interesting and in the scale of the propose development; (iii) The size of trees to be planted at the time of planting and at maturity; (iv) The timing of implementation of the landscape plan and the maintenance of approved planting; (v) Whether the type and location of planting promotes public safety; (vi) The extent to which the Inghams Plan Change Development Landscape and Visual Assessment, April 2013, and Mitigation Plans L1 Revision R3 dated 18 April 2013 and L2 Revision R4, L4 Revision R0 and L5 Revision R0 dated 23 May 2014, prepared by Mansergh Graham Landscape Architects Ltd is adopted and implemented. In particular and as appropriate regard shall be had to: • The establishment of evergreen specimen tree mitigation screen planting, capable of reaching a minimum height of 6m, along the western boundary of the proposed carpark expansion/industrial development and to fill in gaps in the existing screen planting along the northern, eastern and southern Building Plant Management Area boundaries; • A dense swath of evergreen under-planting beneath the proposed screen planting along the carpark capable of reaching a height of 1m; and • The establishment of 15m wide riparian planting along the Waipuna Stream margins and the 5m wide along the lower portion of the un-named ephemeral watercourse. C. Traffic, Parking, Loading and Access: (a) Any application shall be assessed upon consideration of the following : (i) Gate 6 on the DCP off Seddon Road shall be constructed and made operable following an increase in production over 160,000 birds/day to separate all HCV traffic from the staff and visitor carpark access at Gate 5. The access on Seddon Road should be located a minimum 75m from the Seddon Road / Waihekau Road intersection and be designed to the 'Large Vehicle Entrance - Rural' (MPDC DG307c: October 2011) standard in accordance with the requirements of the MPDC Development Manual 2010, inclusive of the minimum 7m access width through the gate amendment in Figure 8 of Inghams 'Traffic Impact Assessment Waitoa Plant Plan Change' report, August 2013, prepared by Bloxam Burnett & Olliver Ltd. (ii) The main car park should be extended in stages as production increases to ultimately provide a minimum 564 car park spaces at the production threshold of 250,000 birds/day. Car parking spaces should be increased at a rate of 15 spaces per 10,000 birds/day in excess of the present baseline 160,000 birds/day. D. Stormwater and Effluent Effects: (a) The proposal shall be designed and maintained in a manner which prevents as far as practicable, pollution or contamination of land, water or Council's stormwater system. Techniques such as bunding, impermeable layers under bunds and interceptors may be required. The extent of measures required will be determined after having regard to the Building Code and the sensitivity of the receiving environment to discharges. The requirements of the Matamata-Piako District Council Development Manual 2010 shall not apply to existing or future on-site, self-serviced stormwater or wastewater infrastructure.

1.3 MATTERS OF DISCRETION

1. Restricted Discretionary Activities provided for in the Development Concept Plan	A. Noise Effects: (a) The Council shall ensure that existing lawfully established activities on neighbouring properties in the locality are not adversely affected by unreasonable noise from the proposal. In determining appropriate noise levels, Council shall have regard to the noise environment of the locality in which it is proposed to site the facility, and the practicality of reducing noise from the utility components. (b) Council shall have regard to Section 5.2 of the District Plan (noise) and the "Guide to assessing road-traffic noise using NZS 6806 for state highway asset improvement projects" by the NZ Transport Agency (October 2011). SUPERSEDED B. Stormwater and Effluent Effects: Refer to the Stormwater and Effluent Effects matters of control for Controlled Activities within Section 1.2.D. C. Visual: Refer to the Visual matters of control for Controlled Activities within Section 1.2.B. D. Traffic, Parking, Loading and Access: (a) Any application shall be assessed upon consideration of the following : (i) Traffic volumes, traffic mix relative to the existing and future traffic patterns, access, parking and loading on-site. (ii) Hours of operation relative to the existing and future neighbourhood amenity. (iii) Construction traffic volumes, traffic mix, hours of operation. (iv) Design and location of access points onto roads. The requirements of the MPDC Development Manual 2010 shall be met in respect of the relevant matters outlined. E. Odour Effects: (a) Council shall consider the effect of the probability of offensive odours from the operation of facilities and in particular the operation of waste treatment and disposal facilities and solid waste management disposal sites. F. Solid Waste: (a) Any application shall undertake a solid waste audit to identify waste reduction and/or to conform with the Council's solid waste minimisation strategy. G. Risk Management: (a) Any application shall advise on the risk associated with, but not restricted to : (i) The use of hazardous substances in the facility and proof that the New Zealand Fire Service and the Waikato Regional Council have been advised. (ii) The technology used in the provision of the service, eg. high voltage, electricity, radio-active material, electro magnetic radiation. (iii) Risk of rupture, breakage, collapse, failure, movement etc of components of the facility as it relates to the design and maintenance of the facility and the effect of natural hazards on the facility. (iv) The measures inherent in the proposal which will avoid, remedy or mitigate the potential for that effect to occur.
2. Discretionary Activities provided for in the Development Concept Plan	For Discretionary Activities Council shall as a minimum have regard to all the matters of control for Controlled Activities within Section 1.2 and the matters of discretion for Restricted Discretionary Activities within Section 1.3.1. The matters of control for Controlled Activities and matters of discretion for Restricted Discretionary Activities are only a guide to the matters Council will consider and shall not restrict Council's discretionary powers.



MITIGATION STRATEGY OVERVIEW

To mitigate potential adverse landscape and visual effects of the proposed plan change development, the following strategies will be employed:

The implementation of evergreen screen planting, to fill in the gaps of the existing screen planting along the northern, eastern and southern site boundaries; and to provide more extensive screen planting along the north-western edge of the proposed development.

The implementation of proposed under-planting beneath the proposed and existing screen planting along the northern boundary of the subject site to reduce adverse effects of the associated traffic and headlight glare from the proposed carpark extension.

The implementation of proposed screen planting along the new dispatch entranceway to screen the majority of the proposed entranceway, associated traffic movement and also screen the majority of the proposed bore water treatment and storage facilities; when seen from within close proximity along Waihekau Road.

Riparian planting along the Waipuna Stream and the lower portion of the unnamed ephemeral watercourse will increase landscape values and provide additional screen planting for the southern extent of the existing and proposed industrial development.

Where possible, the existing screen planting surrounding the subject site will be retained to ensure that adverse landscape and visual amenity affects are reduced.

The proposed mitigation planting will emulate sheltering hedgerows, which are common elements in the surrounding rural landscape. Once implemented, the overall effect will be to enhance the amenity of the area and provide suitable screening of the proposed plan change development.

Key

- Original Development Concept Plan: Building and Plant Management Area
- Noise Emission Control Boundary
- Buffer
- Existing Substation
- Existing Screen and Riparian Planting to be Maintained
- Existing Screen Planting to be Removed
- Proposed Development Concept Plan: Building and Plant Management Area

Proposed Screen Planting
Suggested Species:
Pittosporum eugenoides tarata
Pittosporum tenuifolium kohuhu

Proposed Riparian Planting
Suggested Species:
Carex virgata Small swamp sedge
Coprosma robusta karamu
Cordyline australis Cabbage tree
Cortaderia fulvida toetoe
Leptospermum scoparium manuka
Phormium tenax Flax
Pittosporum tenuifolium kohuhu
Plagianthus regius Ribbonwood
Pseudopanax arboreus Five finger
Pseudopanax crassifolius Lancewood
Sophora microphylla kowhai

Proposed Underplanting
Suggested Species:
Libertia grandiflora NZ Iris
Carex secta

Proposed Specimen Tree Planting
Suggested Species:
Alectryon exelcus titoki

DEVELOPMENT CONCEPT PLAN

Poultry Processing and Manufacturing Site, Waihekau Road, Waitoa
October 2014

Sheet 4

Consultants:

The purpose of this plan is to show the general intent of the design and may not be complete in every detail. This plan shall be read in conjunction with all other contract documents. Should ouanddes differ between the plan and specifications or clarification is required contact the design and project manager before proceeding. The contractor shall confirm all dimensions and ouanddes on site before commencing work.

Drawn By: LB
Checked: MG
Revision No: R3

Amendments:

R1: (17-04-13) Amendments to riparian planting and screen planting. Removal of proposed carpark and building extensions/ additions.

R2: (18-04-13) Amendments to layout.

R3: (18-04-13) Amendments to extent of DCP.

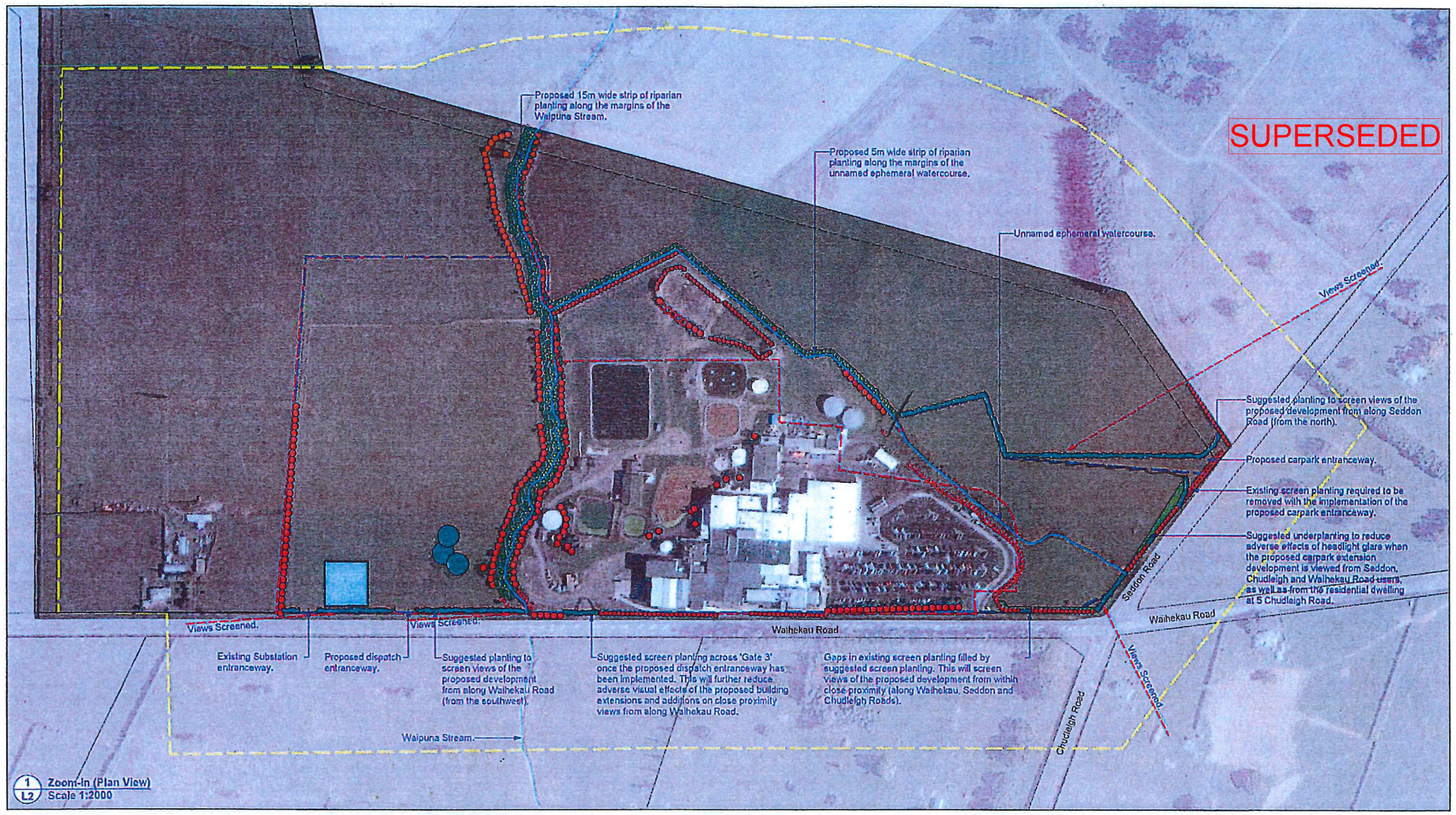
Project: INGHAMS POULTRY SITE MITIGATION PLAN

Client: Love'em INGHAM

Plan Name: **Overview Mitigation Strategy**

A3 Scale: 1:6000
A1 Scale: 1:3000
Date: 18-04-2013
Project No: 2013-013
Issue: CONCEPT

Plan Number: **L1**



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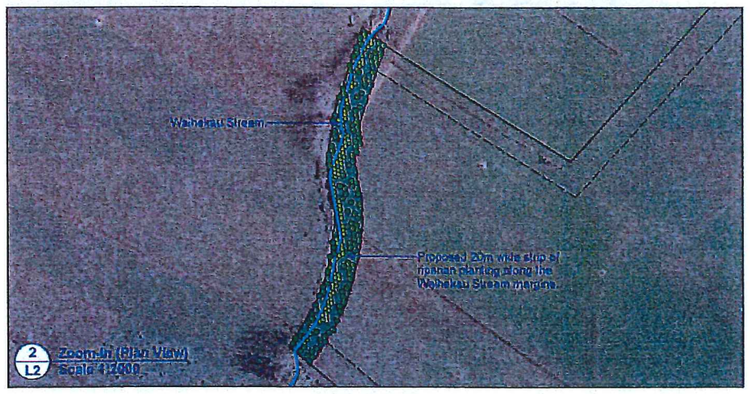


Key

- Original Development Concept Plan: Building and Plant Management Area
- Noise Emission Control Boundary
- Buffer
- Existing Substation
- Existing Screen and Riparian Planting to be Maintained
- Existing Screen Planting to be Removed
- Proposed Development Concept Plan: Building and Plant Management Area

Proposed Screen Planting
Suggested Species:
Pittosporum eugenoides tarata
Pittosporum tenuifolium kohuhu

Proposed Specimen Tree Planting
Suggested Species:
Alectryon excelcus titoki

Proposed Riparian Planting
Suggested Species:
Carex virgata Small swamp sedge
Coprosma robusta karamu
Cordyline australis Cabbage tree
Cortaderia fulvida toetoe
Leptospermum scoparium manuka
Phormium tenax Flax
Pittosporum tenuifolium kohuhu
Plagianthus regius Ribbonwood
Pseudopanax arboreus Five finger
Pseudopanax crassifolius Lancewood
Sophora microphylla kowhai

Proposed Underplanting
Suggested Species:
Libertia grandiflora NZ Iris
Carex secta

DEVELOPMENT CONCEPT PLAN

Poultry Processing and Manufacturing Site, Waihekau Road, Waitoa
October 2014

Sheet 5

Consultants:

The purpose of this plan is to show the general intent of the design and may not be complete in every detail. This plan shall be read in conjunction with all other contract documents. Should quantities differ between the plan and specifications or clarification is required, contact the designated project manager before proceeding. The contractor shall confirm all dimensions and quantities on site before commencing work.

Drawn By: LB
Checked: MG
Revision No: R2

Amendments:

R1: (17-04-13)
Amendments to riparian planting and screen planting. Removal of proposed carpark and building extensions/ additions.

R2: (18-04-13)
Amendments to plan scales.

Project:

INGHAMS POULTRY SITE
MITIGATION PLAN

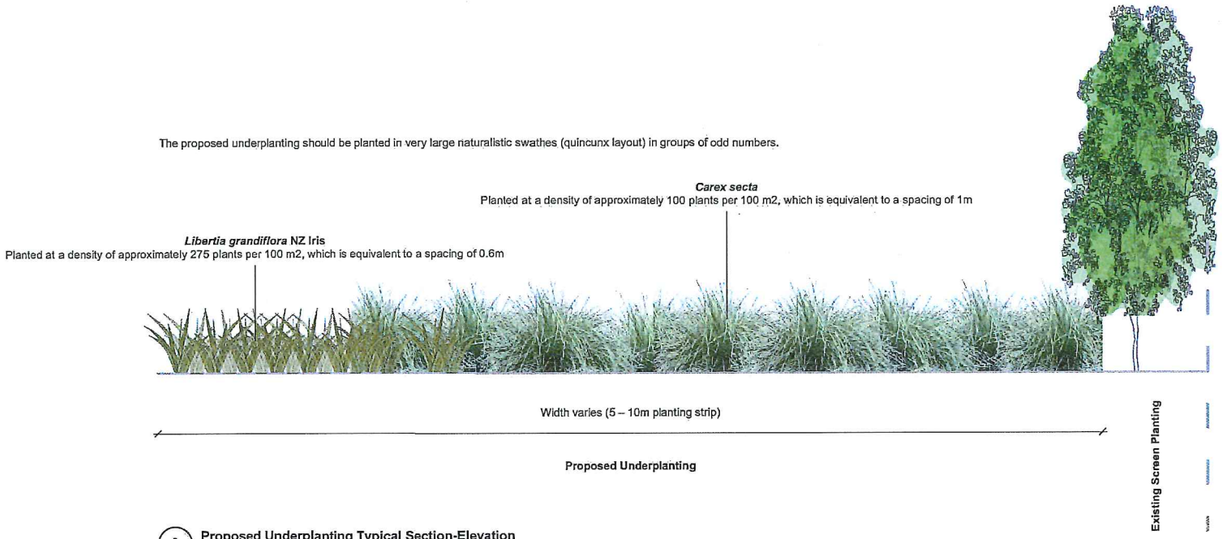
Client:

Plan Name:
Mitigation Strategy

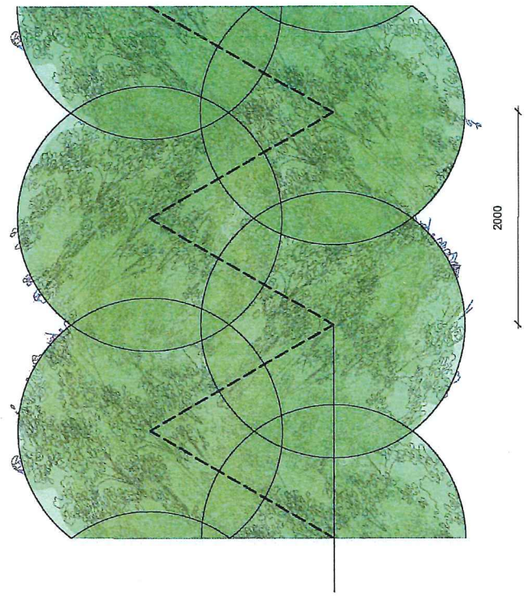
A3 Scale: 1:4000
A1 Scale: 1:2000
Date: 18-04-2013
Project No: 2013-013
Issue: CONCEPT

Plan Number:
L2

SUPERSEDED

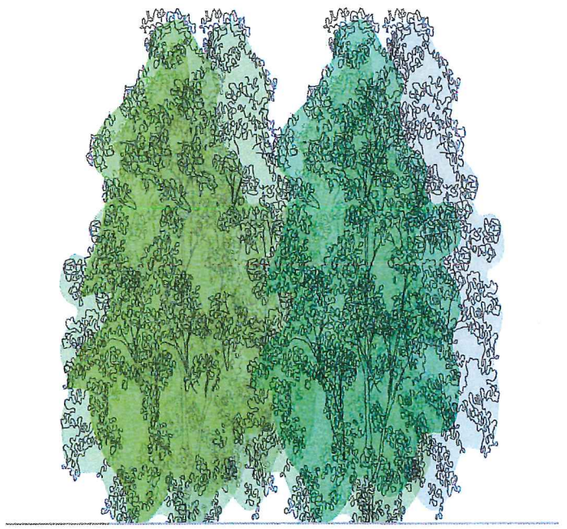


A **Proposed Underplanting Typical Section-Elevation**



Pittosporum tenuifolium **Kohuhu**
Double row as detailed, planted at 2m centres, in quincunx layout

B **Proposed Screen Planting**
Plan View



Pittosporum tenuifolium **Kohuhu**
Double row as detailed, planted at 2m centres, in quincunx layout

B **Proposed Screen Planting**
Elevation

Site Preparation Notes

a. Verify the location of all services (including pipes and electrical cables) prior to excavation.
b. The Contractor is responsible for the continuous protection and maintenance of any existing services affected by the works.
c. Remove all unwanted vegetation and organic material from site. (To include trees, stumps and root systems). Grasses and weeds, including root systems, should be removed from all planted areas prior to planting. Grasses and weeds should be sprayed with Roundup (or similar approved herbicide) at manufacturer's recommended rates two weeks prior to planting. Complete die off shall have occurred before planting commences. Care must be taken to ensure no weed spray enters any adjacent water courses.

Planting Implementation

a. Planting should be carried out between late April and early September. All plants should be sourced from a local seed source where possible.
b. All plants should be of best nursery stock, healthy specimens with well developed root systems, free of pest and disease, well branched and symmetrical, and of typical normal habit for that particular species. Root bound specimens should be rejected.
c. The Contractor should ensure that protection is given to all plants and their root systems during transportation and storage, and that plants do not become dehydrated. Bare rooted specimens should be planted on the day of delivery.
d. Plant holes should be square and twice the diameter of the root ball. Plants should be planted to the same depth as they are growing in their planter bags. Roots should be spread radially and the hole, backfilled with soil and firmed in.
e. Fertilise all plants at time of planting with Agriform, or similar, at the recommended manufacturer's rates.
f. All plants should be well watered in immediately following planting. Planting should not be carried out during heavy rain or on excessively hot/cold and/or windy days.

Plant Size

A PB2/3 sized bag or its pot equivalent (1.2 litres – 1.5 litres) is recommended as being a robust yet cost-effective plant grade to use in this environment. When selecting plants the vegetation should be 500 – 600mm high for the best chance of survival.

Maintenance

Weed management and plant releasing will be required, particularly over the key growing months from October to January. As the planting matures the time and costs of plant releasing will decrease as the space between plants decreases, reducing light and space for weeds to occupy.

Consultants:

The purpose of this plan is to show the general intent of the design and may not be complete in every detail. This plan shall be read in conjunction with all other contract documents. Should quantities differ between the plan and specifications or clarification is required, contact the designated project manager before proceeding. The contractor shall confirm all dimensions and quantities on site before commencing work.

Drawn By:	AR
Checked:	MG
Revision No:	R0
Amendments:	

Project:

INGHAMS POULTRY SITE
MITIGATION PLAN

Client:

Love'em INGHAM

Plan Name:
Typical Mitigation Planting Cross Sections

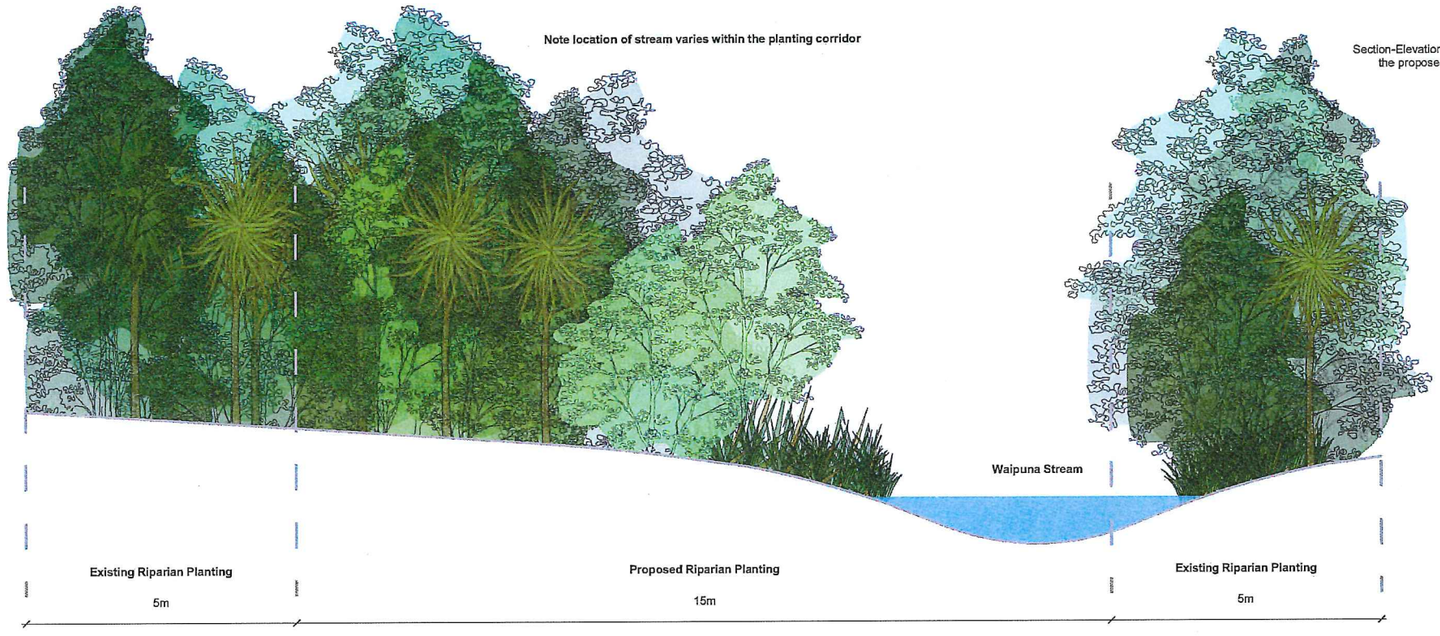
A3 Scale:	1:50
A1 Scale:	1:25
Date:	23-05-2014
Project No:	2013-013
Issue:	CONCEPT

Plan Number:

L4

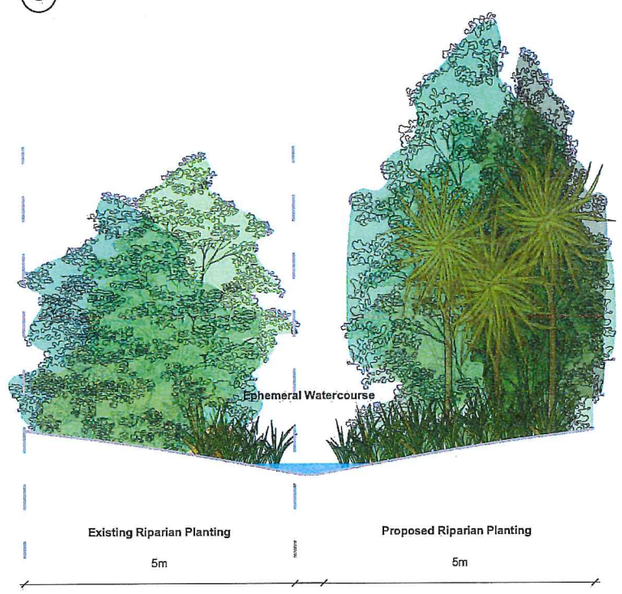
DEVELOPMENT CONCEPT PLAN
Poultry Processing and Manufacturing Site, Waihekau Road, Waitoa
October 2014

SUPERSEDED



Waihekau Stream Riparian Planting
Section-Elevation C and the planting notes below also apply to the proposed 20m wide strip of riparian planting along the Waihekau Stream margins.

C Riparian Planting Typical Section-Elevation (15m width)



D Riparian Planting Typical Section-Elevation (5m width)

Riparian Planting Implementation
Planting should be carried out between late April and early September. All plants should be sourced from a local seed source where possible. Ensure existing riparian planting is retained and not damaged during implementation of the enhancement planting.

Weed Control
Weed species (if present) should be removed from the site before planting. Care must be taken to ensure no weed spray enters the stream.

Plant Size
A PB2/3 sized bag or its pot equivalent (1.2 litres – 1.5 litres) is recommended as being a robust yet cost-effective plant grade to use in this environment. When selecting plants the vegetation should be 500 – 600mm high for the best chance of survival.

Plant Spacings
The following plants should be planted in naturalistic swathes (quincunx layout) in groups of odd numbers (3,5,7) rather than placing individuals more randomly.

Canopy trees should be planted at least 3.0m from another canopy specimen, which is a density of approximately 10 plants per 100 m2.
- *Plagianthus regius* Ribbonwood

Understorey plants should be planted at a density of approximately 45 plants per 100 m2, which is equivalent to a spacing of 1.5m.
It is important to ensure spacings do not exceed this, as rapid canopy closure is required to ensure the ongoing suppression of weeds.
- *Cordyline australis* Cabbage Tree
- *Coprosma robusta* Karamu
- *Cortaderia fulvida* Toetoe
- *Phormium tenax* Flax
- *Pittosporum tenuifolium* Kohuhu
- *Pseudopanax arboreus* Five-finger
- *Pseudopanax crassifolius* Lancewood

Sedges should be planted in large groups at a density of approximately 100 plants per 100 m2, which is equivalent to a spacing of 1m.
- *Carex virgata* Small Swamp Sedge

Low-growing and/or light-demanding species - such as Kowhai - will, ultimately, be competitively overtopped if closely surrounded by taller growing species. These species will also need to be established on margins and in open areas underplanted with grasses and sedges
- *Sophora microphylla* Kowhai

Maintenance
Weed management and plant releasing will be required within the planting zone, particularly over the key growing months from October to January. As the planting matures the time and costs of plant releasing will decrease as the canopy forms, reducing light and space for weeds to occupy.

DEVELOPMENT CONCEPT PLAN
Poultry Processing and Manufacturing Site, Waihekau Road, Waitoa
October 2014

Sheet 7

mansergh graham LANDSCAPE ARCHITECTS

Consultants:

The purpose of this plan is to show the general intent of the design and may not be complete in every detail. This plan shall be read in conjunction with all other contract documents. Should quantities differ between the plan and specifications or clarification is required, contact the designated project manager before proceeding. The contractor shall confirm all dimensions and quantities on site before commencing work.

Drawn By:	AR
Checked:	MG
Revision No:	R0
Amendments:	

Project:
INGHAMS POULTRY SITE MITIGATION PLAN

Client:
Love'em INGHAM

Plan Name:
Typical Mitigation Planting Cross Sections

A3 Scale:	1:100
A1 Scale:	1:50
Date:	23-05-2014
Project No:	2013-013
Issue:	CONCEPT

Plan Number:
L5

Appendix B

CAS Data

First Street / Distance	D I R	Second street or landmark	Crash Number	Date DD/MM/YYYY	Day	Time HHMM	Description of Events	Crash Factors (ENV = Environmental factors)	Road	Natural Light	Weather	Junction	Cntrl	Tot Inj F A T	S E R	M I N
Non-Injury crashes																
26/35/6.572	I	SEDDON ROAD	2841740	25/09/2008	Thu	2230	CAR1 NBD on SEDDON ROAD missed inters or end of road, CAR1 hit Ditch	CAR1 inattentive: failed to notice intersection or its stop/give way control, attention diverted by cell phone	Dry	Dark	Fine	T Type Junction	Stop Sign			
26/35/6.572	I	SEDDON ROAD	2942964	25/11/2009	Wed	1930	CAR1 WBD on SH 26 lost control turning left, CAR1 hit Ditch	CAR1 alcohol test above limit or test refused, too fast entering corner	Dry	Bright	Fine	T Type Junction	Give Way Sign			
26/35/6.575	I	SEDDON ROAD	201044613	14/12/2010	Tue	1455	CAR1 NBD on SEDDON ROAD missed inters or end of road, CAR1 hit Tree	CAR1 too fast on straight	Wet	Overcast	Heavy Rain	T Type Junction	Give Way Sign			

First Street / Distance	D/I/R	Second street or landmark	Crash Number	Date DD/MM/YYYY	Day DDD	Time HHMM	Description of Events	Crash Factors (ENV = Environmental factors)	Road	Natural Light	Weather	Junction	Cntrl	Tot Inj F A T	S E R	M I N
Injury crashes																
27/46/7.283	I	NGARUA ROAD	201004524	30/08/2010	Mon	1435	CAR1 SBD on SH 27 hit CAR2 turning right onto SH 27 from the left, CAR1 hit Cliff Bank	CAR2 failed to give way at give way sign, failed to give way when turning to non-turning traffic, attention diverted by other traffic, didnt see/look when required to give way to traffic from another direction	Dry	Bright	Fine	Y Type Junction	Give Way Sign		2	1
27/46/7.283	I	NGARUA ROAD	201101092	09/01/2011	Sun	0510	CAR1 WBD on SH 27 hit rear of CAR2 turning right from centre line	CAR1 alcohol test above limit or test refused, failed to notice indication of vehicle in front, fatigue (drowsy, tired, fell asleep)	Dry	Dark	Fine	T Type Junction	Give Way Sign			1
Non-Injury crashes																
27/46/7.281	I	NGARUA ROAD	2733045	03/03/2007	Sat	0059	CAR1 SBD on SH 27 missed inters or end of road, CAR1 hit Post Or Pole, Traffic Sign	CAR1 alcohol test above limit or test refused, inattentive: failed to notice intersection or its stop/give way control	Dry	Dark	Fine	T Type Junction	Give Way Sign			
27/46/7.281	I	NGARUA ROAD	2835605	01/06/2008	Sun	1925	CAR1 SBD on NGARUA ROAD missed inters or end of road, CAR1 hit Ditch	CAR1 alcohol test above limit or test refused, too fast on straight, inattentive: failed to notice intersection or its stop/give way control ENV: road slippery (rain)	Wet	Dark	Light Rain	T Type Junction	Stop Sign			

First Street	Distance	C I R	Second street or landmark	Crash Number	Date DD/MM/YYYY	Day	Time HHMM	Description of Events	Crash Factors (ENV = Environmental factors)	Road	Natural Light	Weather	Junction	Cntrl	Tot Inj F A T	S E R	M I N
WAIHEKAU ROAD		I	NGARUA ROAD	2731868	13/01/2007	Sat	0400	CAR1 WBD on WAIHEKAU ROAD missed inters or end of road, CAR1 hit Fence, Post Or Pole, Traffic Sign	CAR1 inattentive: failed to notice intersection or its stop/give way control, fatigue (drowsy, tired, fell asleep)	Dry	Dark	Fine	T Type Junction	Give Way Sign			
NGARUA ROAD		I	WAIHEKAU ROAD	2932289	05/03/2009	Thu	1345	CAR1 SBD on NGARUA ROAD missed inters or end of road, CAR1 hit Ditch	CAR1 too fast to give way at intersection, lost control under heavy braking, new driver showed inexperience	Dry	Overcast	Fine	T Type Junction	Give Way Sign			

First Street	Distance	C I R	Second street or landmark	Crash Number	Date DD/MM/YYYY	Day	Time HHMM	Description of Events	Crash Factors (ENV = Environmental factors)	Road	Natural Light	Weather	Junction	Cntrl	Tot F A T	Inj S E R	M I N
SEDDON ROAD		I	WAIHEKAU ROAD	2901263	13/01/2009	Tue	1110	CAR1 SBD on SEDDON ROAD hit CAR2 crossing at right angle from right	CAR1 failed to give way at give way sign, inattentive: failed to notice intersection or its stop/give way control	Dry	Bright	Fine	X Type Junction	Give Way Sign			2
WAIHEKAU ROAD	100	W	SEDDON ROAD	2442296	28/10/2004	Thu	1626	TRUCK1 WBD on WAIHEKAU ROAD lost control; went off road to left		Dry	Overcast	Fine	Unknown	Nil			

Appendix C

Intersection Survey Count Data

Intersection: SH 26 / Seddon Road Tuesday 27/11/2012

Approach: **Seddon road** Surveyor Name Tom

	Left Out		Right Out			Intersection Total
	Light Vehicles	Trucks / Buses	Light Vehicles	Trucks / Buses		
2:00-2:15	1	0	3	1		
2:15-2:30	1	0	1	0		
2:30-2:45	2	1	2	1		
2:45-3:00	8	1	31	0	53	423
3:00-3:15	3	0	8	0	59	471
3:15-3:30	4	2	4	2	69	505

Intersection: SH 26 / Seddon Road Tuesday 27/11/2012

Approach: SH 26 Surveyor Name Tom

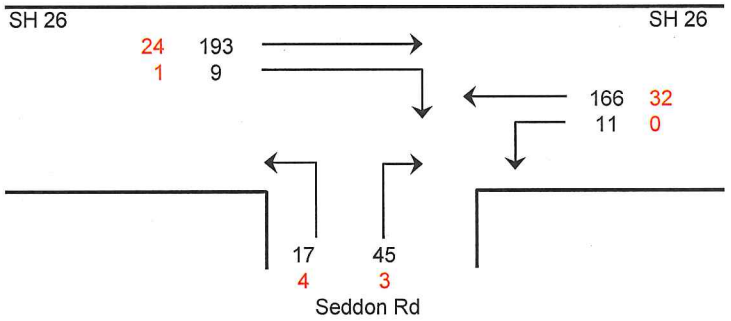
	Eastbound		Westbound		
	Light Vehicles	Trucks / Buses	Light Vehicles	Trucks / Buses	
2:00-2:15	39	6	27	6	
2:15-2:30	30	8	46	4	
2:30-2:45	53	3	32	7	
2:45-3:00	32	7	33	6	339
3:00-3:15	61	4	49	13	388
3:15-3:30	47	10	52	6	415

Intersection: SH 26 / Seddon Road Tuesday 27/11/2012

Approach: SH 26 Surveyor Name Tom

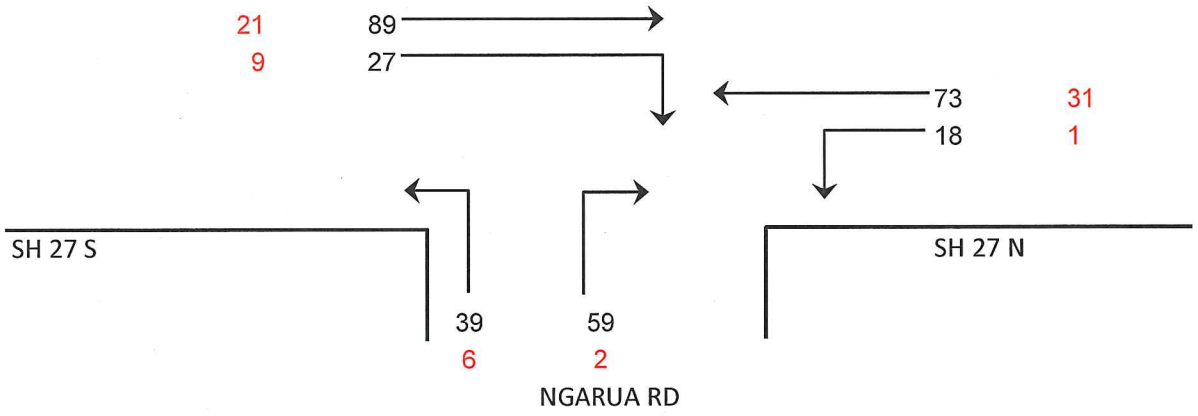
	RIGHT into Seddon Rd		LEFT into Seddon Rd		
	Light Vehicles	Trucks / Buses	Light Vehicles	Trucks / Buses	
2:00-2:15	2	0	10	0	
2:15-2:30	2	0	3	1	
2:30-2:45	1	0	4	0	
2:45-3:00	3	1	4	0	31
3:00-3:15	4	0	1	0	24
3:15-3:30	1	0	2	0	21

Intersection: SH 26 / Seddon Road 2:30 - 3:30pm

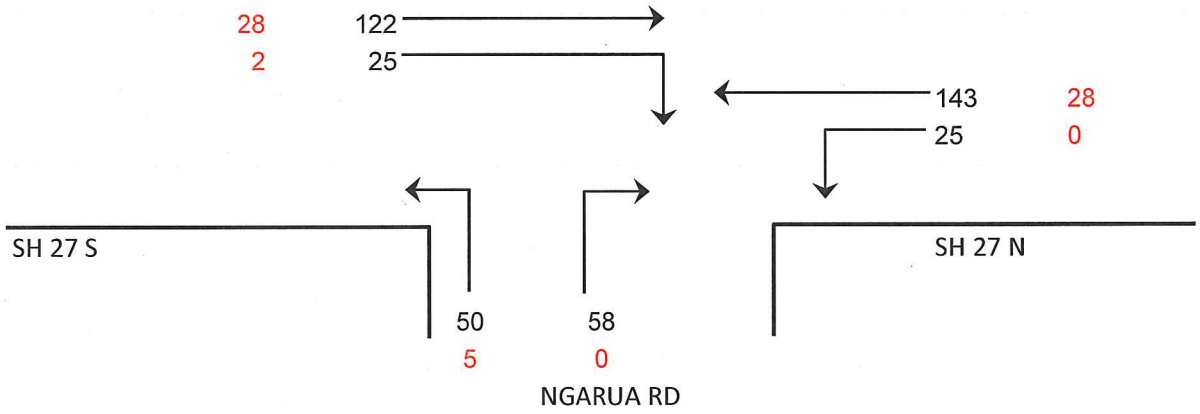


SH27 / Ngarua Road Traffic Survey Data 2:15pm to 3:15pm

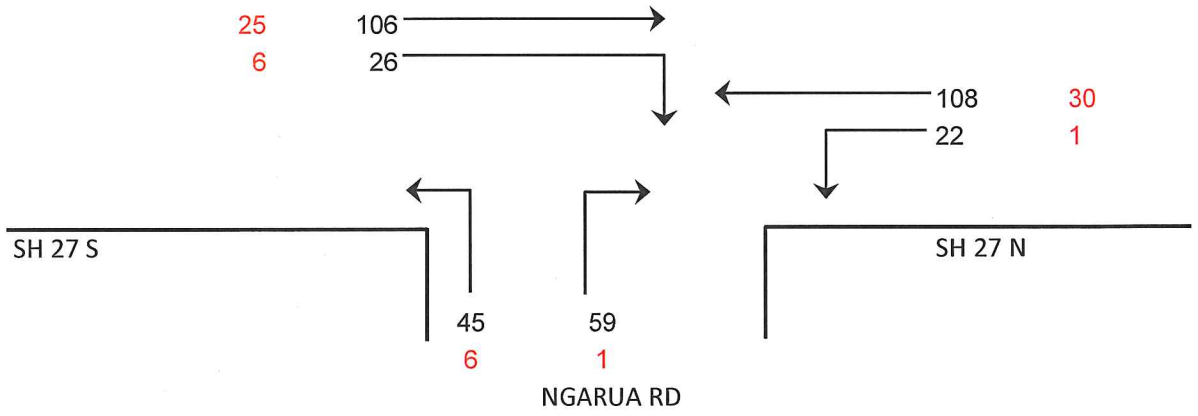
16/10/12 Tuesday Survey



18/10/12 Thursday Survey



Existing Average Hourly Traffic Flows 2:15 pm tp 3:15 pm



Intersection: SH 27 / Ngarua Road 16/10/2012

Approach: **Ngarua road** Surveyor Name Dave

	Left Out		Right Out			Intersection Total
	Light Vehicles	Trucks / Buses	Light Vehicles	Trucks / Buses		
1:45-2:00	3	2	1			
2:00-2:15	2	3	2			
2:15-2:30	1	2	1	1		
2:30-2:45	17	1	27		63	348
2:45-3:00	11	2	26		96	367
3:00-3:15	10	1	5	1	106	375

Intersection: SH 27 / Ngarua Road 16/10/2012

Approach: SH 27 Surveyor Name Cameron

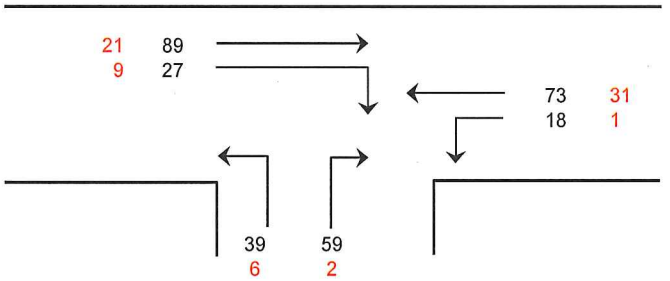
	Northbound		Southbound		
	Light Vehicles	Trucks / Buses	Light Vehicles	Trucks / Buses	
1:45-2:00	28	10	24	5	
2:00-2:15	29	6	13	5	
2:15-2:30	16	4	26	10	
2:30-2:45	23	8	12	5	224
2:45-3:00	28	5	16	8	214
3:00-3:15	22	4	19	8	214

Intersection: SH 27 / Ngarua Road 16/10/2012

Approach: SH 27 Surveyor Name Jessica

	RIGHT into Ngarua Rd		LEFT into Ngarua Rd		
	Light Vehicles	Trucks / Buses	Light Vehicles	Trucks / Buses	
1:45-2:00	6	3	5	3	
2:00-2:15	1	3	7		
2:15-2:30	9	1	10		
2:30-2:45	5	4	4		61
2:45-3:00	7	2	3	1	57
3:00-3:15	6	2	1		55

SH27 / Ngarua Road 2:15pm to 3:15pm



81	0.216
106	0.2827
109	0.2907
79	0.2107
375	

Intersection: SH 27 / Ngarua Road Thursday 18/10/2012

Approach: **Ngarua road** Surveyor Name Dave

	Left Out		Right Out			Intersection Total
	Light Vehicles	Trucks / Buses	Light Vehicles	Trucks / Buses		
1:45-2:00	1	1	4	0		
2:00-2:15	5	0	2	0		
2:15-2:30	7	0	3	0		
2:30-2:45	19	3	23	0	68	438
2:45-3:00	13	1	30	0	106	473
3:00-3:15	11	1	2	0	113	486

Intersection: SH 27 / Ngarua Road Thursday 18/10/2012

Approach: SH 27 Surveyor Name Cameron

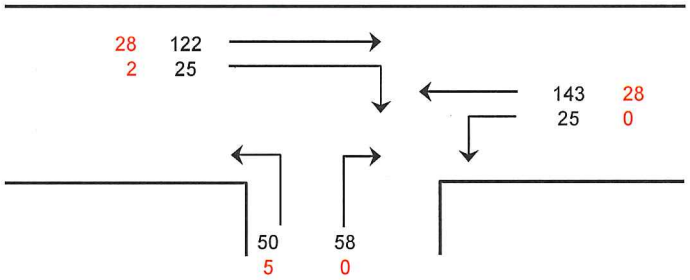
	Northbound		Southbound		
	Light Vehicles	Trucks / Buses	Light Vehicles	Trucks / Buses	
1:45-2:00	33	8	33	1	
2:00-2:15	37	8	29	3	
2:15-2:30	29	8	34	2	
2:30-2:45	37	7	33	7	309
2:45-3:00	26	6	36	7	309
3:00-3:15	30	7	40	12	321

Intersection: SH 27 / Ngarua Road Thursday 18/10/2012

Approach: SH 27 Surveyor Name Jessica

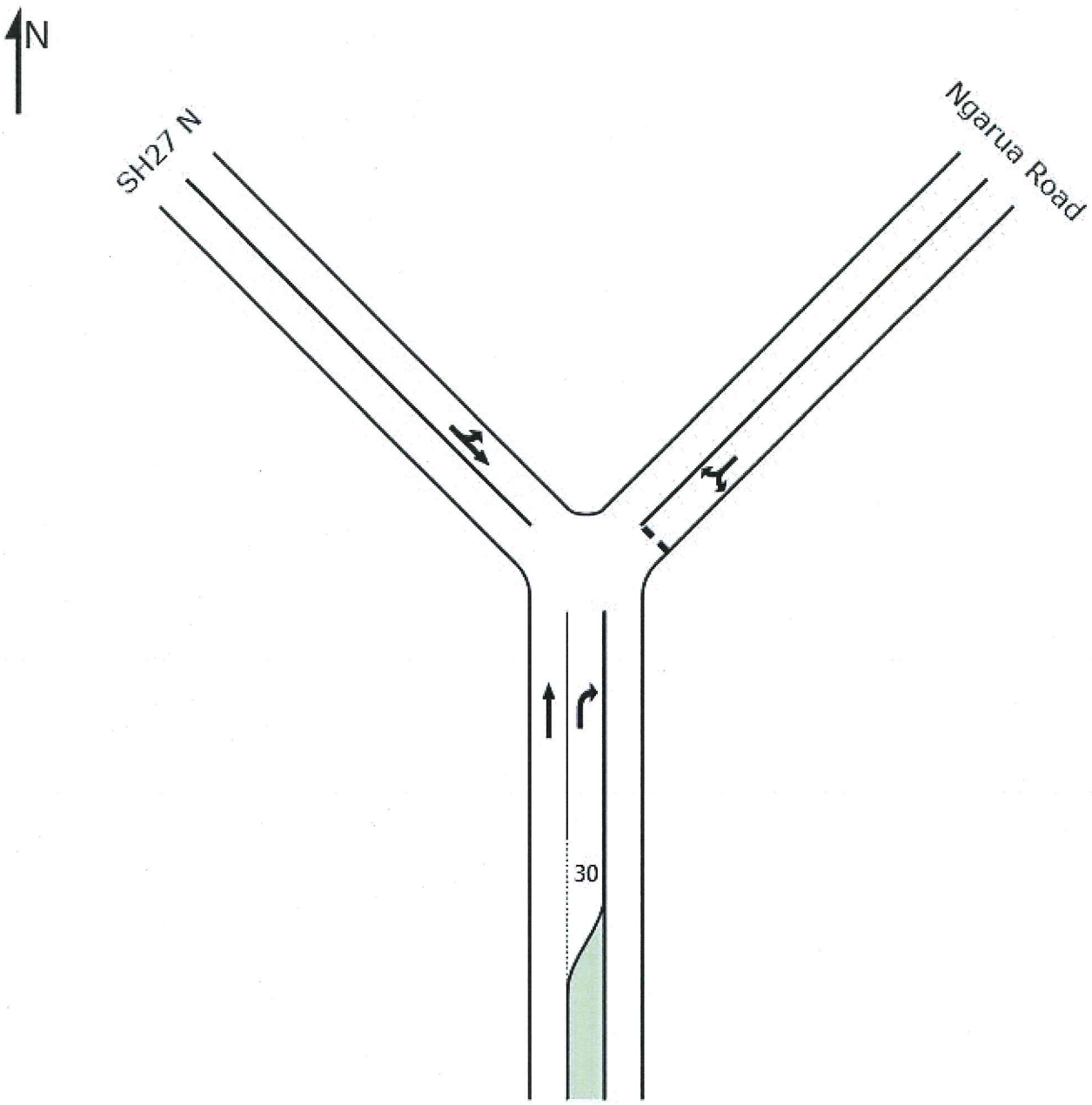
	RIGHT into Ngarua Rd		LEFT into Ngarua Rd		
	Light Vehicles	Trucks / Buses	Light Vehicles	Trucks / Buses	
1:45-2:00	8	2	3	0	
2:00-2:15	5	2	6	0	
2:15-2:30	6	2	9	0	
2:30-2:45	9	0	9	0	61
2:45-3:00	6	0	4	0	58
3:00-3:15	4	0	3	0	52

SH27 / Ngarua Road 2:15pm to 3:15pm



Appendix D

SIDRA Model Files



SH 27 South

MOVEMENT SUMMARY

Site: Existing PM Peak Hour

SH 27 / Ngarua Road
2012 Surveyed PM Peak Hour Volumes
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SH 27 South											
2	T	131	19.1	0.076	5.0	LOS A	0.0	0.0	0.00	0.27	87.5
3	R	56	21.9	0.115	17.4	LOS C	0.4	3.4	0.43	0.76	58.8
Approach		187	19.9	0.115	8.8	NA	0.4	3.4	0.13	0.42	79.5
North East: Ngarua Road											
24	L	88	12.0	0.309	11.2	LOS B	1.4	10.4	0.48	0.67	47.2
26	R	105	1.7	0.309	11.2	LOS B	1.4	10.4	0.48	0.84	47.1
Approach		193	6.4	0.309	11.2	LOS B	1.4	10.4	0.48	0.76	47.2
North West: SH27 N											
27	L	40	4.3	0.103	13.7	LOS B	0.0	0.0	0.00	1.24	63.6
28	T	138	21.7	0.103	5.1	LOS A	0.0	0.0	0.00	0.22	87.5
Approach		178	17.8	0.103	7.0	NA	0.0	0.0	0.00	0.45	82.8
All Vehicles		558	14.6	0.309	9.0	NA	1.4	10.4	0.21	0.55	65.5

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

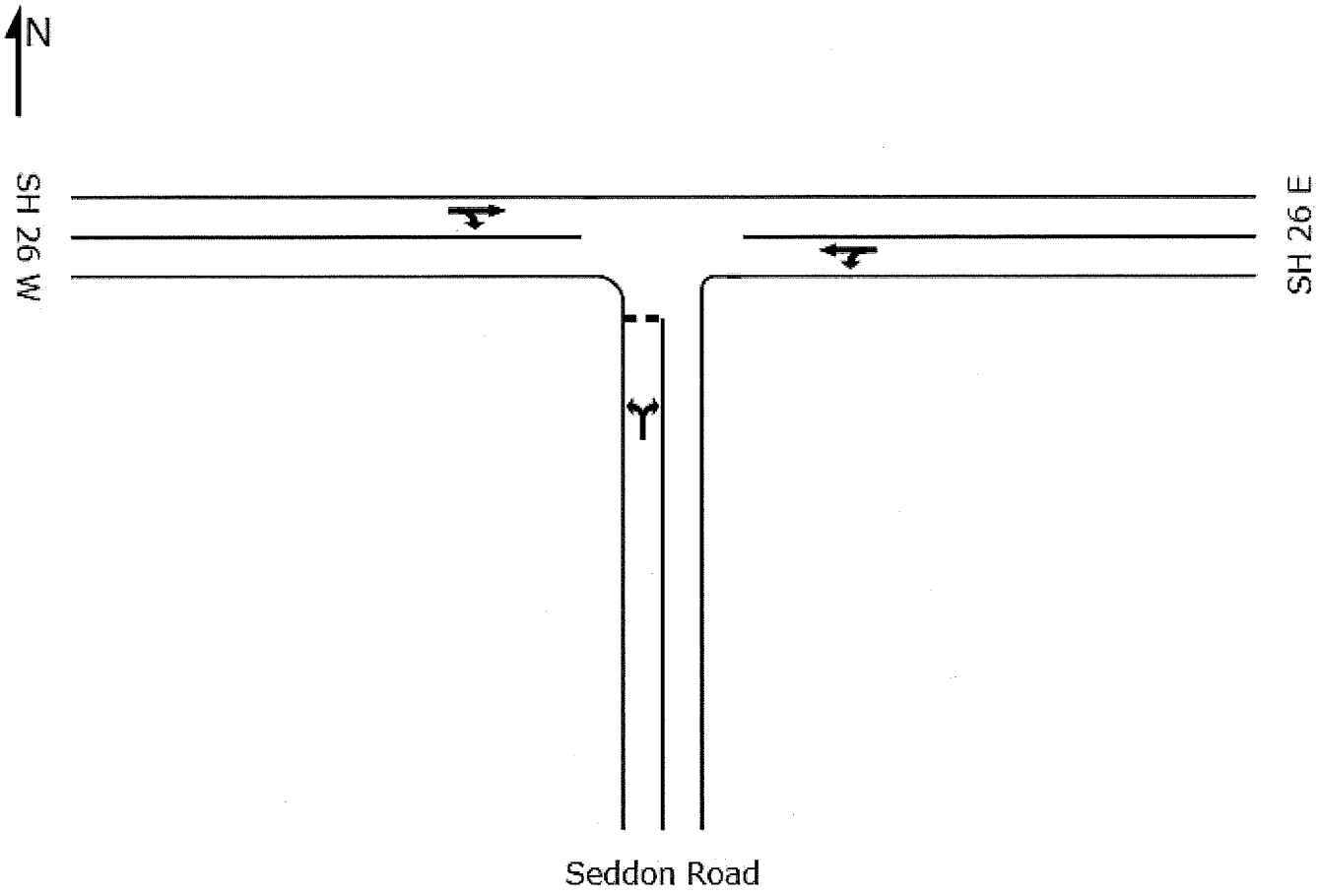
Site: 2026 100% Development PM Peak Hour

SH 27 / Ngarua Road
2026 2-3pm at Inghams Proposed Max. Operating Capacity
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: SH 27 South											
2	T	158	19.0	0.091	5.0	LOS A	0.0	0.0	0.00	0.27	87.5
3	R	89	17.6	0.207	20.0	LOS C	0.8	6.7	0.56	0.88	54.4
Approach		247	18.5	0.207	10.4	NA	0.8	6.7	0.20	0.49	75.7
North East: Ngarua Road											
24	L	160	8.8	0.675	18.9	LOS C	6.4	47.3	0.69	1.07	41.7
26	R	202	3.5	0.675	19.1	LOS C	6.4	47.3	0.69	1.16	41.7
Approach		361	5.8	0.675	19.0	LOS C	6.4	47.3	0.69	1.12	41.7
North West: SH27 N											
27	L	70	10.0	0.138	14.0	LOS B	0.0	0.0	0.00	1.25	63.6
28	T	167	21.6	0.138	5.1	LOS A	0.0	0.0	0.00	0.21	87.5
Approach		237	18.1	0.138	7.7	NA	0.0	0.0	0.00	0.52	81.2
All Vehicles		846	13.0	0.675	13.3	NA	6.4	47.3	0.35	0.77	57.3

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.


N
SH 26 W
SH 26 E
Seddon Road

MOVEMENT SUMMARY

Site: SH 26 / Seddon Existing PM

SH 26 / Seddon Road
2012 Surveyed PM Peak Hour Volumes
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Seddon Road											
1	L	22	19.0	0.155	19.7	LOS C	0.6	4.4	0.53	0.75	60.8
3	R	51	6.3	0.155	18.4	LOS C	0.6	4.4	0.53	0.90	61.4
Approach		73	10.1	0.155	18.8	LOS C	0.6	4.4	0.53	0.85	61.2
East: SH 26 E											
4	L	12	0.0	0.124	12.6	LOS B	0.0	0.0	0.00	1.49	69.1
5	T	208	16.2	0.124	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		220	15.3	0.124	0.7	NA	0.0	0.0	0.00	0.08	97.8
West: SH 26 W											
11	T	228	11.1	0.135	1.3	LOS A	1.0	7.3	0.42	0.00	79.9
12	R	11	10.0	0.135	14.5	LOS B	1.0	7.3	0.42	1.28	73.2
Approach		239	11.0	0.135	1.9	NA	1.0	7.3	0.42	0.06	79.5
All Vehicles		532	12.7	0.155	3.7	NA	1.0	7.3	0.26	0.17	82.6

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.

MOVEMENT SUMMARY

Site: SH 26 / Seddon 2026 PM

SH 26 / Seddon Road
2026 Predicted PM Peak Hour Volumes
Giveway / Yield (Two-Way)

Movement Performance - Vehicles

Mov ID	Turn	Demand Flow veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	95% Back of Queue Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Seddon Road											
1	L	45	9.3	0.407	23.8	LOS C	2.1	15.2	0.65	0.89	54.9
3	R	116	4.5	0.407	23.1	LOS C	2.1	15.2	0.65	0.97	55.4
Approach		161	5.9	0.407	23.3	LOS C	2.1	15.2	0.65	0.95	55.2
East: SH 26 E											
4	L	20	10.5	0.154	13.5	LOS B	0.0	0.0	0.00	1.52	69.1
5	T	252	16.2	0.154	0.0	LOS A	0.0	0.0	0.00	0.00	100.0
Approach		272	15.7	0.154	1.0	NA	0.0	0.0	0.00	0.11	96.9
West: SH 26 W											
11	T	276	11.1	0.170	1.6	LOS A	1.2	9.4	0.47	0.00	77.8
12	R	19	5.6	0.170	14.4	LOS B	1.2	9.4	0.47	1.22	73.4
Approach		295	10.7	0.170	2.4	NA	1.2	9.4	0.47	0.08	77.5
All Vehicles		729	11.5	0.407	6.5	NA	2.1	15.2	0.33	0.28	76.6

Level of Service (LOS) Method: Delay (HCM 2000).
Vehicle movement LOS values are based on average delay per movement
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model used.