



ESTABLISHMENT AND OPERATION OF A MANAGED FILL ACTIVITY

RIVERVIEW DRIVE, HUNTLY

TRAFFIC IMPACT ASSESSMENT

Prepared for Gleeson and Cox Ltd

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1 INTRODUCTION

Team Traffic has been engaged by Gleeson Managed Fill Limited to undertake a Traffic Impact Assessment (TIA) of the proposal to create a managed fill operation on the existing quarry site on Riverview Road in Huntly. The activity currently operating on site is a quarry producing aggregate for roading and construction purposes. A fill operation is considered to work hand in hand with the quarry operation as the quarry has a consent for stripping of overburden and the disposal of overburden and cleanfill will be used to fill designated areas around the site.

This proposal seeks a consent to operate for 35 years and it is anticipated that the site can accept 300,000m³ of managed fill including cleanfill material per annum with a maximum capacity of just over 2.0 M m³.

This TIA addresses the following matters:

- Assessment of the existing road safety, efficiency, and traffic patterns of the existing local road network.
- The traffic likely to be generated by the proposed development and the ability of the road network to accommodate the generated vehicle trips.
- The ability of the proposed development to satisfy the design standards and layout requirements of the Waikato District Plan.

These and other matters are addressed in the detail of this report.

The findings of the report are that the proposed activity can be established without adversely impacting on the function, capacity, or safety of the surrounding road network. Traffic effects are considered to be less than minor.

2 THE EXISTING SITUATION

The existing Gleeson and Cox quarry is located on the western side of Riverview Road in Huntly, approximately 2.9 kilometres south of the Tainui Bridge.

Sole access to the site is provided from Riverview Road and the carriageway has been widened to include a right turn bay that separates right turning movements from through movements.

The location of the site in relation to the road network and surrounding properties is shown in Figure 1 below.

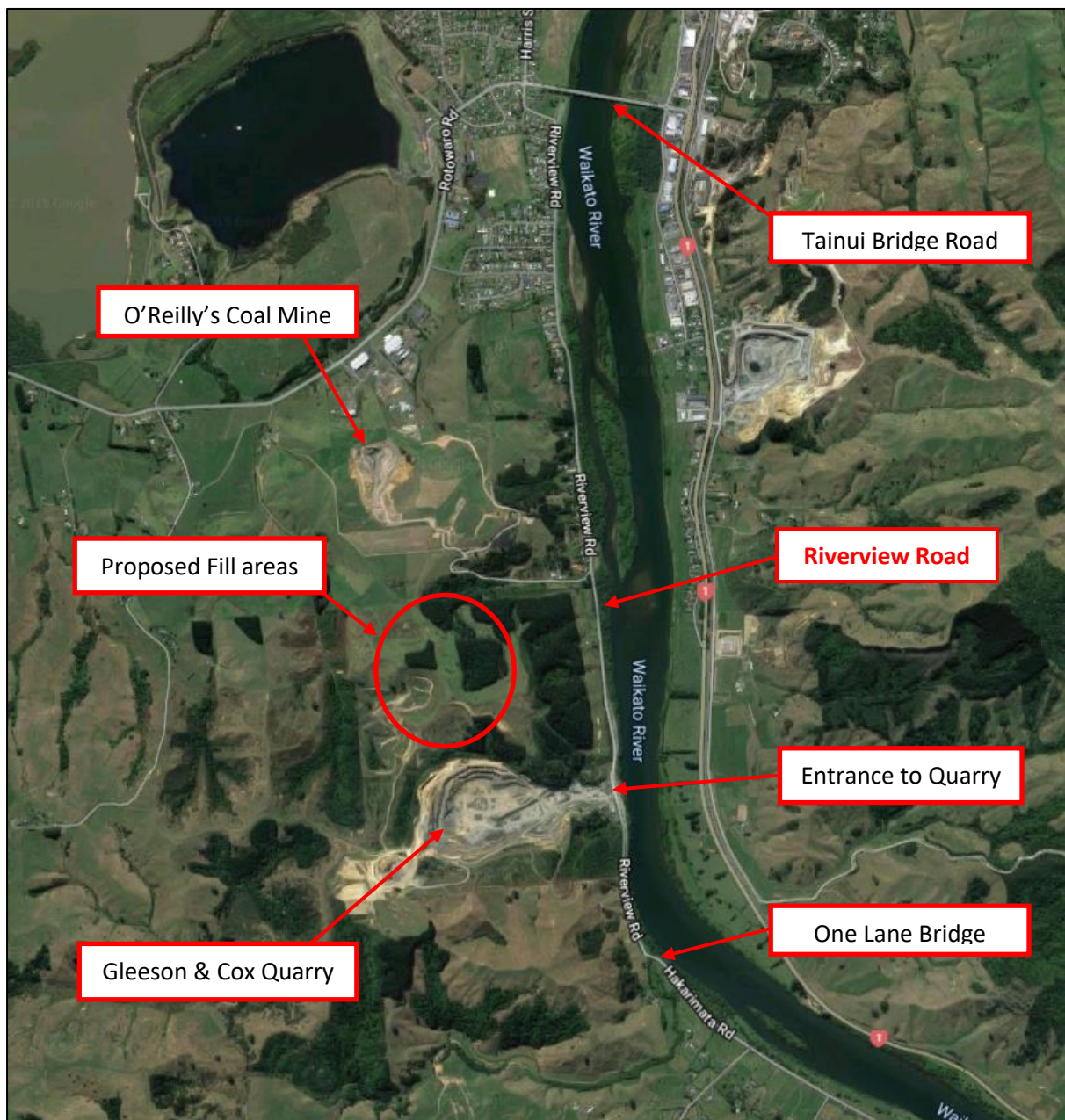


Figure 1: Site in relation to road network and local features.

2.1 Existing Traffic & Roading Characteristics

Riverview Road generally runs in a north-south direction with the subject site located on the western side of the road. The area is designated as rural under the Waikato District Plan however the quarry and surrounding land is also overlaid with and “Aggregate Extraction Policy Area” and “Aggregate Resource Policy Area”.

Riverview Road in the vicinity of site is characterised by a single lane in each direction, delineated by a dashed centre line marking. However access to the site is provided via a single, wide, high quality vehicle crossing that is capable of comfortably accommodating the simultaneous movement of two-way truck traffic.

To provide for the off-tracking requirements of these vehicles a large gravelled slip lane is provided on the western side of Riverview Road to accommodate left turning movements from the south and towards the north. A wide shoulder area is also provided on the eastern side of the road for vehicles to use if required, but this is seldom necessary due to the availability of a dedicated right turn bay with associated deceleration space in the middle of the road for traffic approaching from the north.

The route choice depends on the origin and destination of the trucks, and the quarry records indicate that the truck numbers are evenly split from the north and south.

In the locality of the site, Riverview Road has characteristics that typically consist of a sealed carriageway ranging in width between 7.0 to 12.2 metres, speed limits of 70-100km/hr, generally gentle horizontal and vertical curvatures consistent with the flat to rolling terrain in the surrounding area, and adjacent land uses of a rural and low-density residential nature.

There are sections of footpaths provided near the residential areas and typically these areas have kerb and channel. In the areas without kerb and channel stormwater is funnelled along shallow side drains on both sides of the carriageway.

2.2 Existing Access Arrangements

As a part of the previously consented activity a number of improvements were made to the entrance and access to the site.

Specifically, the entrance to the site was redesigned to accommodate the spatial requirements of heavy vehicles and to provide visibility that complied with the sight distance requirements under the Austroad Geometric Design Standards. These works included road widening to provide a fully complying right turn bay with appropriate tapers and a left turn slip lane into the entrance of the property. The entrance to the site has a lockable barrier style gate system positioned 17 metres from the edges of the carriageway which is sufficiently far off the carriageway to allow a truck to stop clear of the road if the gate is locked.

In addition to these works the internal road was sealed for a short distance into the site to reduce the possible dust nuisance. This internal road is sufficiently wide to safely accommodate two trucks passing in opposite directions. As required in condition 17A-17C of the March 2018 consent variation

which was reworded to more accurately reflect the intention, a combined wheel wash and cattle stop device has been installed to avoid debris being tracked onto Riverview Road. It is considered that these additional treatments will also cater for the additional number of truck movements generated by this application. As part of the latest variation, it was proposed that condition 17A is reworded:

“The consent holder shall provide design plans of the proposed Wheel wash installation for approval by Council within 1 month from the date of this consent. The internal road shall be sealed between the weighbridge and the public road to dislodge material from heavy vehicles.”

The entrance is considered appropriate for the proposed increase in the number of vehicles and is expected to provide for the safe and convenient operation of the activities on the site.

2.3 Traffic Counts

There have been a number of traffic volume and speed surveys undertaken in recent years, within approximately 150 metres north and south of the entrance to the site. The latest survey was carried out in June 2018 and the results were as shown in Tables 1 and 2 below. More recent traffic surveys have not been undertaken due to recent events and the fact that the quarry has not increased production and the trip numbers have been static. Furthermore the Huntly bypass has been opened since the previous report was prepared and it could be expected that a number of drivers will prefer to use the main road and avoid the Riverview route. Riverview was used by a number of local residents when there was congestion on the main road.

Table 1: Summary of traffic count data north of entrance - 2018

Summary of Traffic Count Data North of Quarry Entrance (06/06/2018)							
Count Site	5-Day ADT	7-Day ADT	5-Day	AM peak	Inter Peak	PM Peak	Saturday Peak
Riverview Rd	(vpd)	(vpd)	%HCV	(vph)	(vph)	(vph)	(vph)
Northbound	876	858	8.5%	70	129	151	-
Southbound	800	783	7.5%	78	128	115	-
Total	1,676	1,641	-	148	257	266	-

Table 2: Summary of traffic count data south of entrance - 2018

Summary of Traffic Count Data South of Quarry Entrance (06/06/2018)							
Count Site	5-Day ADT	7-Day ADT	5-Day	AM peak	Inter Peak	PM Peak	Saturday Peak
Riverview Rd	(vpd)	(vpd)	%HCV	(vph)	(vph)	(vph)	(vph)
Northbound	841	833	11.0%	74	127	149	-
Southbound	754	748	10.6%	71	127	123	-
Total	1,595	1,581	-	145	254	172	-

Table 3: Summary of traffic count data north of entrance - 2017

Summary of Traffic Count Data North of Quarry Entrance (07/11/2017)							
Count Site	5-Day ADT	7-Day ADT	5-Day	AM peak	Inter Peak	PM Peak	Saturday Peak
Riverview Rd	(vpd)	(vpd)	%HCV	(vph)	(vph)	(vph)	(vph)
Northbound	1,040	1,072	20.1%	77	64	108	81
Southbound	990	1,080	20.1%	63	67	104	199
Total	2,029	2,153	-	141	132	212	280

Table 4: Summary of traffic count data south of entrance - 2017

Summary of Traffic Count Data South of Quarry Entrance (07/11/2017)							
Count Site	5-Day ADT	7-Day ADT	5-Day	AM peak	Inter Peak	PM Peak	Saturday Peak
Riverview Rd	(vpd)	(vpd)	%HCV	(vph)	(vph)	(vph)	(vph)
Northbound	988	1,031	15.9%	75	68	101	69
Southbound	932	1,033	15.0%	59	57	98	279
Total	1,920	2,064	-	135	125	199	345

A previous count was undertaken seven months earlier and the results are shown in Tables 3 and 4.

The difference in the volumes is largely attributed to seasonal variations and consequently the higher demand for rock in the summer months during the construction season. The number of heavy vehicle movements reflect this assumption.

2.4 Speed Environment

The site is located within a 100 km/h posted speed zone and the 85th percentile speed that was measured south of the entrance showed that drivers were travelling at 87km/h in the northbound direction and 92 km/h in the southbound direction.

2.5 Crash History

A study has been made of the crash records maintained by NZTA for the five-year period 2017 to 2022 inclusive. There were no trucks involved in any recorded crashes during this time period.

The searched area included approximately a 6.0-kilometre length of Riverview Road and Hakarimata Road. The study covered an area approximately 3 km north and south of the entrance to the site. A copy of the collision diagram and crash listing obtained from this search is attached in Appendix A.

There were 27 reported crashes which were comprised of one fatality, three serious crashes, six minor injury crashes plus 17 non injury crashes. These crashes resulted in one death, four serious injuries and 11 minor injuries being sustained.

The fatal crash involved a southbound car whose driver was under the influence of alcohol. The driver was speeding and lost control when turning right and overcorrected and went off the road to the left. The vehicle rolled before coming to rest down a bank and the driver died on the scene and a passenger was seriously injured. The driver was not wearing a seat belt which would in all probability saved their life.

The crashes are typically grouped into types depending upon various factors. Table 5 below shows a summary of the crash types and the number of crashes that were a result of each type.

Table 5: Crash Types

Crash Type	Number
Bend – Lost control/head on	20
Straight Road Lost control / Head On	4
Rear End / Obstruction	2
Overtaking	1
Total	27

Each crash has at least one factor that contributed towards the crash. There were a number of factors involved and, in many cases, more than one factor contributed towards a crash. A summary of the main factors is shown in Table 6 below.

Table 6: Crash Factors

Factor	Number
Poor handling	12
Too fast	5
Incorrect lane position	7
Poor Observation	3
Road factors	2
Alcohol	10
Poor judgement	3
Other	5
Position on road	4
Vehicle Factors	2
Total	53

The crash record shows that the vast majority of the factors were the result of human error and only 7 factors were related to environmental conditions. In addition, 15 of the crashes occurred at times when the proposed managed fill will not be operating.

There was no trucks, pedestrians or cyclists involved in any of the crashes.

The crashes that have been reported as occurring on Riverview Road are considered to be random in nature and do not indicate that there are any deficiencies with the configuration of the road. The existing crash record does not indicate the presence of any inherent safety issues that could affect this application.

3 THE PROPOSAL

This report discusses the traffic-related aspects of the proposal to establish a managed fill site on a property at Riverview Road in Huntly. The areas to be filled are shown in Figure 2 below. Initially there were 5 areas identified for the fill activity, however fill site 1 was discarded. Areas 3 and 5 are to be filled concurrently. Fill area 5 has a separate consent in place to deposit overburden and is not part of this application. The gullies will be filled subsequently with possible small overlaps.

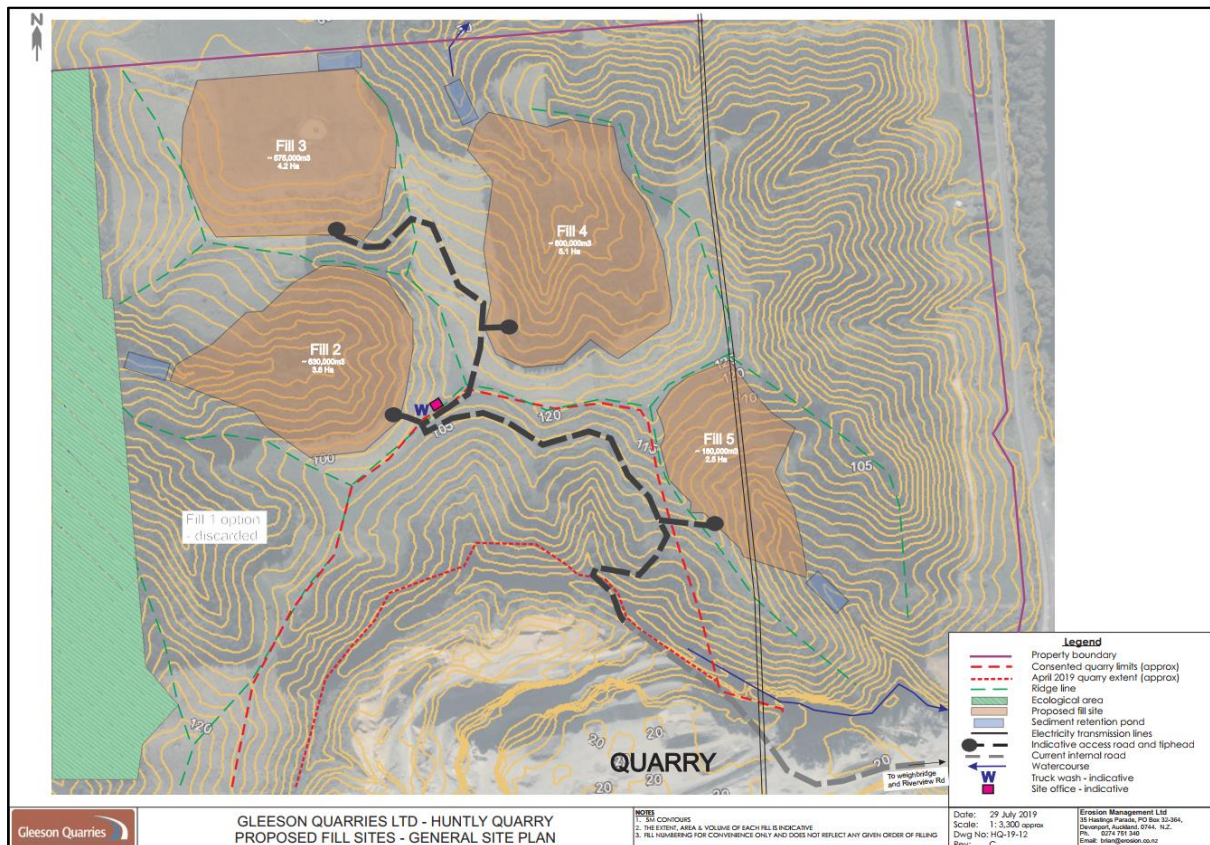


Figure 2: Proposed areas to be filled.

It is proposed to provide space to place a maximum of 300,000 m³ of managed fill per annum. It is expected that the Gleeson and Cox trucks that currently travel empty to the site will be able to carry managed fill including cleanfill from the company's various projects and exit the site with a load of quarry aggregate. This should be much more efficient and productive for the company.

There is currently a quarry operating on the site located immediately to the south of the fill areas and recent applications have been made to expand the quarry operations and open up new areas to increase the rate of extraction, which in turn requires larger volumes of stripping to expose the rock for extraction. As a function of the quarry expansion there is a requirement to remove overburden and this waste needs to be placed somewhere on the site.

This application seeks a 35-year design life for the managed fill, and initially, as the quarry expands the overburden will be relocated to the cleanfill areas. The quantity of overburden is thought to be a

total of 674.940 m³ and during the first few years it is expected that somewhere between 150,000m³ and 200,000m³ will be moved per annum until the quarry is clear to operate.

The operators will be constructing an internal haul road, marked in black in Figure 2 above, to link the two sites and this aspect of the works is considered to be included in this application for consent. It should be noted that it is in the quarry's interest to design the internal roads as efficiently as possible to minimise wear and tear on the trucks and other machinery. It is understood that the internal road will be constructed so that it will be between 10 and 15 metres wide and will have a grade not exceeding 10 percent. These parameters will ensure that the trucks and plant can easily move around on the site and trucks will be able to pass each other without incident.

Recent new activities have been introduced to the quarry operation that require a small number of truck movements to occur outside of the current consented operating hours. Aggregate to supply the concrete industry is required to be picked up earlier in the morning and starting around 5.00am.

The quarry operation currently runs between 6.00am and 7.00pm all year round and the recent changes require some small amendments to the operating hours.

This proposal also seeks to increase the operating hours to the following:

Between 1 October and the 30 April;

Monday to Friday 5.00am to 8.00pm.

Saturday 6.00am to 3.00pm

Between 1 May and the 30 September;

Monday to Friday 5.00am to 6.00pm.

Saturday 6.00am to 3.00pm

To provide consistency across both operations on the site it is proposed to have the same operating hours for both activities as described in the WDC Resource Consent LUC0035/11.05.

4 BACKGROUND

The Riverview Road quarry has been operating under existing use rights since the 1930's. On 17 November 2010 the quarry was granted consent to expand into the adjacent block referred to as the Payne Block. At that time the maximum tonnage in any 12-month period of operation was not to exceed 900,000 tonnes with an average of 550,000 tonnes over a five-year period.

In 2014 TEAM prepared a Traffic Impact Assessment to amend condition PC14 and increase the average tonnage measured over a five-year period that could be extracted from 550,000 tonnes per year to 650,000 tonnes per year. The maximum allowed tonnage of 900,000 tonnes per year was not changed. Consent was approved however the demand for material has increased further mainly due to a number of large roading projects within the region which is placing an increased demand on the quarry to exceed the consented limits.

In 2017 another S127 application was made to further increase the extraction rates. Approval was granted in March 2018 to increase the average annual extraction from 650,000 tonnes to 800,000 tonnes which is averaged over a five-year period. In addition, approval was granted to increase the maximum extraction tonnage from the 900,000 tonnes to 1,000,000 tonnes per year.

During the due diligence process a further S127 application was lodged to increase the average annual extraction from 800,000 tonnes to 1,000,000 tonnes which is averaged over a five-year period. In addition, approval was granted to increase the maximum extraction tonnage from the 1,000,000 tonnes to 1,400,000 tonnes per year. It is understood that Council assessed heavy impact vehicle fee for the extension to the site on the maximum tonnage extracted not the average and by increasing the maximum tonnages permitted to be removed the effects of the removal of the additional material will have a lesser impact on the road network. The approval for this consent was granted on 11 September 2019 in LUC0035/11.05.

The original consent under condition PC16 provided for a total resource extraction of 19,350,000 tonnes over the life of the quarry. Over the past 8 years a total of circa 5,295,314 tonnes has been removed noting that there were a few months where data was not provided. The extraction rate is largely dependent upon the demand and it is expected that the rate of extraction will fluctuate accordingly and is unlikely to reach the maximum levels for several years at least, if at all.

The discussions with Council prior to the 2019 S127 application indicated that Council would like to take the opportunity to revisit the Heavy Vehicle impact fee for the consent and this is likely to apply to this application as well. In addition, Council requested an assessment of the one lane bridge immediately south of the quarry entrance. A video survey was undertaken at the one lane bridge as well as the entrance to the quarry. The video surveys of the entrance and the bridge were conducted over a three-day period to provide clarity on the direction that trucks were arriving and leaving the site and the impacts of traffic on the bridge.

The last application was over three years ago and the data collected is still considered to be relevant and further surveys have not been undertaken.

In 2019 another S127 was presented to council to increase the maximum permitted rates from the currently consented 1.4m tonnes to 1.8m tonnes per annum. That application was approved and the new upper level is in place.

4.1 Traffic Surveys

A number of traffic surveys were undertaken in 2017 and 2018 to support the proposed increases in the output from the quarry. These surveys are considered recent enough to provide an assessment of the current volume and speeds of vehicles along Riverview Road.

A survey of the entrance to the quarry was also undertaken in 2018 however the anticipated low level of additional heavy vehicle movements that is likely to be generated by the managed fill makes redoing this survey superfluous.

Furthermore, the Huntly bypass has been finished in the intervening period and it is expected that more drivers will stay on the main road rather than choose to use Riverview Road when the main road is congested.

4.2 Capacity of the Road

Riverview Road is a rural road that is commonly used as an alternative route to State Highway 1 when the main road is congested. A rural road that is used as a collector road is considered capable of carrying in the order of 5,000 to 10,000 vehicles per day. Currently the traffic surveys show that the road is carrying circa 2,000 vehicles per day. With the presence of the subject quarry and open cast coal mine on Riverview Road, the percentage of Heavy Commercial Vehicle (HCV) movements is quite high. It is understood that the coal mine has now been capped and is no longer operational, and therefore it can be expected that there will be some reduction in truck movements along the route.

A comprehensive assessment of the carriageway north of the entrance to the site was undertaken in the 2014 TIA and this review is considered to still be relevant. The assessment determined that the northern section of Riverview Road could typically cope with over 1,600 vehicles **per hour** in both directions. This volume is close to the **daily** volumes being experienced and is therefore not considered to be an issue from a traffic engineering perspective.

The section of Riverview Road south of the site is of a similar nature with an average sealed width being 8.2 metres. The lane widths are on average in excess of 3.5 metres wide in both directions and considered suitable for the movement of heavy vehicles.

The constraint in the southbound direction is the one lane bridge located approximately 650 metres south of the entrance to the quarry. Onsite observations indicate that this bridge has adequate visibility and drivers respect each other resulting in there being few instances where delays were experienced.

Video cameras were setup on both sides of the bridge and recorded all movements and queues between the hours of 6.00am and 6.00pm from Tuesday 5 June 2018 to Thursday 7 June 2018. The

southbound approach to the bridge has priority and the results clearly demonstrate that motorists are complying. Over the three days a total of 13 vehicles were delayed at the one lane bridge control in the southbound direction and these vehicles were delayed for less than a minute.

In the northbound direction there were considerably more vehicle delays, however these normally only affected a single vehicle at a time. There were only 12 occasions when two or more vehicles queued to wait for the opposing vehicles to clear the bridge.

It is considered that the one lane bridge is performing more than adequately and is providing for the safe and efficient operation for all vehicles.

4.3 Traffic Generation

4.3.1 Existing Quarry Truck Activity

The quarry has consent for the extraction of 1.8m tonnes of aggregate per annum and the site is operating at full capacity. The following facts and assumptions will apply:

- The maximum annual quarry operations will allow the extraction of 1,800,000 tonnes of aggregate per annum;
- The average capacity of a truck and trailer is 28 tonnes;
- The site will be open 276 days per year including 52 Saturdays which are considered to be half days;
- This equates to 6,522 tonnes per day;
- This equates to **233 trucks** per day;

The number of truck movements per day is lower than previously calculated due to the fact that the number of days per annum the site will be open has increased from 275 to 276 days per annum and the quarry has advised that the average weight is now 28 tonnes per load where it was previously calculated based on 26 tonnes per load. However, the quarry was operating at a much-reduced capacity at approximately half of the maximum capacity. It is understood that the quarry is still not operating at full capacity.

4.3.2 Assumptions and Facts

The managed fill operation is expected to operate under the following assumptions;

- The maximum annual managed fill operations is for the importation of 300,000m³ of fill;
- The average capacity of a truck and trailer is 18m³;
- The site will be open 276 days per year including 52 Saturdays which are considered as half days. Statuary days are not included;
- This equates to 1,087 m³ per day;
- This equates to **60 trucks** per day;
- The site has one weighbridge;
- The weighbridge can process 30 trucks per hour (it is currently processing 125 trucks per day);

- The quarry currently has one wheel wash;
- The quarry and managed fill trucks will be using the same wheel wash. The area as indicated on the access road map
- 80 percent of truck and trailers will belong to Gleeson and Cox;
- 20 Percent of deliveries to the site will be third party operators;
- 80 percent of those trucks delivering fill will leave with aggregate;
- 50 percent of trips to the site will be from the north and 50 percent from the south.

5 EFFECTS OF THE PROPOSAL

This assessment considers the traffic-related aspects of a proposal by Gleeson Managed Fill Limited to establish a managed cleanfill operation adjacent to the quarry located on Riverview Road in Huntly. This application is applying for 300,000m³ per annum of fill to be deposited on the site in the areas indicated in Figure 2 above.

To assess the impact of the proposal, consideration has been given to a number of key elements that define the traffic-related characteristics and constraints along the routes to and from the site.

These characteristics and constraints are:

- the property's access arrangements;
- the capacity of the roads (based on width and types of vehicles);
- the capacity of the intersections;
- operational considerations on the roads;
- safety considerations demonstrated from recent historical patterns;
- impact on local non-motorised traffic.

The limitations of each of these are discussed below, with this assessment focussing on the weekday traffic environment when the managed fills traffic movements are at their greatest.

This assessment is also based on the expectation that the managed cleanfill operation will operate under the assumptions and facts listed in section 4.3.2 above.

5.1 Likely Additional Truck Movements

The proposed managed fill is expecting to have 60 truck and trailers or 120 trips delivering material to and from the site per day. Gleeson and Cox have numerous projects around the region that require the removal and disposal of fill material and these projects also require the importation of aggregate. The company proposes to utilise trucks that are currently travelling to the quarry site empty to carry clean fill to the site and back load with aggregate.

An assumption has been made 80 percent of the trucks carrying managed fill will be owned by Gleeson and Cox whilst the remaining 20 percent will be owned by other organisations. Therefore, it is anticipated that all 60 trucks will be laden when delivering fill however not all the third-party contractors will back load with aggregate, whilst all the Gleeson and Cox trucks will be expected to carry a backload.

If these assumptions are correct, it can be expected that a maximum of 20 percent of the fill trips will be made by other contractors and therefore up to 12 trucks a day or 24 trips per day could be made by other drivers. This number of additional trips per day is likely to add in the order of two additional trips per hour onto the local road network and this is less than the hourly variations that currently occur along Riverview Road. In reality there will be a few trucks that do leave empty for a variety of reasons however the number is considered to be so low that it is inconsequential and not included in the calculations.

Based upon the information provided and listed above the anticipated traffic flows at the entrance to the site are as shown in table 7. For convenience and to have a measure of confidence in the actual truck numbers it has been assumed that all trucks movements by the cleanfill are additional trips on top of the existing quarry trips. In reality the number of trips will be considerably fewer than those estimated below as it is expected that a high percentage of trucks will want to carry a back load of metal rather than return to their site empty.

Table 7: Turning movements at the entrance

	Left in	Left out	Right In	Right out
Quarry 466 trips	116	116	116	116
Fill 120 trips	30	30	30	30
Total Number	146	146	146	146

These trips are likely to be spread throughout the day and are likely to follow a similar pattern as currently operates at the quarry. The extension of the operating hours is not expected to generate many movements as and the bulk of the trips will be made between 7.00am and 5.00pm. The table below shows a chart of the anticipated number of HCV trips per hour by both the quarry and the managed fill operations.

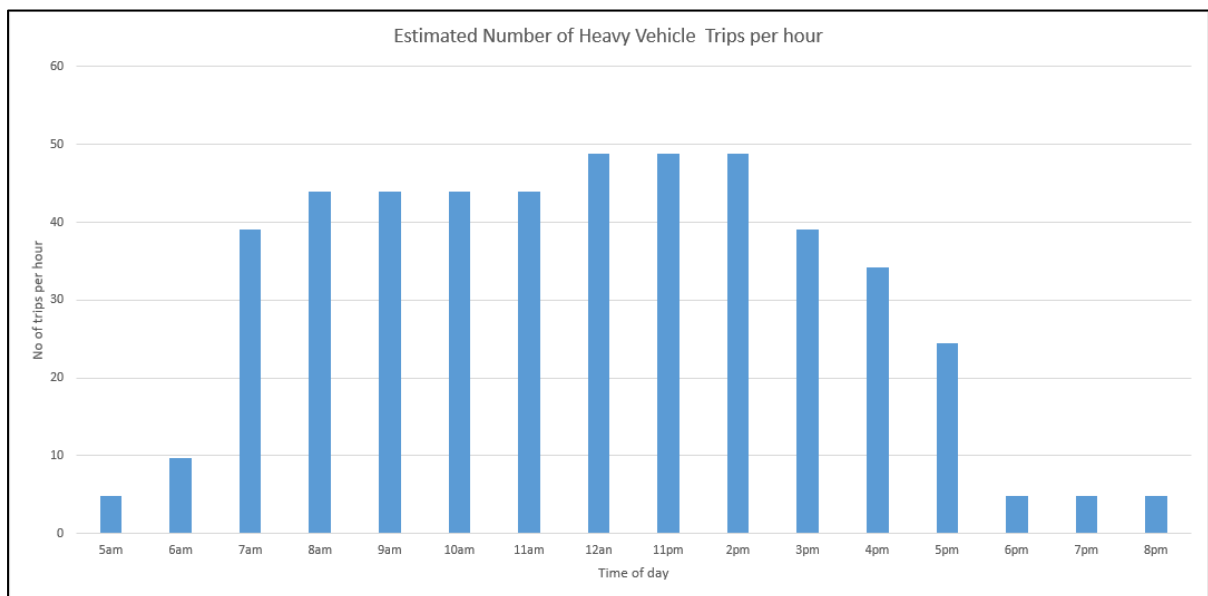


Figure 3: Estimated number of heavy vehicle trips per hour combined

5.2 Weigh bridge

There is currently one weigh bridge servicing the quarry operation and this weigh bridge can handle in the order of 30 truck per hour. The quarry will in the future be operating for up to 15 hours per day although the busiest period will be between 7.00am and 5.00pm which is a 10-hour period. The quarry is expected to have an average of 233 trucks per day spread over the whole day and each truck is typically weighed when entering the site and weighed again when the truck leaves the site. Therefore, the weigh bridge will need to cater for 466 events per day from the quarry.

80 percent of the fill related deliveries are made by the existing quarry trucks and therefore the number of additional trips related to the managed fill activity is limited to those deliveries made by contractors. There will be 12 additional trucks per day which equates to 24 trips and each trip is

measured on the weigh bridge. Therefore, the total activities for the weigh bridge on the site will include the 466 trips by quarry related activities plus the 24 trips generated by the contractors. The total number of times the weigh bridge is utilised is 490 times per day. It is expected that the weigh bridge will struggle with the number of events reaches the peak number as each truck needs to be weighed when it enters the site and when it leaves the site. The increase in movements will not happen overnight and the company will have advance warning of increased requirements and can determine when a second weigh bridge is required on the site. This is an operational matter and delays in the installation will likely impact on the internal operations and not impact onto the road network. It is considered reasonable to allow the operator to make a commercial decision as to when a second weighbridge is installed.

5.3 Wheel Wash

The proposal is to place a wheel wash in a convenient position so that both the quarry and the fill operations can utilise the same facility before venturing onto the local road network. The location of the wash plant is shown on Figure 2. The high-pressure water jets in the wheel wash then dislodge the bulk of any detritus material left on the truck. This whole process typically takes less than one minute and as only departing trucks require this treatment only circa 293 trucks will need to be processed on a daily basis. The single wheel wash is expected to adequately cater for the anticipated number of trucks leaving the site.

In addition, it is proposed to have a truck wash to clean the truck decks that deliver fill material so that cross contamination does not occur when the trucks are back loaded with metal.

5.4 Property Access Arrangements

The proposal does not anticipate any changes to the existing access arrangements.

From an examination of the existing access, it is considered that the current operation is acceptable from a traffic engineering perspective and that no changes are required to these arrangements.

5.5 Capacity of the Intersections

From an on-site appraisal of the traffic flows through key intersections in the local area, it is considered that the intersections in the local area have significant reserve capacity when the quarry is expected to have its peak traffic movements (during the inter-peak periods of the day).

In light of this it is considered that there is no benefit in undertaking an analysis to determine the effects of the additional truck movements on the operational performance of the intersections - as such an analysis is likely to be of academic interest only, with no apparent change expected to be noticeable in the key performance indicators on-site.

5.6 Operational Considerations on the Local Roads

From the review of the operating characteristics of the roads in the immediate area, it is considered that there are no issues that could be cause for concern from the few additional truck movements that are expected to occur from the establishment of the managed cleanfill.

These small increases in truck volumes during both the peak and off-peak periods of the day are so low that they are expected to be less than the variations that presently occur in the local and wider traffic environment.

In light of this it is considered that there are no operational considerations on the local roads that could be cause for concern.

5.7 Impact on Local Non-Motorised Traffic

The potential additional flows are also not expected to adversely interact with any non-motorised traffic movements (including pedestrians, cyclists and equestrians) that have been observed, are understood to be occurring, and are expected to occur on the identified route.

From the observations that have been made and discussions that have been held with on-site staff, it is understood that there is a very low level of non-motorised traffic activity occurring in the local area and that these movements are being accommodated without any difficulty by the passing truck traffic.

The presence of some 60 extra truck movements per day (120 trips per day) is considered a very small change from the current situation and is expected to be accommodated in the same or very similar way as all other road users.

Therefore, it is expected that the future traffic environment will continue to operate in an acceptable manner.

5.8 Impact on Wider Roading Network

Beyond the identified local routes, the potential additional traffic generation of the managed cleanfill will become part of the traffic environment in the wider area, and this additional traffic is expected to be easily absorbed into the existing traffic flows.

These additional volumes will not create operational problems on the road network, and when considered against the background traffic flows, are likely to be less than the variability that presently occurs.

6 CONCLUSION

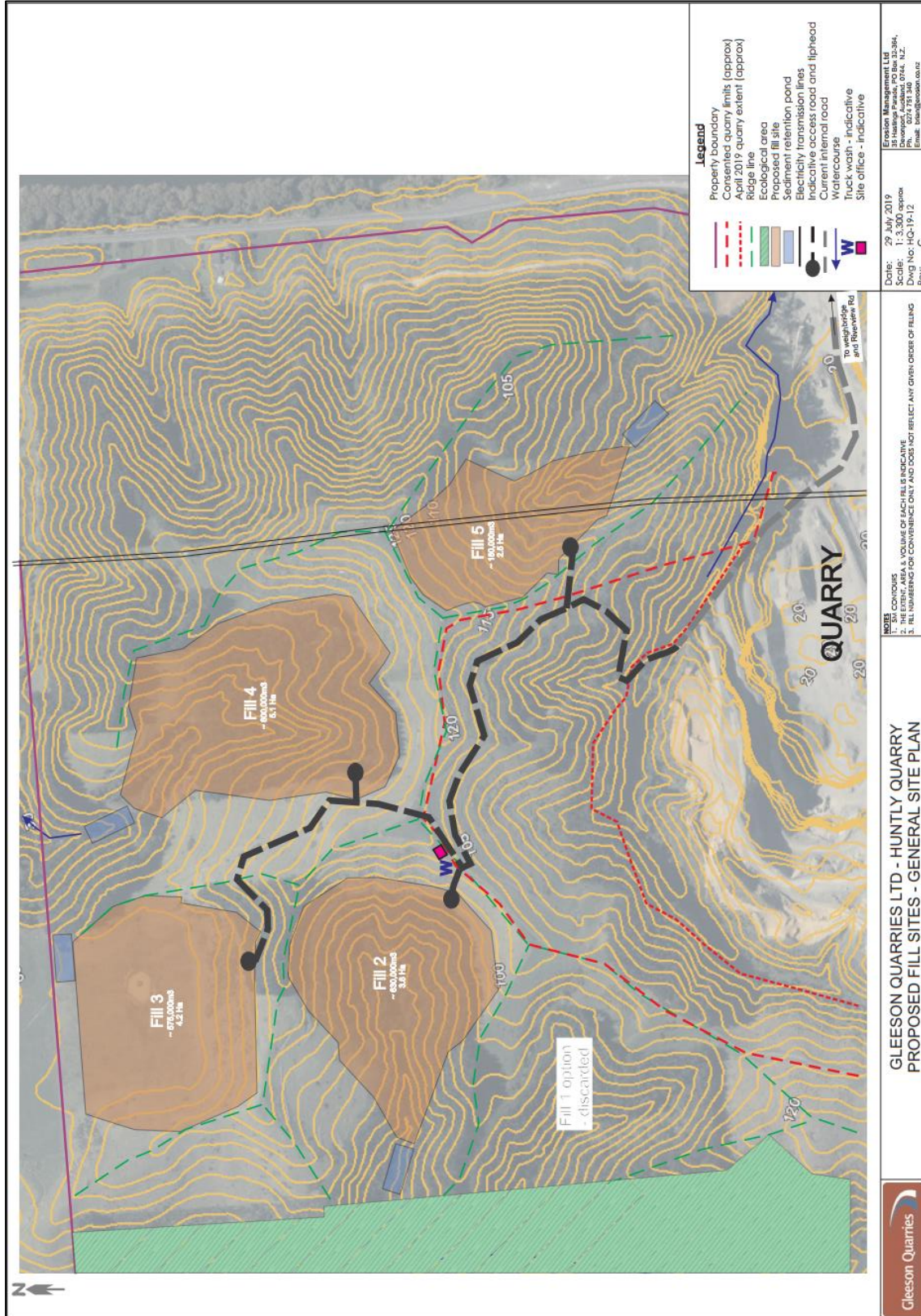
This report considers the traffic-related impacts of the proposal to establish a managed fill on the site in Riverview Road in Huntly.

It is concluded that:

- The anticipated increase in the truck volumes is very low from a traffic engineering perspective and is helped in part through the expected distribution of trucks that are presently travelling to/from the quarry via the northern and southern routes.
- It is anticipated that 60 trucks or 120 truck trips will be made per day if all the clean fill trucks operate independently of the quarry. In reality a proportion of those trucks will deliver cleanfill to the site and depart with a load of aggregate and this will reduce the number of trips that are additional to the quarry trips.
- From the comprehensive assessment of Riverview Road and its existing use, it is considered that the impact of the additional truck movements associated with the proposed establishment of a managed fill will be acceptable from a traffic engineering perspective, and that no operational or capacity problems will arise on the road network.
- Regardless of this very conservative approach, it is found that there is significant spare capacity on Riverview Road and the local roading network with the anticipated increase in trucks to and from the managed fill.
- For these reasons it is considered that the proposed increase in production at the Gleeson and Cox managed fill in Huntly is acceptable from a traffic engineering perspective.
- It is expected that a second weigh bridge will be required before the activities on the site reach the consented volumes and this could be some time away. The company will monitor the situation and will install a second weigh bridge when it is deemed to be required.
- It is expected that the single wheel wash will adequately cater for both the quarry operation and the managed fill activity.

Overall, this proposal would result in traffic effects that are less than minor. There is therefore no traffic-related reason why resource consent should not be granted.

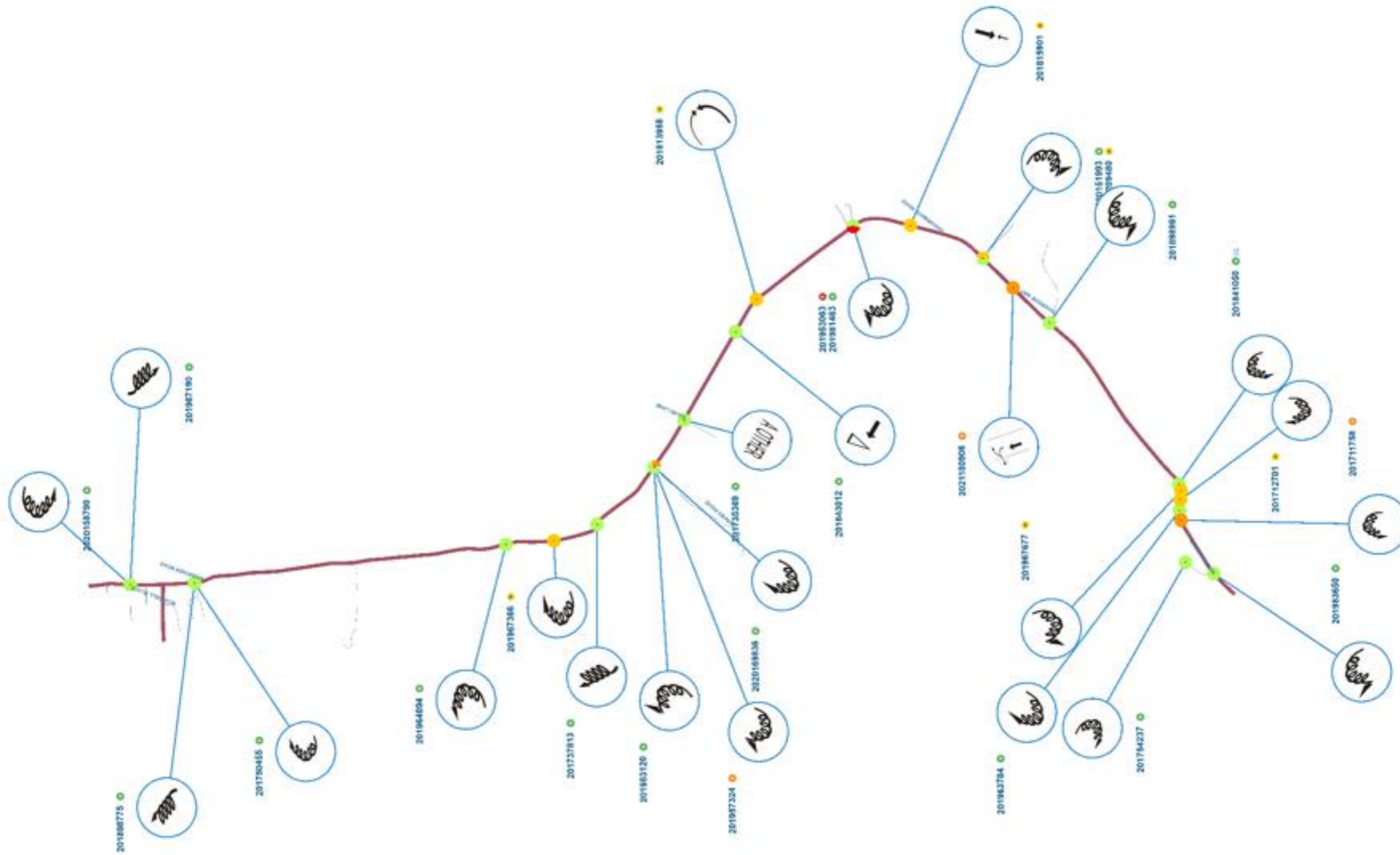
APPENDIX A: PROPOSED FILL SITES



APPENDIX B: COLLISION DIAGRAM

Riverview Rd Collision Diagram 2017-2022





5/18/22, 9:13 AM

Crash Analysis System (CAS) | NZTA



Untitled query

TLA (Territorial local authority)
 Waikato District
 Crash severity
 F, S, M, N
 Crash year
 2017 – 2022
 Saved sites
 Riverview Rd 2

Plain English report

27 results from your query.

Showing 20 100 results at once.

1-20 of 27

Site Centre: Midpoint	* Crash road	Side road	Feature	Distance from side road/feature	Direction	Reference station	Route position	Easting	Northing	Longitude	Latitude	ID	Date	Day of week	Time	Description of events	Crash factors	Surface condition	Natural light	Weather	Junction	Control	Casualty count fatal	Casualty count serious	Casualty count minor	Social cost \$/m
1790010-5832643	HAKARIMATA ROAD	WADHAM ROAD		30m	North			1790034	5832661	175.153669	-37.633540	201983650	22/10/2019	Tue	06:12	Car/Wagon1 SouthDB on HAKARIMATA ROAD, NGARUAWAHIA, WAIKATO lost control turning left; went off road to right, Car/Wagon1 hit embankment (driven over), drainage, ditch,	CAR/WAGON1, inappropriate speed for road conditions, other inexperience, swerved to avoid animal	W	B	L	N	N	0	0	0	
1790091-5832823	HAKARIMATA ROAD	WADHAM ROAD		420m	East			1790379	5832845	175.157516	-37.631817	201711758	15/03/2017	Wed	18:40	Car/Wagon1 WestDB on Hakarimata Road lost control turning left, Car/Wagon1 hit non specific pole	CAR/WAGON1, alcohol test below limit, attention diverted by cell phone, drugs suspected, too far left	D	B	F	N		0	0	0	
1790091-5832823	HAKARIMATA RD	WADHAM ROAD		491m	East			1790446	5832853	175.158279	-37.631725	201962784	07/04/2019	Sun	05:30	Ute1 NorthDB on Hakarimata missed inters or end of road, Ute1 hit embankment (driven over), river	UTE1, alcohol test below limit, cutting corner on bend	D	D	F	N		0	0	0	
1790091-5832823	HAKARIMATA ROAD	WADHAM ROAD		260m	East			1790237	5832774	175.155930	-37.632488	201754237	09/11/2017	Thu	07:10	Car/Wagon1 EastDB on Hakarimata road lost control turning right, Car/Wagon1 hit non specific cliff	CAR/WAGON1, lost control when turning	D	B	F	N		0	0	0	
1790093-5839624	RIVERVIEW ROAD	ALEXANDRA STREET		40m	South			1790091	5839583	175.152506	-37.571183	2020158790	11/07/2020	Sat	01:50	Car/Wagon1 NorthDB on Riverview Road lost control turning left; went off road to left, Car/Wagon1 hit fence, roadside furniture	CAR/WAGON1, alcohol test above limit or test refused, evading enforcement, speed entering corner/curve	D	D	F	D	N	0	0	0	
1790093-5839624	RIVERVIEW RD (HUNTLY)	ALEXANDRA ST		28m	North			1790094	5839651	175.152527	-37.570568	201967190	12/05/2019	Sun	17:30	Ute1 SouthDB on River View Road lost control; went off road to left, Ute1 hit tree, embankment (driven over)	UTE1, alcohol test above limit or test refused, too far left	W	D	L	N		0	0	0	
1790096-5839209	RIVERVIEW ROAD	WAUGH LANE		130m	South			1790134	5839085	175.153122	-37.575665	201750455	27/09/2017	Wed	19:00	Car/Wagon1 SouthDB on Riverview rd lost control turning right, Car/Wagon1 hit non specific water	CAR/WAGON1, alcohol test above limit or test refused, lost control when turning, wrong way in one way street, motorway or roundabout	W	O	L	N		0	0	0	
1790096-5839209	RIVERVIEW RD (HUNTLY)	WAUGH LANE		190m	South			1790140	5839017	175.153214	-37.576267	201898775	19/10/2018	Fri	00:20	Car/Wagon1 NorthDB on Riverview Road lost control; went off road to left, Car/Wagon1 hit bank, traffic sign	CAR/WAGON1, too far left	D	D	F	N		0	0	0	
1790411-5836618	RIVERVIEW RD (HUNTLY)	PARKER ROAD		885m	North			1790331	5836887	175.155930	-37.595413	201967366	19/09/2019	Thu	02:00	Ute1 NorthDB on RIVERVIEW ROAD, HUNTLY, WAIKATO missed inters or end of road, Ute1 hit traffic sign	UTE1, alcohol suspected, cutting corner on bend, drugs suspected, sudden illness, ENV: other street lighting	D	D	F	N		0	0	0	
1790438-5836608	HAKARIMATA ROAD	PARKER ROAD		350m	North			1790565	5836463	175.158676	-37.599194	201737813	27/04/2017	Thu	22:03	Car/Wagon1 NorthDB on Hakarimata Road lost control; went off road to right	CAR/WAGON1, other lost control	D	D	F	N		0	0	0	



5/18/22, 9:13 AM

Crash Analysis System (CAS) | NZTA

Site Centre: Midpoint	* Crash road	Side road	Feature	Distance from side road/feature	Direction	Reference station	Route position	Easting	Northing	Longitude	Latitude	ID	Date	Day of week	Time	Description of events	Crash factors	Surface condition	Natural light	Weather	Junction	Control	Casualty count fatal	Casualty count serious	Casualty count minor	Social cost \$/mi
1790650-5837514	RIVERVIEW RD (HUNTLY)	PARKER ROAD		1164m	North			1790313	5837197	175.155640	-37.592632	201964894	17/04/2019	Wed	19:00	Car/Wagon1 NorthDB on RIVERVIEW ROAD lost control turning left; went off road to left, Car/Wagon1 hit tree	CAR/WAGON1, too far left	D	D	F	N		0	0	0	
1790761-5832502	HAKARIMATA RD	WADHAM ROAD		623m	East			1790579	5832840	175.159790	-37.631817	201967677	18/09/2019	Wed	12:30	Car/Wagon1 WestDB on HAKARIMATA ROAD, NGARUAWAHIA, WAKATO lost control turning right; went off road to left, Car/Wagon1 hit tree	CAR/WAGON1, alcohol suspected, lost control when turning, vehicle caught fire	D	B	F	N		0	0	0	
1790761-5832502	HAKARIMATA ROAD	WADHAM ROAD		670m	East			1790626	5832854	175.160309	-37.631687	201841020	05/05/2018	Sat	19:00	Motorcycle1 NorthDB on Hakarimata lost control turning left, Motorcycle1 hit non specific ditch	MOTORCYCLE1, other lost control	D	D	F	N		0	0	0	
1790761-5832502	HAKARIMATA ROAD	WADHAM ROAD		560m	East			1790519	5832846	175.159103	-37.631779	201712701	12/04/2017	Wed	05:10	Car/Wagon1 WestDB on Hakarimata Road lost control turning right, Car/Wagon1 hit non specific cliff	CAR/WAGON1, other lost control, swerved to avoid vehicle	D	D	F	N		0	0	0	
1790821-5836231	HAKARIMATA RD	PARKER ROAD		220m	North			1790648	5836359	175.159653	-37.600105	201957324	18/06/2019	Tue	17:14	Car/Wagon1 NorthDB on HAKARIMATA ROAD, HUNTLY, WAKATO lost control turning right; went off road to left, Car/Wagon1 hit power pole	CAR/WAGON1, alcohol test below limit, lost control when turning, ENV: loose material on seal	D	T	F	N		0	0	0	
1790821-5836231	HAKARIMATA ROAD	PARKER ROAD		203m	West			1790657	5836348	175.159756	-37.600200	201983120	14/10/2019	Mon	12:49	Car/Wagon1 SouthDB on HAKARIMATA ROAD lost control turning left; went off road to right, Car/Wagon1 hit ditch	CAR/WAGON1, attention diverted by cell phone, lost control when turning	D	O	F	N	N	0	0	0	
1790821-5836231	HAKARIMATA ROAD	PARKER ROAD		203m	North			1790655	5836350	175.159733	-37.600182	2020160836	15/11/2020	Sun	00:01	Car/Wagon1 NorthDB on HAKARIMATA ROAD missed inters or end of road, Car/Wagon1 hit traffic sign, tree, ditch,	CAR/WAGON1, lost control when turning, speed entering corner/curve	D	D	F	N	N	0	0	0	
1791136-5836030	HAKARIMATA ROAD	KAURI LANE		70m	West			1791076	5836066	175.164566	-37.602661	201735369	21/03/2017	Tue	01:40	Car/Wagon1 WestDB on Hakarimate road huntly overtaking Car/Wagon2	CAR/WAGON1, evading enforcement	D	D	F	N		0	0	0	
1791745-5833661	HAKARIMATA RD	RIVERSIDE WAY		230m	South			1791585	5833504	175.171005	-37.625633	201898991	03/11/2018	Sat	16:30	Car/Wagon1 NorthDB on HAKARIMATA ROAD lost control turning left; went off road to right, Car/Wagon1 hit fence, drainage	CAR/WAGON1, alcohol test below limit, lost control avoiding another party, new driver/under instruction	W	O	F	N		0	0	0	
1792197-5834079	HAKARIMATA ROAD	RIVERSIDE WAY		724m	North			1792279	5834158	175.178695	-37.619596	2021209480	31/12/2021	Fri	17:36	Ute1 SouthDB on HAKARIMATA ROAD lost control turning right; went off road to left	-	D	B	F	N	N	0	0	0	

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5/25/22, 10:10 AM

Crash Analysis System (CAS) | NZTA



Untitled query

TLA (Territorial local authority)

Waikato District

Crash severity

Fatal Crash, Serious Crash, Minor Crash, Non-Injury Crash

Crash year

2017 -- 2022

Saved sites

Riverview 3

Plain English report

27 results from your query.

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21-27 of 27

Site Centre: Midpoint	Crash road	Side road	Feature	Distance from side road/feature	Direction	Reference station	Route position	Easting	Northing	Longitude	Latitude	ID	Date	Day of week	Time	Description of events	Crash factors	Surface condition	Natural light	Weather	Junction	Control	Casualty count fatal	Casualty count serious	Casualty count minor	Social cost \$(m)
1792197-5834079	HAKARIMATA ROAD	RIVERSIDE WAY		340m	N			1791991	5833890	175.175504	-37.622068	2021180906	09/03/2021	Tue	22:25	Car/Wagon1 SDB on HAKARIMATA ROAD hit Truck2 doing driveway manoeuvre	CAR/WAGON1, alcohol suspected TRUCK2, alcohol test below limit, other inattentive	Dry	Dark	Fine	Driveway	Nil	0	1	0	0.67
1792197-5834079	HAKARIMATA ROAD	RIVERSIDE WAY		775m	N			1792310	5834197	175.179041	-37.619238	2020151993	27/04/2020	Mon	16:45	Car/Wagon1 SDB on HAKARIMATA ROAD lost control turning right; went off road to left, Car/Wagon1 hit traffic sign	CAR/WAGON1, alcohol test below limit, new driver/under instruction, while returning to seal from unsealed shoulder	Dry	Overcast	Fine	Nil (Default)	Nil	0	0	0	0.04
1792348-5835605	HAKARIMATA ROAD	KAURI LANE		690m	E			1791733	5835685	175.172104	-37.605957	201843012	18/06/2018	Mon	06:00	Car/Wagon1 SDB on HAKARIMATA ROAD, HUNTLY, WAIKATO hit obstruction, Car/Wagon1 hit non specific animal	CAR/WAGON1, swerved to avoid animal, ENV: household pet rushed out or playing	Dry	Overcast	Fine	Nil (Default)	Unknown	0	0	0	0.04
1792348-5835605	HAKARIMATA ROAD	KAURI LANE		950m	S			1791951	5835545	175.174606	-37.607174	201813988	14/05/2018	Mon	14:30	Car/Wagon1 NDB on Hakarimata Road swinging wide hit Truck2 head on	CAR/WAGON1, alcohol suspected, swung wide on bend	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	1	0.11
1792435-5834910	HAKARIMATA ROAD	RIVERSIDE WAY		1442m	N			1792478	5834840	175.180767	-37.613412	201953063	21/04/2019	Sun	20:30	Car/Wagon1 SDB on Hakarimata Road lost control turning right; went off road to left, Car/Wagon1 hit downhill drop, fence, traffic sign,	CAR/WAGON1, alcohol test above limit or test refused, while returning to seal from unsealed shoulder	Dry	Dark	Fine	Nil (Default)	Unknown	1	0	1	6.07
1792435-5834910	HAKARIMATA ROAD	RIVERSIDE WAY		1150m	N			1792432	5834542	175.180328	-37.616108	201815901	25/06/2018	Mon	06:30	SUV1 SDB on Hakarimata road hit Truck2 headon on straight	TRUCK2, alcohol suspected SUV1, alcohol suspected, too far right	Wet	Dark	Light rain	Nil (Default)	Unknown	0	0	3	0.11
1792435-5834910	HAKARIMATA ROAD	WAIOTEATUA STM BR		2793m	E			1792481	5834821	175.180817	-37.613583	201981463	24/09/2019	Tue	15:00	Car/Wagon1 SDB on HAKARIMATA ROAD, HUNTLY, WAIKATO lost control turning right; went off road to left, Car/Wagon1 hit fence	CAR/WAGON1, speed entering corner/curve, too far left	Dry	Bright sun	Fine	Nil (Default)	Unknown	0	0	0	0.04

21-27 of 27