

SOUTH WAIRARAPA DISTRICT COUNCIL

27 JUNE 2018

AGENDA ITEM C4

PLAN CHANGE 9: STRUCTURE PLAN FOR THE GREYTOWN DEVELOPMENT AREA INCLUDING A DESIGNATION OF ROAD

Purpose of Report

To provide the Independent Hearings Commissioner recommendation on Plan Change 9 and to seek confirmation of this as Council's decision on Plan Change 9.

Recommendations

Officers recommend that the Council:

- 1. Receives the recommendation of the Independent Hearings Commissioner on Plan Change 9 (including a notice of requirement to designate a road to provide access to the Greytown Development Area from West Street), and*
- 2. Adopts the recommendation of the Independent Hearings Commissioner as a Council decision and direct officers to notify the decision in accordance with the First Schedule of the Resource Management Act 1991.*

1. Background

When the Wairarapa Combined District Plan was notified in 2006, 35 hectares of multiple ownership land in Greytown (situated between Kuratawhiti and Wood Street and between Mole Street and West Street) was rezoned from Rural to Urban (Residential). A "Future Development Area" (FDA) was established as part of Variation 1 of the Proposed Wairarapa Combined District Plan. That block of land was selected because of its locational and physical characteristics, urban demand and growth rates and broad infrastructure requirements. Further urban development within the FDA was restricted by WCDP Policy 18.3.11(e) until such time as a structure plan could be developed for it.

Plan Change 9 sought to add a structure plan (including design policies) to the Greytown Future Development Area, rename the area the Greytown Development Area, remove the property on the corner of Mole and Wood Street (Lot 15 Deeds Plan 310 – "the Wilks Block") from the Development

Area, and designate a 17m wide road from West Street into the Greytown Development Area.

On 25th October 2017, Council resolved (DC2017/151) to publicly notify Plan Change 9, including rezoning the "Wilks Block" to Rural (Primary Production), designate as road a 17m metre strip of road which would form the main access into the development area. This resolution included authorisation of the P and E Group Manager to arrange for an Independent Hearings Commissioner to consider submissions and make a recommendation to Council.

Mr Rob van Voorthuysen was commissioned to hear and consider Plan Change 9.

Plan Change 9 was notified on the 8th November 2017, submissions were notified for further submission on the 10th January 2018.

Mr van Voorthuysen heard submissions on the 16th and 17th April 2018 and released his recommendation to the Council on the 10th May 2018 (attached at Appendix 1).

2. Discussion

2.1 Legal Implications

The process for District Plan Changes is set out in the First Schedule of the Resource Management Act 1991.

Mr van Voorthuysen has delegated authority to make recommendations to Council in relation to this plan change. However, the decision on any plan change must be made by Council.

The decision Council is required to make today is set out in the RMA's clause 10 of the First Schedule.

This states:

- (1) *A local authority must give a decision on the provisions and matters raised in submissions, whether or not a hearing is held on the proposed policy statement or plan concerned.*
- (2) *The decision—*
 - (a) *must include the reasons for accepting or rejecting the submissions and, for that purpose, may address the submissions by grouping them according to—*
 - (i) *the provisions of the proposed statement or plan to which they relate; or*
 - (ii) *the matters to which they relate; and*

The Commissioners recommendations have assessed the proposed provisions along with the matters raised in submissions and further submissions. These considerations are recorded in the attached report (Appendix 1) with the recommendations on whether to accept or reject a submission contained in the tables attached to this report.

The Hearing Commissioners Report addresses all aspects of the RMA that are required to be considered as part of a Plan Change.

Council must give its decision within two years of notifying the plan change.

2.2 Commissioner's recommended alterations to Plan Change 9 (as notified)

As a result of the hearing process and the commissioner's consideration, Mr van Voorthuysen's recommendation includes amendments to the notified version of the Structure Plan summarised below.

Local Road to Kuratawhiti Street

- A local road (labelled B) is no longer required from the Collector Road (labelled A to be named Farley Avenue) through to Kuratawhiti Street. Design Policy 4.1.7 has been amended to reflect this.

Westernmost Local Road to Wood Street

- The westernmost local road from Farley Avenue to Wood Street has been deleted. Design Policy 4.1.7 has been amended to reflect this.

Easternmost Local Road to Wood Street

- The easternmost local road from Farley Avenue to Wood Street has been amended so that it runs along the western side of 35 Wood Street.

The "Wilks Block"

- The "Wilks Block" contains elevated levels of arsenic and lead from previous orchard use. This block has been retained as Future Development Area in the Structure Plan and a new Design Policy has been added to ensure that development is only undertaken after remediation of the site.

Application of Structure Plan to properties fronting Wood Street

- An addition to design policy 4.1.10 has been made to require connection to adjoining land "where connection to that land is impractical from an existing road".

Connection from Farley Avenue to Westwood Avenue

- Design Policy 4.1.6 has been amended to require pedestrian and cycle access from Farley Avenue to Westwood Avenue at a minimum. If vehicle access is also provided traffic calming measures are to be provided at the intersection of the two roads.

Planting with the Greytown Development Area

- Design Policy 4.2.2 has been amended to include trees planted in accordance with the Wellington Regional Native Planting Guide.

2.3 Options available to Council

Once Council receives the Recommendation Report, Council must then decide whether or not to accept the recommendation in full or not.

If the recommendation is accepted it then becomes the Council's approved decision.

The Council cannot itself make a decision on the submissions that differs from the recommendations as Council has not heard the evidence at the hearing.

That means Council cannot accept some recommendations and not others. It is an all or nothing decision.

If the recommendation is not accepted then the Council has two options:

1. Refer the Recommendation Report back to the commissioner for reconsideration;
2. Appoint a new commissioner to re-hear the submissions and make fresh recommendations

3. Conclusion

Council officers recommend that Council adopts the recommendation of the Independent Hearings Commissioner as a Council decision and direct officers to notify the decision in accordance with the First Schedule of the Resource Management Act 1991.

4. Appendices

Appendix 1	Independent Commissioners recommendation to Council
Appendix 2	Planning Maps 59 (before and after commissioner recommendation)
Appendix 3	Greytown Development Area Structure Plan (before and after commissioner recommendation)
Appendix 4	Implications of designing stormwater to a 1:100 year event

Contact Officer: Russell Hooper, Resource Management Planner
Reviewed By: Russell O'Leary, Group Manager Planning and Environment

Appendix 1 - Independent Commissioners recommendation to Council

Recommendation Report
Proposed Plan Change 9 to the Wairarapa Combined District Plan
and
Notice of Requirement
Greytown Development Area Structure Plan

May 2018

Table of Contents

1	Appointment	1
2	Description of Proposal	1
3	Notification and Submissions	2
4	Process Issues	2
4.1	<i>Pre-circulation of evidence</i>	2
4.2	<i>Section 32AA RMA</i>	2
5	Hearing	3
6	Higher Order Statutory Instruments	3
7	Matters Requiring Assessment	4
7.1	<i>Effects on historic heritage values</i>	4
7.2	<i>Other roading matters</i>	6
7.3	<i>Moroa water race</i>	7
7.4	<i>Molewood Orchard</i>	7
7.5	<i>Wilks Block</i>	8
7.6	<i>Properties fronting Wood Street</i>	9
8	Notice of Requirement	10
9	Part 2 Assessment	11
10	Determination	12
Appendix 1	Recommended Amended Provisions for Appendix 15	
Appendix 2	Recommendations on Submissions	

1 Appointment

- [01] The South Wairarapa District Council (Council), acting under s34A of the Resource Management Act 1991 (RMA), appointed Robert van Voorthuysen¹ to conduct a hearing into Proposed Plan Change 9 (PC9) to the Wairarapa Combined District Plan (WCDP) and an associated notice or requirement.

2 Description of Proposal

- [02] Proposed Plan Change 9 (PC9) seeks to:
- a) include the Greytown Development Area Structure Plan (Structure Plan) as Appendix 15 to the WCDP;
 - b) change Planning Map 59 of the WCDP to exclude the property on the corner of Wood Street and Mole Street Greytown (Lot 15 DP 310) from the Greytown Development Area and re-zone the property to Rural, uplifting the “Future” development status;
 - c) change all references to “Future Development Area” throughout the District Plan to the “Greytown Development Area” (GDA);
 - d) change Policy 18.3.11(e) of the WCDP to read:

To manage the form and pattern of subdivision and development within the Greytown Development Area to achieve the objectives of the approved Structure Plan for the area.
 - e) designate a 15m wide access leg off West Street (Lot 7 DP 70079) and a 2m wide additional strip on the northern adjoining parcels of land (Lot 5 DP 70079 and Lot 2 DP 64859) (17m total width) as “road” in accordance with Section 168A and Clause 4 of the First Schedule, Resource Management Act 1991.
- [03] The rationale for PC9 was clearly set out in the Section 32 Report,² the Section 42A Report³ and two SWDC background documents.⁴ By way of summary, when the WCDP was notified in 2006, 35 hectares of multiple ownership land in Greytown (situated between Kuratawhiti and Wood Street and between Mole Street and West Street) was rezoned as Urban (Residential). A “Future Development Area” (FDA) was established as part of Variation 1 of the Proposed WCDP. That block of land was selected because of its locational and physical characteristics, urban demand and growth rates and broad infrastructure requirements. Further urban development within the FDA was restricted by WCDP Policy 18.3.11(e) until such time as a structure plan could be developed for it.
- [04] Following a period of consultation, research, analysis and the production of the scoping and interim reports listed in footnote 3, the Structure Plan that is the subject of PC9 was developed by the SWDC. The purpose of the Structure Plan is described as follows:⁵

The Structure Plan, by providing a framework for the management of the Greytown Development Area as a whole, allows for the integrated management of natural and physical resources across property boundaries, and between the Development Area

¹ Commissioner van Voorthuysen is an experienced independent commissioner, having sat on over 265 hearings throughout New Zealand since 1998. He has qualifications in natural resources engineering and public policy and was a full member of the New Zealand Planning Institute (NZPI) from 1998 to 2016.

² Proposed Plan Change No. 9 to the Wairarapa Combined District Plan: Greytown Development Area Structure Plan, Section 32 Resource Management Act 1991 Evaluation Report, Eastern Consulting Ltd, 16 October 2017.

³ Report to Hearings Commissioner, 29 March 2018, Honor Clark, Consultant Planner.

⁴ Greytown Future Development Area Structure Plan, Stage 1 Scoping Report, Eastern Consulting Ltd, February 2017; Greytown Future Development Area Structure Plan, Stage 2: Interim Report, Eastern Consulting Ltd, June 2017.

⁵ Section 32 Report, para 7.9, page 13 and para 7.13, page 15.

and the existing adjoining residential area. In particular, the Structure Plan provides for the integrated management of infrastructure resources including public services and roading connections. The Structure Plan also provides for a consistent approach to the general layout and form of development within the area, promoting good urban design or form.

The Greytown Development Area Structure Plan will provide certainty to landowners within the Development Area as to the type of development that is expected and how that development will link with the existing urban environment. Council also have a greater level of certainty in terms of the infrastructure requirements in the area. In particular, Council now know the actual cost of that infrastructure and any upgrades required, and the likely yield of Financial/Development Contributions from the Greytown Development Area.

3 Notification and Submissions

[05] PC9 was publicly notified on 8 November 2017 and served on public bodies in accordance with the First Schedule of the RMA. Seventeen submissions were received of which three were received late.⁶ The reporting officer recommended that I accept those late submissions because they were received less than a full day after the closing date for submissions and did not raise any substantive issues beyond matters raised in other submissions.⁷ I record that under s37(1) of the RMA I waive the failure of those three submitters to comply with the closing date for submissions, having taken into account the matters listed in s37A(1) of the RMA. In other words, those three late submissions are accepted. I note that Greater Wellington Regional Council was granted an extension of time to make a submission by Mr Murray Buchanan, Group Manager Planning and Environment, under delegated authority. This submission is also accepted.

[06] Ten further submissions were received.

[07] The initial submissions and the further submissions were well summarised in paragraphs 5.2 and 5.6 (and their associated tables) of the Section 42A Report. I adopt those summaries, but do not repeat them here for the sake of brevity.

4 Process Issues

4.1 Pre-circulation of evidence

[08] The Section 42A report was pre-circulated. No evidence from submitters was pre-circulated.

4.2 Section 32AA RMA

[09] In compliance with s32 and clause 5 of Schedule 1 of the RMA, the SWDC prepared and publicly notified an evaluation report (the Section 32 Report).

[10] Section 32AA of the RMA requires a further evaluation of any changes made to the PC9 after the initial Section 32 evaluation report is completed. The further evaluation can be the subject of a separate report, or it can be referred to in the decision-making record. If it is referred to in the decision-making record, it should contain sufficient detail to demonstrate that a further evaluation has been duly undertaken.

⁶ Stephen Pattinson; Blair Stevens & Vanessa Bourke (21a Westwood Ave, Greytown); Co-Design Architects Ltd (Stephen Pattinson, Director).

⁷ Section 42A report, para 5.4, page 11.

[11] If my recommendations in this decision report are adopted by the SWDC, this decision report (including its appendixes) is intended to form part of the SWDC's decision-making record. Therefore, in compliance with Schedule 1 clause 10(2)(ab) of the RMA and electing the second option in section 32AA(1)(d), I include in this decision report a further evaluation of the amendments to PC9 that I am recommending.

5 Hearing

[12] A Hearing was held in the Martinborough offices of the SWDC on Monday 16 April and Tuesday 17 April 2018. I undertook a site visit of the FDA on the Monday afternoon accompanied by the reporting officer. The reporting officer provided a written reply report and a revised Structure Plan Layout Plan to me on 8 May 2018. I closed the Hearing on 10 May 2018, having satisfied myself that I did not require any further information from any party.

[13] A number of submitters appeared at the hearing. I have not attempted to summarise the statements made and evidence presented by those submitters. Copies of any written material tabled are held by the SWDC. I took my own notes of the verbal statements and evidence presented to me and the answers to my questions. I record that I have had regard to all of the matters raised by submitters, both in their original and further submissions and in the verbal and written evidence provided to me at the Hearing.

6 Higher Order Statutory Instruments

[14] Under s75(3) of the RMA PC9 must give effect to any national policy statement, any New Zealand coastal policy statement,⁸ and any regional policy statement. Under s74(1)(f) PC9 must be prepared in accordance with any regulations (meaning national environmental standards).

[15] The National Policy Statement on Urban Development Capacity 2016 is relevant.⁹ As Greytown is neither a medium-growth or high-growth urban area, as defined in the Statement, the relevant provisions are objectives OA1 to OA3, OC1, OD1 and policies PA1 to PA4. Those provisions, in summary, are about ensuring that urban environments enable people and communities and future generations to provide for their social, economic, cultural and environmental wellbeing; that there are sufficient opportunities for the development of housing and business land to meet demand; and that land use, development, development infrastructure and other infrastructure are integrated with each other.

[16] Policies PA3 and PA4 set out matters that I must have particular regard to and take into account respectively. Those matters relate to providing for choices that will meet the needs of people and communities and future generations for a range of dwelling types and locations, working environments and places to locate businesses; promoting the efficient use of urban land and development infrastructure and other infrastructure; and giving people, communities and future generations an ability to provide for their social, economic, cultural and environmental wellbeing.

⁸ The NZCPS is not relevant here.

⁹ I do not consider the NPS Freshwater Management to be relevant, despite PC9 dealing with the relocation of a branch of Moroa Water Race alongside the proposed central 'spine' road corridor (the mere relocation will not affect the quality or water in the race or the amount of water it conveys). PC9 deals with stormwater management and includes a proposal to utilise the Moroa Water Race for stormwater detention. However, any discharge of stormwater into the race would require authorisation from the GWRC and NPSFM matters would be considered at that time.

- [17] I am satisfied that the intent and content of PC9 (as described in paragraph [04] above) appropriately gives effect to the relevant provisions of the National Policy Statement on Urban Development Capacity 2016.
- [18] The Wellington Regional Policy Statement 2010 (RPS) is relevant. A submission was lodged by the Greater Wellington Regional Council (GWRC). The submission noted that PC9 was consistent with RPS Policy 34 (contaminated land), Policy 54 (urban design principles) and Policies 10, 55 and 57 (urban development). GWRC sought several amendments to PC9 in relation to riparian planting along the relocated Moroa Water Race, stormwater and flooding. At the hearing, Ms Flawn representing GWRC advised that the regional council accepted all of the reporting officer's recommendations in relation to the GWRC submission. Consequently, I have assumed that PC9 gives appropriate effect to the RPS.¹⁰
- [19] I have had regard to the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health) Regulations 2011 in relation to the contaminated horticultural land. That NES was discussed in the Section 42A Report¹¹ and I adopt the reporting officer's assessment.
- [20] No other national policy statements or national environmental standards that are relevant to the proposal were brought to my attention and I am not aware of any.

7 Matters Requiring Assessment

- [21] The reporting officer helpfully identified the issues raised in submissions and further submissions that she considered relevant.¹² She assessed those matters and made recommendations on them,¹³ including whether particular submission points should be accepted or rejected (with reasons).¹⁴
- [22] To avoid unnecessary duplication and repetition I record that, except to the extent that I expressly address matters in sections 7.1 to 7.6 and 8 of this report, I have adopted the recommendations and reasoning of the reporting officer as set out in the body of the Section 42A Report, and in the written answers and replies given to me by its author.¹⁵ Appendix 2 of this report sets out my reasons for my recommendations on specific submission points and I note that they supersede those provided by the reporting officer. With those exceptions, rather than duplicating its contents, I incorporate the Section 42A Report and the written answers to my questions into this report and adopt their contents.

7.1 Effects on historic heritage values

- [23] The Structure Plan Layout Plan shows a collector road going from the proposed 'spine road' (to be known as Farley Avenue) to Kuratawhiti Street. The location of the collector road is not fixed, but includes a band encompassing properties¹⁶ that

¹⁰ See also Appendix One to this Report.

¹¹ Section 42A report, paras 6.2 to 6.10.

¹² Section 42A report, para 6.1, pages 12 and 13. The thirteen matters separately assessed were Soil Contamination and Extent of the Greytown Development Area, Designation of "Road" Access from West Street, Other Roading Matters, Effects on historic heritage values, Effects on rural character, Water Race Relocation, Flood Hazard Information, Stormwater Management / Hydraulic Neutrality, On-site Water Storage, Water Contributions, Recognising Biodiversity Values, Urban Design, and Re-wording of District Plan Policy 18.3.11(e).

¹³ Section 42A Report, paras 6.2 to 6.51, pages 13 to 22.

¹⁴ Proposed Plan Change No. 9 Submissions / Further Submissions – Schedule of Recommendations.

¹⁵ I pre-circulated written questions to the reporting officer and written answers to those questions were tabled at the hearing. The reporting officer also provided a written reply addressing questions I posed during the hearing.

¹⁶ 40, 46 and 54 Kuratawhiti Street.

are listed as Heritage Buildings Hs094 (HS Iazard's House), Hs095 (Maata Mahupuku House) and Hs096 (Villa) in Appendix 1.7 of the WCDP. Additionally, notable trees Ts044 (five trees) and Ts043 (one tree) are located on two of those properties.

- [24] This was understandably a matter of concern to several submitters.¹⁷ I find that it would be incongruous to locate a new road through any of those properties. To do so would be inconsistent with WCDP 10.3.1 Objective HH1, 10.3.2 Policies HH1(b), (c) and (e) and Anticipated Environmental Outcome 10.4 (a). Those provisions state:

Objective HH1 - Historic Heritage Values

To recognise and protect the important historic heritage of the Wairarapa

HH1 Policies

- (b) Avoid, remedy or mitigate the potential adverse effects of subdivision, development and use on historic heritage.
- (c) Ensure the important attributes of historic heritage is not disturbed, damaged or destroyed, by inappropriate subdivision, use and development.
- (e) Provide for land subdivision to create conservation lots to protect recognised historic heritage.

Anticipated Environmental Outcomes

- (a) Protection of historic heritage from the adverse effects of activities and development.

- [25] I raised this with the reporting officer. In reply Ms Clark reported that Mr Tim Langley, Council's Roading Manager, had advised her that all three local roads off the spine road, in pure traffic capacity terms, were not necessary to manage traffic movements from the GDA. The local roads were proposed in the TIA report as a means of distributing the flow of traffic from the GDA over the adjoining network, so reducing any impacts of that traffic at any particular point in the network. Mr Langley noted that some form of access through to Kuratawhiti Street, whether it be a pedestrian access like Arnold Walk and/or cycle access, would be very desirable to provide connectivity with Soldiers Memorial Park and swimming pool.

- [26] Reflecting on the evidence of the submitters, Ms Clark accepted that providing such access would detract from the heritage values of the three heritage houses. She therefore recommended deleting the local road connection to Kuratawhiti Street, including any pedestrian/cycle link. She recommended an additional policy for the Appendix 15 Design Guide:

That while access from Farley Avenue to Kuratawhiti Street is desirable, no form of access is permitted, other than a standard single household access for the existing dwellings, through the properties of 40, 46, and 54 Kuratawhiti Street, so as to protect the recognised heritage values of these properties.

- [27] I agree that there is no need to provide for a local road from Farley Avenue to Kuratawhiti Street. I acknowledge the additional policy recommended by Ms Clark but find it preferable that local road "B" exiting onto Kuratawhiti Street is omitted from the Layout Plan and that section 4.1 Policy 7 of Appendix 15 is simply amended (in terms of dealing with this issue) as follows:

¹⁷ Including #5 Richard Harvey, and #6 Abe David.

7. Side roads (local roads) shall form connections from the 'spine' road to Wood Street ~~and Kuratawhiti Street~~, with connection points across property boundaries in locations shown on the Greytown Development Area Structure Plan: Layout Plan.

7.2 Other roading matters

- [28] The Structure Plan Layout Plan also shows two collector roads accessing Wood Street (shown as "B" on the Layout Plan). This was also of concern to submitters.¹⁸
- [29] I queried why two collector roads were necessary given that the Section 32 Report quoted GHD as saying "at least one access road provided from both Wood Street and Kuratawhiti Street into a spine road"; that section 4.8.3 of the Stage 1 Scoping Report stated "Wood Street narrows after the intersection with Kempton Street making its less preferable"; and that section 2.1.2 of the GHD Traffic Impact Assessment stated "at this stage, due to the confining section of Wood Street between SH2 and West Street, it is not anticipated that any generated trips from the FDA would commute along this proportion."
- [30] In reply Ms Clark reported that Mr Langley, Council's Roading Manager, had advised her that two local roads were not needed off Farley Avenue (the Spine Road) to Wood Street in pure traffic capacity terms. Mr Langley considered that with the proposed upgrades of Mole and Wood Street, and the short distances required to be traversed to find alternative routes, one local road from Farley Avenue to Wood Street would suffice. I agree.
- [31] In anticipation of such an outcome I had asked which of the two local roads shown on the Layout Plan was preferred. In reply Ms Clark advised that the eastern corridor to Wood Street (through 35 Wood Street) was preferred as its location on the western side of that site would minimise costs to the landowner while providing for a suitable location for a link road. I agree and note that is also consistent with the opinion of the property owner who suggested that if a local road was to be provided, it should avoid the large culvert on the eastern side of the property adjacent to Wood Street and instead traverse the western side of the property.
- [32] I recommend that that local road "B" exiting onto Wood Street through 67 Wood Street is deleted from the Layout Plan, that local road "B" exiting onto Wood Street through 35 Wood Street is amended so that it goes through the western side of that property, and that section 4.1 Policy 7 of Appendix 15 is amended (in terms of dealing with this issue as well as that discussed under section 7.1 above) as follows:
7. A ~~side roads~~ (local roads) shall form a ~~connections~~ from the 'spine' road to Wood Street ~~and Kuratawhiti Street~~, with connection points across property boundaries in locations shown on the Greytown Development Area Structure Plan: Layout Plan.
- [33] Some submitters were concerned about the potential connection of Westwood Avenue to the proposed new 'spine road'. I accept that if a roading connection is made, then traffic calming measures should be implemented at the junction of those two roads to ensure that vehicles accessing Westwood Avenue from the 'spine road' are aware of the need to travel sedately. I recommend that section 4.1 Policy 6 of Appendix 15 is amended to read:

¹⁸ Including # 8 Richard and Jacqueline Simmonds and #12 Maura Marron and John Stamp.

- 6 Pedestrian and cycle access is to be provided from the 'spine' road through to the extension of Westwood Avenue. If vehicular access is also provided, then traffic calming measures (such as a single lane, speed humps or a chicane for example) must be implemented at the junction of those two roads to ensure that drivers are aware of the need to travel down Westwood Avenue in a sedate manner.

7.3 Moroa water race

- [34] A branch of the Moroa Water Race runs through the properties of three submitters¹⁹. The water race is a SWDC owned system whose operation is subject to the Moroa Water Race Bylaw 2007. I understand that the water race was diverted to run through the Galbreath's and Sinclair's properties in 2001. Both submitters opposed the relocation of the water race, understandably preferring it to remain within their properties.

Mr Galbreath stated that the water race was used for both stock water purposes²⁰ and amenity purposes within his property, whereas the Sinclair's stated that they had no stock and the water race was solely valued for the amenity it provided to their property.

- [35] Clause 2.1 of the Bylaw states the purpose of the water race system:

The primary purpose of the water race system is to supply water for stock watering purposes within the system area.

- [36] In terms of Mr Galbreath's existing stock water requirements, I note that a mature ewe requires a maximum of 5L of water per day.²¹ For six sheep that equates to 30L per day. A garden hose runs at anywhere from 20L to 90L per minute.²² So in a worst case scenario, using a garden hose, it might take less than five minutes a day to fill a trough by hand with enough water for the six sheep to drink. On that basis I do not consider Mr Galbreath's potential loss of access to the race for stock water purposes to be any more than a minor adverse effect.

- [37] That leaves the private amenity benefits that the water race provides to the submitters. The water race is a publicly owned system. Relocating the water race to run parallel to the proposed 'spine' road (Farley Avenue) will provide significant public amenity benefits. I consider that those future public benefits outweigh the existing private amenity benefits enjoyed by the submitters. Accordingly, I find that it is appropriate to relocate the water race as proposed by PC9.

7.4 Molewood Orchard

- [38] Molewood Orchard (Lot 2 DP 87867 and Lot 9 DP 70079) comprises a large (around 10.5ha) block of land in the middle of the existing FDA. Ed and Juliet Cooke appeared at the hearing on behalf of the Trustees of Molewood Orchard Trust who are the owners of the land. Their submission was that the land should remain as FDA because the owners had no intention of altering its existing land use, it contained elite soils well suited to horticulture, and the apples from the orchard

¹⁹ Neil Galbreath (51 Wood St, Greytown); Michael and Jacinta Sinclair (43 Wood St, Greytown); Molewood Orchard.

²⁰ Mr Galbreath runs six sheep. He does not abstract from the water race to fill a trough, even though that would be allowed by clause 2.3.9 of the Moroa Water Race Bylaw 2007. Instead Mr Galbreath allows his sheep free access to the race where it runs through his property.

²¹ Reasonable Stock Water Requirements Guidelines for Resource Consent Applications, Technical report – December 2007, Horizons Regional Council, section 2.3.

²² Depending of the length of hose and water pressure.

(which is leased to JR's Orchards Ltd) contributed 11% of the apples sold overseas by that lessee.

- [39] I note that the Cooke's did not seek to have the land rezoned back to Rural and indeed they acknowledged the matter of the underlying zoning was dealt with in 2007 when the land was classified as FDA. They accepted that the long-term future of the land was residential.
- [40] I note that JR's Orchards Ltd did not submit on PC9 and Molewood Orchard Trust did not call any representatives from that company as witnesses. Accordingly, I do not find it appropriate to speculate about any potential adverse effects on them arising from PC9.
- [41] In response to a query from me, the reporting officer advised that Molewood Orchard comprises LUC Class 1c1 soils and that the orchard only contains around 2% of that class of soil resident within the South Wairarapa District. Consequently, I do not consider the eventual loss of that land from primary production to be of such weight that it would militate against classifying the land as GDA.
- [42] Finally, I note that if the classification of Molewood Orchard is amended from FDA to GDA as proposed by PC9, then there is no compulsion on its owners to develop that land in the short term. In that regard I was interested in any potential rating impacts of amending the FDA status over the land and if that might impose a financial burden that would force the landowners into developing it sooner than they might otherwise wish to do.
- [43] In reply Ms Clark advised that the Council's Corporate Services Group Manager had provided her with a calculation of the annual rates on the orchard if the rating changed from Rural to Urban. Based on the current rateable value of the property, the Urban rates would be \$8722.29 whereas the rates for the property are currently \$7676.64. The increase is \$1045.65 which, while not trivial, in my opinion does not constitute a financial burden of sufficient weight to militate against classifying the land as GDA.
- [44] For the reasons outlined above, I recommend that the FDA status be uplifted from the land comprising Molewood Orchard (Lot 2 DP 87867 and Lot 9 DP 70079) and that it is classified as GDA in the Structure Plan Layout Plan as intended by PC9 as notified.

7.5 Wilks Block

- [45] David Wilks appeared on behalf of the Trustees of the Wilks Family Trust, who are the owners of the 1.9ha property situated on the corner of Wood St and Mole St (Lot 15 DP 310) which is commonly referred to as the 'Wilks Block'. I understand that the Wilks Block is part of a former large orchard known as Tait's Orchard. A Preliminary Site Investigation (PSI)²³ of the Wilks Block determined that its soils, at least to a depth of 30cm, were significantly contaminated with arsenic, and to a lesser extent with lead, with respect to the applicable residential and lifestyle block²⁴ National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (MfE, 2012).

²³ Commissioned by the SWDC and undertaken by Dr Esther Dijkstra of EcoAgriLogic Ltd.

²⁴ Based on scenario that 10% of all produce consumed is home-grown.

- [46] The PSI assessed several possible remediation techniques for the Wilks Block and concluded that the only viable technique was the removal of the contaminated soil to a depth of 30cm and its replacement with clean top soil. The contaminated soil would need to be appropriately disposed of in landfill that was designed to accept contaminated material. The remediation would incur a large cost and, on that basis, the notified Structure Plan had removed the FDA status of the land, effectively reclassifying it as Rural.
- [47] Mr Wilks contended that the FDA status should remain on the Wilks Block as the PSI had shown that its remediation was possible (albeit at an unspecified high cost) and the cost of any remediation was the concern of the landowner and not the Council. I agree in principle with his submission.
- [48] I consider that the Wilks Block can remain as FDA subject to a caveat that it is remediated prior to it being developed for residential use. I put that to Mr Wilks at the hearing and he advised that he would be happy with such an approach. I understand that if the Wilks Block reverts to FDA then any application for a subdivision consent would be categorised as a discretionary activity and there would be no need to undertake a further plan change to 'uplift' the FDA status of the land.
- [49] In reply Ms Clark advised that leaving the site as FDA, although it has confirmed soil contamination issues, generates no 'real' additional risk to the environment provided a suitable caveat can be put in place, through the Structure Plan, to ensure that developing the land under the FDA (say via a Discretionary Activity resource consent application) or amending the FDA classification to GDA could only occur subsequent to the completion of remediation.
- [50] Accordingly, I recommend that the Wilks Block be shown as FDA in the Structure Plan Layout Plan and that a new Design Policy be added to Section 4.3 Site Development of Appendix 15 that reads:

4. Notwithstanding any other provision in the Wairarapa Combined District Plan, before Lot 15 DP 310 (commonly referred to as the 'Wilks Block' on the corner of Wood and Mole streets) is subdivided for residential or 'lifestyle block' development, or its FDA status is amended to GDA, it must be remediated, at the landowners expense, in full compliance with the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (2011) and in a manner consistent with the conclusions and recommendations of the Preliminary Soil Investigation Report prepared by EcoAgriLogic titled "Preliminary Soil Investigation Report for Wilks Block Greytown, Report EAL SWDC Wilks Block Greytown 2017-PSI V3".

7.6 Properties fronting Wood Street

- [51] Some submitters²⁵ sought that the already developed properties fronting Wood Street should be excluded from the Structure Plan Layout Plan GDA classification. In response to a query from me the reporting officer advised that if that occurred the properties would be zoned Residential and any future sub-division of those properties would be a controlled activity subject to compliance with conditions specified in the WCDP. I asked the reporting officer to comment on the merits of such an outcome.

²⁵ Including Neil Galbreath.

[52] In reply Ms Clark advised that It would be difficult to draw a line between those properties along Wood Street that should and should not be included in the GDA purely on the basis of whether they had been already developed or not. Also, the policies of the Structure Plan would only apply when subdivision of a property within the GDA occurred, so if a property had no further subdivision potential then the provisions would not have any effect on that property. Removing properties from the GDA would also mean that the GDA Structure Plan Development Contributions would not apply to it. That would be inappropriate as those properties would still benefit from works to be undertaken by Council, such as the upgrading of Mole and Wood Streets.

[53] Ms Clark also advised that Policy 4.1.10 of the Structure Plan Design Guide required connections to adjoining land and the submission of Mr Neil Galbreath suggested that the policy should not apply to already developed land along Wood Street. To address this matter, while still ensuring connections to undeveloped lots, Ms Clark recommended the Policy be amended to read:

All scheme plans lodged for subdivision development proposals within the Greytown Development Area shall provide for connections to adjoining land where connection to that land is impractical from an existing road.

[54] I accept Ms Clark's advice and recommend accordingly.

8 Notice of Requirement

[55] Pursuant to RMA Schedule 1, Part 1, clause 4(6)(a) the SWDC included in PC9 a new designation over an access leg at 104A West Street (Lot 7 DP 70079) and an additional 2m wide strip on the northern adjoining parcels of land (Lot 5 DP 70079 and Lot 2 DP 65859). Under RMA Schedule 1, Part 1, clause (2) my recommendation to the SWDC on that designation must be made in accordance with s168A(3) of the RMA. I note that the Section 42A Report did not include a specific assessment under s168A(3).

[56] Under s168A(3)(a) I must have particular regard to any relevant provisions of a national policy statement, a NZ coastal policy statement, a regional policy statement and a plan or proposed plan. I addressed the National Policy Statement on Urban Development Capacity 2016 (NPSUDC) and the RPS above. The submission by GWRC supported the notice of requirement because *"... the new access road 'Farley Avenue' will provide the connecting link from West Street into the Greytown development area and allow for the objectives of the structure plan to be met"*. I find that the proposed designation, insofar as it will facilitate access to the FDA, is consistent with the NPSUDC and RPS.

[57] Under s168A(3)(b)(i) I must have particular regard to whether adequate consideration has been given to alternative sites, because the SWDC does not have an interest in the land sufficient for undertaking the work (the proposed 'spine road' to be known as Farley Avenue). The Section 32 Report stated that alternatives to designating the 'spine road' were considered, as were variations in the designation location and width.²⁶ The Section 42A Report advised that there are limited access points from West Street into the FDA, with the access leg through 104A West Street providing the only real opportunity for reasonable road access without major disruption to existing developed properties i.e. the removal of existing dwellings.²⁷

²⁶ Section 32 Report, para 4.6, page 8.

²⁷ Section 42A Report, para 6.12, page 15.

[58] In that regard I note that Westec Developments Limited (WDL) has sought approval for a 17 lot subdivision that intends to utilise 104A West Street (Lot 7 DP 70079) for roading purposes. WDL are the owners of Lot 7 DP 70079 and they did not submit on PC9.

[59] I am satisfied that the SWDC has adequately considered alternatives.

[60] Under s168A(3)(b)(i) I must have particular regard to whether the work and designation are reasonably necessary for achieving the objectives of the requiring authority for which the designation is sought. Those objectives were not explicitly stated. However, upon enquiry the reporting officer advised me that the objective is Objective 11 of section 2.1 of the Structure Plan (Appendix 15). That objective is:

Providing for efficient transport connections – enhance how roads, footpaths and walkways and cycling networks work together and link to existing networks including access to buses and trains.

[61] I am satisfied that the designation sought is necessary to enable the provision of the proposed 'spine road' to be known as Farley Avenue (inclusive of the ten metre wide lineal reserve containing the relocated water race, amenity plantings, pedestrian footpath and cycle track and soakage swale),²⁸ and that in turn is reasonably necessary to achieve Objective 11 of section 2.1 of the Structure Plan.

[62] In terms of potential adverse effects and the issues raised by submitters,²⁹ the Section 42A Report advised that taking a 2m wide strip of land from the property at 104 West Street (Lot 5 DP 70079 and Lot 2 DP 65859) was necessary to ensure the safe and efficient functioning of the proposed 'spine road' and more so to allow for amenity improvements, including street berms and planting of trees and foot and cycle paths. The report author acknowledged that the proposed access to the proposed 'spine road' was only slightly offset from Hastwell Street and the supermarket entry/exit on West Street, but nevertheless it was considered suitable by GHD Ltd in their TIA. The Section 42A Report author further advised that the Council's Roading Manager did not consider that the use of the access at 104A West Street would create traffic safety concerns.³⁰ I note there was no other expert evidence provided on those matters and so while acknowledging the submitter's concerns, I accept the reporting officer's assessment.

[63] In light of the above assessment, pursuant to s168A(4) of the RMA, I recommend to the SWDC that it confirm the requirement.

9 Part 2 Assessment

[64] Following the recent High Court decision³¹ in *Davidson*, other than as discussed earlier in this report, I have not separately referred to Part 2 matters as the objectives and policies of the WCDP appropriately address those matters in a comprehensive, clear, *vires* and complete manner in my view.

²⁸ As indicated on the diagrams forming part of the Structure Plan titled "Cross Section 1 Spine (Collector) Road", "Indicative layout including temporary turn around(s)", and "Landscape Perspective Plan"

²⁹ Including those raised by #3 Roger Ward and #9 Neil Hoey.

³⁰ Section 42A report, para 6.12, page 15.

³¹ *RJ Davidson Family Trust v Marlborough District Council* [2017] NZHC 52.

10 Determination

- [65] I have considered and deliberated on PC9; the submissions lodged on it; and the reports, evidence and submissions made and given at the hearing. I have sought to comply with all applicable provisions of the RMA and I have had particular regard to the further evaluation of the amendments to PC9 that I am recommending. The relevant matters I have considered and my reasons for them are summarised in the main body of this report and in Appendix 2. I am satisfied that the amendments I recommend are the most appropriate for achieving the objectives of the WCDP and for giving effect to the higher order instruments, including in particular the NPSUDC and the Greater Wellington RPS.
- [66] I therefore recommend to the SWDC the amendments to Appendix 15 and the Structure Plan Layout Plan contained in the main body of this report and in Appendix 1 of this report. Other than that, I recommend that Plan Change 9 and the Notice of Requirement as notified be approved by the Council.



Rob van Voorthuysen

Dated: 10 May 2018

Appendix 1 Recommended Amended Provisions

APPENDIX 15 – GREYTOWN DEVELOPEMENT AREA STRUCTURE PLAN

1 Purpose

- 1.1 The Wairarapa Combined District Plan (District Plan) required a Structure Plan to be developed for the Greytown Future Development Area (FDA) to enable the “deferred development” status over the area to be uplifted. (*Refer District Plan Objective 18.3.10 “Managing Urban Growth” and Policies 18.3.11(a)-(c) and (e)*).
- 1.2 The Greytown Development Area Structure Plan provides the framework to facilitate an integrated approach to residential development and subdivision, promotes the efficient use of infrastructure and avoids, remedies or mitigates potential adverse effects on natural and physical resources in the area now known as the Greytown Development Area and identified in the attached Greytown Development Area Structure Plan: Layout Plan.

2 Design Objectives

- 2.1 Derived through both design principles and consultation, the Greytown Development Area Structure Plan has the following objectives:
1. Integrated resource management across land in different ownership
 2. Provision of certainty to land owners and Council
 3. The setting of the general layout and form of development recognising owner preferences where possible
 4. Achievement of good urban design
 5. Coordinated infrastructure provision
 6. Setting the level of financial contributions by quantifying the costs of infrastructure, identifying who is responsible for those costs and timeframes
 7. Meeting Councils Section 32 of RMA duties by assessing costs, benefits and alternatives
 8. Development that is consistent with the design adopted by the Structure Plan
 9. Maintaining Greytown’s ‘village’ and heritage character
 10. Maintaining Greytown’s landscape character through features including large/mature trees, vegetation, gardens, reserves and openness
 11. Providing for efficient transport connections – enhance how roads, footpaths and walkways and cycling networks work together and link to existing networks including access to buses and trains
 12. Allowing for diversity within the area

3 Design Guide

- 3.1 A design guide has been developed to help achieve the design objectives for the Greytown Development Area. These have been derived from Council requirements and from consultation with landowners within the Greytown Development Area, local iwi, the Greytown Community Board, local surveyors and real estate agents, and government agencies.
- 3.2 The design guide is to be read in conjunction with the Greytown Development Area Structure Plan: Layout Plan; Cross Section 1 Spine (Collector) Road; Designated Road Plan and Cross Section AA; Indicative Layout including temporary turnaround; and Landscape Perspective Plan which all form part of the Structure Plan.
- 3.3 This design guide provides policies on the following:
- Vehicle, cycle and pedestrian connectivity
 - Reserves Provision
 - Site Development
 - Infrastructure and Services Provision
 - Financial Contributions

4 Design Policies

4.1 Vehicle, Cycle and Pedestrian Connectivity

1. A central 'spine' (collector) road, providing for vehicular, cycle and foot traffic shall connect West Street to Mole Street, with connection points across property boundaries in the locations shown on the Greytown Development Area Structure Plan: Layout Plan.
2. The 'spine' road shall be designed to the standards set out in the Greytown Development Area Structure Plan: Cross Section 1 Spine (Collector) Road.
3. The 'spine' road is named "Farley Avenue" in recognition of the historic connection the Farley Family have with the land, as previous owners, and the location of the Farley Oak tree on West Street near the entrance to the 'spine' road.
4. The existing access into the Greytown Development Area from West Street (connection point of the 'spine' road onto West Street) shall have a minimum legal road width of 17 metres which is to be covered by a designation for "road" as outlined in the Designated Road Plan Cross Section AA.
5. Vehicle Crossings (access points and driveways) off the 'spine' road on the side of the lineal reserve and water race shall be minimised to ensure the continuity of the lineal reserve and water race. Crossings of the water race shall be spaced

Appendix 1 - Recommended Amended Provisions for Appendix 15

at a minimum distance of 90 metres, this distance is to be measured from the centre point of each proposed access.

6. Pedestrian and cycle access is to be provided from the 'spine' road through to the extension of Westwood Avenue. If vehicular access is also provided, then traffic calming measures (such as a single lane, speed humps or a chicane for example) must be implemented at the junction of those two roads to ensure that drivers are aware of the need to travel down Westwood Avenue in a sedate manner.
7. A side roads (local roads) shall form a connections from the 'spine' road to Wood Street and Kuratawhiti Street, with connection points across property boundaries in locations shown on the Greytown Development Area Structure Plan: Layout Plan.
8. Pedestrian links shall be adequately lit with heritage type streetlights (similar to those in Westwood Avenue or the Main Street Heritage Precinct), with all lighting designed to minimize glare and light pollution to adjoining residential properties, roads and the night sky.
9. The naming of local roads and right-of-ways within the Greytown Development Area should consider the list of road names available from Council upon request.
10. All scheme plans lodged for subdivision development proposals within the Greytown Development Area shall provide for connections to adjoining land where connection to that land is impractical from an existing road.
11. Where a continuation of a road link across a property boundary is to be provided in the future, a temporary turnaround shall be provided, unless otherwise authorised by Council as part of a resource consent process.
12. Unless otherwise specified in this design guide, all roads, access, footpaths and parking shall be designed in accordance with Appendix 5 of the District Plan.

4.2 Reserves Provision

1. A lineal reserve alongside the 'spine' road shall incorporate a branch of the Moroa Water Race and shall be provided to cater for the recreational needs of residents.
2. The lineal reserve shall be developed with facilities and amenities including a cycle/walking path, plantings of native and exotic plants and trees in accordance with the Wellington Regional Native Planting Guide, lawns, spaced seating and lighting. Only a limited number of people/vehicle access points shall be permitted to cross the lineal reserve.
3. In the long-term the bunds along the water race shall be planted and street trees shall be established to enhance of the landscape and maintain Greytown's character.

4.3 Site Development

1. Notwithstanding any other provision in the Wairarapa Combined District Plan, before Lot 15 DP 310 (commonly referred to as the 'Wilks Block' on the corner of Wood and Mole streets) is subdivided for residential or 'lifestyle block' development, or its FDA status is amended to GDA, it must be remediated, at the landowners expense, in full compliance with the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (2011) and in a manner consistent with the conclusions and recommendations of the Preliminary Soil Investigation Report prepared by EcoAgriLogic titled "Preliminary Soil Investigation Report for Wilks Block Greytown, Report EAL SWDC Wilks Block Greytown 2017-PSI V3".
2. Landowners and developers shall prepare subdivision development proposals that take account of the diversity of housing styles demanded by the residential housing market, so that a range of lots sizes (e.g. smaller lots to cater for single people or elderly couples, and more spacious lots for families with large areas of open space and vegetation) shall be provided within the Greytown Development Area.
3. Subdivisions shall be designed to incorporate the roading network and connectivity points shown on the Greytown Development Area Structure Plan: Layout Plan.
4. Unless otherwise specified in this design guide, all development within the Greytown Development Area shall be in accordance with the residential development standards of the District Plan.

4.4 Infrastructure and Services Provision

1. All mains and services shall be located underground and within road reserve, except as specified in 5 below.
2. Water supply systems shall interconnect with the ring main around Wood, Mole, Kuratawhiti and West Streets and Westwood Avenue.
3. Primary stormwater treatment from roads and sites shall be designed to a 100 year return period, with an allowance for overland flow, and primarily managed via soak pits and/or swales.
4. The water race shall be designed and reformed to provide water retention capacity for stormwater control purposes to safely convey overland flows through the site.
5. A new sewer main through 21 Wood Street or in close proximity to that location shall be provided for and covered by an easement or similar instrument.
6. Unless otherwise specified in this design guide, all services shall be designed in accordance with requirements of the District Plan.

4.5 Financial Contributions

Appendix 1 - Recommended Amended Provisions for Appendix 15

1. While the existing Financial Contributions framework of the District Plan enables Council to recover funding for the actual costs of providing infrastructure (water supply, wastewater disposal, stormwater disposal), open spaces and roads/access to the development Council, in line with recent legislative changes, Council proposes to transfer the financial contributions applicable to the Greytown Development Area to development levies. This will be done as part of the developing the 2018-2028 Long Term Plan under the Local Government Act. In the interim Council will continue to collect the actual cost of any upgrade to infrastructure, reserves and roads/access necessary to service the development area; and a share of the cost where additional capacity has been created in anticipation of future development through financial contributions.
2. The existing Financial Contributions framework provides the overall context for financial contributions within the Greytown Development Area with the actual financial contributions amounts levied (listed below) being based on the actual costs of providing infrastructure, and the works deemed necessary to upgrade Greytown's infrastructure to service the development of the Greytown Development Area.
3. The following Financial Contributions will be levied in the Greytown Development Area:
 - a) Wastewater Disposal: \$10,400 (excluding GST) per allotment created
[The cost of upgrading the wastewater system in Greytown was calculated at approximately \$6 million. This was then divided by the maximum likely number of new residential lots within Greytown. This results in 80% of the wastewater upgrades being funded through financial contributions and 20% through rates. This funding split included the 400 additional lots in the Greytown Development Area.]
 - b) Water: \$3249 (excluding GST) per allotment created
[As little upgrading of the water supply system is required to accommodate development in the Greytown Development Area, the existing financial contributions levied for water, as specified here, will apply.]
 - c) Reserves: 3% of the land value of each allotment created (plus GST)
[The total cost of the land required for the Greytown Development Area lineal reserve and the lineal reserve development costs including cycle/pedestrian path, landscaping and tree planting, seating and the water race relocation and formation has been calculated at approximately \$710,000 plus GST. The yield of reserve contributions from 3% of the land value of the 400 additional lots in the Greytown Development Area is considered sufficient to enable Council to establish the lineal reserve as envisaged.]
 - d) Roading: 2% of the land value of each allotment created (plus GST), plus \$3260 (excluding GST) per allotment created on properties that are **not** providing land for either the construction of 'spine' road and/or local roads.

Appendix 1 - Recommended Amended Provisions for Appendix 15

[The total cost of upgrading the roading network around the Greytown Development Area, including necessary upgrades to Wood Street and Mole Street, the cost of the designation over the access off West Street and the construction costs of the increased width of the 'spine' road has been calculated at approximately \$1.2 million plus GST. This was then divided by the maximum likely number of new residential lots within the Greytown Development Area that would not be providing land for roading (estimated at 320 lots). The roading contribution recognises the "public good" component that the 'spine' road and connecting local roads provide to the efficient functioning of the overall Development Area.

4. Unless otherwise specified in this design guide, Section 23: Financial Contributions of the District Plan applies to the Greytown Development Area.

~~**Dated 16 October 2017**~~

Recommended Amendments: Dated 10 May 2018

Appendix 2 Recommendations on Submissions

In addition to the 17 primary submissions raising the points listed in this Appendix, the South Wairarapa District Council received 10 further submissions in support of, or opposition to, a primary submission. To the extent that the points raised by further submissions are not identified directly in this Appendix, I recommend that they are accepted or rejected according to my recommendations for accepting or rejecting the corresponding primary submission points.

#	Submitter	Decision sought in submission	Recommendation	Reasons
1	NZTA	<ul style="list-style-type: none"> • Supports managing urban growth in a structured and planned way; a Structure Plan is a good tool for this. • Specific elements of the Structure Plan acknowledged: <ul style="list-style-type: none"> - Proximity of Development Area (DA) to the railway line and station, and the thought given to pedestrian and cycle facilities within/connected to the development - Council identifying the need to address ribbon development and its negative impact on the effectiveness and efficiency of SH2 	<ul style="list-style-type: none"> • Accept • Accept 	<ul style="list-style-type: none"> • Support is noted • Support is noted
2	David Wilks & Bruce Eglinton (Trustees of Wilks Family Trust – Landowner of the Wilks Block)	<ul style="list-style-type: none"> • The “Wilks Block” on the corner of Wood St and Mole St (Lot 15 DP 310) remain zoned as FDA along with adjoining “Molewood Orchard” (Lot 2 DP 87867 & Lot 9 DP 70079). See Plan B attached to submission. 	<ul style="list-style-type: none"> • Accept in part 	<ul style="list-style-type: none"> • See sections 7.4 and 7.5 of the commissioner’s report.
3	Rodger Ward (128 West St, Greytown)	<ul style="list-style-type: none"> • Para 2f) Designation of 17m access leg off West St does not allow for the efficient flow of traffic onto West St as it is too close to Hastwell St. Seek further design to create a t-intersection or roundabout. • Appendix 15 Para 4.5.3a) Proposed levy for water does not equal 80% of estimated cost. Contributions levied should be born wholly by developer(s) of the GDA. • Appendix 15 Para 4.5.3d) Proposed levy for roading does not relate to actual cost of roading nor cater for development requirements on other roads. Marginal costs of roading development including upgrades of West St, North St Woodside Road should be born wholly by developer(s) of the GDA. 	<ul style="list-style-type: none"> • Reject • Reject • Reject 	<ul style="list-style-type: none"> • Further design is not required at this stage and the intersection is considered safe by GHD (TIA) and SWDC roading staff. • Costings for contributions were prepared by SWDC. No alternative costings were provided in evidence. • Costings for contributions were prepared by SWDC. No alternative costings were provided in evidence.
4	Jan Eagle	<ul style="list-style-type: none"> • Seeks that consideration be given to the added value / heritage significance of the Joseph Meads Oaks and Elm trees, be recognized as a natural historic asset to the GDA. • That the welfare of the trees are taken into account in the placement of the proposed corridor/sewer line as outlined in 4.4 of the Structure Plan. 	<ul style="list-style-type: none"> • Accept in part • Accept in part 	<ul style="list-style-type: none"> • Review of the protected trees listed in the WCDP is being undertaken independently to PC9. • Subdivision consent will govern location of the sewer line.
5	Richard Harvey (54 Kuratawhiti St, Greytown)	<ul style="list-style-type: none"> • Seeks no change in the current planning status of the area. Object to the overall proposal as it significantly reduces the rural style of the surrounds to Kuratawhiti and Wood St, changing the nature and ambience of all properties adjoining the DA. • Siting of road between 54, 52 and 50 Kuratawhiti St – all houses with historical heritage status. 3 houses and Memorial Park opposite form 	<ul style="list-style-type: none"> • Reject • Accept 	<ul style="list-style-type: none"> • The decision to amend the zoning to urban was made in 2006. Revisiting that decision is outside the scope of PC9. • See section 7.1 of commissioner’s report.

		an iconic area of Greytown style and history. To propose a road through the middle is poor planning and unacceptable.		
6	Abe David (46 Kuratawhiti St, Greytown)	<ul style="list-style-type: none"> Proposal to create a road corridor from the indicative 'A' collector road to Kuratawhiti Street affects the unique and iconic collection of large heritage homes at 40, 46 and 54 Kuratawhiti St which date from the 1890's. Also Max Edridge designed home at 42 Kuratawhiti St. All have large gardens/trees and provide a fitting historical context for Solders Memorial Park across the road. The proposed connector road is a threat to this core heritage asset, must be removed from the Plan Change, and is at odds with Obj 9 as it is not in keeping with preserving Greytown's village and heritage character. Connector road opposite Memorial Park will negatively impact the recreational and amenity values of the park, swimming pool and children's playground, and will pose a risk to the public during summer holidays and winter sports periods. Requests further analysis of traffic flows including weekend flow. Traffic Impact Assessment (TIA) is based on questionable assumptions and am/pm peak flows, not weekend flows. 	<ul style="list-style-type: none"> Accept Accept in part 	<ul style="list-style-type: none"> See section 7.1 of the commissioner's report. See section 7.1 of the commissioner's report.
7	Powerco Limited	<ul style="list-style-type: none"> Submission seeks to ensure electricity infrastructure can be provided to developments and the upgrading of infrastructure can be undertaken in an appropriate and timely manner. Existing power pole (#861177) shown in Appendix B to the submission requires relocation or undergrounding at the council's cost prior to the road designation. Powerco seeks recognition of its existing assets to ensure that they are appropriately taken into account in relation future works or development particularly new or relocated trees near infrastructure and major changes to ground level. 	<ul style="list-style-type: none"> Accept Accept Accept 	<ul style="list-style-type: none"> The submission is accepted, but no amendments to PC9 are required. The submission is accepted, but no amendments to PC9 are required. The submission is accepted, but no amendments to PC9 are required.
8	Richard & Jacqueline Simmonds (67 Wood St, Greytown)	<ul style="list-style-type: none"> Oppose the corridor road through 67 Wood St linking to the spine road, seek the corridor road be removed from the Structure Plan. 	<ul style="list-style-type: none"> Accept 	<ul style="list-style-type: none"> See section 7.2 of the commissioner's report.
9	Neil Hoey (104 West St, Greytown)	<ul style="list-style-type: none"> Objects to taking an area of his existing property at 104 West St for the proposed new roadway off West Street. 	<ul style="list-style-type: none"> Reject 	<ul style="list-style-type: none"> See section 8 of the commissioner's report.
10	Kevyn Rendell & Michael Allen	<ul style="list-style-type: none"> Property should, along with the property on the corner of Wood & Mole St, remain FDA and the plan of the GDA amended in keeping with attached Plan B to the submission. This option is flexible, does 	<ul style="list-style-type: none"> Accept in part 	<ul style="list-style-type: none"> See sections 7.4 and 7.5 of the commissioner's report.

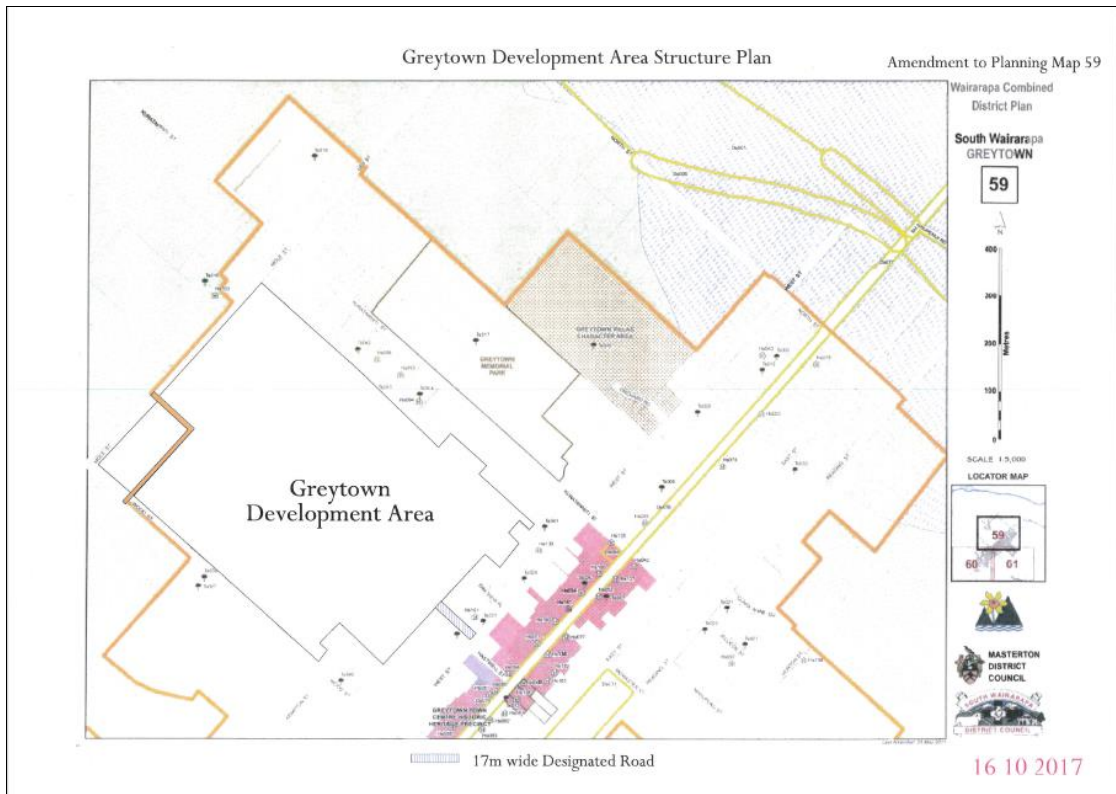
	(as Trustees of Molewood Orchard Trust)	not remove the rights of the property owners yet preserves possible developments wanted by Council sometime in the future.		
11	Richard Winder	<ul style="list-style-type: none"> Seeks certainty around access from the spine/collector road to Westwood Ave. 4.1.6 of the Structure Plan states through access is to be provided, yet current consent for subdivision of the Westwood Ave extension is a cul de sac and pedestrian/cycleway. Completion of Westwood Subdivision - If Westwood Ave is to be linked to the spine road, transition needs to be signaled similar to access from West St, i.e. raised concrete and pavement across entrance and sign. Incorporate single lane, speed humps or chicane to slow traffic and dissuade use of Westwood Ave as a traffic loop. Included 2 plans in submission with suggestions of road positions. Inclusion of provision to require for at least 10,000 litre water storage on each section, which allows for reduction in storm water, potential to reduce flooding, and reduces demand on town water supply. Other potential HAIL sites within the GDA that have not been tested for potential contamination. 	<ul style="list-style-type: none"> Accept Accept Reject Reject 	<ul style="list-style-type: none"> Pedestrian and cycle linkages would be beneficial. See section 7.2 of the commissioner's report. Traffic calming measures are required if Westwood Avenue is to be connected to the 'spine road'. Amendments to section 4.1 Policy 6 of Appendix 15 are recommended accordingly. There are no rules/policies in the WCDP that require onsite water storage and I am advised that no other subdivision has been required to do so. The level of soil contamination investigation, as part of the Structure Plan development process, has been relatively extensive. Further investigations can be required by SWDC when subdivision or development occurs, should new facts deem this necessary.
12	Maura Marron & John Stamp (35 Wood St, Greytown)	<ul style="list-style-type: none"> Overall see Proposed Plan Change 9 as positive but have concern their property falls within connection point range for a road onto Wood St. Want further discussion around connection point ranges. 	<ul style="list-style-type: none"> Accept in part 	<ul style="list-style-type: none"> See section 7.2 of the commissioner's report.
13	Neil Galbreath (51 Wood St, Greytown)	<ul style="list-style-type: none"> Branch of Moroa Water Race should remain where it is currently located with effect on the following parts of the Structure Plan: <ul style="list-style-type: none"> Amend 4.1.5 of Structure Plan to delete references to any water race. Amend 4.2.1 of Structure Plan to delete "shall incorporate a branch of the Moroa Water Race". Amend 4.2.3 by replacing "In the long-term the bunds along the water race" by "The lineal reserve". Delete 4.4.4 of the Structure Plan. Amend 4.5.3c) of the Structure Plan by replacing "seating and water race relocation and formation" by "and seating", and amending calculated costs accordingly. Delete depiction of water race in three drawings. Change Planning Map 59 and Section 4.1.10 of the Structure Plan to exclude already developed properties at the perimeter of the GDA, particularly those fronting Wood St other than those properties which have access corridors. 	<ul style="list-style-type: none"> Reject Accept in Part 	<ul style="list-style-type: none"> See section 7.3 of the commissioner's report. See section 7.6 of the commissioner's report.

14	Greater Wellington Regional Council	<ul style="list-style-type: none"> • Support the removal of property on the corner of Wood and Mole St (Lot 15 DP 310) from the FDA as is a known contaminated site, as per Policy 34 of the Regional Policy Statement (RPS). • Support amended wording of Policy 18.3.11(e) of the District Plan. • Support the designation for the new access road 'Farley Ave' as will provide connecting link to West St. • Support Design Objectives 2.1.4, 2.1.5, 2.1.11 as they reflect Policies 10, 55 and 57 of the RPS. • Support Design Policies 4.1 and 4.2 as they reflect Policies 10, 55 and 57 of the RPS. • Support/amend Design Policy 4.2.2 to include reference to species listed in Wellington Regional Native Planting Guide. • Support/amend stormwater management Design Policy 4.4.3 to include "with an allowance for overland flow". • Support/amend Design Policy 4.4.4 to include the following amendment or words to similar effect "... to safely convey overland flows through the site". • Amend Design Policy 4.3 to include an additional policy re: permeability standard to maintain stormwater quality. • Amend Design Policy 4.3 to include an additional policy re: houses designed with floor levels raised above the 100yr flood return period, and have provisions for safe access to and from the site. 	<ul style="list-style-type: none"> • Accept • Accept • Accept • Accept • Accept • Accept • Accept • Accept in part • Reject 	<ul style="list-style-type: none"> • Support noted • Support noted • Support noted • Support noted • The amended wording provides appropriate indigenous biodiversity guidance. • It is prudent to allow for overland flows so as to avoid the flooding of residential properties and public infrastructure. • It is prudent to allow for overland flows so as to avoid the flooding of residential properties and public infrastructure. • While the principle of maintaining stormwater quality as a desirable environmental outcome is agreed with, a specific additional policy is considered unnecessary due to the other policies addressing stormwater management. • As stated in paragraph 4.1.3 of the evidence of Michelle Flawn (GWRC), because the reviewed flooding map for the Waiohine River floodplain (paragraph 6.39, page 19 of the S42A Report) are now available [which show that no part of the FDA is subject to flooding in the 100 year ARI event, inclusive of a 600m freeboard on main channels and a 300m freeboard on tributaries], the additional policy sought by GWRC is no longer considered necessary by them.
15	Stephen Pattinson	<ul style="list-style-type: none"> • Council determine predicted 100yr flood levels without freeboard, using NSW Government method for defining Low, Medium and High flood hazard according to water depth x flow velocity, and eliminating areas where depth < 100mm • Council differentiate the freeboard zone in flood maps • Council introduce hydraulic neutrality provisions to ensure new development does not make current flooding any worse. 	<ul style="list-style-type: none"> • Accept in part • Accept in part • Accept in part 	<ul style="list-style-type: none"> • See recommendations and reasons on submission #14. Additionally, there is no need to consider a NSW Government approach because the modelled extent of 100-year ARI inundation does not extend into the FDA and so the risk posed to inhabitants by the combination of water depth and water velocity is moot. • See recommendations and reasons on submission #14. • Hydraulic neutrality is a sound design concept commonly applied throughout the country. However, in this case stormwater disposal will be by way of ground soakage and Design Policy 4.4.3 of Appendix 15 states that "Primary stormwater treatment from roads and sites shall be designed to a 100year return period and primarily managed through soak pits and/or swales". The requirement to cater for a stormwater arising from a 100-year ARI event effectively achieves 'hydraulic neutrality. In addition, as requested by GWRC,

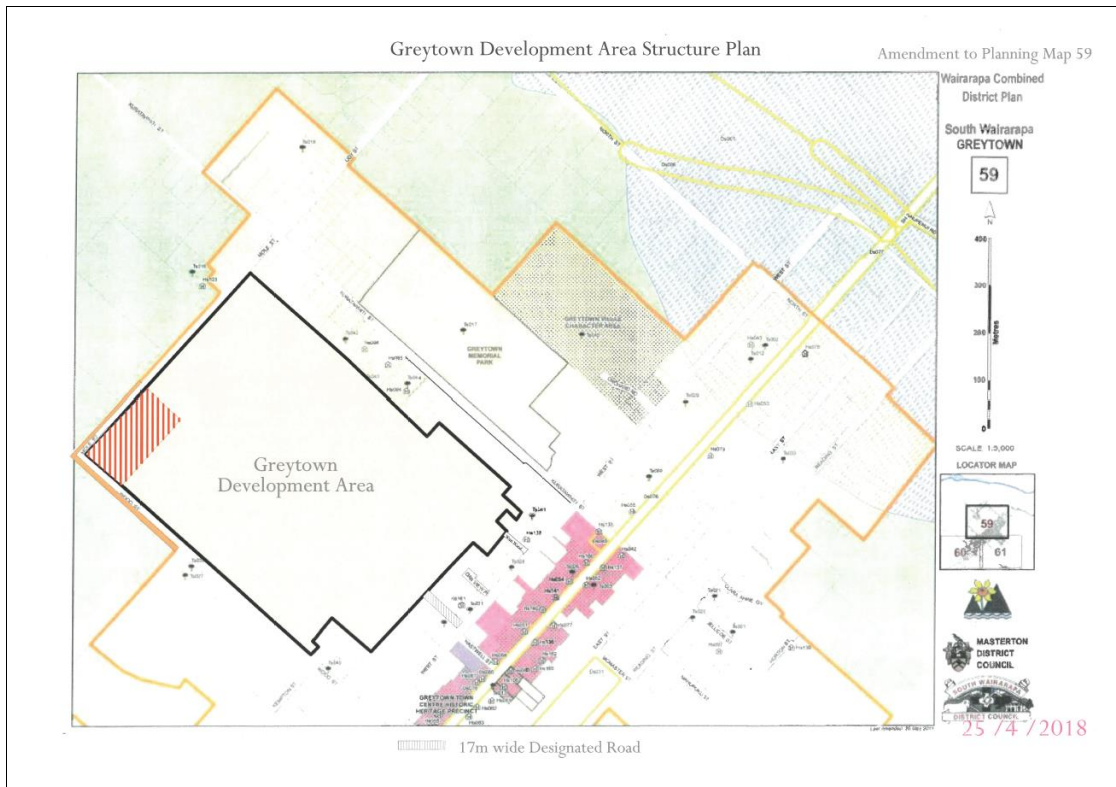
				Appendix 15 will now specify that any excess stormwater will be dealt with by a requirement to provide for overland flow paths. Accordingly, there is no need to explicitly mandate hydraulic neutrality in this case.
16	Blair Stevens & Vanessa Bourke (21a Westwood Ave, Greytown)	<ul style="list-style-type: none"> • Would like Proposed Plan Change 9 to make it clear that access from the spine/collector road to Westwood Ave (4.1.6 of the Structure Plan) should be pedestrian and cycle way only (like Arnold Way). 	<ul style="list-style-type: none"> • Accept in part 	<ul style="list-style-type: none"> • See recommendations and reasons on submission #11.
17	Co-Design Architects Ltd (Stephen Pattinson, Director)	<ul style="list-style-type: none"> • Wants Proposed Plan Change 9 to be re-considered before adopted into District Plan, take time to explore/evaluate more sustainable lively urban forms for the heart of Greytown. 	<ul style="list-style-type: none"> • Reject 	<ul style="list-style-type: none"> • PC9 (Appendix 15) already contains Design Objectives and Design Policies (termed a 'Design Guide'). The submission of GWRC notes that these PC9 provisions 'reflect' Policies 10, 55 and 57 of the RPS. Also, the submitter did not provide precise details of any specific amendments sought to the existing PC9 provisions (as is required by RMA Schedule 1, subclause 6(3) and Form 5 prescribed in the Resource Management (Forms Fees and Procedure) Regulations 2003). Nor were any specific amendments outlined in Mr Pattinson's evidence to the Hearing (comprising a PowerPoint presentation and a verbal address). Submission 17 is therefore arguably out of scope and even if it is not, I am not persuaded on the merits, given the existing Design Guide already contained within Appendix 15, that it is necessary to "explore/evaluate more sustainable lively urban forms for the heart of Greytown". In any case, I note that to do so would fall outside my role as a Hearings Commissioner on PC9 and would more appropriately be dealt with by the SWDC at the time of district plan review.

Appendix 2 - Planning maps

Planning map 59 – Plan Change 9 as notified

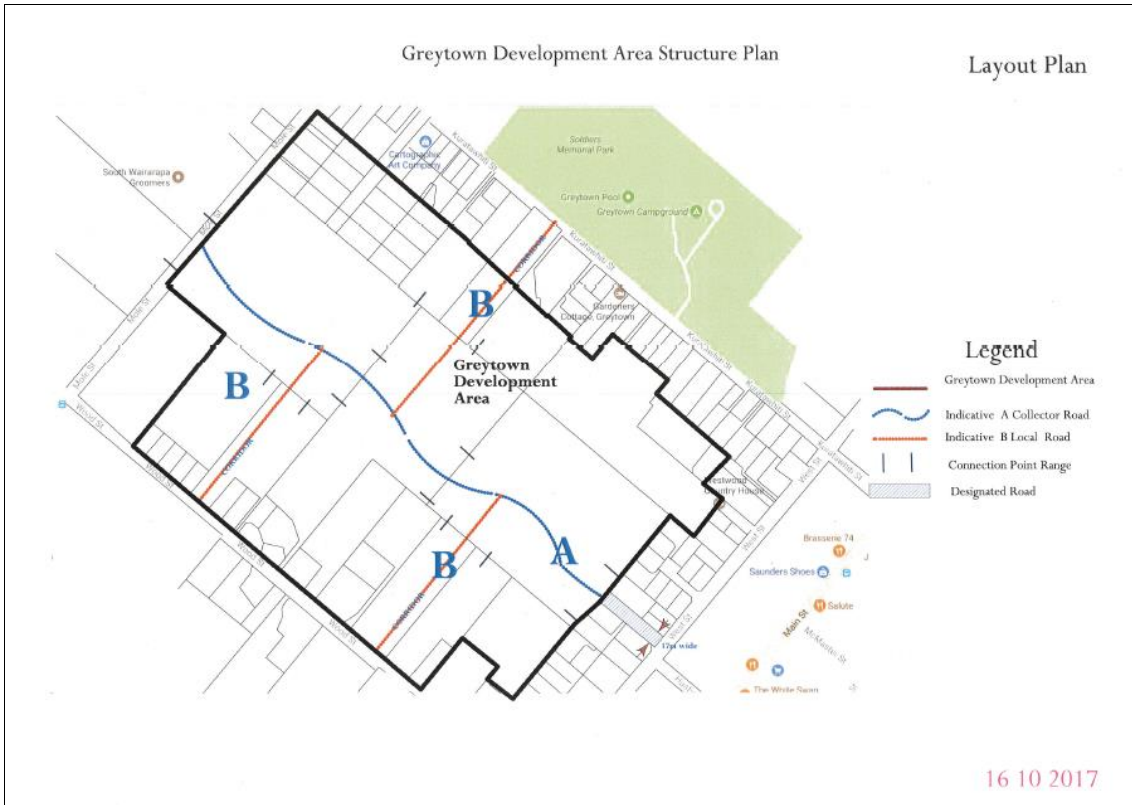


Planning map 59 – Plan Change 9 as recommended by commissioner

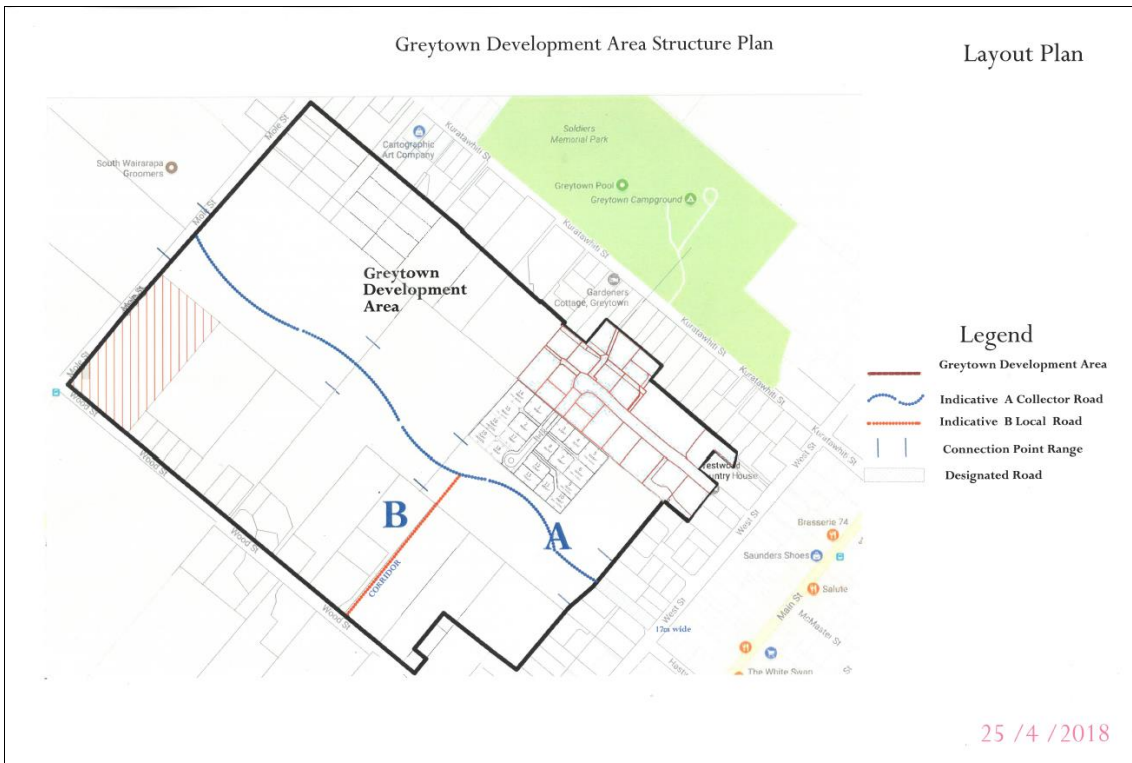


Appendix 3 - Greytown Development Area Structure Plan

Greytown Development Area Structure Plan as notified



GDA Structure Plan as recommended by commissioner



Appendix 4 - Implications of designing stormwater to a 1:100 year event

Russell Hooper- Planning Manager

From: Michael Hewison <mikeh@eastern.co.nz>
Sent: Sunday, 17 June 2018 5:42 p.m.
To: Russell O'Leary - Group Manager Planning and Environment; Russell Hooper- Planning Manager
Subject: RE: Martinborough Stormwater Question advice/ Urgent
Attachments: Greytown GFD 10 yr and 100 yr SW calc.pdf

Russell,

Please find attached stormwater calculations based on Clause E1 of the NZ Building Code for the standard 10 year soak pit and also for a 100 year soak pit and a 100 year plus 20% climate change (taking to 2100).

Going from 10 yr. to 100 yr. increases size by 86% and to 100 yr. plus 20% CC increases size by 123%.

I am guessing cost increase would be almost in the same proportion as material cost would be pro-rata but there would only be one contractor set up cost so should be just less than the same increase as for size increase.

I will phone Pope and Gray tomorrow morning and see if I can get some form of indicative soak pit cost from them. If I can I will phone through as I am at Greytown until just after 2.00 pm tomorrow at a Waiohine River working group meeting.

My mobile is 027 245 0047.

Please just leave a message as once in our meeting we basically stay on that task without any interruptions.

I have also attached the Hirds rainfall tables for both Greytown and Martinborough. As you can see the rainfall at Martinborough is significantly less than at Greytown for the same return period and duration.

Regards

Michael Hewison.

From: Russell O'Leary - Group Manager Planning and Environment [<mailto:russell.oleary@swdc.govt.nz>]
Sent: Thursday, 14 June 2018 12:26 p.m.
To: Mike Hewison (Eastern Consulting) (MikeH@Eastern.co.nz) <MikeH@Eastern.co.nz>; Russell Hooper- Planning Manager <Russell.Hooper@swdc.govt.nz>
Subject: Martinborough Stormwater Question advice/ Urgent

Hi Mike

Russell H and I have been posed a question by councillors- on stormwater handling on sites, from Greytown Dev. Area topic.

In dealing with residential stormwater- what is the difference in providing for one in 10 year event V a one in 100 year stormwater provision- in terms of site costs and size of soak pit required on site.

We welcome your urgent advice on this, need to feed into a report start of next week.

Ta

Russell

Russell O'Leary
Group Manager Planning and Environment



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Please consider the environment before printing this e-Mail.
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confidential or privileged information. If you have received this
e-mail in error please notify the sender and delete.

Assess difference in size for a soak pit in the Greytown FDA in accordance with clause 67 of the building Code.

Then assess the same areas for a soak pit for a 100 yr event & also for 100 yr plus 20% for climate change.

Arbitrarily choose a house (building) with a roof area of say 250m² - includes some allowance for eaves.

Also include an allowance for 50m² of driveway.

Table 1 gives run-off coefficients

Roofs $C = 0.9$

Asphalt / concrete paved surfaces $C = 0.85$.

Clause 90, Disposal to soak pit.

Soak pit storage capacity (min^m) $V_{stor} = R_c - V_{soak}$.

$$R_c = 10 \cdot C \cdot I \cdot A$$

I = rainfall intensity (mm/hr) based on 1 hour duration of an event having a 10% probability of occurring annually.

Use Hinds V3 (Niwa) for I .

For Greytown & FDA area.

$$I = 24.1 \text{ mm/hr}$$

A = area in Hectares.

$$\therefore R_c = 10 \times 0.9 \times 24.1 \times \frac{250}{10,000} \quad \text{house} \quad + \quad 10 \times 0.85 \times 24.1 \times \frac{50}{10,000} \quad \text{driveway}$$

$$= 5.4 \text{ m}^3 \quad + \quad 1.0 \text{ m}^3$$

$$= 6.4 \text{ m}^3 = \text{total run-off from catchment in 1 hour.}$$

$$V_{\text{soak}} = \frac{A_{\text{sp}} S_r}{1000}$$

A_{sp} = plan area of soak pit base (m^2)

S_r = soakage rate (mm/hr)

Typically Greytown has good soakage, \therefore assume $S_r = 500 \text{ mm/hr}$.

First estimate.

say soak pit

3m long

2m wide

1.5m deep

- effective (1.8m overall including 300mm of cover).

$$V_{\text{soak}} = \frac{3 \times 2 \times 500}{1000} = 3 \text{ m}^3$$

$$\rightarrow V_{\text{stor}} = R_c = V_{\text{soak}} = 6.4 - 3$$

= 3.4 m^3 - minimum required storage volume (m^3).

For boulder filled soak pits, typically use an effective voids ratio of 0.38.

$$\rightarrow \text{Actual Storage Volume} = 3 \times 2 \times 1.5 \times 0.38 = 3.42 \text{ m}^3$$

Say as V_{stor} calculated above,

$\therefore \checkmark$ ok

Now, complete same calcs, but for 100 yr event instead of 10 yr event

$$\rightarrow I = 43.8 \text{ mm/hr}$$

$$R_c = 10 \times 0.9 \times 43.8 \times \frac{250}{10,000} + 10 \times 0.9 \times 43.8 \times \frac{50}{10,000}$$

$$= 9.9 + 2$$

$$= 11.9 \text{ m}^3 \quad (1.86 \text{ increase})$$

guess soak pit 5.5 m
2 m wide
1.5 m deep - effective

$$V_{\text{soak}} = 5.5 \times 2 \times \frac{500}{1000} = 5.5 \text{ m}^3$$

$$V_{\text{stor}} = R_c - V_{\text{soak}} = 11.9 - 5.5 = 6.4 \text{ m}^3$$

$$\text{Actual Storage Capacity} = 5.5 \times 2 \times 1.5 \times 0.38 = 6.3 \text{ m}^3 \text{ not quite}$$

Try 5.8 m long
2 m wide
1.5 m deep

$$V_{\text{soak}} = 5.8 \times 2 \times \frac{500}{1000} = 5.8 \text{ m}^3$$

$$V_{\text{stor}} = R_c - V_{\text{soak}} = 11.9 - 5.8 = 6.1 \text{ m}^3$$

$$\text{Actual storage} = 5.8 \times 2 \times 1.5 \times 0.38 = 6.6 \text{ m}^3 > 6.1 \text{ m}^3$$

Actual about

5.6 m long
2 m wide
1.5 m deep

is 1.86 times
or 86% bigger
for 100 yr event

Now complete same calc, but for 100 yr plus 20% increase for climate change - over next 100 years,

$$R_c = 11.9 \times 1.2 = 14.3 \text{ m}^3$$

↑ (20%)
R_c for 100 yr.

Note: The Nova Hrrds VA amplification table may change this - Hrrds VA not received or released yet.

$$\frac{14.3}{6.4} = 2.23 \text{ times or } 123\% \text{ increase.}$$

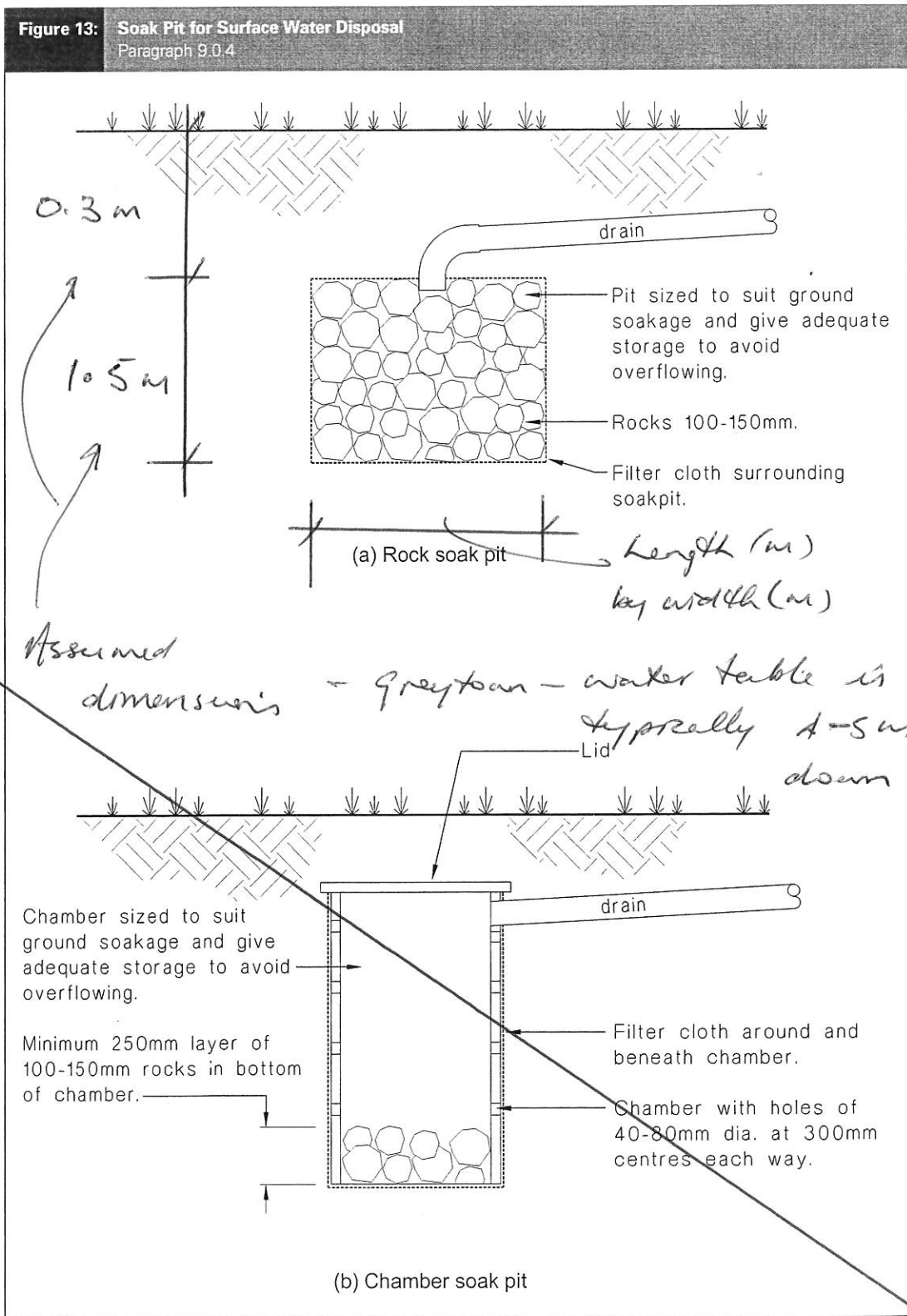
6.4 ← for 10 yr event.

Can pro-rata scale pit to,

$$L = 3 \times 2.23 = 6.7 \text{ m long}$$

2 m wide - as per original
1.5 m deep - effective.

Figure 13: Soak Pit for Surface Water Disposal
Paragraph 9.0.4



High Intensity Rainfall System V3

Results for Greytown Structure Plan Area

Depth-Duration-Frequency results (produced on Friday 15th of June 2018)

Sitename: Greytown Structure Plan Area

Coordinate system: NZMG

Easting: 2716357

Northing: 6011447

GREYTOWN

Rainfall depths (mm)

ARI (y)	aep	Duration									
		10m	20m	30m	60m	2h	6h	12h	24h	48h	72h
1.58	0.633	5.3	7.6	9.5	13.6	19.5	34.6	49.8	71.6	85.2	94.3
2.00	0.500	5.9	8.4	10.4	14.9	21.3	37.6	53.7	76.8	91.4	101.2
5.00	0.200	7.8	11.2	13.9	19.9	28.0	48.2	67.8	95.5	113.6	125.8
10.00	0.100	9.5	13.6	16.8	24.1	33.6	56.8	79.1	110.3	131.2	145.3
20.00	0.050	11.4	16.3	20.1	28.9	39.9	66.5	91.8	126.6	150.7	166.8
30.00	0.033	12.6	18.1	22.4	32.2	44.1	72.8	99.9	137.1	163.1	180.6
40.00	0.025	13.6	19.5	24.1	34.6	47.3	77.7	106.1	145.0	172.6	191.0
50.00	0.020	14.4	20.7	25.5	36.7	50.0	81.6	111.2	151.4	180.2	199.5
60.00	0.017	15.1	21.7	26.8	38.5	52.3	85.0	115.5	156.9	186.7	206.7
80.00	0.012	16.2	23.3	28.8	41.4	56.0	90.5	122.5	165.9	197.4	218.5
100.00	0.010	17.2	24.7	30.5	43.8	59.2	95.1	128.3	173.2	206.0	228.1

Coefficients

c1	c2	c3	d1	d2	d3	e	f
0.0003	-0.0198	-0.0000	0.5214	0.5233	0.2510	0.2549	2.6081

Standard errors (mm)

ARI (y)	aep	Duration									
		10m	20m	30m	60m	2h	6h	12h	24h	48h	72h
1.58	0.633	1.0	1.0	1.0	1.1	1.1	1.2	1.3	1.5	1.6	1.7
2.00	0.500	1.0	1.0	1.0	1.1	1.1	1.2	1.4	1.6	1.8	1.9
5.00	0.200	1.0	1.1	1.1	1.2	1.2	1.5	1.9	2.2	2.7	2.8
10.00	0.100	1.1	1.1	1.2	1.4	1.4	1.9	2.5	3.2	3.9	4.1
20.00	0.050	1.2	1.3	1.4	1.8	1.7	2.6	3.6	4.7	5.8	6.1
30.00	0.033	1.3	1.5	1.7	2.2	1.9	3.2	4.4	5.9	7.3	7.6
40.00	0.025	1.4	1.7	1.9	2.5	2.2	3.7	5.1	6.9	8.5	8.9
50.00	0.020	1.4	1.8	2.1	2.8	2.4	4.1	5.7	7.8	9.6	10.0
60.00	0.017	1.5	1.9	2.2	3.1	2.6	4.4	6.2	8.6	10.5	11.0
80.00	0.012	1.7	2.2	2.6	3.6	2.9	5.1	7.1	9.9	12.1	12.8
100.00	0.010	1.8	2.4	2.8	4.0	3.1	5.6	7.8	11.0	13.5	14.2

High Intensity Rainfall System V3

Results for Martinborough Plan Change Area

Depth-Duration-Frequency results (produced on Friday 15th of June 2018)

Sitename: Martinborough Plan Change Area

Coordinate system: NZMG

Easting: 2716667

Northing: 5995103

MARTIN BOROUGHS

Rainfall depths (mm)

ARI (y)	aep	Duration									
		10m	20m	30m	60m	2h	6h	12h	24h	48h	72h
1.58	0.633	4.6	6.6	8.0	11.3	16.2	28.4	40.6	57.9	65.2	69.9
2.00	0.500	5.1	7.2	8.8	12.4	17.6	30.8	43.8	62.4	70.2	75.3
5.00	0.200	6.6	9.3	11.4	16.1	22.7	39.3	55.5	78.5	88.4	94.7
10.00	0.100	7.9	11.1	13.6	19.2	26.9	46.2	65.0	91.4	102.9	110.3
20.00	0.050	9.3	13.1	16.0	22.7	31.7	54.0	75.6	105.7	119.1	127.6
30.00	0.033	10.2	14.4	17.7	25.0	34.8	59.1	82.4	115.0	129.5	138.8
40.00	0.025	10.9	15.5	18.9	26.7	37.2	62.9	87.6	122.0	137.4	147.3
50.00	0.020	11.5	16.3	19.9	28.1	39.1	66.0	91.8	127.7	143.8	154.2
60.00	0.017	12.0	17.0	20.8	29.4	40.8	68.7	95.4	132.6	149.3	160.0
80.00	0.012	12.9	18.2	22.3	31.4	43.6	73.1	101.4	140.6	158.3	169.7
100.00	0.010	13.6	19.2	23.5	33.1	45.8	76.8	106.3	147.2	165.7	177.6

Coefficients

c1	c2	c3	d1	d2	d3	e	f
-0.0000	-0.0095	-0.0000	0.4977	0.5129	0.1713	0.2329	2.4287

Standard errors (mm)

ARI (y)	aep	Duration									
		10m	20m	30m	60m	2h	6h	12h	24h	48h	72h
1.58	0.633	0.5	0.5	0.6	0.6	0.6	0.7	0.9	1.0	1.1	1.2
2.00	0.500	0.5	0.6	0.6	0.6	0.6	0.8	0.9	1.1	1.2	1.3
5.00	0.200	0.6	0.6	0.6	0.7	0.7	1.1	1.3	1.7	1.9	2.1
10.00	0.100	0.6	0.7	0.7	0.9	0.9	1.5	1.9	2.6	2.9	3.1
20.00	0.050	0.7	0.8	0.9	1.2	1.2	2.1	2.7	3.9	4.4	4.7
30.00	0.033	0.8	1.0	1.1	1.4	1.4	2.6	3.4	5.0	5.5	6.0
40.00	0.025	0.8	1.1	1.2	1.7	1.6	3.1	3.9	5.8	6.5	7.1
50.00	0.020	0.9	1.2	1.4	1.9	1.8	3.4	4.4	6.6	7.4	8.0
60.00	0.017	1.0	1.3	1.5	2.1	2.0	3.7	4.8	7.3	8.1	8.8
80.00	0.012	1.1	1.5	1.7	2.4	2.2	4.3	5.5	8.4	9.4	10.2
100.00	0.010	1.2	1.7	1.9	2.7	2.5	4.7	6.1	9.4	10.5	11.4

Russell Hooper- Planning Manager

From: Jeremy | Pope and Gray <jeremy@popeandgray.co.nz>
Sent: Monday, 18 June 2018 3:35 p.m.
To: Russell Hooper- Planning Manager
Subject: Re: Stormwater design

Thanks Russell, yes that would be my estimation.

Kind Regards
Jeremy Gray
Pope and Gray Contractors
063048911

From: Russell Hooper- Planning Manager <Russell.Hooper@swdc.govt.nz>
Date: Monday, 18 June 2018 at 3:12 PM
To: Jeremy | Pope and Gray <jeremy@popeandgray.co.nz>
Subject: Stormwater design

Hi Jeremy,

As discussed, we are interested in the cost implications on home builders in increasing the stormwater design for a house from a 10 year event to a 100 year event. The Greytown Development Area's Structure Plan (subject to Council approval) requires stormwater to be designed to a 1 in 100 year event.

Michael Hewison has estimated that the increase (with climate change) would be approx. 123%. Can you please confirm that this would be approximately a 50% increase. So therefore a typical soak pit which you noted is likely to cost about \$1,000 would then cost \$1,500.

Are you ok with your reply to this email being included in a report to Councillors?

Regards,

Russell Hooper
Planning Manager



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