LANDWORKS
— CONSULTING ENGINEERS —

Engineering Memo

To	Auckland Council	Date	13/9/2024
From	Peter Lowe	Job #	P23-077
Ref:	Windsor Park Community private plan change – RFI Engineering responses		

With reference to the RFI letter dated 25th July, 2024 ref: "Clause 23 further information request – Private Plan Change Request by Windsor Park Community and Multisport Hub Incorporated", please find attached the following responses for engineering and stormwater queries as follows:

SW1	SMP – General	Please clarify if the proposed Stormwater Management Plan (SMP) is for the proposed plan change area only, or whether it also includes the sports fields. It appears to also include the sports fields and new facilities are proposed on the sports fields, however this is not clearly reflected in the SMP.	To allow a better understanding of the SMP and how stormwater effects will be managed.

Only the upper portion of the site is covered by the SMP.. The main body of work is proposed on the top field labelled as the main development area. The SMP has been updated to make this clearer.

SW2	SMP – General	Please outline what are the principles and objectives of the development for stormwater management.	To allow a better understanding of the SMP and how stormwater effects will be managed.

A section on the proposed stormwater design principles and objectives has been added to the SMP.

SW3	SMP – Stormwater management	Please provide information on why private stormwater tanks are proposed as the stormwater management device for the proposed plan change. Please outline how factors such as the plan change area (including the sports field) of 63,805m2, the site-specific character, downstream and receiving environment are used when determining the most appropriate stormwater management device for the proposed plan change area.	To allow a better understanding of the SMP and how stormwater effects will be managed.

The site is located in a SMAF zone, which means on site retention and detention is a requirement for any new impervious areas. Private stormwater tanks are an acceptable option for SMAF mitigation for this type of development. If these are not acceptable then they should be removed form the available options in the Auckland Council guidance documents.

Infiltration would not be advisable as the soils do not readily accept infiltrated water in the volumes required. Due to the clay soils, mudstone and sand stone underlying layers, the majority of the water would not infiltrate and only serve to exacerbate downstream flooding.

As the downstream catchment is already developed, there is no spare public land for additional communal publicly owned devices. There is an existing dry detention pond directly down stream of the site known as the Ascension Place Pond, which currently attenuates flood events, however feedback from the recent meeting with Healthy Waters considered this dry pond already under designed for its catchment and does not have the ability to be expanded due to onsite topographical constraints and nearby neighbouring property. This dry pond would not typically provide SMAF mitigation for the

proposed plan change area as its capacity (already compromised for it's catchment size) is reserved for flood mitigation, not stream protection.

If HW consider there is an opportunity for this dry pond to be modified to include attenuation for smaller SMAF rain events with extended detention incorporated into the pond outlets, (with an agreed contribution for works from any future developer), please advise.

To date we have been led to believe this is not a preferred option for HW.

SW4	SMP – Stormwater management	Please provide information on what other options of stormwater management devices were explored – i.e. whether a communal stormwater management device, the possibility of utilising the sports field to manage stormwater, or collaboration with Healthy Waters with upgrading existing stormwater management devices were explored.	To ensure that the proposed stormwater management device aligns with an Integrated Stormwater Management Approach. Healthy Waters would like to have a meeting with the applicant to discuss the different options that could be used to manage stormwater for the proposed plan change.

As above for the previous query regarding other explored options.

For the proposed private roading and other shared private areas, the plan change proposes to utilise communal stormwater attenuation and treatment. The proposed accessway will be treated by privately owned cesspits fitted with litta traps, and stormfilters. The proposed communal accessway tanks will provide the required mitigation for SMAF and 10% AEP rain events. The devices should be owned and maintained by a residents association which will engage maintenance contractors to carry out the required maintenance. With the communal devices owned by the residents association they are much more likely to be maintained with increased functional lifespan.

Some investigation into using the sports field as a dry detention basin has been carried out and added to the SMP. Depending on the final proposed development, the requirements of healthy waters and the sports club that uses the field this could be an option and it is envisaged that Auckland Council could negotiate with the Windsor Park Community & Multisport Hub INC, as the flood storage potential of this field could benefit the wider catchment area, that is not the responsibility of the sports club.

SW5	SMP – Geotechnical	Section 2.1 of the SMP (Geotechnical) did not provide any geotechnical information for the proposed plan change area. Please provide a brief overview of the of the geotechnical characteristics of the site that is relevant to stormwater management, such as soil type and infiltration rate. The information provided should be consider when proposing the stormwater management for the site to ensure it is feasible.	To allow a better understanding of the plan change area and how stormwater effects will be managed.

The plan change does not propose any infiltration back into the soil due to the underlying layers consisting of sand stone, silt stone as and clay. The geotechnical section of the report has been updated to mention this.

SW6	SMP – Receiving environment	Section 2.2 of the SMP (Receiving environment) provided some information about the receiving environment. However, please provide further information and details on the downstream environment, such as the existing hydrology, Oteha Valley catchment, and the Waitemata Harbour. The information about the receiving environment should be clearly outlined in the SMP.	To allow a better understanding of the plan change area and how stormwater effects will be managed. Healthy Waters can provide information about the downstream environment. There are stormwater quantity issues downstream, with overtopping of flows along the channel into the Rosedale Wastewater pond and flooding around Ascension Place and Apollo Drive. It is important any proposed development upstream address these concerns. Healthy Waters would like to have a meeting with the applicant to discuss the different options that could be used to manage stormwater for the proposed plan change.

The recent meeting with HW provided some information about the downstream "Ascension Place Pond" was provided. These details have been added to the SMP and considered in the design.

SW7	SMP - Stakeholder consultation	Section 7.0 of the AEE provided information about engagement of stakeholders and mana whenua. Please confirm if this engagement included information on how stormwater would be managed for the proposed plan change area. Section 2.3 of the SMP (Stakeholder consultation) included some information about contacting Healthy Waters. Please update the SMP to include information on consultation with all relevant stakeholders, and include details and outcomes and stakeholders' concerns are how mana whenua values are addressed in the proposed stormwater management.	To understand how mana whenua values and stakeholder concerns are addressed in the SMP.

Stakeholders section has been updated to include the meeting with healthy waters. Mana Whenua consultation hasn't been undertaken for stormwater.

SW8	SMP – Asset ownership	Section 2.4 of the SMP (Asset ownership) outlined that the stormwater pipes will be vested in Council and all other stormwater management devices will be private. Please outline how the devices that are private and the devices that are shared will be maintained, to ensure their ongoing operation and maintenance.	To ensure the proposed stormwater management will be effective in the long term.

The asset ownership section of the report has been updated to show an indicative breakdown of ownership and maintenance.

SW9	SMP – Water Quality	Section 4.1 of the SMP (Water quality) outlines the water quality treatment for the accessway. Please clarify what is included in the 'accessway', and whether it includes the car parks, driveway areas and private road.	To understand how water quality effects will be managed for the proposed plan change area. Please note that LittaTraps do not meet GD01 requirements.
		Please clarify why LittaTraps are proposed to treat the accessway; and whether LittaTraps will be acting as pre-treatment before the Stormfilters for all proposed water treatment. Please clarify whether roofs will be constructed of inert materials and/ or how water runoff from roofs will be treated. Please outline clearly how all impervious areas will be treated and where the discharge will be. It may be helpful to provide a diagram summarising the proposed stormwater management for the different impervious areas.	Section 4.1 of the SMP includes a paragraph about high contaminant generating car park. It is unclear if this applies, as this depends on how the site will be subdivided and developed. It is also recommended that water quality is addressed in terms of how all impervious areas need to be treated under the NDC.

Water quality treatment has been broken down to specific areas in the report. Litta traps are ownly pre treatment and are part of the treatment train approach. All runoff from the private roading will be treated by privately owned and maintained stormfilters before connecting to the public network. The stormfilters meet GD01 requirements.

SW10	SMP – Stream Hydrology	Section 4.2 of the SMP (Stream Hydrology Stormwater Mitigation) outlines the requirements of SMAF2. Please clarify if SMAF2 should be calculated for all impervious areas. Please also clarify if this includes the sports fields and new facilities on the sports fields.	To allow a better understanding of how the effects on stream hydrology will be managed for the proposed plan change area.

SMAF 2 should be calculated for all impervious areas of the proposal area. The sports fields/new clubrooms are not part of this application.

SW11	SMP – Flooding	Section 4.3 of the SMP (Flooding – Pipe capacity for 10% AEP) outlined that the 10% AEP event will be mitigated via detention tanks. Please provide further clarification on why the sports field and new facilities on the sports field are not included in the calculations. Please update the SMP to state that an operation and maintenance plan will be required - this is to ensure the long-term efficacy of the system. Please provide information on whether there any adverse effects on other property.	To allow a better understanding of how stormwater runoff in a 10% AEP event for the proposed plan change area will be managed.

The SMP has been updated to clearly state that operation and maintenance plans will be required for the proposed stormwater devices. The 10% mitigation strategy has been updated to only utilise the communal tanks as it is much more likely that these tanks are maintained by a resident's association. The sports fields/new clubrooms are not part of this application.

SW12	SMP - Flooding	Section 4.4 of the SMP (Flooding – Building for 1% AEP event) discusses the overland flow paths; however no assessment is provided on the stormwater effects in a 1% AEP event with climate change from the proposed plan change. Please provide further information on the stormwater effects in a 1% AEP event with climate change, and clarify how the effects will be managed for the plan change area. It is required that the 1% AEP peak flow be managed to predevelopment levels. Please provide further information on whether there any adverse effects on other property and any effects on the downstream environment.	To better understand how stormwater runoff in a 1% AEP event for the proposed plan change area will be managed.

1% Peak flows need to be mitigated back to pre-development levels in the plan change area. An increase in peak flows for this area has been calculated and included in the report. The proposed flows can be mitigated back to pre-development levels either by the proposed detention tanks, underground storage chambers (such as Cirtex rain smart systems) or via the construction of a dry detention basin on the existing sports field. This option has been discussed in the report.

SW13	SMP – Potential Risks	Please include a section identifying the potential risks associated with the proposed stormwater management devices and how the risk will be managed.	To allow a better understanding of the risk associated with the proposed stormwater management device and to ensure stormwater effects can be managed.

Please see the potential risk section added to the SMP.

SW14	SMP – General	Section 5 of the SMP (Conclusion) provides information on water quality, stream hydrology, flooding in a 10% and 1% AEP event. However, this needs to clearly state what needs to be done to manage the stormwater effects and not give it as an option. Further information is also required for Flooding for the 1% AEP event. Please update this section accordingly.	To allow a better understanding of the plan change area and how stormwater effects will be managed.

This has been updated.

SW15	SMP – Stormwater Pipe Network	Please clarify what is intended for the existing public stormwater pipe network within the plan change area. The pipe location is indicated in the diagram below:	To allow a better understanding of the plan change area and how stormwater effects will be managed.
			

At this stage we have only shown the existing public network as being connected to by the proposed development. An addition section has been added to the SMP – 4.4.1 – building over public infrastructure. In this section we state that it is not recommended to build over the existing or proposed public networks. Please refer to the SMP for more details.

Regards

Peter Lowe
BE (Civil), CPEng
Landworks Ltd