Attachment C
Infrastructure Assessment

In The Matter of the Resource Management Act 1991 ("the Act")

And

In The Matter Southbridge Plan Change 34

BRIEF OF EVIDENCE OF MURRAY ENGLAND

Introduction

1. My name is **MURRAY RUSSELL ENGLAND.** My qualifications are BE (Environmental) and NZCE (Civil).

2. I am the Asset Manager – Water Services for the Selwyn District Council ("the Council") and I am authorised to present this statement on its behalf. I have been employed by the Council since March 2009 initially holding the position of Stormwater Engineer and since May 2012 the position of Asset Manager Water Services.

3. I have the responsibility of managing Councils 5 waters which include Potable Water, Wastewater, Stormwater, Land Drainage and Water Races.

4. Today I am presenting evidence on behalf of the Council in relation to the Southbridge Plan Change 34.

5. The Council operates the water, wastewater, stormwater and water race network which will be impacted by this plan change.

Water Supply

6. Plans for the proposed PC34 development area indicate the creation of 56 residential lots. It is anticipated that a new main would connect at the High Street / Taiaroa Place intersection, run through the site to Brook Street and return to the High Street / Brook Street intersection. A rider main along the High Street frontage would be appropriate. It is unlikely that any network upgrade would be required.

7. At the time of writing this evidence, we hold the following water connection information:

   - 343 full connections (properties connected),
   - 2 properties with multiple connections (e.g. school), and
   - 17 properties with half connections (ability to connect but are not yet connected.

   This gives a total of 362 connections pre plan change and 418 post plan change.

8. The Southbridge Water Supply provides untreated groundwater to the Southbridge community from two independent well sources (Environment Canterbury reference L36/0421 and M36/0698) with a combined installed pumping capacity of about 37 L/s. Water is pumped directly to the distribution network. There is no storage reservoir (Refer Appendix 1 and 2).

9. The Southbridge water supply holds two resource consents:

Table 1 Resource Consents

Consent	Description	Location	Date Issued	Expiry Date	Consented Max Instantaneous Flow (L/s)	Consented Max Daily Volume (m^3/day)
CRC010893.1	To take and use groundwater - from bore L36/0421	High Street And Taiaroa Place, SOUTHBRIDGE	12-Feb-10	31-Jan-35	18	combined:
CRC010893.1	To take and use groundwater - from bore M36/0698	High Street And Taiaroa Place, SOUTHBRIDGE	12-Feb-10	31-Jan-35	25	2140
Total					**43**	

10. These wells were installed to meet a Medical Officer of Health requirement to protect public health. Previously failing septic tanks effluent was impacting shallow bore water.

Fire Fighting Capacity

11. The Southbridge scheme was designed as a domestic supply and will not comply with the NZ Fire Fighting Code of Practice in all areas due to the size of the reticulation.

12. All new subdivisions are required to be designed and constructed in accordance with Selwyn District Councils 'Engineering Code of Practice'. Section 7.5.4 – Fire service requirements , provides the following requirement:

    The water supply reticulation should comply with the Fire Services Code of Practice. In particular, the reticulation must meet the requirements for fire fighting flows, residual fire pressure and the spacing of hydrants.

13. This is further cover under Council policy W211. The Fire Fighting Standard Community Waterworks W211 states:

    1. *Community waterworks shall be designed and installed to comply with SNZ PAS 4509 and subsequent amendments. This shall apply to:*

        a) *new subdivisions where they shall be connected to community waterworks;*

        b) *communities with stand alone household supplies that are considering developing community waterworks and in accordance with Policy W210;*

        c) *renewals and capital works to existing community waterworks, where:*

i) *"renewals" is defined as works that upgrade, refurbish or replace existing facilities with facilities of equivalent capacity or performance capability; and*

ii) *"Capital works" is defined as works that create new assets or increase the capacity of existing assets beyond their original design capacity or service potential.*

2. The requirement for compliance of any community waterworks with SNZ PAS 4509 shall be at the discretion of the Asset Delivery Manager.

Future Growth Demand

14. In response to the accelerated growth within the Selwyn District, hydraulic models have been used to plan future water infrastructure for a number of water supplies including Southbridge.

15. The master planning provides an assessment of the sizing and timing of new infrastructure for new water sources (wells) and pipelines to service growth. Part of the master planning requires a water balance to be developed to forecast growth, using historical peak demand per household. The water balance forecasts the peak instantaneous flow per year versus the water resources available to determine the staging of new wells.

16. Population projections are based on SDC 'Household Projections 2013 to 2041' and have been applied to the latest connection figures for each township.

17. Southbridge is expected to see steady growth over the next 30-years, with the number of full connections set to increase from a total of 345 to approximately 413.

18. The Southbridge water supply has a resource consent limit of 43 L/s. The current (2014) peak instantaneous flow for Southbridge is 37 L/s and therefore the water supply has headroom available of approximately 6 L/s. Peak demand is not expected to exceed the current consent until 2034 based on the expected rate of growth. One new well (20 L/s) is required in 2019 to service future growth.

19. The installed pump capacity is nominally 37L/s. Recorded flows over the last five years have infrequently exceeded 33 L/s but have on occasion been as high as 40 L/s (suggesting a drop in system pressure at times of peak demand).

Servicing Requirements

20. 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 increasing existing bore capacity or installing a new bore (preferred).

21. 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. As such, water servicing does not therefore present a constraint on this Plan Change.

22. There is potential for a water supply development contribution to be provided for in the 2015-25 Long Term Plan.

Conclusion

23. The existing water supply infrastructure has sufficient capacity to meet the current level of consumer demand (342 connections) but will struggle to accommodate growth over and above uptake of the existing half rated connections (21 connections).

24. Capacity is constrained by the size of the installed bore pumps and the consented flow rate and daily volume. A pump upgrade, possibly with associated resource consent changes, may be sufficient to provide additional capacity to service PC34. Construction of a new water source to provide the required capacity increase offers a better long term solution. Options are presented in appendix 6.

Wastewater

25. A community wastewater collection system was constructed in 2004 for Southbridge.

26. At the time of writing this evidence, we hold the following water connection information:

    - 321 full connections (properties connected),
    - 1 property with multiple connections (school), and
    - 72 properties with half connections (ability to connect but are not yet connected.

    This gives a total of 394 connections.

27. Southbridge is connected to the Ellesmere (Leeston) Wastewater Treatment Plant (WWTP) via a pump station (1 high head submersible pump, 1 low head submersible pump) and 9.1km long rising main (refer appendix 3 and 4).

28. The majority of the township is reticulated by gravity sewers but the low density outlying areas of the township are serviced by a pressurised sewerage system.

29. The duty pump capacity is 12.2 L/s @ 490 kPa. The flush pump can deliver 16 L/s @ 780 kPa and operates every 14 pump cycles or after 12 hours.

30. The current dry weather flow is well in excess of the average dry weather flow assumed for design. This is likely to be associated with groundwater infiltration given the high ground water table. However, the actual peaking factor is less than that assumed for design so the peak flow per connection is less than that adopted for design purposes. This means that the existing 44 (394 actual less 350 design) additional connections above design can be satisfactorily accommodated by the existing pump station.

31. The existing flush pump has greater capacity, sufficient to accommodate the increased flow proposed from PC34, however reliance only on the flush pump capacity increases the risk of an overflow event should the pump fail.

Ellesmere Sewage Treatment Plant (STP)

32. The STP was originally designed for connections numbers as follows:

Township	Population	Design Connection Numbers	Actual (Full + Half)
Leeston/Doyleston	2200	786	1017
Dunsandel	500	179	-
Southbridge	900	321	394
Total		**1286**	**1411**

33. The original design capacity of the treatment plant has been exceeded. Council has mitigated this by installing a new pivot to increase the irrigated area and therefore capacity. Council will be setting out a program of upgrade works required to meet future growth.

Conclusion

34. A small increase (to service PC34 alone) could potentially be achieved by duplicating the higher capacity flush pump, but this would leave the Southbridge wastewater system with no capacity to accommodate future growth beyond existing connections and that provided by PC34. This option has been discussed with the Southbridge Advisory Committee, the minutes are included in Apprendix 8. Strategically, a larger capacity increase would be

preferable, requiring a new pump station and rising main, or possibly a two stage pumping along the existing rising main. An assessment of options is provided in appendix 6 and 7. The actual solution will require further consultation with the Community at resource consent stage should the plan change go ahead.

Stormwater

35. It is anticipated that stormwater will discharge to a natural waterway known as 'Tent Burn' which ultimately discharges to the coast between Rakaia Huts and the outlet to Lake Ellesmere.

36. There is a stormwater race which flows along the eastern boundary of the site. No discharge of stormwater is permitted into this rate (refer appendix 5).

37. Resource consent from Environment Canterbury will be required before any subdivision consent can be approved.

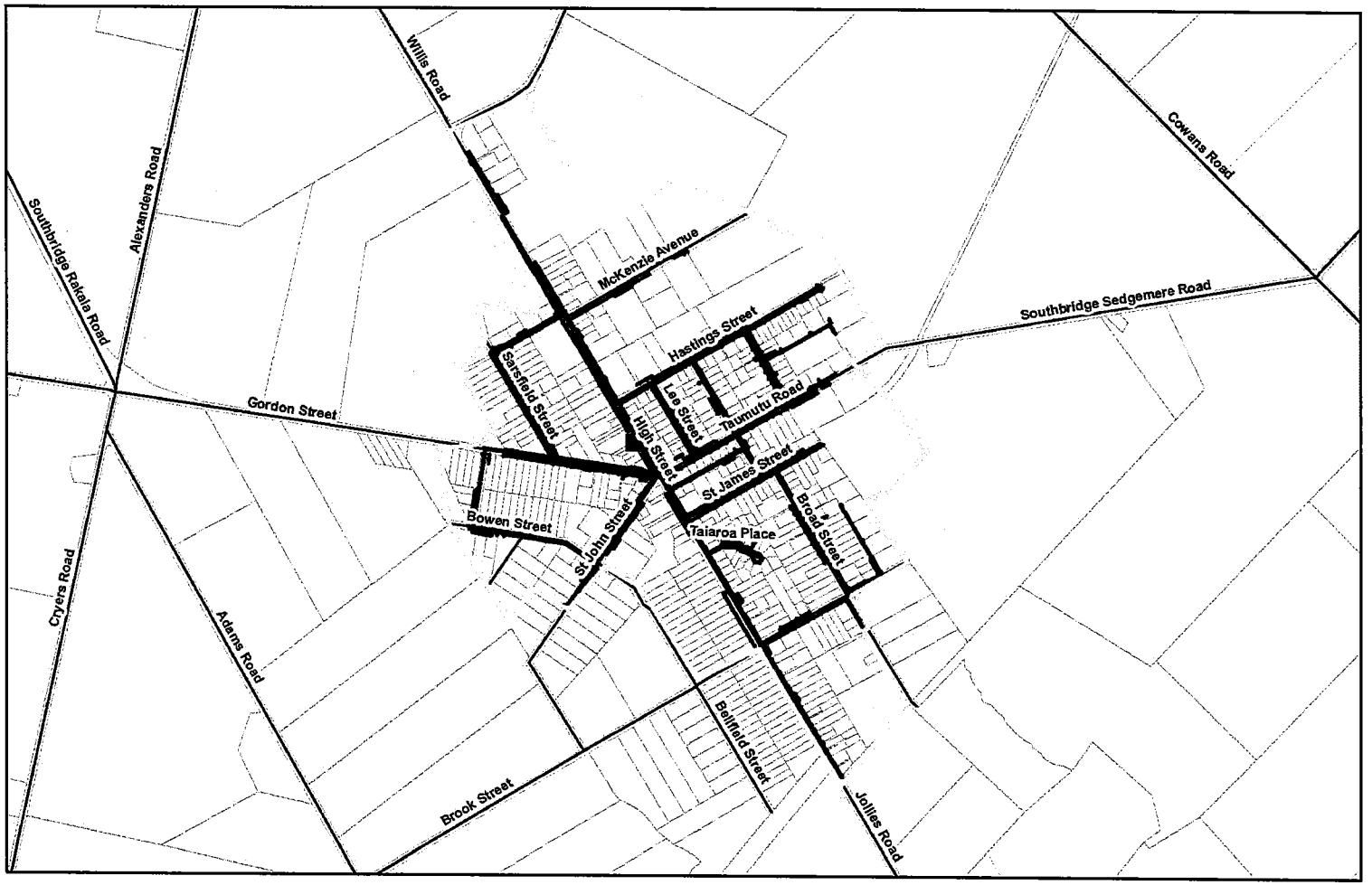
Conclusion

38. There is a viable means to dispose of stormwater for this plan change area. I would recommend that a stormwater consent is obtained from Environment Canterbury prior to resource consent been applied for from Selwyn District Council.

Murray England
9 February 2015

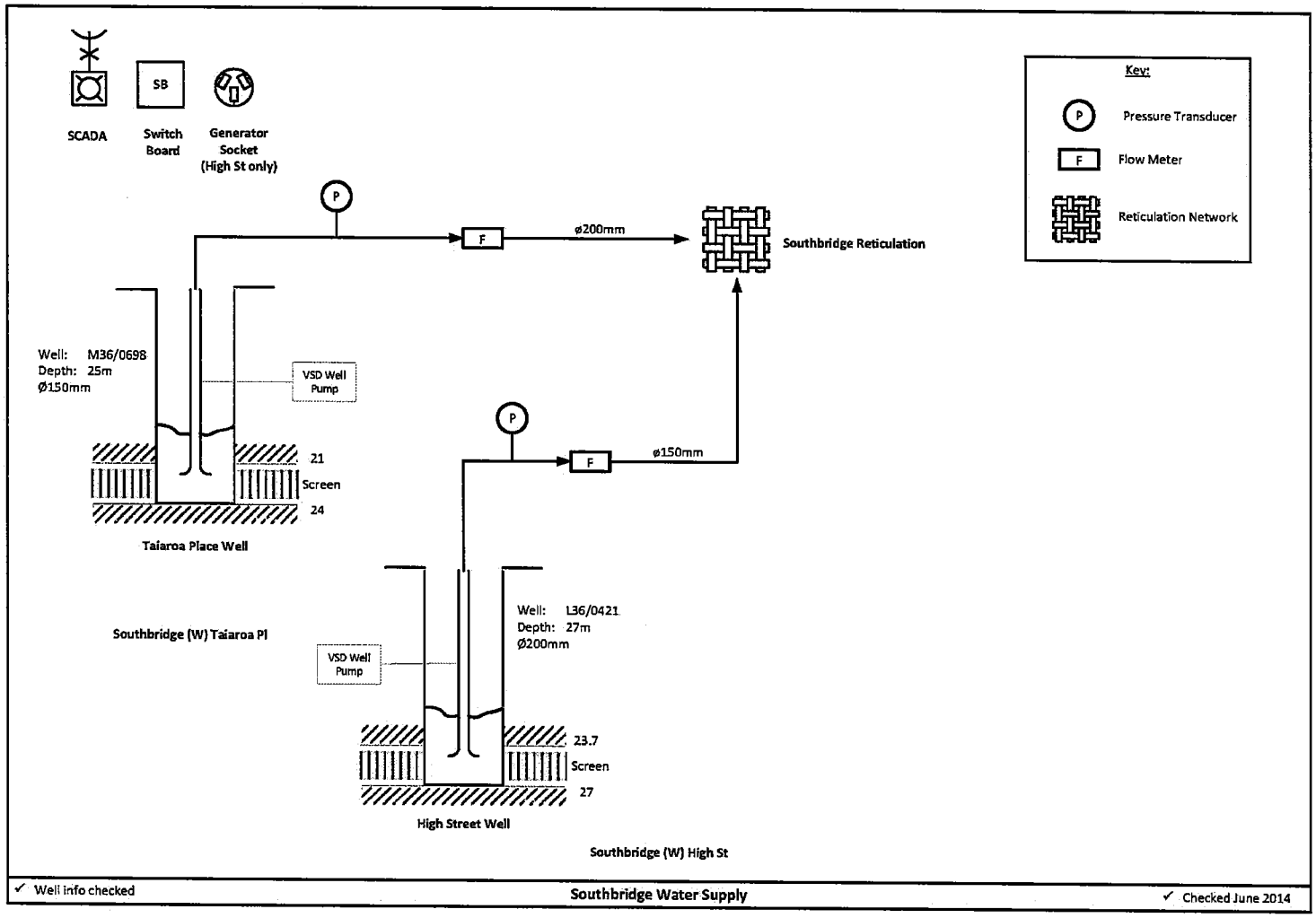
Appendix 1

Scheme Map - Water



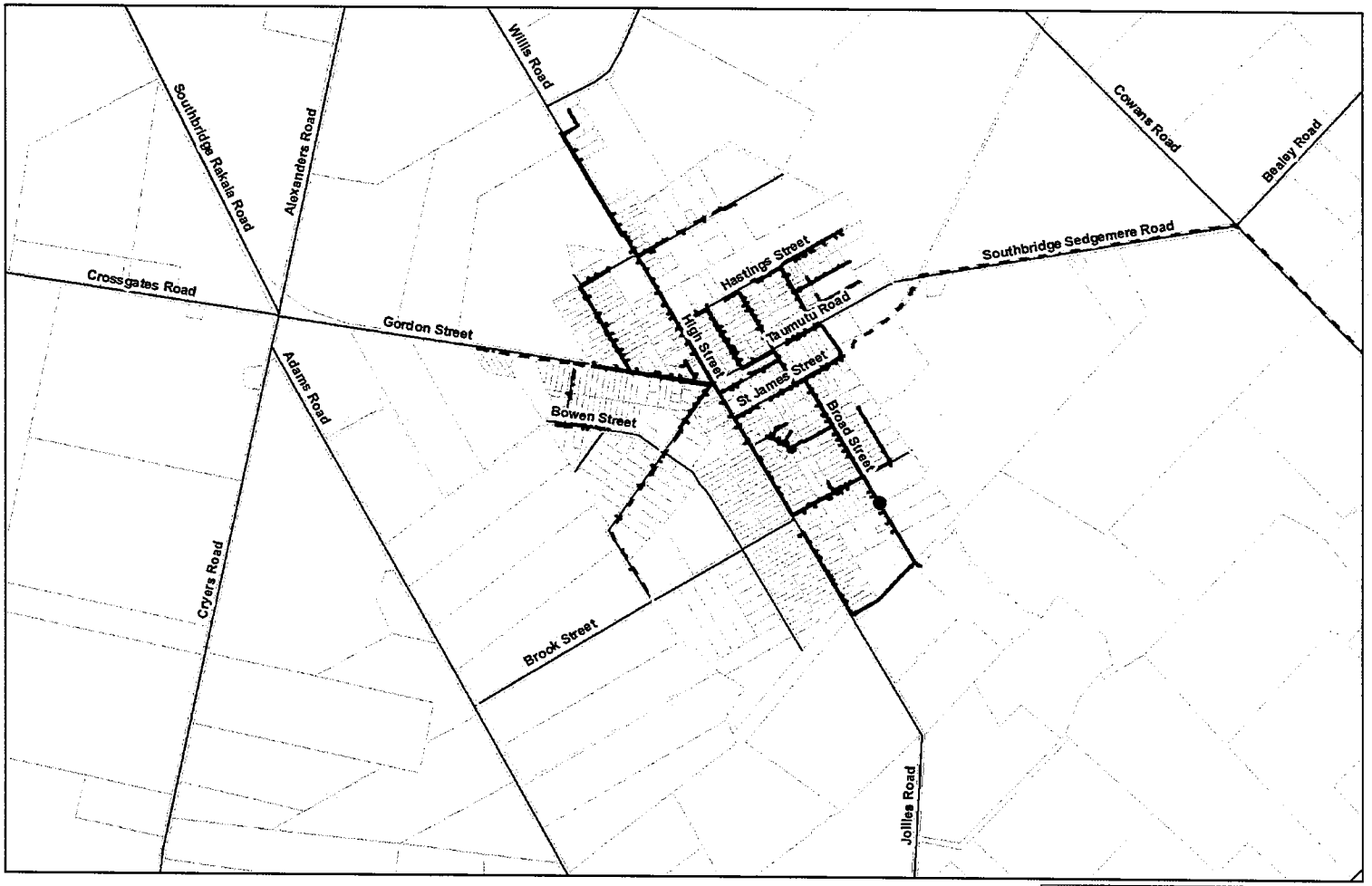
Appendix 2

Scheme Schematic - Water



Appendix 3

Scheme Map - Wastewater

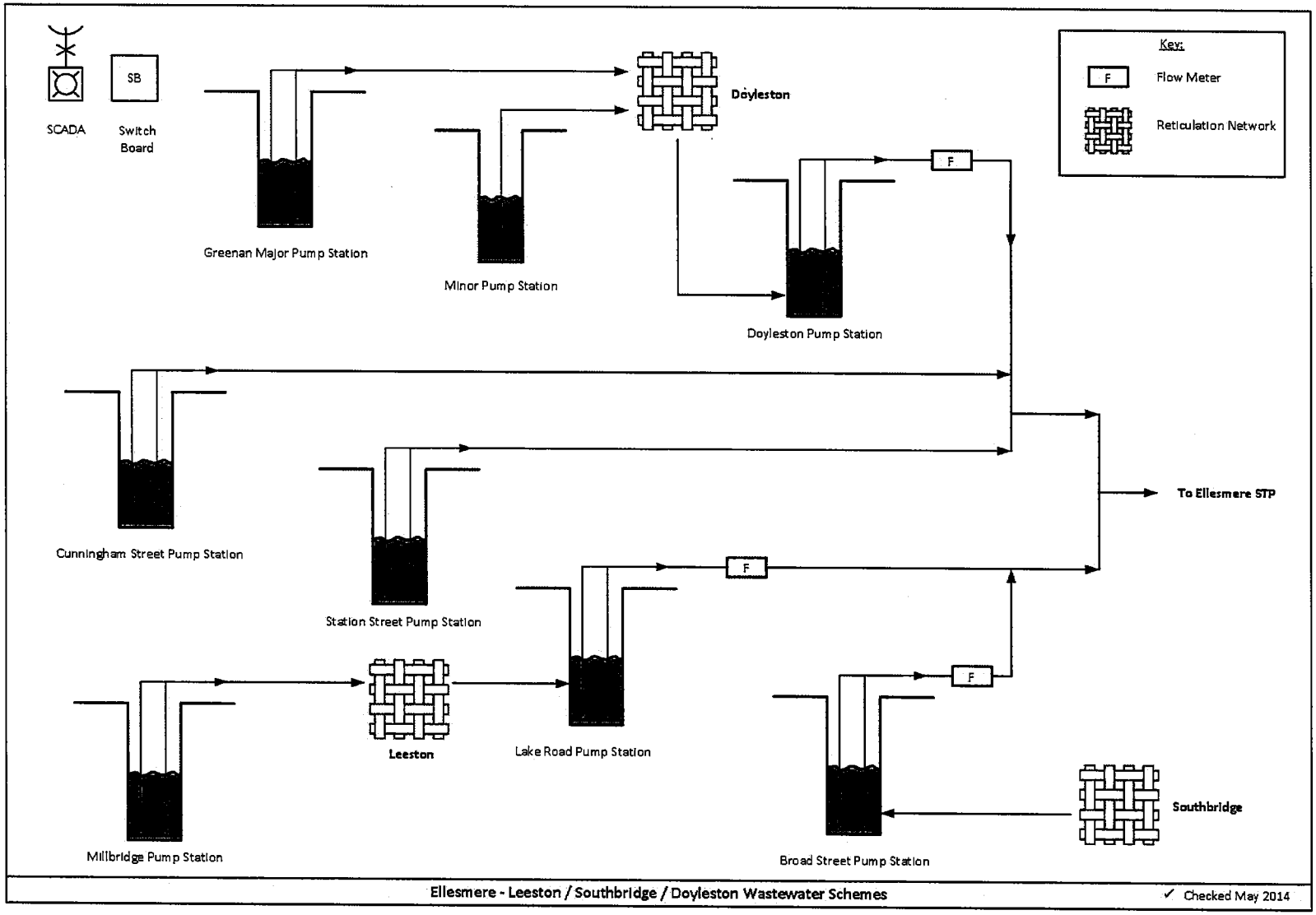


Southbridge Sewerage Scheme Area

Date: 10/02/2014

Appendix 4

Scheme Schematic – Wastewater



Appendix 5

Water Race Location Map

Appendix 6

Opus Report

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6 April 2013

Murray England
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3c1004.10/101

Dear Murray

Southbridge Servicing Assessment for Plan Change 34

We have completed our water supply and wastewater disposal servicing assessment for Plan Change 34: Southbridge High Street (PC34).

Neither the water supply or the wastewater system have sufficient capacity to accommodate the additional 56 residential lots proposed by PC34, as summarised below.

Water Supply

The existing peak water demand utilises the full installed and consented capacity of the water supply. Some degree of demand management may be required from time to time in order to accommodate additional demand from the 21 existing half rated connections. Existing water demand and losses are high. If this were to be addressed it would be possible to service the proposed addition of 56 connections. There is potential to increase pumping capacity from the existing bores to service the additional connections either with or without an associated change in consented rates and volumes. It is noted that the system has limited redundancy and cannot deliver an adequate supply of water for fire fighting. It may be an appropriate time to consider construction of a third bore source to provide both increased capacity and improved level of service.

Wastewater System

While the capacity of the existing infrastructure is not yet fully utilised it is fully allocated (or overallocated). There is no scope to accommodate the proposed additional 56 connections without compromising design standards and accepting environmental and financial risks. The Leeston wastewater treatment plant (WWTP) has no surplus design capacity and operation of this plant is already problematic with regard to nitrogen loadings. If increased treatment capacity could be provided at Leeston, perhaps as part of a wider growth strategy or system upgrade, then the capacity of the Southbridge Broad Street pumping station and rising main to Leeston becomes the constraint. This effectively limits growth in Southbridge to that already allowed for by the existing allocated connections. There is already potential for subdivision of existing Living zoned land in Southbridge to create demand for connections in excess of the present system

design capacity. A small peak capacity increase could potentially be achieved by installing a second progressive cavity pump at Broad Street, but if treatment and disposal capacity is provided at Leeston and growth is anticipated in Southbridge then a longer term view to increasing transfer capacity should be taken. This would require significant capital investment to construct either a second rising main and pumping station or potentially an intermediate pump station for two stage pumping through the existing rising main.

Conclusion

The ability to service PC34 is dependent on Council's strategic view of accommodating growth in the wider Leeston area by providing additional wastewater treatment and disposal capacity. If demand planning indicates that additional WWTP capacity be provided then upgrades of the Southbridge water supply capacity and wastewater pumping capacity should be considered in the context of anticipated population growth in Southbridge. Minor upgrades and level of service compromises may be an acceptable solution if no growth beyond proposed PC34 is anticipated. If continued growth is expected then PC34 may be the catalyst for a new bore water source and significant increase in wastewater transfer capacity. This would also provide opportunity to make level of service improvements (eg fire fighting capacity).

Please find our assessment attached. We are happy to meet and discuss this with you.

Yours sincerely
Opus International Consultants

Paul Carran
Senior Engineer

1 Water Supply Assessment – Plan Change 34: High Street Southbridge

1.1 Overview

Water is abstracted from two bores (L36/0421 and M36/0698) with a combined installed pumping capacity of about 37 L/s. Water is pumped directly to the distribution network. There is no treatment and no storage reservoir.

Plans for the proposed PC34 development area indicate the creation of 56 residential lots. No details of the proposed water reticulation layout have been provided but based on the supplied draft roading plan it is anticipated that a new main would connect at the High Street / Taiaroa Place intersection, run through the site to Brook Street and return to the High Street / Brook Street intersection. A rider main along the High Street frontage would be appropriate. The existing DN100 High Street main is in close proximity to the Taiaria Place bore source. It is unlikely that any network upgrade would be required.

Water meter records to 1 July 2012 and SCADA records to 16 April 2013 have been reviewed.

1.2 Consideration of Demand and Capacity

1.2.1 Annual Demand

Annual demand is typically around 230,000 m^3 , perhaps up to about 275,000 m^3 in a peak year, which is within the consented annual volume of 360,000 m^3 (CRC010893.1). The surplus consented annual volume would allow for about 80 additional connections assuming similar demand patterns. It is noted that annual demand has been significantly lower (<200,000 m^3) over the last couple of years. It is too soon to say if this reflects a genuine shift in usage patterns or is indicative of climatic variation from year to year.

1.2.2 Peak Day Demand

Peak day demand reached 2,194 m^3 in January 2013, marginally above the consented daily volume of 2,140 m^3. Peak days of around 2000 m^3 were also recorded in January 2008 and January 2009. Implementation of demand management techniques (eg hosing restrictions) may be necessary from time to time as existing half rated connections are taken up. A further modest increase in the number of connections would likely be manageable but summertime restrictions would be required more frequently.

1.2.3 Pump Capacity and Peak Hour Demand

The installed pump capacity is nominally 37 L/s. Recorded flows over the last five years have infrequently exceeded 33 L/s but have on occasion been as high as 40 L/s (suggesting a drop in system pressure at times of peak demand). The uptake of existing half connections could push peak flow demand to this level more frequently. If this

adversely impacted on system pressure to an unacceptable degree some form of time based water use restrictions would act to manage demand within installed capacity. Peak demands from a further modest increase in the number of connections would increase the frequency of operation at (or slightly above) nominal installed capacity. The consented rate of take is 43 L/s thus a slightly larger pump could be installed, otherwise time based water use restrictions would be required more frequently and for longer over the summer months.

There is no pump capacity redundancy, ie failure of a bore pump would severely impact the available supply capacity. If the larger bore pump (26 L/s, High St) was inoperable then the smaller pump (11 L/s, Taiaroa Pl) would not be able to supply an average day demand peak.

1.2.4 Fire Fighting

Further, there is no allowance for fire fighting water supply. This would require 25 L/s to be available in addition to 60% of the peak hour flow rate for residential land use (FW2). If a higher standard of fire protection (eg FW3) is desired in the business zone then 50L/s would be required in addition to 60% of the peak hour flow rate. Council Policy W211 requires that any capital works be designed to meet fire fighting requirements (at the discretion of the Asset Delivery Manager). An upgrade of the water supply would thus require consideration of fire fighting capacity improvements.

1.2.5 Demand Management

It is noted that existing water demand in Southbridge is relatively high. The night flow is high at around 20 L/connection/hour (2 L/s). Average and peak day demands are up to 2100 and 6400 L/connection respectively. Demand management measures may be successful in reducing water use, freeing up installed capacity for new connections.

1.2.6 Hydraulic Model

The recently developed hydraulic model of the Southbridge water supply has been used to consider the impact of a further 56 residential lots. This confirms that the network pressure falls below the pressure level of service (310 kPa) over about half of the supply zone at times of peak demand. This is related to demand exceeding supply capacity rather than head losses through the network.

1.3 Other considerations

1.3.1 Groundwater Allocation

Southbridge is in the Rakaia Selwyn Groundwater Allocation Zone. This is presently identified as a Red Zone meaning that water resources are fully or over allocated. Additional water is normally available for community supply purposes where this can be justified. In this case an increase in the annual volume allocation is not required, but the flow rate and daily volume limits may need to be increased.

1.3.2 Aquifer Testing

No aquifer test records for the wells are available from www.ecan.govt.nz. It is considered unlikely that comprehensive testing has been undertaken. An application to increase the rate of water take from these bores may require a reviewed aquifer test in the supporting assessment of environmental effects.

1.3.3 Groundwater Quality

The two water supply bores at High Street and Taiaroa Place are 27m and 25m deep respectively. It is assumed that these bores supply secure groundwater that does not require treatment to achieve DWSNZ compliance. PC34 may provide an opportunity to identify and set aside a suitable site for a new deeper bore, with sufficient land to construct a small treatment plant headworks should this be required in future.

1.3.4 Other Improvements

The Southbridge PHRMP identifies that there is no provision for connection of a portable generator at the Taiaroa Place bore and recommends that this be considered. Any planned upgrade works at this site should take this into account.

1.4 Options for Servicing PC34

There are several potential approaches to servicing the proposed PC34 development.

1) ***Demand Management***
   - Implement and sustain effective demand management techniques such that peak day volume and peak hour flow demands are reduced, allowing additional connections to be serviced with the existing installed pump capacity and within existing consent limits.
   - This does not address redundancy or fire fighting capacity issues.
   - Potentially an unpopular option with existing residents who would be required to moderate their usage in order to allow for development.

2) ***Pump Upgrade and Demand Management***
   - Upsize existing pump(s) to increase capacity to consented limit. There may be associated power supply and control system upgrades required.
   - Demand management, in particular to control peak day volumes within consented limit.
   - This does not address redundancy or fire fighting capacity issues.

3) ***Pump Upgrade and Consent Change***
   - Obtain consent to increase peak hour flow and peak day volume from the existing bores to a suitable level – subject to availability of additional yield from existing bores without adverse effects (not investigated).
   - Upsize existing pump(s) to increase capacity to new consented limit. There may be associated power supply and control system upgrades required.
   - This does not address redundancy or fire fighting capacity issues.

4) New Source

- Drill and test a new (deeper?) bore. Obtain necessary water take consent. Install pumping and control system.
- This offers potential benefits in terms of supply capacity redundancy and fire fighting capacity. A deeper bore may also be better protected from contamination in the longer term.

1.5 Conclusion

The existing water supply infrastructure has sufficient capacity to meet the current level of consumer demand (342 connections) but cannot accommodate growth over and above uptake of the existing half rated connections (21 connections) unless effective demand management measures are introduced and sustained .

Capacity is constrained by the size of the installed bore pumps and the consented flow rate and daily volume. A pump upgrade, possibly with associated resource consent changes, may be sufficient to provide additional capacity to service PC34. Construction of a new water source to provide the required capacity increase offers opportunity to make level of service improvements (redundancy and fire fighting) and manage water quality risks.

A longer term supply strategy for the existing and potential future serviced area needs to be considered.

2 Wastewater Assessment – Plan Change 34: High Street Southbridge

2.1 Overview

Southbridge wastewater is predominantly collected by a gravity sewer system terminating at a pump station on Broad Street. Outlying areas are serviced by pressure sewerage systems. All wastewater is pumped from Broad Street to the Leeston wastewater treatment plant (WWTP). No emergency storage is provided at the pump station. There is sufficient volume within the gravity sewer pipes to provide at least four hours emergency storage.

The Broad Street Pump Station was designed to serve 350 households. As at 1 September 2012 there were 302 actual connections with a further 94 rated connections giving a total of 396 rated connections. Thus the design capacity of the pump station is already potentially exceeded by 46 connections (13%).

No details of the proposed wastewater reticulation layout have been provided but based on the supplied draft roading plan it is anticipated that a new gravity sewer would connect to the existing DN150 High Street main (depth to invert approx 2.8m). The nominal capacity of the main equates to 250 households. With approximately 190 existing connections in the subcatchment the addition of 56 new connections would bring this line to capacity. This may be undesirable as it would preclude connection of existing half rated properties at the upper end of the catchment. A preferable alternative would be to discharge to the lower High Street catchment (south of Brook Street) (depth to invert approx. 2.0m).

2.2 Consideration of Pump Station Capacity

2.2.1 Design Criteria

The following flow rates have been calculated by applying the SDC Engineering Code of Practice design assumptions:

	Peak Flow m^3/day	Peak Flow L/s	Cumulative Flow L/s
350 original connections	1040	12.0	
46 additional connections (existing)	137	1.6	13.6
56 proposed connections (PC34)	166	1.9	15.5

Thus the required pumping capacity would increase by about 2 L/s, from 13.6 L/s to 15.5 L/s, if the proposed PC34 development proceeded.

2.2.2 Board Street Pump Station Capacity

The pump station capacity is limited by the size of the pumps and associated rising main (DN160 PE). Head losses along the 9.7km long rising main are significant. The rising main was sized to keep the head loss low enough to allow use of a submersible centrifugal pump, but this does not achieve the required flushing velocity so a high head progressive cavity pump has also been provided to regularly pump at a higher rate to flush the line.

The duty pump capacity (measured October 2004) is 12.2 L/s @ 490 kPa. The flush pump can deliver 16 L/s @ 780 kPa and operates every 14 pump cycles or after 12 hours. Correlation of daily volumes and pump hours suggests that the duty and flush pump capacities are 10 L/s and 17 L/s respectively. It is recommended that this data be validated any reduction in duty pump capacity be investigated.

2.2.3 Ability to meet current demand

The current dry weather flow is well in excess of the average dry weather flow assumed for design. This is likely to be associated with groundwater infiltration given the high water table in this locality. However, the actual peaking factor is less than that assumed for design so the peak flow per connection is less than that adopted for design purposes. This means that the existing 46 additional connections can be satisfactorily accommodated by the existing pump station.

2.2.4 Ability to accommodate additional demand

The capacity of the duty pump is already exceeded by the design flow for the existing allocated connections, by about 10%. This can be managed adequately, but there is no surplus capacity to accommodate any additional connections to the system. The existing flush pump has greater capacity, sufficient to accommodate the increased flow proposed from PC34, however reliance on the flush pump capacity increases the risk of an overflow event as there is insufficient standby capacity.

2.3 Consideration of Leeston WWTP Capacity

A further constraint is the capacity of the Leeston WWTP to accept and treat additional wastewater from Southbridge.

The design population for the WWTP is 3600 (nominally 1300 connections). This is split between Leeston (850 connections), Doyleston (115) and Southbridge (350). Currently there are 1246 full and half rated connections in total; Leeston (734 connections), Doyleston (116) and Southbridge (396). The number Southbridge rated connections already exceed the Southbridge allocation. Anticipated (zoned) growth at Leeston will require (and exceed) the remaining connections so these are not likely to be allocated to Southbridge to support PC34 growth.

The point source discharge of nitrogen from community sewerage systems is presently under scrutiny in the context of the Canterbury Water Management Strategy. The Zone Implementation Programme (ZIP) will set nitrogen load limits for community sewerage systems and require demonstration of industry best practice for treatment and disposal of wastewater to minimise nitrogen and phosphorous leaching losses. Until nutrient limits are set, there is a risk that future treatment plant capacity will be limited. Council

is addressing this matter but it is unlikely that additional wastewater loading would be acceptable until such time that current issues are resolved.

Even if additional pumping capacity were to be provided at Southbridge there is no capacity to accept and treat the additional wastewater at the Leeston WWTP.

2.4 Other Considerations

2.4.1 Central Plains Water

The Central Plains Water (CPW) irrigation scheme is anticipated to affect (increase) groundwater levels downgradient of the irrigated area. This is difficult to quantify with any degree of confidence but must be considered. A higher ground water level may increase infiltration to the wastewater pipe network, thus increasing the volume of wastewater needing to the pumped to Leeston for treatment and disposal.

2.5 Options for Servicing PC34

There is no simple, low cost option for servicing additional wastewater connections at Southbridge, which would require:

i. provision of additional treatment capacity at the Leeston WWTP, and

ii. provision of additional pumping capacity at Southbridge.

Assuming that additional WWTP capacity could be developed at Leeston as part of a wider programme of work necessary to support anticipated growth in the Leeston area the shortage in transfer pumping capacity at Southbridge could be approached in a variety of ways.

1) Accept additional connections to existing system – no upgrade

The existing peak wastewater load is considerably less than the existing system design capacity, even when the full uptake of connections is factored in. Originally designed for a peaking factor of 5 the existing over allocation of connections has already dropped this factor to about 4.5. Addition of 56 connections (PC34) would see this factor further reduced to 3.9.

Advantages

- No capital works cost

Disadvantages

- Departure from CoP

Risks

- Longer-term deterioration of pipe network could see progressive increase in infiltration that would ultimately produce flows in excess of pump station capacity.
- Existing pump station capacity may decrease over time as the pipeline friction factor increases. There is already some evidence of a reduction in capacity since commissioning.
- Uncertainty around groundwater level effects that may result from Central Plains Water and adversely impact on infiltration.

2) Accept additional connections to existing system – provide storage

The additional 56 connections (PC34) would potentially generate peak flows of up to 2 L/s or 166 m³/day. If sufficient storage could be provide to contain the additional wastewater production then the existing Broad Street pump station could deliver this to Leeston when surplus capacity becomes available. An indicative storage capacity of 500 m³ has been considered here, being three days storage. This assumes that peak flows from the system would not occur for more than three consecutive days before stored effluent could be pumped to the WWTP.

Advantages

- Utilises existing pump station and rising main without upgrade.

Disadvantages

- High capital cost for providing storage
- Potential odour problems
- Potential adverse impact on Leeston WWTP (effluent quality)
- High groundwater level will create difficulty for constructing storage

Risks

- An extended period of wet weather with associated high levels of inflow and infiltration may generate peak flows for longer than allowed for by storage resulting in overflows.

3) Accept additional connections to existing system – utilise Flush Pump

The existing Flush Pump capacity (16 L/s) is sufficient to accommodate the design peak wastewater flow (15.5 L/s). The pump station control logic could configured to operate the Flush Pump exclusively when pump station inflows exceed the Duty Pump capacity (12.2 L/s).

Advantages

- Utilises existing pump station and rising main without upgrade.

Disadvantages

- No pump capacity redundancy in event that Flush Pump fails
- The Flush Pump is a progressive cavity (PC) type of pump which is not so effective for pumping solids and sharp objectives which can cause damage.
- Higher maintenance costs for PC pump.

Risks

- There would be pump redundancy up to 12.2L/s as at present (Flush Pump operates as standby), but at peak times when the Flush Pump is needed to provide capacity there would be insufficient standby pump capacity. This may result in an overflow.
- A progressive cavity pump is prone to damage from solids so pumping the entire peak flow, potentially over several days may increase vulnerability to pump failure.

4) Accept additional connections to existing system – duplicate Flush Pump

As above, but with duplication of the progressive cavity Flush Pump (16 L/s).

Advantages

- Addresses risk by providing pump capacity redundancy

Disadvantages

- Capital works cost
- Site configuration may be awkward

Risks

- A reduction in risk relative to previous option.
- Potential for creating a legacy of unduly high operation and maintenance costs should pumping of solids cause recurrent pump damage

5) Reconfigure rising main with an intermediate pump station

The technical issues of this option have not been given specific consideration but it may be possible to construct an intermediate pump station such that a higher flow rate through the existing rising main can be achieved by pumping in two stages.

Advantages

- Increases capacity without construction of a second rising main
- Restore design capacity for existing over allocation of connections
- Provide capacity for further growth

Disadvantages

- Requires a second pumping station to be constructed
- May require existing pumps to be changed
- Capital cost of new works
- Operation and maintenance costs for two pump stations

Risks

- SDC may have to carry the cost of additional capacity for an extended period of time if future growth is slow.

6) Require construction of new wastewater pump station and rising main

The additional 56 proposed connections (PC34) plus the existing 46 additional approved connections exceed the design capacity by 30%. Development at Southbridge will be constrained until such time that additional pumping and rising main capacity is provided. It may be appropriate to duplicate the existing system and provide further capacity for growth.

Advantages

- Restore design capacity for existing over allocation of connections
- Provide capacity for further growth

Disadvantages

- High capital cost

Risks

- SDC may have to carry the cost of additional capacity for an extended period of time if future growth is slow.

2.6 Conclusion

The existing wastewater infrastructure has been designed to serve up to 350 properties based on the Code of Practice design requirements and is limited by the pumping capacity of the sole pumping station that transfers wastewater to the Leeston wastewater treatment plant (WWTP) and by the capacity of the Leeston WWTP to receive additional wastewater loads.

There are presently 396 rated connections (including 94 half rated properties) so the design capacity would be exceeded if all potential connections were taken up. This over-allocation can be managed; however, no additional connections can be accommodated without (further) compromising design standards and creating a higher level of environmental and financial risk to Council.

Options for addressing the Leeston WWTP limitations are beyond the scope of this assessment. The issues are complex and any development of the WWTP would need to consider growth planning for the wider Leeston area.

Should additional treatment and disposal capacity be provided for Southbridge as part of a wider upgrade strategy then a corresponding increase in transfer pumping capacity will be required. A small increase (to serve PC34 alone) could potentially be achieved by duplicating the higher capacity flush pump, but this would again leave the Southbridge wastewater system with no capacity to accommodate future growth. Strategically, a larger capacity increase would be preferable, requiring a new pump station and rising main, or possibly two stage pumping along the existing rising main.

Relaxation of design standards to allow additional connections, based on apparent under-utilisation of the existing assets, carries a significant risk for Council. A comprehensive study of actual and potential future loadings would need to be undertaken to support any application. This would need to take a very conservative approach to quantifying the potential impact of Central Plains Water on groundwater levels and infiltration. Council risk adverse environmental and financial impacts should long-term wastewater volumes exceed the capacity of the existing pump station, which cannot readily be upgraded.

Provision of storage is not considered to be a feasible option.

Opus International Consultants

Prepared by: Paul Carran

Reviewed by: Andrew Iremonger

Date: 6 May 2013

Appendix 7

Opus Report

Opus International Consultants Ltd
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New Zealand

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f: +64 3 365 7858
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20 June 2014

Murray England
Strategic Asset Manager – Water Services
PO Box 90
Rolleston 7643
Christchurch

3-C1146.00

Dear Murray

Southbridge Wastewater Upgrade Options - Cost Estimates

In March 2014 Opus International Consultants produced capital cost estimates for options to upgrade the Southbridge wastewater facilities in response to the PC34 application. Selwyn District Council (SDC) has now commissioned Opus to develop operational and maintenance costs for the same options. For completeness both the capital and operational costs are presented in this report.

Rough order cost estimates have been prepared for the following options, which are described in the *Southbridge Servicing Assessment for Plan Change 34,* Opus report dated 6 April 2013:

a. Provide storage (500m³)
b. Duplicate flush pump
c. Reconfigure rising main with an intermediate pump station
d. Construction of new wastewater pump station and rising main

Our rough order cost estimates and costing assumptions are presented below and a detailed breakdown of the costings are attached. All estimates are rough order cost (accuracy ± 30%) and a 20% contingency is included.

As-built drawings of the pump station and rising main, and the existing system's operation and maintenance manual provided by SDC, have been used as a basis for our cost estimates. No site visit was undertaken for this project.

The general assumptions made for the operation and maintenance NPV costs are:

- 30 year assessment period
- Current average daily flow – 350 m³/day (396 connections)
- Future average daily flow - 400 m³/day (452 connections)
- Pump replacement every 15 years
- Control panel replacement every 20 years

- Power costs $0.20/kWh
- Maintenance cost for current pump station $11,250 per annum(from SDC data)
- Discount rate – 8%
- Costs associated with the WWTP have not been included
- Existing pumps and control panel have not been replaced since pump station construction in 2004 and therefore require replacement at year 5 and year 10 respectively

Provide storage (500m³) - ROC $1,340,000, O&M NPV $360,000

Capital cost assumptions:
- Constructed underground from DN1200 RCRRJ pipe
- Located in road reserve south of existing pump station
- Offline storage (i.e. lowest invert level of storage is above pump start level)
- Depth between 2.4-4.6 m. Storage is deep to stay under the invert level of pump station's electrical control ducts.
- No allowance for dewatering has been included
- Maximum number of connections 452

Operational and maintenance cost assumptions:
- Allowance for cleaning the storage tanks after use

Duplicate flush pump – ROC $230,000, O&M NPV $430,000

Capital cost assumptions:
- New progressive cavity pump is the same make and model as the existing
- There is sufficient room in existing pump chamber for two pumps
- Suction pipework will make use of existing "spare nozzle" pipework in wet well
- New VFD required
- Maximum number of connections 452

Operational and maintenance cost assumptions:
- Increased maintenance cost as extra PC pump to service
- Installing new PC will require upgrade of control panel so replacement timeframe has been reset

Reconfigure rising main with an intermediate pump station – ROC $500,000, O&M NPV $660,000

Capital cost assumptions:
- Maximum number of connections 452
- Design Parameters
  - » Flow rate – 16 L/s
  - » Static head – existing PS = 4.5m , new PS = 3m
  - » Rising main - DN160 PN12.5 PE100,
  - » Roughness coefficient - 0.6 mm
  - » Rising main length - existing PS 3750 m, new PS 5950 m

- New Pump Station
    - » Wet well – 3 m deep
    - » Pumps - two submersible pumps (47kW)
    - » Allowance for valve chamber, electrical cabinet and SCADA connection has been included.
    - » Power and water are available at the pump station location, this has not been confirmed.
    - » Suitable land is available for purchase at new PS site, however no allowance for land purchase has been included in the cost estimate
    - » No allowance for dewatering has been included

Operational and maintenance cost assumptions:

- Double maintenance cost as extra pump station to service

Construction of new wastewater pump station and rising main – ROC $2,470,000, O&M NPV $680,000

Capital cost assumptions:

- Maximum number of connections 627
- Design Parameters
    - » Flow rate - 10L/s – lower flow rate will not provide self-cleansing
    - » Static head – 4.5 m
    - » Rising main details - same diameter and material as existing (DN160 PN12.5 PE100), length 10,400 m
    - » Roughness coefficient - 0.6 mm
- New Pump Station
    - » Wet well – 4 m deep
    - » Pumps - two submersible pumps (22kW)
    - » Valve chamber, electrical cabinet and SCADA connection have been included.
    - » Power and water are available at the pump station location, this has not been confirmed
    - » Suitable land is available for purchase at new PS site; however no allowance for land purchase has been included in the cost estimate
    - » No allowance for dewatering has been included
- New rising main alignment laid beside existing in the berm with same vertical alignment and therefore the same amount of air valves and pigging points have been included (9 and 4 respectively)

Operational and maintenance cost assumptions:

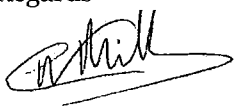
- Double maintenance cost as extra pump station to service
- Allowance for checking and servicing air valves on new rising main

Cost Estimate Summary Table

Option	Approximate maximum number of connections	ROC	Increase in O&M NPV	Total NPV
Provide storage (500m^3)	452	$1,340,000	$10,000	$1,700,000
Duplicate flush pump	452	$230,000	$80,000	$660,000
Reconfigure rising main with an intermediate pump station	452	$500,000	$310,000	$1,160,000
Construction of new wastewater pump station and rising main	627	$2,470,000	$330,000	$3,150,000

Please contact me if you have any further queries.

Regards



Charlotte Mills
Senior Environmental Engineer

PC34 High Street, Southbridge - Rough Order Capital Cost Estimates

Prepared	Charlotte Mills	7/03/2014
Reviewed	Greg Birdling	10/03/2014

Provide Storage

Item	Description	Unit	Quantity	Rate	Total
1	**P&G**	LS	0.1	$924,000	$92,000
2	**Underground Storage - 500 m^3**				
2.1	Supply and install underground storage - DN1200 RCRRJ	m	442	$2,000	$884,000
2.2	Supply and install connecting manholes and pipework	LS	1	$40,000	$40,000
3	**Engineering**	LS	0.1	$1,016,000	$102,000
4	**Contingency**	LS	0.2	$1,118,000	$224,000
	Total				**$1,340,000**

Duplicate Flush Pump

Item	Description	Unit	Quantity	Rate	Total
1	**P&G**	LS	0.1	$160,000	$16,000
2	**Duplicate Flush Pump**				
2.1	Supply and install new PC Pump (30kW)	LS	1	$75,000	$75,000
2.2	Supply and install suction pipework	LS	1	$25,000	$25,000
2.3	Supply and install pipework downstream of pump	LS	1	$20,000	$20,000
2.4	Supply and install VFD - includes cabinet modifications	LS	1	$40,000	$40,000
3	**Engineering**	LS	0.1	$176,000	$18,000
4	**Contingency**	LS	0.2	$194,000	$39,000
	Total				**$230,000**

Reconfigure Rising Main with an Intermediate Pump Station

Item	Description	Unit	Quantity	Rate	Total
1	**P&G**	LS	0.1	$345,500	$35,000
2	**Pump Station**				
2.1	Supply and install pumps (47kW) and pipework	ea	2	$60,000	$120,000
2.2	Supply and install wetwell - 3m deep	LS	1	$90,000	$90,000
2.3	Supply and install valve chamber	LS	1	$25,000	$25,000
2.4	Cabinet, Switch board, Instrumentation & Power supply	LS	1	$104,000	$104,000
2.5	SCADA	LS	1	$6,500	$6,500
3	**Engineering**	LS	0.1	$380,500	$38,000
4	**Contingency**	LS	0.2	$418,500	$84,000
	Total				**$500,000**

Construct New Wastewater Pump Station and Rising Main

Item	Description	Unit	Quantity	Rate	Total
1	**P&G**	LS	0.1	$1,704,500	$170,000
2	**Pump Station**				
2.1	Supply and install pumps (22kW) and pipework	ea	2	$45,000	$90,000
2.2	Supply and install wetwell - 4m deep	LS	1	$120,000	$120,000
2.3	Supply and install valve chamber	LS	1	$25,000	$25,000
2.4	Cabinet, Switch board, Instrumentation & Power supply	LS	1	$76,000	$76,000
2.5	SCADA	LS	1	$5,500	$5,500
3	**Rising Main**				
3.1	Supply and install PN12.5 DN160 PE100	m	10400	$120	$1,248,000
3.2	Supply and install air valve	ea	9	$10,000	$90,000
3.3	Supply and install pigging point	ea	4	$10,000	$40,000
3.4	Supply and install inline valves	ea	4	$2,500	$10,000
4	**Engineering**	LS	0.1	$1,874,500	$187,000
5	**Contingency**	LS	0.2	$2,061,500	$412,000
	Total				**$2,470,000**

OPUS

Provide Storage

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Capital cost	$1,340,000																														
Pump replacement						$87,000															$87,000										
Control Panel Replacement											$40,000																				$40,000
Power		$9,422	$9,656	$9,889	$10,123	$10,357	$10,591	$10,824	$11,058	$11,292	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525
Maintenance (base $11,250)		$12,210	$12,210	$12,210	$12,210	$12,210	$12,210	$12,210	$12,210	$12,210	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170	$13,170
Total Costs	$1,340,000	$21,632	$21,866	$22,099	$22,333	$109,567	$22,801	$23,034	$23,268	$23,502	$64,695	$24,695	$24,695	$24,695	$24,695	$24,695	$24,695	$24,695	$24,695	$24,695	$111,695	$24,695	$24,695	$24,695	$24,695	$24,695	$24,695	$24,695	$24,695	$24,695	$64,695
NPV	*$1,340,000*	*$20,030*	*$18,746*	*$17,543*	*$16,416*	*$74,569*	*$14,368*	*$13,440*	*$12,571*	*$11,757*	*$29,966*	*$10,591*	*$9,807*	*$9,080*	*$8,408*	*$7,785*	*$7,208*	*$6,674*	*$6,180*	*$5,722*	*$23,964*	*$4,906*	*$4,542*	*$4,206*	*$3,894*	*$3,606*	*$3,339*	*$3,092*	*$2,863*	*$2,650*	*$6,429*
Operational Cost NPV	$360,000																													
Total NPV	$1,700,000																													

Duplicate Flush Pump

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Capital cost	$230,000																														
Pump replacement						$87,000										$65,000					$87,000										$65,000
Control Panel Replacement																					$40,000										
Power		$9,422	$9,656	$9,889	$10,123	$10,357	$10,591	$10,824	$11,058	$11,292	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525	$11,525
Maintenance (base $11,250)		$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875	$16,875
Total Costs	$230,000	$26,297	$26,531	$26,764	$26,998	$114,232	$27,466	$27,699	$27,933	$28,167	$28,400	$28,400	$28,400	$28,400	$28,400	$93,400	$28,400	$28,400	$28,400	$28,400	$155,400	$28,400	$28,400	$28,400	$28,400	$28,400	$28,400	$28,400	$28,400	$28,400	$93,400
NPV	$230,000	$24,349	$22,746	$21,246	$19,844	$77,744	$17,308	$16,162	$15,091	$14,090	$13,155	$12,180	$11,278	$10,443	$9,669	$29,444	$8,290	$7,676	$7,107	$6,581	$33,341	$5,642	$5,224	$4,837	$4,479	$4,147	$3,840	$3,555	$3,292	$3,048	$9,282
Operational Cost NPV	$430,000																														
Total NPV	$660,000																														

Reconfigure Rising Main with an Intermediate Pump Station

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Capital cost	$500,000																														
Pump replacement						$87,000										$60,000					$87,000										$60,000
Control Panel Replacement											$40,000										$40,000										$40,000
Power		$22,633	$22,932	$23,230	$23,528	$23,826	$24,125	$24,423	$24,721	$25,019	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318	$25,318
Maintenance (base $11,250)		$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500	$22,500
Total Costs	$500,000	$45,133	$45,432	$45,730	$46,028	$133,326	$46,625	$46,923	$47,221	$47,519	$87,818	$47,818	$47,818	$47,818	$47,818	$107,818	$47,818	$47,818	$47,818	$47,818	$174,818	$47,818	$47,818	$47,818	$47,818	$47,818	$47,818	$47,818	$47,818	$47,818	$147,818
NPV	*$500,000*	*$41,790*	*$38,950*	*$36,302*	*$33,832*	*$90,740*	*$29,381*	*$27,379*	*$25,512*	*$23,772*	*$40,877*	*$20,508*	*$18,989*	*$17,582*	*$16,280*	*$33,989*	*$13,957*	*$12,924*	*$11,966*	*$11,080*	*$37,507*	*$9,499*	*$8,796*	*$8,144*	*$7,541*	*$6,982*	*$6,465*	*$5,986*	*$5,543*	*$5,132*	*$14,690*
Operational Cost NPV	$660,000																														
Total NPV	$1,160,000																														

Construct New Wastewater Pump Station and Rising Main

	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
Capital cost	$2,470,000																														
Pump replacement						$87,000										$44,000					$87,000										$44,000
Control Panel Replacement											$40,000										$40,000										$40,000
Power		$22,757	$23,075	$23,392	$23,709	$24,027	$24,344	$24,661	$24,979	$25,296	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613	$25,613
Maintenance (base $11,250)		$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500	$24,500
Total Costs	$2,470,000	$47,257	$47,575	$47,892	$48,209	$135,527	$48,844	$49,161	$49,479	$49,796	$90,113	$50,113	$50,113	$50,113	$50,113	$94,113	$50,113	$50,113	$50,113	$50,113	$177,113	$50,113	$50,113	$50,113	$50,113	$50,113	$50,113	$50,113	$50,113	$50,113	$134,113
NPV	*$2,470,000*	*$43,757*	*$40,788*	*$38,018*	*$35,435*	*$92,237*	*$30,780*	*$28,685*	*$26,732*	*$24,910*	*$41,740*	*$21,493*	*$19,901*	*$18,427*	*$17,062*	*$29,668*	*$14,628*	*$13,544*	*$12,541*	*$11,612*	*$37,999*	*$9,955*	*$9,218*	*$8,535*	*$7,903*	*$7,317*	*$6,775*	*$6,274*	*$5,809*	*$5,379*	*$13,328*
Operational Cost NPV	$680,000																														
Total NPV	$3,150,000																														

Appendix 8

Minutes from Township meeting

Southbridge Advisory Committee
Minutes of Meeting

Chairman: Wayne Palmer 324-2096 *Secretary:* Lieuwe Doubleday 324-2992 17 St John Street Southbridge

Date: 21st July 2014
Day: Monday (3rd Monday in Month)
Time: 7.37 p.m. – 10.05 p.m.
Venue: Hall
Chair: Wayne Palmer
Next Meeting: (3rd Monday) in August 18th

Present:

Wayne Palmer [WP] **Chairman**	Lieuwe Doubleday [LD]
Susan Stewart [SS]	Peter McLean [PMc]
Geoff Allan [[GA]	~~Donald McMillan [DmcM] (Res)~~
~~Martin Wellby [MW]~~	Pat McEvedy [PMcE]

Also in attendance: Murray England SDC Assets Manager- Water Services 7.30 – 9.12 pm.

1. **Apologies:** [MW], [DMcM]

2. **Public Forum:** None

3. **Minutes of Last Meeting:** 16th June 2014
Moved [WP] Seconded [SS] accepting minutes of last meeting. Carried by All.

4. **Communications:** Emails schedule attached.

5. **Finance Expenditure Approvals**

6. **Councillor's Update:** Insufficient time for an update this meeting.

Activity Reports.

7. **Hall – Purchase Orders:** [SS] noted that the SDC could expect to receive a large number of new order numbers as a result of the hall upgrade many of the existing accessories e.g. cleaning equipment needed to be upgraded in keeping with the standard of the facility and the new hire charges for the Halls use.
Hall – Hire Rates [SS] noted that after discussions with the Glentunnel committee (which have a new hall) hire rates have been amended. **AP # 1** [SS] to circulate updated rates The hire agreement has also been updated.
Hall – Usage [SS] noted that she is meeting with the SDC Hall activity co-ordinator to look at ways in the which the Hall can be promoted and used.

8. **Swimming Pool** – [SS] noted discussions with the Pool Manager who was reluctant to open the Pool until a guarantee had been provided by the SDC that all employees and patrons would not be harmed in the event of an earthquake. Engineering reports indicated that the Pool was safe to use but this appeared to hold no sway for the manager. This could be an issue.

9. Generators: (update and advice from Murray England)

Generator for water supply – to be located behind the library. SDC consider that if you put one generator in for water you need one also for the Sewerage – have put out to tender – prices have come in at $28,000 which is a lot cheaper than expected. The generator with a 110 Kva will also power the hall. The generators are supplied by Goughs (Catepillar).

The SAC will have to arrange and pay for the connection to the Hall. We had previously obtained a quote from Nairns for this purpose and the quote (from memory) was less than $5,000. **Installation Timing:** a concrete pad for the generators is due to installed prior to Xmas.

Generator for Sewerage Scheme – also a Gough generators – currently looking at 65 kva but would prefer to have a higher output generator. Discussed how the generator was to be engaged and agreed to use a manual switch as opposed to an automatic system.

Storm water (Jo Golden/Murray England) – refer paper and maps. OÇonnell Street issue – question: how much should the township contribute to the fix (if anything). Refer notes supplied and options.

[ME] presented the options and discussion ensued.

- Discussed the general principles governing the committee's and Council's responsibility and role in flood mitigation (see below).
- Noted that steps had already been taken which may well be successful in fully mitigating further flooding. Whether this is true however remains to be seen.
- Discussed other options eg. Insuring against adverse events, setting up a 'fund' for future initiatives (if the current mitigations proved ineffective).
- Noted that the rates had increased for Storm Water *(see minutes of 3rd March 2014 where the following resolution was made: **Moved**[LD] **Seconded**[WP] that the targeted rate for storm water be increased to $50 (2014/5) i.e. an increase of $12 up from $38).*
- Agreed that consultation was desirable before any major financial commitment was undertaken by the SDC.
- As an interim measure agreed that costings should be obtained for a scaled down version of option #3 with the partial amendment whereby the option only involved running a swale /pipe to start of Sarsfield St. and nothing more.

Also agreed by way of determining that all options were considered:

AP#2 Agreed SDC to write to Mr Sluys requesting access to take levels - when approached personally by PMcEv and LD he declined access but may have since reconsidered. A letter will confirm the position one way or the other.

AP#3 SDC to also write (after a response is received to AP#2) to advise that baleage should not be used to block natural waterways because of the 'nuisance' downstream.

Decision Making Principles

1. SDC is not liable to fix the issue – particularly in the O'Connell street properties as the owners were aware of the flooding issues with these properties. (as a result SDC can't be said to be responsible – by extension the same is true for the committee);
2. SDC and the township as a 'good neighbour' is prepared to help and put some funds aside to assist (provided its risk exposure is limited);
3. Any solution advanced to protect properties 'affected' by flooding must not have an adverse impact on other property owners currently not affected by flooding. The risk which needs to be managed is that a solution for one party may create unintended consequences for other parties which may create a liability for the Council if its actions can be seen as a contributor to adverse impacts on those other properties.
4. Accordingly it is considered that the SDC need to have a solution which entitles the SDC to 'cut off' water moving into the proposed drain solution if it becomes clear that other properties are going to be impacted adversely. Accordingly the present 'affected property owners' need to understand that they may be exposed if the SDC has to terminate the drainage solution. As a consequence the SDC may need to consider what legal safeguards it can introduce into any agreement which protects the Council if it has to alter or change a solution designed to protect land owners currently affected by flooding.
5. The Council should consider seeking a capital contribution from land owners as opposed to placing the total burden on the township.

Recommendation: Price option #3 with the partial amendment that a swale /pipe only run to the start of Sarsfield St)
Moved [WP] Seconded [PMcl] approving recommendation above. Carried by all.

10. **Maintenance** [PMcL] enquired whether we had ever received advice from the Council about its footpath maintenance programme for the township. It was noted that we had been promised a copy of the programme but it had never materialized. Agreed [LD] should email Mark Chamberlain requesting (a) a copy of the footpath maintenance plan for Southbridge; and also (b) enquiring as to the timetable for the creation of the turning circle on St John Street – outside the Seed factory (part of the townships LTP).

11. **Sewerage** – tabled Southbridge Sewer Connections table showing the growth in connections over time. Noted the scheme was originally designed for 350 connections. Currently we have 316 full connections with an additional 80 (1/2 connections) giving a total of 396 connections – which is higher than the original design. That said, Opus Consultants have advised that the system appears to be able to cope with this capacity based on average flows. Accordingly the current capacity of the system as it currently stands is confirmed at 396 full connections.

Roxburgh development is projected to create another 54 connections.

Accordingly in thinking about the sewerage options the SDC have considered a capacity of 450 full connections.

[ME] tabled and discussed each of the options below:

Sewerage Upgrade Options:

Planning for a capacity of say 450 connections then the options (with indicative prices) are to:

(a) Install holding capacity ($1.3M plus on going maintenance);

(b) Install a flush pump ($230,000 upgrade);

(c) Reconfigure rising main and put a pumping station half way between Leeston and Southbridge ($540,000);

(d) Brand new pump station, brand new rising main (approx. $2.5M);

There was concern that maintenance costs would increase but Murray England has reviewed this aspect and doesn't anticipate a significant increase in maintenance costs for option (b).

Moved [LD] Seconded [GA] agreeing that the preferred option is (b) above, an upgraded flush pump with an estimated cost of $230,000 largely to be funded by Rob Roxburgh's land development which is subject to planning approval. Carried by all.

A consequential issue is water capacity – and the solution is to sink another well.

12. Other Business

"DH Golden" Replacement Plaque
Joyce Greenwood requested that the Committee fund a plaque (lost by previous committees) commerating the donation of a 'tree' to the township.
Moved [WP] Seconded [SS] approving the expenditure to cover the cost of the plaque and installation (estimated at $200). Carried by all.

Lodge Opening
Regrettably will decline. [AP#4] WP to communicate to the Lodge along the following lines: Thank you for your kind offer but because there has been a large number of the community involved in the hall redevelopment we would prefer to have an open day which is 'free'to the public and which is catered with an afternoon tea for those coming through. Agreed that the Lodge could promote the event as a first event to be held in the Hall since its upgrade.

Open Day – set as September 14th Sunday – 2.00 p.m. – afternoon tea at 3.00 p.m.
Pat McEvedy agreed to fund afternoon tea from Councillor's discretionary fund (Anna Ridgen to cater) – suggested that we fund $200 of food for afternoon tea. Invite the Mayor – Graham Creed and family. Advertisement to be placed in August in Echo

150th Labour Day – [WP] chairing this day's events. Combined Sports Club – each club to provide two committee members and they can help run the event. Top Team events. Agreed that proceeds of the day could be used to develop a Southbridge Information Kiosk or something similar.

BNZ Closed for Good – agreed that a suitable activity was the conduct of the stock take of the Hall catering equipment. The BNZ staff had conducted the same exercise last year and it had been a valuable help. **[AP#5]** Charlotte McLean and [SS] to complete the necessary forms by the due date of the 26th July.

LTP 3 year review – agreed that advice to Derek Hayes in email of 7th July covered the additional activities required for the Hall but note not all the window frames required replacement and in many cases it was just the 'glass' which required replacement. Noted also that an addition to the Hall improvements should include the sanding and varnishing of all wooden floors (excluding the main hall which has been replaced). The Supper room in particular would benefit from a revamp of the floor surface. **[AP#6]** [LD] to respond to Derek Hayes with the amendments and other information required ASAP.

13. **Meeting Closed: 10.05 p.m.**

14. **Next Meeting:** 18th August 2014

Southbridge Advisory Committee
Minutes of Meeting

Chairman: Wayne Palmer 324-2096 *Secretary:* Lieuwe Doubleday 324-2992 17 St John Street Southbridge

Email Communications in the Period 17th June through to 21 July 2014

Received	From	To	Subject
9:05 a.m.	Teri Findlater		Selwyn District Plan Updates
Sat 19/07	Murray England	LAD	Auto reply: Southbridge Township Meeting
Sat 19/07	LAD	Derek Hayes	RE: 2014 07 18 RE: Southbridge Community Ctr / Hall
Sat 19/07	LAD	SAC	FW: 2014 07 07 RE: Southbridge Community Ctr / Hall
Sat 19/07	LAD	Murray England	RE: Southbridge Township Meeting
Fri 18/07	Wayne	LAD	Fwd: Southbridge Township Meeting
Fri 18/07	Derek Hayes	LAD	RE: 2014 07 07 RE: Southbridge Community Ctr / Hall
Tue 15/07	LAD	SAC	2014 07 15 Southbridge Hall opening
Tue 15/07	BNZ	LAD	Don't forget to register your Closed for Good project
Tue 15/07	Karen Bartlett	LAD	FW: Message from "SDCHQA01"
Mon 14/07	LAD	'Karen Bartlett'	RE: Monitoring Agreement
Mon 14/07	Pam Stephens	LAD; Douglas Marshall	RE: 2014.05.19 Discretionary Funds for Southbridge - year end transfer
Mon 14/07	LAD	'martin wellby'	RE: 2014 07 09 Heritage Funds Quotes
11/07/2014	Karen Bartlett	LAD	Monitoring Agreement
11/07/2014	Karen Bartlett	Carl Colenutt	Southbridge Hall GL Codes
11/07/2014	Karen Bartlett	LAD	FW: Message from "SDCHQA01"
11/07/2014	Lieuwe	heritagefund	2014 07 11 Southbridge Heritage Fund Application - supporting information
11/07/2014	Squiz Matrix	LAD	Accessible CAPTCHA Form Verification
11/07/2014	Squiz Matrix	LAD	Accessible CAPTCHA Form Verification
11/07/2014	Squiz Matrix	LAD	Accessible CAPTCHA Form Verification
10/07/2014	martin wellby	LAD; Susan	RE: 2014 07 09 Heritage Funds Quotes
10/07/2014	LAD	Susan	2014 07 10 RE: Quotes
10/07/2014	LAD	Susan	2014 07 10 RE: Quotes
10/07/2014	Susan	LAD	FW: Enquiry from the Alloyfold site:
10/07/2014	Susan	LAD	FW: Enquiry from the Alloyfold site:
10/07/2014	Susan	LAD	Quotes
10/07/2014	Susan	LAD	Quotes
9/07/2014	LAD	Susan	2014 07 09 Heritage Funds Quotes
8/07/2014	LAD	SAC	FW: Electronic Purchase System
8/07/2014	LAD	SAC	FW: Selwyn World War I Centenary Commemoration
8/07/2014	LAD	SAC	FW: 2014 07 07 RE: Southbridge Community Ctr / Hall
8/07/2014	Derek Hayes	LAD	RE: 2014 07 07 RE: Southbridge Community Ctr / Hall
8/07/2014	Joy Farrington		Electronic Purchase System

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8/07/2014	Joy Farrington	LAD	RE: Selwyn World War I Centenary Commemoration
7/07/2014	LAD	SAC	2014 07 07 Southbridge Community Ctr / Hall
7/07/2014	LAD	'Derek Hayes'	2014 07 07 RE: Southbridge Community Ctr / Hall
7/07/2014	LAD	'Joy Farrington'	RE: Selwyn World War I Centenary Commemoration
7/07/2014	Derek Hayes	LAD	FW: Southbridge Community Ctr / Hall
7/07/2014	Derek Hayes	LAD	FW: Southbridge Community Ctr / Hall
7/07/2014	Joy Farrington		Selwyn World War I Centenary Commemoration
6/07/2014	Karen Bartlett	LAD	Automatic reply: 2014 07 06 Fire Emergency Contact Numbers for the Southbridge Hall
6/07/2014	LAD	Karen.Bartlett	2014 07 06 Fire Emergency Contact Numbers for the Southbridge Hall
5/07/2014	Susan	LAD	RE: 2014 07 04 contact numbers for the hall in the event of a fire emergency
5/07/2014	Wayne	LAD	Re: 2014 07 03 Heritage Funding for Southbridge Hall
5/07/2014	Wayne	LAD	Re: 2014 07 03 Heritage Funding for Southbridge Hall
4/07/2014	Wayne	LAD	Re: 2014 07 04 contact numbers for the hall in the event of a fire emergency
4/07/2014	Wayne	LAD	Re: 2014 07 04 contact numbers for the hall in the event of a fire emergency
4/07/2014	LAD	Wayne Susan Donald	2014 07 04 contact numbers for the hall in the event of a fire emergency
4/07/2014	Susan	LAD	RE: 2014 07 03 Heritage Funding for Southbridge Hall
4/07/2014	LAD	LAD	2014 07 04 Email Karen Bartlett re Emergency contact numbers - Landline / Mobile/ Names Wayne Susan Myself / Donald?
3/07/2014	LAD	SAC	2014 07 03 Heritage Funding for Southbridge Hall
1/07/2014	Lieuwe	LAD	Heritage funding
1/07/2014	Karen Bartlett	LAD	RE: filming
1/07/2014	Cr Pat McEvedy	LAD; Karen Bartlett	RE: filming

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Minutes of Meeting

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Received	From	To	Subject
30/06/2014	Wayne	LAD	Re: filming
30/06/2014	LAD	'Karen Bartlett'	RE: filming
30/06/2014	LAD	SAC	FW: filming
30/06/2014	LAD	SAC	FW: filming
30/06/2014	LAD	Karen.Bartlett	FW: Hall Window
30/06/2014	BNZ	LAD	Need a helping hand?
30/06/2014	Allanah Jarman	Karen Bartlett	RE: filming
30/06/2014	Karen Bartlett	Allanah Jarman	RE: filming
30/06/2014	Cr Pat McEvedy	LAD	Hall Window
29/06/2014	LAD	'Cr Pat McEvedy'	RE: 2014 06 26 Heritage Building Earthquake repairs - Southbridge Hall
29/06/2014	Cr Pat McEvedy	LAD	Re: 2014 06 26 Heritage Building Earthquake repairs - Southbridge Hall
29/06/2014	LAD	SAC	2014 06 29 Southbridge Advisory Committee financial report - May 2014
29/06/2014	LAD	CrPat.McEvedy	FW: 2014 06 26 Heritage Building Earthquake repairs - Southbridge Hall
27/06/2014	Pam Stephens	WAYNE; LAD	Southbridge Advisory Committee financial report - May 2014
27/06/2014	Susan	LAD	RE: 2014 06 26 Heritage Building Earthquake repairs - Southbridge Hall
27/06/2014	Karen Bartlett	LAD	RE: 2014 06 26 Heritage Building Earthquake repairs - Southbridge Hall
27/06/2014	Karen Bartlett	LAD	RE: 2014 06 26 re Fire Alarm monitoring for Southbridge Hall - followup re Message from "SDCHQA01"
26/06/2014	LAD	Karen Bartlett	2014 06 26 Heritage Building Earthquake repairs - Southbridge Hall
26/06/2014	LAD	Karen Bartlett	2014 06 26 re Fire Alarm monitoring for Southbridge Hall - followup re Message from "SDCHQA01"
26/06/2014	LAD	'David James'	2014 06 26 re Monitored alarms for Southbridge Hall
26/06/2014	LAD	LAD	Send hall photos to Karen Bartlett and SDC
25/06/2014	David James	LAD	RE: 2014 06 24 Query re Southbridge Hall
25/06/2014	Karen Bartlett	LAD	RE: 2014 06 24 Fire Alarm monitoring for Southbridge Hall - followup re Message from "SDCHQA01"

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Minutes of Meeting

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Email Communications in the Period 17th June through to 21 July 2014

Received	From	To	Subject
25/06/2014	Joy Farrington		Year end procedure 2014 - committees
24/06/2014	LAD	'Karen Bartlett'; 'Allan, James'	2014 06 24 Fire Alarm monitoring for Southbridge Hall - followup re Message from "SDCHQA01"
24/06/2014	LAD	davidj@pfc.co.nz	2014 06 24 Query re Southbridge Hall
24/06/2014	LAD	davidj@pfc.co.nz	2014 06 24 Query re Southbridge Hall
23/06/2014	LAD	d mcmillan	2014 06 23 Message from "SDCHQA01"
23/06/2014	Karen Bartlett	'Allan, James'	RE: Message from "SDCHQA01"
18/06/2014	Jeanette Ford	LAD	Anniversary Celebrations
18/06/2014	Joy Farrington		Providers /Volunteer Open Day
17/06/2014	LAD	SAC	2014 06 17 Draft minutes of Monday nights meeting attached
17/06/2014	Joy Farrington		Open Days
17/06/2014	Susan	LAD	FW: Contact Details
17/06/2014	Susan	LAD	FW: Enquiry from the Alloyfold site:
16/06/2014	LAD	Kevin.Chappell	FW: 2014 06 11 Southbridge Hall invoice for Acoustic Consultancy