

IN THE MATTER OF

The Resource Management Act 1991

AND

IN THE MATTER OF

Proposed Plan Change 60 to the
Wairau/Awatere Resource
Management Plan

SECTION 42A REPORT

INTRODUCTION

1. My name is Paul Whyte and I hold the qualification of Bachelor of Town Planning from Auckland University. I am a full member of the New Zealand Planning Institute. I have practiced in the field of resource management and planning since 1984 primarily working for both local government and planning consultants in Dunedin and Christchurch. Currently I am Senior Planner (Associate) in the Christchurch office of Beca Carter Hollings and Ferner (Beca).
2. This report has been commissioned by Marlborough District Council (MDC) in accordance with Section 42A of the Resource Management Act 1991 (RMA) and relates to Proposed Plan Change 60 to the Wairau/Awatere Resource Management Plan (WARMP). This plan change is a private plan change submitted by Kapiti Views Trust.
3. The plan change was received by MDC in May 2011. A request for further information was sent to the applicant in July 2011 with a response received in November 2011. The application was publicly notified in May 2012.
4. This report covers the following matters:
 - The plan change proposal
 - Description of the site and locality.
 - Submissions and further submissions.
 - Statutory framework.
 - Assessment of issues
 - Section 32 considerations
 - Marlborough Regional Policy Statement
 - Conclusion and recommendation.
5. The Section 42A report is supported by the following specialist reports/memorandums:
 - Review of Landscape by Boffa Miskell-attached as Appendix A
 - Geotechnical Assessment by MWH-attached as Appendix B
 - Wastewater Assessment by Ian Gunn-attached as Appendix C
 - Flooding and Stormwater Issues by Brin Williman and Brett Walker, MDC-attached as Appendix D
 - Transport Assessment by Marlborough Roads (division of NZTA)-attached as Appendix E

THE PLAN CHANGE PROPOSAL

6. Proposed Plan Change 60 (PC60) is a privately requested change to the WARMP made under Part 2 of the First Schedule of the RMA. The applicant is Kapiti Views Trust who propose to rezone an area of approximately 50 hectares (ha) from Rural

4 to a new zone to be called Maxwell Hills Zone (MHZ). The site is located in the Taylor Valley at the intersection of Taylor Pass Road and Maxwell Pass Road and is legally described as Lot 1 DP 35714 and Lot 1 DP 9518 contained in Identifier 232445, and Section 2 SO 7014 contained in Identifier MB5A/644.

7. Figure 1 shows Planning Map 185 of the WARMP with the proposed new zoning.

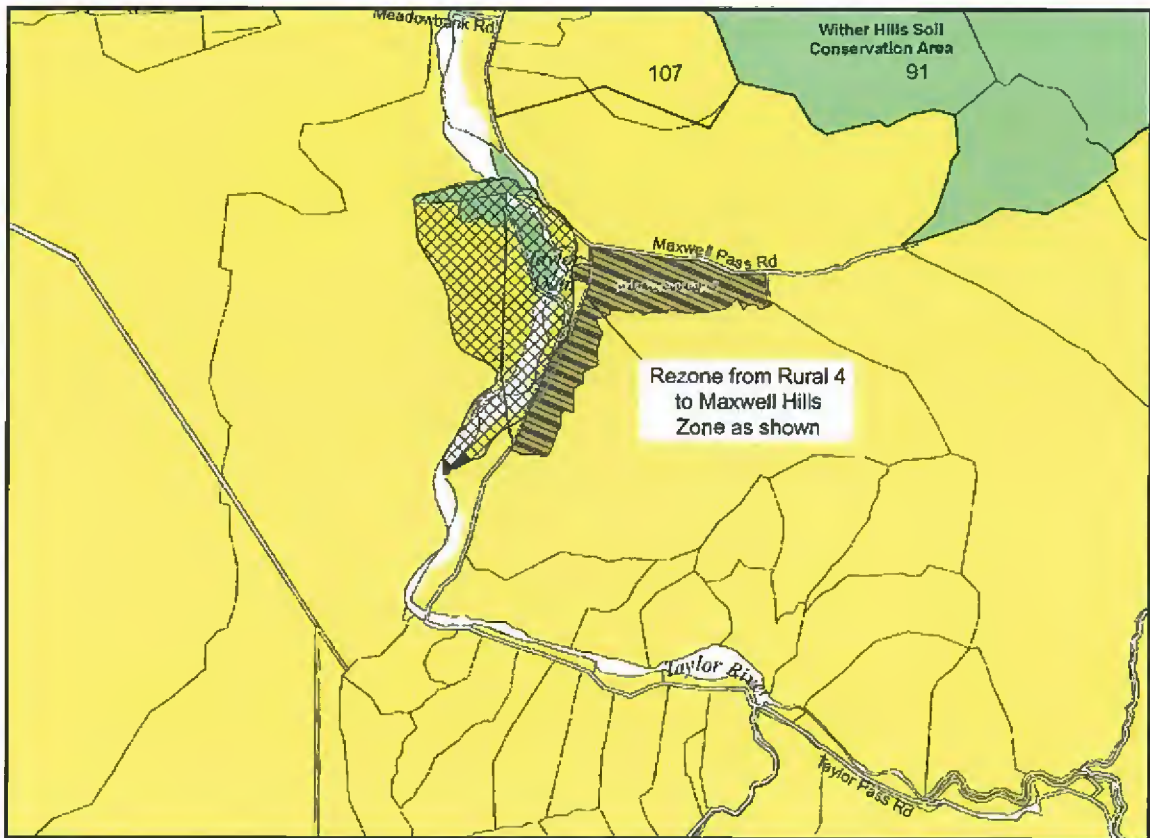


Figure 1

8. The plan change states the MHZ will enable the creation of approximately 160 residential lots ranging in area between 2,000m² and 4,000m². The specified minimum and average subdivision standards are 2,000m² and 2,400m² respectively in the MHZ.
9. The applicant describes the zone as “rural-residential development” or “large lot residential development”. In my view the latter term is more appropriate given the existing Rural Residential Zone in the WARMP has a minimum subdivision area of 4,500m² and an average of 1ha and the difficulty of establishing rural activities on the site areas envisaged in the plan change.
10. The zone is located on the eastern side of Taylor Pass Road except for a small “utilities area” on the other side of the road. The zone is L shaped in which the frontage to Taylor Pass Road is approximately 1200m in length and the frontage to Maxwell Pass Road approximately 900m in length. The zone has a depth of approximately 300m from the respective road frontages to the rear zone boundary. The zone is approximately 70m above sea level at the road frontage and rises to a height of approximately 100-110m above sea level at the rear zone boundary.

11. A proposed reserve area and cycle and pedestrian links are shown on an Outline Development Plan (ODP) on the western side of Taylor Pass Road adjacent to the Taylor River. However the area is not included within the MHZ boundaries but the applicant has submitted that the reserve and associated features will be able to be implemented at the time of subdivision because of the reference to them in the ODP. However I note the site will remain Rural 4 and subject to these zone provisions rather than the MHZ.
12. The applicant submits the MHZ is to enable an increased choice for rural residential living close to Blenheim and differs from other rural residential zones in proximity to Blenheim in that it will be located in an "enclosed valley and hillside environment" and at "a lower density form of residential development than currently found in Blenheim, but not as low as that provided for in the existing rural residential zones in the Plan."
13. In terms of services water will be reticulated to the site and wastewater disposed of to land outside of the zone after treatment by a plant that is proposed to be located on the utilities area referred to above.
14. The applicant notes the MDC addressed rural residential development in the Rural 3 and 4 Zones of the WARMP by way of Variation 38 in 2006 but that this variation was subsequently withdrawn by MDC in August 2007. I understand that among the reasons for the withdrawal was that a review of the Marlborough Regional Policy Statement (MRPS) was underway and a review of the WARMP was also likely within the short term which would address the issues raised in Variation 38. I also understand the above documents will be publicly notified next year.
15. The MHZ is a "stand alone zone" with its own objectives, policies and rules (although there is cross reference to some of the WARMP rules, including subdivision) which will be contained in a new Appendix R. It appears reference to the new zone in the plan will only be by way of the WARMP map legend which provides for direct reference to "Appendix R". There are no changes proposed to existing objectives, policies or rules.
16. The proposed objectives and policies of the MHZ which provide the framework for the zone are as follows:

Objectives and Policies

Objective 1.1 An environment that provides a sustainable and alternative choice for residential living for the community while avoiding and mitigating any adverse effects on the amenity values and characteristics of the surrounding rural environment.

Policy 1.1 Provide for the establishment of a residential hills environment through zoning land at Maxwell Hills for very low density residential activity.

Policy 1.2 Ensure that all building development within the Maxwell Hills Zone avoids areas subject to hazards, unless those hazards can be sufficiently mitigated.

Policy 1.3 Provide for the maintenance and enhancement of the amenity and visual character of the locality through sensitive landscape planting, building densities, and building design.

Policy 1.4 Provide for a range of small scale non residential activities in conjunction with residential activity to facilitate the social, economic, and cultural well being of the community while avoiding and mitigating adverse effects on the environment.

Policy 1.5 Encourage opportunities that will create a more sustainably focused residential environment to that found in traditional residential environments within the District, including but not limited to enabling increased use of solar energy, cycling and pedestrian activity

17. There are a variety of rules relating to activities, height, density, site coverage, hazards, earthworks, services etc proposed as part of the MHZ. A number of the rules utilise existing provisions in other zones of the WARMP although it appears "building design" is not specifically controlled notwithstanding Policy 1.3. Subdivision is a controlled activity and the proposed wastewater treatment plant and the discharge of treated wastewater (although this will be largely outside the zone) are limited discretionary activities.
18. All development including subdivision is to be in accordance with the ODP referred to above (Rules 2.22.1.1 and 2.7.2 1(b)). The ODP is in 2 parts (Part A and Part B) and shows among other features:
- The zoned area
 - A road network
 - A reserve area between Taylor Pass Road and the Taylor River
 - Cycle and pedestrian links and esplanade strip
 - Stormwater ponds and a utility area.
 - Flood lines and flood avoidance bund

Development not in accordance with the ODP (leaving aside the argument whether the ODP is an activity) is a discretionary activity (Rule 2.4.1).

SITE AND LOCALITY

19. As indicated above the site is located on the corner of Taylor Pass Road and Maxwell Pass Road. It is approximately 7 km from Blenheim's central business district and 2.5km to the nearest urban boundary. The area of development is generally located on the flatter and lower eastern slopes of the Taylor River Valley and is currently grazed by stock. The locality can be described as an enclosed landscape with the surrounding dissected hills rising to approximately 200m-300m above sea level. The catchment is drained by the Taylor River and the Taylor Dam (which acts as a flood control mechanism) and associated amenity area is located approximately 300m from northern boundary of the MHZ.
20. The surrounding landuses are rural in nature comprised in grazing and some forestry which is generally located to the south of the proposed zone. Vineyards have also been established on some of the adjoining sites. While properties tend to be extensive in area there are approximately 15 lots ranging in area from 18ha - 20ha located approximately 2-3km from the site along Taylor Pass Road as it climbs to the pass. A number of these allotments have dwellings situated on them.

21. The site and locality is zoned Rural 4 in the WARMP. Permitted activities in this zone include farming and commercial forestry. The minimum subdivision area in the zone is 20ha with one dwelling per certificate of title allowed as a permitted activity. An existing "Flood Hazard Overlay" on Planning Map 185 is shown over a small part of the subject site and which is understood to relate to the attenuation role of the Taylor Dam.
22. Taylor Pass Road is classified as a Local Road in the WARMP. The road provides an access to the Awatere Valley and I understand the road will be a major route for the transportation of logs when forest plantations in the Wither Hills vicinity are harvested in approximately 10 years. . The report from Marlborough Roads (attached as Appendix E) indicates the road is likely to be upgraded to "Collector" status as a result of increased traffic on the route from the proposed development.
23. Maxwell Pass Road is also classified as a Local Road. The road is formed for approximately 1.5km from the Maxwell Pass Road/Taylor Pass Road intersection and provides access to two farms.

SUBMISSIONS AND FURTHER SUBMISSIONS

24. The application was notified on 17 May 2012 with submissions closing on 15 June 2012. A summary of submissions was notified on 27 June 2012 and further submissions closed on 12 July 2012. A total of 11 submissions and 5 further submissions were received. A list of submitters and further submitters and my recommendations on the submissions are attached in Appendix F.
25. In respect of the submissions received, 9 were opposed to the plan change, 1 submission was in support and 1 submission neutral. The Upper Taylor Pass Residents' submission represents 16 landowners. The five further submissions received were generally in support of the opposing submissions. The main issues raised by submitters in opposition are as follows:
 - Reverse sensitivity effects as it relates to logging operations and farming operations
 - Concerns relating to erosion, stormwater control, wastewater disposal and water supply
 - Loss of rural amenity
 - Visual impact
 - "Spot zoning" of the proposal
 - Traffic effects particularly as it relates to the upgrading of Taylor Pass Road for logging traffic
 - Inconsistency with Southern Marlborough Urban Growth and Development Strategy

STATUTORY FRAMEWORK

26. Section 74(1) of the RMA states Council shall change a district plan in accordance with its functions under Section 31 of the Act, Part 2 of the Act, Section 32 of the Act and any regulations (although it is acknowledged MDC is a unitary authority and the WARMP is a combined plan and therefore regional functions may also be relevant). In changing a plan, regard must be had to any strategies prepared under other Acts (section 74(2)(b) of the Act) and effect must be given to a regional policy statement (Section 75(3) of the Act).
27. Section 32 of the RMA, in achieving the purpose of the Act, requires consideration of alternatives and the costs and benefits of a proposed change to the district plan. Section 32 states, among other matters, that an evaluation of a plan change must examine the extent to which each objective is the most appropriate way to achieve the purpose of the Act, and whether, having regard to efficiency and effectiveness, the policies, rules or other methods are the most appropriate for achieving the objectives.
28. Clauses 21 – 29 of the First Schedule to the RMA set out the process for a private plan change. An assessment of effects is required under Clause 22(2). The Council's decision making powers in relation to a plan change are stipulated in Clause 10 and Clause 29 of Schedule 1 of the RMA. Clause 29(4) provides that after considering a plan change request, Council may "decline, approve, or approve with modification" the request, although my understanding is that changes must generally be in response to submissions.

ASSESSMENT OF ISSUES

29. A number of issues are raised in respect of the plan change as follows:

Southern Marlborough Urban Growth and Development Strategy (SMUGS)

30. Some of the submitters have raised the issue that the MHZ is not in accordance with SMUGS. This strategy was initiated in 2009 by MDC utilising the provisions of the Local Government Act 2002. The strategy is intended to guide future policy direction so that growth can be accommodated in a sustainable manner. The strategy is intended to inform various MDC documents including the RPS and resource management plans and forms part of the review referred to when Variation 38 was withdrawn. The strategy identifies growth options for a number of Southern Marlborough settlements including Blenheim. The Growth Strategy was notified in May 2010 and submissions called for in relation to its provisions.
31. The MHZ site (or the Kapiti Views development as it was known) was one of twelve areas assessed for future growth of Blenheim. The site scored the lowest of the twelve sites and scored poorly for community, activity centre and transport. The Growth Strategy has undergone an extensive consultation process including public meetings, focus groups, design workshops and public submissions. In April 2011 MDC rejected the Kapiti Views development as an option because it was not within the scope of the strategy (in relation to its proximity to Blenheim).
32. Section 74(2)(b)(i) of the RMA states that in changing a plan a territorial authority "shall have regard to" any management plans and strategies prepared under other Acts. In this case the strategy is prepared under the Local Government Act but has not been finalised. It is now understood that MDC has resolved that the area to the north west of Blenheim is the preferred growth area including provision for large lot

residential development. These areas are now being investigated for liquefaction potential. I understand that Council hopes to adopt the strategy fully in early 2013.

33. In a previous decision on Plan Change 59 (dated 31 July 2012) the Commissioners, in commenting on the status of SMUGS, noted that the document is a relevant study that can be taken into account but that its usefulness can be limited by not going through the RMA Schedule 1 process. Accordingly, in my view some weight can be placed on SMUGS but clearly it is not the ultimate determinant of the plan change.

Loss of Productive Rural Land

34. The proposal will result in the loss of approximately 60ha which is currently farmed. There appears little scope for significant farming activities to be undertaken on the resultant residential lots. However the area is comparatively small in terms of the total district land resource and I understand that the site does not contain versatile soils. Accordingly this matter is not considered to be a major issue.

Landscape/Visual Amenity

35. A report was prepared by Chris Glasson Landscape Architects Ltd (CGLA) for the applicant in respect of landscape and visual effects. The report states that the development can quite easily assimilate into the valley landscape which is visually enclosed. The effects of the development when viewed from two specified viewpoints generally indicate the effects will be low to moderate and the impact will be softened over time as vegetation and planting matures. Overall, the site has a high absorption capacity.
36. The review of this report undertaken by Boffa Miskell (attached as Appendix A) essentially disagrees with the assessment undertaken by CGLA. The Boffa Miskell report states the site is considered to have high visibility within its valley setting and when viewed from several viewpoints the effects are moderate to high. The housing will dominate the intimate character of the valley and cannot be assimilated into the landscape.
37. Clearly the Commissioners will have to weigh these two opposing points of view. I note however that the development is largely hidden until the River Valley is entered. The MHZ appears to be of relatively large scale in the valley landscape with a significant frontage to Taylor Pass Road. While planting will assist in assimilating the development over time the urban nature of the proposal will nevertheless in my view result in a reasonable visual impact in a rural enclosed landscape.

Loss of Rural Amenity

38. A number of submitters have raised the issue of loss of rural amenity as it relates to such matters as visual impact, noise, traffic and air pollution. While the site is 2.5 km from the existing urban boundary, it appears the locality is nevertheless a rural one partly because of its enclosed nature, and is an environment that does not have significant urban influences. Given the introduction of a relatively large urban area into a predominantly rural area it is inevitable there will be some loss of rural amenity.
39. There are a number of landowners (approximately 20) in the Taylor Pass vicinity in proximity to the site although some of these do not have a direct view or directly

adjoin the subdivision (such as some of those properties on upper Taylors Pass Road). The loss of rural amenity will not be as significant in these cases, although it is noted the landowners will be aware of the presence of the MHZ given its location adjacent to Taylor Pass Road. Overall, I believe there will be a moderate detraction from rural amenity.

Reverse Sensitivity

40. The submissions raise reverse sensitivity effects relating to existing farming and forestry operations in respect of such matters as of hours of operation, noise, dust, fire risk, stock management and health and an increase in logging traffic. The applicant does not appear to have directly addressed this matter, although there are some rules in the WARMP relating to spray drift, frost fans and commercial forestry setbacks (100m from a residential unit). The MHZ is also part of a larger holding owned by the applicant which may provide a buffer (but which could change in the future with different ownership).
41. However given that a relatively large urban area will be placed into what appears a traditional farming area and based on complaints in respect of this matter in other areas it appears there is potential for reverse sensitivity effects. The MHZ is not an extension of an existing residential zone into the rural area in which there is an established urban/rural interface.
42. One of the submitters (Nelson Forests Ltd) has suggested a "Rural Activities Easement" as a means of reverse sensitivity mitigation which I assume is similar to a "no complaints covenant". I understand this type easement of is able to be imposed legally (provided the applicant agrees) although in my view there is some doubt as to whether it represents an effective mitigation measure.

Traffic

43. Traffic effects by the applicant are analysed in a report from Traffic Design Concepts. The report notes that both Taylor Pass Road and Maxwell Pass Road and the wider roading network have ample capacity to accommodate increased traffic from the proposed development. While some of the proposed intersections do not meet the minimum safe intersection sight distance (SISD) the report concludes that given the low speed environment and compliance with the required stopping distances the intersections can be safely implemented.
44. The Marlborough Roads report (attached as Appendix E) generally concurs with the above assessment but notes the requirement for road widening of Taylor Pass Road as a result of the plan change proceeding (and independent of logging traffic). The issue of upgrading contributions will be dealt with at the time of subdivision. The report also indicates that any intersection deficiencies can be overcome by appropriate design.
45. Overall, it appears that the road network is able to accommodate the development generated by the plan change in terms of capacity and safety.

Services

46. The plan change indicates that the water supply is likely to be from either Council's existing reticulated supply or will be sourced from groundwater at a site in New Renwick Road. MDC have subsequently confirmed in a letter dated 24 September 2012 (attached as Appendix G) that the development is able to connect to

Council's reticulated supply subject to conditions (although this does not imply approval of the plan change). The NZFS notes that given the distance from fire services dwellings should have sprinklers installed.

47. In respect of wastewater a report was prepared by Riley Consultants for the applicant. This determined the best method was an on site communal system in which each allotment will have an interceptor tank connecting to a pressure sewer. The sewer discharges to a communal secondary treatment plant (located on the utilities area) and then discharged via a drip irrigation network to four areas located beyond the MHZ (one on the river flats and three on the upper hills). The areas would be required to be planted out to improve evapotranspiration.
48. This report was reviewed by Ian Gunn (attached as Appendix C). Mr Gunn indicates that there is insufficient area available on the river flats to accommodate the irrigation fields to achieve adequate nitrogen reduction. However the report states there appears to be ample land available on the highland slopes for these purposes provided land with the least potential for slumping is utilised, eucalypts are planted and harvested and appropriate Design Irrigation Rates (DIR) are implemented. These matters should be confirmed by the applicant.
49. Risks identified by Mr Gunn include nutrient enrichment of groundwater and surface water and soil creep from irrigated areas. The report from MWH (attached as Appendix B) also highlights the issue of soil creep in effluent disposal areas. Mr Gunn identifies the key to the management of risks in respect of wastewater is the implementation of a suitable management structure although he accepts that there are precedents in place in New Zealand for a private management company.
50. Overall, it appears that the proposed wastewater system can be implemented although the Commissioners need to be satisfied on the points raised by Mr Gunn and MWH in their reports. Resource consents will be required for the disposal of wastewater.
51. In respect of stormwater Riley Consultants have proposed an indicative stormwater network in which a pipe network will collect flow from road and lots where possible. Lots that cannot connect to the pipe network will utilise soakage pits. The stormwater from the network will be conveyed to ponds and then to the Taylor River. Where stormwater exceeds the capacity of the network the road and defined corridors over private land will be secondary overland flow paths for up to a 1% AEP event. A number of mitigation measures are proposed during construction and post construction in respect of sediment and erosion control arising from the discharge of stormwater.
52. The stormwater report has been reviewed by MDC (see Appendix D) and by MWH (Appendix B). The MDC report notes that the a relatively large part of the site is in the "moderate" hazard zone and that the roading layout needs to be amended to better control stormwater in this zone.
53. The issue of the location of stormwater pits has also been raised in the report from MWH with the recommendation that these should not be located on loess/colluvium soils. This would appear to severely limit stormwater options for disposal to ground and the applicant needs to clarify the disposal of stormwater which will not go to a piped network.

Natural Hazards

54. In terms of instability and erosion Riley Consultants undertook an investigation of the site for the applicant. A number of active geotechnical processes are identified on the site and the upper slopes beyond the MHZ including rock fall and rock roll, shallow landslides, slump and soil creep, tunnel gulying and surface erosion. The report indicates that the site can be subdivided into 4 zones-low, minor, moderate and high hazards. Most of the MHZ is classified as low with the upper slopes generally minor or moderate. The report establishes that with an appropriate design, coupled with specific engineering requirements for dwellings in minor and moderate areas and "appropriate avoidance measures" suitable building platforms for development can be established on the site. In particular a further geotechnical report at subdivision stage would identify specific locations and recommend specific measures such as specifically designed foundations and remedial earthworks and drainage.
55. The Riley Consultants report was reviewed by MWH (attached as Appendix B). The MWH report identifies a number of matters as follows:
- The soils on site have symptoms over an extensive area of high erodability and dispersion in which the symptoms and extent have not been quantified by factual test data.
 - Rockfall is a potential risk to residences. While the Riley report states the residences are a sufficient distance away from any dislodged rocks resulting from seismic activity, MWH recommends that this is confirmed and that any rocks that could be potentially dislodged should be removed.
 - Slumps and soil creep extending over a number of allotments is difficult to control and maintain and that in such circumstances its use for residential activity is not recommended.
 - Tunnel gulying and surface erosion risk to properties has been underestimated and remediation by chemical stabilisation of dispersive loess on slopes greater than 12 degrees is required. The report notes the difficulty of identifying dispersive loess without laboratory tests and that land potentially affected may not yet show tunnel gully symptoms. Chemical stabilisation must be carried out correctly and may involve substantial earthworks beyond the MHZ zone.
 - Specific foundation design should be a requirement and even for slopes less than 12 degrees it must be established loess is non dispersive or appropriately remediated.
 - All cut batters and slopes need to be retained (rather than left exposed) and retaining walls designed with a filtered drainage system.
 - Dispersive loess and colluvium needs to be chemically stabilised when used as earth fill or a foundation or if it is part of a gully crossing.
 - Stormwater control is critical and soakage pits must not be in loess or colluvium.

- Geology on the hill slopes is generally not favourable for effluent disposal and such disposal should not be on dispersive soils or increase the net soil moisture content.
56. In terms of flooding Riley Consultants identify three possible sources of risk - overland flows from uphill parts of the site; overland flow from Maxwell Creek in flood and; impoundment of water behind the Taylor Dam and Taylor River when it is in flood. A number of mitigation measures are proposed to reduce the risk. In relation to overland flow engineered solutions, such as cut off drains and diversion bunds will be implemented. Building setbacks and building platforms and the implementation of an earth bund to divert floodwater will mitigate the effect of flooding from Maxwell Creek. It is calculated that Taylor Dam has sufficient capacity to accommodate increases in flow from the development site.
57. The MDC report on flooding (see Appendix D) notes the following:
- In terms of potential flooding from Taylor River the proposed section layouts (although not shown on the ODP) and minimum finished floor levels are acceptable
 - The proposed bund at Maxwell's Creek appears to satisfactorily mitigate the flood hazard from this waterway
 - The effects of stream floodwaters can be mitigated by aligning stream channels with property boundaries and road reserves
 - There are likely to be issues in controlling overland and gully flow by the proposed "sheet flow diversion bund" for a number of reasons
 - The remedial treatment for dealing with subsurface flows may not be adequate, particularly in terms of time lag
 - The practical experience of MDC in dealing with development on loessial soils has highlighted number of issues, including on going maintenance, which the applicant appears to have underestimated

Clearly there are a number of issues associated with flooding that are required to be addressed in greater detail if the proposal is to proceed.

58. The reviews identify that there are a potential number of issues associated with the site and upper slopes because of the highly erodible nature of the soils and calls into serious question the suitability of the site for the development. Without further information or confirmation it appears the site has a number of constraints that cannot be overcome without significant remediation works in which the practicality of such works is also open to question.

Operation and Maintenance of Services

59. In terms of the operation and maintenance of the services the applicant has suggested that if MDC do wish to undertake this role, a company comprised of landowners be formed to undertake this function. I understand that Council is reluctant to assume management of such services.
60. Given that the management regime will be responsible for a number of functions including the operation of a wastewater treatment plant and disposal of wastewater, (including the maintenance and harvesting of vegetation), water quality, stormwater

treatment, roads (?) and management of unstable areas within and outside the MHZ on an on going basis, the Commissioners need to be satisfied that such an entity is able to manage potential adverse effects that may arise.

Insufficient or Uncertain Information

61. Section 32 (4) (b) requires consideration to be given to the risk of acting or not acting if there is insufficient or uncertain information. The proposed zone rules contain standards relating to such matters as runoff and stabilisation and earthworks. Subdivision is a controlled activity in which Rule 28.2.5 (by way of cross reference) appears to control matters such as natural hazards (although not directly). Controlled activities cannot be refused consent and it appears this standard and the other standards referred to above may not be robust enough given the on site issues identified by the various specialist reports.
62. It is acknowledged the proposal is at the plan change stage and further investigation will occur at the subdivision and building stage. Subdivision could also be made a discretionary activity but the zone change would create the expectation the site can be subdivided and is suitable for development. Subdivision can also be refused under Section 106(1) of the Act on natural hazard grounds. However given the issues raised it is my view that the Commissioners must be satisfied now that the site is suitable for development and not rely on the Act or future zone rules to address natural hazard issues.

SECTION 32 CONSIDERATIONS

63. Section 32 of RMA requires an assessment as to whether each objective is the most appropriate way to achieve the purpose of the Act and whether the policies and methods are the most appropriate for achieving the objectives. In this respect the Plan Change does propose a new zoning with its own objectives, policies and methods and as such does represent a different direction for the type of development proposed. None of the existing objectives, policies or methods are proposed to be changed.
64. While the WARMP may or may not anticipate such an approach (and I note one of the submissions refers to a "spot zone approach" not being acceptable) this does not disqualify it from consideration as any zone change is likely to result in differences with a plan given that it is a change. However my understanding is the capacity of the provisions of the change to "live" with the existing plan in terms of overall consistency is a matter for consideration. Before considering whether the plan change better achieves the purpose of the Act it is useful to consider the most relevant provisions of the WARMP in respect of this matter as set out below.

Chapter 5 Landscape

65. Objective 1 refers to the protection of outstanding features from inappropriate development, use and development but in the explanation goes onto state the objective also applies in general to other areas, particularly when a moderate or large scale activity is proposed, which appears to be the case here. Policy 1.9 is to "avoid sprawling or sporadic subdivisions for residential activity outside areas already occupied by residential settlement".
66. On the other hand Objective 2 is to provide for appropriate development within areas not identified as outstanding natural landscapes. However the objective goes onto state that within certain landscapes many "special places," or landscape

character exist, which while sensitive to development, do not have the same values as outstanding landscapes. Change in special places may be “appropriate but needs to be carefully handled”. Taylor Pass and the Wither Hills are identified as “special places” under Objective 2 and are shown on Planning Map 217. Outside of these areas “the landscape is less sensitive to change”. On the other hand the table on pages 5-2/5-3 indicate that Taylor Pass (as part of the Wither Hills) has medium visual quality and medium landscape sensitivity and the Taylor River Valley has medium visual quality and low landscape sensitivity.

67. Policy 2.4 is to encourage rural residential settlement in areas outside of the Rural 3 zone provided they are contained, retain rural character and do not lead to “suburbanisation” of the rural environment.

Chapter 11 Urban Environments

68. The applicant describes the site as either rural residential or large lot residential development. As indicated above the latter description is more appropriate in my view and as such Chapter 11 is of relevance.
69. Objective 1 and the accompanying policies relate to the existing and future residential environments. In respect of Blenheim the policies appear to promote the accommodation of building within the current boundaries (Policy 1.1); lower density residential uses at the Blenheim urban periphery to provide for a transitional environment between expected urban and rural amenities (Policy 1.3) and the extension of existing areas for urban growth to achieve a compact urban form (Policy 1.5). Specific reference is made to the “former Blenheim Residential 1 Special Zone” (Appendix H1) on the periphery which has a minimum subdivision area of 3,000m².
70. Objective 2 and the supporting policies relate to the suitability of locations for residential development including the avoidance of development subject to natural hazards (Policy 2.1) and on the productive capacity of soils (Policy 2.7). The Explanation recognises that the expansion of urban areas may inevitably need to be accommodated in rural areas where it immediately adjoins existing towns/townships.
71. Objective 5 and the associated policies relate to the provision of services to ensure community health standards are maintained and enhanced by ensuring there is adequate water supply and wastewater and stormwater disposal.

Chapter 12 Rural Environments

72. Chapter 12 is also of some relevance as the Rural Zone provisions anticipate provision will be made for rural residential development in Chapter 12.5, although at a much lower density than proposed by PC60. New locations will be considered where issues in respect of existing rural activities, landscape, land stability and servicing are satisfactorily addressed (refer Objective 12.5.2 and associated policies).

Chapter 19 Land Transport

73. The objectives and policies of Chapter 19 relate to land transport and generally seek to address potential effects and protect and build a hierarchical roading network.

Chapter 17 Natural Hazards

74. Chapter 17.5. relates to landslide/soil erosion and identifies residential sites in the Wither Hills as potentially affected. Objective 2 and related policies refer to the avoidance of activities that could exacerbate land instability.

Chapter 23 Subdivision and Development

75. Objectives 1 and 2 associated policies under 23.2.1 and 23.3.1 relate to consideration of natural hazards and significant natural features during development. Objective 1 and associated policies under 23.4.1 relate to the subdivision design and consequent activities and the need to take account of among other matters rural amenities, potential conflict between rural and urban activities, the character of the rural area and soil conservation.

Summary of WARMP provisions

76. In general the WARMP provides for residential and rural residential development in particular circumstances. It appears the WARMP envisages that large lot residential development is better placed on the periphery of urban areas and does not envisage a 2.5km separation distance from the boundary as is the case here. I also note that some of the existing Rural Residential Zones (with a required average area of 1ha) are attached to the existing Blenheim urban area (eg Dry Hills and Battys Road) although there is no plan requirement for this.
77. While the Landscape provisions are not entirely clear it appears to me that the MHZ will not necessarily achieve the relevant objectives given that it represents "sporadic development" and "suburbanisation" in a "special place" given the extent and density of development. The proposal will be inconsistent with the Natural Hazard provisions unless the Commissioners are satisfied on the practicality of the various remediation and mitigation measures proposed.
78. Overall in my view, the degree of inconsistency with the WARMP is such that the proposal is not an easy fit with the existing plan in all cases.

Part 2 of the Act

79. As indicated above Section 32 requires the new MHZ objective (and associated policies) to be assessed in terms of Part 2 of the RMA as to its appropriateness. The zone is a new stand alone zone. The provisions of the zone will enable people and communities to provide for their social and economic wellbeing persons by providing a residential lifestyle on larger lots in a rural setting (Section 5 (2)). It appears while this type of living may be able to be accommodated in the existing plan framework it is not explicitly provided for.
80. However in respect of Section 5(2)(a)-(c) matters I believe there is considerable doubt as to whether the life supporting capacity of the soils will be safeguarded given the erosion, flooding and landslip effects that may arise as a result of the development. Clearly this would affect the health and safety of the community.
81. As such there is uncertainty as to whether the adverse effects arising from the instability of the site can be remedied or mitigated and some doubt in respect of wastewater disposal. It is also apparent that the proposal will have at least some

adverse visual impact given its location and setting in this particular landscape that cannot be satisfactorily mitigated. Other rural amenity values could also be affected by more concentrated noise, traffic and light effects. The location of an urban node into a rural area is likely to at least result in some reverse sensitivity effects. The imposition of no complaints covenants may be a mitigation tool but does highlight this as an issue which may arise.

82. In terms of other Part 6 matters, the proposed reserve adjacent to the Taylor River, which is likely to be wider than a required esplanade reserve, may assist to preserve the immediate natural character of the river and its margins, although the development when viewed in a wider context is likely to affect the naturalness of the river. Public access to the Taylor River is however likely to be enhanced. In terms of Section 7 matters amenity values and the quality of the environment may not necessarily be maintained and enhanced.

MARLBOROUGH REGIONAL POLICY STATEMENT (RPS) AND OTHER MATTERS

83. As indicated above a plan change must give effect to the operative RPS. The RPS is a relatively broad brush document that does not address issues such as urban growth directly. Given potential adverse effects identified in respect of such matters as landscape, natural hazards and amenity values the plan change is unlikely to give effect to these matters.
84. There do not appear to be any relevant national policy statements in respect of the application.

CONCLUSION

85. Overall, I am of the view that the proposal does not satisfy the necessary statutory requirements. In particular, the purpose of the Act will not be better achieved by the plan change. While it will enable a section of the community to provide for their wellbeing I do not believe the matters in Section 5 (2) (a)-(c) will be met particularly having regard to the erosion potential and visual impact. Servicing of the site also does not appear straight forward and at this stage there is some uncertainty in respect of effects.
86. The proposal is also not necessarily an easy fit with the WARMP given its policy direction in respect of residential development and other provisions such as those relating to landscape and natural hazards. There are also potential issues in respect of long term effects relating to on going operation and maintenance of services. As such the site does not appear suitable for the proposed development.
87. Accordingly, the plan change is not the most appropriate for achieving the purpose of the Act and the WARMP is best left unaltered at this stage. The existing provisions better meet the purpose of the Act than the plan change. I also note a comprehensive review of MDC planning documents is underway with public notification proposed next year which will address matters of large lot residential development in a comprehensive manner.
88. If the Commissioners are of a mind to approve the plan change the provisions relating to the management of natural hazards are likely to require amendment.

RECOMMENDATION

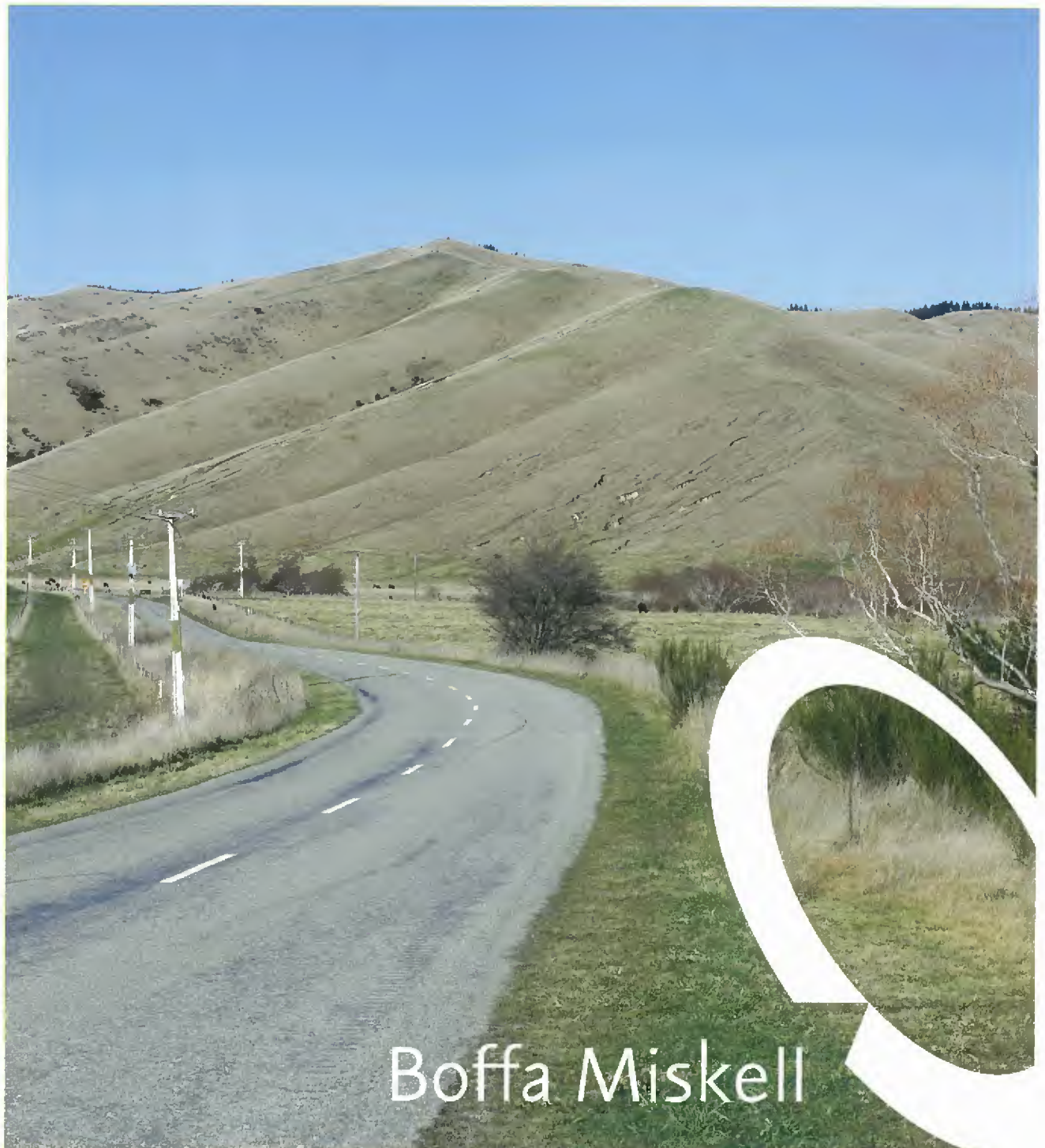
89. For the reasons above I recommend that the Commissioners decline Plan Change 60.

Appendix A

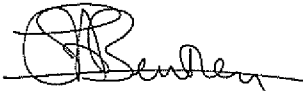

Proposed Plan Change 60

Review of Landscape Assessment
Prepared for Marlborough District Council

25 October 2012



Document Quality Assurance

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| Reviewed by: | Yvonne Pfluger Principal Boffa Miskell Limited |  |
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Appendices

Landscape and Visual Amenity Assessment Graphic Supplement

1.0 Introduction and Background

Boffa Miskell Ltd (BML) was commissioned by Marlborough District Council (MDC) in 2011 to review the landscape and visual related material that accompanied the Assessment of Effects (AEE) for the Maxwell Hill subdivision (by Kapiti Views Trust) on Taylor Pass Road, near Blenheim (referred to within this report as 'the Site'). Specifically, BML reviewed Appendix D – Landscape Assessment (and supporting graphic material), prepared by Chris Glasson Landscape Architects, and dated 21 February 2011. For the purposes of this report, this reviewed report will be referred to as the 'Landscape Assessment'.

1.1 The Proposal

The Proposal by Kapiti Views Trust is to rezone approximately 50 hectares of predominantly flat, though gently rising valley floor land from Rural 4 into a new zone entitled 'Maxwell Hill Zone'. This zone would contain its own unique Objectives, Policies and Rules and accommodate up to 160 lots ranging in size from 2,000m² to 4,000m², with an average size of 2,400m.

The subdivision will be planted using suitably adapted plant species which will thrive in the dry environment. Exotic vegetation is proposed as street amenity planting and native vegetation will be utilised in riparian areas. Reinstatement of dry vegetation ecosystems will also be encouraged, as will planting which will provide privacy, shelter and shade. Building heights will be limited to 8m (as opposed to 10m under the Rural 4 zoning) and the use of muted, natural and earthy colour schemes for buildings will be recommended, to avoid incongruous colours of the landscape.

It is understood that the proposal will provide for recreational opportunities, linking to existing recreational routes and areas. Such an opportunity lies with a proposed extension of the Taylor Dam Reserve through an initiative with MDC.

1.2 Background

The following reports were referred to in the preparation of this report:

1.2.1 Marlborough Landscape Study 2009: Background

BML was engaged by MDC in 2008 to prepare an updated Landscape Study for the region, as part of MDC's review of the Regional and District Resource Management Plans. As part of the review, BML assessed the landscapes within the entire region using updated and current best practice methodologies to identify Outstanding Natural Landscapes and Features (ONFLs) (Section 6(a) matters) and Visual Amenity Landscapes (VALs) (Section 7(c) matters).

Although the majority of this work is complete, the report remains confidential. BML is currently working with MDC to consult with affected landowners and the public regarding ONFLs and VALs. It is anticipated that the consultation process for the landscape study will conclude around the end of this year

(2012). Changes may occur to the delineation of ONFLs and VALs through the course of the consultation process. A revised version of the Marlborough Landscape Study will be prepared early next year as a result of the consultation process.

Although subject to change, the Site does not fall within any proposed landscape overlay at the moment.

1.2.2 Southern Marlborough Urban Growth and Development Report

MDC engaged consultants Urbanismplus to assist them in developing a strategy designed to provide a comprehensive and integrated planning context when the council makes decisions about the future growth of the area immediately around the urban limits of Blenheim. MDC went through a consultation process in 2010 regarding growth options for Blenheim and identified a number of ways where residential growth could be accommodated. Of the four ways (to subdivide existing lots; redevelop existing sites; brownfield development and greenfield development) MDC considered that the most efficient approach would be residential intensification. MDC also acknowledged that there are limits to this approach, however any new growth areas, such as greenfield development need to consider both employment and rural zone implications.

Of the Greenfield options, twelve sites were selected. The Maxwell Hills subdivision Site was included within this selection. All sites, apart from the Maxwell Hills subdivision Site about the urban limits of Blenheim. The twelve areas were grouped and rated in regard to numerous topics discussed through a number of workshops by the Assets and Services Group. These topics included the suitability of developing an area in relation to ecology, community, open space, soils, landscape character, activity centres, employment, stormwater, transport and infrastructure.

As preferred outcomes six areas were rated highly for their potential to accommodate residential activity. These areas are located immediately to the west, north and east of Blenheim. The Maxwell Hills subdivision Site scored the lowest of the twelve sites, and scored particularly poorly for community, activity centre and transport.

It is understood that while some decisions have been made the strategy is not finalised.

1.2.3 1996 Wairau Awatere Landscape Assessment

This assessment was completed in 1996 and undertaken by BML to assist MDC in their review of the landscape part of their Wairau Awatere Resource Management Plan (WARMP). The Chris Glasson Landscape Assessment makes reference to this report. The assessment was undertaken approximately 16 years ago, and it is envisaged that the Landscape Study undertaken in 2009 will essentially replace this assessment, however it is still applicable.

2.0 Site Location, Context and Character

2.1 Site Location

The proposed development Site (referred to as 'the Site' throughout this report) is located within the Taylor River valley, a relatively slender valley, contained within the undulating grassy dry hills approximately 7km south from the centre of Blenheim. The Site is approximately 'L' shaped and occupies the bottom western and northern slopes of a steeply rising grass-covered hill. The Site borders Taylor Pass Road to the west, which extends southwards from the open flat Wairau Plains, through the dry hill country and into the Awatere Valley. To the north, the Site abuts Maxwell Pass Road, a short road leading to two homesteads, namely Maxwell Pass and Homebrook. The Site and its immediate locality are illustrated on **Figure 1** in the accompanying Graphic Supplement.

Where appropriate, direct referencing has been made to the Landscape Assessment prepared by Chris Glasson (referred to as the 'Landscape Assessment' throughout this report) regarding Site location, context and character descriptions. It is noted, however, that these descriptions appear to be scattered throughout the report under similar-themed headings.

2.2 Site Context

As mentioned within the Landscape Assessment, the Site sits within the undulating hill country south of Blenheim, which forms part of the Wither Hills. The hills steadily rise further southwards, with the Taylor Pass Road extending sinuously through this gently undulating country. The Wither Hills (and broader Southern Hills) south of Blenheim create a distinctly different character to the broad flat open Wairau plains located immediately north. The intensively managed and cultivated plains harbour the majority of the region's economic activity and areas of settlement and are very productive. Within the hills south of the plain, the landscapes become more intimate, where land uses are less intensively used and development appears more sporadic.

The Wither Hills form an important recreational resource for the local community and visitors. Wither Hills Farm Park, which encompasses a network of tracks for mountain biking and walking, extends over the entire western part of the south-facing hills immediately to the south of Blenheim. The park extends along ridges to Mt. Vernon (the highest point of the Wither Hills). A map illustrating this park is included as **Figure 2** to the Graphic Supplement.

There are effectively three routes south into the Awatere Valley from Blenheim, with the Taylor Pass Road being one of them. The remaining two are located to the south east of Blenheim and include the main SH1 route (Dashwood Pass) and the lesser used route, the Redwood Pass.

2.2.1 Character of the Wairau Plain

The Landscape Assessment outlines the character of the Wairau Plain Landscape through paragraphs 14-16. The assessment refers to subdivisions in this landscape, such as Marlborough Ridge, Morven Land and Fairbourne, where they are located as

standalone developments. The Landscape Assessment states at paragraph 16: *'The Wairau Plains' open and flat landscape means it is a prominent feature, [regarding subdivision developments on moderately elevated land] thereby making the surrounding hill country landscape more visible and sensitive to change. The hidden river valleys are more discrete and less sensitive to change, making them more suitable for subdivision developments'.*

The Landscape Assessment between paragraphs 42 and 43 describes the character of Taylor Pass Road. This is also referenced at paragraphs 62-64. At paragraph 42 the Landscape Assessment acknowledges that the *'Site is not continuously linked to Blenheim by other developments but there are residential and industrial areas along Taylor Pass Road'.*

As outlined within the following paragraphs, a separate appraisal of the character of the Taylor Valley was carried out as part of this report. This was undertaken to ensure that the description within the Landscape Assessment of the road's character was accurate. Paragraph 43 states: *'Along Taylor Pass Road between the hospital and the Site are various developments punctuating the rural landscape such as a Council developed residential subdivision, landfill, industry, farming, vineyards and the Wither Hills Farm Park, mountain bike track, 'Riding for the Disabled' facility, a new school and church facility and the MDC transfer and recycling facility'.*

2.2.2 Character of Taylor Pass Road

The character of Taylor Pass Road changes as travellers head south along this road. Commencing in the north, part of Blenheim's south-western urban extent includes a recently consented and partly developed greenfield subdivision. The Landscape Assessment comments on this at paragraph 19. The landscape appears as part of the Wairau Plain at this point.



Plate 1: The subdivision is currently being constructed, with some houses already built.

Taylor Pass Road extends through this area southwards. Currently only houses on the eastern side of the road have been built, with a few being built to the west. It is understood that houses will flank both sides of this part of the road at some time in the future. It is also understood that this development is referred to as the 'Council subdivision' within the Landscape Assessment's Landuse Map (2.0). The extent of this subdivision is shaded light grey on the Planning Maps (refer to Plate 6 within this report under Statutory Planning Maps).



Plate 2: Travelling further south on Taylor Pass Road the landscape character becomes more semi-rural.

Immediately beyond this are the open fields and pastoral views towards the southern hills. Due to the gradually enclosing valley, the land use activities become smaller in scale than those in on the Wairau plain. There are small-scale vineyards, grazed paddocks and farm buildings. The Bienheim landfill site is located further along the road, although the landfill site itself is not visible from the road. There is also a car park for mountain bike enthusiasts where numerous tracks extend into the Wither Hills Farm Park.

As the road extends further southwards, leaving the open plains behind, the Taylor River valley becomes more enclosed. The Taylor Dam represents a pleasant picnic stop along this route, lined with willows and nestled at the junction of the eastern and western hills either side of Taylor Pass road. Development along this corridor is limited and where it is evident, it appears small, and in character with the landscape's more enclosing nature.



Plate 3: The Taylor Dam.

Views from the road beyond the dam are towards the grass-covered hills, supporting clusters of kanuka and occasional wilding pines. The Taylor River, which the road closely follows, is flanked by willows and other exotic vegetation and represents the 'greenest'

part of the valley. It is at this point that the Taylor River valley ceases to be a part of the Wairau plain landscape.



Plate 4: Taylor Pass Road looking southwards towards the proposed Plan Change Site.

As the road extends past Sugar Loaf, the valley narrows. Within this valley exists a mosaic of different landuses, ranging from forestry, occasional small scale rural businesses and a dozen or so residential properties. Other than the pine trees associated with the forestry plantation on the hillside, the valley supports smaller groupings of trees, associated with field boundaries or gardens. The Taylor River, which wends its way through these hills, is defined by mature willows. The Landscape Assessment appears not to describe the Taylor Pass Valley beyond the southern extremes of the Site.

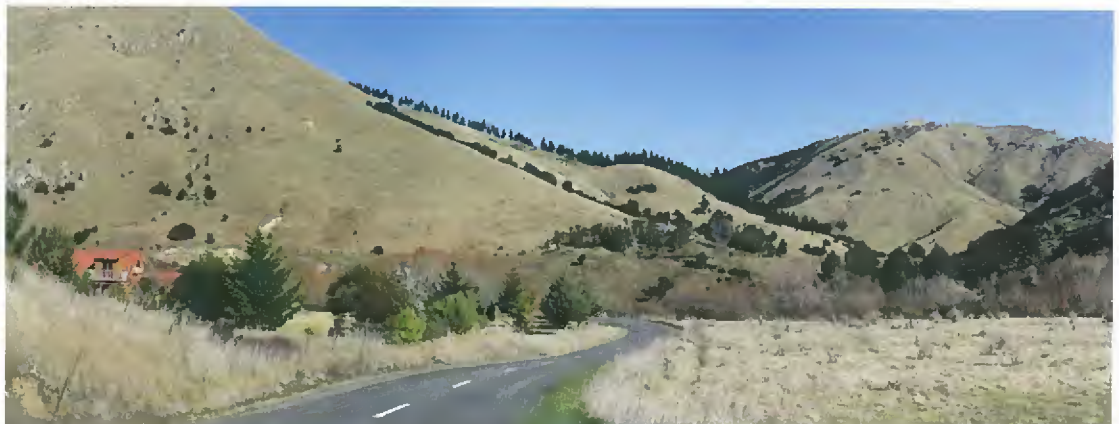


Plate 5: The settled valley landscape at Sugar Loaf hill. Mature willows follow the Taylor River.

2.2.3 Landscape description of the Site

The Landscape Assessment describes the character of the Site briefly at paragraphs 44-45 and the ecology of the Site more comprehensively at paragraphs 50-56. The Site is located at the northern foot of a steep grassy hill, which is physically associated with the southern part of the Wither Hills (refer to Figure 3 in the Landscape Assessment's graphic supplement). The upper parts of the Site are essentially devoid of any features, apart from small pockets of kanuka in some of the steep gullies. The lower parts of the Site can be divided into two, the northern section associated with Maxwell Pass Road and the southern section which flanks Taylor Pass Road. The Landscape Assessment

states at paragraph 44 that *'The Site is of rural character with pastoral land use'*. This independent assessment concurs with this statement.

The northern section of the Site abuts Maxwell Pass Road and extends from the junction of Taylor Pass Road to the west to a line of mature trees delineating the boundary of the Homebrook estate to the east (i.e. approximately 1 kilometre) in an east-west orientation. A small unnamed tributary feeding into the Taylor River wends its way through the valley bottom and through the central flat area of this part of the Site. The watercourse is flanked by willows with some mature gum trees located around the Maxwell Pass homestead. The topography is generally flat at an elevation of approximately 80 masl, although it rises at the base of the hills steeply to approximately the 120m contour (above the Maxwell Pass homestead).

The southern part of the Site extends in a north-south orientation and abuts Taylor Pass Road for approximately 1 kilometre from the junction of Maxwell Pass Road. The Taylor River is located on the western side of the road and is not included in this Plan Change. The land in this southern part of the Site is undulating and almost barren apart from the grassy cover. Two large gullies extend from the ridge down into the Site.

2.3 Summary of Context and Character

*'The Site is of rural character with pastoral land use'*¹ and is located within the Taylor River Valley which abuts the principal road through this valley. From travelling south along Taylor Pass Road towards the Site from Blenheim, the landscape character changes, from urban and open, to semi-rural to rural and enclosing. The surrounding activities are overwhelmingly rural in nature and are of a scale and pattern that typifies a valley location. It is considered that the northern part of the Taylor River Valley (i.e. beyond the Taylor Dam) maybe considered an extension of the Wairau plain landscape; however the landscape becomes more enclosing beyond the dam. Overall, there is broad agreement with the Landscape Assessment's character descriptions.

2.4 Visual Context and Viewing Audiences

Plans 7.1 and 7.2 within the 'Landscape Assessment's graphic supplement' illustrate the visible portions of the Site from two different viewpoints on Taylor Pass Road. It is noted that these plans do not represent the visibility of the Site from any other viewpoints and no explanation regarding their production is given (i.e. have they been produced using only 20m contours or has intervening vegetation been taken into account?)

Furthermore, numerous viewpoints that allow visibility into the Site are located along a nearly 4km long section of Taylor Pass Road. The viewpoints chosen in the Landscape Assessment provide a limited extent of potential visibility along the road. Plans 7.1 and 7.2 are therefore considered unhelpful. As part of the on-Site investigations undertaken for the preparation of this report the visibility has been assessed and the two viewpoints chosen in Mr Glasson's assessment are not considered representative for views from Taylors Pass Road.

It is agreed with the Landscape Assessment's statement that the viewing audience will include those travelling along Taylor Pass Road and at the Taylor Dam². Further commentary on this is outlined within the Assessment of Effects section of this report.

¹ Chris Glasson Landscape Assessment, paragraph 44

² Chris Glasson Landscape Assessment, paragraph 79

Due to the Site's semi-contained location from within the valley, the views towards the Site are reasonably short and channelled; however the Site is located adjacent to both the Taylor Pass Road and Maxwell Pass Road, therefore potentially increasing its visibility. It is considered that the key viewing locations are centred on both Taylor Pass Road and Maxwell Pass Road, which are both transitory corridors where viewers will be able to gain direct views into the Site. Potential views can also be obtained from sections of the Wither Hills Farm Park, and potentially from a number of houses on Taylor Pass Road close to Sugar Loaf. Descriptions are outlined in more detail within the Visual Effects section of this report.

3.0 Effects Assessment

Landscape and visual impacts result from natural or induced change in the components, character or quality of the landscape. Usually these are the result of landform or vegetation modification or the introduction of new structures, facilities or activities. All these impacts are assessed in this report to determine their effects on landscape character and quality, rural amenity and on public and private views. In this study the assessment of potential effects is based on a combination of the landscape's sensitivity and visibility and the nature and scale of the development proposal. Particular effects considered relate to the following:

- Landscape and Rural Character Effects and
- Visual Amenity (and Rural Amenity) Effects from Private and Public Locations

3.1 Landscape and Rural Character Effects

Landscape character is the distinct and recognisable pattern of elements that occurs consistently in a particular landscape. It reflects particular combinations of geology, landform, soils, vegetation, land use and human settlement. It creates the unique sense of place of different areas of the landscape. It is agreed with the Landscape Assessment at paragraph 75 that the landscape containing the Site is highly coherent due to its uninterrupted rhythm of forms and unity.

The key attributes of the landscape and rural character of the Site include:

- Interlocking dry grassy hills creating small scale valley landscapes (and therefore its difference from the adjacent Wairau Plains Character);
- Tree lined river corridors and sporadic and small scale development (farm buildings and homesteads);
- Openness created by paddocks and unencumbered hillsides
- Shelterbelts and unsealed roads

Both the author of this report and the author of the Landscape Assessment broadly agree with these rural characteristics.

The proposed Site is located some 7km south from the centre of Blenheim within a rural environment. Subdivision in the Rural 4 zone states the minimum lot area is 20ha. The proposed subdivision will increase the density to between 2,000-2,4000 over an area of 50ha.

The landscape character of the undulating southern valley landscape is, when compared to the intensively developed and managed Wairau Plains, relatively undeveloped, containing many rural and visual amenity qualities. One aspect of this rural character is the low density of buildings and predominance of rural-based activities, located on the valley bottom, adjacent to Taylor Pass Road. There is a physical and visual separation between the built urban forms of outer Blenheim and the wider rural area. This separation assists in defining edges to settlements.⁷

The Proposed Plan Change, as it currently stands, will provide for up to 160 lots, within a 50ha area. This scale and density of development outside of the Blenheim urban area would create an intensive satellite node, and be at odds with its rural surroundings. The Landscape Assessment states that this part of the Taylor Valley landscape would change from one of a pastoral grassland landscape to a residential subdivision of houses, roads and vegetation⁸. The treatment of the streetscape and entrance area would, as it is proposed, be incongruous with the landscape character. Large cuts would also be evident in the landscape due to platform locations on sloping land. MDC's proposed subdivision, which is located either side of Taylor Pass Road south of the Industrial area and Exclusive Brethren Church and School on Taylor Pass Road, is some 2.4km distance from the Proposed Plan Change Site (at its southernmost boundary). The MDC subdivision land would form an urban extension from the church, school and industrial areas that it abuts to the north, and would be both physically and visually seen as part of the wider Blenheim urban limits.

The experience along this corridor changes as one proceeds southwards from the intensively managed Wairau plains to a landscape with low residential development. This distinctive difference in character between rural areas and sub-urban development should be maintained. The Landscape Assessment, whilst alluding to this, does not assess the intrinsic character based effects, rather it focuses on the visual aspects.

Based on this, it is considered that the Proposed Plan Change area is located too far south to be read as part of the greater Blenheim urban area. The plan change is proposed within a separate and different character area to that of the Wairau Plains, exhibiting a smaller-scale rural identity. It is therefore concluded that the scale, density, form and design of the proposal would be inconsistent with the current rural identity of the southern hills landscape area and create high levels of adverse landscape and rural character effects.

3.2 Assessment of Landscape and Visual Effects

Visual amenity effects of proposals are influenced by a number of factors including the nature of the proposal and the landscape absorption capability and character of the Site and the surrounding area. Visual amenity effects are also dependent on distance between the viewer and the proposal, the complexity of the intervening landscape and the nature of the view. This more or less is consistent with the Landscape Assessment's description at paragraphs 68-70.

The proposed development will be mainly visible from Taylor Pass and Maxwell Pass Roads, with the potential that partial views may also be obtained from visitors to the Wither Hills Farm Park. Glimpsed to open views are also available from Taylor Dam. The Landscape Assessment comments that the viewing audience will include those travelling along Taylor Pass Road and at the Taylor Dam.

To assist in assessing the visibility of the proposal, an independent Site visit was undertaken and six photographs were taken from public viewpoints surrounding the Site. These are included within

⁷ Chris Glasson Landscape Assessment, paragraph 95

the BML Graphic Supplement. It is considered that the Landscape Assessment used a limited number of viewpoints in its assessment: broadly three photographs (8.1, 8.2 and 8.3, although some images from the 'reserve' were also helpful, albeit that they were not all taken from public viewpoints). It was considered that a more thorough assessment be undertaken to better understand the visibility of the area. A description of each of the BML viewpoints is outlined below, alongside an assessment of the anticipated visual effects of the proposed subdivision. Where possible, an alignment with those images used for the Landscape Assessment, are also commented upon.

3.2.1 Viewpoint 1- Taylor Dam

Viewpoint 1 is located at the Taylor Dam, approximately 658m to the north of the Plan Change Site looking southwards. From this viewpoint and beyond the lake, the landform of the valley is visually discernible; the flat open paddocks of the valley floor afford views of the willow lined Taylor River corridor. South of the Taylor River corridor the dry, undulating hills of the valley are unbroken by vegetation or dwellings on the skyline. The hill of Sugarloaf (288masl) forms the visual backdrop.

There are sections adjacent to the dam where views towards the Site are more or less screened by trees. A photograph illustrating this is used within the Landscape Assessment's graphic attachment as Site Panorama 8.3. Figure 7.1 (visibility plan) does not accurately portray the visibility from the Taylor Dam.

From parts of the Taylor Dam (especially Viewpoint 1) the proposed subdivision would be in-part discernible, while degrees of visibility would depend on where the viewer is located. **Viewpoint 1** illustrates a location at the western most part of the area, where the trees flanking the lake partially screen the northern part of the Site. To the right of the trees, the southern part of the Site would be clearly discernible, due to a lack of intervening trees and flat topography. Houses located on the higher part of the land would be most visible. It is considered that the assessment of visual effects from this viewpoint would be moderate to minor in places, where the proposed houses would introduce a new element into the predominantly rural landscape. It is acknowledged that in other parts of the dam, where no views towards the Site are obtained, the visual effects would be very low. This degree of visual effect is the same as the Landscape Assessment⁴.

3.2.2 Viewpoint 2- Taylor Pass Road

This viewpoint is located on Taylor Pass Road, some 480m north east of the Site looking south-eastwards. The nearest equivalent photograph in the Landscape Assessment is Site Panorama 8.1, however there is no commentary in the Landscape Assessment to describe this viewpoint.

Views of the proposed development from this location will be focussed towards its northern area by users travelling south on Taylor Pass Road. The Site's southern parts would be obscured to varying degrees by willows lining the Taylor River corridor and by intermittent roadside vegetation. As outlined in viewpoint 1, the proposed houses would be most visible on the slopes above the valley vegetation to varying degrees. The introduction of houses and infrastructure associated with the subdivision will modify the homogenous nature and rural simplicity of this part of Taylor Pass. Based on this, it is considered that the assessment of visual effects from this viewpoint would be moderate.

⁴ Chris Glasson Landscape Assessment, paragraph 87

3.2.3 Viewpoint 3- Junction of Taylor Pass Road & Maxwell Pass Road

Viewpoint 3 is located at the junction of Taylor Pass and Maxwell Pass Roads. The junction marks the start of the inland route through Molesworth Station to Hanmer Springs on Taylors Pass Road whilst Maxwell Pass Road marks a part sealed and part unsealed route into the dry hills. This road becomes private at the Maxwell Hills Homestead. The nearest equivalent photograph in the Landscape Assessment is Site Panorama 8.2 however, like above, there is no commentary in the assessment to support this viewpoint.

From this viewpoint the northernmost section of the Site will be visible. Topographical variation partially screens views further southwards. A large node of trees to the left hand side of the photograph marks Maxwell Pass homestead off Maxwell Pass Road. From this viewpoint the proposed subdivision will occupy the entire foreground of this view, extending from the trees at the Maxwell Pass homestead westwards, then southwards, wrapping around the base of the hill in the centre of the view. Houses and related infrastructure will alter the character of this part of the valley from rural to a node of urban/semi-urban character.

The subdivision Site extends westwards across Taylor Pass Road, onto neighbouring paddocks in the immediate foreground of the view. This area will be a utility area. Immediately beyond this will be a reserve. It is considered that the visual effects from this viewpoint will be very high due to the close proximity of the proposal to the viewer and the character change from rural to urban/semi-urban.

3.2.4 Viewpoint 4- Maxwell Pass Road

Shortly east of the intersection with Taylors Pass Road, Maxwell Pass Road becomes private and unsealed. The Site's northern boundary is formed by this short section of Maxwell Pass Road. The road continues eastwards through private land into the dry hills. There is no representative photograph, or description from this location in the Landscape Assessment.

Viewpoint 4 is located shortly east of the Maxwell Pass Homestead, within the Homebrook property, looking westwards along Maxwell Pass Road at the north-eastern edge of the proposed subdivision Site. The viewpoint has a dominant rural valley character, a corrugated iron woolshed is situated on a rise at the left of the photograph, farm gates and wire and post fences define small paddocks surrounding the shed, and a large shelterbelt of pines defines the Site's north-eastern boundary with the Homebrook property.

The mature pines assist in visually demarcating the north-eastern boundary of the Site, although partial views through the trees into the Site are still obtained. The introduction of a residential area immediately west of the pines would greatly change the rural character perceived from this viewpoint. It is considered that the visual effects from this viewpoint will be high due to the close proximity of the proposal and the character change from rural to urban/semi-urban.

3.2.5 Viewpoint 5- Taylors Pass Road at western boundary

Viewpoint 5 is located on Taylor Pass Road at a location on the western boundary of the Site. The area is characterised by a large, open, steadily rising paddock, extending up to a high point of 344masl. The paddock retains little vegetation. Trees associated with Maxwell Pass Homestead can be seen to the left hand side of the photograph.

Some slumping of the hillside has occurred on the north-eastern face of the toothill in the mid-ground of the photograph. There is no equivalent viewpoint contained within the Landscape Assessment, however, viewpoint 12.2 from a location within the proposed reserve represents the nearest point.

From this viewpoint the subdivision will abut the road reserve and extend up the rise of the paddock to approximately the 110m contour (and in places the 120m contour)⁵. The view from this vantage point will include the majority of the subdivision in the foreground with only the tops of the foothills retaining an open, pastoral character. The residential corridor will extend southwards towards Sugarloaf along Taylors Pass Road. Towards the northeast, residential development will merge with the vegetation of Maxwell Pass Road. The character along this part of Taylor Pass Road will completely change from one of a rural nature to one of an urban/ semi urban character. To the west of Taylor Pass Road a reserve is proposed, which will positively contribute to the character of the area. Due to the visual dominance of the proposed subdivision, it is considered that the adverse visual effects of the proposal from this viewpoint will be significant.

3.2.6 Viewpoint 6- Taylors Pass Road south of Site

Viewpoint 6 is located on Taylors Pass Road immediately south of the subdivision Site, looking northwards. The nearest equivalent photograph within the Landscape Assessment is 14.1. The area surrounding the viewpoint has a scenic open character; the homogenous grassland is highly legible and retains a high degree of visual coherence. Apart from pastoral grass, no vegetation is present in the immediate foreground of the photograph. The introduction of residential development elevated to the 110m to 120m contour would create a developed belt at the base of the toothills in the background of this photograph. The rural character will be eroded by the visual presence of a belt of high density houses in the area seen from this viewpoint. The visual coherence of this rural landscape will also be interrupted. Currently, limited development is visible along this corridor, and where it is evident, it is clearly associated with rural infrastructure at a low density.

3.2.7 Views from Private Houses

Due to the rural character of this part of Taylor Pass Road, there are few houses in the vicinity of the Site. Other than Maxwell Pass homestead and Homebrook, the majority of houses are located further south, near Sugar Loaf. It may be possible that one or potentially two houses experience direct elevated views towards the proposed subdivision. As outlined above, if views are possible, a landscape change from rural character with open paddocks to one of urban/ semi-urban character would be experienced. The exact extent of the view would depend on intervening vegetation and topographical variation between the house and the Site. Nevertheless, should views be experienced, it is considered that these would be at some distance (i.e. over 1km) and would range from moderate to high visual effects. It is suggested that these views are verified by the applicant.

⁵ As determined through analysis of Plan 6: Existing Vegetation within Chris Glasson's Graphic Supplement

3.3 Summary of Landscape and Visual Effects

This assessment of landscape and visual effects of the proposed subdivision Site from a 3-4km length of Taylor Pass Road is considered to be moderate in some areas to high in others. The proposal abuts the Taylor Pass Road for several kilometres where the open character of the area (and road) will shift from one of rural to urban/ semi-urban. The proposal will be visible from close-up viewpoints and will appear to sprawl along the base of the hills, extending up to the 110m to 120masl contour, amplifying its visual presence in the valley catchment. Views of the proposed subdivision will also be evident from sections of the Wither Hills Farm Park.

As demonstrated by the independent visibility assessment undertaken as part of this report, the Site has reasonably high visibility within its valley setting. This assessment is therefore at odds with that of the Landscape Assessment. This assessment disagrees with the Landscape Assessment's conclusion that "*the proposed site is not a particularly sensitive one due to its lack of visibility from public viewpoints*" as stated at paragraph 72 of the Landscape Assessment.

4.0 Statutory Planning Context & Assessment

4.1 Resource Management Act 1991

Relevant statutory material includes the Resource Management Act 1991 (RMA), the Marlborough Regional Policy Statement and the Wairau Awatere Resource Management Plan (WARMP).

It is considered that under the Part II matters (Section 6) of the RMA, the Site is located within the margins of the Taylor River and is not within the coastal environment, as required by Section 6(a), which requires '*preservation of the natural character of the coastal environment (including the coastal marine area), wetlands, and lakes and rivers and their margins, and the protection of them from inappropriate subdivision, use and development*'. Although within close proximity to the Taylor River and its tributaries, it is considered that natural character effects of the subdivision would be negligible, principally due to the distance of the plan change area to the river and the current levels of modification (i.e. pasture) to the local context.

Regarding Section 6(b) of the RMA, the Site is not listed as an Outstanding Landscape Area within the Wairau Awatere Resource Management Plan. It is also considered that through reassessment of this, the Site would not reach the degree of naturalness established through successive Environment Court decisions to be considered outstanding. There are therefore no matters of national importance relating to landscape matters. The Landscape Assessment does not comment on either natural character or outstanding natural landscapes or features.

Section 7 of the RMA concerns 'other matters' relating to managing the use, development and protection of natural and physical resources. In terms of landscape and visual considerations, particular regard has to be had to Section 7 (c) *the maintenance and enhancement of amenity values*, as well as Section 7(f) *the*

maintenance and enhancement of the quality of the environment. Section 7 matters are dealt with in the remainder of this report.

4.2 Wairau Awatere Resource Management Plan (WARMP)

The operative plan is the Wairau Awatere Resource Management Plan (WARMP). The Site is currently zoned Rural 4. A map outlining the current zoning of Taylor Pass Road is outlined below:

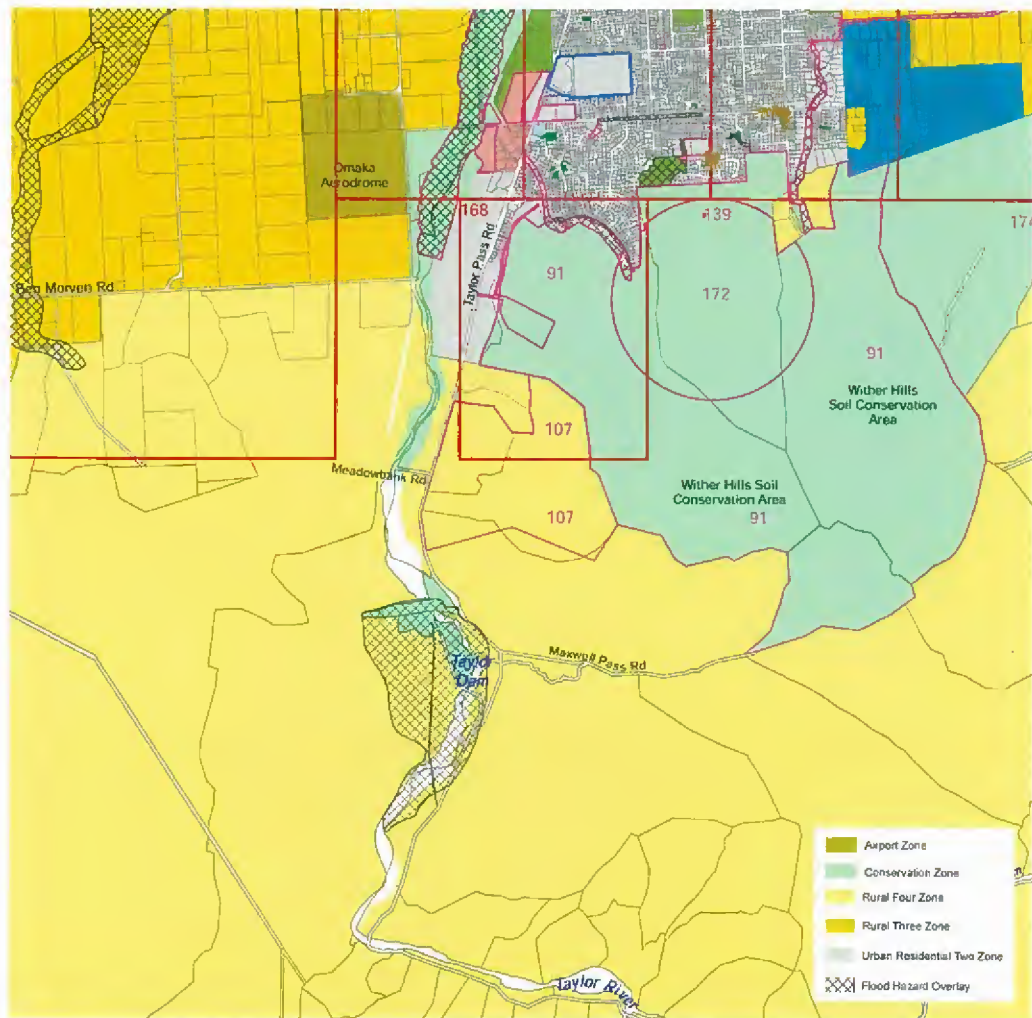


Plate 6: Image created using Map 155(Blenheim) and Map 185 (Taylor Pass to Awatere Valley) from the WARMP Planning Maps. This map illustrates the division between Rural 3 and Rural 4 zoned land, as well as the extent of Conservation Zoned land and the extent of the urban southern limits of Blenheim.(Not to scale)

There are a number of Objectives, Policies and Rules that are applicable to landscape and visual amenity matters in the WARMP. It is noted that the Landscape Assessment does not provide an assessment under these matters. Therefore, an assessment has been undertaken as part of this report against those relevant Objectives and Policies. These are listed below:

4.2.1 Landscape

Chapter 5: Landscape acknowledges that the Wairau/ Awatere area is made up of many different landscapes. The chapter outlines the Wairau/ Awatere's significant landscape features of which the Wither Hills is not one. The Wither Hills (including the Taylor Pass) are mentioned as 'Special Places' under Map 217 of the WARMP. The Taylor Pass is mentioned as retaining medium visual quality and medium landscape sensitivity under 5.2.

Objective 1 states: *'Management of the visual quality of the Wairau/ Awatere plan area and protection of outstanding natural features and landscapes from inappropriate subdivision, use and development'*. Although the reference to this objective is 'to apply specifically to those areas identified as having outstanding landscape value⁶, this objective also applies generally to all other areas, especially when an application for a moderate or large-scale activity is being proposed⁷, to ensure that any adverse visual effects are avoided. This objective is outlined further in policies 1.1-1.10, with Policy 1.9 being the most applicable to this Plan Change: *'Avoid sprawling or sporadic subdivisions for residential activity outside areas already occupied by residential settlement, or incursion into landscape sensitive areas'*.

Objective 2 states: *'To provide for appropriate development practices within areas not identified as outstanding natural landscapes'*. The background to this rests in Issue 5.5, which outlines that although the vast majority of the district is not outstanding, it still retains pleasant hills, valleys and plains, which retain different characteristics. Page 8 prefacing Objective 2 states: *'In areas where rural subdivision occurs care should be taken to develop in a way that retains the essential rural characteristics. The location of dwellings should reflect the landform and this may require retention of any natural features such as meandering streams or trees. Where feasible these characteristics should be maintained and enhanced...Inappropriate 'urban' development will be resisted vigorously'*.

The commentary that follows outlines that rural subdivisions should be developed in a way that retains the essential rural characteristics of an area. Within the Anticipated Environmental Results, the second and third bullet points are most relevant to this proposal:

- *A reduction in the conflict between developments and the landscape;*
- *Development located in a manner, style and character which is sympathetic and complementary to the landscape.*

4.2.1.1 Assessment

It is acknowledged that the Plan Change Site does not form part of an outstanding natural landscape or feature, however it is noted that the Site as existing does hold rural amenity values that contribute to the local rural landscape character. Within Chapter 5, the Site would fall into the Dry Hills (The passes) landscape area within the table on pages 5-2 and 5-3, where the landscape sensitivity is medium. Although not completely relevant to all of Objective 1 (i.e. the Site is not outstanding and not of the highest sensitivity), the remainder of the objective concerns the visual qualities of the area, where Policy 1.9 targets specifically sprawling or sporadic subdivisions outside areas already occupied by residential settlement.

⁶ WARMP, Chapter 5- Landscape, page 5-7.

⁷ WARMP, Chapter 5- Landscape, page 5-7.

The Taylor Valley landscape contains some form of residential development, although not in the numbers, scale or density proposed by the Plan Change. The landscape currently holds overwhelmingly rural values, where rural based activities, such as residential properties, paddocks, vineyards and forestry are small scale and suited to the more intimate valley catchment. The large scale change proposed by the plan change will be incongruous to those rural values and introduce a scale and density of development unseen in this valley landscape.

It is also considered that due to the layout of the proposal, it could be considered to be 'sprawling' due to its current form hugging the valley floor for approximately 1 km adjacent to the both the Taylor Pass Road and Maxwell Pass Road as well as extending up the hill to approximately the 120 metre contour.

Based on the above it is concluded that the proposed plan change does not better achieve Objective 1, particularly Policy 1.9.

Objective 2 follows on from Objective 1 in a similar vein, acknowledging that not all of the district is outstanding and that it is important that subdivisions are developed in a way that retains the essential rural characteristics of an area. Again, based on the scale, size, density and form of the proposed plan change as it stands, the proposal would not retain those rural characteristics that the Objective is seeking. Instead the Plan Change would introduce a new residential node within a rural setting. Although the majority of the subdivision will be located on flatter land, there will be parts that extend up the hillsides. This will amplify visual effects of the proposal and erode the visual coherence of the grassy hills. The proposed subdivision is not considered to be '*developed in a manner, style and character which is sympathetic and complementary to the landscape*'. In fact, it is considered that the proposal does not better achieve this Objective of the Plan.

4.2.2 Subdivision and Development

Chapter 23 of the WARMP outlines that subdivision has been specifically recognised as a separate activity in the plan. This is due to the fact that subdivision of land is closely related to the influences of natural and other hazards in terms of the suitability of subdivided land for anticipated land uses.

Issue 23.3 is concerned with recognising that subdivision can impact on significant natural features. Objective 1 states: '*That significant natural features be identified and protected through the process of land subdivision and/or land use development, recognising likely subsequent land use practices*'. Although the site is not scheduled as a significant natural feature in any statutory plans, it is considered that the Taylor Valley landscape (including the Site) holds natural features that are significant to the character of the valley, including the river itself and the adjacent hills. The Taylor Pass is recognised as a 'special place' within Chapter 5 of the WARMP.

Issue 23.4 is concerned with the size and shape of allotments and their ability to manage and limit potential amenity conflicts. Objective 1 states: '*That allotment design size and dimensions created through the subdivision process be determined with regard to the likely activities to be carried out on those allotments, and their effects on amenity values and other resources*'. There are several policies of note under this objective:

Policy 1.5 states: '*Ensure that rural character and amenities are protected and enhanced*'.

Policy 1.8 states: '*Consider the effects of subdivision on the rural environment in so far as this contributes to the character of the Plan Area, and avoid or mitigate any adverse effects*'.

Policy 1.10 states: *'Recognise the potential for innovative subdivision, such as energy efficient subdivision design, which is responsive to landscape character and which avoids, remedies or mitigates adverse effects'*.

4.2.2.1 Assessment

Policy 1.5 states: *'Ensure that rural character and amenities are protected and enhanced'*.

The proposed development Site is situated within a rural area and will be adjacent to rural land on all boundaries. As stated above the landscape character of the proposed plan change areas is largely open with sporadic patches of vegetation associated with shelter belts and single dwellings. The openness of this character will be interrupted by the introduction of a residential node in an otherwise working rural area. Amenities of the rural area which rural people value such as privacy, rural outlook, spaciousness and ease of access will be compromised by the placement of this suburban residential development due to the prominent location of houses along the 110/120m contour, overlooking Taylor Valley and the introduction of a higher density of residents over a comparatively small area. It is considered that the proposal is inconsistent with this policy.

Policy 1.8 states: *'Consider the effects of subdivision on the rural environment in so far as this contributes to the character of the Plan Area, and avoid or mitigate any adverse effects'*.

As stated previously, it is considered that the proposal will not contribute to the existing character of the area. In fact, it is considered that the proposal has significant adverse effects on the existing landscape character. The zoning outlined on Plate 6 illustrates the general difference in character where Rural 3 (plains) gives way to Rural 4 (hills). This difference in zoning reflects the underlying characteristics (to certain degrees) of this transitional area.

Policy 1.10 states: *'Recognise the potential for innovative subdivision, such as energy efficient subdivision design, which is responsive to landscape character and which avoids, remedies or mitigates adverse effects'*. There are no innovative features mentioned in the ODP however there are features which mention the use of dryland vegetation endemic to the area for additional planting associated with the subdivision. The use of dryland vegetation is responsive to a degree to the character of the landscape surrounding the Site. However this feature will be overwhelmed by the use of exotic vegetation surrounding houses and along new road reserves, creating a more domesticated, suburban look to the subdivision's vegetation in an otherwise rural area. In all, the proposal is considered to be inconsistent with these provisions.

5.0 Mitigation Measures

5.1 Measures proposed within the Landscape Assessment

To assist with mitigating the proposed development, the Landscape Assessment outlines a number of measures, relating to both planting and development. At paragraphs 96 and 97, the Landscape Assessment outlines that suitable native and exotic vegetation species will be planted, which will achieve five landscape objectives:

'Re-establish native dryland vegetation and associated ecosystems that will enhance the natural environment;

Mitigating the visual effects of roading and residential development;

Improving the 'living' environment for future residents with strategic landscape planting for privacy, shelter and shade, and for visual amenity;

Enhancing slope stability and reducing erosion by planting in order to slow and filter the runoff into the ephemeral streams on the site;

Control and maintenance of weed growth'.

Comment is also made regarding an extension to the existing Taylor Dam reserve, which will extend southwards, sandwiched between the Taylor River and the Taylor Pass Road for approximately 850 metres. This reserve will offer residents recreational benefits, however, no details are provided outlining exactly what kind of activities will be provided for. No comment is made as to the design of the extended reserve either.

Paragraphs 101 and 102 of the Landscape Assessment outline building controls for the proposed subdivision. Rather than the currently permitted 10 metre Rural 4 building height, a more conservative 8 metre height is recommended. Furthermore, a 'reasonably liberal' colour palette is recommended, however, 'bright colours' are to be avoided and 'earthy tones' should be used.

5.2 Adequacy of measures

These measures proposed concentrate solely on visual mitigation of the built form rather than addressing the underlying 'grain' or character of the rural area.

It is considered that whilst these mitigation and design controls are welcomed to assist in mitigating the potential landscape effects of the subdivision, the proposed recommendations do not go far enough. More fundamental measures around density, form, scale, patterning, roading (including earthworks), access designs, fencing, lighting, and planting, along with colours and reflectivity need to be considered, to better reflect the underlying landscape characteristics.

While it is considered that land use change can be accommodated on this site under a proposal that is responsive to its setting and existing character, it is considered that this proposal, as it stands, is not appropriate.

Whilst visual mitigation can be achieved through planting and screening, underlying discrepancies of the large-scale, high-density development with the rural landscape character has not been addressed and cannot be resolved through visual mitigation.

Within this context, the current proposal is considered inappropriate development.

6.0 Submissions

It is understood that eleven submitters made comment on this Proposed Plan Change. Of those, five raised specific concern regarding landscape and/or visual amenity matters. Those five submitters citing specific landscape and visual concerns include:

- PM Gilbert & PD Norton (Perry Gilbert)
- Timothy and Pauline Mary Mead
- AR & CD Turnbull & Bluegums 2003 Ltd (Steve Wilkes)
- Meadowbank Station Ltd & Others (Steve Wilkes)
- Upper Taylor Pass Residents (Vicki Nalder-Clyde)

The principal landscape and visual related concerns rest with rural amenity (specifically 'down-grading of rural amenity values and adverse effects through 'spot zoning'); landscape (visual eyesore, cutting into the hillside, not accurately describing the landscape within the Landscape Assessment and climatic diversity) and the fact that the project is inconsistent with the Southern Marlborough Growth and Development Strategy.

It is considered that these concerns have been addressed within this report.

7.0 Conclusions

It is concluded that there are several shortcomings in the Landscape Assessment; namely

- That the assessment does not comprehensively assess the proposed plan change against the rural characteristics of the area;
- That an assessment of the relevant statutory objectives and policies has not been undertaken;
- That the assessment focuses on visual characteristics, and that the visual baseline used to assess the visual effects was not comprehensively appraised;
- That the mitigation recommendations put forward, whilst helpful for visual considerations do not address the underlying rural character matters raised.

Based upon the independent re-assessment of the proposal, it is considered that the scale, density and pattern of this Plan Change is incongruous with the rural character and amenity values of the Taylor Pass Valley, to the point that housing would dominate the more intimate character of this valley landscape. The present rural simplicity of this part of the Taylor Valley will be compromised. It will be a major departure from existing settlement patterns in the valley.

As such, agreement cannot be reached with the Landscape Assessment's statement at paragraph 104, which states: *'The Maxwell Hills Plan Change area is a development which could quite easily assimilate into the valley landscape which is visually enclosed. This site has a high absorption capacity'*.

This statement from the Landscape Assessment appears to focus solely on visual attributes rather than broader rural character issues. Although a valley landscape does have the potential to 'absorb development' more easily than an open flat landscape or a hillside, it depends very much on the location, scale, density and overall form and character of what is being proposed. If the proposal is inconsistent with the overall 'grain' and character of the landscape, adverse effects are created.

Based on this assessment, it is considered that the proposed plan change, as it currently stands, fails to meet most of its objectives it tries to achieve, as identified at paragraph 10, notably the

objectives relating to '*developing a character which relates to the rural location...*', and '*minimising the visual impact....*' are unlikely to be achieved through the currently proposed development.

It is therefore considered that whilst visual mitigation can assist, underlying aspects of the proposal will be at odds with the rural landscape character and will form inappropriate development in the area.

Maxwell Hills Subdivision Plan Change 60

Landscape and Visual Amenity Assessment
Graphic Supplement



PREPARED FOR MARLBOROUGH DISTRICT COUNCIL
BY BOFFA MISKELL LIMITED • JULY 2012

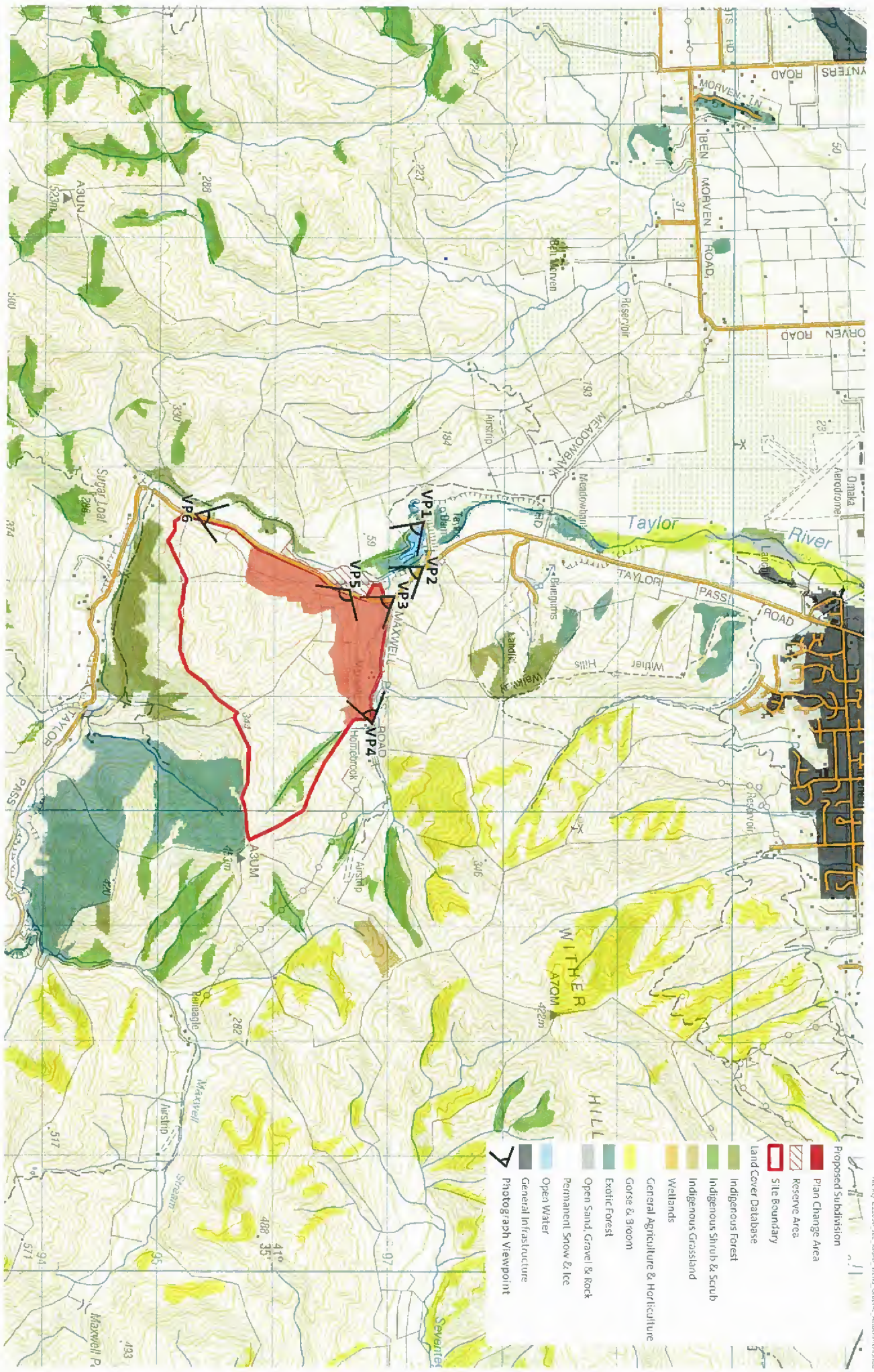
Boffa Miskell



Maxwell Hills Subdivision Plan Change 60

Landscape and Visual Amenity Assessment Graphic Supplement

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- Proposed Subdivision
- Plan Change Area
- Reserve Area
- Site Boundary
- Land Cover Database
- Indigenous Forest
- Indigenous Shrub & Scrub
- Indigenous Grassland
- Wetlands
- General Agriculture & Horticulture
- Gorse & Broom
- Exotic Forest
- Open Sand, Gravel & Rock
- Permanent Snow & Ice
- Open Water
- General Infrastructure
- Photograph Viewpoint

MAXWELL HILLS SUBDIVISION, PLAN CHANGE 60
 Figure 1 : Location Plan
 Date: July 2012 | Revision: 0

Plan prepared for Maxwell Hills Subdivision by Boffa Miskell Limited
 Author: saiyah@boffa.com.au | Checked: JBE

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North Arrow

WITHER HILLS FARM PARK

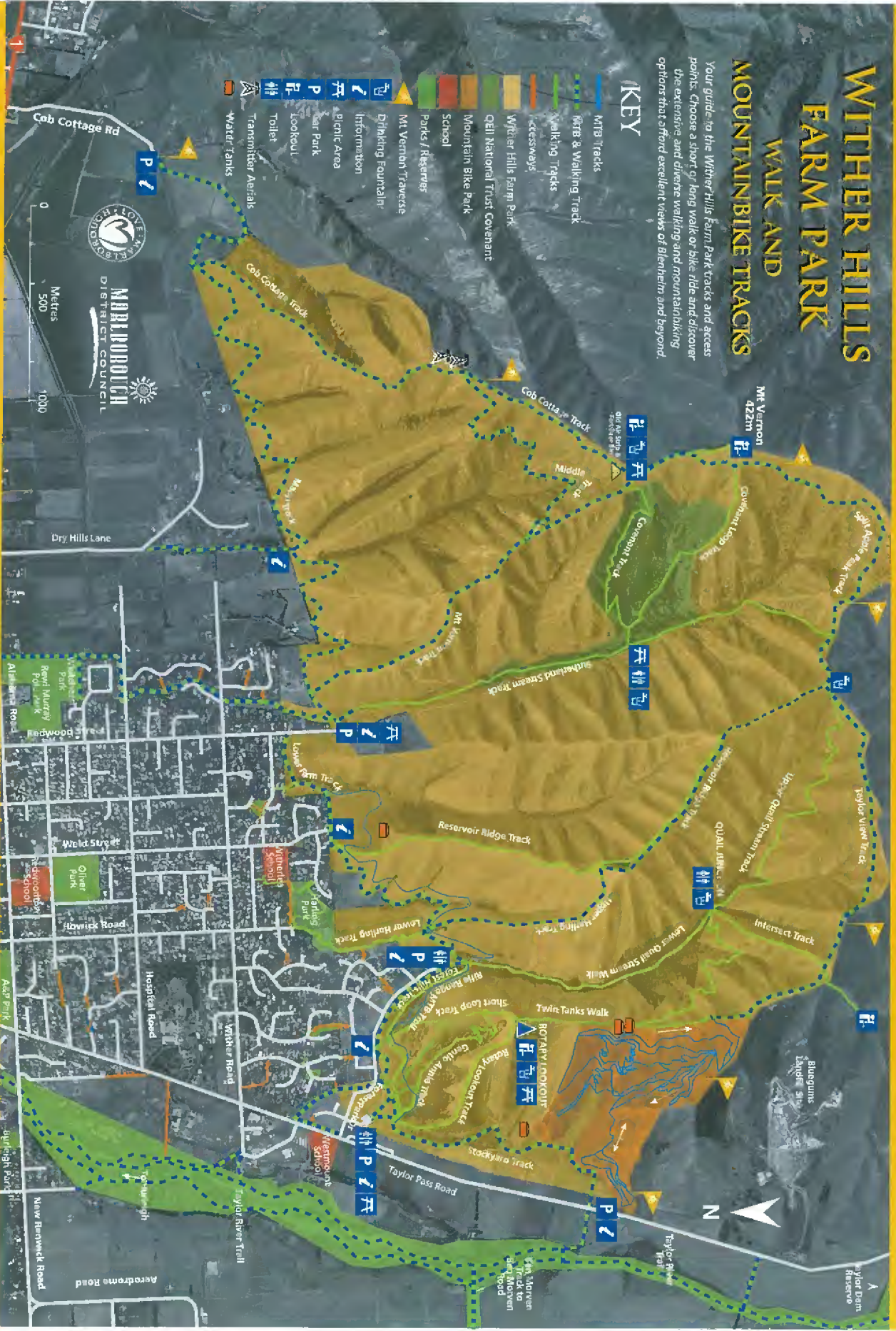
WALK AND MOUNTAINBIKE TRACKS

WITHER HILLS FARM PARK TRACKS AND ACCESS POINTS

Your guide to the Wither Hills Farm Park tracks and access points. Choose a short or long walk or bike ride and discover the extensive and diverse walking and mountainbiking options that afford excellent views of Blenheim and beyond.

KEY

- MTB Tracks
- Walk & Walking Track
- Walking Tracks
- Accessways
- Wither Hills Farm Park
- Cell National Trust Covenant
- Mountain Bike Park
- School
- Parks / Reserves
- Mt Vernon Travese
- Diving Fountain
- Information
- picnic Area
- Beer Park
- Lookout
- Toilet
- Transmitter Aerials
- Water Tanks



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Mapleborough District Council
MDC
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Taylor Dam

Proposed Subdivision Site



Site Photograph 1: Photograph taken at the Taylor Dam, approximately 658m to the north of the Plan Change site looking southwards.

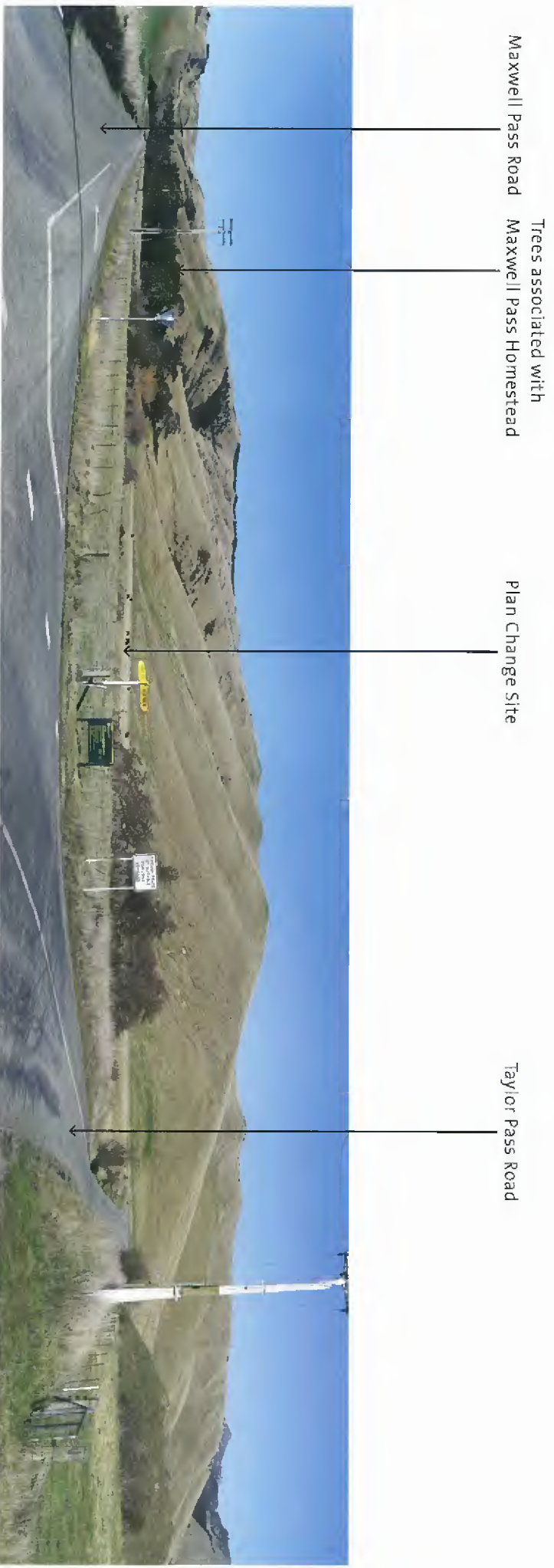
Taylor Pass Road

Plan Change Site

Willows associated with the Taylor River



Site Photograph 2: Photograph taken from a location on Taylor Pass Road approximately 480m north of the Plan Change Site, looking southwards.



Site Photograph 3: Photograph taken at the Junction of Taylor Pass Road and Maxwell Pass Road, immediately adjacent to the Plan Change's northwestern boundary.

Trees demarcate Plan Change's eastern boundary

Maxwell Pass Road



Site Photograph 4: Photograph taken from a location adjacent to the eastern boundary of the Plan Change Site looking along Maxwell Pass Road.

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Trees associated with Maxwell Pass Homestead

Plan Change Site

Taylor Pass Road



Site Photograph 5: Photograph taken from a location on Taylor Pass Road adjacent to the boundary of the Plan Change Site, looking in an easterly direction.

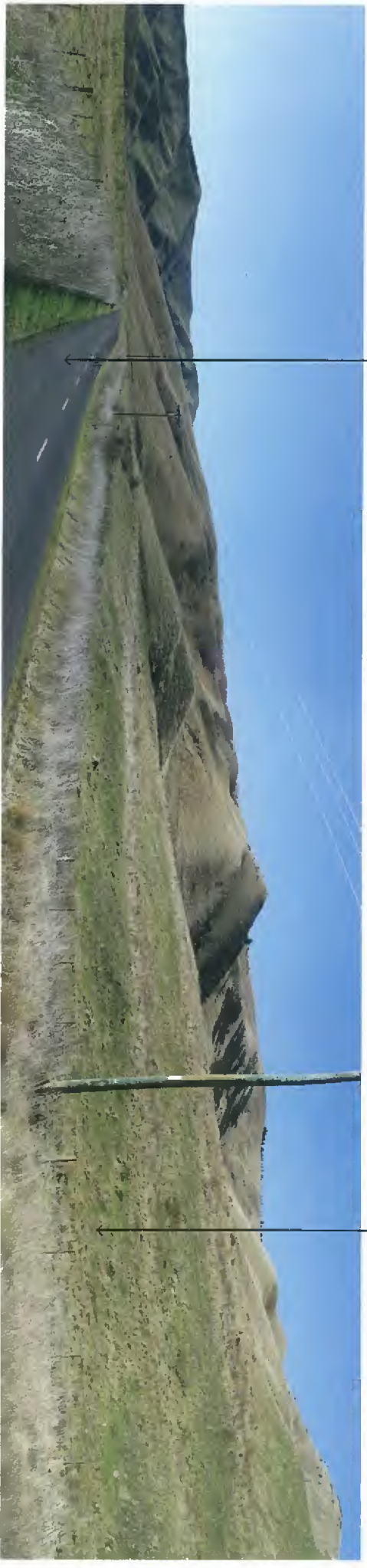
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MAXWELL HILLS SUBDIVISION: PLAN CHANGE 60
Site Photograph 5
| Dates: July 2012 | Revisions: 0 |
Plan prepared for: Maxwell Hills District Council by Boffa Miskell Limited
Author: sally@boffa.co.nz | Checker: jbe

Taylor Pass Road

Plan Change Site



Site Photograph 6: Photograph taken from a location on Taylor Pass Road approximately 540m south of the Subdivision Site, looking northwards.

Appendix B

REPORT

**Maxwell Hills Plan Change Request – Geotechnical
Review**

Prepared for the Marlborough District Council

October 2012

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QUALITY STATEMENT

PROJECT MANAGER

Leslie Lyall

PROJECT TECHNICAL LEAD

Paul Russell

PREPARED BY

Paul Russell

Paul Russell 16.10.12

CHECKED BY

Charlie Price

Charlie Price..... 17/08/2012

REVIEWED BY

Rob Loeffering

Rob Loeffering 16.10.12

APPROVED FOR ISSUE BY

Leslie Lyall

Leslie Lyall 16.10.12

NELSON

2nd Floor, 281 Queen Street, Richmond, Nelson 7020
 PO Box 3455, Richmond, Nelson 7050
 TEL +64 3 546 8728, FAX +64 3 548 2016

REVISION SCHEDULE

| Rev No | Date | Description | Signature or Typed Name (documentation on file) | | | |
|--------|----------|------------------------|-------------------------------------------------|------------|-------------|-------------|
| | | | Prepared by | Checked by | Reviewed by | Approved by |
| V3 | 15/10/12 | SW & WW disposal added | P F Russell | | | |
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Marlborough District Council

Maxwell Hills Plan Change Request – Geotechnical Review

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1 Introduction

Kapiti Views Trust has lodged a plan change request with the Marlborough District Council (the Council) to change the zoning of approximately 50 hectares of land in the Wairau Awatere Resource Management Plan from Rural 4 to a new zone referred to as the 'Maxwell Hills Zone'. The subject site is located near the intersection of Taylor Pass Road and Maxwell Pass Road. This new zone would allow the land to be used for rural residential or large residential development (subdivision and land use) with the creation of approximately 160 allotments ranging from 0.2 to 0.4 hectares.

The primary issue for consideration is the effect of surface water on the loess soils found in the area. The Council has commissioned MWH to review the information provided in the plan change request as it relates to geotechnical matters and particularly *"the risk of developing the land for residential purposes given the dispersive nature of the soils and longer term potential consequences"*¹.

The following documents were provided to MWH by the Council and formed the basis of this review:

- The report entitled 'Maxwell Hills Rural Residential Zone Proposed Private Plan Change Geotechnical Assessment' prepared by Riley Consultants Limited, being Appendix E of the Plan Change Request lodged by Kapiti Views Trust., [hereafter referred to as the Riley Report].
- Letter to Kapiti Trust Views dated 10 June 2011 from Beca Carter Hollings and Ferner Limited (on behalf of the Council), requesting further information.
- Letter from CPG Limited to Beca Carter Hollings and Ferner Limited, dated 21 November 2011. This contained further information including a report (Appendix III) entitled 'Response to Request for Further Information, Resource Consent Application Plan Change 60 – Maxwell Hills Zone' prepared by Riley Consultants Limited [hereafter referred as the Riley Further Information Report].

The author visited the site in the company of Mr Mark Caldwell (the Council) on 10 July 2012. Soil testing was specifically excluded from the work brief.

2 Geology

2.1 Review

The Riley Report describes (s5.0) the geology of the site as consisting of greywacke, Hillersden Gravel, alluvium, loess and colluvium. The loess overlies greywacke or Hillersden Gravel and may be inter-layered with colluvium. The Riley Report does not differentiate the loess from the colluvium and considers that this is appropriate because the material properties and distribution are similar. Within the colluvium, vertical fissures are common between 0.5 and 1 metres (m) depth; they are very closely to closely spaced at 20 to 150 millimetres (mm) and may be open by 5 to 10 mm.

Groundwater was not found in the Hillersden Gravel or the colluvium. Free water was locally found in test pits below 2m in colluvium, and in test pit TP15(a) a minor groundwater seepage was observed 0.5m deep. Minor springs were found at the heads of gullies but did not originate from the Hillersden Gravel. The springs were interpreted to result from water that is perched on the Hillersden Gravel because of their low permeability.

2.2 Comment

I agree that the properties of loess are not significantly changed when the material is reworked. Therefore whether the loess remains in the position it was originally deposited, or has been washed down a slope, essentially does not alter the properties of the material. The colluvium consists of minor gravels (stated at 5% to 20%) within a reworked loess matrix. The properties of the loess can be expected to dominate the colluvium in this case.

The findings concerning groundwater in the gullies demonstrate that beneath the loess and colluvium there is very low permeability material whether it is greywacke or Hillersden Gravel. The Riley Report interprets water found near this interface as having entered from the ground surface and filtered down

¹ Work brief issued by the Council to MWH

until the low permeability barrier prevented soakage. Water was not found originating through the rock or Hillersden Gravel and was not thought by Riley to percolate into those materials.

3 Geotechnical

3.1 Rock Fall and Roll

3.1.1 Review

This active process is reported on both the over steepened greywacke slopes and where large clasts (boulders) from the Hillersden Gravel lie on steeper slopes. The Riley Report states (s6.1.1) these problem areas are located outside the current proposed area of development, which is shown on the geology plan (Drawing 04819/6GT-2).

3.1.2 Comment

Residences on the lower slopes will be at risk where rocks that could become dislodged in an earthquake exist on the slopes above. I recommend the Council obtain satisfactory assurance before approving the zone change, that any boulders which could become dislodged and thereby present a risk to residential properties will be removed.

3.2 Shallow Landslides

3.2.1 Review

The Riley Report states that recent shallow landslides on the upper slopes are evident and can occur quickly and without warning (s6.1.2). However, the report concludes there is low potential risk to properties because the building platforms on the lower slopes will be located beyond debris run-out zones.

3.2.2 Comment

The Council needs to ensure there is zero foreseeable risk to residential properties from this source before approving the zone change. If the run-out zone extends onto the area designated for the Maxwell Hills Zone, then either remedial protection works need to be undertaken or the residential area should be reduced to avoid debris run-out.

The Riley drawing titled “Geotechnical Assessment – Engineering Geology Plan” Drg. No. 04819/6GT-2 (Rev0) shows many active shallow slides high up in the side gully catchments. These slides are a source of debris, which has the potential to block waterways and may even create small natural dams. In an undeveloped catchment, the subsequent washing out of these dams may go unnoticed, but with the residential development of the lower slopes debris control becomes more critical. Legal access to clear the stream reserve through the built up area may be required by the Council in the event it ends up maintaining the waterway. Planting to reduce the occurrence of slips should be provided as part of the zone change approval.

3.3 Slumps and Soil Creep

3.3.1 Review

With reference to “Geotechnical Assessment – Engineering Geology Plan” Drg. No. 04819/6GT-2 (Rev0) small rotational slumps exist south of gully 2 and creep is recorded on the south facing slopes of gullies 1 and 2 (s 6.1.3 of the Riley Report).

The Riley Report advises rotational slumps are considered to be a low hazard and outside the area of the proposed development. Soil creep is considered a minor hazard and the following techniques for effective mitigation are proposed:

- Retaining walls to stabilise cuts.
- Installing foundations into underlying competent material.
- Installing surface drains and subsoil drains to minimise groundwater levels.
- Planting dense shrub vegetation in soil creep areas to help dewater the slope and increase stability through root-binding effects.

3.3.2 Comment

Slumping and soil creep indicate the soil has moved or is moving down the slope whenever soil moisture conditions become sufficiently wet. The Council must be aware that slopes exhibiting these features are on the point of failure. Whenever soil moisture conditions increase sufficiently, these slopes will generate landslides.

Slumps do not appear to directly threaten proposed building sites but debris will be generated adding sediment to the streams and potentially blocking culverts. The fourth bullet point above proposes planting dense shrub vegetation in soil creep areas to help dewater the slope and increase stability through root-binding effects. Due to the scale of the failures, the location and the topography, this is the only technique nominated likely to be viable for mitigating slope failure where slumps are evident.

The techniques Riley set out for creep mitigation can be effective but unless the cause of the soil creep has been removed maintenance will be required. Where soil creep occurs over a limited area that comprises a small part of an allotment the owner can maintain remedial works effectively. Should a slump or creep extend across multiple allotments within the proposed zone change, maintenance is uncertain and inaction by any one owner could subsequently lead to a landslide failure which may affect other properties. In such circumstances, I recommend residential use of the land is not sustainable. The Council needs to obtain a statement from the developer confirming that the residential zone does not contain any areas of soil creep that comprises more than a small part of any single allotment. All soil creep within the proposed zone should be remediated.

3.4 Tunnel Gullies and Surface Erosion

3.4.1 Review

The Riley Report acknowledges tunnel gullying and erosion as an on-going and progressive process that is occurring on the subject site (s6.1.4). It is evident on the north and north-west facing slopes where colluvium, typically reworked loess, covers the slopes. The Geotechnical Assessment – Engineering Geology Plan, Drg. No. 04819/6GT-2 (Rev0) shows substantial areas of erosion. The largest gullies have eroded the entire thickness of the colluvium (but less than 2 m). The report states that unexposed tunnel gullies could be present, but surface rilling is seen to be a minor hazard.

In the discussion headed “Implications of Development and Remedies” the Riley Report states “tunnel gullying at the site appears to be significant”. The two main hazards identified are the undermining of building and road foundations, and surface instability in downslope deposition areas. The report notes that developments have been successfully completed on the Port Hills of Christchurch, which has similar soil conditions. Further, the report states that residential development, and the associated surface and groundwater control, rehabilitation planting and retention measures, would result in a substantial reduction of erosion and an improvement in the long-term stability of tunnel gully areas.

The Riley Report states (s6.1.4) that all filling in loess or colluvial soil should utilise chemically stabilised fill and under fill drainage with suitable backfill. The Riley Report also states (s6.1.4 last paragraph) “the risk of new gully erosion structures forming can be significantly reduced through the planting of low-lying shrubs or woody vegetation in selected areas to reduce the seasonal moisture variations in erodible soils on north aspect slopes”.

The Riley Further Information Report states that relatively small portions of the proposed development area extend onto the slopes affected by tunnel gully erosion and discusses investigative methods for inspecting tunnel gullies and remedial treatment. Several different methods of chemical stabilisation are listed but hydrated lime is preferred and a methodology to stabilise loess to fill any tunnel gullies is set out.

3.4.2 Comment

As background to the issue, loess can be highly erosive or dispersive, these being separate properties. In a dispersive soil the electrostatic bonds, which attract the soil particles and effectively hold them together, are destroyed in the presence of water and the particles repel each other. On the other hand, in a highly erosive soil the grains simply lack clay particles to bind them together so that although they do not repel each other, they can be easily washed away by flowing water. Tunnel gullying is a symptom of dispersion; surface rilling is a symptom of high erodibility. Both are present at this site but the rilling is considered by Riley to be minor.

The difficulty with dispersive loess is that in the field it cannot be easily identified as having different properties from the non-dispersive loess. The presence of a tunnel gully is the indicator but because loess has been laid down by the wind in layers, it is probable the soil each side of a tunnel gully is also dispersive but has simply not been exposed to the water necessary to cause the soil to disperse. There are no laboratory test results presented in the Riley Report or the additional information to assist in identifying the location of the dispersive soils, nor with which to quantify how dispersive or erodible the loess is.

Dr Iain B Campbell prepared a report for the Council entitled “Soil Survey of Part of the Wither Hills – Redwood Hills Area, Marlborough” (Technical Report No. 11-004). Dr Campbell states in the Executive Summary “*there is little sign of soil instability on flat to gently undulating loess covered land but with increasing slope soil dispersion and shallow gullying was observed on slopes greater than 12°*”. From this conclusion, in the absence of test results it would be reasonable to adopt 12° as the limiting slope above which mitigation measures to control dispersive loess should be implemented if the Council wishes to minimise potential risk to any properties below.

The methodology to remediate tunnel gullies has been proven on the Port Hills of Christchurch. Dispersive loess in other areas not yet showing tunnel gully symptoms, but which would threaten the residential properties also needs to be treated. If work to stabilise the dispersive soil is not undertaken at the development stage there will be on-going tunnel gully erosion discharging loess onto the residential properties. Comparing the Geotechnical Assessment – Engineering Geology Plan, Drg. No. 04819/6GT-2 (Rev0) with the Mitigated Flood Plans – Sheets 1 and 2 of 2, this problem will potentially affect properties on the hill slopes along Maxwell Pass Road and along Taylor Pass Road to Stream 2. To the south of Stream 2 another eight properties are also at risk. My estimate of the number of properties potentially at risk from tunnel gully erosion is 50 properties. The Riley Further Information Report appears to underestimate the problem.

I agree that dispersive loess can be used as a construction soil providing remedial measures are taken to chemically stabilise the soil, but I point out the earthworks costs will increase significantly due to this input. The Council must be confident the chemical stabilisation is correctly carried out using hydrated lime. Other types of lime must not be substituted as a cost saving measure.

In the absence of laboratory test data, it must be assumed the area is covered with dispersive loess. When surface runoff water gets into the ground tunnel gullies can be expected to form where slopes exceed 12°. The process is progressive and on-going and in this area the hilly slopes are generally greater than 12°. Only by altering the chemistry of the soil, or preventing water ingress, or retaining the loess while draining the water, can tunnel gullies be reliably prevented from developing.

The Riley Report does not propose that area wide improvements are undertaken apart from surface and ground water control and rehabilitation planting. These actions would be beneficial but do not alter the dispersive nature of the loess. I have not seen evidence that vegetation is of proven value in reducing tunnel gullying. As vegetation dies, the rotting roots can leave holes into the ground, which allows surface water to penetrate into the loess and can therefore exacerbate the problem. The evidence indicates tunnel gullying will continue as an on-going process unless chemical stabilisation is implemented for all dispersive loess on slopes steeper than 12°. This includes slopes which are to be built on and slopes which would discharge onto proposed residential properties.

4 Geotechnical Hazard Zones

4.1 Review

The Riley Report discusses four geotechnical hazard zones. These are low, minor, moderate and high, as shown on Geotechnical Assessment – Geotechnical Hazard Plan, Drawing No. 04919/6GT-4. There are no issues raised for the low hazard zone which it is stated will require minimal earthworks and limited (if any) remedial works. Specific investigation and design may be required to locate foundations below possible seasonal shrink/swell movement.

The report states the minor hazard zone contains minor tunnel gully erosion, which will require limited remedial works. The areas around the base of the northern and western slopes are generally appropriate for rural residential development.

The moderate hazard zone contains low landslide hazard, minor rock-fall hazard and moderate erosion hazard.

The high hazard zone is located outside the plan change area except for land adjacent to the localised, incised steep slopes associated with gullies 1, 2 and 3. The Riley Report recommends that proposed building platforms and access ways are set back from over-steepened slopes adjacent to incised gullies.

4.2 Comment

I agree with the Riley Report's comments for low and high hazard areas, but I have concerns regarding the minor and moderate hazard requirements.

Dispersion causing tunnel gullying is expected on slopes greater than 12° unless the soils are non-dispersive. Where ground slopes within the minor hazard zone exceed 12° and the soils are dispersive, the loess and colluvium needs to be chemically stabilised.

The same applies to the zone designated moderate hazard, but also for this zone the ground needs to be chemically stabilised wherever the soils are dispersive and tunnel gullying erosion would result in deposition onto properties lower down the slope. Where the soils are non-dispersive but highly erodible and thereby likely to result in deposition on down slope properties, measures to minimise erosion are required. These measures can be simply establishing vegetation and providing mulch to protect the erodible loess from exposure to flowing water. I also recommend that the Council should be certain there is zero landslide hazard and zero rock fall hazard to proposed residential properties for this zone.

5 Foundation Conditions for Structures, Services and Roads

5.1 Review

The Riley Report recommends that roads or dwellings on slopes within the moderate risk zone should be founded on the competent Hillersden Gravel or bedrock below the surficial colluvium (s6.3.1). The Riley Report also anticipates that specific investigation and design will be required on all sloping sites within the minor and moderate geotechnical hazard zones

5.2 Comment

I agree with the recommendation contained in the Riley Report that Hillersden Gravel or bedrock are to be the founding materials for the moderate zone, not the loess and colluvium. I recommend that the Council should make this mandatory if the plan change is approved.

For both the minor and moderate zones, I recommend that the Council should make specific foundation design a requirement.

I recommend where foundations bear upon loess or colluvium in the minor and low hazard zones it must either be proven to be non-dispersive or shall be chemically stabilised using hydrated lime, even where ground slopes are less than 12°. This is to remove the risk of tunnel erosion and cavities caused by leaking pressure pipes beneath the structure.

6 Retaining Walls

6.1 Review

The Riley Report prefers mass gravity walls (s6.4) but also leaves the options of battering open, commenting that where (cut) batters are left exposed “*local failures are still expected*”.

6.2 Comment

I agree gravity retaining walls will suit the foundations conditions of Hillersden Gravel or bedrock. The Council needs to be aware that cut batters within the loess or colluvium will almost certainly erode or collapse due to dispersion causing subsequent tunnel gulying. This will become a severe maintenance issue for the Council with silt washing onto footpaths and roads and filling up gutters and stormwater drains. In order to limit this risk, all cut batters need to be retained. Further, all retaining walls need to be designed with a filtered drainage system behind the structure capable of retaining the fine loess silt particles while allowing water to drain into a sub-soil drainage system.

7 Earthworks

7.1 Review

The Riley Report states (s6.5.1) “*colluvium is prone to internal erosion and instability under high ground water conditions.*” There are references to “*local re-contouring*” and to “*remedy re-contouring of the tunnel gullied slopes*”.

The Riley Report states that underground service trenches in loess and colluvium are to be backfilled with chemically stabilised loess and colluvium. I note the Riley Further Information Report indicates preference for the use of hydrated lime based on its demonstrated past performance.

S6.5.2 of the Riley Report headed “*Colluvium Cut Slopes*” discusses cut slopes in colluvium at a maximum slope of 1V:1.5H.

Later in the same section under the heading “*Road Embankment Fills*” the report states that where fills found on colluvium within minor risk zones, either over excavation of tunnel gully areas and back filling with Hillersden Gravel, or large-scale “*rotomixed*” chemical stabilisation may be feasible in loess soils.

7.2 Comment

It is important to note that the property of dispersion, which causes tunnel gulying, cannot be altered by reworking alone and chemical stabilisation is needed to prevent this type of erosion. Where dispersive loess and colluvium is to be used for earth fill, or as a foundation it must be chemically stabilised. Alternatively, it could be totally contained within a filtered drainage system designed to retain the loess while allowing the water to drain away. Earthworks should avoid using dispersive loess or colluvium unless these protective measures are implemented.

The Council should ensure that hydrated lime is used rather than another form of lime. This has been tried in the past to save costs but does not work.

I recommend that all slopes should be retained because if they are not the Council will be left with batters which erode and collapse.

8 Gully Crossings

8.1 Review

8.2 Comment

The Riley Report expects to use culverts for road crossings (s6.7) at main gullies pointing out the need to design to prevent scour and to confirm suitable foundations for culvert fills.

8.3 Comment

Where the invert of a channel is loess or colluvium, I expect erosion will be a problem unless dispersive soils have been stabilised using hydrated lime and erosive soils have been protected. The foundation materials for culverts, intakes, outlet and energy dissipation structures will need equal treatment unless they can be founded upon Hillersden Gravel or bedrock.

9 Stormwater

9.1 Review

The Riley Report identifies stormwater control as being critical to limiting the activity of tunnel gully erosion, shallow landslides, small slumps and soil creep processes, and states "*individual on-site soakage pits may be possible in the alluvium terraces*".

9.2 Comment

I agree stormwater control is critical for the loess and colluvium slopes. I cannot over emphasise that one of the most effective methods of preventing tunnel gulying in dispersive soils is to stop water entering the ground. The Riley Report in section 5.6 "Groundwater" established that the formations underlying the loess and colluvium (greywacke bedrock or Hillersden Gravel) have at best very low permeability. Stormwater will not soak into the Hillersden Gravel nor the greywacke. Soakage pits for disposal of stormwater will not be successful and must not be allowed in loess or colluvium. Should this zone change be approved stormwater needs to be reticulated for discharge into appropriate waterways. I agree soakage pits into the alluvial soils are likely to be successful.

10 Wastewater Disposal

10.1 Review

I have received the Peer Review Summary and the Comments on Revisions to the Riley Report prepared by Ian Gunn, both dated 9 October 2012. I have also briefly read the Riley Consultants "Wastewater Servicing Report", dated 11 February 2011. The report does not discuss in any depth the geological constraints with disposal on the hill slope termed "highland" disposal. It appears from Ian Gunn's review that four to five hectares will be required within an available 19 hectare area for effluent disposal on the hills. The locations are shown on drawing 04819/6WW-1 titled Wastewater Servicing Management.

10.2 Comment

As was the case for stormwater, disposal of wastewater into the alluvial soils is likely to be sustainable but disposal of any additional water into the loess or colluvium will require great care to be sustainable.

The Riley geotechnical report is clear neither the underlying Hillersden Gravel nor the greywacke bedrock are expected to provide drainage, but conversely will prevent it. Disposal into the loess and colluvium can be considered sustainable only if these soils are proven to be non-dispersive or the disposal field has been specifically designed with filter drains to restrain the dispersed loess while collecting the treated effluent.

The disposal of effluent onto the hills will also need to be sustainable when considering soil creep and slips. The Riley Engineering Geology Plan (drawing 04819/6GT-2) shows widespread soil creep and slipping on the hill slopes. Any increase in groundwater moisture content where these symptoms already exist will be likely to generate failure. The Wastewater Servicing Assessment drawing shows the location of designated wastewater utility areas avoiding areas containing the worst soil creep and slips. There is also no apparent evidence of tunnel gulying shown on the aerial photographs for these utility locations.

Provided the developer can demonstrate that for these highland slopes there will be no increase in soil moisture content with the application of the additional moisture at 2mm/day or 730mm/year, soil creep and slips should not be generated by effluent disposal. The developer also needs to confirm the location of the effluent disposal field on the hill slopes does not contain dispersive soils.

11 Conclusions

- The soils found on the hills of the subject site have symptoms over an extensive area of high erodibility and dispersion. No factual test data has been presented to quantify the symptoms or the extent of the problem. An observational study by Dr Iain B Campbell, supplied to the author by the Council, found soil dispersion and shallow gulying occurred on slopes greater than 12°.
- Where loess or colluvium is present on slopes that exceed 12°, I conclude soils must be assumed to have dispersive or highly erodible properties unless further laboratory testing proves otherwise.
- I consider slopes that exceed 12° are not suitable for residential development where loess or colluvium is present on that slope unless the soils have been chemically stabilised or it can be proven the soils are non-dispersive.
- I conclude areas where the immediate uphill slopes exceed 12° and which are covered with dispersive loess or colluvium are not suitable for residential development unless the soil on the slopes above has been chemically stabilised. For clarity, this applies to slopes which can discharge onto residential properties.
- If chemical stabilisation is to be utilised it must use hydrated lime as this has been proven for such soils.
- Slopes where the soil is shown to be non-dispersive but remains highly erodible may be used for residential development or may be situated above residential development, provided surface runoff is appropriately controlled with the use of filtered drains, vegetation and other protective measures.
- Exposed cuts and batters are not appropriate in loess or colluvium.
- Any structure, road, service trench, retaining wall, culvert or earthwork is at risk of being damaged where it is built over or beside dispersive soil that has not had remedial treatment.
- I recommend the Council obtain satisfactory assurance that any boulders which could become dislodged and thereby present a risk to residential properties, will be removed.
- The Council needs to have zero risk to residential properties from shallow landslides, either by the provision of remedial protection works or a reduction in residential area to avoid debris run-out.
- Waterways flowing through the proposed residential zone may carry a high debris load due to shallow landslides higher up in the catchment and access must be provided to allow maintenance and sediment removal.
- I recommend the Council obtain a statement from the developer confirming that within the residential zone all slumps and soil creep will be remediated, using works that can be easily maintained on each individual allotment.
- The disposal of any stormwater into soakage pits is not sustainable in loess or colluvium but may be sustainable in alluvial soils.
- The geology on the hill slopes is not favourable for sustainable effluent disposal to ground. The wastewater utility disposal sites have been located in the most favourable areas to avoid problems caused by dispersive soils, soil creep and slips. Providing there is no net increase in soil moisture content and dispersive soils are proven not to be present, sustainable effluent disposal should be achievable.

Appendix C

MARLBOROUGH DISTRICT COUNCIL – PLAN CHANGE 60, MAXWELL HILLS ZONE:
WASTEWATER REPORT ASSESSMENT

PEER REVIEW SUMMARY

Prepared By: Ian Gunn
Date: 9 October 2012

1.0 Background

In April 2011 Marlborough District Council received a request for a zone change from Rural Zone 4 to Maxwell Hill Zone so as to allow subdivision of 160 lots on some 50ha of land bordering Maxwell Pass Road and Taylor Pass Road, Blenheim.

This Peer Review Summary outlines the findings into an assessment of:

- (a) the wastewater servicing proposals for the proposed development as set out in Riley Consultants report [Appendix I to the Plan Change Request of 26 April 2011].
- (b) the reply to request for further information as prepared by CPG consultants dated 21 November 2011.
- (c) revisions to the Riley Consultants report arising from the assessment under (b) above [31 August 2012].

In respect of (a) the assessment and findings were provided to Council on 24 June 2011; in respect of (b) comments and findings were provided on 16 January 2012; in respect of (c) comments were provided on 9 October 2012.

2.0 Findings from the Assessment of Wastewater Servicing Proposals

- 2.1 Wastewater collection and treatment:** Each lot in the development is proposed to be serviced by either:
- (a) a septic tank for each dwelling with reticulated septic tank effluent pumped to a communal treatment plant; or
 - (b) a grinder pump for each dwelling with pressure sewer reticulation to a communal treatment plant.

The communal treatment plant is to comprise a recirculating textile packed bed reactor (rtPBR) with treated effluent then pumped to drip irrigation fields located on land outside the area to be zoned for subdivision.

Peer review findings were that:

- There seemed to be a disconnect between use of a septic tank effluent pumping (STEP) system and grinder pump reticulation in transferring domestic wastewater flows to the treatment site.
- Clarification was needed on whether the treatment plant process was to provide for grinder pump flows or pre-treated (via on-lot septic tank) STEP flows.

2.2 Treated effluent irrigation: Drip irrigation fields were proposed in four locations for three site and soil conditions:

- Upper slope slow draining silty soils at 2 to 3mm/day DIR (design irrigation rate);
- Lower slope slow draining silty soils at 4mm/day DIR; and
- Gravelly river flat soils alongside the Taylor River at 10mm/day to 15mm/day DIR.

The objective of drip irrigation of treated effluent is to spread flow at a low application rate into the topsoil so as to maximise uptake of effluent nutrients into plant growth as well as maximise evapotranspiration and minimise effluent soakage to groundwater. The report was not clear as to how these objectives might be met.

Peer review findings were that confirmation was required as to the selection of DIR values for the soils in each of the three types of application area, showing that these application rates:

- maximised topsoil uptake and treatment;
- minimised subsoil infiltration;
- avoided potential for tunnel erosion in loess soils; and
- prevented infiltration to groundwater of undesirable levels of nutrient, specifically nitrogen.

2.3 Environmental effects assessment: The report made general statements re the use of an advanced technology treatment system discharging high quality treated effluent to identified irrigation areas with DIR values based on specific soil and environmental constraints.

The peer review found that an assessment was required of the nutrient nitrogen output from both the development and the drip irrigation fields, and the nitrogen impact on downstream catchment areas and the water quality in both the Taylor River and the lake behind Taylor Dam. To ensure minimum environmental effects from the use of the rezoned land and achieve the objectives for a sustainable subdivision and wastewater servicing system, then a nitrogen budget needed to be provided to show that the overall contribution of nitrogen from the development is zero compared to existing nutrient contributions from current land uses.

3.0 Findings on the Response to Request for Further Information

- Wastewater collection and treatment:** Satisfactory clarification was provided concerning the collection and treatment system confirming a fully compatible STEP system with riPBR treatment technology.
- Confirmation of drip irrigation DIR values on upper and lower slope irrigation fields:** The consultant's response introduced significant confusion into selection of irrigation loading rates by mixing soil design loading rates (DLR) for trenches and beds with DIR for drip irrigation. Clarification was not provided as to the DIR values to be applied to the soils on the site, and what reduction in these values is proposed to compensate for steep land, potential for runoff and the need to promote high nutrient uptake from plantings. It appears that if need be extension of the irrigation fields can be accomplished within the upper and lower slope land area available for wastewater land application.
- Confirmation of drip irrigation DIR values on the lowland (river flat) irrigation fields:** The consultant's response repeated the significant confusion into selection of irrigation loading rates by mixing soil design loading rates (DLR) for trenches and beds with DIR for drip irrigation. Reduction of DIR values for the treated effluent flows to the river flat soils could not accommodate the daily flows proposed to this area.
- Nutrient budget assessment:** The consultant responded that a full nutrient balance assessment would be provided at the discharge consent application stage for the subdivision. However, a preliminary assessment was commissioned from a separate consultancy. This concluded that:
 - Low DIR values can manage long-term nitrogen loading requirements. [The DIR values proposed by the separate consultancy clarified the deficiencies in the main consultant's responses as discussed in (b) and (c) above.]
 - Irrigation fields would require appropriate planting and cropping regimes.
 - Controlled biomass management for trees on slope areas and pasture on the river flats would enable nitrogen leaching to ground and surface waters to be kept within pre-development levels.

Overall this separate technical advice provides a satisfactory response to the questions surrounding nutrient management from the proposed subdivision.

- (e) Overall management for the wastewater servicing system: The response to the request for further information gave an assurance that a suitable management structure can be put in place to achieve the objectives for a sustainable wastewater system. This is accepted, as there are precedents for such management structures elsewhere in NZ.

4.0 Findings on Revisions to Riley Report in Responding to Comments on Further Information

- (a) There is insufficient area available on the lowlands to accommodate irrigation fields of sufficient size to achieve adequate nutrient (nitrogen) reduction.
- (b) Ample land is available on the highland slopes to accommodate irrigation fields.
- (c) Planting and harvesting of eucalypts on highland slope irrigation fields will enable post-development nitrogen leaching levels to be kept below pre-development leaching levels from dry-land beef cattle grazing.
- (d) Planting of eucalypts will also control potential for slumping and soil creep in irrigation areas.
- (e) Adopting a conservative design irrigation loading rate of 2mm/day would provide a high level of additional mitigation against the potential for soil creep.

5.0 In Conclusion

Wastewater servicing for the 160 lot subdivision proposed in the area for which rezoning is applied for is subject to constraints and risks as follows:

Constraints:

Topography and soil variations in respect of irrigation fields.

This needs to be addressed by confirmation of suitable DIR levels as well as use of high evapotranspiration planting in irrigation areas.

Risks:

Nutrient enrichment of lower catchment groundwater and surface water resources.

This needs to be addressed by nutrient budgeting incorporating as required nitrogen reduction measures at the treatment facility as well as plant management and cropping of growth in irrigation areas

Mitigating against potential for soil creep from effluent irrigation.

This can be addressed by adopting a conservative design irrigation loading rate coupled with planting of irrigation areas.

Dealing with constraints and minimising risk will require oversight of the wastewater servicing system via a consistent and reliable operation, maintenance and management regime. The success of the management regime will be the key to ensuring long-term high level environmental performance of the wastewater servicing system.

**MARLBOROUGH DISTRICT COUNCIL – PLAN CHANGE 60, MAXWELL HILLS
ZONE: WASTEWATER REPORT ASSESSMENT**

COMMENTS on REVISIONS to RILEY REPORT

Prepared By: Ian Gunn
Environmental Engineering Consultant

Date: 9 October 2012

1.0 Background

Two previous reports reviewing the wastewater proposals for a 160 lot development in the proposed Maxwell Hills Zone have been submitted as follows:

- (a) Wastewater Report Assessment [24 June 2011] which reviewed Riley Consultants (Riley) wastewater servicing proposals, and outlined requirements for further information.
- (b) Comments on Request for Further Information Response [16 January 2012] which evaluated proposed drip irrigation design loading rates from Riley and nutrient loading assessments from CPG consultants (CPG).

In response to (b) above Riley has subsequently amended its recommended drip irrigation design loading rates [DIR] (via handwritten changes of 31 August 2012) and consequentially the resulting irrigation area requirements for both highland slope areas and lowland areas. Riley has also amended one paragraph of the CPG nutrient assessment.

These comments compare the Riley changes in irrigation area requirements based on soil hydraulic capacity with CPG area requirements based on nutrient (nitrogen) loading.

2.0 Comparing Irrigation Area Requirements

Riley originally used design loading rate (DLR) values for trenches and beds instead of design irrigation rates (DIR) for drip irrigation fields. Now that they have changed from DLR to DIR, a comparison can be made of irrigation field requirements based on effluent hydraulic loading versus those based on CPG nutrient (nitrogen) loading assessments. This comparison is set out in Table 1 below.

The irrigation area requirements evaluated by CPG are aimed at ensuring that post-development nitrogen leaching from treated effluent irrigation fields is no greater than the pre-development leaching from animal grazing (dry-land beef).

Table 1 indicates that:

- (a) For the Highland Slopes, irrigation area requirements are similar for both hydraulic design loading rates and nutrient loading rates (4 to 5ha). However, to ensure that post-development nutrient leaching is no greater than pre-development, the irrigation fields would need to be eucalypt planted and biomass harvested. Ample suitable Highland Slope area is available to accommodate irrigation field requirements.
- (b) For the Lowlands there is marginal land area available to accommodate irrigation areas based on hydraulic loading, and insufficient land area available to accommodate nutrient loading. With 3.6ha of available land area and a 4 to 5ha recommended area to avoid nutrient leaching above pre-development levels, the Lowlands are unsuitable for locating effluent irrigation fields.

Table 1:

| Irrigation Fields Location | Riley Revised Assessments [31 August 2012] Based on DIR and Soil Category Assessment | CPG Assessments [31 October 2011] Based on Nitrogen Loading |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Highland slopes | <ul style="list-style-type: none"> • 160m³/day design flow • DIR of 2.9 to 3.6mm/day • Irrigation fields area 5.5ha to 4.4ha • Total land area suitable for location of irrigation fields, 19ha. | <ul style="list-style-type: none"> • 160m³/day design flow • Irrigation fields to be planted with eucalypts which are harvested to remove nitrogen in plant biomass • Four sizing options meet nutrient limitation requirements: <ol style="list-style-type: none"> 1.) 4mm/day over 4ha. 2.) 3.2mm/day over 5ha. 3.) 2.7mm/day over 6ha. 4.) 2mm/day over 8ha. • CPG recommends 4 to 5ha of eucalypt planted and harvested irrigation areas be provided |
| Lowlands | <ul style="list-style-type: none"> • 160m³/day design flow • DIR of 4 to 5mm/day • Irrigation field area 4ha to 3.2ha • Total land area suitable for location of irrigation fields, 3.6ha. | <ul style="list-style-type: none"> • 160m³/day design flow • Irrigation fields to be grazed with sheep to control biomass growth • Four sizing options meet nutrient limitation requirements: <ol style="list-style-type: none"> 5.) 5mm/day over 3.2ha. 6.) 3.2mm/day over 5ha. 7.) 2.7mm/day over 6ha. 8.) 2mm/day over 8ha. • CPG recommends 5 to 6ha of sheep grazed irrigation areas be provided |

3.0 Irrigation Loading Rates and Slope Stability

Council has received a geotechnical review report (August 2012) related to the land area covered by the Maxwell Hills plan change request.

In respect of wastewater management the report (in Section 9.2) indicates that soakage pits for wastewater disposal “must not be allowed” in loess or colluviums slopes. The report also notes (3.3.1) that Riley proposes two techniques for mitigation of potential soil creep, being:

- installing surface drain and subsoil drains to minimise groundwater levels; and
- planting dense shrub vegetation in soil creep areas to help dewater the slope and increase stability through root-binding effects.

The report then comments (3.3.2) that the planting option referred to above is the “only technique nominated that is likely to be viable for mitigating slope failure where slumps and soil creep are evident”.

In locating irrigation fields of around 4 to 5ha within the available 19ha seen as suitable land for effluent management, it should be established that those areas of least potential for slump or soil creep are to be utilised. The recommendation for eucalypt planting of all irrigation fields on the highland slopes will have the double benefit of controlling nutrient (nitrogen) leaching as well as controlling potential for slumping and soil creep.

The key question then becomes what DIR should be adopted for irrigation field loading so as to minimise potential slumping and soil creep in the planted areas. A precautionary approach would be to adopt either 2.7mm/day over 6ha of irrigation fields, or 2mm/day over 8ha of irrigation fields. This compares with the 4 to 5ha recommended by CPG.

4.0 Findings on Riley Revisions

Finding 1: There is insufficient area available on the lowlands to accommodate irrigation fields of sufficient size to achieve adequate nutrient (nitrogen) reduction.

Finding 2: Ample land is available on the highland slopes to accommodate irrigation fields.

Finding 3: Planting and harvesting of eucalypts on highland slope irrigation fields will enable post-development nitrogen leaching levels to be kept below pre-development leaching levels from dry-land beef cattle grazing.

Finding 4: Planting of eucalypts will also control potential for slumping and soil creep in irrigation areas.

Finding 5: Adopting a conservative design irrigation loading rate of 2mm/day would provide a high level of additional mitigation against the potential for soil creep.

Appendix D

Record Number: 12349853
File Ref: W045-15-60
Date: 18 October 2012

Memo To: Mark Caldwell

From: Brin Williman and Brett Walker

| |
|--------------------------------------------------------------------------------------|
| Subject: Plan Change 60, Maxwell Hills Zoning; Flooding and Stormwater Issues |
|--------------------------------------------------------------------------------------|

This brief memo addresses flooding, stormwater and associated erosion issues addressed by the applicant in Plan change 60 including updated information supplied in their November 2011 further information report. This memo interfaces with geotechnical studies carried out by Council consultants P Russell of MWH, I Campbell of Land and Soil Consultancy Services and C Gray of Council staff.

Brin Williman, BE ME CPEng FIPENZ, is Rivers Planning Engineer (formerly Rivers and Drainage Engineering Manager) in the Assets and Services department of Council; Brett Walker, NZCE REA, is Infrastructure Projects Engineer also in the Assets and Services Department of Council.

1. Taylor River flooding

The report depicts the floodwater area backed up by the Taylor River flood detention dam up to the emergency spillway crest level of 68.4. Council's detailed analysis shows that this emergency spillway crest level is not reached until a flood rarer than a 1 in 100 year return period event. The applicant's section layouts and minimum finished floor levels are in accordance with this flood hazard, and are therefore acceptable.

2. Maxwell Creek flooding

The applicant's studies indicate that Maxwell Creek poses a small degree of flood hazard.

They propose that a flood protection bund (stopbanking) is required for a small length as necessary to mitigate the hazard, and this seems a satisfactory solution. The bund is proposed to be located on private allotments, which raises the question of ongoing maintenance of the stopbank. This maintenance should be fairly straightforward and it is likely that Council will be prepared to take over ongoing maintenance. An easement in favour of Council to allow such maintenance is required. This may also affect the desirable lot sizes here.

3. Hillslope floodwater

The area runs along the base of extensive hillslopes. In times of heavy rain floodwaters come down this hillslope and through the proposed zone area. These floodwaters can be divided into three categories; stream flows, gully and overland flow, subsurface (tunnel) flow.

These floodwaters have the potential to cause erosion and deposition of sediment on much of the land proposed to be rezoned. This erosion and sedimentation may cause serious nuisance to the proposed lots in the zone. Even if the foundations of the houses are suitably engineered there may be unacceptable erosion and deposition to the land (curtilage) of these residential lots. In RMA terminology such nuisance could be considered as material damage for residential lots.

The applicant has proposals to deal with these potentially erosive floodwaters, depending on type.

3.1 Stream floodwaters

Where there are small streams the applicant intends to locate property boundaries adjacent to and parallel with stream channels and impose easements. An alternative in some cases is running the

streams down road reserves. These proposals are shown on drawings 04819/6SW sheets 1-4 rev 1.

This seems an effective and appropriate mitigation measure. However it should be noted that the uphill diversion bunding (see 3.2 below) could transfer significant extra floodwaters into these streams. This extra floodwater may require future erosion control works. Such erosion control works should be at the cost of the developer.

The easements not only preclude building in the streambed but also enable maintenance to be more easily carried out.

3.2 Overland and gully flow

From time to time there will also be some overland flow from the hillside above; especially down small gullies not large enough to be considered as streams and dealt with under as under 3.1 above.

The applicant is intending to control this by a "sheet flow diversion bund"; again as shown on drawings 04819/6SW sheets 1-4, rev 1.

I consider that this is a more difficult and complex engineering mitigation measure than indicated, for the following reasons.

- The bund is to be built across steep land that is already approaching the angle of repose for the soil. There are likely to be issues regarding steepness and stability of the downhill batter slope.
- Not specifically mentioned, but probably required, is a cut-off trench on the upstream side of this diversion bunding. The cut-off trench will provide material for the diversion bunding and will carry the water flows.
- This cut-off trench and bunding will need to be constructed on a steady and significant slope to discharge to the nearest stream. There could be issues regarding the stability of the uphill batter of the trench.
- The indicative drawings on 04819/6SW appear to indicate that in places the diversion bunding (and cut-off trench?) goes uphill. This of course will not work, and would need to be addressed by careful location of the bund/trench or to excavate significant cut.
- Conversely the indicative drawings show the bunding (and cut-off trench?) to be very steep in places which may require erosion protection of the surface.
- The bunding/cut-off trench will be ineffective at dealing with subsurface tunnels on its own, as these tunnels may be of the order of 1.5 metres below the surface.
- This bunding/trench may have to be designed to receive water from the proposed novaflow pipes as part of the treatment for tunnel gullies.

The tunnel gullies may be of the order of 1.5 metres below ground level. The level of the cut-off trench may therefore have to be lower than novaflow pipes provided for tunnel gully mitigation measures.

- It is possible that this diversion bunding/cut-off trench will leak diverted floodwaters into a tunnel gully underneath. This could cause an increase of erosion, flooding and sedimentation problems downstream where the tunnel emerges. The cut-off trench may need to be lined with an impermeable surface such as concrete.

3.3 Subsurface tunnel flow

Subsurface floodwaters in eroded tunnels within the loessial soils are to be expected in some locations.

The applicant proposes remedial treatment for treating such tunnels, as outlined in Riley's Further Information response of 12 March 2012 under question 3.1.

The applicant's proposed remedial measures appear sensible, but may not be adequate. Furthermore it is not clear as to when the investigation and remedial works will occur; nor what will happen if the remedial measures are not adequate; nor who is to take responsibility if the tunnel problems arise at a much later date following storm activity.

Council's experience (discussed in 3.4 below) is that dealing with subsurface tunnel flows is difficult, the problems may not become apparent for many years, and the solutions more complex and expensive than implied by the applicant.

For example is the use of Novaflow pipes. These perforated pipes will drain surrounding soil by allowing water to leak into the pipes. However water can also leak out, and so the use of Novaflow pipes in some locations may simply transfer the problem from one location to another. A modification that Council has used is to set Novaflow pipes in concrete so that the bottom half of the Novaflow pipe becomes leak proof. This of course costs more.

Issues involved in the investigation and timing of mitigating works, and possible future upgrading of the works need to be addressed in this zoning application. They have not been so far.

3.4 Marlborough District Council experience

Forest Park: Marlborough District Council zoned an area at Forest Park at the base of the Wither Hills on the southeast periphery of Blenheim for residential development and in 1997 approved a subdivision consent that included a dozen houses on quite steep loessial soils.

The Property section of Council was also the developer. A consultant geotechnical specialist (M Yetton) was engaged to advise on mitigation measures.

The situation is similar to this Maxwell Hills proposal.

The initial mitigation works to counter hillslope surface and subsurface tunnel flows proved inadequate. The mitigation works have had to be upgraded on two occasions, the most recently following the 2010 storms; being 13 years after the initial consent.

The mitigation works now in place at Forest Park are more extensive and expensive than that proposed for Maxwell Hills. The mitigation works include:

- A 240 metre long bund with upstream concrete-lined cut-off channel.
- This cut-off channel being underlain with a 375 m pipe with inlet sumps from the channel at intervals.
- Two hectares of upstream hillslope treated with gypsum.
- A further concrete-lined cut-off channel 50 metres further up the hillslope associated with a farm track.

The initial mitigation works could be upgraded because Council was the developer and Council also owned the farm land on which the mitigation works were carried out.

Part of the concerns had arisen because conditions regarding the resource consent and building consents were not clearly written and/or interpreted.

A detailed memorandum (written in 2010 during upgrading work) regarding these geotechnical issues of the Forest Park residential development is attached as an appendix herein.

Elisha Drive: As part of residential subdivision at the base of Wither loessial hill soils a 1 metre deep cut-off trench with a concrete base, nova flow pipe, polythene sides and selected backfill was required.

3.5 Ongoing maintenance and upgrading

The proposed diversion bund, probable cut-off drain and tunnel gully mitigation works require ongoing maintenance and possible upgrading in the future.

This should be the responsibility of the developer. It is unlikely that Council will be prepared to take on this responsibility.

To ensure this will require some form of written surety. It will also require guaranteed access to the land on which the mitigation works are to be carried out.

Any access agreement may need to address what stock should graze the land so as to minimise damage to the bund/cut-off trench. If it is not to be grazed then the issue of vegetation control of the bund/cut-off trench needs to be addressed.

4. Stormwater run-off from zoned land

There will of course be stormwater run-off from the proposed residentially zoned land.

The impermeable areas of roofs, roads and driveways will increase the volume of run-off. The driveways and roads will also increase the peak rate of run-off by shortening the time of concentration of storm events.

Driveways, house excavations, landscaping and garden irrigation will change the run-off pattern and may induce erosion on land that was a stable pre-development.

The applicant's geotechnical report and drawing 04819/GT-4 classifies the land into four hazard zones; low, minor, moderate and high. The majority of the land is shown as being in the 'low' category with virtually none in the 'high' category.

However about a third of the land is shown as being as a "moderate hazard". This land is generally steeper land with the likelihood of sensitive loessial soils. Changes to the run-off pattern from driveways, landscaping and irrigation could cause instability for immediately downstream properties for allotments on this moderate hazard area.

Each lot in the "moderate hazard" area should have all stormwater collected and connected into the stormwater system.

Roads play an important role in stormwater control. Roads will act as stormwater cut-offs that collect, control and lead stormwater into a pipe network. It is very desirable on the "moderate risk" soils for roads to run along the contour so as to separate lots from being immediately upstream and downstream of each other.

The applicant's geotechnical drawing 04819/GT-4 can be overlaid with their stormwater network drawings 04819/6SW – sheets 1-4. (Both drawings were drawn by Riley consultants but a specific combined drawing has not been prepared by them). Such a drawing would show the degree to which the roading layout carries out stormwater control between lots upstream and downstream lots on the "moderate hazard" land.

From an approximate overlay that I have sketched, I estimate that over 50 lots are situated in Riley's 'moderate hazard' area. Of these the suggested roading layout plays the desirable stormwater control role of separating the majority of the lots.

However 15 lots are still located immediately upstream and downstream of each other.

I suggest that the road layout could be redrawn to better control stormwater.

For example on 04819/6SW-2. A road (right of way?) is shown as starting from Pond B, heading southwest briefly and then west along the contour. If this road was continued further west along the contour to join another road further west it could provide better stormwater control for five lots. This is also an area of obvious tunnel gully erosion.

I suggest the roading layout needs to be changed to ensure better stormwater control in the 'moderate hazard' area.

It is not known how similar the applicant's definition of "moderate hazard" areas compares with the 12 degree slope criteria used by I Campbell (and confirmed by P Russell). The important point is that roading layout is a method that should be used to control stormwater where there are erosion issues.

5. Status of roading and stormwater diagrams and zoning rules

The drawings 04819/6SW rev1 sheets 1-4 provide critical proposals for the control of stormwater in areas recognised as being of "moderate hazard". The essence of the drawings should be enshrined in any zoning approvals, if approval is given.

Other changes to the proposed zoning rules may also be needed to be modified to incorporate issues brought up in this memo.

The interface between zoning rules and conditions contained within subsequent resource consent and building consents needs careful consideration. An example is the zoning rules regarding erosion control within the loessial soils of the Marlborough Ridge Zone (within the Wairau Awatere Resource Management Plan). While the zoning rules were quite simple, the subsequent main subdivision resource consent included a detailed report from M Yetton (Geotech Consultants), which in turn required a specific geotechnical report and information sheet be prepared for each lot with a checklist of issues to be addressed.

6. Conclusions

- The applicant has soundly based proposals to deal with flooding and erosion from the Taylor River, Maxwell Creek and small hillside streams.
- The applicant appears to have underestimated the difficulties in controlling surface and subsurface hillslope run-off from above and its detrimental impact on the steeper loessial slopes that comprise about a third of the proposed zoning area, and that some of these difficulties may only develop at a future date. This conclusion is based on Council's experience at dealing with similar situations of residential development on the base of the Wither Hills.
- Any zoning approval should require the developer to maintain, and upgrade into the future, any mitigation measures necessary to control the impact of these hillslope floodwaters on the hazardous areas of this proposed zone.
- The roading layout should be relocated so as to improve stormwater control in the hazardous areas.
- The proposed zoning rules should be checked to ensure that these conclusions are adequately incorporated, and that the rules give clear direction to requirements of subsequent resource consent and building consent conditions within the zone.

Appendix – Historical Memo of July 2010 (attached)

Record Number:
File Ref: P180-05, U970628
Date: 9 July 2010

**Memo To: M Wheeler, G Townsend, T Quirk, G Roberts,
D Heiford, J Lyall, H Versteegh**

From: Brin Williman and Ashley Ticehurst

| |
|------------------------------------------------|
| Subject: Flooding and Stormwater Issues |
|------------------------------------------------|

Situation

The steady rain in late May and early June has once again brought up the questionable issue of whether adequate measures have been put in place regarding housing constructed on the slopes of the Wither Hills.

The particular area is Forest Park Drive and Quail Place where 10 houses have been built on hill slopes of the Wither Hills backing onto the Wither Farm Park.

The development was approved in the early 2000s with the developer being Council itself and the land has been zoned for residential.

The loessial nature of the soils makes them prone to tunnel gully erosion. From initial observation there are at least three tunnel gullies and an incipient tunnel gully over this 300 metre length of hillside.

Two properties have been identified as detrimentally suffering from water flow and sediment deposition due to a tunnel gully flow erupting on their properties.

It is not known if the foundations of the houses are at any risk.

Only four of the houses have foundations built on the 15 metres of steeper hillside that was earlier identified as the area of concern for houses.

One of the landowners, a Mr B Reed has raised concerns to Council staff in early June this year, and also in August 2008; though there is no file record of a formal written complaint from him.

A cut-off drain was constructed as part of the mitigation measures, and also has been subsequently upgraded. Nevertheless it is not solving the problem.

In this last event we have organised some urgent immediate repairs to the cut-off drain of uncertain efficacy.

The reason that to date Rivers Section staff have taken the initiative in the matter is that the cut-off drain was constructed on Soil Conservation reserve managed by Rivers Section.

The cost of the remedial work done to date has been approximately \$7,000 funded from the Wither Hills Farm Park Soil Conservation budget.

It is desirable to do more work, but uncertain as to how much expenditure is justified.

It should also be noted in this wet winter that large tunnel gully under-runners have developed at other locations on the Wither Hills.

Mitigation Measures Required for Subdivision and Houses

The issue of allowing houses to be built on the sensitive soils of the area has been addressed in various resource consents and building consents, with key aspects as follows.

February 1996 (File U970628)

Report "Geotechnical Evaluation of Hill Areas included in the proposed Forest Hills Subdivision Wither Hills, Blenheim", prepared for Davidson Partners, by M Yetton of Geotech Consulting.

This report discusses the problems of tunnel gully erosion in the area and for the 10 lots backing onto this hill slope area recommended.

- "the 15 metre wide strip of mature trees and shrubs should be left"
and
- "the construction of a surface water cut-off drain ... should be detailed carefully".

July 1997 (File U970628)

Ayson and Partners apply for resource consent on behalf of Marlborough District Council Property Section.

September 1998 (File U970628)

Consent granted including conditions based on the M Yetton report.

- 36. That a surface water cut-off channel be designed by a registered engineer
- 37. That the existing trees be maintained, or replaced if felling is necessary, and that these trees and other vegetation be maintained along a margin within the eastern extremity of those lots with no structures to be located within this vegetation band."

December 2000

Fire destroys many of the trees that the consent condition requires to be left.

March 2002 (File U970628)

Variation to Subdivision Consent "This variation allows the trees to be removed if a specific application is made to Reserves Section of Council, or a geotechnical report is produced that demonstrates alternative mitigating action against erosion. Specifically buildings are required to have a geotechnical report from a suitably qualified Geotechnical Engineer or Geologist regarding foundation design to mitigate and control erosion."

October 2002 (File U021097)

Variation to previous resource consent to allow a different layout of sections. Previous conditions carried forward to this consent.

May 2003

A so-called "as-built" plan of the cut-off drain received by Council. A very simple plan shown.

2004 (email from Davidson Partners, file U970628)

Following concerns raised by Council staff on the effectiveness of the cut-off drain, it was modified by underlaying a 375 mm pipe underneath it, with inlet sumps at intervals along the drain. The grade for the

upgraded cut-off drain (2004), was essentially based around grade of pipe to get the design flow out. Grades varied between 1:222 to 1:107. The design was approved by Geotech Consulting.

During construction, some tunnels were noted upstream of cut-off (some at inverts 1.7 m below GL). These were filled in with on site material mixed with Gypsum on advice from Ron Sutherland.

There was a time delay between starting and finishing (approx August 2004 to May 2005).

2003-2009 Various property files

Building consents granted for the nine properties that have been built on so far, including specific geotechnical reports; though the degree of detail in these reports varied.

One property has yet to have an application for a building consent.

August 2008

The problem of soil deposition and water flow through his retaining wall was brought up by B Reed.

Consulting engineers Tonkin and Taylor inspected the site and made a verbal comment to N Morris on the issue. In their opinion it was unlikely to be due to a tunnel gully under-runner, but caused by poor backfill of the retaining wall. This opinion was contrary to Council staff viewpoints.

Comment on Mitigation Measures

- Cut-off drain. This measure will only deal with surface water. However the tunnel gullies are known to be at least 1.3 metres below ground level – such as the one above Reed's property and another identified by the building consent report on the Muollo property at No. 12 Quail Place. The cut-off trench is therefore of limited value.
- The cut-off drain was required by the Yetton report to be carefully designed. The cut-off drain was not carefully designed.

The drain has been laid at a very flat gradient so that water ponds in the trench, and so will feed into any tunnel gully that passes below it.

The drain is built on quite a steep cross slope of 1 in 3, which imposes difficulties. The upstream bank edge is very steep and unstable with material collapsing into the trench. This then prevents water flow down the drain.

The drain was a simple cut in the ground with no specified surfacing.

If the drain was expected to be grassed, how would this grass be expected to be controlled? If by grazing – then animals would collapse the upstream batter edge. If by manual tazzing, then who would be responsible for arranging and paying for this tazzing.

Indeed the whole question of ongoing maintenance was avoided in the design considerations of this mitigating measure.

- The farm access track further up the hillside creates an entry point for water into under-runner tunnels, and this issue was not addressed in the subdivision consent process.
- There was a lack of clarity in resource consent conditions regarding specialist geotechnical reporting requirements for house foundations in the area.

Remedial Actions Taken to Date

Stephen Rooney on 1 June 2010 passed on a phone call from Barry Reed who lives at 11 Quail Place, Blenheim.

Discharge from a tunnel gully system was discharging onto his back lawn from beneath his retaining wall. (This is not the first time this has happened. Previous event was in August 2008).

A walkover inspection showed that the cut-off drain was totally blocked with loessial outwash in two places. Upstream of the second blockage a tunnel gully had developed beneath the cut-off channel and beneath the pipe in the channel, about 1.2 metres below ground level and seemingly going straight to Reed's house.

On the farm access road uphill of the cut-off drain tunnels had developed in the eroded watertable. These tunnels appear to lead to two large active tunnel gullies responsible for depositing the loessial outwash in the cut-off channel.

These tunnel gullies were evident and active prior to the subdivision and subsequent building.

1. The channel loessial debris was removed from the cut-off channel, and the channel cleared of debris and vegetation.
2. The tunnel gully that had developed beneath the cut-off drain was excavated out to hard material and hand compacted with backfill of road basecourse ("dirty" AP65) from Pukaka Quarry.
3. The eroding watertable on the farm track was over-excavated and backfilled to the correct grade with compacted road basecourse ("dirty" AP65) ex Pukaka Quarry.

Further Potential Actions

Ron Sutherland of PALMS (ex Catchment Board Chief Soil Conservator) recommends the following actions should be carried out (his fuller report is included as an appendix).

- That the slope above the cut-off drain be gully dozed, deep ripped on contour, treated with gypsum and reseeded.
- That the cut-off drain be re-profiled and surfaced with concrete slurry.
- That regular inspection and maintenance is carried out, including the farm access track.
- Indicative capital cost of \$20,000 and to budget on annual maintenance cost.

There are probably more extensive and expensive actions that could also be taken eg; complete reconstruct of a much deeper cut-off drain on a steeper alignment? Detailed examination of individual house foundations and if necessary remedial works? However it is not clear if any further council works are appropriate at this stage.

Summary

Under-runners and tunnel gully erosion may be posing a threat in periods of heavy rain to some of the 10 houses recently built on the Wither Hills by Council's own development.

The mitigation processes to counter such a threat, and their subsequent upgrading have improved the situation, but it is uncertain if they are completely effective. Nevertheless it is not known as to whether any of the houses are seriously at risk, and if so, only a few of them. There has been no written complaint.

Repairs carried out by Rivers Section to date have reduced the potential for tunnel gully erosion, but a lot more could be done. A moderate level course of action of soil conservation dozing of the eroding area, and improvements to the cut-off drain has an indicative cost of \$20,000.

The problems being encountered at this site may be indicative of similar problems likely to occur on other areas of the erodible Wither Hills should housing be allowed.

I suggest a discussion with relevant staff is required to:

- Confirm further Council actions at this site.
- Implications for permitting further residential developments on the Wither Hills.

Appendix 1

Geotechnical Issues Behind Forest Park Housing



To: Brin Williman

From: Ron Sutherland

Background

Tunnel gully and collapsed tunnel gullies are a feature in the Wither Hills. Large areas of the Farm Park has had treatment for tunnel and gullies for over forty years going back to the mid 1940's when a Soil Conservation Reserve was created on the Wither Hills.

Even though treated from an agricultural sense, the underlying characteristics of Wither Soils do not change. That is high sodium content in soils and sub-soils and a propensity to erode especially in the form of tunnel gullies. Essentially the soils "melt" and "pipes" in the sub-soils form. They can be quite deep and can have considerable length. The hill slopes above the Forest Park have been 'treated' in the past with gully dozing, fertiliser and seed. Further gullies have opened up in this area, some from above the farm access road.

Treatments

Because of the high sodium content of these soils and the dispersion capacity within the soils and sub-soils any treatment requires ongoing maintenance.

In the writer's view maintenance of a grass sward is the best treatment for Wither Hill type soils. This zone needs to be grazed on a regular basis to keep any fire hazard to a minimum.

An option of planting in trees and shrubs on the face is not practical as it does not stop tunnel gullies occurring and would accentuate the high fire risk environment on the urban boundary. The pasture option provides the most appropriate treatment as it can be grazed and kept low especially over summer.

Options

1. Do Nothing.

If nothing done - erosion process will cause further deterioration of cut off channel and is likely to be outflanked in longer term, continued debris and water deposition onto neighbouring properties.

2. Re-profile & Surface Cut Off Drain.

There is a steep bank above the cut off drain with a piped dispersal system with inlet structures down the channel. This is a very flat grade and in places has reverse grades to grilled disposal points.

Tunnel gullies discharge into the channel with resultant debris and the upper face bank has collapsed into the grassed waterway in places. Water ponds in the system due to

the effects of sediment deposition. Ponding water then commences further tunnels in the cut off drain surface.

The system also does not pick up subsurface tunnels. They are present and have 'piped' along the existing disposal pipe.

➤ **Proposal:**

Re-profile existing cut off drain and seal drain surface to ensure water cannot pond in drain creating weak points in cut off. Surface with concrete slurry. Remove and flatten uphill batter to reduce debris falling into cut off drain.

Note; This does not address the issue of subsurface tunnel gullies.

3. Treatment of hill slope above cut-off drain and below access track

➤ **Proposal:**

- Gully doze existing gullies and deep rip on contour to break up gullies. Apply gypsum heavily in gully systems and also apply to hill slope. Re-seed with grass species and fertilise.
- Ensure farm access track acts as effective water cut off.
- Remove cycle track as creates second level of water ponding and tunnel gully initiation and concentrates water.

Recommendations

It is recommended;

- I. That the cut off trench be re-profiled and sealed with a concrete slurry.
- II. That the upslope batter to the cut off trench be cutback to reduce slope.
- III. That gypsum be applied to the whole face especially the tunnel gully areas.
- IV. That the tunnel gully sites are dozed and re-contoured and the remainder of the face is deep ripped and cultivated.
- V. That the face, about 10ha, be reseeded and fertilised.
- VI. That the access road be utilised as a secondary water collection pond with water table slurry stabilised.
- VII. That maintenance of the channel be undertaken on a regular basis and gypsum be applied also on a regular programme.

Estimated Costs

Depending on agreed programme the cost of the programme is likely to be in the order of \$20,000.

RD Sutherland
July, 2010

Appendix 2

Photographs

This group of photographs illustrates the problems and the difficulties of engineering solutions.



Silt deposited on Reed's lawn from dirty water pushing out under retaining wall.



Dirty water ponding under Reed's deck



Possible potential problem to adjacent neighbour



Looking down route of tunnel gully with cut-off drain running across background; shortly after initial construction in 2003



Cut-off drain at initial 2003 construction. Very flat grade of design has left ponding in drain with potential to seep down into tunnel gullies beneath.

Cut-off drain in 2010. Grass growth in drain accentuating holding up water and ponding. Slumping of upstream bank of drain.





Cleaning out soil that has come down tunnel gully and filled cut-off drain



Cleaning out of drain has left sump higher than drain invert level; ponding must occur. Not reasonable to expect digger drive to excavate more delicately.



Self-developed hole from cut-off channel down into tunnel gully under-runner



“Hole” excavated to reveal the tunnel gully under-runner 1.2 metres below ground level



Under-runner being backfilled with road basecourse. This backfilling is limited to footprint of cut-off drain only.



Active slumping of under-runner uphill of site to be forming tunnel gully



Seepage coming up through base of cut-off drain indicating incipient under-runner



Farm access track higher up hillside. Water running along watertable before disappearing down hole into under-runner



Detail of water disappearing into under-runner



Farm access track tidied and backfilled with roading basecourse ("dirty AP65") and concrete slurry finish

Appendix E



**PLAN CHANGE 60 – MAXWELL HILLS ZONE
STATEMENT ON TRAFFIC ASSESSEMENT - FRANK PORTER**

INTRODUCTION

1. My name is Frank Porter. I am the manager of Marlborough Roads, which is a division of the New Zealand Transport Agency (NZTA). I have held this position for ten years, prior to which I was the Land Transport Manager for Marlborough District Council for twelve years.
2. I am a Chartered Professional Engineer and a member of the Institute of Professional Engineers New Zealand.
3. Since joining NZTA (formerly Transit New Zealand) I have been responsible for management of the State highway and Council road networks. In Marlborough, NZTA manages both local and national roading, hence the Marlborough based activities operate under the brand name of Marlborough Roads.
4. I am very familiar with the Taylor Pass Road. Mainly as a recreational cyclist I am a regular user of it.

APPLICANT'S TRAFFIC ASSESSMENT

5. The applicant's traffic assessment has been reviewed and I generally agree with the conclusions although the following matters are noted.

Traffic Volume

6. In terms of traffic volume and as the site is only 8 km from central Blenheim I would expect traffic generation to be closer to ten vehicles per property per day because of the close proximity to Blenheim. New traffic generation will therefore be around 1500 vehicles per day. I accept this greater generation will not affect the capacity of Taylor Pass Road but later I refer to other effects of this new traffic generation.

Speed Assessment

7. Some speed assessment of 85th percentile speeds has occurred by the applicant. At time of subdivision I would expect some more rigour in the assessment of speeds to occur but for the purpose of this proposed Plan Change I consider the assessment adequate and I generally agree that speeds assessed beyond the dam crest are in the right order.
 8. I am aware some high speeds can occur between Blenheim and the Taylor Dam (i.e. towards Blenheim). I assess likely 85 percentile speed will be close to 100 km/h but only sampling would confirm this. A more detailed safety
-

assessment is required and changes may be required to mitigate safety risk. Collective and individual risk will increase as more traffic uses the road. There is no reason why safety could not be enhanced within the existing legal road.

Taylor Pass Intersection Safety

9. The Safe Intersection Sight Distance (SISD) assessment by the applicant appears reasonable. Again, a more robust speed assessment should occur at the time of detailed intersection design however I am confident SISD can be provided.

Effects beyond the Site

10. The Blenheim and Wairau Plains Strategic Study considered development in this area. There is a traffic model available which includes traffic generated from this site. The model was developed by GHD and is maintained by them (Laura Skilton). I have no particular concerns that there will be any major loss of service at downstream intersections. The key intersection will be the Maxwell Road and Alabama Road intersection. This was recently assessed when the Richardson/Aerodrome development was submitted to Council and through traffic distribution from that development, no significant loss of service occurred. Assessed traffic on the southern leg of this existing roundabout will increase by 60 -70 vehicles per hour after losses at Redwood Street and Hospital Road and at this level are sustainable.

Road Standards

11. The applicant has assessed traffic impacts based on existing "road capacity". For example, the applicant needs to consider safety and current best practice. It is my view the assessment is cursory and does not adequately address safety issues. I would expect reference to a Safe System approach and reference to NZ Standards and Codes of Practice or Guides such as Austroads.
12. As indicated in Paragraph 6 [Traffic Volume] above I accept the two-lane road will have the capacity to carry volumes significantly greater than existing and proposed development including future forestry traffic. The issue though is more to create traffic lanes normally 3.5m wide on a collector route plus a sealed shoulder. The most appropriate reference will be NZS4404:2010 and even though not yet adopted by Marlborough District Council, the applicant may regard this as NZ best practice. However Austroads standards also are appropriate. Both documents will propose a total seal width in the order of 8m. In relation to cycle movements I do note the applicant's traffic engineer has made reference to Austroads Part 14. I do not propose to determine final standards but these will need to be acceptable to Council at the stage of subdivision.
13. The applicant may argue that the road needs safety enhancements now. My response is that with current traffic volumes, safety risks are low and there is

no case to focus on this section of road ahead of other higher trafficked roads across Marlborough.

14. Some years ago the road was widened as far south as the Bluegums Landfill (Bluegums) as a result of the Bluegums development and some further widening on this section should be considered over this length and specifically in the vicinity of the mountain bike park entrance where there is poor vertical alignment.
15. Beyond the Bluegums access, the road narrows and I would anticipate upgrading to the appropriate standards (NZS 4404:2010) at the time of any development on site.
16. This upgrading will address issues of access into the Taylor Dam Reserve, again where sight distances are compromised and risks through higher exposure will arise.

Road Hierarchy

17. Taylor Pass Road has very low commuter numbers at present. A significant residential subdivision will attract high numbers of new commuters and visitors to the area. With such anticipated traffic increases, the function of the road will change making it much more a collector route than its current "local road" classification.

Safety Audit

18. I would be anticipating full safety audits to be undertaken by the developer at design and post construction stages for all work.

Cyclists

19. Some focus will be required to address issues of cycle safety on Taylor Pass Road. Obviously seal widths or a separate cycleway can be anticipated outcomes. I note there is already an off-road cycle track suitable for mountain bikes available from the base of the Taylor Dam to Blenheim. There still remains a reasonable demand for cycle use on Taylor Pass Road.

Forestry Cartage

20. The forestry industry may need to separately address pavement strength issues. Future logging traffic is anticipated and will be a permitted activity. Marlborough District Council would of course consider funding the marginal cost of strengthened shoulder widening (as has occurred at some other sites). Otherwise all costs to meet the required level of service may be expected to be at the cost of the developer.
21. Marlborough District Council will not be in a position to assist with funding either from rates or from NZTA financial assistance to enable improvements driven by subdivisional demand.

22. Noise can be anticipated from this activity and issues of reverse sensitivity will be required to be addressed.

Internal Subdivision Roads

23. Subdivisional roads and associated drainage systems will be required to meet best practice and subject to audit. I have no particular concerns at proposed layouts.

SUMMARY

24. I consider the more technical traffic effects such as intersection design raised by the submitters can be mitigated through good design. I particularly refer to likely works required on Taylor Pass Road. The developer should be expected to meet costs of improvements demanded by the development.
25. Noise generation, in particular that generated by passing logging traffic and other heavy commercial vehicles, will need to be considered with an acceptance that logging traffic will operate on the road as of right. The noise effects may be exaggerated in a quiet rural area and through the confined valley shape. I would anticipate having to manage some level of complaint.
26. The increased traffic is likely to change road hierarchy but irrespectively, the route is gaining a collector function by virtue of the traffic increase. Note this same traffic will be passing through some areas of urban Blenheim as there is no alternative route.
27. I am happy that intersection safety is generally met given the applicant's assessment of speeds

John Frank Porter
MIPENZ, CPEng, IntPE

19 October 2012

Appendix F

Recommendation on Submissions Received to Plan Change 60

| Submitter # | Submitter | Address | Support/Oppose/ | Recommendation |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------|-----------------|----------------|
| 1 | Nelson Forests Limited <i>Further submissions</i> <i>-AR & CD Turnbull & Bluegums 2003 LTD (in support)</i> <i>-Meadowbank Station and Limited, Meadowbank Holdings Limited and Meadowbank Vineyards Limited (support)</i> <i>-Upper Taylors Pass Residents (support)</i> | Nelson Forests Limited Attention: Heather Arnold Private Bag 5 Richmond Nelson 7050 | Oppose | Accept |
| 2 | Russell Douglas Hopkins | 60 Beaver Road Blenheim 7201 | Support | Reject |
| 3 | P M Gilbert and P D Norton <i>Further submissions</i> <i>-Nelson Forests Ltd (support)</i> <i>-Upper Taylors Pass Residents (support)</i> | PO Box 189 Blenheim 7240 | Oppose | Accept |
| 4 | Timothy and Pauline Mary Mead | PO Bo 979 | Oppose | Accept |

| | | | | |
|---|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|--------|--------|
| | <p>Further submissions</p> <ul style="list-style-type: none"> -Nelson Forests Ltd (support) -Upper Taylors Pass Residents (support) | Blenheim 7240 | | |
| 5 | <p>AR and CD Turnbull and Bluegums 2003 Ltd.</p> <p>Further submissions</p> <ul style="list-style-type: none"> -GT Cooper and AM Robinson (support) -Meadowbank Station and Limited, Meadowbank Holdings Limited and Meadowbank Vineyards Limited (support) -Nelson Forests Ltd (support) -Upper Taylors Pass Residents (support) | <p>Wilkes RM Solutions</p> <p>Attention: Steve Wilkes</p> <p>Temple Chambers</p> <p>76 High Street</p> <p>Blenheim 7201</p> | Oppose | Accept |
| 6 | <p>Meadowbank Station and Limited, Meadowbank Holdings Limited and Meadowbank Vineyards Limited</p> <p>Further submissions</p> <ul style="list-style-type: none"> -AR & CD Turnbull & Bluegums 2003 Ltd (support) -GT Cooper and AM Robinson (support) -Nelson Forests Ltd (support) | <p>Wilkes RM Solutions</p> <p>Attention: Steve Wilkes</p> <p>Temple Chambers</p> <p>76 High Street</p> <p>Blenheim 7201</p> | Oppose | Accept |

| | | | | | |
|----|----------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|--|---------------------------|--------|
| | <i>-Upper Taylors Pass Residents (support)</i> | | | | |
| 7 | Rob R Lawrence <i>Further submissions</i> <i>-Nelson Forests Ltd (support)</i> <i>-Upper Taylors Pass Residents (support)</i> | 88 Alfred Street Blenheim 7201 | | Oppose | Accept |
| 8 | Upper Taylor Pass Residents <i>Further submissions</i> <i>-Nelson Forests Ltd (support)</i> | Vicki Nalder-Clyde 780 Taylor Pass Road RD 4 Blenheim 7274 | | Oppose | Accept |
| 9 | David Thorn Speedy, Paul Speedy and Les Gray <i>-Upper Taylors Pass Residents (support)</i> | David Speedy 912 Taylor Pass Road RD 4 Blenheim 7274 | | Oppose | Accept |
| 10 | Renewable Resources New Zealand Ltd. | Renewable Resources New Zealand Ltd. Attention: Theo van Schoonhoven 37 Hicks Close Whitby Porirua 5024 | | Oppose | Accept |
| 11 | New Zealand Fire Service Commission | New Zealand Fire Service Commission Attention: Clare Frisby | | Neither support or oppose | |

| | | | | |
|--|--------------------------------------------------------------|--------------------------------|--|--|
| | <i>Further submissions -Nelson Forests Ltd (support)</i> | PO Box 2133 Wellington 6140 | | |
|--|--------------------------------------------------------------|--------------------------------|--|--|

Appendix G

MARLBOROUGH DISTRICT COUNCIL
PO BOX 443
BLenheim 7240
NEW ZEALAND

TELEPHONE (0064) 3 520 7400
FACSIMILE (0064) 3 520 7496
EMAIL mdc@marlborough.govt.nz
WEB www.marlborough.govt.nz



24 September 2012

Kapiti Views Trustees Limited
C/O John Marris
114 New Renwick Road
RD 2
Blenheim 7272

Record No: 12318017
File Ref: W270-03
W045-15-16
Ask For: Mark Wheeler

Dear John

Application for Out of District Water Connection Maxwell Hills Zone (Plan Change 60)

Your application has been considered by Council. As advised verbally the application has been approved subject to various terms and conditions. The Council resolution (p.12/13.10, 9 August 2012) was as follows:

1. That the 160 out of district water connections be approved.
2. That an out of district water connection levy of \$1,136,320 (GST excl) be paid. (The amount will be PPI adjusted at time of payment.) [NB: this is equivalent to the Blenheim Development Contribution shown in the Draft 2012-22 Long Term Plan.]
3. That any water services infrastructure required for the connection be installed by the developer at cost to the developer.
4. That the applicant's water services be designed in accordance with Council Code of Practice and designed and certified by a chartered professional engineer to the approval of Council's Infrastructural Engineer. (Backflow prevention must be included).
5. That the new lots pay water rates as per Council's out of district connections rating policy adjusted for a portion of reticulation maintenance to be undertaken by the development body corporate.
6. That the lots pay geographic area general works and services rates and charges as per Council's rating policy.
7. That the applicant be advised that approval of these out of district connections does not imply that further connections or development of the property have any entitlement for use of the services ie; further application and approval will be required.
8. That the applicant be advised that approval of these out of district connections does not imply that the subdivision proposal has in any way been accepted or supported by Council.
9. That the developer be responsible for compliance with drinking water and fire fighting standards and any costs or obligations which might be imposed on Council as a result of that.
10. That the developer form a not for profit corporate entity to own, operate and maintain its water network from the point of connection.
11. That the total daily take be limited (at the connection point to the Council system) to a maximum of 5 m³ per lot per day with the equivalent maximum instantaneous flow rate.

Application for Out of District Water Connection Maxwell Hills Zone (Plan Change 60)

12. That any Blenheim water resource consent requirements be addressed at the developer's cost.

I suggest you or your engineers liaise with Brett Walker, Council's Infrastructure Engineer, as your planning progresses and Council payments and approvals are required.

Happy to deal with any questions you have.

Yours sincerely



**MARK WHEELER
MANAGER, ASSETS & SERVICES DEPARTMENT**

c.c. B Walker
S Rooney
S Donaldson
Clr G Taylor