Southern Link Inland Port

Non-Potable and Potable Water Assessment

Prepared for:
Southern Link Property Limited

Prepared by:
Stantec New Zealand

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Revision Schedule

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Acronyms / Abbreviations

Acronym / Abbreviation	Full Name
SLPL	Southern Link Property Limited
SLIP	Southern Links Inland Port
DCC	Dunedin City Council
DCSD 2010	Dunedin Code of Subdivision and Development 2010
NZS4404:2010	New Zealand Standard 4404:2010 Land Development and Subdivision Infrastructure
FTE	Full Time Employees
ADD	Average Day Demand
PDD	Peak Day Demand
PHD	Peak Hour Demand
AEP	Annual Exceedance Probability
DN	Nominal Diameter
l/s	Litres per second
l/min	Liters per minute
m^3	Cubic metres
NZS	New Zealand Standard
ORC	Otago Regional Council

Executive Summary

The purpose of this report is to present the proposed potable and non-potable water supply schemes for the Southern Link Inland Port (SLIP) development to support the substantive application for all necessary approvals under the Fast-track Approvals Act 2024.

The proposed SLIP development includes two water supply schemes:

- a potable water supply scheme

a non-potable water supply scheme.

The potable water scheme will supply potable water to facilities required for Full Time Employees (FTEs), Site Visitors, and the Container Wash Bay on the SLIP site.

The potable water supply scheme will include the following elements:

- A potable water ring main, which generally follows the internal site road network around the perimeter of the site.
- Booster pump stations, to ensure sufficient pressure is achieved within the SLIP potable water network

The non-potable water supply scheme will capture rainwater from building roofs to improve sustainability and reduce the peak flow demand required from the Dunedin City Council (DCC) water network. The non-potable water scheme will supply firefighting water, general service water for the SLIP site, and provide a source of water for construction.

The non-potable water supply scheme will include the following elements:

- Rainwater collection system
- Three storage reservoirs
- A non-potable water ring main, which generally follows the internal site road network around the perimeter of the site
- A high-capacity pump station for firefighting flows
- A booster pump station for everyday use.

The primary source for both the SLIP potable water and non-potable water schemes is from the DCC water network. This will be from the DN150 steel watermain on Dukes Road North, and the DN200 asbestos cement watermain in Stedman Rd. These supplies might be drawn from individually, or in combination.

There are four operating scenarios for the SLIP non potable and potable water schemes. Each of these scenarios requires a different demand from the DCC water network:

- Scenario 1 – Normal operation, long term water demand for the SLIP site. Peak Hour Demand (PHD) = 8.8 l/s
- Scenario 2 – Short term water demand during construction. PHD = 16.8l/s
- Scenario 3 – Short term water demand for normal SLIP site operations during dry weather. PHD = 10.8l/s
- Scenario 4 – Short term water demand for fire recovery. PHD = 22.8l/s

DCC have confirmed that the DCC water network has capacity to supply the required flows under operating scenarios 1 (long term normal operation) and scenario 3 (short term normal operation in dry weather). However, concerns were raised around the water supply to the site under operating scenarios 2 (short term operation during construction) and scenario 4 (short term operation post fire event). DCC queried whether a new connection to the existing DN300 pipe, approximately 300m west of the site at the end of Odlins Place could be considered to improve the situation.

At the time of writing, options to resolve DCC concerns around operating scenarios 2 and 4 are being investigated. The preferred option will be finalised during detailed design. The intention is to work collaboratively with DCC to ensure that a solution acceptable to both DCC and the Applicant is agreed.

1 Purpose

Stantec has been commissioned by Southern Link Property Limited (SLPL) to prepare a non-potable and potable water assessment to support the Southern Link Inland Port (SLIP) substantive application which seeks all necessary approvals under the Fast-track Approvals Act 2024.

The purpose of this report is to present the proposed potable and non-potable water supply schemes for the SLIP development.

2 Code of Conduct

The Quality Reviewer of this report is Roger Oakley.

Roger has 40 years' experience as a civil engineer, specialising in three waters infrastructure and associated construction projects. He has acted as Technical Lead and Engineer to Contract for many projects and is well regarded for his proactive, informed and fair approach. Roger has worked on numerous water and wastewater treatment schemes and three waters major infrastructure projects. This provides him with a comprehensive understanding of all the stages of a project, from concept development and planning consents through to stakeholder engagement, design and construction. He has been responsible for, and has significant practical experience in, all phases of capex implementation. Roger's work is highly regarded and he has led teams who have won National Excellence Awards from Ingenium in 2006 and 2012. This was for the $33M Southern Water Treatment Plant the Raw Water Lifelines project for the Dunedin City Council. Further details are included in Roger's CV in Appendix A.5.

Roger has read the Code of Conduct for expert witnesses contained in the Environment Court Practice Note 2023. This report has been prepared in compliance with that Code, as if it was expert evidence presented in proceedings before the Environment Court. Unless stated otherwise, this report is within his area of expertise, and he has not omitted to consider material facts known to them that might alter or detract from the opinions expressed in this report.

3 Project Overview

SLPL seeks to establish and operate an Inland Port and Logistics Hub on an approximately 40-hectare site located at 270 – 292 Dukes Road North within the Taieri Plains near Mosgiel. The Site location and proposed layout is shown in Figure 3-1. The SLIP will deliver critical infrastructure to support regional economic growth, improve freight logistics, and enhance resilience to environmental risks. The development will include:

- A new rail siding off the Taieri Branch Line to enable loading, unloading and operation of a rail freight shuttle service to Port Chalmers and the wider rail network;
- Approximately 155,000 m^2 of high stud warehousing (chilled and ambient) and associated yard and canopy areas;
- Two road exchange areas for the loading and unloading of container trucks;
- A container depot facility enabling the inspection, cleaning, upgrading and repair of containers including for food grade repacking;
- Approximately 9 ha of container terminal for storage and movement of empty and full containers including refrigerated containers;
- Approximately 1000 m^2 of onsite offices ancillary to the Inland Port;
- Road widening and construction of a new intersection onto Dukes Road North;
- 24/7 operation with flood and road lighting for nighttime operation;
- Ancillary activities to support the above including vehicle parking, truck waiting areas, onsite road network, three waters and power infrastructure, flood mitigation, landscaping, security measures, acoustic barriers and lighting; and
- Ongoing management and monitoring activities including ensuring establishment of landscaping, stream health monitoring, wildlife management and effects management.

Construction of the Inland Port is anticipated to be undertaken in three stages however the timing of the delivery of each stage, and discrete works within each stage, may change in response to demand for logistics capacity at the Inland Port. Each stage of works will involve site clearance, earthworks, construction of buildings, hardstanding and access, installation of infrastructure, landscaping and works and management activities necessary to manage environmental effects during construction including erosion and sediment controls and construction management activities:

- Stage 1 is estimated to be completed 1 to 3 years following approval of the Project and will include clearance of the southern area of the site and construction of the ‘Stage 1’ container storage concrete pad, rail siding, container service area, warehouses, internal roading, parking and loading, road widening and construction of the new intersection on Dukes Road North, stormwater attenuation pond, Silver Stream stormwater outlets, servicing infrastructure, flood management measures, landscaping, acoustic barriers and eastern bund, and lighting.
- Stage 2 is estimated to be completed 3 to 5 years following approval of the Project and will include clearance of the northern area of the site and construction of the ‘Stage 2’ container storage concrete pad, warehouses, ancillary offices, internal roading, parking and loading, emergency egress onto Dukes Road North, expansion of the stormwater attenuation pond, landscaping, extension of the servicing infrastructure and lighting.
- Stage 3 is estimated to be completed 5 to 10 years following approval of the Project and will include clearance of the eastern area of the site, including the eastern acoustic bund, and construction of the ‘Stage 3’ warehouses, internal roading, parking and loading, landscaping, extension of the servicing infrastructure and lighting

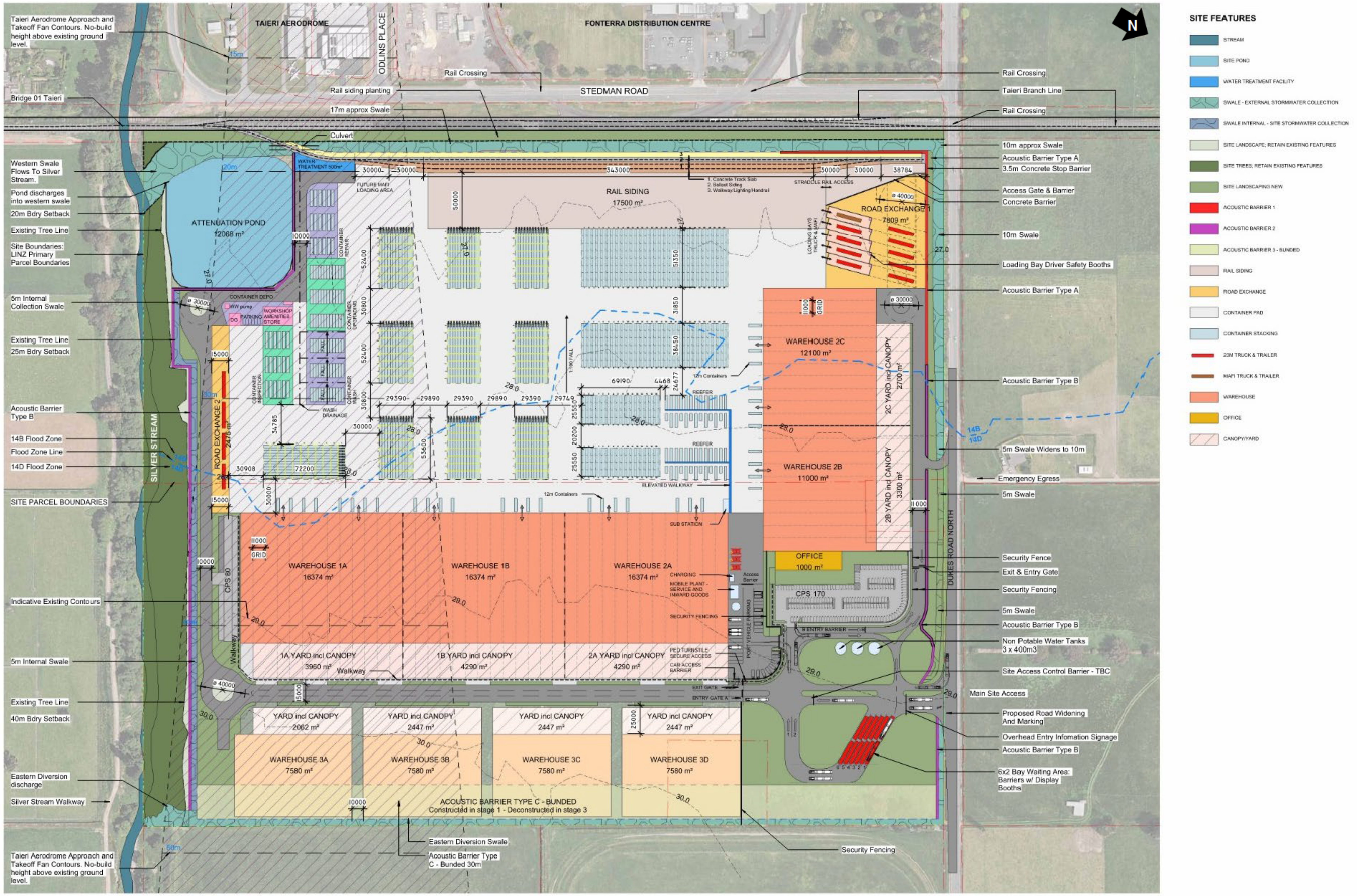

Figure 3-1: Proposed SLIP Site Plan and Layout

4 Existing Infrastructure

The proposed SLIP site is a greenfield site which is largely made up of farmland, along with several existing farmhouses.

There are six groundwater monitoring piezometers and two existing bores on the SLIP site.

The six piezometers are located near the southern boundary of the site (refer to Figure 4-1). These piezometers (Council Well Numbers I44/0835, I44/0835-P1, I44/0836, I44/0836–P3, I44/0837, I44/0837–P5) are associated with Consent 2004.225 and are used for groundwater monitoring of leachate from the Closed North Taieri Landfill, approximately 1.6 kilometres northwest of the SLIP site[1,2]. The groundwater monitoring piezometers will be retained but will not be used to supply water to the SLIP development.

The two bores are located near the northern boundary of the site (refer to Figure 4-1). These bores are thought to be used for domestic supply ("Donelly" Council Well Number I44/0820[3] and "Morris" an unlisted well at 292 Dukes Road North). If the consents are transferred to the Applicant and consent conditions allow for it, there is a possibility of using the existing bores to supplement the non-potable water supply. Any additional flow available from the bores has not been included in the current scheme, and potential transferring of the existing bore consents will be explored outside of the Fast-track process.

The site is bordered by Dukes Road North to the north, and Stedman Road to the west. The DCC Water Service Map shows that there are reticulated watermains along both roads:

- On Dukes Road North, a 150 mm steel pipeline installed in 1942
- On Stedman Road, a 200 mm / 150 mm AC pipeline installed in 1973

Larger watermains service the existing Mosgiel industrial area to the west of the site. Key existing DCC water supply assets are summarised in Figure 4-1.

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1 GHD, *Annual Monitoring Report 2024 - Community and Closed Landfills*, prepared for Dunedin City Council. 26 September 2024.

2 Te Uru Kahika, *Wells Aotearoa New Zealand* database, https://wellsnz.teurukahika.nz/wells/map

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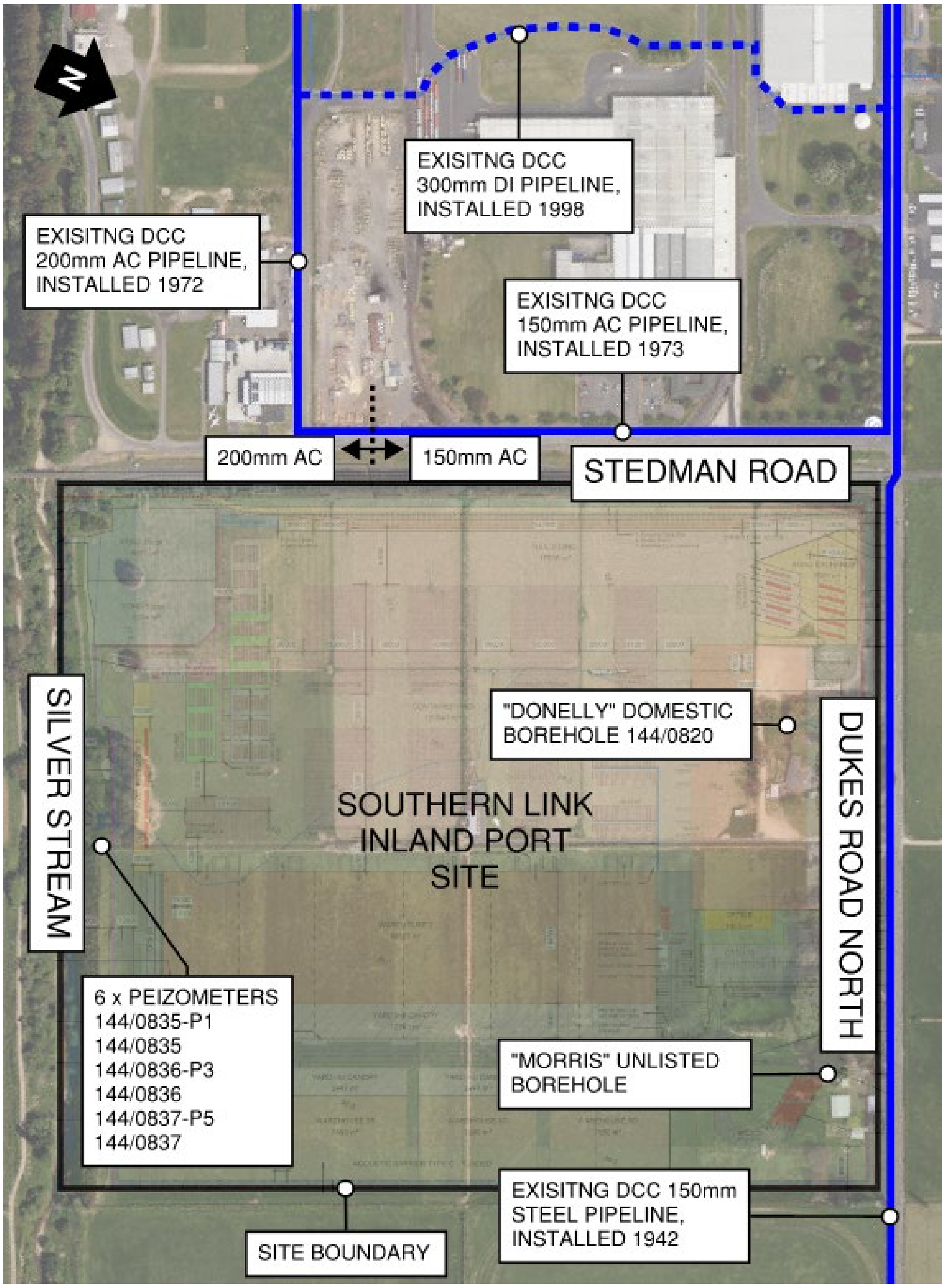


Figure 4-1: Existing DCC water supply infrastructure in the vicinity of the Southern Link Inland Port site

Engagement with Dunedin City Council

SLPL has engaged with Dunedin City Council (DCC) during the pre-application phase to seek its feedback as to whether:

- The planned development meets the requirements outlined in the Dunedin Code of Subdivision and Development 2010
- The proposed potable and non-potable water demand can be supplied from the proposed connections to the DCC water network.

Pre-application advice was received following a consultation meeting on 12 February 2025 between SLPL and DCC. The pre-application correspondence from DCC requested the following critical water supply measures:

- Details of anticipated treated water consumption, excluding fire flows. Estimated average daily consumption (annual average), daily peak use (maximum daily use) and peak hour use.
- A description of what treated water would be used for on site.
- An estimated number of people on site after full establishment of site.

Details of the pre-application advice from DCC are provided in Appendix A.1.

An initial meeting with DCC was held on 27 November 2025 to present the proposed SLIP potable water and non-potable water schemes and the required flow demands from the DCC water network. DCC explained that they would distribute the information presented at the meeting to their relevant internal departments to confirm whether the proposed SLIP water supply scheme was acceptable. Post meeting, DCC requested a follow-up workshop to further discuss the SLIP water scheme with additional members of DCC staff, however this was later cancelled.

Follow up email correspondence from DCC was received on 26 January 2026, which provided responses from the DCC modelling team. The responses indicated that the DCC modellers did not see any major issues with the potable water and non-potable flow demands presented at the initial 27 November 2025 meeting.

In response to DCC's initial modelling findings, a follow-up meeting was held between Stantec and DCC on 28 January 2026. This meeting was held to clarify the outcomes of the initial modelling findings and explain that the potable water and non-potable water flow demands had been revised since the meeting on 27 November 2025. DCC confirmed that the initial modelled flows were acceptable, but that modelling would need to be re-run to test the revised flow demands.

The revised potable water and non-potable water flow demands required from the DCC water network were emailed to the DCC modelling team on 5 February 2026. Stantec asked whether DCC wished to review a draft version of the water supply assessment report on 9 February 2026. Confirmation was received on 16 February 2026, and the draft report was issued to DCC the same day.

DCC provided a response to the revised water flow demands on 16 February 2026. They confirmed that the DCC water network has capacity to supply the required flows under operating scenarios 1 (long term normal operation) and scenario 3 (short term normal operation in dry weather). However, concerns were raised around the water supply to the site under operating scenarios 2 (short term operation during construction) and scenario 4 (short term operation post fire event). Refer to Section 10 for more information on the various operating scenarios. DCC also queried whether a new connection to the existing DN300 pipe, approximately 300 m west of the site at the end of Odlins Place could be considered to improve the situation.

At the time of writing, the options to resolve DCC concerns around operating scenarios 2 and 4 to are being investigated. The preferred option will be finalised during detailed design. The intention is to work collaboratively with DCC to ensure that a solution acceptable to both DCC and the Applicant is agreed.

5 SLIP Water Supply Schemes

The proposed SLIP development includes two water supply schemes:

- a potable water supply scheme
- a non-potable water supply scheme.

The potable water scheme will supply potable water to facilities required for Full Time Employees (FTEs), Site Visitors, and the Container Washbays on the SLIP site.

The non-potable water supply scheme will capture rainwater from building roofs to improve sustainability and reduce the peak flow demand required from the DCC water network. The non-potable water scheme will supply firefighting water, general service water for the SLIP site, and provide a source of water for construction (e.g., dust suppression).

The proposed SLIP non potable and potable water schemes are shown in Figure 6-1.

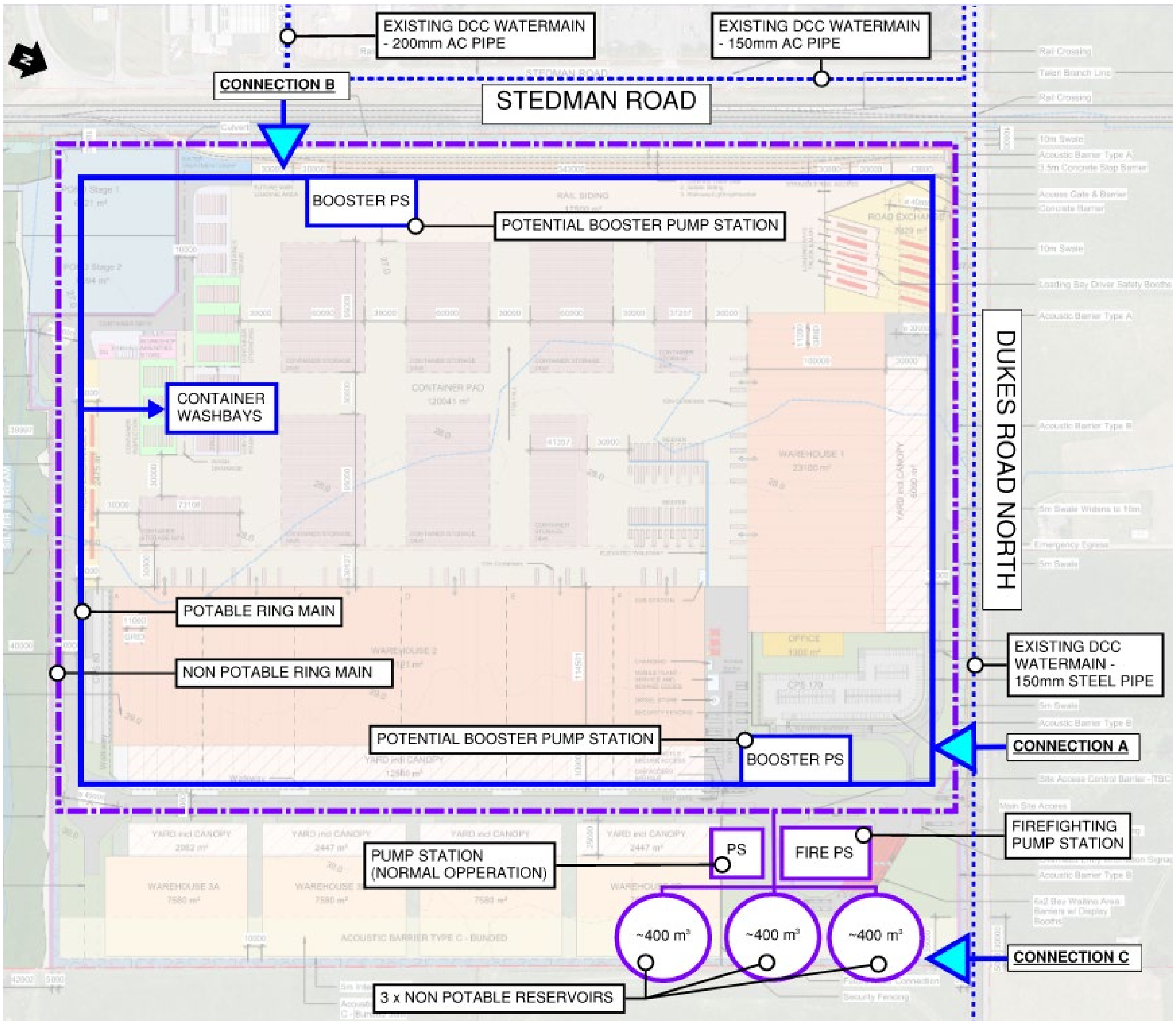


Figure 5-1: Southern Link Inland Port – Proposed potable and non-potable water schematics

5.1 Potable Water Supply Scheme

The scheme for the potable water supply includes two new connections to the DCC water network for scheme resilience, each with a backflow prevention device at or near the SLIP boundary:

- Connection A is proposed on Dukes Road North, to an existing DN150 steel watermain.
- Connection B is proposed on Stedman Road, to an existing DN200 AC watermain.

Two connections are required to achieve resilience within the SLIP potable water network, for example, to allow for continued supply if one watermain is temporarily shut down.

One, or both of these connections might in use at any particular time.

Connection B will require a trenchless railway crossing and a trenchless crossing under the scheduled drain along Stedman Road. The scheduled drain crossing may require ORC approval under the provisions of the ORC Flood Protection Management Bylaw 2022 which if required will be applied for outside of the Fast-track process.

Within the SLIP site, the potable water supply scheme will include the following elements:

- A new potable water ring main, which generally follows the internal site road network around the perimeter of the site.
- A new booster pump station, to ensure sufficient pressure is achieved within the SLIP potable water network.

5.2 Non-Potable Water Supply Scheme

The scheme for the non-potable water supply includes one new connection to the DCC water supply network complete with a backflow prevention device at or near the SLIP boundary:

- Connection C, a connection to the existing DN150 steel watermain along Dukes Road North

Within the SLIP site, the non-potable water supply scheme will include the following elements:

- Rainwater collection from rooftops, with first flush diversion
- Three storage reservoirs
- A non-potable water ring main, which generally follows the internal site road network around the perimeter of the site.
- A high-capacity pump station for firefighting flows
- A booster pump station for everyday use.

6 Regulatory Requirements

The potable and non-potable water supply schemes of the SLIP will comply with the following guidance and regulatory documents:

- Dunedin City Council (DCC) Dunedin Code of Subdivision and Development 2010 (DCSD 2010)
- New Zealand Standard 4404:2010 Land Development and Subdivision Infrastructure (NZS4404:2010)
- New Zealand Fire Service Firefighting Water Supplies Code of Practice (SNZ PAS 4509:2008)
- New Zealand Standard 4541:2020 Automatic Fire Sprinkler Systems (NZS 4541:2020)
- Ministry for Primary Industries (MPI) Industry Agreed Standard 2 – Design and Construction (MPI 1997)

7 Potable Water Supply Scheme

7.1 Potable Water Demand

The potable water demand for the SLIP has been calculated using the codes and standards listed in Section 7.

Key inputs and assumptions applied to calculated potable water demand are provided below:

- The potable water scheme will supply FTEs, site visitors, and the container washbay [4].
- Firefighting water demand, site service water, and construction water will be supplied by the non-potable system.
- 172 FTEs when the site is fully developed.
- 288 daily site visitors when the site is fully developed. This is based on 12 truck moments per hour over 24 hours.
- A water demand unit base flowrate of 65 litres/person/day [5] has been used for both FTEs and site visitors to calculate Average Day Demand (ADD).
- A peaking factor of two (2) [6] to convert ADD to Peak Day Demand (PDD).
- A peaking factor of five (5) [7] to convert PDD to Peak Hour Demand (PHD).

7.1.1 FTE and Site Visitors

The potable water demand for FTEs and Site Visitors at the SLIP site is summarised in Table 8-1.

Table 7-1: SLIP – Potable Water Demand for FTE and Site Visitors

Activity	Number of Persons	Unit Base Flowrate	ADD (l/s)	PDD (l/s) PF= 2	PHD (l/s) PF= 5
Full Time Employees	172	65 L/p/d	0.13	0.3	1.3
Site Visitor Numbers	288	65 L/p/d	0.22	0.4	2.2
		Subtotal	**0.35**	**0.7**	**3.5**

7.1.2 Container Washbays

The potable water demand from the container washbay area has been based on correlating two different approaches which are described below.

[4] Ministry for Primary Industries, *Industry Agreed Standard 2 – Design and Construction*, 1997. Pg 28, section 5.4.7
[5] Watercare, *The Auckland Code of Practice for Land Development and Subdivision – Water and Wastewater Code of Practice for Land Development and Subdivision – Chapter 6: Water,* 2021. Pg 28, Table 6.1c
[6] Standards New Zealand, *Land Development and Subdivision Infrastructure*, NZS 4404:2010. Pg 156, section 6.3.5.3
[7] Standards New Zealand, *Land Development and Subdivision Infrastructure*, NZS 4404:2010. Pg 156, section 6.3.5.3

The first approach involves calculating the peak dry weather flow rate using the flow demand from water fittings within in the container washbay.

A flowrate from a commercial water blaster is assessed as 0.5 litres per second. With three water blasters operating simultaneously in each of the three washbays, this gives a flowrate of 4.5 litres per second.

The second approach is a conservative assessment of the wastewater generation from the container washbay area, with the assumption that the dry weather wastewater discharge is equal to the potable water supply required. This approach has been based on the measured trade waste volumes from the container washbay at the Port Otago Port Chalmers site. Between September 2024 and October 2025, the discharge from the container washbay at the Port Otago Port Chalmers site averaged 500m³ per month and peaked at 650m³ per month.

While the scale of the existing container washbay area at the Port Otago Port Chalmers site matches the proposed container washbay area at SLIP, it is understood that the average and peak monthly demands includes an unknown volume of stormwater. For the purpose of determining a conservative estimate, it has been assumed that the peak month was during dry weather.

This peak monthly demand has been converted into a peak instantaneous flow demand by applying the following assumptions advised by Port Otago:

- The container washbays are in use every working day of the year (240 working days per year).
- A working day consists of an 8-hour day shift, and possibly a night shift. The container washbay will only be in operation during the day shift.
- There are three separate washbays within the container washbay area. Each washbay will wash on average two containers per shift with a total washing time of two hours per shift.
- Therefore, to estimate a conservative peak flow rate, it was assumed that the three washbays within the container washbay area are in simultaneous use for two hours per day

This gives a peak instantaneous potable water flow demand of 4.5 litres per second for container washbay use.

Adopting a peak flowrate value of 4.5 litres per second therefore provides a conservative estimate of peak instantaneous potable water flow demand. This demand will be refined during detailed design.

7.1.3 Total Potable Water Demand

The potable water demand for the SLIP is summarised in Table 8-2. A full breakdown of the calculations is provided in Appendix A.2.

Table 7-2: Southern Link Inland Port Park Potable Water Demand

Activity	Number of Persons	Unit Base Flowrate	ADD (l/s)	PDD (l/s) PF= 2	PHD (l/s) PF= 5
Full Time Employees	172	65 L/p/d	0.13	0.3	1.3
Site Visitor Numbers	288	65 L/p/d	0.22	0.4	2.2
Container Wash Bay	NA	NA	Not Calculated	0.4	4.5
		Subtotal	**0.35**	**1.1**	**8.0**
				Factor of Safety (10%)	**0.8**
				Total	**8.8**

The SLIP potable water supply scheme has a Peak Hourly Demand from the DCC water network of 8.8 litres per second. Water demand during the potable water scheme commissioning is not shown in the table above, however, can be accommodated within the above limits.

There will be additional demand from the DCC water network to supply the SLIP non-potable water scheme early in the development staging, during periods of dry weather, and following major fire events. Refer to Section 9 and 10.

7.2 Potable Water Scheme Components

The potable water scheme for the SLIP development is shown in the developed concept design drawings provided in Appendix A.4.

7.2.1 Connection to the DCC water network

The potable water system includes two connections to the DCC water network: one on Dukes Road North and one on Stedman Road.

These connections will include water metering and back flow prevention to prevent possible contamination of the DCC water network. The design of this connection will be completed during the detailed design phase.

7.2.2 Potable Water Booster Pump Stations

The SLIP potable water scheme includes potable water booster pump stations downstream of the connections to the watermains on Dukes Road North and Stedman Rd. These pump stations will be used to ensure sufficient pressure is achieved within the SLIP potable water network.

The design details of the potable water booster pump stations will be completed in the detailed design phase of the Project.

7.2.3 Potable Water Ring Main

The SLIP potable water network consists of a ring main, which is generally aligned around the site perimeter along internal roads.

The design details of the potable water ring main will be completed in the detailed design phase of the Project.

8 Non-Potable Water Supply Scheme

8.1 Non-Potable Water Demand

The non-potable water scheme will supply water for to the following activities on the SLIP site:

- Firefighting
- Site service water
- Construction

The peak flow demand and minimum storage volume required has been determined for each of these activities. Key inputs and assumptions applied to calculated non-potable water demand are provided below.

8.1.1 Firefighting

The total firefighting flow demand is made up of a water demand from fire hydrants and building sprinkler systems. Under SNZ PAS 4509:2008, the SLIP is assessed as requiring a Fire Water Classification of FW2 as buildings will have sprinkler systems installed to an approved standard.

The peak flow demand and required storage volume for firefighting flows is provided in the section below.

8.1.1.1 Peak flow demand

The required flow demand for fire hydrants is 1,500 litres per minute for 30 minutes. This equates to an onsite peak flow demand of 25 litres per second.

The sprinkler system type for warehouse buildings has been assessed as Extra High Hazard (EHH) class under NZS 4541:2020. This requires a flow demand of up to 9,000 litres per minute for 60 minutes as the warehouse building height is expected to be up to 16.8 m high at the apex. This equates to peak flow demand of 150 litres per second.

Therefore, the minimum total peak flow demand for firefighting is 175 litres per second.

8.1.1.2 Storage volume required

The required flow demand for fire hydrants is 1,500 litres per minute 30 minutes. This equates to a storage volume of 45 m^3.

The sprinkler system type for warehouse buildings has been assessed as EHH class. This requires a flow demand of 9,000 litres per minute for 60 minutes as the warehouse building height is expected to be up to 16.8 m. This equates to a storage volume of 540 m^3.

The above values include sufficient allowance for ongoing fire dampening activities beyond the 60-minute fire event described above.

Therefore, the minimum total storage volume required for firefighting is 585 m^3.

8.1.2 Service Water

The non-potable water supply allows for a service water demand, which may be used for a variety of uses:

- Non-potable taps for hose connections (i.e., for general wash down)
- Irrigation during development staging
- Other general, non-potable uses

8.1.2.1 Peak flow demand

The non-potable water supply scheme nominally allows for a peak flow demand of around two (2) litres per second for service water.

8.1.2.2 Storage volume required

The non-potable storage volume required to supply service water to the SLIP is 200 m^3.

This volume is based on allowing for irrigation flow rate of two (2) litres per second for one day to maintain a grass area of around two hectares during early development stages.

8.1.3 Construction

Water supply for the construction phases of the SLIP will be supplied from the DCC Water Mains.

8.1.3.1 Peak flow demand

The non-potable water supply scheme nominally allows for a peak flow demand of six (6) litres per second for non-potable construction water supply.

This flow demand is calculated by assuming that two 10 m^3 water tanker trucks need to be filled every hour to manage dust from construction activities. The peak flow demand is averaged over an hour, meaning onsite storage is required to reduce water tank refill time.

8.1.3.2 Storage volume required

The minimum non-potable storage volume required to supply construction water to the SLIP is 20 m^3. However, this storage volume may be adjusted in during detailed design to improve the efficiency of construction activities.

This storage volume is calculated by assuming that two 10 m^3 water tanker trucks need to be filled every hour to manage dust from construction activities.

8.1.4 Total Non-Potable Water Demand

The non-potable water demand for the SLIP is summarised in Table 9-1. A full breakdown of the calculations is provided in Appendix A.3.

Table 8-1: Southern Link Inland Port Non-Potable Water Demands

Activity	Requirement	FoS	Peak Flow (L/s)	Minimum Required Storage (m^3)
Firefighting – Sprinkler Demand	9,000 l/min for 60 minutes	NA	150	540
Firefighting – Hydrant Demand	1,500 l/min for 30 minutes	NA	25	45
Site Service Water	As described in Section 9.1.2	NA	2	200
Construction – through all phases	As described in Section 9.1.3	NA	6	20
			Design Storage (construction, site service water + firefighting)	**805**

The design storage for the SLIP non potable water supply scheme is 805 m^3. This storage volume allows for the construction, site service water, and firefighting water storage.

Water demand during the non-potable water scheme commissioning is not shown in the table above, however, can be accommodated within the above limits.

There will be additional demand from the DCC water network to supply the SLIP potable water scheme. Refer to Section 8 and 10.

8.2 Non-Potable Water Scheme Components

The non potable water scheme for the SLIP development is shown in the developed concept design drawings provided in Appendix A.4.

8.2.1 Connection to the DCC water network

The non-potable water system includes one connection to the DCC water network on Dukes Road North.

This connection will include metering and back flow prevention to prevent possible contamination of the DCC water network. The design of this connection will be completed during the detailed design phase.

8.2.2 Rainwater collection system

The rainwater collection system will include a 'first flush' diverter, which will divert the initial most contaminated rainwater away from the non-potable water reservoirs.

Conveyance from the roofs to the non-potable water reservoirs may be achieved via a low-pressure gravity system or pumps.

The design of the rainwater collection system and conveyance system will be completed during the detailed design phase.

8.2.3 Non-Potable Water Reservoirs

The non-potable water system includes non-potable water reservoir storage downstream of the connection to the watermain on Dukes Road North. These reservoirs will supply:

- Firefighting
- Non-potable service water
- Construction

Three equally sized reservoirs are proposed within the non-potable water system. The required storage volume of approximately 805m^3 will be provided in two of the tanks, meaning each tank will have a storage volume of approximately 400m^3. The third tank is provided for redundancy to allow for tanks to periodically drained and cleaned without reducing storage capacity below the minimum requirements for the site.

The non-potable water reservoirs will be sized to achieve the following design criteria specified in the DCC DCSD 2010 and NZS 4404:

- A design life of 80 years for pipework and concrete assets and 25 years for mechanical and electrical assets.
- Freeboard to allow for convective mode behaviour (wave sloshing) in a seismic event.

The design of the non-potable water reservoirs will be completed in the detailed design phase of the Project.

8.2.4 Non-Potable Water Booster Pump Station

The non-potable water system includes a non-potable water booster pump station downstream of the non-potable reservoirs. This pump station will be used to ensure sufficient pressure is achieved within the non-potable water network.

The booster pump station will include an electrical pump capable of delivering the required peak instantaneous flow required for operation of any two fire hydrants on the ring main but not the sprinkler system.

The design of the non-potable water booster pump station will be completed in the detailed design phase of the Project.

8.2.5 Non-Potable Water Fire Pump Station

The non-potable water system includes a fire pump station downstream of the non-potable reservoirs. This pump station will be used in the event of a fire, where building sprinkler systems are activated, and fire hydrant flows is occurring, to ensure sufficient flow is delivered to the non-potable water network.

The fire pump station will include a diesel fire pump capable of delivering the required peak instantaneous flow required for firefighting. This pump would start in the event of a fire, when the buildings sprinkler systems are activated. During regular operations, the non-potable ring main would be pressurised by the booster pump station.

The design of the non-potable water fire pump station will be completed in the detailed design phase of the Project.

8.2.6 Non-Potable Water Ring Main

The SLIP non-potable water network consists of a ring main, which is generally aligned around the site perimeter along internal roads.

This ring main will include fire hydrants, which will be installed that the minimum spacing required under SNZ PAS 4509:2008.

The design of the potable water ring main will be completed in the detailed design phase of the Project.

9 Demand from the DCC Water Network

The primary feed for both the SLIP potable water and non-potable water schemes is from the DCC water network on Dukes Road North – a DN150 steel watermain.

Under normal operation, referred to as Scenario 1, the SLIP potable water network is supplied from the DCC water network, and the SLIP non-potable network is supplied by rainwater from roof collection.

There are three other scenarios that would increase the water demand required from the DCC water network. These scenarios would be expected to occur infrequently and over a relatively short time frame. The scenarios include:

- Scenario 2 – Water demand from the DCC water network during construction.
- Scenario 3 – Water demand from the DCC water network for normal SLIP site operations during dry weather.
- Scenario 4 – Water demand from the DCC water network for fire recovery

DCC have been engaged to determine whether the DCC water network has capacity to supply the SLIP site under each of the operating scenarios listed above. A record of this engagement is provided in Section 5.

9.1 Scenario 1 (Normal Operation)

The DCC water network is required to supply the SLIP potable water scheme. The SLIP non-potable scheme is supplied by rainwater collection from building roofs. The water demand from the DCC water network is equivalent to the water demand calculated for the SLIP potable water system (refer to Section 8.1).

9.2 Scenario 2 (Construction)

In this scenario, it is assumed that the rainwater collection system is not constructed, meaning all non-potable water supply is from the DCC water network. Non-potable uses included in this scenario are construction activities and the supply of site service water.

The peak requirements from the DCC water network would be:

- 16.8 litres per second maximum instantaneous flow (made up of 8.8 litres per second for potable use plus 8.0 litres per second for non-potable use)
- 533 m^3 in any one day. This includes 93 m^3 to supply the potable water and 440 m^3 to supply the non-potable scheme. The non-potable scheme volume assumes the peak daily volume of 240m^3 for construction supply (20 m^3 per hour for 12 hours) and 200m^3 for service water supply.

9.3 Scenario 3 (Normal Operation in Dry Weather)

This scenario assumes that there is insufficient rainwater capture to supply the non-potable supply scheme during normal site operations, meaning all non-potable water supply is from the DCC water network. In this scenario, the DCC water network supplies non-potable water for site service water.

The peak requirements from the DCC water network would be:

- 10.8 litres per second maximum instantaneous flow (8.8 litres per second for potable use plus 2.0 litres per second for non-potable use)

- $293m^3$ in any one day. This includes $93m^3$ to supply the potable water and $200m^3$ to supply the non-potable scheme. The non-potable scheme volume assumes the peak daily volume of $200m^3$ for service water supply.

9.4 Scenario 4 (Fire Recovery in Dry Weather)

This scenario assumes that the non-potable water reservoirs have been emptied due to a fire on the SLIP site. The fire recovery period requires the firefighting water storage volume to be replenished from the DCC water network over a period of 12 hours. This scenario conservatively assumes there is no rainfall inflow during the fire recovery timeframe.

The peak requirements from the DCC water network would be:

- 22.8 litres per second maximum instantaneous flow (8.8 litres per second for potable use plus 14 litres per second for non-potable use)
- $880m^3$ in any one day. This includes $93m^3$ to supply the potable water scheme and $785m^3$ to supply the non-potable scheme. The non potable scheme volume assumes a firefighting storage volume of $585m^3$ and $200m^3$ for service water supply.

10 Water Supply for Construction

Water supply for the construction phases of the SLIP will be supplied from the DCC water network or from the existing bores on the SLIP site if this is possible. This supply could be from any of the connections described in Section 6 for either the potable or non-potable supply, depending upon the logistics and phasing of the construction activities. The connections to the DCC water network are expected to be one of the first activities of the construction phase.

11 Staging

The proposed SLIP development staging is provided in the construction staging plans. The components are summarised below.

Stage 1:

- The connections from the DCC water supply network to the potable and non-potable networks.
- The potable and non-potable booster pump stations.
- The non-potable fire pump station.
- The non-potable water storage reservoirs.
- The bulk of the potable and non-potable pressure main pipelines.
- The water supply connections to Stage 1 buildings.
- The non-potable rainwater collection systems for Stage 1 buildings.

Stage 2:

- The remaining sections of the potable and non-potable water supply main pipelines to form the full ring mains.
- The water supply connections to Stage 2 buildings.
- The non-potable rainwater collection systems for Stage 2 buildings.

Stage 3:

- The water supply connections to Stage 3 buildings.
- The non-potable rainwater collection systems for Stage 3 buildings.

12 Summary

The purpose of this report is to present the proposed potable and non-potable water supply schemes for the SLIP development to support the substantive application for all necessary approvals under the Fast-track Approvals Act 2024.

The proposed SLIP development includes two water supply schemes:

- a potable water supply scheme
- a non-potable water supply scheme

The potable water scheme will supply potable water to facilities required to supply potable water to FTEs, Site Visitors, and the Container Wash Bay on the SLIP site.

The potable water supply scheme will include the following elements:

- A potable water ring main, which generally follows the internal site road network around the perimeter of the site
- Booster pumping, to ensure sufficient pressure is achieved within the SLIP potable water network

The non-potable water supply scheme will capture rainwater from building roofs, when available, to improve sustainability and reduce the peak flow demand required from the DCC water network. The non-potable water scheme will supply firefighting water, general service water for the SLIP site, and provide a source of water for construction.

The non-potable water supply scheme will include the following elements:

- Rainwater collection system
- Three storage reservoirs
- A non-potable water ring main, which generally follows the internal site road network around the perimeter of the site
- A high-capacity pump station for firefighting flows
- A booster pump station for everyday use.

The primary feed for both the SLIP potable water and non-potable water schemes is from the DCC water network. This being a DN150 steel watermain on Dukes Road North, and a DN200 asbestos cement watermain on Stedman Rd

There are four different operating scenarios for the SLIP non potable and potable water schemes. Each of these scenarios requires a different demand from the DCC water network:

- Scenario 1 – Long term water demand for normal operation of the SLIP site (refer to Section 10.1).
- Scenario 2 – Short term water demand during construction (refer to Section 10.2).
- Scenario 3 – Short term water demand for normal SLIP site operations during dry weather (refer to Section 10.3).
- Scenario 4 – Short term water demand for fire recovery (refer to Section 10.4).

DCC have confirmed that the DCC water network has capacity to supply the required flows under operating scenarios 1 (long term normal operation) and scenario 3 (short term normal operation in dry weather). However, concerns were raised around the water supply to the site under operating scenarios

2 (short term operation during construction) and scenario 4 (short term operation post fire event. DCC queried whether a new connection to the existing DN300 pipe, approximately 300 m west of the site at the end of Odlins Place could be considered to improve the situation.

At the time of writing, options to resolve DCC concerns around operating scenarios 2 and 4 are being investigated. A preferred option will be finalised after submission during detailed design. The intention is to work collaboratively with DCC to ensure that their requirements are met.

Appendices

A.1 DCC Pre Application Advice

DUNEDIN CITY COUNCIL | kaunihera a-rohe o Ōtepoti

20 February 2025

Southern Link – Logistics Park
C/- Ms Joanne Dowd
Port Otago
15 Beach Street
Port Chalmers 9023

Via email: [redacted]

Dear Joanne

DCC FEEDBACK FOLLOWING PRESENTATION

Following the consultation meeting on 12 February, the following comments from various DCC departments comprise a preliminary (and not exclusive) indication of the matters the DCC would like to see included in the Southern Link – Logistics Park proposal.

Transportation Matters
DCC Transport will require the section of Duke's Road North north of Stedman Road to be widened and a right run bay implemented, as identified in the integrated transport assessment that was circulated prior to the meeting on the 12th. As part of this, a footpath connection should be added to connect to the existing footpath on Stedman Road. This will require liaison with KiwiRail as part of the level crossing upgrade to make sure there is appropriate provision for pedestrians. Duke's Road North is a high productivity motor vehicle ("HPMV") route and to the south of Stedman Road is formed to an appropriate standard. There are known issues on the Mosgiel network around travel time delay, safety and the volume of heavy vehicles traveling through the centre. The volumes of heavy vehicle movements identified in the ITA are unlikely to significantly worsen these issues. The overall objective of shifting more freight to rail is likely to have a positive effect, especially on carbon emissions, safety and amenity on SH88.

There are aspects of the ITA that are not clear, or where further information would be helpful to understand the impacts on the transport network. Specifically:

- The ITA should include a little more information about the proposed new rail movements, including any identified impacts on other level crossings including Beach St and Wickliffe Terrace in Port Chalmers and St Andrew Street. The ITA alludes to increased rail movements south from the site but doesn't identify if this will be new rail services, or can be accommodated on existing services.
- The assessment of truck volumes would benefit from clearly stating the assumptions around what growth in freight volume is expected from the existing Dynes/Icon logistics movements, and what movements are anticipated from other companies using the site. Currently the ITA doesn't appear to show any growth in Icon logistics movements using heavy vehicles.
- The existing Icon logistics movements outlined in the ITA don't clearly show which heavy vehicle movements will shift to rail, which will remain on road and which are no longer be needed due to more efficient operation. This assessment could be presented more clearly and would benefit from including vehicles per day and well as annualised volumes. It is unclear at present how much of the existing icon heavy vehicle movements to and from the south via SH1 will travel on SH87, or can be shifted by rail.

- The assessment of freight volumes assumes that all movements associated with Sawyers Bay, 88 Parry St, T'Shed and the container depot on Strathallan will shift. If these sites are no longer used by Dynes/Icon logistics, other logistics or industrial uses may operate from these sites and some assessment of the potential for new uses to generate heavy vehicle movements should be included in the ITA.
- Clearer timing for the different stages would be helpful in assessing impacts on the overall transport network.
- The ITA indicates that 250 vehicles per day will be associated with the site, but only provides information about the anticipated 20-25 heavy vehicle movements. Some information about how the 250 vehicles per day figure was reached and what light vehicles movements are anticipated should be included in the ITA.
- Details of whether the internal site roads will be public or private, and what standards these will be constructed to would be helpful.

DCC contact: Helen Chapman, senior transport planner
Email: [redacted]

Noise and Light Spill
The DCC would appreciate seeing an acoustic assessment for the site/proposal as soon as possible, and anticipates that this will address construction noise and construction noise standards, with modelling for the site over various stages of development, and details of the mitigation measures proposed. It is expected that the acoustic assessment will detail the types and levels of construction and operational noise; and will include a draft noise management/mitigation plan.

Information regarding sources and levels of light-spill would also be helpful, together with details of the measures proposed to manage these.

DCC contact: Tanya Morrison, acting team leader Environmental Health and Alcohol Licensing
Email: [redacted]

3 Waters
Information regarding the following matters would be helpful:

(Water)
- Details of anticipated treated water consumption, excluding fire flows. Estimated average daily consumption (annual average), daily peak use (maximum daily use) and peak hour use.
- A description of what treated water would be used for on site.
- An estimated number of people on site after full establishment of site.

(Stormwater)
- An outline of the event(s) that the stormwater management system for the site is designed for. (3 Waters would expect to see the system be designed to detain a 1% AEP event, and release at no greater than a 10% AEP event).
- In the event that retention of stormwater for firefighting is proposed, DCC would expect that this be removed from total detention volume calculations. (Draining the system manually prior to a rainfall event introduces an increased risk that the system will fail.)

(Wastewater)
- An estimate of daily wastewater flow from site (including any trade waste).
- A description of what items on-site would be connected to wastewater from the site.

(General)
- Clarify firefighting provisions.
- How much onsite tank storage is planned?

- Is pond stormwater retention required to meet firefighting requirements?
- How much extra tank storage would be required in the event stormwater retention wasn't viable?
- 3 Waters would like to see provisions made for stormwater to be utilised for non-potable applications on site.

DCC contact: Andrew Budd, subdivision support officer City Growth Team
Email: [redacted]

Geotechnical / Natural Hazards
The DCC notes that, from a natural hazards perspective, the underlying soils are alluvial flood sediments, with deep soils. The site lies to the east of any areas mapped as potentially liquefiable, so it is likely that normal foundation design from relatively shallow investigation is all that would be required.

Stormwater flows are a significant issue, and there are recognized overland flow paths, both flood and ephemeral. While any stormwater controls and amendments to existing overland flow will need to be reviewed by the Otago Regional Council, the DCC is likely to have a number of requirements for any earthworks on site. Details of how such works will be undertaken so as to avoid displacing stormwater onto neighboring properties, or creating undue concentrated flows would be helpful (noting that any bunding would have to be lower than the true left flood bank to avoid increasing risk to the residential zone on the south side of Silver Stream). Information about proposed flood protection works would be appreciated.

DCC contact: to be confirmed, but in the interim Karen Bain, associate senior planner
Email: [redacted]

Hopefully this summary is helpful to you. Please keep in touch – the DCC would appreciate early and ongoing involvement as you progress your proposal.

Ngā mihi

Karen Bain
Associate Senior Planner

A.2 Potable water demand calculations

Title	Southern Link Inland Port - Potable water demand
Purpose	The purpose of this calculation is determine water supply flow demand which will need to be sourced from the DCC network. This spreadsheet calculates the full site potable water demand from the Southern Link Inland Port development The calculations have been developed based on a first principles approach, where the water demand is calculated based on the full-development full-time employees on site and full-development site visitors (12 trucks per hour for 24 hours)

Quality Assurance		
Designed	Isobel Halliday, Jack Boyd	17/02/2026
Quality Check	Roger Oakley	18/02/2026
Quality Review	Jon Krause	19/02/2026

Assumptions

1. The water demand calculations are to NZS 4404:2010 and the amendments listed within DCC Code of Subdivision and Development 2010
2. Full time employee numbers have been provided by the Southern Link Logistics when the site is fully developed. Refer to table in the references tab
3. Site visitor numbers have been based on the truck movements on site at full development, which have been provided by the Southern Links Limited (12 trucks per hour). We are assuming one visitor per truck over 24 hours
4. The daily water demand for a full time employee is assumed to be 65 l/person/day. From Watercare Water and Wastewater Code of Practice for Land Development and Subdivision, Chapter 6, table 6.1c
5. The daily water demand for a site visitor is assumed to be 65 l/person/day. From Watercare Water and Wastewater Code of Practice for Land Development and Subdivision, Chapter 6, table 6.1c
6. Water supply from existing bores is not included
7. Refer to the non-potable demand spreadsheet for the demand required to refill the non-potable storage tanks when there is no rain to be collected
8. Potable water is required for the container washdown, due to food safety regulations (MPI Industry Agreed Standard 2 - Design and Construction, 1997)
9. Washdown area demand has been provided by Southern Links Limited (650m3/month peak at the existing Port Otago site) . The Client has requested no factor of safety to be added to this value.
10.The operation of the washbay: Three containers are can be washed in the container washbays at any one time (one container per washbay) - this is termed a washing cycle. One container washing cycle takes 1 hour. There are two container wash cycles during the day shift (8 hours). No container wash cycles are completed during the night shift (8-hours). So overall, the container washbay is in use for 2 hours per day. This is used to calculate a peak instantaneous flow from the container wash down area.

Inland Port Basis of Design

Build up WS demand from expected FTE and site visitors

Activity	Number of Persons	Unit Base Flowrate	Average Day Demand (ADD)		Peak Day Demand (PDD)		Peak Hour Demand (PHD)	
			l/s	Vol (m^3/d)	(l/s)	Vol (m^3/d)	(l/s)	Vol in an hour (m^3/hr)
					PF= 2.0		PF= 5.0	
Full Time Employees (FTEs) (note 2)	172	65 L/p/d	0.13	11.18	0.26	22.36	1.29	4.66
Site Visitor Numbers (note 3)	288	65 L/p/d	0.22	18.72	0.43	37.44	2.17	7.80
Container washdown (notes 8-10)	NA	NA	Not Calculated	Not Calculated	0.38	32.50	4.51	16.25
Subtotal			0.35	29.90	1.07	92.30	7.97	28.71

		Comments
Factor of Safety (FoS)	1.10	FoS of 1.1 intuitively selected
Total	8.77	Peak hour on a peak day, assuming a fully developed site, as an instantaneous flow rate to be abstracted from the DCC WS network

A. Container Wash Bay Peak Flow Demand (notes 8-10)		
Peak Monthly Demand	650	m^3/month
FoS	1	Specified by Client
Monthly Demand + FoS	650	m^3/month
Peak Daily Demand (based on 240 working days per year)	32.5	m^3/day
Hours in Operation / Day	2	Hours
Peak Hourly Demand (based on 2 hours per day)	16.25	m^3/hour
Peak flow	4.51	L/s
PF	1.0	Included in monthly demand
Peak flow	4.51	L/s

A.3 Non-potable water demand calculations

Title	Southern Link Inland Port - Non-potable water demand calculation
Purpose	The purpose of this calculation is to determine the non-potable water demand and storage requirements for the Southern Link Inland Port, which will inform the flow rate which is required to be taken from the DCC water network. It is important to note that the worst case scenario for the non-potable water supply system take is when we assume all storage tanks are empty (following a fire) and no roof capture. This spreadsheet calculates the full site non-potable water demand and required storage for the Southern Link Inland Port development . The non potable water supply is required for: 1. Firefighting supply with: a. sprinkler demand, b. firefighting demand 2. Site service water 3. Construction

Quality Assurance		
Designed	Isobel Halliday, Jack Boyd	17/02/2026
Quality Check	Roger Oakley	18/02/2026
Quality Review	Jonathan Krause	19/02/2026

Assumptions

1. Firefighting calculations as to SNZ PAS 4509:2008 NZFS Firefighting water supplies Code of Practice, as specified in the DCC Code of Subdivision 2010
2. Hydrants: Under SNZ PAS 4509:2008, the site has been assessed to require FW2 fire class, as the warehouses will have sprinkler systems. Therefore, total firefighting demand for the site is 1500 l/min for 30 minutes. This was confirmed by Cosgroves (now Stantec) fire engineers (refer to email from Martin Robertson 19/11/2025)
3. Sprinklers: Under SNZ PAS 4509:2008, the warehouse buildings are defined as Extra High Hazard (EHH). This means that the sprinkler demand for the site is 9,000 l/min for 60 min. This was confirmed by Cosgroves (now Stantec) fire engineers (refer to email from Martin Robertson 19/11/2025)
4. Water supply from existing bores is not included
5. The volume to fill the pipework of the system is excluded but can be accommodated within the limits below

Inland Port Basis of Design

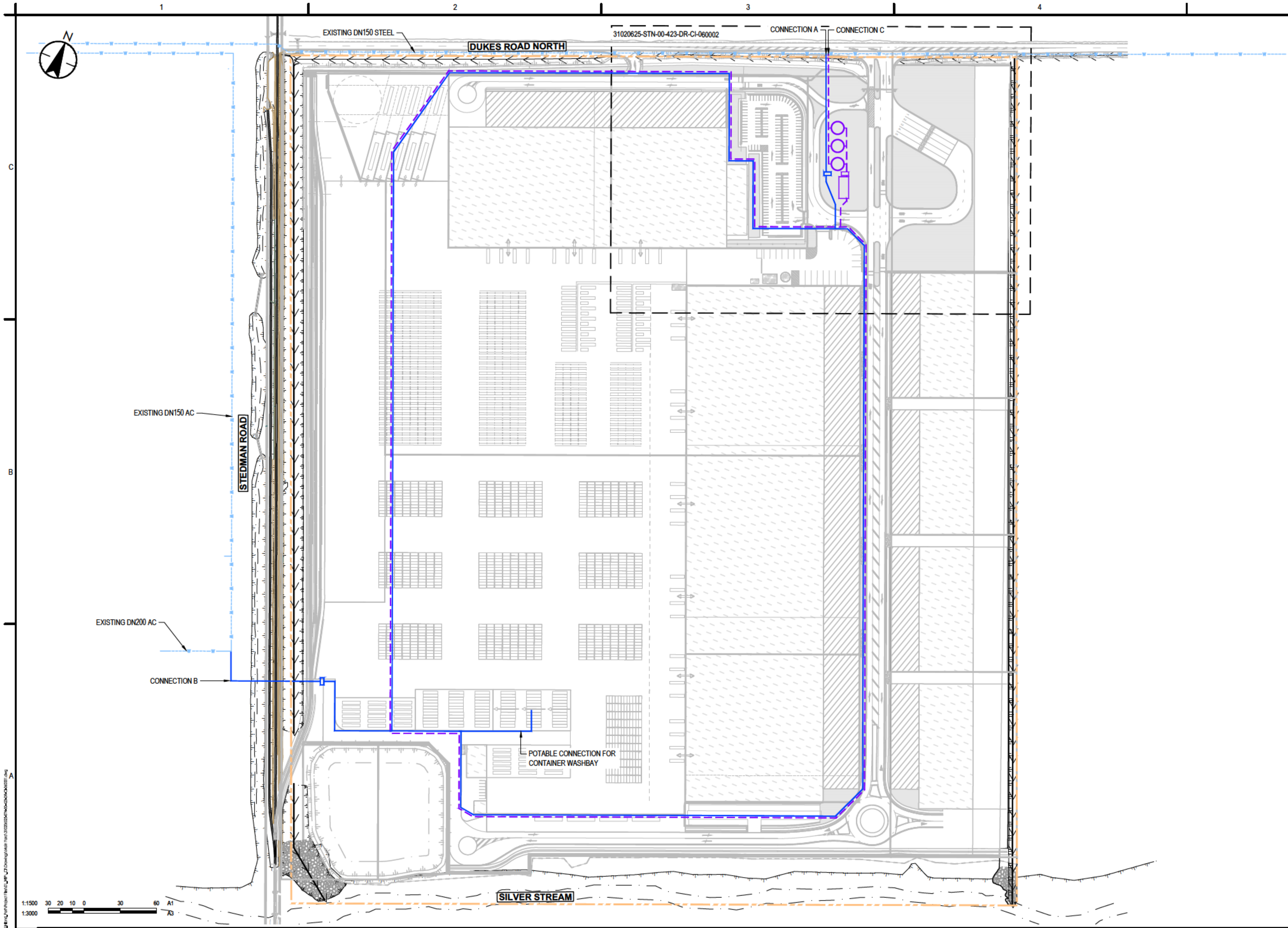
Peak flow and storage volume for non-potable scheme

Activity	Requirement	FoS	Peak Flow (l/s)	Minimum Storage (m^3)	Individual Tank size Based on two available tanks
Firefighting - Sprinkler Demand (note 3)	9,000 l/minutes for 60 minutes	NA	150.00	540.0	270.0
Firefighting - Hydrant Demand (note 2)	1500 l/minute for 30 minutes	NA	25.00	45.0	22.5
Service water around the site. General washdown, tyre wash, hose taps, temp irrigation etc Based on 2Ha grass needing equiv of 1L/s (ave daily flow) or 2 l/s peak	1L/s = 86m3/day. Assume: - Use rainwater harvesting. - Only replenish from watermain within the 0.58L/s 'Container Washdown' allowance when not fully utilised. i.e. no additional demand on watermain	Arbitrarily select approx. 1 day of irrigation storage	2.00	200.0	100.0
Construction for all phases	Assume worst case is for dust suppression during dry weather: - 2 x 10m^3 trucks per hour. - Minimum storage is 20m^3, but can be increased to improve construction efficiency (reduce refill times)	NA	6.0	20.0	10.0
		Peak construction stage (Construction + service water)	8.0	220	110
		Peak operational stage (service water)	2.00	200	100
		Peak for firefighting (Sprinklers + hydrants + fire aftermath)	175.00	585	293
		Allowed storage (Construction + firefighting)		805	403

Flow required to refill tanks (from DCC network)

Activity	Refill Time (hours)	Volume Required (m^3)	Flow Required (l/s)
Firefighting (sprinkler + hydrant)	12	585.00	13.54
Construction	1	20	5.56

A.4 SLIP Water Supply Schemes – Developed Concept Design Drawings



LEGEND

NEW POTABLE

- POTABLE WATER
- POTENTIAL POTABLE BOOSTER PUMP STATION

NEW NON-POTABLE

- NON POTABLE WATER
- FIRE PUMP STATION
- NON-POTABLE BOOSTER PUMP STATION
- NON POTABLE TANKS

EXISTING

- SITE BOUNDARY
- TOP OF BANK
- BOTTOM OF BANK
- DCC WATER SUPPLY

NOTES

1. DETAILS OF THE NON-POTABLE AND POTABLE WATER SYSTEMS ARE SUBJECT TO CHANGE DURING THE FUTURE DESIGN STAGES

Issued/Revision		By	Appd	YYYY.MM.DD
C	ISSUED FOR CONSENT	BG	SL	26.02.20
B	ISSUED FOR CONCEPT DESIGN	BG	SL	26.02.05
A	ISSUED FOR CONCEPT DESIGN	MS	FZ	25.12.19

Issue Status
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Stantec

Client/Project Logo
Southern Link LOGISTICS PARK

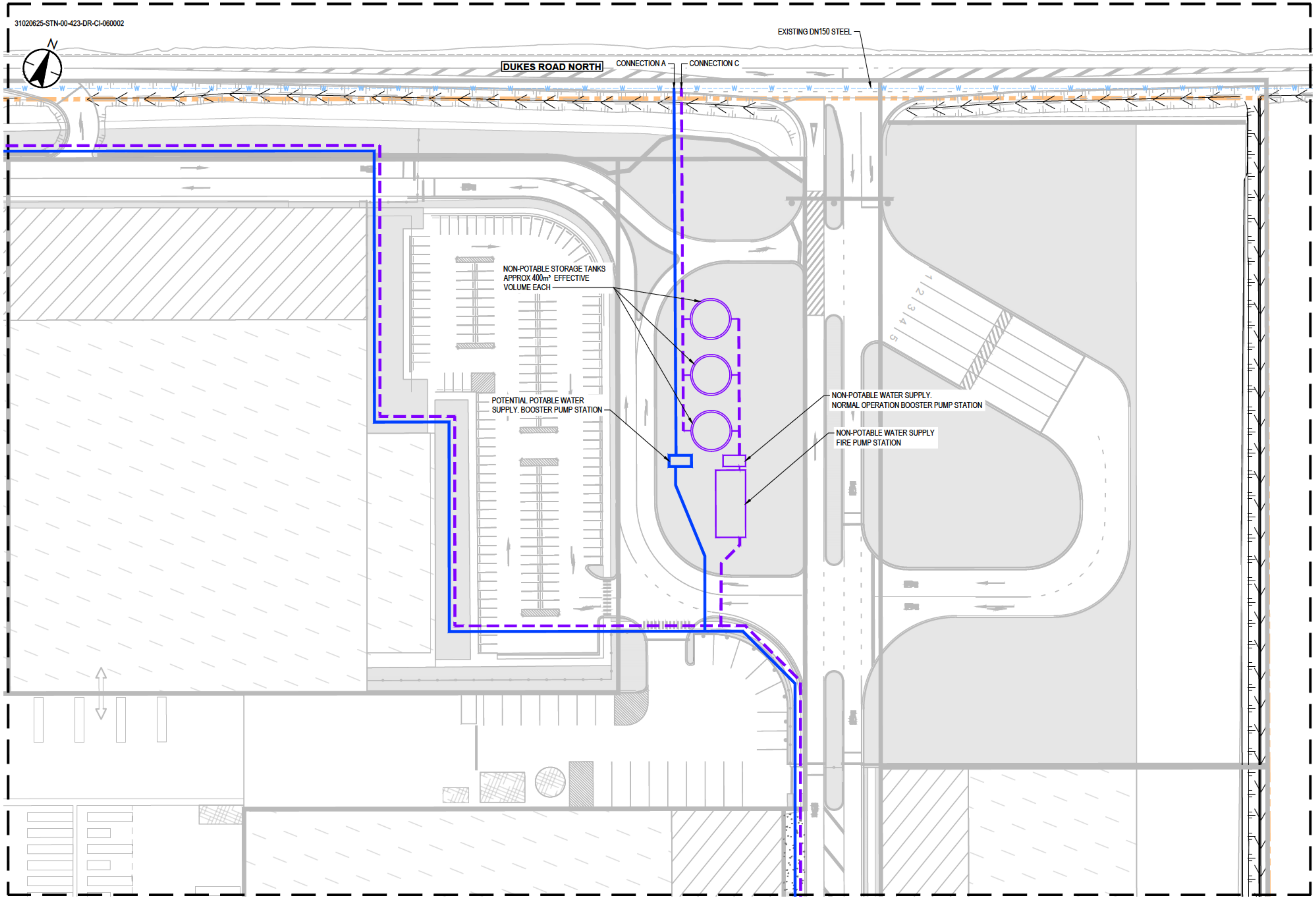
Client/Project
SOUTHERN LINK PROPERTY Ltd
SOUTHERN LINK INLAND PORT
DEVELOPED CONCEPT DESIGN

Drawn	Designed	Reviewed	Approved	YYYY.MM.DD
Maninder Singh	Isobel Halliday	Jack Boyd	Sarah Lloyd	2026.02.20

Title WATER SCHEME LAYOUT PLAN
OVERALL

Project No. 310206525
Scale at A1 1:1500
Revision C
Drawing No. 310206525-STN-00-423-DR-CI-060001

31020625-STN-00-423-DR-CI-060002



PLAN

SCALE 1 : 500

1:500 10 5 0 10 20 A1
1:1000 A3

LEGEND

NEW POTABLE
- POTABLE WATER
- POTENTIAL POTABLE BOOSTER PUMP STATION

NEW NON-POTABLE
- NON POTABLE WATER
- FIRE PUMP STATION
- NON-POTABLE BOOSTER PUMP STATION
- NON POTABLE TANKS

EXISTING
- SITE BOUNDARY
- TOP OF BANK
- BOTTOM OF BANK
- DCC WATER SUPPLY

NOTES

1. DETAILS OF THE NON-POTABLE AND POTABLE WATER SYSTEMS ARE SUBJECT TO CHANGE DURING THE FUTURE DESIGN STAGES

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Client/Project Logo

Southern Link LOGISTICS PARK

Client/Project
SOUTHERN LINK PROPERTY Ltd

SOUTHERN LINK INLAND PORT
DEVELOPED CONCEPT DESIGN

Maninder Singh	Isobel Halliday	Jack Boyd	Sarah Lloyd	2026.02.20
Drawn	Designed	Reviewed	Approved	YYYY.MM.DD

Title WATER SCHEME LAYOUT PLAN
TANKS AND PUMPS

Project No. 310206525

Scale at A1 1:500

Revision C

Drawing No. 310206525-STN-00-423-DR-CJ-060002

A.5 Quality Reviewer Curriculum Vitae

Roger Oakley

Senior Principal Civil Engineer

Stantec

Roger has 40 years' experience as a civil engineer, specialising in three waters infrastructure and associated construction projects. He has acted as Technical Lead and Engineer to Contract for many projects and is well regarded for his proactive, informed and fair approach. Roger has worked on numerous water and wastewater treatment schemes and three waters major infrastructure projects. This provides him with a comprehensive understanding of all the stages of a project, from concept development and planning consents through to stakeholder engagement, design and construction. He has been responsible for, and has significant practical experience in, all phases of capex implementation. Roger's work is highly regarded and he has led teams who have won National Excellence Awards from Ingenium in 2006 and 2012. This was for the $33M Southern Water Treatment Plant the Raw Water Lifelines project for the Dunedin City Council.

EDUCATION AND TRAINING

BE (Hons) Civil, University of Canterbury, 1986

DipGrad RRP, University of Otago, Regional and Resource Planning, 2003

International Professional Engineer (IntPE), #116759, 2004-Present

Chartered Professional Engineer (CPEng), 1993

CPMEngNZ, 2000-Present

Board Member, Institute of Public Works Engineering Australasia, 2012-2019

Member, Water New Zealand, Āpōpō

PROJECT EXPERIENCE

Cambridge Road Reservoir | Tauranga City Council | Technical Lead | 2024-Present
Roger is Technical Lead for identifying options, on a very tight site, for 10-20ML of new potable water reservoir storage and site services.

Bluff Wastewater Treatment Plant Consent Renewal | Invercargill City Council | Civil Lead | 2024-Present
Roger was Civil Lead for scoping civil works and piped services for a range of upgrade options, including preparation of cost estimates. A range of concepts were scoped, including significant land application options.

Frankton Road Watermain | Queenstown Lakes District Council | Technical Lead | 2025
Roger was Technical Lead for the implementation of this watermain project.

Seacliff Wastewater Treatment Plant | Dunedin City Council | Engineer's Representative | 2023-2024
Roger was Engineer's Representative and Technical Lead for the $3.5M construction phase of this wastewater treatment and land application via slow rate drip project.

Mataruahou Trunk mains ECI | Napier City Council | Technical Lead | 2023
Roger was Technical Lead for the preparation of an Early Contractor Involvement RFP for major new potable water trunk mains in Napier.

Tahuna WWTP Process Capability Upgrade | Dunedin City Council | Design Lead | 2021-2023
Roger was Design Lead for this $15M upgrade of a range of process elements to improve quality and reliability of the wastewater treatment plant.

Cromwell WW Ponds Rehabilitation | Central Otago District Council | 2021-2023
Roger was part of a team that investigated and improved the health of the wastewater ponds that feed into and are affected by the downstream membrane filtration plant.

Tahuna Wastewater Treatment Plant Lime Dosing Plant | Dunedin City Council | Technical Lead | 2022
Roger was Technical Lead for a $3M urgent implementation of a very multi-disciplinary lime dosing facility to allow wastewater sludge to be acceptable at landfill. This very successful project met extremely demanding timeframes and included an extremely collaborative arrangement with the DCC and contractor.

Roger Oakley

Senior Principal Civil Engineer

DCC Water Infrastructure | Dunedin City Council | Technical Reviewer / Advisor | 2020-2022
Roger was Technical Reviewer. The project included a range DCC projects including 3 waters renewals at Carey's Bay, Musselburgh PS rising main, Waikouaiti water. Roger provided a technical review and advisory role.

3 Waters Client Services Manager | Southland District Council | Consultant Representative | 2012-2022
Roger was Consultant representative for a full range of water and wastewater projects for Southland District Council. These include water treatment plants at Riverton and Eastern Bush (both membrane), RIB upgrade for the Riversdale WWTP, consenting for existing WWTPs at Nightcaps, Riversdale, Tokanui and Riverton.

Minimum Floor Levels | Dunedin City Council | Technical Lead | 2021
This project included an investigation of climate change effects and a literature review of all aspects that affect appropriate minimum floor levels for building consents subject to coastal hazards. As Technical Lead Roger derived a methodology and policy for the DCC to apply to building consents.

Southern WTP Swabbing | Dunedin City Council | Technical Lead | 2020-2021
Roger was Technical Lead for this scheme to determine (via MCA) the preferred option for disposing of contaminated water from annual swabbing of the water feed main.

Te Anau Wastewater Scheme | Southland District Council | Technical Lead | 2013-2021
Roger was Technical Lead for this $25M complex scheme to take pond wastewater, treat it via membrane filtration and transfer it 20km to an irrigation site for subsurface drip irrigation (SDI). Work included all piped services. The project included design, consenting, full business case preparation, and options assessment. It is the largest SDI scheme in NZ.

Frankton Flats Stormwater Strategy | Queenstown Lakes District Council | Technical Lead | 2016 - 2019
Roger was responsible for the preparation of the first stage of a $16M strategy to secure an overall stormwater layout for the Frankton Flats, which is subject to significant development pressure.

Eastern Access Rd 3 Waters | Queenstown Lakes District Council | 3W Technical Lead | 2015 – 2017
Roger was Technical Lead for the design of the 3 Waters infrastructure as part of a $22M project to provide an arterial road around the airport and services for new development areas of the Frankton Flats.

Stantec is a global leader in sustainable engineering, architecture, and environmental consulting. The diverse perspectives of our partners and interested parties drive us to think beyond what's previously been done on critical issues like climate change, digital transformation, and future-proofing our cities and infrastructure. We innovate at the intersection of community, creativity, and client relationships to advance communities everywhere, so that together we can redefine what's possible.

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