Memorandum

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From	Belen Rada Mora, Estelle Boivin
Office	Christchurch
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Subject	IPort 27 ha Extension Water Supply Capacity Assessment

1 Summary

WSP was engaged by Rolleston Industrial Developments Ltd. to assess the water supply network capacity and options to support the land-use plan change at the IPort 27 ha Extension in Rolleston. The assessment is aligned with Selwyn District Council (Council) planning objectives and in accordance with the Master Planning when proposing upgrades to the network.

Our assessment has identified that connection of the IPort 27 ha Extension to the Rolleston water supply will not have any adverse effects that impede the rezoning of the land for industrial use. New groundwater sources will be required to meet proposed design flows.

2 Assumptions

The development was added to the demand in the 2020 peak day model. The demand assumptions are as follows:

- The peak design flow is 1 litre per second per hectare (1 L/s/ha) in accordance with *'NZS4404:2010 Land Development and Sub-Division'* as adopted for the Izone Industrial Park and previous IPort assessments.
- Leakage rate is 88 L/property/day as indicated in SDC Water Balance report in 2019 by Thomas Consultants.
- Connection points to the existing network as shown in Figure 2-1:
    - The IPort developments IPort Business Park was connected to the local 300mm main and
    - IPort 27ha Extension was connected to the local 200mm main from two locations.

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Figure 2-1: Demand connection points into Rolleston Water Supply network

Table 2.1 summarises the water supply demand at the IPort Industrial Park.

Table 2.1 Water Supply Demand at the Proposed Developments

Area	Average Demand (L/s)	Peak Demand (L/s)	Leakage (L/prop/day)	Status
IPort Business Park	30	67.5	88	Partially Completed
IPort 27ha Extension	12	27	88	Planned

3 Water Supply Infrastructure Recommendations

3.1 Impact of Industrial Park Development on Current Network

The hydraulic performance (pipe headloss and network pressure) for the current Rolleston supply network is show in Figure 3-1 and Figure 3-2.

Figure 3-1: Headlosses (m/km) in Rolleston Water Supply network

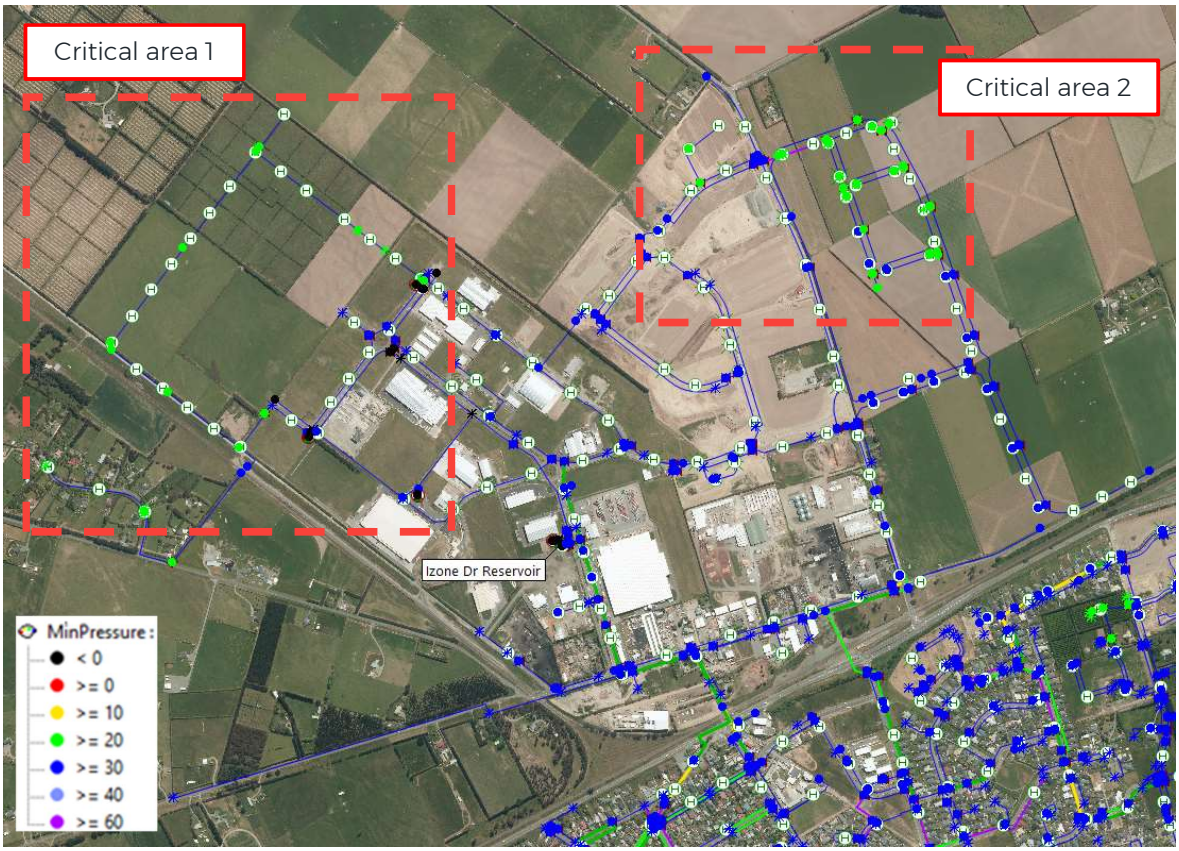

Figure 3-2: Minimum pressure (m) in Rolleston Water Supply network

Figure 3-1 and Figure 3-2 provide an overview of the headlosses (m/km) and minimum pressures (m) in the Rolleston water supply network. Headloss remains below 3 m/km with the exception of the Izone Water Treatment Plant (WTP) and outlet pipes area.

Minimum pressures below 30 m are observed in critical areas 1 and 2 as shown in Figure 3-2. The Izone demand exceeds the current Izone well capacity, as a result the Izone Reservoir level drops rapidly and empty during peak demand causing low pressure issues. To improve pressure and reduce headloss, two different options have been identified:

- Upgrading the Izone treatment plant (with additional new sources) and outlet pipes; or
- Adding a new source (wells) within the Izone / IPort area.

3.2 Conclusion

Additional wells will be required to meet the design flow at IPort. There are no identified water supply pipe issues identified that would impede the rezoning of the IPort 27 ha extension for industrial use.

An upgrade or duplication of the outlet main of the Izone WTP is recommended to improve levels of service in the local area due to high headlosses / velocity in this main.

4 Limitations

This memorandum had the following limitations:

- This assessment has only considered the existing water supply network operation with the additional demand from the proposed development. It does not account for any future neighbouring developments and their impact on the water supply network.
- This assessment has not considered any Fire Flow requirements.

- This assessment has not considered the localised pipework within the development. The internal development pipework will need to be designed accordingly to accommodate peak day / hour demand.

Prepared by:	Reviewed by:	Approved for Release by:
		
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