

IN THE MATTER of the Resource Management Act 1991 ("RMA" or "the Act")

AND

IN THE MATTER of an application under section 88 of the Act to **WAIKATO REGIONAL COUNCIL** and **WAIKATO DISTRICT COUNCIL** (ref LUC0488/22) BY **GLEESON MANAGED FILL LIMITED** to establish and operate a managed fill disposal activity at 310 Riverview Road, Huntly.

STATEMENT OF EVIDENCE OF PHILLIP ROBERT BROWN

TRAFFIC

Dated 24 November 2022

1. INTRODUCTION

- 1.1 My full name is Phillip Robert Brown. I am the Managing Director of Traffic Engineering & Management Limited (often referred to as TEAM Traffic).
- 1.2 This evidence is given in respect of resource consent application LUC0488/22 by Gleeson Manage Fill Limited ("GMF") to Waikato Regional Council ("WRC") and ("Waikato District Council") ("WDC") to establish and operate a managed fill disposal activity at 310 Riverview Road, Huntly ("Site").

Qualifications and experience

- 1.3 I have a B.E (Civil) from Auckland University, am a Chartered Member of Engineering NZ (previously known as MIPENZ) and their Transportation Group, am a Chartered Professional Engineer (CPEng), am on the International Register of Professional Engineers (IntPE), and am a Member of the Institute of Road Transport Engineers of NZ. My academic background also includes postgraduate courses in traffic and transport engineering at Auckland University, and specialised heavy vehicle dynamics run by the University of Cambridge, in association with the University of Michigan.
- 1.4 I have been in the field of traffic engineering for 38 years and have previously worked for Traffic Planning Consultants Limited (16 years) and Beca Carter Hollings and Ferner Limited (3 years).
- 1.5 My experience includes the assessment of a significant number of projects that have involved heavy commercial vehicles, a considerable number of quarries and managed/clean fills, regional truck depots, and strategic facilities such as the container terminal at Ports of Auckland and the main inland port in Onehunga.
- 1.6 This experience includes:
 - (a) Being the principal Traffic Engineering adviser on a number of significant quarry and fill projects that have been before the Environment Court. These include the largest quarries in the Auckland area (Brookby, Clevedon and Drury) and have resulted in decisions that have provided clarity on traffic and road-related matters.
 - (b) Being heavily involved in the background research that formed the foundation for regulations that now influence the dimensions of NZ's large truck fleet.
 - (c) Being one of the key people involved in the research that led to the introduction of high productivity motor vehicles (HPMV) that can now use New Zealand's roads under permit from the relevant Road Controlling Authority. Such vehicles feature prominently in this Application.
 - (d) Identifying the dimensions and preparing the tracking curves for New Zealand Transport Agency (**NZTA's**) design vehicles that are now used nationally for on-road design purposes.

- (e) Writing the NZTA documents that contain the current tracking curves used for on-site design in New Zealand.
- (f) Previously being a certifier of over-dimension vehicles.
- (g) Assessing the impacts of large and extremely large over-dimension vehicles with unusual configurations. These vehicles have included those used in the construction industry and those required to transport massive components for wind farms on rural roads.

1.7 I therefore consider that my knowledge and experience of heavy commercial vehicles on rural and urban roads provides a solid foundation for this evidence.

Involvement in the project

1.8 My company was engaged by GMF in May 2022 to undertake a Traffic Impact Assessment of the proposal to create a managed fill operation on the existing quarry site on Riverview Road in Huntly.

1.9 This work was undertaken by a colleague of mine, Andrew Hunter, who is a Senior Associate of the company. After I briefly discussed the details of the job with Andrew at the time of engagement, Andrew has undertaken all of the work since then and was responsible for the preparation of:

- (a) *Establishment and Operation of a Managed Fill Activity, Riverview Road, Huntly – Traffic Impact Assessment*, prepared by Traffic and Engineering Management Limited, dated May 2022.

1.10 About a month ago Andrew unfortunately required, at short notice, significant and unexpected surgery. This has been successful, and he is now in an enforced and lengthy convalescence period, with very limited opportunities to function as he previously has, and no opportunity to do any sustained work.

1.11 It is for this reason that I have stepped in now to prepare and present this traffic engineering evidence.

1.12 As part of my preparation, I have visited the site on three occasions, and have spoken to senior quarry managers on-site.

- 1.13 I have also read the traffic report that Andrew prepared, have discussed with Andrew the technical details of the job, have read the (supportive) traffic review prepared for Council by Gray Matter Ltd, have reviewed the s42A report prepared by the WDC reporting Officer, and have read the traffic-related commentaries in the submissions.
- 1.14 I am therefore familiar with the subject site, the local and wider receiving environment, and the details of the application.
- 1.15 From this work, I am supportive of the traffic investigations that have been done and the conclusions that have been reached.
- 1.16 I also note that the traffic review undertaken by Gray Matter also reaches a similar supportive conclusion.

Site visits and background material

- 1.17 From my recent work becoming familiar with the details of this application, and my past work associated with other consents at this quarry when it was owned by another party, I am familiar with the location of the site and the local traffic engineering context.
- 1.18 I also note that in recent times this context has changed with the opening of the Waikato Expressway, which will have dramatically reduced the volume of traffic using what is now known as Gt South Road (Thermal Explorer Highway) and was previously designated and known as State Highway 1 prior to the opening of the Expressway.

Purpose and scope of evidence

- 1.19 The purpose of my evidence is to summarise the details contained in the Traffic Impact Assessment, comment on the traffic-related points that have been raised in the submissions that have been received, and comment on the matters raised in the Officer's report.
- 1.20 My evidence is structured as follows:
- (a) Briefly describes the site (Section 3).
 - (b) Briefly describes the proposal (Section 4).
 - (c) Sets out the key policy matters (Section 5).
 - (d) Addresses the relevant traffic issues arising (Section 6).

- (e) Comments on issues raised by the Officer's Report relevant to my area of expertise (Section 7).
- (f) Comments on the issues raised by Submitters relevant to my area of expertise (Section 8).
- (g) Comments on the conditions (Section 9).
- (h) Provides a brief conclusion (Section 10).

1.21 A summary of my evidence is contained in Section 2.

Expert Witness Code of Conduct

1.22 I have been provided a copy of the Code of Conduct for Expert Witnesses contained in the Environment Court's 2014 Practice Note. I have read and agree to comply with that Code. This evidence is within my area of expertise, except where I state that I am relying upon the specified evidence of another person. I have not omitted to consider material facts know to me that might alter or detract from the opinions that I express.

1.23 I understand and accept that it is my overriding duty to assist the Independent Commissioner in matters which are within my expertise as a Traffic Engineer.

2. SUMMARY OF EVIDENCE

2.1 The application seeks consent to establish a managed fill that will have a receive a maximum of 300,000m³ of fill per annum and have a maximum life of 35 years.

2.2 As has been outlined in the Opening Submissions and also the Gray Matter report, this maximum annual rate of material cannot be sustained for the 35-year period due to the overall total projected fill volume of 2,009,200m³ that can be received in the three areas to be filled.

2.3 Therefore, the limitation of the volume will ensure that the filling will be completed before the 35-year limit is reached if an average of more than circa 57,400m³ is imported each year.

2.4 It is expected that circa 80% of the trucks bring in material will be those associated with the applicant's quarry operations, whose trucks are now entering the site empty and leaving with aggregate. Such a change will result in them arriving with fill material and departing with aggregate.

- 2.5 To ensure that this aggregate is not contaminated by residual fill material that remains in the truck after tipping, the internal part of the truck's storage area will be washed out close to the areas to be filled before it moves to another part of the site to receive aggregate.
- 2.6 The remaining circa 20% of the trucks will be new visits that will bring in fill material and leave the site empty. These new truck trips are expected to result in up to 12 additional trucks a day, or 24 trips¹ per day being generated.
- 2.7 From the assessment that has been done by both my colleague and myself, I am firmly of the view that the effects of this application are acceptable from a traffic engineering perspective.

3. **SITE DESCRIPTION AND LOCALITY**

- 3.1 The existing Gleeson quarry is located on the western side of Riverview Road in Huntly, approximately 2.9 kilometres south of the Tainui Bridge.
- 3.2 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, easy horizontal and vertical curvatures, and adjacent land uses of a rural and low-density residential nature.
- 3.3 There are sections of footpaths provided near the residential areas to the north of the site and typically these areas have kerb and channel. In the areas without kerb and channelling, stormwater runoff passes along shallow side drains or the edge of the road on both sides of the carriageway.
- 3.4 The Traffic Impact Assessment contains traffic count data from 2017 and 2018 – times that predate the significantly disruptive effects of Covid and the opening of the Waikato Expressway. Given these influences, I consider that the recorded volumes are conservatively high, and therefore remain appropriate for a conservative assessment of the traffic effects.
- 3.5 In summary, these counts show that the 5-day average number of vehicles in November 2017² and June 2018³ in both directions north of the quarry

¹ For clarity, the arrival and departure of one truck generates two trips, namely the arrival trip and the departure trip

² Traffic Impact Assessment, Table 3

³ Traffic Impact Assessment, Table 1

entrance were circa 2030 vehicles per day and 1700 vehicles per day respectively.

- 3.6 The busiest time in the morning peak, interpeak and evening peak periods in both years occurs in the evening peak period when a total of 212 vehicles per hour and 266 vehicles per hour occurred in November 2017 and June 2018 respectively.
- 3.7 In my opinion, these daily and peak hourly volumes are very low from a traffic engineering perspective. Indeed, even without the benefit of any analysis, I consider that the volumes in the busiest hour will be less than 15% of the road's capacity – meaning that the road is able to accommodate significantly higher volumes than it does at present.
- 3.8 Sole access to the site is provided from Riverview Road and the carriageway has been widened to include a right turn bay that separates southbound right turning movements from the southbound through movements. This right turn bay is supported by safe-hit delineator sticks and the imposition of a temporary speed limit of 50km/h (from the 100km/h limit in the immediate area) through an approved Traffic Management Plan
- 3.9 A new concreted access has recently been constructed with the strength of the concrete to allow trucks to use it only recently been reached. Therefore, my earlier site visits have observed the movement of vehicles through the former and new access, with my more recent site visit and traffic surveys that have been conducted under my direction, having considered the use of the new access by all vehicles.
- 3.10 This new consented access aligns with a new weighbridge and wheel-wash that has recently been constructed.

3.11 This temporary traffic management on the road and the new concreted access are shown in the following photographs.



Figure 1: TMP and Access Arrangements to Riverview Road

4. **DESCRIPTION OF THE PROPOSAL**

4.1 The application seeks consent to establish a managed fill site at the Gleeson Quarry located on Riverview Road in Huntly.

4.2 The areas to be filled are shown in Figure 2 below.

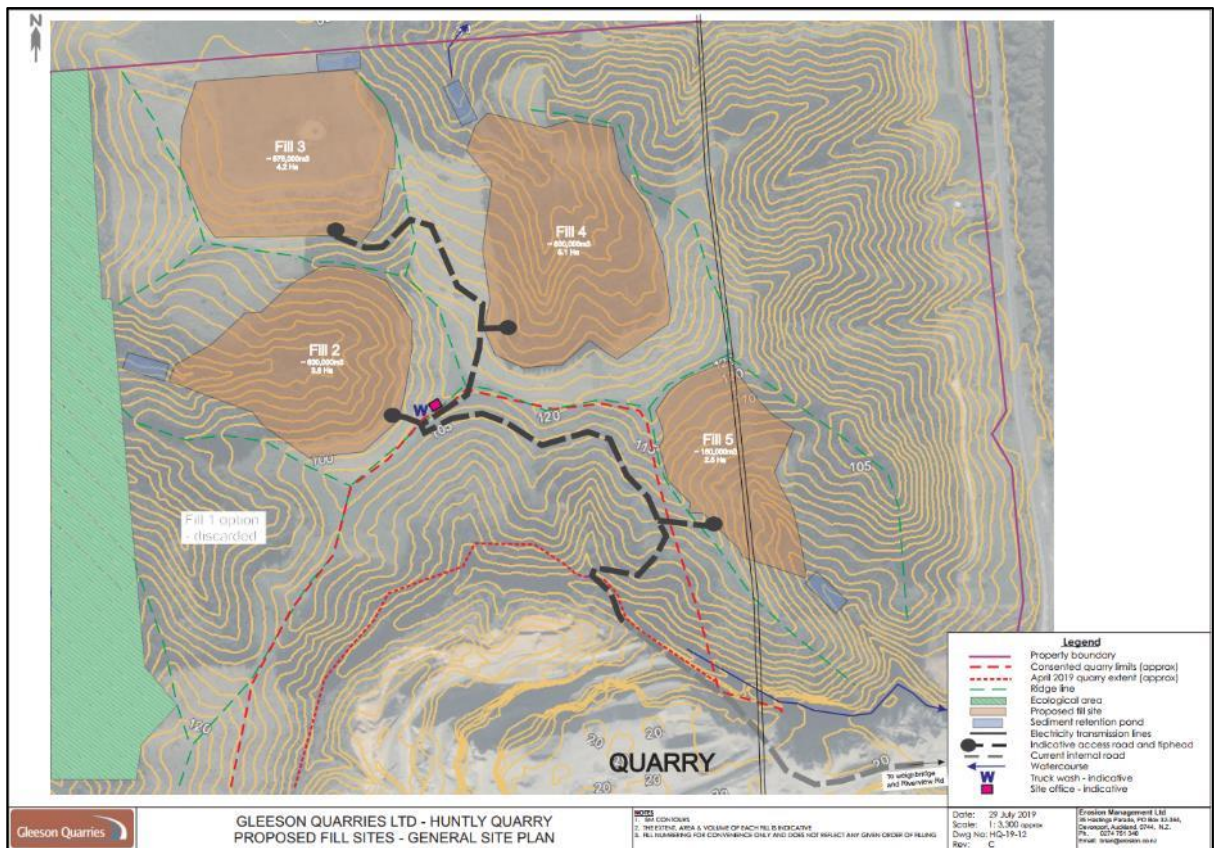


Figure 1: Proposed areas to be filled

- 4.3 Fill areas 2, 3 and 4 will receive the incoming material, with Fill area 5 already having a separate consent to deposit the overburden from the consented quarry activities and the progression of the quarry into new areas.
- 4.4 Fill area 5 is therefore not part of this application.
- 4.5 As I have mentioned above, the managed fill will have a maximum of 300,000m³ of managed fill per annum with a maximum life of 35 years.
- 4.6 This maximum cannot be sustained for the 35-year period due to the total projected fill volume of 2,009,200m³. Therefore, the limitation of the volume will ensure that the filling will be completed before the 35-year time limit is reached if an average of more than circa 57,400m³ is imported each year.
- 4.7 It is expected that the GMF 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.
- 4.8 The operators will be constructing an internal haul road, marked in black in Figure 2 above, to link the fill areas to the existing internal roading network.
- 4.9 Close to Fill area 2 will be a site office for the administrative and staffing needs of the fill operation, and close to it a washdown area.
- 4.10 I understand that this washdown area is not a wheel wash – as there is no reason to have this so far into the site. Instead, it will be an area where the storage area of the emptied trucks can be washed of any remnants of the fill material that may have got lodged in the corners or stuck to the sides before it receives clean aggregate.
- 4.11 The hours of operation for the fill activities will be as follows:
- (a) 1 October to 30 April: 0500-2000 (Monday to Friday) and 0600-1500 (Saturday)
 - (b) 1 May to 30 September: 0500-1800 (Monday to Friday) and 0600 to 1500 (Saturday)
- 4.12 I understand that these times align with those stated in Condition 6b of the consented quarry activities considered in decision LUC0035.11.05. Specifically, this condition states:

PC6b The hours of operation related to truck movements to and from the site entrance shall be limited to:

1 October to 30 April:

Monday to Friday (inclusive): 5am to 8pm

Saturday: 6am to 3pm

1 May to 30 September:

Monday to Friday (inclusive): 5am to 6pm

Saturday: 6am to 3pm

Note: the operating hours do not apply to office administration or the maintenance of vehicles, plant or machinery.

PC6c Truck movements to and from the site entrance shall be limited to a maximum of 12 per day during the morning period between the times of:

Monday to Friday (inclusive) 5am to 6am

Note: operating hours and truck movements do not apply when an emergency is declared by the local or regional authority and metal is required as part of a civil defence response.

- 4.13 In effect, the fill activities will have the same operating hours of the quarry – which makes logical and logistical sense given the significant overlap in the truck activities of each.
- 4.14 I understand that the requirement to start at 0500 is necessary to allow a small number of trucks with fill material to arrive that then leave the site with aggregate so that they can service the concrete industry. Otherwise, these trucks would be restricted to those that arrive at the site with no fill material – an operational complication that is not, in my opinion, ideal.
- 4.15 The movement of vehicles to and from the site now uses the consented concreted access that has recently been constructed. The existing access to the north has been closed.
- 4.16 All of the vehicles bringing in fill material, irrespective of whether or not they leave with aggregate will also pass through the wheel wash and weighbridge that will be used by the aggregate-only trucks.

Increased Truck Numbers

- 4.17 As has been outlined in the Opening Submissions and also the Gray Matter report, this maximum annual rate of material cannot be sustained for the 35-year period due to the overall total projected fill volume of 2,009,200m³ that can be received in the three areas to be filled.

- 4.18 Therefore, the limitation of the volume will ensure that the filling will be completed before the 35-year limit is reached if an average of more than circa 57,400m³ is imported each year.
- 4.19 It is expected that circa 80% of the trucks bring in material will be those associated with the applicant's quarry operations, whose trucks are now entering the site empty and leaving with aggregate. Such a change will result in them arriving with fill material and departing with aggregate.
- 4.20 To ensure that this aggregate is not contaminated by residual fill material that remains in the truck after tipping, the internal part of the truck's storage area will be washed out close to the areas to be filled before it moves to another part of the site to receive aggregate.
- 4.21 The remaining circa 20% of the trucks will be new visits that will bring in fill material and leave the site empty.
- 4.22 These new truck trips are expected to result in up to 12 additional trucks a day, or 24 trips⁴ per day being generated.
- 4.23 I am aware that there has been some discussion about this proportional split of back-fill vs new truck traffic.
- 4.24 I have been advised that the applicant is adamant that these ratios are correct.
- 4.25 Specifically, they expect that almost all of the trucks will be associated with the company's own vehicle fleet and other contractors' vehicles that are presently carting aggregate from the quarry. These existing vehicles carting aggregate from the site will therefore be used to bring fill material to the site.
- 4.26 In my opinion, this creates significant transport efficiencies by reducing the number of new truck trips that would have otherwise been generated. Therefore circa 80% of the traffic associated with the filling activities is already occurring as part of the quarry activities.
- 4.27 I do not expect that this high utilisation of existing truck movements will change their existing directions of approach and departure. Instead, the only difference will be the fact that some of the trucks that are travelling empty to the site now will, in the future, cart fill material.

⁴ For clarity, the arrival and departure of one truck generates two trips, namely the arrival trip and the departure trip

- 4.28 The new truck trips will therefore be the remaining circa 20% of the trucks associated with the fill – which are the trucks not previously associated with the quarry operations.
- 4.29 Given the location of the site in the surrounding area, I expect that these vehicles will most likely be associated with construction and excavations in the local Waikato area.
- 4.30 Traffic surveys were undertaken for a previous report prepared in 2019 and at that time the surveys showed that the north/south split of heavy vehicles was circa 50:50. It was noted in the report that the Waikato Bypass was in full construction and this large construction activity may have contributed to this directional split. Notwithstanding this, the directional split for the quarry activities is a function of where the areas of need are and the use of the most appropriate transport route.
- 4.31 The cleanfill report that is the subject of this application was expected to have very few additional trucks (12 vpd) generating 24 movements per day, and traffic surveys were not undertaken as the level of additional truck movements was considered to be within the daily variation experienced on Riverview Road.
- 4.32 The quarry manager has stated categorically that the original assumption that it was expected to be in the order of 12 additional trucks per day is appropriate.
- 4.33 From a traffic engineering perspective, I consider that it is very important to note that the traffic effects of this application therefore relate to the presence of up to 12 additional trucks per day – as the bulk of the material will be brought into the site by trucks that are already travelling to the site empty.
- 4.34 To put the magnitude of this increase into perspective, it is equivalent, on average, to one additional truck doing a return trip per hour over a 12-hour day.

North/South Distribution at Gate

- 4.35 The Council's traffic reviewer has expressed reservations as to the current split and as a result a comprehensive video survey of the truck movements was carried out under my direction of the truck movements at the entrance to the quarry to determine the current directions of travel.
- 4.36 This survey considered all of the truck movement during the operating hours of Tuesday 15 to Saturday 19 November 2022 inclusive. In my opinion this

not only provides a significant sample size, but also provides an understanding of the variations that can occur through the week.

- 4.37 The camera survey has been analysed and shows that the north/south split of heavy vehicles is different between those vehicles arriving and those leaving the site.
- 4.38 The data also shows the overall directional split on a daily basis during this time varies between 42% to/from the south and 58% to/from the north, to 20% to/from the south and 80% to/from the north.
- 4.39 These percentages also fluctuate through the course of each day due to the varying origins and destinations of the vehicles.
- 4.40 Therefore, the application of these varying proportions to such a small number of new trucks will still result in a small number of trucks in each direction.
- 4.41 Even if this average was doubled to account for some peaking in the activity through the day, the quantum of additional vehicles will still be exceptionally small and will be equivalent to one additional truck doing a round trip on the surrounding road network every 30 minutes.
- 4.42 These trucks will be distributed on an ever-increasing number of roads as the truck moves in the wider area.

Impact on Road Network

- 4.43 With the directional distribution at the gate and the use of an ever-increasing number of roads as the distance away from the quarry increases, the small number of additional trucks will very quickly become dispersed over the wider area.
- 4.44 Indeed, if an excessively conservative assumption is made that every one of the additional trucks moved to and from the north, that is a 100% distribution to and from the north and no traffic moving to and from the south, and it is also assumed that all of this traffic used Tainui Bridge Road to cross the Waikato River and access Gt South Road (the former SH1), the 12 additional trucks will, on average, still only result in one extra movement occurring in each direction per hour.
- 4.45 I consider that this change in volume will be well below the current variability that is already occurring on the local and wider roading network.

- 4.46 I also consider that these volumes are so small that they will not be noticeable on the road network given the variability that will be occurring.
- 4.47 Furthermore, I consider that if the situation was analysed in terms of the operational efficiency or capacity of the roads and their intersections, the results will, for all intents and purposes, be identical and not even be of academic interest.
- 4.48 It is on this basis that I am firmly of the view that any effects that may arise from the anticipated additional truck trips generated by the proposed cleanfill activity will be acceptable from a traffic engineering perspective.
- 4.49 Therefore, I consider that the acceptable outcome remains the same from a traffic engineering perspective whether or not the split being considered is:
- (a) The measured 50/50 from weeklong traffic counts a few years ago,
 - (b) The circa 80/20 split observed on one of the days in our recent surveys,
 - (c) The other splits with less of a bias in one direction that also occurred during the video survey, or
 - (d) An exceptionally conservative 100/0 split as a worst-case scenario.
- 4.50 I also consider that these additional trips can be easily accommodated by, and integrated into, the existing traffic flows on the local and wider roading network.

Hours of Operation

- 4.51 The application seeks consent for the same hours of operation related to truck movements to and from the site entrance as follows:
- (i) 1 October to 30 April: 0500-2000 (Monday to Friday) and 0600-1500 (Saturday)
 - (ii) 1 May to 30 September: 0500-1800 (Monday to Friday) and 0600 to 1500 (Saturday)
- 4.52 With the low additional volumes expected to be within the variability that is presently occurring, I do not consider that the adverse effects of the additional traffic within these hours will have any effects that could be cause for concern.

5. **KEY POLICY MATTERS**

- 5.1 The Waikato District Council's Proposed District Plan (Appeals version) lists a number of Transport-related Policies in the Part 9 – Transportation section.
- 5.2 The key ones that I consider are most relevant to this application are as follows.
- 5.3 Policy 9.3.1.4 states "*That activities that generate high volumes of traffic or frequent trips be prevented from establishing in locations where direct access from state highways and district arterial roads is necessary unless the characteristics of, and provision made for, the traffic generated (including crossing and intersection design) are such as to ensure the avoidance of any adverse effects*".
- 5.4 This policy is satisfied through the provision of access from a local road - the primary function of which is to serve local properties, and a high-quality access arrangement that has the additional benefit of traffic management measures and a temporary speed limit through the imposition of a Traffic Management Plan.
- 5.5 Policies 9.3.2.1 and 9.3.2.2 states:
- 9.3.2.1 "*That all activities be assessed in terms of the roading hierarchy to determine the appropriate standards of vehicle access, driveways and parking and loading areas, and manoeuvring space*".
- 9.3.2.2 "*That minimum standards be required to be satisfied for the location, design and construction of vehicle access points and road intersections*".
- 5.6 I consider that the access arrangements, including the provision of a right turning bay are appropriate, for the consented and proposed activities. Indeed, I also note that the construction of the new consented concreted access further improves the access arrangements that have served the activity until recently.
- 5.7 Policy 9.3.3.3 states "*That for activities requiring land use consents and involving frequent trips and/or significant types or quantities of hazardous substances, consideration be given to the routes intended to be used and the alternative routes available*".

- 5.8 This application for the fill activities is not considered to be a high traffic generating activity from a traffic engineering point of view as it draws on a significant number of the truck movement that are already occurring and are associated with the consented quarry activities.
- 5.9 Furthermore, as discussed above, the magnitude of the additional truck movements is such that it is expected to remain within the existing consented limits.
- 5.10 I also consider that if this fill activity was not to be located at the subject site, there would be a need in the area for the vehicles bringing in fill material to travel to alternative locations. With the potential for new fill site(s) to be established. This alternative will only result in the significant increase in the number of truck trips on the regions roading network and will not benefit from the small marginal increase in truck trips that will be realised by this application.
- 5.11 The Proposed District Plan (Appeals version) also provides guidance on the hierarchy of roads⁵ in the District, with these ranging from the strategically important National Routes, through the two types of Arterial Roads, Collector Roads, Local Roads and Cul-de-sacs/No-Exit roads.
- 5.12 Given this established hierarchy, Riverview Road and its extension to the south Hakarimata Road, are both classified as Local Roads, the primary function of which is to provide property access. Given that the consented quarry and proposed fill rely on Riverview Road for access, the use of Riverview Road for access to the site is consistent with the role this road plays in the roading hierarchy.
- 5.13 To the north, Tainui Bridge Road between Gt South Road and Harris Street, (being the section that some of the fill trucks will use if they approach/depart to/from the north) is classified as a Collector Road, the function of which is to provide property access as well as to link Local Roads with Arterial Roads.
- 5.14 Again, the use of this road by fill trucks to move to and from Gt South Road is consistent with its classification.
- 5.15 For these reasons, I consider that the use of these roads by the fill trucks is consistent with the Council's classification and intended use.

⁵ Part 2 District-wide matters, Energy, infrastructure & Transport, Tables 4 & 5

5.16 From this assessment, I consider that the application is consistent with Council's relevant Transportation Policies contained in the Proposed District Plan (Appeals version).

6. **TRAFFIC ISSUES**

6.1 As I have discussed above, the key traffic issues with the application relate to the:

- (a) Number of trucks,
- (b) Distribution and impact of these vehicles on the local roads, and
- (c) Hours of operation.

6.2 Regarding the **number of trucks**, as I have previously discussed, the anticipated 12 additional trucks (24 additional trips) per day are likely to add in the order of two additional trips per hour onto the local road network in each direction when averaged over the course of a 12-hour day (despite the hours of operation during the weekdays being longer in both the winter and summer months). I consider that this volume is exceptionally low from a traffic engineering perspective and will not create any issues that could be cause for concern.

6.3 I also consider that there are considerable benefits in having the proposed fill draw substantially on the trucks that are already using the road network and visiting the site empty and leave with aggregate. This has significant transport efficiencies for the local and regional transportation network, and reduces the number of trucks using the roads.

6.4 Had the fill been located in another area and operate independently of the quarry, which in my almost 40 years of experience is most often the case, all of the truck trips will be new ones on the network and the efficiencies that are being realised in this application would not eventuate.

6.5 The **distribution and impact** of the additional trucks has been discussed above. As I have already outlined, it is important to note that the distribution of the trucks leaving the quarry with aggregate may not represent the distribution of the trucks arriving with fill material.

6.6 Instead, I expect that the origins and destinations of the additional trucks that will be bringing in fill material and leaving empty will most likely originate from construction activity in the local Waikato area north and south of Huntly.

- 6.7 Therefore, it is important to note that the distribution of the new fill trucks may not be the same as the existing distributional patterns for the quarry trucks delivering aggregate.
- 6.8 This difference between the two could result in a potential bias towards the movements to and from the south compared to the patterns of the quarry trucks.
- 6.9 I consider that the impact arising from the marginal increase in the number of trucks over and above those associated with the existing quarrying activities will be less than the hourly variations that currently occur along Riverview Road. For this reason, I consider that the road will continue to operate well below its capacity.
- 6.10 I also consider that the movement of these few additional trucks on Riverview Road and the other roads in the wider area will continue to occur in a safe and efficient manner.
- 6.11 This satisfactory existing situation is evident in the lack of any crashes involving trucks, pedestrians, or cyclists in the wide area and over the longer than usual time period that would normally be searched.
- 6.12 For the purposes of this hearing , the crash history for the period 2016 to early 2022 that was contained in Traffic Impact Assessment has been updated so that it considers the most recent situation.
- 6.13 This update continued to examine the significant section of road that includes approximately 6.0 kilometres of Riverview Road (approximately 3 km north and south of the entrance to the site) and Hakarimata Road.
- 6.14 This update also included any crashes that may have become available since the earlier search was undertaken.
- 6.15 In summary this update has resulted in one additional minor-injury crash and one non-injury crash being recently documented, with one of these crashes occurring at 0400 - which is outside the quarry's operating hours. This more recent search has also found a coding error that identified a passenger of a car being injured rather than the driver.
- 6.16 Also of importance to this application is the fact that this update continues to show that there have been no crashes involving trucks, pedestrians, or cyclists in the studied area over the extended period of time that was examined.

- 6.17 From this previous investigation and the recent update, the crashes 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. Nor does the crash record indicate the presence of any inherent safety issues that could affect, or be affected by, this application.
- 6.18 Despite this, I note that a condition of consent is recommended that requires the pavement markings on Riverview Road close to the quarry to be remarked.
- 6.19 Although the maintenance of the public roading network and its pavement markings is the responsibility of the road controlling authority (whoever it may be), on this occasion, I consider that there are benefits in having the markings close to the site remarked for legibility.
- 6.20 Regarding the **hours of operation**, as I mentioned above, the operating hours for truck movements to and from the entrance will align with those stated in Condition 6b and 6c of the consented quarry activities (decision LUC0035.11.05). Therefore, the hours of operation for truck movements will be:
- (a) 1 October to 30 April: 0500-2000 (Monday to Friday) and 0600-1500 (Saturday)
 - (b) 1 May to 30 September: 0500-1800 (Monday to Friday) and 0600 to 1500 (Saturday)
- 6.21 I understand that the requirement to start at 0500 is necessary to allow a small number of trucks with fill material to arrive and then leave the site with aggregate for the concrete industry. Otherwise, these trucks would be restricted to those that arrive at the site with no fill material – an operational complication that is not, in my opinion, ideal.
- 6.22 I also consider that aligning the hours of operation of quarry and managed fill truck movements makes logical and logistical sense given the significant overlap in the truck activities of each.

7. **ISSUES RAISED BY COUNCIL OFFICERS REPORT**

- 7.1 I have read the report prepared by Grey Matter Ltd, the Council's consultant traffic engineer, and the Officer's report.

7.2 Gray Matters review of the traffic report has identified a number of matters that should be addressed and these are comprehensively addressed by the recommended conditions of consent (discussed later).

7.3 I also note that the Officer's conclusion is that the traffic effects will be acceptable subject to the imposition of these traffic-related recommended conditions of consent.

8. **ISSUES RAISED BY SUBMITTERS**

8.1 A total of 42 submissions have been received. The topics raised in submissions that I can comment on from a traffic engineering perspective are as follows:

- (a) Timing of truck movements;⁶
- (b) Number of truck movements;⁷
- (c) Impact of heavy vehicles on road surfaces and other roading infrastructure;⁸
- (d) Accuracy of weight of trucks used in traffic assessment;⁹
- (e) Impact on road safety including pedestrians/cyclists;¹⁰
- (f) Roothing upgrades;¹¹ and
- (g) Access to hotel.¹²

6 Submissions of: Anthony Ernest Perkins (#2), Jennifer Lee Malloy (#8), Garry & Audrey Cox (#15), Jessica Rix (#19), Kathie Shepard (#21), Gaylene Aroha Himona (#23), Nicola Maplesden (#33), Melissa McDonald (#34), Shirley McDonald (#35), Robert Hunt (#40).

7 Submissions of: Kate Thomas (#6), Jennifer Lee Malloy (#8), Jessica Rix (#19), Bryce and Carla Mounsey (#20), Kathie Shepard (#21), Colleen Earby (#24), Nicola Maplesden (#33), Lorrel Cherie Mowles & Alex John Mowles (#36), Hine Lavinia and Donal Carmichael (#39), and Robert Hunt (#40).

8 Submissions of: Anthony Ernest Perkins (#2), Jennifer Lee Malloy (#8), Kevin Wickens (#13), Jessica Rix (#19), Bryce and Carla Mounsey (#20), Gaylene Aroha Himona (#23), Colleen Earby (#24), Tiffany Whyte (#28), Nicola Maplesden (#33), Lorrel Cherie Mowles & Alex John Mowles (#36), Robert Hunt (#40).

9 Submission of Anthony Ernest Perkins (#2).

10 Submissions of: Anthony Ernest Perkins (#2), Denise Lamb (#5), Jennifer Lee Malloy (#8), Kevin Wickens (#13), Garry & Audrey Cox (#15), Nola Morland (#18), Jessica Rix (#19), Bryce and Carla Mounsey (#20), Gaylene Aroha Himona (#23), Colleen Earby (#24), Tiffany Whyte (#28), Melissa McDonald (#34), Shirley McDonald (#35), and Robert Hunt (#40).

11 Submission of Denise Lamb (#5), Seli Saararaba Scutts (#27).

12 Submission of Freeway Design Ltd (#42).

Timing of truck movements

- 8.2 I have discussed this matter above and consider that it makes sense to align the few additional truck movements associated with the fill with the consented hours of operation for the quarry.
- 8.3 Failure to do so will result in the potential for vehicles being queued until the fill area is open. Similarly, transport inefficiencies could result due to empty trucks arriving early at the quarry to collect aggregate when another truck with fill material was waiting and could have been used.
- 8.4 I therefore support the alignment of the hours of operation (truck movements) of the fill with the existing quarry.

Number of truck movements

- 8.5 I have discussed this above and I consider that it is important to appreciate that the application will result in a very small difference from a traffic engineering perspective in the number of trucks.
- 8.6 It is therefore not the overall total number of trucks associated with the fill operations that is important for the assessment of the traffic effects, but rather the effect of the small number of trucks that will be new visits bringing in fill material and departing the site empty.
- 8.7 These new truck trips are expected to result in up to 12 trucks a day or 24 trips¹³ per day being made by other drivers.
- 8.8 This critical difference is the effect of the application from a traffic engineering perspective and I have discussed the significance of this above.
- 8.9 Overall, I consider that these additional volumes will not be noticeable on the local and wider roading network when considered against the volumes and variability that presently occur.

Impact of heavy vehicles on road surfaces and infrastructure

- 8.10 My discussion on this matter is limited to the matters that I have the qualifications and experience in. Therefore, I am unable to comment on any matters relating to the pavement and its construction, these matters will be addressed in the evidence of Ms Masden.

¹³ For clarity, the arrival and departure of one truck generates two trips, namely the arrival trip and the departure trip

- 8.11 However, I do consider that I am qualified and experienced to address the matters relating to the pavement markings and street sweeping.
- 8.12 With respect to the right turn bay, I consider that there are significant advantages in retaining it, and also having it operate under a Traffic Management Plan (**TMP**) that includes the reduction of the posted speed limit.
- 8.13 I also note that the Gray Matter report has recommended that the pavement markings on Riverview Road close to the quarry are remarked.
- 8.14 Although the maintenance of the public roading network and its pavement markings are the responsibility of the Council, on this occasion, I consider that there are benefits in having the worn markings close to the site remarked for legibility.
- 8.15 I have also noted commentary in the submissions about the streetsweeper and water tanker being used to clear the road of dust etc without an approved TMP in place to carry out this work.
- 8.16 A TMP has recently been approved to reduce the speed of traffic outside of the quarry entrance to improve the safety of trucks entering and leaving the site. This TMP does not appear to cover street sweeping or the use of a water tanker to clean the carriageway. A condition of consent requires the applicant to obtain a TMP for street sweeping and road cleaning.
- 8.17 Although the new wheel wash will significantly help to suppress the tracking of material onto the road, I consider that there will still be the potential for some material being deposited on the road.
- 8.18 From my enquiries, it appears that a current TMP may not be in place for the cleaning of the roads in recent times. This is a concern to me, and I have insisted that such a plan must be in place for this work to be done in a safe and acceptable manner.
- 8.19 In light of this issue, I understand that the applicant has recently prepared a TMP that has been approved by Council for this cleaning to occur.
- 8.20 It is usual practice for these TMPs to have an approved duration of 12 months, and that subsequent approvals can be obtained by reapplying for it.

Accuracy of weight of trucks used in traffic assessment

- 8.21 In my opinion, the issue associated with the accuracy of the weights used in the traffic assessment is not a significant matter that can be cause for concern. The data used was provided by the applicant through the discussions about the varying truck sizes and the effects of the larger higher productivity motor vehicles that can now be used.

Impact on road safety including pedestrians/cyclists

- 8.22 I have discussed above the crash history for the wide search area and the period of time that is greater than what is normally considered. From this it is apparent that the trucks associated with the quarry are interacting with other road users and are integrated into the local transport environment in an acceptable manner – with no crashes involved any trucks, any pedestrian or any cyclists having been reported over the extended period of time and the large area that has been searched.
- 8.23 During one of my site visits I have also observed a truck and trailer travelling to the quarry in a southbound direction on Riverview Road that has trailed a cyclist riding in the same direction. The truck driver has deliberately slowed while trailing the cyclist and did not pass the cyclist until an appropriate opportunity was available.
- 8.24 This behaviour is not unique to this location and is consistent with what I have seen at other locations during my investigations for other major quarries in the greater Auckland area.
- 8.25 From this other work I have concluded that this behaviour is common practice and is due in part to the fact that the drivers are professionals, they need to comply with their company's operational and health & safety requirements, and that their livelihoods and financial security depends on their ongoing ability to do their work driving a truck.
- 8.26 It is therefore wrong to consider them as 'cowboys' which is a label that I consider is inappropriate for them now but may have been for a few many years ago.

Roading upgrades

- 8.27 I do not consider that any upgrading is required to support the small marginal increase in the number of trucks but do agree with the recommendation to remark the pavement markings close to the site.

Access to Hotel

- 8.28 The submission by Freeway Design Ltd relates to a property at 343 Tregoweth Lane in Huntly, where the submitter operates the 'Hillside Hotel'.
- 8.29 The submitter states that they are "... concerned that the proposed activity will significantly increase the volume of heavy trucks accessing the cleanfill from Great South Road via Tainui Bridge Road, impacting on the access to the Submitter's hotel. This impact could only be addressed by preventing cleanfill trucks accessing Riverside Road via Tainui Bridge Road."
- 8.30 During one of my recent site visits I established that this hotel is a considerable distance away from the site and, using Google Maps is circa 2kms from the connection to Gt South Road next to Huntly Quarry and a further circa 1km to the intersection of Gt South Road with Tainui Bridge Road.
- 8.31 Along this route are a number of commercial and industrial land uses activities that generate traffic movements in addition to those that are passing through this are on Gt South Road.
- 8.32 I therefore expect that the impacts on this submitter arising from the small number of additional trucks will be negligible, particularly having regard to the distribution of these few vehicles on the wider roading network.
- 8.33 I therefore expect that the concerns they have expressed will not be realised.

9. COMMENTS ON CONDITIONS

- 9.1 I have reviewed the recommended traffic-related conditions contained in the Officer's report and note that these are comprehensive. A summary of the key details of each is as follows (*paraphrased*).
- Condition 12: The development of a Site and Fill Management Plan that sets out the practices and procedures to be undertaken to manage the site and its operations to ensure that any adverse effects are avoided, remedied or mitigated.
 - Condition 14: The development of a detailed design of the shoulder repairs and line marking for Riverview Road. This is to include a number of matters including repairs to damaged pavement and surfacing in the shoulders opposite and adjacent to the site, details of pavement and surfacing and extent including the tie-in to existing,

details of line markings for 200 metres north and south of the vehicle crossing (including shoulder markings, no stopping markings, edgelines and continuity lines).

- Condition 15: The development of a plan for the vehicle access that will provide for the two-way operation of the access over a minimum of 60 metres from the edgeline of the nearest lane on Riverview Road.
- Condition 16: The development of a Site Circulation and Loading Management Plan that is to:
 - Avoid any adverse effects on Riverview Road such as queuing or parking in the widened shoulders.
 - Demonstrate the swept paths of opposing trucks do not conflict through the gate.
 - Demonstrate priority for inbound vehicles at the weighbridge.
 - Identify holding and waiting areas within the site for the weighbridge.
 - Identification of areas to provide for the covering or uncovering of trailer tarpaulins/load covers.
 - Documenting how driver behaviour will be managed to avoid queuing on Riverview Road's shoulders.
 - A requirement to have the removal and replacement of trailer tarpaulins/load covers to be completed within the site.
 - Identification of triggers or timing for the installation and implementation of a second weighbridge.
- Conditions 32 and 33: Maximum total vehicle movements at the vehicle crossing (maximum 60 vehicles per hour and 12 truck movements per day between 5.00am -6.00am).
- Condition 34: Methods to prevent dust and debris being tracked onto the road and maintenance of the wheel wash.
- Condition 35: A register of the daily truck movements, daily volumes leaving the site and daily cleanfill material entering the site.

- 9.2 An Advice Note associated with Condition 34 also advises of the need for a TMP approved by Council being needed for work on the road, including the road sweeper and for this to be revised on an annual basis.
- 9.3 Having considered the details of each of these conditions, it is my opinion that they:
- (a) Are all reasonable and acceptable from a traffic engineering perspective, and
 - (b) Comprehensively address all of the traffic-related matters of importance.
 - (c) Retain the existing consented¹⁴ and permitted baseline limit of maximum 60 vehicles per hour.
- 9.4 On this basis, I consider that their adoption will allow for necessary improvements to be made, for an acceptable operational outcome to be achieved, and for the traffic-related effects of the application to be acceptable.
- 9.5 On this basis I consider that they are appropriate and allow for the application for resource consent to be granted.

10. **CONCLUSIONS**

- 10.1 From my review of the traffic impact assessment prepared by my colleague and also my review of the s42A report and the submissions, I do not have any matters that are cause for concern from a traffic engineering perspective.
- 10.2 The very significant aspect of this application is the fact that the bulk of the fill material will be transported to the site in trucks that are presently arriving empty and are leaving with aggregate.
- 10.3 Only a small number of additional trucks are expected to be associated with the delivery of fill material that do not leave with aggregate.
- 10.4 This not only results in significant transport efficiencies, but also results in additional volumes that are expected to be less than the variations that presently occur on the local and wider roading network.

¹⁴ Waikato District Council Consent LUC0035/11.05, Condition PC14A

- 10.5 I consider that the effects of this additional traffic are acceptable, and are not expected to create any operational issues that could be cause for concern.
- 10.6 I also note that the additional traffic volumes will not result in an increase in the number of consented¹⁵ and permitted truck movements that can presently occur per hour (60 vehicles per hour).
- 10.7 I also do not consider that the submissions have raised any points that have not already been addressed by the proposed conditions of consent, and I note that these conditions are not only extensive, but also require a number of works to be done within the site, at the new vehicle crossing and on Riverview Road close to the site that will improve the existing situation.
- 10.8 For these reasons I do not consider that any of the traffic-related conditions need to be amended, or any new ones are required to address issues that have not already been covered.
- 10.9 Provided these recommended conditions are adopted, I see no reason why resource consent can not be granted for the proposed activity from a traffic engineering perspective.

Phillip Robert Brown
Traffic Engineering and Management Limited
24 November 2022

¹⁵ Waikato District Council Consent LUC0035/11.05, Condition PC14A