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memorandum

TO	Brandon Baillie	FROM	Desmond McCloy
	Hawke's Bay Regional Council	DATE	6 November 2025
RE	APP-131332 Request for Input on Arataki FTAA Application		

1.0 Introduction

CDL Land New Zealand Limited (CDL) have applied under the Fast-track Approvals Act 2024 to the Environmental Protection Authority (EPA) to subdivide and develop the Arataki site at 86, 108, and 122 Arataki Road, Havelock North, Hawke's Bay (the site). This development will require consents for:

- stormwater diversion and discharge (operational and construction);
- outlet structure; and
- water take and use from impounded water on site during construction.

The site is located over the Heretaunga Plains Confined Aquifer.

PDP has been engaged by Hawke's Bay Regional Council (HBRC) to provide a technical review of the consent application. This memorandum summarises the proposed stormwater treatment design and comments on its appropriateness regarding the risks to nearby public supply bores and other bores in the Heretaunga Plains Confined Aquifer.

2.0 Site Description

The site is located at 86, 108, and 122 Arataki Road, which is on the northeast outskirts of Havelock North. Currently, the site is used for grazing purposes. The surrounding land use is residential, industrial, rural residential and agricultural. The topography of the site and the surrounding area appears to be flat land, with a gentle crossfall from north to south.

The applicant is proposing to discharge stormwater via a device located within the road reserve adjacent to 163 Brookvale Road, immediately northeast of the site extent. The stormwater will then be directed to an unnamed tributary of the Mangateretere Stream, located approximately 50 metres east of the site and then into the Taco and Crombie Drains.

The closest LAWA site with surface water quality data that gives a general indication of water quality in the catchment is Mangarau Stream at Te Aute Rd, approximately 3.5 km southeast of the site. Water quality data from this site indicates the following:

- The site's concentrations of total nitrogen (5-year median of 0.98 mg/L), total oxidised nitrogen (5-year median of 0.72 mg/L), dissolved inorganic nitrogen (5-year median of 0.726 mg/L) and nitrate nitrogen (5-year median of 0.71 mg/L) are in the worst 25% of all sites. Ammoniacal Nitrogen (5-year median of 0.008 mg/L) is in the worst 50% of all sites. Nitrate Nitrogen and Ammoniacal Nitrogen are also recorded as being in Attribute Band (toxicity) A.

- Concentrations of Dissolved Reactive Phosphorus (5-year median of 0.076 mg/L) and Total Phosphorus (5-year median of 0.084 mg/L) are in the worst 25 % of all sites. Dissolved Reactive Phosphorus is also recorded as being in Attribute Band D.
- The site is in the worst 25 % of all sites for *E. coli* (5-year median of 520 n/100ml) and Attribute Band E.
- The site is in the best 50% of all sites for Clarity (5-year median of 1.95 metres). There is no information for Turbidity at this site.

According to the site's geotechnical report, the published regional geology of the site includes Holocene-aged river deposits, described as 'poorly consolidated alluvial gravel, sand, and mud' to the northeast of the site, and middle to late Pleistocene-aged river deposits, described as 'moderately weathered, undifferentiated, poorly sorted, loess-covered alluvial gravel deposits' in the southeast portion of the site.

A geotechnical investigation was undertaken on 4 October 2024 and between 19 and 20 February 2025 by CMW. This included 5 test pits, 10 hand auger boreholes and dynamic cone penetrometer tests. A summary of strata layers encountered during this investigation is shown in Table 1. Groundwater was not encountered during any of these investigations and is expected to be at depths greater than 8 m below the site based on an 8 m deep bore that did not encounter groundwater.

The closest bore to the site that is screened at a relatively shallow depth with long term groundwater level information is well 16611 (18 m deep and screened between 16.4 and 18 m below ground level), located approximately 1.2 km northeast of the site. The bore log notes alternating layers of clay and gravel. While groundwater levels in this bore may not provide a good indication of groundwater levels at the site due to it being screened in the confined aquifer, the bore does provide an indication of groundwater level trends over time and fluctuations. The data shows that groundwater levels have been relatively constant over the last 5 years, with variations of around 1 m. Piezometric contours from HBRC (2018) show that the general groundwater flow direction is from southwest to northeast towards the coast.

Table 1: Summary of Strata Encountered (from CMW, 2025)

Geological Unit	Depth to base (m)		Thickness (m)*		Strength Testing Results	
	Min	Max	Min	Max	SPT	DCP
Existing Fill (dense sandy Gravel with some silt/ dense sandy silt) **	0.4	0.5	0.4	0.5	-	-
Topsoil	0.1	0.8	0.1	0.8	-	2-9
Pleistocene River Deposits (dense to very dense fine silty sand/fine sand some silt lenses)	0.0.3	2.3	0.1	2.1	-	6-20+
Pleistocene River Deposits (dense to very dense sandy gravel/gravel with occasional silt/clay lenses)	0.65	>4.0	0.2	>3.6	33	6-20+
Silt ("Hard Pan") ***	0.7	1.8	0.2	0.8	-	-
Pleistocene River Deposits (stiff sandy/gravelly silt with gravel beds)	>4	>9	*	*	11-50+	20+
Dense silty sand with gravel beds****	6.9	6.9	4.6	4.6	40-50+	-
Pleistocene River Deposits (very dense silty sandy gravel trace cobble with interbedded silts)	>2.5	>8.0	*	*	50+	-

Notes:

* Base not encountered

** Only encountered in TP04 (2019) and TP07 (2019)

*** Only encountered in TP01 (2018), TP07 (2018) and TP02 (2025)

**** Only encountered in BH03 (2021)

3.0 Proposed Treatment and Discharge

The applicant is proposing to manage stormwater discharge by splitting the site into two catchments: Sub Catchments A and B. Flows from Sub Catchment A will be discharged into the existing public network along Arataki Road. Following consultation with mana whenua, four rain gardens have been proposed to treat the stormwater prior to being discharged to the public network along Arataki Road. It is noted that HDC do not require any water quality treatment to be provided for stormwater runoff being discharged to its network.

Stormwater discharge from Sub Catchment B will be treated with a 'treatment train' approach. Stormwater will first be discharged into a Baffle Box Proprietary Device (or similar) and then into a communal dry basin. Following this, the treated stormwater will be discharged via a stormwater outlet structure to the unnamed Mangateretere stream tributary to the northeast of the site (at No. 163 Brookvale Road).

4.0 Assessment of Effects on Groundwater

During both the construction and operational phases of the subdivision, the stormwater may have elevated levels of contaminants. The main risk to groundwater is these contaminants leaching to the aquifer and contaminating domestic or public supply bores. The discharge from Catchment A is to an existing stormwater network and quality changes are unlikely to be significant. For groundwater contamination to occur from Catchment B, a pathway needs to exist to bores. In this instance, there is no

direct stormwater discharge to ground, and all stormwater is discharged to surface water. It is possible that there might be losses to groundwater from the unnamed Mangateretere Stream tributary that will receive the discharge, as it appears to be at a higher level than the assumed groundwater level at the site. It is possible that following these losses, contaminants could leach to the confined aquifer and reach bores. This means further consideration of the main potential contaminants is necessary, as set out below.

- Stormwater is likely to have elevated levels of turbidity/suspended solids, especially during the construction phase prior to treatment. It is not expected that elevated levels of turbidity/suspended solids will migrate far, should they enter the aquifer, due to filtering. In this instance, the risk to bores is considered low as the stormwater is discharged to surface water, and turbidity/suspended solids would also be further filtered through the streambed if losses occur.
- Stormwater can also have elevated metal concentrations; however, these are typically below drinking water standard limits in residential stormwater and the risk to bores is considered low, especially given the nature of the discharge (treated then to surface water).
- The stormwater may also have elevated levels of *E. coli* due to bird activity at the site and domestic and pest animals. As discussed in Section 2.0, the nearby surface water quality monitoring site is in the worst 25 % of all sites for *E. coli*. While this is a different tributary, it indicates how *E. coli* is typically elevated in surface water. Considering this and the expected treated stormwater concentrations of *E. coli*, while some variability may occur, the risk of contaminated stormwater significantly increasing typical *E. coli* concentrations in the surface waterway is expected to be low, and the subsequent risk to groundwater bores from any losses to groundwater from the stream is also expected to be low.
- If a spill were to occur during construction, it is possible that other contaminants such as hydrocarbons may enter the stormwater. The applicant has confirmed that there will be a Spill Management Plan (SMP) for the site. It is recommended that this plan is reviewed to ensure that the measures to prevent and respond to any spills that occur on the site are adequate for preventing contamination. The proposed stormwater treatment system is designed to treat hydrocarbons.

The discharge location is immediately east of the Brookvale Road water bore, which is an essential part of Havelock North's urban water supply (as an emergency and augmentation supply bore). Following direct communications with Hastings District Council, it was confirmed that the location of the stormwater discharge of Sub-catchment B is outside of the Source Water Risk Management Area (SWRMA) for the Brookvale Road bore. The Hastings Urban water supply bores are also essential for local water supply. As they are located in the confined aquifer approximately 4.75 km northwest of the site, which is upgradient of the discharge location, and considering the nature of this discharge, the risk of contamination for these bores is expected to be low. In summary, the expected risk of contamination for the Brookvale Road water bore and other community supply bores is expected to be low.

5.0 Conclusion

The following conclusions regarding the risk of the proposed stormwater discharge contaminating the Heretaunga Plains Confined Aquifer and public water supply bores are based on this review:

- As the location of the discharge is outside of the 1-year SWRMA of the Brookvale Road water bore, the risk of contamination is expected to be low.
- There is also expected to be a low risk of contamination to the Hastings Urban supply bores, given the nature of the discharge and that they are located some distance upgradient of the discharge

location. They also draw water from below the low permeability confining strata layers of the Heretaunga Plains Confined Aquifer, further reducing the risk of contamination.

- Considering expected background contaminant concentrations in the stream and in the stormwater, the risk of contaminating other bores in the Heretaunga Plains Confined Aquifer from any losses from the stream to groundwater below the point of discharge is expected to be low.
- The spill risk during the construction phase must be adequately managed in accordance with the SMP for the site. This should be reviewed to help ensure that the risk of hydrocarbon contamination is managed appropriately.
- Based on the review, the proposed permanent stormwater treatment design, and temporary construction sediment control methodology, is considered appropriate with respect to risks to public supply bores and other bores in the Heretaunga Plains Confined Aquifer.

6.0 References

CMW (2025). Arataki Residential Project Geotechnical Investigation Report. *Prepared for CDL Land New Zealand Ltd.*

HBRC (2018). Heretaunga Aquifer Groundwater Model. *HBRC Report Number RM18-14.*

7.0 Limitations

This memorandum has been prepared by Pattle Delamore Partners Limited (PDP) on the basis of information provided by Hawke's Bay Regional Council and others (not directly contracted by PDP for the work). PDP has not independently verified the provided information and has relied upon it being accurate and sufficient for use by PDP in preparing the memorandum. PDP accepts no responsibility for errors or omissions in, or the currency or sufficiency of, the provided information.

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