Resource Management Act 1991

Proposed Plan Change 36 to the Selwyn District Plan

Technical Report on Utilities Matters

To:	Hearings Panel
From:	Liam Foster Opus International Consultants
Date:	01 September 2014

Note: ***The recommendations contained within this report do not constitute Council decisions until accepted.***

This report has been prepared under Section 42A of the Resource Management Act 1991. The purpose of the report is to assist Selwyn District Council's Hearing Commissioners to evaluate and decide on submissions on provisions in Proposed Plan Change 36 to the partially operative Selwyn District Plan by providing expert advice on technical matters. This report should be read in conjunction with the planning officer's report and any other relevant reports identified.

1. Introduction

1.1. My name is Liam Alexander Foster. I am a Principal Environmental Consultant for Opus International Consultants Ltd (Opus). I have held this position for six months. I have been asked to prepare a report commenting on water, wastewater and stormwater servicing-related matters and associated submissions on Proposed Plan Change 36 (PC36) to the operative District Plan.

1.2. I am a Chartered Water and Environmental Manager and have been since 2007. I have a Masters of Science Degree.

1.3. Opus has been engaged by Selwyn District Council (SDC) to deliver a wide range of professional services pertaining to the management of the five Waters utilities assets since 2008. These have included preparation of the five Waters Asset Management Plan 2009, water supply masterplanning, and asset data collection and analysis. I have liaised with the relevant contacts internally who have taken significant roles in these and other projects, as well as consulted with the Utilities Asset Manager and Service Delivery team.

2. Background Information

2.1. The evidence provided is principally based on:

(i) PC36 Application taken from SDC website - http://www.selwyn.govt.nz/__data/assets/pdf_file/0003/114645/prebbleton_plan_change_rev21.pdf - 12th August 2014

(ii) Engineering Report (showing the three waters servicing reports). Taken from SDC website - http://www.selwyn.govt.nz/__data/assets/pdf_file/0006/114648/PC36-Engineering-Report.pdf - 12th August 2014

(iii) Water Supply Masterplan – Proposed Developments and Infrastructure Upgrade requirements for Prebbleton (September 2014)

(iv) Knowledge and experience within the Opus Christchurch team of SDC network and assets

(v) 5 Waters Activity Plan Part 2 – Management and Part 3 – Eastern Selwyn –

January 2012

(vi) Examination of plan records, and

(vii) Discussions with the SDC Utilities Team Leader and staff.

2.2. PC36 seeks to rezone 12.4 ha from Rural (Inner) Plains to Living 3 Zone in order to provide seventeen (17) rural residential lifestyle property lots to meet with existing and expected demand for future accommodation needs from the surrounding area. The site is located at the southern end of Prebbleton between Birches and Hampton Roads, adjacent to existing Living 2A zones.

3. Proposal

3.1. The development adjoins existing Living 2a Zoning of the Prebbleton township and the proposal includes for re-zoning of approximately 12.4ha of Rural (Inner Plains) to Living 3 Zone, allowing for existing and future accommodation needs of residents of Greater Christchurch to be serviced.

3.2. As these requests seek rural residential zoning, they will be required to connect to existing three waters infrastructure and align with the sequencing of residential growth within the metropolitan urban limit.

3.3. The proposal for the Conifer Grove Trustees Limited property will necessitate 'orphan' infrastructure that is an incremental increased burden on the existing community. The proposal will require water and wastewater connections. The proposal will also require the discharge of stormwater either on site or to a communal stormwater collection and disposal system.

3.4. The site is located outside of an existing serviced area.

4. Water Supply Servicing

Background to Prebbleton Water Supply

4.1. Prebbleton is serviced by a community drinking water supply. Groundwater is abstracted from three deep bores constructed between 1965 and 2003. The water does not require treatment currently.

4.2. New reticulation networks have been constructed to serve the new residential properties across recently subdivided areas. These networks have been amalgamated with the older Prebbleton network with amendments added to 'ring main' the township in 2003.

4.3. The 5Water Plan Part 3 report identifies that Prebbleton water supply has a very high average yearly usage per property (200m^3) and there have been historic issues identified with turbidity and a perception of low pressure among the community.

4.4. The water supply is currently constrained, predominately due to the high peak and average water demand per property and requires new supplies to facilitate foreseeable growth of Prebbleton within the current Prebbleton Structure Plan and additional requirements to service the Canterbury 'Land Use Recovery Plan' (LURP) areas.

Water Servicing

4.5. The take and use of groundwater water for community drinking water supply purposes is not considered a significant issue for the PC36 area. While there are constraints (eg demand management requirements including conservation water, effects on neighbouring wells etc), this type of water demand has been recognised as having high priority within the Canterbury Water Management Strategy

4.6. The Land Use Recovery Programme (LURP) following the Canterbury earthquakes have placed increased pressure on providing land for development. This acceleration in land and developments coming through the consenting process and to market is reducing the supply demand balance headroom within the township water supply network.

4.7. The rapid increase in development in recent years (and associated water supply demand) is reducing the security of supply for the current population towards unacceptable levels. As such, this is constraining the future growth potential for Prebbleton. It is likely to require several phases of infrastructure upgrades to support the committed/potential growth and their associated fire flow requirements.

4.8. The proposal seeks rural residential densities, requiring connection to the community network within the metropolitan urban limits of Prebbleton.

4.9. Water can be accessed from extending the current 150 mm diameter water main on Trices Road. A new ring main is proposed which would run along Birches and Hamptons Roads and reconnect to the Trices Road main at Springs Road.

4.10. SDC have currently identified a phased implementation for infrastructure provision to support this current and predicted growth across Prebbleton, through the supporting evidence (Water Supply Masterplan) for the draft Asset Management Plan for the period 2015 onwards.

4.11. A review of the Water Supply Masterplan, shows that SDC's initial focus is on providing capital upgrades in the Blakes Road Corridor and to support the development of new well and water main strengthening in the area north of Trents Road (land west of Lindsay

Drive development). Timing for these works are currently identified for development before 2016 and 2021 respectively. Water servicing for development to the south of Prebbleton (including this Plan Change) is currently identified to take place between 2021 and 2026.

4.12. There are options for servicing the water requirements for this Plan Change that can be further refined during the subdivision consenting process. At this stage, these could include but are not limited to interim delivery of a 'restricted' supply connection to the township water supply, use of existing private bores on site (provided they are secure and meet the Drinking Water Standard 2005 (revised 2008)) or via specific developer contributions to accelerate the infrastructure provision to suit preferred timescales.

4.13. In line with experience on recent rural residential subdivisions where it has shown that, water usage can be more significant on equivalent larger 'lifestyle' blocks (West Melton), SDC would seek that the PC36 development incorporate a 'restricted' water supply approach, thereby limiting the impact of the development on the wider community supply

4.14. Water provision and water networks for the proposed Plan Change development present challenges, however the future service provision to support this development has been identified by SDC and included within future infrastructure plans. As such, water servicing does not therefore present a constraint on this Plan Change.

5. Wastewater Supply Servicing

Background to Prebbleton Wastewater Supply

5.1. A community wastewater collection and disposal system was constructed in the 1960s. In response to the planned growth of the area, the Eastern Selwyn Sewerage Scheme (ESSS) was prepared and constructed in recent years. Additional Wastewater treatment capacity was developed at the Pines Wastewater Treatment Works (WwTW) near Rolleston to account for the current and future population growth. The sewerage infrastructure was also amended to reroute the network to discharge to the Pines WwTW. This replaced the previous arrangement of pumping Prebbleton wastewater into the Christchurch City Council network from the Springs Road PS.

5.2. The township reticulation currently is gravity mains to a Terminal pump station on Springs Road. Several smaller pump stations serve the township network and take wastewater from within different catchments to the Springs Road Terminal PS.

5.3. The Prebbleton Terminal PS will require upgrading to accommodate wastewater from the wider Prebbleton development area as part of the East Selwyn Sewerage Scheme,

including those included in the Prebbleton Structure Plan and Plan Change 7. The ESSS proposes the construction of a new terminal Pump Station in Prebbleton sized appropriately to take the flow as the area grows.

5.4. The Prebbleton Terminal PS (existing or proposed) then pumps the wastewater across to Lincoln to connect with the Lincoln Terminal PS, south of Lincoln to the site of the previous Lincoln Oxidation Pond site. This pumping station (Allandale Lane PS) conveys the wastewater to Rolleston for treatment and disposal.

5.5. The Lincoln Terminal PS has been designed to accommodate wastewater from the wider Lincoln development area as part of the East Selwyn Sewerage Scheme, and that of the Prebbleton proposed growth.

Wastewater Servicing

5.6. Provision for wastewater disposal is made by way of connecting a public/private low-pressure system. Individual lot pump stations and infrastructure on private property would remain the responsibility of the property owner(s). These would then connect to a small diameter, shallow pressure pipe network within the road reserve (owned and maintained by SDC) which would lift flow to connect with the current public wastewater main to the north of the junction of Trices and Birches Road. This would then flow through the Prebbleton township network.

5.7. Design wastewater flows have been calculated using the SDC Engineering Code of Practice, predicting Average Sewerage Flows of 10 m^3/day with a Maximum Sewage Flow of 0.58 l/s. This increase in wastewater load should be small relative to the design load for the downstream receiving collection network and pump station.

5.8. The East Selwyn Wastewater Master Planning (ESWMP) documents identify that the likely future infrastructural requirements to service the growth in Prebbleton. The documents identify that it is likely that this development would connect into a new pump Station (West PS) proposed in the area of the junction of Springs and Trices Roads. From here, the wastewater would be pumped to Prebbleton's Terminal PS and then in turn lifted to Lincoln for transfer across the Pines WwTW near Rolleston for treatment.

5.9. The ESWMP identifies that there are several areas of concern within the current wastewater network downstream; however, no wastewater network model exists. The impacts of this level of wastewater load are likely to be insignificant from this individual development alone. SDC are currently investigating the cumulative impact of ongoing and consented developments, which could require a need for network wide capacity improvements through to the Terminal PS. It is advised that the developer liaise with SDC to understand the impacts and specific requirements during future subdivision process.

5.10. Any increase in wastewater load will be insignificant relative to the design load for the Pines WwTW and can be accommodated without adverse effect.

5.11. Wastewater networks and disposal for the proposed Plan Change development does not therefore present a constraint on this Plan Change.

6. Stormwater Supply Servicing

Background to Prebbleton Stormwater Supply

6.1. Stormwater runoff in the Prebbleton area is served by a combination of reticulated network, natural systems and discharge to ground largely dictated by ground conditions. The Prebbleton township is bisected by Dawsons/Knights Creek. The older parts of the network are predominantly piped with surface and ground discharges will little to no pre-treatment. Newer developments within Prebbleton typically include stormwater basins for treatment before disposal to ground.

6.2. An Integrated Surface Water Management Plan has not yet been prepared for the township and it is likely that a series of consents held by developers are currently yet to be transferred to Council.

Stormwater Servicing

6.3. Council's current position regarding stormwater management is that the applicant will, as appropriate, obtain consent from the Canterbury Regional Council for construction phase discharge and the operational phase discharge that involve the ongoing control of treatment and disposal of stormwater.

6.4. Council will on provision of appropriate evidence consider transfer of any consents to it for management.

6.5. Treatment via vegetated swales and first flush dry basins and ground infiltration systems are utilised in Prebbleton. This recognises the free draining characteristics of the PC36 area. Given the porous ground conditions and relatively large lots here, I would anticipate that stormwater from individual sites will be disposed of to ground on-site, without the need for a community retention basin and drainage network. Road runoff would likewise be disposed of to ground via properly engineered, vegetated swales immediately adjacent to the formed carriageway.

6.6. Stormwater management and disposal does not therefore present a constraint on this Plan Change.

7. Conclusions

7.1. In conclusion, it is my opinion that:

(a) PC36 necessitates 'orphan' water and wastewater services infrastructure, which would result in increased costs of operation, maintenance and renewal over the asset life compared with accommodating the same number of households within the metropolitan urban limits. Large rural residential developments do not therefore generally result in an efficient servicing network when compared to the consolidated and coordinated management of residential growth.

(b) Council accepts low pressure sewerage systems and would have no concerns in owning and maintaining the pressure pipe within the public road reserve. The council would expect that pump station and any infrastructure on private property would remain the responsibility of the property owner(s).

(c) The metropolitan water supply currently does not have sufficient capacity or pressure to meet the demand of predicted growth across Prebbleton and will require improvements led by the council. Options are available for delivering the water supply requirements to support PC36, which necessitate further refinement during the Subdivision Consenting Process, as well as discussion and agreement with SDC as to the approach and phasing to support the timescale aspirations.

(d) SDC would seek for the provision of a restricted water supply approach to help mitigate the potential impacts of unrestricted large residential development lot size on water demand.

(e) The wastewater reticulation and pumping station network within Prebbleton is likely to have the sufficient capacity to meet the demand of predicted growth in the PC36 area, following proposed improvements led by the council for the ESSS. The timing and infrastructural requirements for growth of Prebbleton are currently being assessed.

(f) There is expected to be sufficient capacity within the consented and proposed community wastewater treatment plants to accommodate the growth anticipated from PC36. Design and construction work for the expanded treatment and disposal at the "Pines II" WwTW is largely complete.

(g) Stormwater treatment and disposal is readily available to ground, providing Canterbury Regional Council consent conditions are met.

(h) Resource consent conditions and Regional Council controls on the discharge of stormwater to ground are in place to protect the quality of groundwater.

(i) The matters raised by submitters pertaining to the provision of utilities infrastructure have been adequately addressed.

(j) Provision of 17 lots of rural residential development, as would be permitted by proposed Plan Change 36, to the existing water and waste water infrastructure would be appropriate and subject to agreement with SDC over ongoing 'headworks' to help fund the community infrastructure required to help service the proposals.

(k) Following agreement with SDC over subdivision servicing, it is envisaged that there would be no adverse effects on the efficient and cost effective provision of such infrastructure and utility services.

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