

IN THE MATTER OF The Resource Management Act
1991 (the **Act**)

AND

IN THE MATTER OF Applications CRC192408,
CRC192409, CRC192410,
CRC192411, CRC192412,
CRC192413 and CRC192414 to
the Canterbury Regional
Council, and Application
RC185627 to the Selwyn
District Council, by Fulton
Hogan Limited to establish a
quarry operation at 107
Dawsons Road and 220 Jones
Road.

STATEMENT OF EVIDENCE OF ABIGAIL ALICE SMITH

LANDSCAPE AND VISUAL AMENITY EFFECTS

DATED 14 OF OCTOBER 2019

1. INTRODUCTION

- 1.1. My full name is Abigail Alice Smith.
- 1.2. I am a landscape architect with the Christchurch City Council¹. I hold a Bachelor of Landscape Architecture, with honours, from Lincoln University. I have been a registered member of the New Zealand Institute of Landscape Architects for 8 years and have practiced as a Landscape Architect for over 16 years. Over this period I have been involved in a range of development projects, master

¹ Hereafter referred to as 'CCC'

plans and management plans including policy development and strategy reports.

- 1.3. My role at CCC involves reviewing proposed developments for resource consent applications. These assessments identify components of natural character and outstanding natural features and landscapes, as well as evaluating the existing visual quality of the landscape resource and visual sensitivity in relation to a range of potential activities.
- 1.4. I confirm that I have read the Environment Court's Code of Conduct for Expert Witnesses, as contained in section 7 of the Environment Court's Practice Note 2014, and I agree to comply with it.
- 1.5. The data, information, facts and assumptions that I have considered in forming my opinions are set out in my evidence that follows. The reasons for the opinions expressed are also set out in the evidence that follows.
- 1.6. I confirm that the matters addressed in this brief of evidence are within my area of expertise, with the exception of where I confirm that I am relying on the evidence of another person. I have not omitted to consider material facts known to me that might alter or detract from my opinions expressed in this brief of evidence. I have specified where my opinion is based on limited or partial information and I have identified any assumptions I have made in forming my opinions.
- 1.7. I visited the site on 10 May 2019 and again on 23 September 2019 and am generally familiar with the area.

2. SCOPE OF EVIDENCE

- 2.1. The Waipuna/Halswell-Hornby-Riccarton Community Board, on behalf of the CCC, lodged a submission (dated the 5th of June 2019 and hereafter referred to as 'the CCC Submission') to Fulton Hogan Limited's applications to Selwyn District Council and Canterbury Regional Council to establish a quarry

operation (to be known as Roydon Quarry) at 107 Dawson's Road and 220 Jones Road. This submission included a request to be heard at the hearing.

- 2.2. In this regard, I have been asked by CCC to comment on the following:
- a) The nature and scale of the potential effects of the proposed activity on landscape values;
 - b) Whether the mitigation measures proposed are sufficient to address these potential effects to the level that any residual effects may be considered to be acceptable; and
 - c) What consent conditions are needed to ensure that the necessary mitigation measures are implemented.
- 2.3. Accordingly, my evidence addresses the following matters:
- a) The potential effects of the proposed activity on landscape character and visual amenity values (Section 5);
 - b) The suitability (or otherwise) of the proposed mitigations (Section 7); and
 - c) Recommended conditions of consent to address the potential effects on landscape values (Section 10).
- 2.4. In preparing my evidence, I have considered the following documents:
- a) The Application, Assessment of Environmental Effects Report, prepared by Golder Associates (NZ) Limited, November 2018 (**AEE**);
 - b) The Application, Appendix D, Air Quality Assessment, prepared by Golder Associates (NZ) Limited, November 2018;
 - c) The Application, Appendix E, Landscape and Visual Impact Assessment, prepared by DCM Urban, November 2018 (**LVIA**);
 - d) The Application; Appendix G, Draft Rehabilitation Management Plan, Prepared by Fulton Hogan, November 2018 (**DRMP**);
 - e) Section 92 Response, March 2019, Response to Request for Further Information Report, prepared by Golder Associates (NZ) Limited, March 2019;

- f) Section 92 Response, March 2019, Appendix G, DCM Urban Landscape Report Comments, prepared by DCM Urban, March 2019;
- g) Section 92 Response, March 2019, Appendix G, Landscape Management Plan B, prepared by DCM Urban, March 2019 (**LMP**);
- h) Section 92 Response, March 2019, Appendix G, Landscape Management Plan – Figures, prepared by DCM Urban, February 2019;
- i) Section 92 Response, August 2019, Report Response to Additional Information;
- j) Selwyn District Council (SDC) s42A Report of A Henderson (Planner);
- k) Selwyn District Council (SDC) s42A Report – Landscape and Visual Assessment Review of W Robertson;
- l) Canterbury Regional Council (CRC) s42A Report – Appendix 7 Conditions;
- m) Applicants Evidence of David John Compton – Moen, Landscape and Visual;
- n) Applicants Evidence of Kevin Michael Bligh, Project and Consent Conditions;
- o) Applicants Evidence of Mark Jolly;
- p) Applicants Evidence of Victor Mkurutsi Mthamo, Rehabilitation; and
- q) Applicants Evidence of Roger Steven Cudmore, Air Quality.

3. EXECUTIVE SUMMARY

- 3.1. The proposed Roydon Quarry² is to be located in close proximity to the Templeton Township. The receiving environment of the proposed quarry is characterised by large open paddocks and established shelter belts with expansive views to the Southern Alps.
- 3.2. The potential adverse effects of the proposed quarry on landscape character and visual amenity include;

² Hereafter referred to as **'the proposed quarry'**

- a) Effects on landscape character, including the effects during construction and establishment of the proposed quarry while proposed mitigation is reaching maturity.
- b) Potential landscape character effects post rehabilitation. There is a risk that the removal of established shelter belts surrounding the proposed quarry could expose the alterations to the topography resulting from extraction activities.
- c) Effects on views, in particular the effects during the establishment of mitigation. Earth bunds are not an expected feature in the rural open plains landscape, they are a un – natural, modified feature that signals an activity is occurring behind them.

3.3. I mostly support the intent of the applicants proposed design and mitigation measures as set out in the LMP, however I consider there is insufficient detail to ensure that the design will deliver the intended landscape mitigation outcomes. This is of concern when so much reliance is being placed on the mitigation planting achieving, and providing screening of both the proposed earth bunds and the proposed quarrying activities.

3.4. I recommend that the LMP and consent conditions be modified to include provision for changes that will ensure potential adverse effects on landscape character and visual amenity are mitigated for the duration of the consent to a level that is appropriate. I make recommendations in regard to these matters.

4. LANDSCAPE CHARACTER OF THE SITE AND SURROUNDS

4.1. The proposed quarry is located within a 170 hectare block of land bound by Jones Road, Dawson's Road, Maddison's Road and Curragh's Road in Templeton. It is located approximately 700m west of Templeton Township. The site is surrounded by a network of arterial, collector and local roads. State Highway 1 is located to the south of the site and forms the primary connection to the south and to Christchurch City.

- 4.2. The proposed quarry site is divided into a number of paddocks with shelter belts located along the site boundaries, including Curragh's Road, part of Dawson's Road and part of Maddison's Road. Throughout the site there is a mix of exotic species including *Pinus radiata*, *Cupressus macrocarpa* and *Eucalyptus cordata*.
- 4.3. The proposed quarry is within the Inner Plains Zone in the Selwyn District Plan. Characteristics of the zone are identified as a predominance of vegetation cover and views not modified by structures, including views of mountains.
- 4.4. The receiving environment of the proposed quarry forms part of the lower plains landscape which is predominantly flat, except where broken in places by river beds. The landscape is predominantly rural in nature with activities including both intensive and pastoral farming. Large open paddocks are often delineated with exotic shelter belts, providing dense screening.
- 4.5. Although a highly modified landscape, the openness of the rural environment and rural character of the Templeton area surrounding the proposed quarry is greatly valued by residents and the wider community.
- 4.6. In my opinion, the receiving environment of the proposed quarry is characterised by large open paddocks and established shelter belts, with expansive views, towards the Southern Alps. Although a modified landscape, I consider that the receiving environment has a moderate level of landscape character and visual amenity due to the open rural character.

5. POTENTIAL EFFECTS ON LANDSCAPE CHARACTER AND VISUAL AMENITY

Potential Effects on Landscape Character

- 5.1. I understand the entire 170 hectare site is to be quarried except for the 20m boundary setbacks consisting of 4 metres of planting and a 16 metre wide, 3 metre high grass bund. Extraction activity is proposed to a depth of approximately 10 metres below existing ground level.

- 5.2. The proposed quarry is located within an open rural landscape. In my opinion, while the adverse landscape character and visual amenity effects associated with quarrying and its ancillary activities can be mitigated in part by screening controls such as earth bunds and planting, the landscape character of the site will change.
- 5.3. I have read Selwyn District Council's s42A Landscape and Visual Assessment Review by Mr Robertson. Mr Robertson states in paragraph 91 that "*the greatest magnitude of change on rural character (and rural amenity) will be at the beginning of the quarry operation, during the initial site preparation stage*". I concur with Mr Robertson's assessment, the greatest impact on landscape character will be while the mitigation planting is establishing with potential adverse effects during construction and establishment works being at least moderate to high for landscape character.
- 5.4. Mr Robertson also goes on to state in paragraph 9 that "*the proposed bund and perimeter planting are considered to be effective in screening the medium to long term activity on the site from surrounding roads, although in the short term the establishment of the bunds will generate adverse effects until the perimeter planting reaches maturity over a 10 – year period*". I also concur with this statement, as vegetation establishes and full screening of the earth bunds is achieved the potential adverse impact on landscape character and visual amenity of the proposed quarry will decrease.
- 5.5. In my opinion, there may be potential adverse landscape character and visual amenity effects post rehabilitation, particularly when the end use of the site is unknown. There is a risk that the removal of established shelter belts surrounding the proposed quarry could expose the alterations to the topography resulting from extraction activities. There is a possibility of a significant depression being exposed in a relatively flat landscape.

Potential Effects on Visual Amenity

- 5.6. The open views of the rural landscape will be adversely affected by the proposed quarry. In my opinion, earth bunds are not an expected feature in the rural open plains landscape, they are a un – natural, modified feature that signals an activity is occurring behind them.
- 5.7. The LVIA, paragraph 1, page 19 states that *“the highest effects after mitigation will be experienced by those residential properties closest to the proposal ... for the Curragh’s Road properties the existing, albeit limited, semi – open views will be replaced with views contained by boundary plantings and the proposed landscape bunds. However, given that landscape plantings on the boundary are a permitted activity and could be planted as of right, the magnitude of change for these residents in visual terms is considered very low”*. I don’t concur that earth bunds are an expected feature in the open rural plains landscape. Mitigation planting will need to provide full screening of the earth bunds and the quarrying activity taking place behind them, particularly in locations where there are no existing established shelter belts. The adverse effects of the proposed quarry on landscape character and visual amenity will be greatest during the establishment period until the earth bunds are fully screened with shelter belt planting.
- 5.8. In my opinion, the adverse effects of the proposed quarry on landscape character and visual amenity will be the greatest during the initial establishment and operating period while proposed mitigation planting is reaching maturity.

6. PROPOSED MITIGATION MEASURES

- 6.1. The applicant is seeking to mitigate landscape character and visual amenity effects of the proposed quarry by establishing grassed earth bunds and a narrow strip of planting with a mix of exotic shelter belt species and native shrubs around the entire perimeter of the site. Mitigation measures are included in the LVIA, the LMP and the DRMP.

- 6.2. The LMP was submitted as additional information in the s92 Response, March 2019, and provides details of the proposed landscape plantings around the perimeter of the site and the management of grass bunds. The purpose of the LMP, section 2, page 3 is “to outline the methods to be implemented during the life of the quarry to avoid, remedy and mitigate adverse effects on landscape and visual amenity and to manage all planting and bunds associated with the proposed quarry”.
- 6.3. Section 4 of the LMP on pages 4 – 7, provides details on the bund and planting design. Four mitigation measures are provided;
- a) **Edge Treatment 1 – Curragh’s Road.** The existing *pinus radiata* shelter belt is to be retained. Mitigation proposed is a 3 metre high, 15 metre wide earth bund to be constructed behind the existing shelter belt. An additional 3 metre wide strip of planting is to be established behind the shelter belt. This planting is to be a single row of *Pinus radiata*. Plants are to be 250mm high root trainers to be planted at 1500mm spacing’s.
 - b) **Edge Treatment 2 – Maddison’s Road (Western Section).** The quarry boundary is approximately 240m from the Maddison’s Road boundary. Mitigation proposed is a 3 metre high, 16 metre wide earth bund. A 4 metre wide strip of planting is to be established on the lower level of the bund. Planting is to be in 3 rows. The outside row includes *Cordyline australis*, *Phormium tenax* and *Poa cita*. Plants are to be 150mm high root trainers to be planted at 1000mm spacing’s. The middle row includes *Pittosporum tenifolium*, *Hoheria sixtylosa*, *Plagianthus regius* and *Pittosporum eugenioides*. Plants are to be 150mm high root trainers to be planted at 1500mm spacing’s. The inner row includes *Pinus radiata*, *Eucalyptus cordata* and *Cupressus macrocarpa*. Plants are to be 250mm high root trainers to be planted at 2000mm spacing’s.
 - c) **Edge Treatment 3 – Maddison’s Road (Eastern Section).** The existing conifer shelter belt is to be retained (the shelter belt is on the property

of 319 Maddison's Road). Mitigation proposed is a 3 metre high, 16 metre wide earth bund. A 4 metre wide strip of planting is to be established. Planting is to be a single row of *Pinus radiata*, *Eucalyptus cordata* and *Cupressus macrocarpa*. Plants are to be 250mm high root trainers at 2000mm centres.

- d) **Edge Treatment 4 – Dawson's Road / Jones Road.** Mitigation proposed is a 3 metre high, 16 metre wide earth bund. A 4 metre wide strip of planting is to be established. Planting is to be in 3 rows. The outside row includes *Cordyline australis*, *Phormium tenax* and *Poa cita*. Plants are to be 150mm high root trainers to be planted at 1000mm spacing's. The middle row includes *Pittosporum tenifolium*, *Hoheria sixtylosa*, *Plagianthus regius* and *Pittosporum eugenioides*. Plants are to be 150mm high root trainers to be planted at 1500mm spacing's. The inner row includes *Pinus radiata*, *Eucalyptus cordata* and *Cupressus macrocarpa*. Plants are to be 250mm high root trainers to be planted at 2000mm spacing's.

6.4. Section 5 of the LMP provides details on the monitoring and maintenance of the landscape bunds and planting post issuing of the Practical Completion Certificate. This includes information on the establishment period and monitoring, it also includes information on the maintenance during the establishment period including the installation of temporary irrigation for planted areas for a minimum of two years following planting, weed control (in the form of spraying) and remedial works including replanting as needed.

6.5. Section 6, page 9 of the LMP provides a statement on what the monitoring and maintenance of landscape bunds and planting is post issuing of the Certificate of Completion "*it will be the responsibility of the Consent Holder to maintain the bunds and landscape planting to achieve a full screening of the site from adjacent road, as per the conditions of consent. Annual checks of the bunds and landscape planting will be carried out in March of each year with a site record, including photos, supplied to Selwyn District Council for their records. The*

record will outline maintenance works undertaken over the year, any replacement plantings undertaken and comments on the general health of the plants". There is no further detail provided for ongoing maintenance beyond the two year establishment period.

7. SUITABILITY OF PROPOSED MITIGATION MEASURES

7.1. Quarrying is a temporary, albeit long term use of rural land. In my opinion, while there will be adverse effects on landscape character and visual amenity during the initial stages of the proposed quarry, over time these effects will reduce as the mitigation planting increases in maturity. Earth bunds are not an expected feature in the open rural plains landscape, so in my opinion, planting will become the primary mitigation measure for landscape character and visual amenity effects, in particular, the establishment of shelter belts.

7.2. Shelterbelts have also been identified as a potential barrier for minimising dust. In the Air Quality Assessment, Appendix D in the AEE on page 43 it states *"Shelterbelts provide some mitigation of airborne dust emissions around the boundary of the site, especially coarse fraction material which will deposit onto the shelterbelts. Shelterbelts also help to reduce wind speeds, thereby minimising entrainment of dust, close to the shelterbelts"*.

7.3. Planting is also mentioned in Mr Cudmore's Air Quality Evidence for the applicant in which he states in paragraph 64.13 that *"the bund itself, with established trees and shrubs becomes a partial barrier to dust transport off site"*. I understand from these statements that shelter belt planting will also assist with potential dust effects.

7.4. In regards to the proposed mitigation measures for the planting design I have the following comments;

- a) Jones Road, the majority of Dawson's Road and some of Maddison's Road do not have existing shelter belts, therefore grass bunds will provide the only landscape character and visual amenity mitigation

until proposed plants reach maturity and have established to provide full screening of the bunds.

- b) There is no requirement for plants to be of a particular height or density prior to quarry excavations starting, so in my opinion there is no certainty that plants may ever provide the mitigation necessary to ensure adverse effects on landscape character and visual amenity are mitigated to an appropriate level.
- c) There are no existing shelter belts on Jones Road, the majority of Dawson's Road or a section of Maddison's Road. Each of these road frontages have one line of shelter belt planting proposed. This planting will take time to establish full coverage of the earth bunds particularly as there will be gaps between the trees for many years.
- d) A row of native planting is proposed in front of the line of shelter belt planting. In my opinion this planting will support the mitigation, however it may not provide the extent of mitigation in the future that shelter belt planting will.
- e) All mitigation planting is proposed as root trainers, this is the smallest grade of plant that is supplied from nurseries, and will be between 150mm and 250mm in height approximately at time of planting. I acknowledge that it is often easier to establish small grade plants, however it will take many years for plants of this size to reach maturity and be of a size to provide the mitigation needed.

7.5. In regards to the proposed monitoring and maintenance of landscape bunds and planting post issuing of the Practical Completion Certificate I have the following comments:

- a) The LMP covers an initial maintenance period of two years. While there is reference to monitoring and maintenance of landscape bunds and planting post issuing of the Certificate of Completion, it will be the

responsibility of the consent holder. It is identified that annual checks of the planting will be carried out each year, with replacement planting to be undertaken as required. The LMP does not include any monitoring of the success of the planting after the two year establishment period.

- b) The two year maintenance period includes a temporary irrigation system which will assist plants to establish but will not ensure their survival long term.
- c) There is no guarantee that grass bunds will be maintained or watered regularly after the two years of establishment to ensure that grass cover is maintained through the summer months. If bunds are not watered regularly grass will die creating potential dust and visual amenity effects.

8. MITIGATION REQUIRED TO ADDRESS LANDSCAPE CHARACTER AND VISUAL AMENITY EFFECTS

- 8.1. The level of adverse effects on landscape character and visual amenity will be dependent on the success of planting mitigation and maintenance. It is my opinion that to ensure the intended mitigation outcomes are achieved, full screening of the earth bunds is needed, to ensure an appropriate level of mitigation is provided to reduce the potential landscape character and amenity effects of the proposed quarry to an appropriate level.
- 8.2. I make the following recommendations with regards to landscape mitigation measures;
 - a) Along the road boundaries, where there are no existing established shelter belts with a height of at least 3 metres, providing full screening already, I recommend that planting areas are increased from 4 metres to 10 metre in width to allow for additional planting to include tree planting in the form of new shelter belts, to be planted in double

staggered rows at 2 metre spacing's between rows. Foliage is to be maintained from ground level to full height of trees.

- b) Along road boundaries where there are no existing shelter belts, I recommend that no quarrying activity is to be undertaken within 200 metres of any road boundary until the proposed mitigation planting has reached a minimum height of 3 metres and provides full screening.
- c) A monitoring and review should be undertaken annually each year to measure the success of the proposed mitigation planting to determine whether any further planting is required to mitigate landscape character and visual amenity effects.

8.3. Long term maintenance is as important as the initial two year establishment, to ensure planting is fit for purpose to provide the required mitigation to maintain potential adverse landscape character and visual amenity effects to an acceptable level for the viewing audience. In my opinion, as the LMP it is the guiding document to *“remedy and mitigate adverse effects on landscape and visual amenity and to manage all planting and bunds associated with the proposed quarry”* modifications need to be made to the LMP to ensure adverse effects on landscape character and visual amenity are mitigated for the duration of the consent.

8.4. I make the following recommendations in regards to modifications that need to be made the LMP;

- a) Include all requirements to undertake and maintain the recommendations in the preceding paragraph of the evidence in 8.2 (a – c) for the duration of the consent;
- b) Extend the maintenance period to at least 5 years including irrigation;
- c) Use larger grade trees with appropriate size tree pits; and

- d) Mulch all planting areas to assist with weed suppression and to retain moisture.

9. OTHER MATTERS OF RELEVANCE

Staging of Excavation

9.1. The s92 response, dated August 2019 included new information regarding the staging of excavation. In Mr Jolly’s Evidence for the Applicant, in paragraph 33 he states “quarrying will be progressive as shown in the staging plan included as figure 1 to Mr Bligh’s evidence”. I have included Figure 1 from Mr Bligh’s Evidence for the Applicant in my evidence below which indicates that quarrying will commence along the Dawson’s Road frontage, of the site. This is the boundary of the proposed quarry in closest proximity to the Templeton Township. Stage one will be followed by Stage two also along Dawson’s Road, potentially exposing Dawson’s Road to quarrying activities for 20 years or more. This is also the timeframe the proposed mitigation planting will be establishing and the period of time that has been identified as having the greatest effect on landscape character and visual amenity.

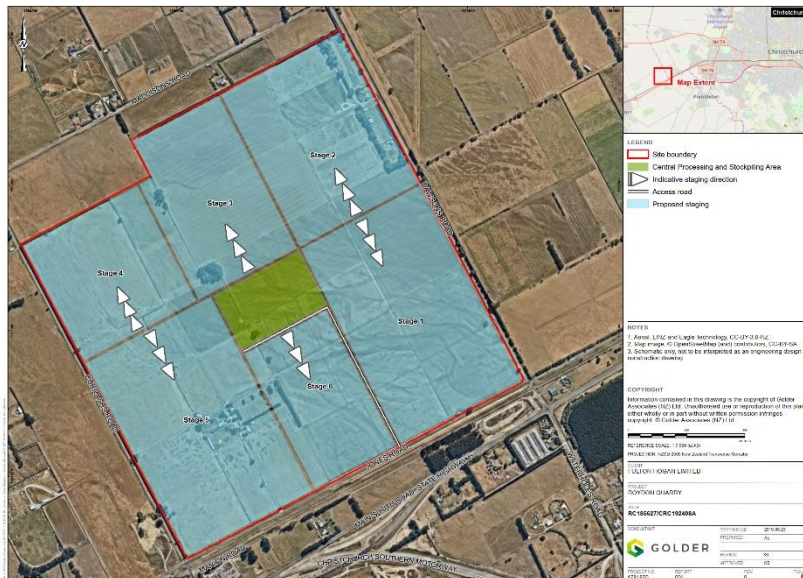


Figure 1 Proposed Staging of Extraction³

³ Mr Bligh’s Evidence for the Applicant, last page

- 9.2. In order to reduce the adverse effects on landscape character and visual amenity, I recommend that the staging of the proposed extraction is modified to start in a location which is already surrounded by established shelter belts. This would ensure that quarrying activity is not dependent on proposed mitigation planting to reach maturity to provide an appropriate level of mitigation. It would be preferable if excavation could start with Stage 4 or 5 as marked on Figure 1.

Rehabilitation

- 9.3. Post rehabilitation, the final land use is unknown. Mr Mthamo in his Evidence for the Applicant, paragraph 50 states that in regards to possible post rehabilitation land use that *“the final land use is unlikely to be determined until sometime in the future. In the meantime, it is proposed Fulton Hogan will restore the site to a form such that it can be available for a variety of activities”*. In my opinion, the existing and proposed shelter belts should be retained post rehabilitation, to ensure any potential adverse landscape character and visual amenity effects are limited. I recommend that this may be achieved by requiring a Covenant so that any future land owner must retain the shelter belts, or replace them in the event of their removal or failure.

10. RECOMMENDED AMENDMENTS TO CONSENT CONDITIONS

- 10.1. The following are my recommendations in regards to the proposed consent conditions based on discussion in my evidence.
- 10.2. I have reviewed the Landscape Management Plan conditions provided with Mr Henderson’s s42A report. The following conditions which I have made additions to, I support with the marked amendments. The following conditions for which I have shown no marked amendments I support in their entirety.

Landscape Management Plan

- 10) Establishment of landscape works (predominantly bunding and planting) shall not occur until Selwyn District Council has certified a final LMP in general

accordance with the Landscape Management Plan, Project No. 2017_031|B prepared by DCM Urban. The purpose of the Landscape Management Plan (LMP) is to ensure the successful establishment and long-term success of the proposed on-site landscape works.

- 11) The consent holder shall ensure that all quarry activities are undertaken in a general accordance with the certified landscape management plan.
 - 12) The commencement of ~~Stage 1~~ *any stage* of quarrying operations shall not ~~begin until landscape works defined in the approved LMP are established on-site~~ *commence within 200 metres of any road boundary where there is no existing established shelterbelt with a height of at least 3 metres providing full screening*
- 3)13) Prior to quarrying operations commencing on the site, site bunding and landscaping shall be established in accordance with the Landscape Management Plan approved in Condition 4 and Visual Impact Assessment by DCM Urban, referenced as Appendix E of the Resource Consent Application report by Golder Associates dated November 2018 together with subsequent updates to this documentation from the 12 March 2019 and 16 August 2019 further information responses. This shall include:

Bunding

- a) Establishment of 3 m high earth bunds around the site perimeter, with the exception of site accessways, with a 1 m wide flat top shall be constructed around the site. The bunds shall have a profile with an outside slope of up to 1:3 (one vertical to three horizontal) and a 1 m wide top and shall have a minimum width of 15 m.
- b) Overlapping bunding, or a planted island barrier, shall be established to the heavy vehicle accessway entrance adjacent to Jones Road, so as to obscure views into the quarry from Jones Road (as per the example shown on Page 25 of the LVIA prepared by DCM Urban, Project No.

2017_31, dated 12 August 2019, or as otherwise may be approved by the Team Leader, Resource Consents).

- c) As soon as practicable following construction of the bunds, the bunds are to be sown with grass or hydro-seeded to achieve swift grass cover and watered regularly to ensure grass cover is established and maintained.
- d) To assist in achieving swift grass cover, construction of the bunds shall take place outside of summer months and in favourable weather, to avoid significant potential dust risk (e.g. during the months of February to November inclusive) and enable grassing of the bunds to occur in autumn or spring, in order to align with periods of good grass strike.
- e) The grassed bunds shall be mown regularly or grazed to give a tidy appearance.
- f) The grassed bunds shall be watered, when required to suppress potential dust. ~~until a grass cover has been established.~~ *An 80% grass cover is to be maintained on earth bunds at all times during quarry operations.*
- g) To ensure the survival of the existing shelter belts (identified on the figure Mitigation Measures – Edge Treatments on Page 17 of the LVIA) bunds should not be constructed within 1 m of the base of trees. Where no shelterbelt currently exists, bunding shall be setback ~~at least 4 m~~ *10 metres* from the site boundary. ~~This design is shown in the Edge Treatments included on pages 19-22 of the LVIA prepared by DCM Urban, Project No. 2017_31, dated 12 August 2019.~~

Planting

- a) The existing shelterbelts (identified on the figure Mitigation Measures Edge Treatments on Page 17 of the LVIA prepared by DCM Urban, Project No. 2017_31, dated 12 August 2019) along the site's road boundary with Curragh's Road, the common boundary with 319 Maddison's Road, and the road boundary adjacent to the dwelling at 107 Dawson's Road shall

be retained. Where there are gaps or where the vegetation is dying or in poor condition these gaps shall be filled with similar tree species to achieve closures of these gaps.

- b) An additional row of plantings shall be established behind these existing shelter belts as shown on the Edge Treatments 1 and 3 (pages 19 and 21) of the LVIA prepared by DCM Urban, Project No. 2017_31, dated 12 August 2019. This row of plantings may be established at the base of the bunds *within the first planting season following establishment of the bunds (April – September).*
- c) *Along site boundaries where there is no existing established shelter belts with a height of at least 3 metres, the planting strip is to be 10 metres wide. New shelter belts are to be planted in double staggered rows at 2 metre spacing's between rows. Foliage is to be maintained from ground level to full height of tree. Planting is to be completed within the first planting season following the establishment of the bunds (April – September) ~~three rows of plantings shall be established in accordance with the Edge Treatments 2 and 4 (pages 20 and 22) of the LVIA prepared by DCM Urban, Project No. 2017_31, dated 12 August 2019.~~*
- d) All *planting* required for this consent under this condition (Condition 0 a to f) shall be maintained *for the duration of the consent to retain full screening of the earth bunds.* Any dead, diseased, or damaged planting is to be replaced with plants of a similar species and as soon as practicable, having regard to planting seasons.
- e) All planting will be established on the outer side of the bunds.
- f) Any plantings along the Jones Road boundary will be maintained at a height of 5 m or less to limit shading of the road carriageway.

11. CONCLUSION

- 11.1. Overall, I conclude that the potential adverse effects on landscape character and visual amenity of the proposed quarry will be high. I do not believe that the proposed mitigation of earth bunds and planting will be adequate to mitigate the adverse effects of the proposed quarry.
- 11.2. I mostly support the intent of the applicants proposed design and mitigation measures as set out in the LMP, however I consider that there is insufficient detail in these documents and plans to ensure that the design will deliver the intended mitigation outcomes.
- 11.3. In order to mitigate the adverse landscape character and visual amenity effects of the proposed quarry to an appropriate level, I recommend that the LMP is updated and landscape management plan consent conditions are modified. I have made recommendations in regards to these matters.
- 11.4. In addition I recommend the following;
- a) That the staging of extraction is reconfigured to start at a location within the site already surrounded by established shelter belts; and
 - b) That protection is placed on the existing and proposed shelter belts around the perimeter of the proposed quarry with a Covenant (or equivalent) to prevent their removal post rehabilitation.
- 11.5. In my opinion, if the proposed quarry was to proceed incorporating the above recommendations, the potential adverse effects on landscape character and visual amenity of the proposal would be minor.

I thank the Commissioner for affording me the time to present this evidence.

Abigail Alice Smith

Registered NZILA Landscape Architect

14 of October 2019