Roydon Quarry Resource Consent Application

Landscape and Visual Assessment - Review

Prepared for Selwyn District Council
Prepared by Beca Limited

30 August 2019

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Contents

Revision History

Revision Nº	Prepared By	Description	Date
1	**Wade Robertson**	Draft for internal review	16/08/19
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Document Acceptance

Action	Name	Signed	Date
Prepared by	**Wade Robertson**		30/08/19
Reviewed by	**Cushla Loomb**		27/08/19
Approved by	**Paul Whyte**		30/08/19
on behalf of	Beca Limited		

Executive Summary

1. Fulton Hogan Ltd have lodged a resource consent application with Selwyn District Council which includes activities associated with the construction and operation of an aggregate quarry on the 170Ha rural site, located on the corner of Jones Road and Dawsons Road in Templeton.
2. The proposal will involve the extraction of aggregate over a period of 40 years. Quarry activity will be staged over this time and following initial establishment works to form site access and a central fixed plant area, quarrying will be staged in an anti-clockwise fashion starting with the south-eastern section of the site (i.e. corner of Jones Road and Dawsons Road) and finishing in the southwestern section of the site (i.e. corner of Jones Road and Curraghs Road).
3. Each stage of the quarry operation will include 26Ha of land of which 5ha will be open excavation followed by 5Ha of restoration including recontouring, spreading of top soil and grassing of the quarry floor, which will be approximately 9m below existing ground level.
4. The proposal includes the construction of a 3m high, 15-16m wide bund around the entire perimeter of the site. The bund will be approximately 5.2km long and will require approximately 150,000m^3 of material sourced on site.
5. Planting is proposed around the entire perimeter of the site and directly adjacent to the bund. It will include a mixture of exotic and native plants totalling 2,625 trees and 14,040 plants respectively. Quarrying of Stage 1 will not commence until both construction of the bund and establishment of all planting is achieved. It is anticipated that this work will take 12-24 months to complete subject to availability of plants and planting seasons.
6. The scope of this report is to review the Applicants revised and specifically consider whether:
    a) the methodology used for the assessment of landscape and visual effects is consistent with accepted industry practice
    b) the proposed design and mitigation measures are ‘fit for purpose’ and there is a high probability of long-term success
    c) the nature and degree of landscape and visual effects have been adequately and accurately assessed
7. Where gaps in the assessment exist or where there is disagreement with the assessment findings and/or conclusions drawn in the LVA, an alternative or expanded assessment has been provided.
8. In summary, the LVA provided with the application is generally consistent with accepted industry practice.
9. 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.
10. While the planting of approximately 14,000 native plants and re-grassing of the site is a positive effect of the proposal it is not a significant positive effect nor is it a notable contribution to the enhancement of indigenous habitat in the wider rural landscape or on rural character and amenity. Perimeter planting aside, the proposal does not include any additional enhancement/ betterment of site and as a result there will be no positive landscape effects of note, which is a significant lost ‘end use’ opportunity.
11. The short-term effects of the proposal are considered to be low to moderate for rural amenity and high for rural character, predominantly as a result of construction and establishment works.

12. The long-term effects of the proposal are considered to be very low for rural amenity and moderate for rural character, predominantly as a result of significant landform modification and fundamental change to the appearance and use of the site over the 40-year quarry operation.
13. On balance, the landscape and visual effects of the proposal are considered to be low albeit at the upper end and trending towards moderate. This represents minor to more than minor landscape and visual effects.

1 Introduction and Proposal

1.1 Scope

14. A Landscape and Visual Assessment (LVA)[1] was prepared by Dave Compton-Moen of DCM Urban in support of the AEE that accompanied the Roydon Quarry resource consent application by Fulton Hogan Ltd to Selwyn District Council (the Council). Following a formal s92 request for further information a revised LVA[2] and accompanying Landscape Management Plan were issued to Council.

15. This report provides a review of the revised LVA to support the preparation of the s42A report by the Council's Processing Planner and while this matter is not before the Environment Court, this report has been prepared in accordance with the Code of Conduct for Expert Witnesses (Environment Court Practice Note 2014). The contents of the report are within the authors area of expertise, except where it is stated that facts or information provided by another person have been relied on. No known material facts that might alter or detract from the opinions expressed have been omitted.

16. The scope of the review includes whether:

    a) the methodology used for the assessment of landscape and visual effects is consistent with accepted industry practice (see discussion in Section 3 below)

    b) the proposed design and mitigation measures are 'fit for purpose' and there is a high probability of long-term success (see Section 4 below)

    c) the nature and degree of landscape and visual effects have been adequately and accurately assessed (see Section 5 below)

17. Where gaps in the assessment exist or where there is disagreement with the assessment findings and/or conclusions drawn in the LVA, an alternative or expanded assessment has been provided.

1.2 Proposal

18. A detailed description of the proposal is included in the AEE and the following aspects of the proposal are most relevant to the consideration of landscape and visual effects:

    - The proposed Quarry will account for 170Ha of rural land located to the southwest of Templeton, Christchurch.
    - The site will be accessed off Jones Road to the southeast. The site is further bound by Dawsons Road to the northeast; Maddisons Road to the northwest and Curraghs Road to the southwest. Heavy vehicle movements will be 1200 per day (maximum) and trucks would travel to and from the site off SH1 on to Waterholes Road and then on to Jones Road accessing the site via a new dedicated heavy vehicle access. Light vehicles will access the site via the existing vehicle access of Jones Road. It is not anticipated that heavy vehicles will be using the other adjacent roads identified above.
    - The extraction of aggregate will occur across the entire site down to a depth of 10m below existing ground level. This work will be carried out in 5 stages over an estimated 40-year period. At the outset

[1] Roydon Quarry Proposal, Jones Road. *Landscape and Visual Impact Assessment – Final.* Project No. 2017_31|F

[2] Roydon Quarry Proposal, Jones Road. *Landscape and Visual Impact Assessment – Final.* Project No. 2017_31|G

an initial approximately 30Ha extraction area would be established, generally in the centre of the site, to provide for the formation of an access road and erection of processing plant. Staging would then be implemented in an anticlockwise direction and including a maximum 26Ha of open area at any one time. Excavation would begin in the eastern corner of the site (i.e. corner of Jones Road and Maddisons Road) and would end in the southern corner (i.e. corner of Jones Road and Curraghs Road). This staging reflects the changes made by the applicant as part of thier s92 response.

- A 15-16m wide and 3m high earth bund will be constructed around the perimeter of the site and additional native and exotic planting will be carried out between the toe of the bund and the adjacent property boundary. All boundary treatment (i.e. bunds and planting) will adjacent to the road reserve, except for the north western boundary treatment that will be separated from Maddisons Road by some 100-250m of adjoining rural land.
- Following operation of the site for quarrying purposes it will be rehabilitated in line with the draft Rehabilitation Management Plan attached to the application. The applicant has stated that:

  "*While the final use is unlikely to be determined until sometime in the future,* ***Fulton Hogan will restore the site to a form in that it can be used for a variety of activities. These range from farming, to animal boarding, recreation and other uses provided for within the Rural zones****. The final landform may also enable other activities should the zoning change over time with the growth of Templeton and Christchurch."* ***(Emphasis added)***

19. Following the s92 further information request there have been two additional matters raised that are relevant to the proposed works, including:

    1. Council has confirmed that the proposed shared path and tree planting located along Dawsons Road and Curraghs Road cannot occur within the road reserve as indicated in the LVA; and
    2. The applicant has confirmed that the proposed bund and adjacent planting can be 'de-coupled' meaning that there is sufficient room for planting to not have to be located on the face of the bund meaning they can be implemented separately.

20. This assessment has been prepared based on the proposal as described above.

2 LVA Structure and Methodology Review

21. The following section provides commentary on the structure of the LVA, its methodology and whether it is consistent with accepted industry practice.

2.1 Introduction and Proposal

22. **Section 1 – Introduction and Proposal** of the LVA provides a brief but useful description of the proposal, including the location, nature and scale of the quarry. All the key physical components and activities are included, and the various figures provided in Appendix 1 to the LVA are very helpful in assisting the reader to understand what is being proposed and build an understanding of the relevant landscape matters to be considered.

23. A Landscape Management Plan and Rehabilitation Plan have been included in the Proposal and are both relevant to the assessment of landscape and visual effects. The fact that Mr Compton-Moen has had input to these plans and worked closely with the applicant to ensure potential landscape and visual effects have been considered is a positive aspect of the proposal.

2.2 Methodology

24. **Section 2 – Methodology** identifies three key components of the LVA summarised as:

    1. Description of the receiving environment and landscape character.
    2. Assessment of the proposal against existing landscape values.
    3. Visual impact assessment.

25. There is wide spread industry guidance on the preparation of landscape and visual assessments and the LVA refers to two (2) relevant reference documents in setting out the adopted methodology:

    1. The NZILA's *Best Practice Note – Landscape Assessment and Sustainable Management 10.1 2010*[3].
    2. *Visual Assessment Best Practice Methodologies (2007)*[4] prepared by Lisa Rimmer, a (then) Lincoln University student undertaking a research placement as part of master's degree studies.

26. There are several other publications that are widely acknowledged by the landscape architecture industry as providing useful guidance on the preparation of landscape and visual assessments regardless of their physical setting or project typology. These include:

    - Landscape Institute (UK) *Guidelines for Landscape and Visual Impact Assessment (GLVIA3) 2013.*
    - NZTA *Landscape and Visual Assessment Guideline (Draft) 2013*[5].
    - AILA *Guidance Note for Landscape and Visual Assessment 2018*[6].
    - NSW Government: Roads and Maritime Services – Centre for Urban Design. *Guidelines for landscape character and visual impact assessment 2018*[7].

27. The common guidance provided by all of the documents above recognises that there is not a 'one size fits all' approach to landscape and visual assessment and that the breadth and depth of any assessment should reflect the nature and scale of the proposal being assessed and the character, value(s) and sensitivity of the receiving environment, including effects on the physical, sensory and associative aspects of a particular place.

28. The guidance is also clear regarding the structure of an assessment, where the main constituent parts or sections should include:

    1. A clear and concise **description of the proposal** with a focus on those aspects that are relevant to LVA.
    2. A **description of the existing landscape**, including the identification of those physical, sensory and associative attributes/ aspects of the landscape that manifest as 'character'.

[3] https://nzila.co.nz/media/uploads/2017_01/nzila_ldas_v3.pdf

[4] https://nzila.co.nz/media/uploads/2017_01/nzila_vbpm_report_april_2007_lisa_rimmer.pdf

[5] https://www.nzta.govt.nz/assets/resources/landscape-visual-assessment-guidelines/docs/landscape-visual-assessment-guideslines.pdf

[6] https://www.aila.org.au//imis_prod/documents/AILA/QLD/2018/AILA_GNLVA_June_2018V2.pdf

[7] https://www.rms.nsw.gov.au/documents/projects/planning-principles/urban-design/guideline-landscape-character-and-visual-impact.pdf

3. An **evaluation of the landscape**, including sensitivity to change and ability to absorb development. A scale is often used to identify denote sensitivity (e.g. low, moderate, high).
4. Identification of the **relevant statutory and non-statutory policy provisions**. This includes the relevant provisions of the RMA (normally s6 (a), s6 (b), s7(c) and s7 (f)), Regional Policy Statements and Plans and District Plans.
5. **Assessment of landscape and visual effects**, including the identification of the specific change occurring (e.g. earthworks or vegetation removal) and the magnitude of that change (e.g. the physical extent of earthworks or proportion of a view being affected). The overall residual degree of effect on the landscape should then be considered in light of any design and mitigation measures that are being proposed. The use of matrices or scales in the 'ranking' of effects is widely recommended in the guidance and adopted in practice. The general advice is that a 5-7 point scale is a useful tool in articulating the individual and comparative effects of a proposal to decision makers.
6. As described above it is important that any **design and mitigation measures** that have been developed and adopted as part of the proposal are clearly articulated so they can be considered in the overall assessment of the degree of effect associated with a proposal. This includes an explanation of any measures that are being recommended as conditions of consents.

29. A summary of the structure of LVA in relation to the six (6) point above is provided in Section 3.10

2.3 Landscape Description and Characterisation

30. **Section 2.2** of the LVA follows accepted practice in identifying landscape attributes under three broad categories, being: biophysical, sensory (perceptual) and associative. The brief descriptions provided for these three categories are accurate and in summary:
    - Biophysical attributes are the physical 'things' that existing in a landscape and are often expressed as (natural and cultural) elements, patterns and processes.
    - Sensory or perceptual qualities relate to the way humans perceive the landscape through experience. Often reduced to the visual/ views the consideration of sensory qualities should include what we see, hear and smell and how our minds process and respond to stimuli.
    - Associative values relate to the connections people have to a landscape. Often a reflection of historical connection to place, association tends to manifest as 'meaning'. The LVA provides some useful examples of relevant associations that often exist in a landscape.
31. The LVA acknowledges character as a 'sum of the parts' statement of *"how attributes come together to create a landscape that can be distinguished from other landscape".*[8]
32. A *Continuum of Natural Character* is provided as Table 1 of Section 2.2 of the LVA. The validity of this table was queried as part of the s92 processes because the site does not include any water bodies and it is not located in the coastal environment (relevance to RMA s6(a)) therefore it is unclear why this table is relevant.
33. My understanding of the table is that it is used to draw a parallel between certain landscape descriptors and their respective 'degree' of naturalness as it exists on the widely acknowledged natural character spectrum or continuum. It does nothing more than (in this case) denote that a pastoral landscape has a moderate-high to moderate degree of *naturalness*. That does not necessarily translate directly to the same level of *sensitivity* or ability to absorb development, which, as described above, is recommended in

[8] Roydon Quarry Proposal, Jones Road. Fulton Hogan Limited. *Landscape and Visual Impact Assessment – Final*. 2017. Project No.2017_031|G. DCM Urban. Page 5.

guidance for inclusion in an LVA. As agricultural land can differ markedly in its form, it is entirely possible that (for example) a 'near-cultural' landscape or site has a moderate or even high sensitivity to change, especially if it is a highly visible site directly adjacent to dwellings.

34. I provide commentary regarding the sensitivity of the site and local landscape in Section 5 below.

2.4 Landscape Values

35. **Section 2.3** of the LVA notes the need to ascribe "*values or significance*"[9] to the landscape, which is consistent with industry practice. The discussion in this section of the LVA is largely focussed on the need to recognise and use those values that might be identified in a District Plan when undertaking an assessment of landscape or site *significance* and in the absence of such an assessment, an independent assessment should be undertaken as part of the LVA, using the amended Pigeon Bay criteria as a basis.

36. The LVA correctly the site is clearly neither *natural* nor *outstanding* in the context of s6(b) of the RMA and this is reflected in the absence of any District Plan ONF/L overlays. The LVA does not provide a subsequent assessment of landscape significance despite it being highlighted at this point and this makes it difficult to understand what the starting point for the assessment of effects is.

2.5 Visual Assessment Methodology

37. The methodology described in **Section 2.4** of the LVA is entirely consistent with industry practice and the commentary provided under each of the four identified procedures are useful to understand those matters that have been considered in identifying, documenting and assessing visual effects.

2.6 Effects Methodology

38. **Section 2.5 – Effects Methodology** is generally consistent with industry practice especially with regard to the assessment of both unmitigated and mitigated development scenarios. The adoption of a 7-point rating scale is consistent with the NZILA Best Practice Guide and it is useful to include the descriptors from the Quality Planning (QP) Website continuum, as the LVA has done, to provide the reader with more clarity on how the two relate.

39. In practice there has been a long and on-going 'discussion' between landscape architects, planners and decision makers about the application of the rating scale (regardless of how many points it has) and its relationship to the QP descriptors. This is particularly relevant to 'no more than minor' and its relevance to the 'gateway test' for non-complying activities under s104D(1)(a) and the tests for public notification or limited notification (of applications for resource consent or NoR) under s95A(2)(a) and s95E(1).

40. The proposed activity is a Discretionary Activity under the District Plan and so the 'gateway test' terminology is not relevant to this assessment.

41. For the purposes of the assessment in Section 4 below and determining the magnitude of an effect the following descriptors are provided. They consider both NZILA and NZTA documents referenced above as well as the continuum descriptors provided on the Quality Planning website[10]:

    - Effects that negligible are indiscernible are either non-existent or too small to register;
    - Effects that are very low are barely noticeable. Additional mitigation is not required and in planning terms they are negligible;

[9] Ibid. Page 6.

[10] *http://www.qp-test.org.nz/consent-steps/consent-steps-2#determining*

- Effects that are low are noticeable but where they do exist they are likely too small to generate adverse effects either on their own or cumulatively. Additional mitigation is not required and in planning terms are minor;
- Effects that are moderate are noticeable, without being significant on their own. There is the potential for cumulative effects to be more significant but they can generally be mitigated to an appropriate level. In planning terms moderate effects are more than minor.;
- Effects that are high are significant on their own and are likely to increase in a cumulative sense. In general, a high degree of effect is likely to represent an inappropriate development however, there is potential for additional mitigation measures to reduce effects to be acceptable although these measures will need to be significant.; and
- Effects that are very high are also significant and additional mitigation is unlikely to reduce the degree of effect to any discernible degree.
- Effects that are extreme cannot be avoided, remedied or mitigated and are unacceptable.

42. The scales and descriptors provided above are intended to provide a useful framework for assessing landscape and visual effects of the proposal. They do not take into account the wider 'balance' required under the RMA decision making process nor are they intended to be used in place of a broader assessment of effects required under the RMA.

43. Taking the above into account the following table provides a useful guide in reconciling the 7-point scale and continuum descriptions provided in the LVA:

Negligible	Very Low	Low	Moderate	High	Very High	Extreme
Indiscernible	Less than minor	Minor	More than minor	Significant		Unacceptable

Table 1: Rating scale and effects continuum

2.7 Photography Methodology

44. The methodology provided in **Section 2.6 – Photography Methodology** of the LVA is simple, but appropriate given that largely contextual imagery has been provided and no (formal) visual simulations have been included in Appendix 1 to the LVA. I would note that should visual simulations be required in the future an alternative methodology will need to be adopted to ensure that appropriate field of view is achieved, and the proposal is appropriately represented.

2.8 Statutory Documents

45. **Section 2.7 – Statutory Documents** identifies Section 6 and 7 of the RMA and the Selwyn District Plan as being relevant to the assessment of landscape and visual effects of the Proposal. It is unclear why section 6 matters are considered relevant when the site is not an identified Outstanding Natural Feature/ Landscape and nor is it located within the coastal environment, wetlands, rivers, lakes or their margins. If these matters are not relevant to the assessment at hand then there is no benefit in acknowledging them in the LVA as it serves to confuse the reader, especially as there is no subsequent assessment of the proposal against these matters in the remainder of the LVA. Section 7(c) and (f) of the RMA are relevant matters for consideration, and these are reflected in the relevant District Plan provisions identified below.

46. The site is within the rural environment and zoned 'Inner Plains' in the District Plan. The status of the proposed activity is 'Discretionary' as set out in the Section 42A report.

47. The Plan recognises the impact that activities within the rural zone can have on the quality of the environment and particularly the potential for these activities to *"affect the character of the rural area or which make it a less pleasant place to live or work in."*[11] At the same time the Plan also recognises that while the character of the rural zone is different to townships it is home to a wide range of activities and *"….is principally a business area."* The following provisions of the District Plan are relevant to this assessment and have been identified in the LVA:

    - **Objective B3.4.2** – A variety of activities are provided for in the rural area, while **maintaining rural character** and avoiding reverse sensitivity effects.
        - **Policy B3.4.3** – Avoid, remedy or mitigate significant adverse effects of activities on the **amenity values** of the rural area.
        - **Policy B3.4.6** – Maintain **low levels of building density** in the Rural zone and the **predominance of vegetation cover**.
        - **Policy B3.4.17** – Ensure buildings and trees do **not excessively shade** adjoining properties.

2.9 Design and Mitigation Measures

48. The proposed mitigation measures are clearly set out and described under **Section 4 – Mitigation Measures of the LVA**. The nature and location of the proposed earth bunds and perimeter planting are illustrated on Pages 16-22 of Appendix 1 to the LVA. Two artist impressions have also been included in Appendix 1 and show a 'during operation' and 'rehabilitated' scenario.

49. Taken together this information is consistent with industry practice and is useful in assisting the reader to understand the proposal and resulting landscape and visual effects.

2.10 Summary of LVA methodology

50. The LVA is generally consistent with accepted industry practice and although the structure of the report could have been improved to provide better clarity of the assessment (. landscape values vs relevant policy) all the key LVA components have been included.

3 Proposed Design and Mitigation Measures

51. This section of the report considers the proposed design and mitigation measures and discusses whether they are 'fit for purpose' and have a high probability of long-term success.

3.1 Design Mitigation

52. The Applicant is seeking to mitigate landscape and visual effects primarily through the establishment of a grassed earth bund[12] and associated tree and shrub planting around the entire perimeter of the site. These works are to occur prior to quarrying operations commencing on site and the perimeter bunds will consist of *"…suitable on-site material (supplemented by imported topsoil…"*.[13]

[11] B3.4 Quality of the Environment - Issues

[12] The proposed bund also has a role in mitigating noise effects.

[13] Section 3.1 Royden Quarry Rehabilitation Plan. Fulton Hogan. November 2018.

53. The nature and location of this mitigation is described on Pages 19-21 of the LVA and Pages 18- 22 of Appendix 1 to the LVA.

3.1.1 Bund

54. The proposed bund will be a 'constant' around the perimeter of the site. It will be 15-16m wide, 3m high with a 1m wide crest to allow for foot access. The outer face of the bund will be no steeper than 1:3 whereas the inner face of the bund will be between 1:1 and 1:2 depending on its location. It is noted that the finished quarry slopes (directly adjacent to the inner face of the bund) will be between 1:3 and 1:6 slope. The entire bund will consist of 300mm layer of topsoil over excavated sub base material. With there being approximately 5,250 metres of bund there will be 27,000m^3 of topsoil and 123,000m^3 of sub base required for construction (approximately 150,000m^3 of material in total).

3.1.2 Planting

55. The proposed boundary planting treatment includes either:

    1. A single row of fast-growing exotic trees; or
    2. Three rows of planting within a 4m wide landscape strip; one row of fast-growing exotic trees; one row of large native shrubs and a row of low growing native shrubs and grasses.

56. Specific boundary treatments include:

- **Jones Road** – includes approximately 1300m of treatment along the entire length of the property boundary consisting of three rows of planting within a 4m wide landscape strip; one row of fast-growing exotic trees; one row of large native shrubs and a row of low growing native shrubs and grasses.

57. The notable exception to this treatment will be the 150m wide frontage to Jones Road where the heavy vehicle access is located. Indicative treatment of this area is illustrated in the artists impression at Page 26 of Appendix 1 to the LVA.

- **Dawsons Road** – includes approximately 1300m of treatment along the entire length of the property boundary consisting of three rows of planting within a 4m wide landscape strip; one row of fast-growing exotic trees; one row of large native shrubs and a row of low growing native shrubs and grasses.
- **Maddisons Road** – The planting along the north western site boundary is in two sections:
    - **Eastern section** – includes approximately 800m of treatment set back 100-120m from the edge of Maddisons Road and adjacent to open pasture on the adjoining property. Planting along this section will consist of a single row of fast-growing exotic trees set back from the property boundary by a 4m wide shared pathway.
    - **Western section** – includes approximately 650m of treatment set back 250m from the edge of Maddisons Road and adjacent to an existing well-established shelterbelt on the adjoining property. There will be three rows of planting within a 4m wide landscape strip; one row of fast-growing exotic trees; one row of large native shrubs and a row of low growing native shrubs and grasses. The planting will be separated from the property boundary by as 3m wide shared pathway[14].

[14] The sections of shared path along the north western site boundary (adjacent to Maddisons Road) will no longer link to a wider network due to Council declining shared paths being located within the Jones Road and Curraghs Road road reserve.

- **Curraghs Road** – includes an approximately 1200m long single row of fast-growing exotic trees to be located inside the existing well-established shelterbelt.

58. The application does not include a breakdown of total plant numbers however based on the numbers above and the stated 2m spacing for exotic trees and 1.5-1m spacing for all other species it is estimated that the following numbers of plants will be required:
    - **Jones Road** – 650 exotic trees and 2,170 native plants. This does not include additional plants required as part of the site access treatment.
    - **Dawsons Road** – 650 exotic trees and 2,170 native plants.
    - **Maddisons Road** – 730 exotic trees and 1,100 native plants.
    - **Curraghs Road** – 600 exotic trees.
59. The above figures equate to a **total of 2,630 exotic trees and 5,440 native plants**.
60. As mentioned in Section 1 above, the paths and avenue trees shown in the LVA edge treatment illustrations and located in Council road reserve have not been accepted by Council and will not be undertaken. This is relevant because it removes a potential positive effects of the original proposal.
61. The 'decoupling' of the proposed planting from the bunds is reflected in the illustrations, which is relevant to the timing of the mitigation (i.e. planting is not dependant on the availability of material and construction of the bunds).
62. In addition to the proposed grassed bund the proposal is to grass the inner slopes and base of the quarry, subject to the placement of topsoil across the site. No additional revegetation or enhancement of the site is being proposed.

3.1.3 Comments and Recommendations

Bunds

63. The proposed bunds will provide an effective screen for ground level views into the site. As excavation occurs the ground level will progressively fall and activities will be increasingly difficult to see over the top of the bunds. The key issue relates to the extent of the bunds and whether there is enough material (i.e. topsoil and sub base) available to provide for the establishment of the bunds prior to quarry operations commencing.

Planting

64. The photos below illustrate planting that the Applicant has already undertaken on site with native planting occurring along the entire Jones Road boundary and the section of the Dawsons Road boundary up to #107 Dawsons Road.

Figure 1: Photo looking south along the Jones Road site boundary with native planting on the right-hand side of the cleared area.

65. In the case of Jones Road the post and rail boundary fence is separated from the (inner) post and wire fence by an 6-8m cleared buffer. The recent native planting is located within the inner half of the buffer approximately 3-4m away from the boundary fence and leaving little room for the inclusion of a row of exotic trees as described above. Ideally this early planting would have been closer to the boundary fence with 3-4m left for the inclusion of trees planted at 2m spacing. In the current situation the inner fence will need to be moved or there is a risk the exotic shelter planting will completely overgrow the natives.

66. A similar situation exists in relation to the planting that has been undertaken along the Dawsons Road boundary (see Figure 2 below) where there doesn't appear to be sufficient room between the native planting and the inner post and wire fence to allow for a row of exotic trees to be planted without quickly overgrowing the natives. Ideally the exotic trees should be planted at least 1.5-2m behind the last row of natives to allow for canopy spread.

Figure 2: Photo looking northwest along the Dawsons Road site boundary with native planting within the (road) front 2/3 of the cleared area.

67. Site observations would suggest that there are no constraints to planting along the Maddison Road property boundary in the manner proposed. There doesn't appear to be any constraints to the proposed Curraghs Road planting either although as illustrated in Figure 3 below there is a well-established 5-6m high *pinus radiata* shelterbelt along the entire length of this site boundary. The shelterbelt is very dense and provides a very effective screen to views from Curraghs Road and immediately adjacent areas. Care will need to be taken to ensure the planting between the existing hedge and proposed bund isn't shaded out.

68. Based on other recent projects that have involved landscape planting[15] there is every likelihood that the species and numbers of plants required and the ability to implement the entire planting programme over 2-3 planting seasons will be achieved. This is especially the case given that the Applicant has already started planting on site. The probability of this planting being successful during the 24-month establishment period is greatly increased via the proposed use of 'combi guards' to protect against rabbit browsing and the installation of a temporary irrigation system to be maintained for a minimum of two years following planting.[16]

[15] Including Synlait Dairy Factory, Nga Puna Wai Sports Hub – Wigram Basin stormwater pond, Puhoi to Warkworth and Waikato expressway roading projects.

[16] See Section 5.2 of the LMP.

Figure 3: Photo looking southeast along Curraghs Road from outside 151 Curraghs Road. The existing shelterbelt is in the middle right hand side of the image.

3.2 Landscape Management Plan

69. A Landscape Management Plan (LMP)[17] has been prepared as part of the application. The purpose of the LMP is set out in Section 2 of the document. In summary the purpose of the LMP is to provide a framework for the implementation and management of the proposed bunds and planting required to mitigate the landscape and visual effects of the proposal.

70. In general terms the LMP includes all the necessary components to ensure the success of the proposed mitigation measures. The following **recommendations** should be included in the LMP to ensure its robustness and probability of success for the proposed mitigation measures:

    a) **Overarching performance criteria** – the LMP should identify clearly at the outset those performance criteria or specific outcomes sought that will form the basis for on-going management and success of the proposed mitigation measures. An example for a planting outcome might be '80% canopy closure in perpetuity'.

    b) **Planting plans** – a set of planting plans should be included to ensure that the proposed planting is undertaken in the manner intended. This will provide Council with assurance that a suitable planting framework is being implemented, the consideration of substitutes (if required) is well informed and anomalies in set out are avoided.

[17] Roydon Quarry, Jones Road, Selwyn District. Landscape Management Plan. Project No 2017_031|B. DCM Urban.

c) **Specifications** – a suitable landscape specification document should accompany the planting plans and should set out in detail the measures being undertaken to ensure the overarching performance criteria established under the LMP are being met.

d) **Approvals** – the updated LMP should be subject to the approval of the Council (see consent condition comments below). In addition, the following should be provided to Council for information and action where necessary:

   i. Certificate of practical completion (i.e. when all the mitigation measures are 'in the ground')

   ii. Site inspection records (as per Section 5.1 of the LMP)

   iii. Certificate of completion (i.e. at the end of the 24-month defect liability/ monitoring and maintenance)

e) **Remedial Works:**

   i. Section 5.2.2 should relate to *any dead and/or dying plants* because *"adequate growth"* is ambiguous.

f) **Monitoring and Maintenance** – Section 6 of the LMP makes provision for annual checks of the mitigation works including documentation to be supplied to Council in perpetuity. As per #1 above it is important that overarching performance criteria are established so that the consent holder and Council have a clear understanding of what is to be achieved in the long term. Long term expectations for landscape management on the site do not need to be complex or onerous, for example they may only include plant replacement (aka blanking) and hedge trimming to maximum heights where required.

71. In addition to the above it may also be useful for the LMP to consider Part 10 – Reserves, Streetscape and Open Spaces of the Selwyn District Council Engineering Code of Practice as well as NZTA's P39 Standard Specification for Highway Landscape Treatments.

3.3 Rehabilitation Plan

72. A site Rehabilitation Plan was appended as Appendix G to the Application. In the absence of Selwyn District Council having their own requirement or framework for quarry rehabilitation the Applicant has adopted the Christchurch City Council District Plan quarry site rehabilitation provisions, which the Applicant is familiar with through the operation of their existing quarries on the outskirts of Christchurch.

73. The Rehabilitation Plan objectives are set out under Section 1.2 with the programme for rehabilitation set out under Section 3.0.

74. The following sections of the Rehabilitation Plan are most relevant to this report and the mitigation of landscape and visual effects of the proposal:

- **Objectives** (Section 1.2)
  - To reduce the footprint of open area as far as practicable.
  - Sites are rehabilitated in a way which enables subsequent use of the land for an appropriate future land use.
  - To mitigate any potential environmental effects.
- **Rehabilitation procedure** (Section 3.3) – involving the *"…re-spreading and contouring of topsoil materials and stored overburden materials to a minimum depth of 300mm, stabilisation of battered slopes and grassing or planting of other vegetation in completed and restored extraction areas to create a free draining and stable platform."* Other notable aspects of rehabilitation include:

  - Reinstallation of topsoil, potentially requiring mixing with organic material, for agricultural or other purposes. Minimum finished floor level will be *"…at least 1.3 meters (m)*
  - Re-grassing of the quarry floor and perimeter slopes
  - Maintenance through weed control, mowing, grazing and/or planting

- **Rehabilitation timescale** (Section 3.4) – It is anticipated that rehabilitation of each stage will be completed within 12 months of the stage being finished and Table 3 sets out indicative timing for each of the proposed stages with the final indicative date of completion ending in 2060 and each stage taking an average of 8 years to complete.

75. It is noted that the staging plan and indicative timing shown in the rehabilitation plan do not reflect the most recent amendments to the application, which includes excavation works being undertaken in an anti-clockwise fashion starting in the south-eastern corner/ section of the site closest to the Jones Road/ Dawsons Road intersection. Despite this change in staging configuration, for the purposes of assessment of potential landscape and visual effects it has been assumed that each stage will still require approximately 8 years to complete.

- **End use** (Section 3.7) – Table 4 provides an assessment of a number of possible land use scenarios following the completion of quarrying activities on the site and including final contouring and grassing. In response to the s92 request by Council the Applicant submitted a report by Reeftide Environment and Projects that assessed the vulnerability of groundwater to contamination following excavation works and potential future land uses. That report found that the *"most likely land use post construction based on the current planning framework would be lifestyle blocks."*[18] The Applicant has provided comments on this kind of peri-urban development and has identified what is considered to be a significant constraint to future development, which is the fact that the site will be approximately 9m below surrounding ground level and only 1.3m above the water table. The site will be susceptible to summer heat and more significantly given its lower elevation winter fog and frost. Added to this is the fact that views out of the quarry pit will be impeded by a 12m high embankment (i.e. approximately 9m high quarry batter slope and 3m high bund) and adjacent shelterbelt planting. All this will combine for a low-quality living environment when compared to the surrounding rural setting and in this sense, it is considered highly unlikely that an end use scenario like that depicted in the 'Possible Site Rehabilitation – Artist's Impression' will occur.

- **Landscaping and Planting** (Section 3.8) – directly reflects the information provided in the LVA and LMP. Mowing or grazing will be used to maintain a tidy appearance. Mowing of the front 1:3 slope will be easily achieved, however 1:1 – 1:2 slopes are often considered unsafe to mow due to 'roll over' risk and are often incompatible with health and safety requirements.[19]

76. At present, information pertaining to landscape mitigation works exists in the LMP and the Rehabilitation Plan. In the interests of clarity all information relating to the establishment and on-going maintenance of landscape works (specifically bunding, planting and site access treatment) should be included in the LMP only. The recommendations in Section 3.2 above and Section 3.4 below will assist in the combination of information into one.

[18] Reeftide Environmental and Projects. Roydon Quarry RFI Response. 10 March 2019.

[19] NZTA P39 Standard Specification for Highway Landscape Treatments.

3.4 Consent conditions

77. Consent conditions relevant to the proposed bunds and planting are suggested in Site Preparation and Landscaping – #4(a)-(m) of the proposed condition set, which states:

78. *"Prior to quarrying operations commencing on the site, site bunding and landscaping shall be established in accordance with the Landscape and Visual Impact Assessment by DCM Urban, referenced as Appendix E of the Resource Consent Application report by Golder Associates dated November 2018."*

79. For clarification 'quarrying operations' do not include works required to establish the site (i.e. provide for site access and the initial extraction area), which means that from a perceptual point of view quarrying operations or extraction activities will commence prior to the establishment of the bunds. It is unknown for how long this initial extraction will occur before quarrying within Stage 1 will commence.

80. As mentioned above there is a significant amount of cross-referencing and repetition of information between the LVA, LMP and Rehabilitation Plan as it relates to the proposed landscape and visual mitigation works. It is recommended that all the landscape related requirements for the project be included in the LMP and a single condition be used to reference the LMP directly. Central to this is the need to prepare a suite of planting plans for the proposed boundary treatments and also a specific plan that illustrates the configuration of the site access point and associated landscape treatment in sufficient detail for Council to confirm the mitigation provided for in the application and the long term survival of the landscaping is assured as far as practicable.

81. The following is **recommended** as an alternative condition of consent:

82. Landscape Management Plan

(a) 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. Establishment of landscape works (predominantly bunding and planting) shall not occur until the final LMP is approved by a Registered Landscape Architect and in general accordance with the Landscape Management Plan, Project No. 2017_031\|B prepared by DCM Urban.

(b) The commencement of Stage 1 of quarrying operations shall not begin until landscape works defined in the approved LMP are established on-site

4 Assessment of Effects

83. The following section assesses whether the nature and degree of landscape and visual effects have been adequately and accurately assessed in the LVA.

4.1 Rural Character

84. Effects of landscape character are considered under Section 3.2. of the LVA, where it concludes that *"…the only residual effect on Landscape Character, post rehabilitation of the site would be effects on topography. When the quarry is rehabilitated, as per the Rehabilitation Plan, the residual effects of Landscape Character will be less than minor."*

85. In focussing on the rehabilitated state, the LVA effectively 'winds the clock forward' approximately 40 years and based on ***Table 1****: Rating scale and effects continuum* results in a very low degree of effect, limited to the magnitude of change to topography.

86. The LVA does not consider how the development of the site and resulting effects on rural character will unfold over time.

87. There is uncertainty in considering future land use 40 years from now, however what is likely is the proposal will result in a 170Ha, 9m deep grassed pit, surrounded by a 3m high grassed bund and adjacent boundary planting. The water table is likely to be approximately 1.3m below ground level and the site will be susceptible to hot, dry conditions in the summer and wet, cold, foggy conditions in the winter. This represents a notable and potentially significant change in character of the site over time.

88. In addition, any views from the floor of the pit to the landscape beyond will be to a 12m high, 1:3-1:6 sloping face and adjacent shelter belts. Any future occupiers of the site are not going to enjoy the open and expansive views that currently characterise the site and wider rural landscape and this will significantly impact any desire to develop and occupy the site from an experiential stand point. Therefore, Rural Lifestyle development is considered an unlikely end use scenario, especially when there is surrounding rural land in a significantly less modified state.

89. The proposal is to rehabilitate each stage of quarrying prior to commencing excavation of the next stage. The Applicant proposes 5Ha of 'active quarry' be open at any one time. Added to this will be the central processing area (7Ha), unsealed roads (5Ha) and conveyors/ service lanes (4Ha), which leaves 5Ha of rehabilitation being undertaken at any one time. For each of the approximately 26Ha stages approximately 21Ha will be 'open' which represents 15% of the entire site at any one time.

90. In terms of landscape character this 'progressive' approach to quarrying and rehabilitation is preferable to large areas of quarried land being left un-treated over the life of the quarry. However, over the proposed 40-year quarrying period a portion of the site will exhibit a quarry character and the overall character of the site will progressively shift from a 'typical' pastoral landscape to a rehabilitated quarry.

91. The greatest magnitude of change on rural character (and rural amenity as discussed in Section 4.2 below) will be at the beginning of the quarry operation, during the initial site preparation phase. Site preparation works are described in Section 4.2 of the AEE and include:

    - **Pit creation** – will occur within the identified 'initial extraction area' (Figure 7 of the AEE) and will involve the stripping of topsoil and excavation of overburden material to be used for the construction of bunds. This area will be located towards the middle of the site and will provide for the fixed processing plant.
    - **Bunds** – the topsoil and overburden from the initial extraction area will be used to form part of the proposed perimeter bund. The Applicant has stated that no additional imported material will be needed to progressively develop the on-site bunds. Perimeter planting will be carried out in parallel to the construction of the bund.
    - **Site access** – includes the construction of the heavy vehicle access road and associated landscape treatment in and around the access road. The image included as Figure 8 to the AEE illustrates a potential future appearance of the site access area. While the image no longer reflects the proposed quarry staging the configuration and treatment of the access way is unlikely to change as a result of the revised staging plan.

92. The timing and duration of these site preparation works are not described in the application. It is anticipated that it will take between 12 - 24 months to reach the stage where quarrying of Stage 1 is ready to occur. During this period there will be a significant shift in activity on the site, with excavators and trucks operating at existing ground level. Quarrying by its very nature is a 'busy' and invasive activity with the movement of heavy vehicles and extraction of materials introducing a dynamic and permanent change to rural (pastoral) landscapes that are often characterised by continuity and coherence in use and appearance (outside of seasonal change) and low levels of activity. As a result, **short term effects**

on rural character of the site will be high during the initial site preparation phase and the first stage of quarrying.

93. **Long term effects on rural character of the site will be moderate** due to the combination of changes to:

    1. **Topography** – the LVA acknowledges that *"the biggest effects will occur from permanent changes to the topography".* Despite the creation of irregular slopes and reinstatement of grass cover across the site the proposed earthworks are of significant scale and are irreversible – this represents a significant effect at the site scale.
    2. **Underlying Geology** – the productive capacity of rural land is highly dependent on underlying soil structures, geology and ground water resources. This is relevant to the consideration of landscape character as it relates to potential end use and the likelihood of the site being returned to pastoral use and therefore ensuring coherence with the surrounding rural landscape. Given the level of modification occurring to the site overtime it is likely that the underlying geology and soil structure will fundamentally change to the point that it is difficult to consider the viability of future land use (especially pastoral) with any real degree of certainty.
    3. **Vegetation removal** – while internal vegetation is limited and of little recognised ecological or heritage value, its removal still represents a change in the character of the site albeit of a very low degree of effect. The proposed perimeter planting and re-grassing of the site during rehabilitation will result in a low degree of positive effect.
    4. **Land use** – the site has historically been used for livestock grazing and more recently as a dog shelter. The site is most notable for its history as the highly regarded Roydon Lodge Stud. While this legacy is being recognised through the naming of the quarry the proposal represents a significant change in historical land use and will eventually include the complete removal of the physical elements associated with the sites recognised historical values. As mentioned previously the development of the rehabilitated site for residential/ lifestyle purposes at the end of the 40 year quarry period is considered unlikely given the resulting experiential quality of the site.
    5. **Built form** – there is currently a small enclave of 6-8 buildings[20] located approximately 300m from the Jones Road and Curraghs Road boundaries. Based on the proposed staging plan there is potential for these buildings to be retained up to the commencement of Stage 5 of the quarry. The introduction of permanent plant on the site means that there will be an increase in built form for the majority of the 40-year quarry timeframe, although the site will retain a relatively low level of building density.
    6. **Bunds** – are not entirely foreign in the rural environment and tend to be associated with residential development adjacent to SH1 (e.g. Rolleston), stop banks adjacent to waterways and quarries. There are no bunds of the size and scale proposed in the surrounding local rural landscape[21] and while shelterbelts are a significant part of the compartmentalisation of the rural landscape, large scale bunds such as those proposed are not. Unlike planting of shelterbelts, the construction of the proposed bund is not permitted under the plan because it significantly exceeds *"a maximum volume of 5000m^3 per project*".[22]

[20] Houses, former horse stables and implement sheds.

[21] There are bunds of this scale around the Miners Road Quarry area.

[22] Selwyn District Plan. Part C. Rule 1.7.1.2(b)

7. **Heavy Vehicles** – plant and machinery working on site and trucks coming to and from the site will introduce an element of movement and industrialism to the site that doesn't currently exist. While the operation of heavy machinery is not uncommon in the rural environment (e.g. tractors, harvesters and trucks) the scale and frequency of heavy vehicles using the site represents a significant shift in character of the site.

4.2 Rural Amenity

94. The RMA defines amenity values as *"Those natural or physical qualities and characteristics of an area that contribute to people's appreciation of its pleasantness, aesthetic coherence, and cultural and recreational attributes"*.

95. The description of the existing environment provided in Section 3.1 – Existing Site Character of the LVA identifies a range of qualities and characteristics of the site and local rural landscape that contribute amenity values, namely:

- Flat open geometric fields
- Southern Alps backdrop
- A mix of expansive and compartmentalised views, the latter being due to extensive shelterbelt planting
- Homogenous (pastoral) land cover interspersed by largely exotic vegetation
- Highly variable built form, ranging from dwellings to ancillary structures with clusters of commercials

96. The receiving environment is described as having *"…a rural, open character but is undergoing a significant level of change with nearby residential and rural-residential development and infrastructure construction"*[23] While construction of the nearby Christchurch Southern Motorway is relevant in the consideration of the quality of the environment immediately surrounding the site, construction activities will be completed by February 2020 prior to the commencement of the proposed quarry works. Similarly, from an amenity point of view there is significant separation between the site and residential development in the wider landscape for that development to influence the experiential attributes of the site in an overly positive or negative way. This is not to say that elements such as roads and associated traffic movements do not detract from people's appreciation of the site and local rural landscape, especially when compared to more remote rural locations.

97. The view expressed in the s92 response appropriately describes the existing environment where it states: *"In terms of Amenity values…the receiving environment has a **medium sensitivity** to change".* (**Emphasis added**)

98. Those aspects of the proposal that have an impact on the rural amenity of the site and immediately surrounding environment include:

- **Pit creation – the initial extraction area and site access road will result in a low degree of effect on rural amenity**. The initial site works will involve excavators and trucks operating directly adjacent Jones Road. With this activity being at ground level and prior to the construction of the proposed bund travellers along Jones Road will have close and unimpeded views until the formation of the bunds and once heavy machinery drops below the finished bund height.
- **Bund construction** – as previously mentioned, the proposed bund is over 5000m in length and includes the placement of over 150,000m^3 of sub material and top soil. Given the separation of the bund and the presence of intervening shelterbelts adjacent to Maddison's Road, along Curraghs

[23] Page 11 of the LVA

Road and a short section of the Dawsons Road frontage the most visible sections of the proposed bund will be along Jones Road and the majority of Dawsons Road. The intention of the bund is to screen views into the site from local roads and a very small number of adjacent houses. This is an effective mitigation measure for screening future quarry activities especially as the floor level of the quarry lowers and visibility of heavy vehicles is limited to the proposed access road. The downside to the creation of the bunds is that they will be a highly visible, uncommon element in themselves and they will also impact on the existing open views across the site, which is an important characteristic of the rural environment and contributor to rural amenity. Over time the bunds will be screened by the perimeter vegetation, which will introduce a more typical rural element and aesthetic to the site. In the meantime, the construction of **the bunds will have a low to moderate effect on rural amenity**.

- **Heavy vehicle movements** – the generation of additional heavy vehicle movements has the potential to negatively impact the amenity of the rural environment particularly through the generation of additional noise. The impact that additional truck movements can have on people walking, cycling and/or horse riding in the road reserve is also relevant to rural amenity, as is the increased movement (or 'visual noise') of trucks when viewed from rural dwellings and properties. The proposal will generate an average of 800 heavy vehicle movements per day (i.e. one truck entering or exiting the site every 2 minutes) with a maximum of 1200 heavy vehicle movements in any single day (i.e. one truck entering or exiting the site every 1.2 minutes). The application sets out the anticipated distribution of heavy vehicles on the local road network with the vast majority (95%) travelling from the site, down the 500m stretch of Jones Road to the proposed roundabout and then onto SH1. With the existing shared path located on the southern side of Jones Road providing separation of pedestrians and cyclists from the carriageway and most heavy vehicles avoiding local residential dwellings **potential effects on rural amenity resulting from additional truck movements will be low**.
- **Planting and re-grassing** – will have a low degree of positive effect on rural amenity because they reflect the combination of homogenous pastoral land cover and perimeter shelterbelt planting that characterised and adds to the enjoyment of the rural environment.

4.2.1 Visual Effects

99. A detailed assessment of visual effects is provided in Table 2 of the LVA and the photographs provided in Appendix 1 to the LVA are useful in developing an appreciation for the visibility of the site.

100. The LVA appropriately assesses that **post-mitigation (i.e. bund establishment and vegetation maturation) visual effects of the proposal will be very low** due to future quarry works being entirely screened from view.

101. As discussed above there will be a higher degree of effect for people travelling along Jones Road (including rail) and Christchurch Southern Motorway overpass in the short term while the initial site establishment and bund construction is being undertaken and while plants establish. These **short-term visual effects will be low to moderate in degree** and will be the result of trucks and excavators being highly visible while the access road is formed; pit is excavated; and bund is being constructed and exhibiting a somewhat 'raw' appearance prior to grass strike and increasing screening by the proposed perimeter planting.

4.2.2 Summary of Rural Character and Rural Amenity Effects

102. The post-mitigation/ rehabilitation effects on:

- **Rural character** – are considered to be high in the short term and moderate in the long term.

- **Rural amenity** – are considered to be low to moderate in the short term and very low in the long term.

103. On balance the **landscape and visual effects of the proposal are considered to be low** albeit at the upper end and trending towards moderate. With reference to the continuum applied in the LVA and discussed in Section 3.6 above this represents a minor to more than minor landscape and visual effect.

104. Sections 3.2 and 3.5 of the LVA concluded that the effects on both rural character and amenity were less than minor, denoting a very low degree of effect.

4.3 Relevant Policy Response

105. The relevant Objectives and Policies of the District Plan are set out in Section 2.8.

106. There will be significant short-term effects on rural character, however in the medium to long term these effects will be mitigated. With specific reference to Policy B3.4.3 the long-term, post-mitigation/ rehabilitation effects on amenity values will be very low and the proposal is therefore consistent with the relevant objectives and policies despite there being fundamental shift in the overall appearance and use of the site over the 40-year life time of the proposed quarry.

5 Conclusions

107. The proposal is to construct and operate an aggregate quarry on the 170Ha rural site, located on the corner of Jones Road and Dawsons Road in Templeton.

108. The existing site is considered 'typical' pastoral land characterised by pasture grass, a patchwork of rectangular paddocks, small number of buildings, low levels of scattered vegetation and open views across the site to the landscape beyond. The site does not have any distinguishing physical characteristics but has some shared and recognised values as the former location of a well-regarded horse stud – Roydon Lodge Stud.

109. The proposal will involve the extraction of aggregate over a period of 40 years. Quarry activity will be staged over this time and following initial establishment works to form site access and a central fixed plant area, quarrying will be staged in an anti-clockwise fashion starting with the south-eastern section of the site (i.e. corner of Jones Road and Dawsons Road) and finishing in the southwestern section of the site (i.e. corner of Jones Road and Curraghs Road). Each stage will include 26Ha of land of which 5ha will be open excavation followed by 5Ha of restoration including recontouring, spreading of top soil and grassing of the quarry floor, which will be approximately 9m below existing ground level.

110. The proposal includes the construction of a 3m high, 15-16m wide bund around the entire perimeter of the site. This bund will be approximately 5.2km long and will require approximately 150,000m^3 of material sourced on site. Perimeter planting is proposed in addition to and directly adjacent to the bund. Again, this planting will occur around the entire perimeter of the site and will include a mixture of exotic and native plants totalling 2,625 trees and 14,040 plants respectively. With the planting being implemented in tandem with the bund, Stage 1 quarrying will not commence until both construction of the bund and establishment of all planting is achieved. It is anticipated that this work will take 12-24 months to complete subject to availability of plants and planting seasons.

111. The **short-term effects** of the proposal are considered to be low to moderate for rural amenity and high for rural character, predominantly as a result of construction and establishment works.

112. The **long-term effects** of the proposal are considered to be very low for rural amenity and moderate for rural character, predominantly as a result of significant landform modification and fundamental change to the appearance and use of the site over the 40-year quarry operation.

113. 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. While the planting of approximately 14,000 native plants is a positive effect of the proposal it is not considered to represent a significant contribution to the enhancement of indigenous habitat in the wider rural landscape.

114. The proposal also includes rehabilitation of the site including recontouring, top soiling and re-grassing the flat base and sloping sides of the quarry pit. Taken together the proposed perimeter planting and rehabilitation will result in a low degree of positive effects on rural character and amenity.

115. Perimeter planting and re-grassing aside, the proposal does not include any additional enhancement/ betterment of site and as a result there will be no additional positive effects on rural character and amenity. This is a significant lost 'end use' opportunity for the site.

116. The LVA provided with the application is generally consistent with accepted industry practice. On balance and taking into account the continuum applied in the LVA as discussed in Section 2.6, the **landscape and visual effects of the proposal are considered to be low** albeit at the upper end and trending towards moderate.