

Southern Link Inland Port
Nick Keenan - for SLPL - Summary Statement on Internal Stormwater Engineering

Introduction

1. My section 55 evidence addresses the engineering solution proposed for managing stormwater effects, and erosion and sediment effects, of the Southern Link Inland Port (**SLIP**) on the Silverstream, covering both the construction and operational phases, and is supported by the Stormwater Assessment report dated 15 April 2026, of which I am a co-author.
2. The engineering solution addresses potential effects on the Silverstream through two categories of mitigation: attenuation and dampening of peak runoff; and stormwater infrastructure to capture and treat rainfall runoff discharges before they leave the site, with particular emphasis on the first flush.
3. The components of the stormwater system are also available for emergency spill response planning and will normally be formalised inside an environmental management plan to cover responsibilities of maintenance and business-as-usual activities on-site during the operational phase. Other opportunities in detailed design will include carefully selected painted coatings for steel roofing, and erosion and scour mitigations at outlets from the site.
4. In my opinion, these proposed measures together represent a best practice and best practicable system for managing potential adverse stormwater effects from the SLIP.

Summary of the attenuation and flow management solution

5. Over the operational phase, stormwater attenuation is achieved through a large onsite attenuation capacity over a generous portion of the site's land area assigned to stormwater management. Mosgiel and the Taieri Plain are known to have flooding issues that need management. The proposed attenuation is configured to dampen the 100 year peak post-development runoff down to a 10 year discharge rate at the basin outlet. Similar dampening and attenuation are feasible for smaller and more frequent rainfall events through the configuration of the outlet throttle and use of the storage volume. Attenuation of the site runoff regime will minimise any changes to bed and bank erosion effects in the Silverstream. The full attenuation system will be commissioned from the earliest stage of operation of the development, providing a buffer through the development stages of the site.
6. During the construction stages, the site's gentle gradients are a further inherent advantage, keeping storm flow velocities low and within a range that can be reliably managed by good practice erosion and sediment controls. This means that relatively modest bund heights and diversion channels will provide effective controls across the site, achievable without technical

difficulty and in accordance with the Auckland Council GD05 guideline (as the proposed best practice guideline document).

Summary of the treatment train and construction controls

- 7.** The second category of stormwater mitigation is to treat rainfall runoff to remove site contaminants before they enter the Silverstream, with a particular focus on first flush events when there is less dilution available from site rainfall and less dilutional capacity within the stream. A treatment train strategy is set up across the full site to capture different types of contaminants in a series of specialist devices. The proposed treatment train devices are: catchpits to catch heavy grits and litter; gross pollutant traps (GPTs) within manholes to trap larger suspended solids and associated particulates, floating litter and hydrocarbons behind baffles; proprietary filter components with engineering media for capture of soluble metals and fine particulates; and finally contact time across grass and topsoil over the pond basin floor to provide biofiltering and chemical uptake into vegetation.
- 8.** In response to panel Minute 9 at paragraph 22, additional information has been made available on the feasibility of the treatment train, as referenced in the attached drawing. The drawing shows the catchment areas and the sources of contaminants, with a stormwater network positioned to capture all areas through slot drains and catchpits. Two main pipeline branches drain to the basin area where first flush (smaller) flows are diverted and directed into a GPT and filter system. Finally, drainage can be released onto the basin floor area (80m x 80m) with opportunity for infiltration and biofiltering as “polishing” treatment. In detailed design, the basin floor can be shallow graded and moderately earth-formed to lengthen a pathway for first flush flows as well as for spill control containment.
- 9.** For stormwater runoff flows larger than the first flush event, pipe flows will bypass directly into the attenuation basin without going through the treatment train. This is good practice to prevent damage to treatment train components and to prevent re-mobilising captured contaminants.
- 10.** Devices in the treatment train are capable of capturing suspended sediments as small as 20 to 50 microns during first flush flows that is, runoff from 90% of all rainfall events, consistent with an industry-accepted minimum performance standard of over 75% capture of total suspended solids. When operating as a treatment train (devices in series), contaminant capture is closer to 90% of total suspended solids and for other contaminants.
- 11.** Devices, maintenance equipment and replacement parts are all readily available from New Zealand based suppliers. The stormwater treatment industry is becoming more mainstream, meaning, that underground devices have established operational and maintenance protocols and contractors have effective equipment for maintenance such as vacuum trucks.

12. During the construction phase, erosion and sediment control will be managed under an Erosion and Sediment Control Plan (**ESCP**) prepared by a Suitably Qualified Person, designed to a high level of performance consistent with the Auckland Council GD05 guideline, and taking full advantage of the site's available space and gentle gradients. Robust, and not technically challenging, perimeter bunding and swales will provide site isolation from wider catchment flood flows. The ESCP will assume clays are present in quantities requiring a chemically treated sediment retention pond approach unless onsite bench testing demonstrates otherwise. This approach is designed specifically to avoid the pattern of sediment pulses into streams observed in other developments (such as at Bullock Creek, Wanaka) and will be supported by regular inspections during and prior to large rain events.

Summary of emergency and adaptive management safeguards

13. The stormwater treatment and attenuation system shown in the attached drawing and described here would be further designed in detail to incorporate safeguards for emergency spill scenarios. In the event of a fire or spill, firefighting water or a product spill would be captured and isolated within the stormwater network and attenuation basin: in this case, isolating just 5% of the 25,000 m³ attenuation basin floor (1,250 m³) would be sufficient to contain the total 1,200 m³ firefighting water volume held in the site's non-potable water tanks. This isolation could feasibly be achieved through a system of alarms, manual remote or automatically actuated valves, a bifurcation manhole, associated training and protocols. These systems would be developed or formalised at detailed design within a Hazard and Operability Study (**HAZOPS**) or as part of the emergency spill response plan.
14. Given the mitigation measures are designed to operate with a high degree of robustness well below threshold trigger points referenced in the Stormwater Monitoring Plan (**SMP**), verification and ongoing refinement of the stormwater management performance can still be provided through monitoring and adaptive management. SMP certification, ESCP certification by a Suitably Qualified Person, and construction contract quality control together provide auditable mechanisms to confirm initial and ongoing performance.

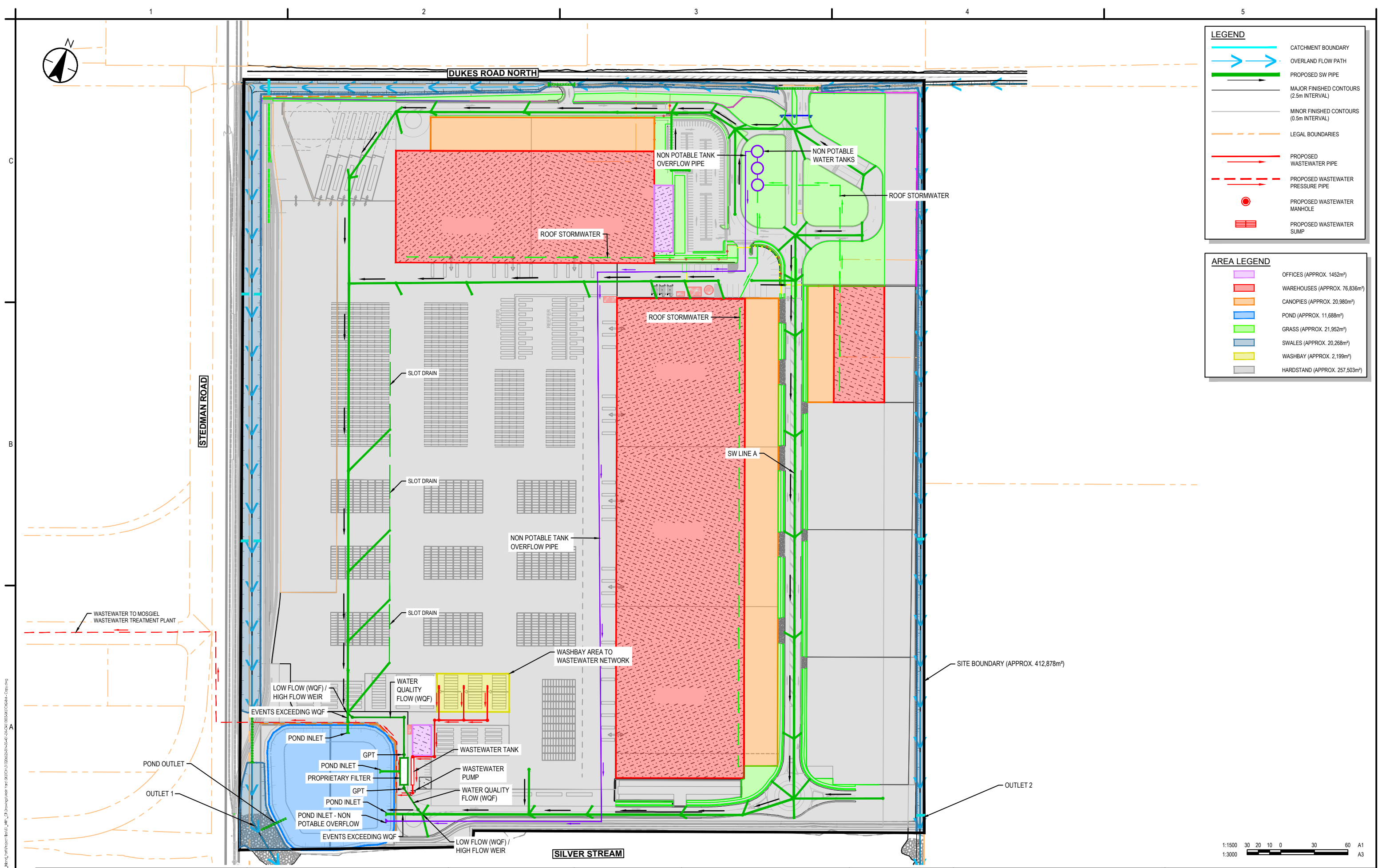
Summary of recommendations

15. I recommend that:
- (a) The final sizing and configuration of stormwater flood attenuation outlets and storage volume be further developed at detailed designed stage to optimise the available basin storage volume to dampen runoff into the Silver Stream across key storm sizes;
 - (b) The final sizing and configuration of catchpits, gross pollutant traps, proprietary filter/UPT and the attenuation basin floor be confirmed at detailed design to best capture all types of contaminants including dissolved metals;

- (c) As good practice, the Erosion and Sediment Control Plan be prepared by a Suitably Qualified Person prior to construction, assuming a chemical treatment facility will be required;
 - (d) Onsite bench testing be undertaken to confirm whether chemical treatment of sediment-laden water is required, given the possible presence of clays in the shallow subsurface;
 - (e) The firefighting and spill isolation safeguards and mitigations involving the stormwater network, including containment volumes, alarms, actuated valves and associated protocols, be confirmed through a Hazard and Operability Study (HAZOPS) or similar risk assessment process at detailed design; and
 - (f) An environmental management plan (**EMP**) covering asset management, asset maintenance and operations procedures for all devices as part of the business-as-usual activities be prepared for the site. The EMP will also set out responsibilities, monitoring and reporting processes.
- 16.** On the basis of the space allocated for stormwater effects mitigation measures, the site's gentle land gradients, and the maturity of available stormwater treatment infrastructure, it is my opinion that the sources of potential contamination from the development can be appropriately controlled during both construction and operational phases, giving high confidence that the proposed stormwater management design will achieve a no more than minor level of effect on the Silver Stream receiving environment.
- 17.** This evidence does not change any of the views I expressed in my original Stormwater Assessment report or my s55 evidence.



Nick Keenan
10 September 2026



LEGEND

- CATCHMENT BOUNDARY
- OVERLAND FLOW PATH
- PROPOSED SW PIPE
- MAJOR FINISHED CONTOURS (2.5m INTERVAL)
- MINOR FINISHED CONTOURS (0.5m INTERVAL)
- LEGAL BOUNDARIES
- PROPOSED WASTEWATER PIPE
- PROPOSED WASTEWATER PRESSURE PIPE
- PROPOSED WASTEWATER MANHOLE
- PROPOSED WASTEWATER SUMP

AREA LEGEND

- OFFICES (APPROX. 1452m²)
- WAREHOUSES (APPROX. 76,836m²)
- CANOPIES (APPROX. 20,980m²)
- POND (APPROX. 11,688m²)
- GRASS (APPROX. 21,952m²)
- SWALES (APPROX. 20,268m²)
- WASHBAY (APPROX. 2,199m²)
- HARDSTAND (APPROX. 257,503m²)

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