

Carlaw Park
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Subject	Further information requested under Section 92 of the RMA 1991 - traffic matters	Project Name	Hobsonville Primary School and Early Childhood Education Centre Designation
Attention	Jo Hart, Senior Policy Planner (Auckland Council)		
Project No.	IA262100		
From	Kerry King (Jacobs NZ Limited), Achini Liyanagama (Jacobs NZ Limited)		
Date	15 February 2022		
Copies to	Steph Taylor (Incite NZ Limited), Chris Horne (Incite NZ Limited), Brontë Pierson (Ministry of Education), James Puketapu (Ministry of Education)		

1. Introduction

Jacobs NZ Limited ('Jacobs') prepared an Integrated Transportation Assessment (ITA)¹ to support the designation of a site located at 2 Waka Moana Drive, Hobsonville Point, for a new primary school and early childhood education (ECE) facilities.

A request for further information under section 92 of the Resource Management Act (RMA) 1991 was received from Auckland Council and Traffic Planning Consultants Limited in January 2022 following a preliminary review of the notice of requirement documents (attached in Appendix A).

This memorandum has been prepared to address the transport matters raised to enable Auckland Council to fully assess the notice of requirement and provide a recommendation. Further engagement with Auckland Council or Auckland Transport has not been undertaken as part of responding to these further information requests.

¹ Jacobs NZ Limited (November 2021) *Hobsonville Primary School and Early Childhood Centre Designation - Integrated Transportation Assessment*

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2. Traffic and transport matters

The four section 92 requests relating to traffic and transport are outlined in the following subsections, followed by a response.

2.1 Dwelling densities and consequent traffic generation rates

#	Category	Specific request	Reasons for request
T1	Dwelling densities and consequent traffic generation rates	<p>The ITA report considers two alternative traffic modelling scenarios, one based on Panuku's trip generation rate of 3.9 trips per day per household, and a second 'sensitivity test' at the request of Auckland Transport, based on a higher trip rate, of 6.5 trips per day per household. However, the ITA does not confirm what residential densities these trip rates would be expected to equate to (in terms of numbers of dwellings per hectare) and hence does not confirm whether these trip rates are comparable with:</p> <ul style="list-style-type: none"> ▪ Recently developed residential areas in the immediate vicinity of the site ▪ Dwelling densities envisaged in the Hobsonville Point Precinct Plan, in Table I 605.6.1.1. <p>Request for information:</p> <p>Confirmation of residential dwelling densities, of both existing nearby residential areas and of expected future residential development underpinning future forecast trip generation rates. In the event that there are notable discrepancies between forecast and existing residential densities, and/or inconsistencies with densities envisaged in the Precinct Plan, alternative trip generation and traffic modelling scenarios should be considered, that are representative of future residential development activities in the area.</p>	<p>This information is required to confirm that the intersection capacity assessments are underpinned by appropriate future development scenarios that are commensurate with dwelling densities envisaged in the Hobsonville Point Precinct Plan.</p>

Response:

The ITA considered two trip rates for estimating vehicular traffic generated by the school and ECE, including:

- 3.9 trips per day per household based on medium to high-density residential land uses (sourced from Waka Kotahi's *Research Report 453: Trips and Parking Related to Land Use*²)

² Waka Kotahi NZ Transport Agency (2011) *Research Report 453: Trips and Parking Related to Land Use* (site accessed on 02 February 2022 at <https://www.nzta.govt.nz/assets/resources/research/reports/453/docs/453.pdf>)

- 6.5 trips per day per household as sensitivity test, based on medium-density residential land uses typical of three or more-bedroom townhouses and larger units (sourced from the New South Wales Roads and Traffic Authority (RTA) *2002 Guide to Traffic Generating Developments*³).

These trip rates were applied to the numbers of dwellings within the area of interest to estimate background traffic volumes for intersection modelling purposes.

It is noted that much of the school and ECE catchment area within Hobsonville Point is currently under construction and master-planning of the catchment area has progressed further than publicly available information. The most recent numbers of proposed dwellings, typology and number of bedrooms per dwelling were provided by Kāinga Ora and Panuku Development Auckland for each Hobsonville Point super lot area as shown in Figure 2-1. As the area is currently being developed, it was considered more appropriate to estimate traffic generation based on the most recent actual numbers and types of dwellings proposed by Kāinga Ora and Panuku Development for each precinct, as opposed to adopting the numbers of dwellings or dwelling densities which are allowed by the *1605 Hobsonville Point Precinct Plan*⁴. However, it is noted that the actual number of dwellings delivered may be subject to change as development progresses.

³ New South Wales Roads and Traffic Authority (2002) Guide to Traffic Generating Developments Version 2.2 (site accessed on 02 February 2022 at <https://roads-waterways.transport.nsw.gov.au/business-industry/partners-suppliers/documents/guides-manuals/guide-to-generating-traffic-developments.pdf>)

⁴ Auckland Council (2016) *Auckland Unitary Plan Operative in Part - 1605 Hobsonville Point Precinct Plan* (site accessed on 02 February 2022 at <https://unitaryplan.aucklandcouncil.govt.nz/Images/Auckland%20Unitary%20Plan%20Operative/Chapter%201%20Precincts/6.%20West/1605%20Hobsonville%20Point%20Precinct.pdf>)

Further information requested under Section 92 of the RMA 1991 - traffic matters



Figure 2-1 Masterplan precincts within the Hobsonville Point area⁵

A desktop assessment was undertaken to determine whether the underlying assumptions used to estimate traffic generation (i.e., the number of dwellings proposed by Panuku and Kāinga Ora and the traffic therefore generated by these same dwellings), are consistent with the numbers of dwellings and dwelling densities allowed for by the *1605 Hobsonville Point Precinct Plan*. Land which is zoned for public roads, open space or non-residential activities was excluded to calculate the dwelling densities for Sub-Precincts D and E.

Based on the desktop assessment summarised in Table 2-1, all Hobsonville Point Sub-precincts except for Sub-precinct B, are consistent with the allowed minimum and maximum number of dwellings and dwelling densities. A considerable portion of Sub-precinct B zoned for 'Residential - Mixed Housing Urban Zone' has been designated for 'Educational purposes' to develop the Hobsonville Point Primary School and Hobsonville Point Secondary School. This is understood to contribute to the inconsistencies between the number of proposed dwellings for Sub-precinct B and the minimum/maximum allowed number of dwellings as per the Hobsonville Point Precinct Plan.

Based on this assessment, it is considered that the traffic generation and modelling scenarios are representative of the future planned residential development activities in the area and that alternative trip generation/modelling scenarios are not considered necessary in this circumstance.

⁵ Hobsonville Point (2022) *Hobsonville Point precincts - masterplan* (site accessed on 01 February 2022 at <https://hobsonvillepoint.co.nz/about/precincts/>)

Table 2-1 Comparison of dwelling minimums/maximums and densities with the proposed number of dwellings

Sub-precinct	Table I605.6.1.1 dwellings/density		Proposed number of dwellings as per Masterplan (Panuku and Kāinga Ora)	Comments
	Minimum	Maximum		
Sub-precinct A	274	N/A	Approximately 481 dwellings (includes Te Uru Stages 1-4 precincts)	Aligns with the minimum and maximum number of dwellings
Sub-precinct B	1,080	1,200	Approximately 430 dwellings (includes the Buckley A and Buckley B precincts)	Does not align with the minimum and maximum number of dwellings
Sub-precinct C	592	1,175	Approximately 975 dwellings (includes the Harrier Point, Hudson, Launch Bay, Retirement Village and Sunderland Block 3 precincts)	Aligns with the minimum and maximum number of dwellings
Sub-precinct D (Residential - Mixed Housing Urban zone)	40 dwellings per hectare net ⁶	150 dwellings per hectare net ⁷	Approximately 890 dwellings (includes the Panuku Airfields precinct)	Aligns with the minimum and maximum dwelling density per hectare (net) - approximately 66 dwellings/ha
Sub-precinct E	40 dwellings per hectare net ⁸	150 dwellings per hectare net ⁹	Approximately 836 dwellings (includes the Catalina, Block 14A and Block 14B precincts)	Aligns with the minimum and maximum dwelling density per hectare (net) - approximately 63 dwellings/ha

⁶ Area excluding land used for public roads, public open space or any other land used for a non-residential activity.

⁷ Area excluding land used for public roads, public open space or any other land used for a non-residential activity.

⁸ Area excluding land used for public roads, public open space or any other land used for a non-residential activity.

⁹ Area excluding land used for public roads, public open space or any other land used for a non-residential activity.

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2.2 Scope of intersection modelling assessments - pick-up/drop-off area

#	Category	Specific request	Reasons for request
T2	Scope of Intersection Modelling Assessments – pick-up/drop-off area (PUDO)	<p>While the ITA's assessment covers SIDRA intersection modelling of the three closest intersections on the existing public road network, it does not include any operational assessment of the proposed PUDO, which will be accessed via a new one-way loop between Wallace Road and Hobsonville Point Road.</p> <p><u>Request for information:</u></p> <p>We would recommend requesting an operational and safety assessment of the PUDO, based on expected levels of vehicular usage during school peak periods.</p> <p>While SIDRA may not necessarily be the most appropriate tool for such an assessment, the assessment should consider operational and safety effects of high parking turnovers during peak times and the likelihood and extent of queueing through the PUDO and onto Wallace Road and other parts of the adjoining public road network.</p>	<p>This information is required to confirm that the PUDO will operate safely without adverse operational or safety effects upon adjoining sections of the public road network.</p>

Response:

The PUDO facility is currently shown in the bulk and location/concept design drawings in the ITA as a one-way system with two proposed vehicle crossings including an entry from Wallace Road and an exit onto Hobsonville Point Road. The design of the school, ECE and associated facilities (including the PUDO area), will be further developed during the Outline Plan of Works (OPW) stage and are subject to change.

It is recommended that an operational and safety assessment is undertaken during the OPW stage once the design of the PUDO area and access arrangements have been confirmed.

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2.3 Scope of intersection modelling assessments – wider network

#	Category	Specific request	Reasons for request
T3	Scope of Intersection Modelling Assessments – wider network	<p>The ITA does not consider the traffic impacts of proposed new school and ECE upon the adjoining road network beyond the immediate vicinity of the subject site, while it estimates that the catchment area for the school is expected to extend as far as within 1.5 km of the site.</p> <p><u>Request for information:</u></p> <p>A further assessment of the impacts of traffic generated by the school within the wider catchment area. This should include:</p> <ul style="list-style-type: none"> ▪ Confirmation of additional traffic generated at the intersections of Hobsonville Point Road / De Havilland Road and Hobsonville Point Squadron Road, as the next closest points on the adjoining road network to be affected traffic generated by the proposal. ▪ Undertaking capacity assessments at these intersections, in the event that the proposal is demonstrated to result in significant increases or changes to traffic levels at these locations. 	<p>One of the identified functions of the proposed new school and ECE is to relieve pressure on the existing Hobsonville Point Primary School, located around 0.5 km from the subject site and within the estimated 1.5 km catchment area for the proposed new school and ECE. It is thus expected that the proposal could influence significant changes in travel patterns at the intersections identified above.</p>

Response:

Traffic modelling has been undertaken for the three intersections surrounding the school/ECE site (including the Hobsonville Point Road/Waka Moana Drive intersection, Waka Moana Drive/Wallace Road intersection and the Wallace Road/Hudson Bay Road intersection), as all vehicle trips will access the site via at least one of these intersections from the wider road network. The wider local road network provides a large number of route options for those who drive to the school/ECE site and there are many options to redistribute vehicle traffic depending on conditions. The distribution of vehicle trips generated by the school and ECE has assumed that trips originate from within the school zone catchment area and this assumption has been incorporated into the traffic modelling undertaken as part of the ITA.

As shown in Figure 2-2, the Hobsonville Point Road/De Havilland Road intersection is located near the boundary of the catchment area. It is considered likely that traffic within the catchment area would already be passing through this intersection to access the existing school/s and additional trips generated by nearby residential areas within the catchment at this intersection are likely to be very low. The Hobsonville Point Road/Squadron Drive intersection is located outside of the catchment zone area and as a result, no additional traffic has been assumed to be generated at this intersection. It is considered that significant increases to traffic volumes at these intersections resulting from the school/ECE development are unlikely

Further information requested under Section 92 of the RMA 1991 - traffic matters

due to their location relative to the catchment area and that further modelling of these intersections is not required.

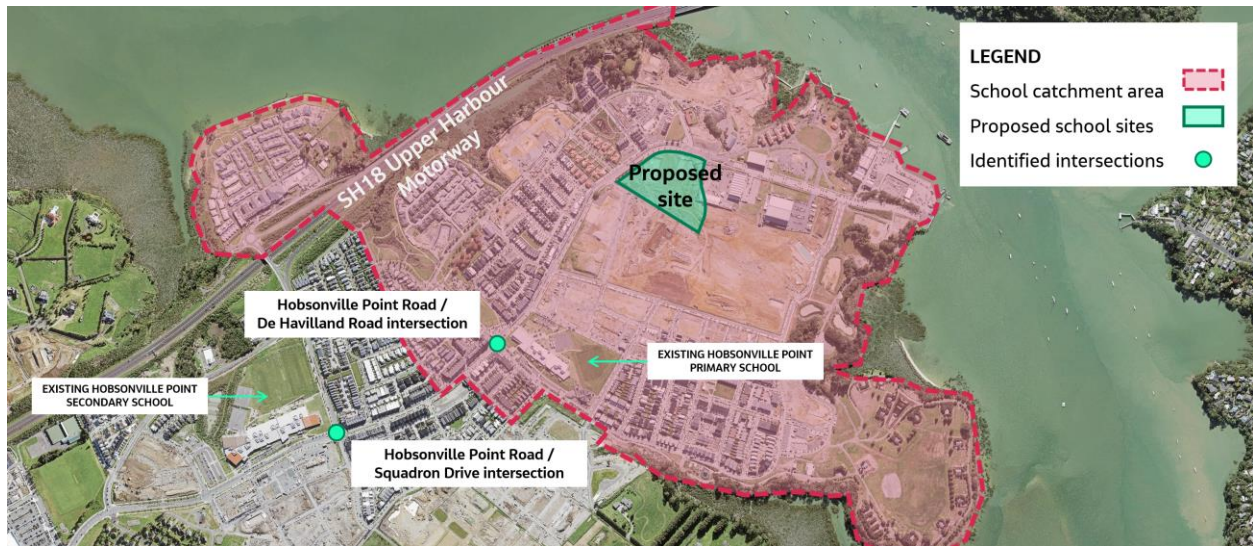


Figure 2-2 Hobsonville Point Road/De Havilland Road and Hobsonville Point Road/Squadron Drive intersections relative to the proposed school catchment zone

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2.4 Scope and staging of transport mitigation measures

#	Category	Specific request	Reasons for request
T4	Scope and Staging of Transport Mitigation Measures	<p>Section 1.1 of the ITA refers to an opening school roll of 350 students, increasing to an ultimate masterplan roll of 1000 students. However, no further information appears to be provided in relation to any intermediate phasings for the school's eventual growth to its full masterplan roll.</p> <p>Section 5.8 discusses recommended transport mitigation measures, including pedestrian crossings, variable speed limits and Travel Demand Management measures. However, the ITA does not confirm the expected timing for implementation of transport mitigation measures and how these would relate to the growth in school roll. It is additionally noted that the ITA does not identify potential mitigation measures for the three intersections for which capacity assessments were undertaken, in the event that the higher forecast levels of local residential trip generation eventuate.</p> <p><u>Request for information:</u></p> <ul style="list-style-type: none"> Confirmation of expected phasings for growth of the school roll and trigger points for the implementation of transport mitigation measures. Consideration of potential mitigation measures for the intersections of Hobsonville Point Road/ Waka Moana Drive, Wallace Road/ Hudson Bay Road and Waka Moana Drive/Wallace Road, to mitigate against a Level of Service 'F' in the event that this eventuates. 	To confirm that the transportation effects of the proposal can be appropriately mitigated in a timely manner, in line with the growth in the school roll, and in turn, in line with residential growth within the wider area.

Response:

The development of transport mitigation measures has been based on a school roll of 1,000 students and 50 children attending the ECE as this represents the full future masterplan scenario. However, it is strongly recommended that all transport mitigation measures are in place prior to the opening of the school and ECE to support safe access to and from the site. It is not recommended or anticipated that these measures will need to be staged with growth of the school role.

The network of local roads within Hobsonville Point has been designed with narrower carriageways which typically intersect at right-angles and tight corner radii to reduce vehicle speeds, improve safety for active modes and maximise walkability. These roads and streets provide a local access function and all intersections between local roads are priority-controlled. Hobsonville Point Road is classified as a Collector Road which provides a primary distributor/collector function and links residential areas to key community services and economic areas. Intersections between Hobsonville Point Road and roads which serve a secondary collector function (such as Squadron Drive and De Havilland Road), are typically signalised due to the greater volumes of conflicting vehicle movements at these intersections.

The use of a higher trip rate (6.5 trips per day per household) was undertaken as a sensitivity test as this rate is considered to represent a very conservative traffic modelling scenario. It is only when this higher trip rate is applied that modelling estimates that intersections are operating at a Level of Service F. It is

noted that the traffic modelling is already considered a conservative scenario as it assumes that 30% of total daily traffic volumes allocated to the AM and PM peak periods, and school-related trips have been modelled in addition to the wider network peak traffic volumes. In reality, the network peak periods are likely to occur outside of school peak times.

Potential measures for mitigating significant increases to queue lengths, delay and degree of intersection saturation could include signalising intersections adjacent to the school site or widening the recently constructed road carriageways to provide separate turning lanes/bays on the approaches to intersections. However, this is not considered appropriate within the Hobsonville Point context and does not align with the overarching principles which have been adopted to develop the local road network. Although these measures may improve the level of service of the intersection from a traffic operations perspective, they are considered to have an associated negative impact on active modes and are not recommended at this stage.

3. Summary

We trust that this memorandum answers Auckland Council's further information requests regarding this notice of requirement application. Please do not hesitate to contact us, should you have any further queries.

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Appendix A. Further information requested under Section 92 of the RMA 1991

28 January 2022

Ministry of Education
c/- Incite Auckland
PO Box 3082
Auckland 1140

Attention: Steph Taylor
By email: steph@incite.co.nz

Dear Ms. Taylor

Request for further information in accordance with section 92 of the Resource Management Act 1991

Notice of requirement: Ministry of Education – Hobsonville Point Primary #2 (2 Waka Moana Drive, Hobsonville).

I am writing with respect to the notice of requirement described above.

After completing a preliminary assessment of the notice of requirement documents, it is considered that further information is required to enable an adequate analysis of the proposal, its effects on the environment and the way in which any adverse effects on the environment may be mitigated.

Under section 92 of the Resource Management Act 1991, I request further information as set out in Attachment 1 to this letter. The information requested will enable the council to undertake a full and proper assessment of the notice of requirement and provide a recommendation on it.

The table in Attachment 1 of this letter sets out the nature of the further information required and reasons for its request. In addition, Attachment 1 includes general comments that are for information only.

You must provide this information within 15 working days (before 21 February 2022). If you are unable to provide the information within 15 working days, then please contact me so that an alternative timeframe can be mutually agreed.

If you do not respond within 15 working days, refuse to provide the information or do not meet an agreed alternative timeframe between the council and yourself, this application must be publicly notified as required by section 95C of the Resource Management Act 1991.

In accordance with the Resource Management Act 1991, processing of your notice of requirement will remain on hold until the indicated date, pending your response to this request. Please note that the processing clock will stop as this is the first request for additional information.

If you have any queries regarding the above, please contact Jo Hart on Ph 021 948 783.

Yours sincerely,

A handwritten signature in blue ink, consisting of a large, loopy initial 'J' followed by a series of connected, fluid strokes that form the name 'Hart'.

Jo Hart
Senior Policy Planner
Planning Regional, North, West and Islands
PLANS AND PLACES

Attachment 1:

Further information requested under Section 92 of the Resource Management Act 1991

Contents

Watercare Services Limited 1

Traffic matters – Traffic Planning Consultants Limited 2

General comments - Contaminated land – Ruben Naidoo, Contamination, Air and Noise, Auckland Council 6

General comments - Stormwater and flooding matters – Healthy Waters 6

#	Category of information	Specific Request	Reasons for request
Watercare Services Limited			
WSL1	Water/wastewater	Please confirm there is sufficient water and wastewater capacity to enable the development.	<i>Discussions with Watercare Services Limited (WSL) indicated there was a concern in sufficient capacity to provide for the increase from 350 students to 1000 students. If there isn't sufficient capacity then mitigation should be identified and suitable conditions drafted. This should involve engagement with WSL.</i>
WSL2	Water/wastewater	Sections 5.2 and 5.3 of Appendix G included commentary on water and wastewater assets that are visible on Geomaps. Please confirm whether there are any Watercare assets on the site, that may not be visible in Geomaps.	<i>To gain a full understanding of the water and wastewater assets. This should involve engagement with WSL.</i>

#	Category of information	Specific Request	Reasons for request
Traffic matters – Traffic Planning Consultants Limited Review of Integrated Traffic Assessment (Jacobs)			
T1	Dwelling densities and consequent traffic generation rates	<p><u>Gap in the information submitted:</u></p> <p>The ITA report considers two alternative traffic modelling scenarios, one based on Panuku’s trip generation rate of 3.9 trips per day per household, and a second ‘sensitivity test’ at the request of Auckland Transport, based on a higher trip rate, of 6.5 trips per day per household.</p> <p>However, the ITA does not confirm what residential densities these trip rates would be expected to equate to (in terms of numbers of dwellings per hectare) and hence does not confirm whether these trip rates are comparable with:</p> <ul style="list-style-type: none"> a) Recently developed residential areas in the immediate vicinity of the site b) Dwelling densities envisaged in the Hobsonville Point Precinct Plan, in Table I 605.6.1.1. <p><u>Request for information:</u></p>	<p><i>This information is required to confirm that the intersection capacity assessments are underpinned by appropriate future development scenarios that are commensurate with dwelling densities envisaged in the Hobsonville Point Precinct Plan.</i></p>

#	Category of information	Specific Request	Reasons for request
		<p>Confirmation of residential dwelling densities, of both existing nearby residential areas and of expected future residential development underpinning future forecast trip generation rates.</p> <p>In the event that there are notable discrepancies between forecast and existing residential densities, and/or inconsistencies with densities envisaged in the Precinct Plan, alternative trip generation and traffic modelling scenarios should be considered, that are representative of future residential development activities in the area.</p>	
T2	Scope of Intersection Modelling Assessments – wider network	<p><u>Gap in the information submitted:</u></p> <p>The ITA does not consider the traffic impacts of proposed new school and ECE upon the adjoining road network beyond the immediate vicinity of the subject site, while it estimates that the catchment area for the school is expected to extend as far as within 1.5 km of the site.</p> <p><u>Request for information:</u></p>	<p><i>One of the identified functions of the proposed new school and ECE is to relieve pressure on the existing Hobsonville Point Primary School, located around 0.5 km from the subject site and within the estimated 1.5 km catchment area for the proposed new school and ECE. It is thus expected that the proposal could influence significant changes in travel patterns at the intersections identified above.</i></p>

#	Category of information	Specific Request	Reasons for request
		<p>A further assessment of the impacts of traffic generated by the school within the wider catchment area. This should include:</p> <ul style="list-style-type: none"> • Confirmation of additional traffic generated at the intersections of Hobsonville Point Road / De Havilland Road and Hobsonville Point Squadron Road, as the next closest points on the adjoining road network to be affected traffic generated by the proposal. • Undertaking capacity assessments at these intersections, in the event that the proposal is demonstrated to result in significant increases or changes to traffic levels at these locations. 	
T3	Scope and Staging of Transport Mitigation Measures	<p><u>Gap in the information submitted:</u></p> <p>Section 1.1 of the ITA refers to an opening school roll of 350 students, increasing to an ultimate masterplan roll of 1000 students. However, no further information appears to be provided in relation to any intermediate phasings for the school's eventual growth to its full masterplan roll.</p>	<p><i>To confirm that the transportation effects of the proposal can be appropriately mitigated in a timely manner, in line with the growth in the school roll, and in turn, in line with residential growth within the wider area.</i></p>

#	Category of information	Specific Request	Reasons for request
		<p>Section 5.8 discusses recommended transport mitigation measures, including pedestrian crossings, variable speed limits and Travel Demand Management measures. However, the ITA does not confirm the expected timing for implementation of transport mitigation measures and how these would relate to the growth in school roll.</p> <p>It is additionally noted that the ITA does not identify potential mitigation measures for the three intersections for which capacity assessments were undertaken, in the event that the higher forecast levels of local residential trip generation eventuate.</p> <p><u>Request for information:</u></p> <p>Confirmation of expected phasings for growth of the school roll and trigger points for the implementation of transport mitigation measures.</p> <p>Consideration of potential mitigation measures for the intersections of Hobsonville Point Road/ Waka Moana Drive, Wallace Road/ Hudson Bay Road and Waka Moana Drive/Wallace Road, to</p>	

#	Category of information	Specific Request	Reasons for request
		mitigate against a Level of Service 'F' in the event that this eventuates.	
General comments - Contaminated land – Ruben Naidoo, Contamination, Air and Noise, Auckland Council			
CL1	General comments only (not section 92 matters)	<p><i>Soil contamination testing found that contaminants are below background except in the northern part of the site where former sediment ponds and associated activities occurred. Low levels of PAH were detected in fill up to 1.9 m deep where settlement ponds had been filled and the site relevelled; however, no exceedances of NESCS or AUP criteria were reported.</i></p> <p><i>The applicant assessed the proposal as a CA in terms of the NES and considers that the AUP E30 does not apply.</i></p> <p><i>A site management plan (SMP) for managing potential contamination is required in support of the consent application.</i></p>	
General comments - Stormwater and flooding matters – Healthy Waters			
HW1	General comments only (not section 92 matters)	<ul style="list-style-type: none"> <i>All the relevant information has been provided considering the development stage of the NoR. The statement in the AEE that the details of stormwater management can be worked through the design process is supported.</i> <i>The floodplains presented on GeoMaps are dated and do not always reflect the development that has occurred since the catchment model was built.</i> <i>Overland flowpaths will be based on the 2016 LiDAR topography and will not reflect any development that has occurred since 2016. It is recommended that through the design process that a more detailed investigation be undertaken to determine the alignments of flowpaths and magnitudes through the site.</i> <i>The wetland that the MoE site is proposed to connect into is a Healthy Waters asset and should have been sized to provide the necessary stormwater management for the natural catchment draining to it. This includes at least part of this site. This will need to be confirmed through the design process where diversion of runoff from the North Harbour catchment may occur to the Whenuapai catchment.</i> 	

#	Category of information	Specific Request	Reasons for request
		<ul style="list-style-type: none"> • <i>Agreed with the submitted documents that the 750DN pipe is relatively large and should have capacity to drain this site particularly considering the relatively low proposed imperviousness. This should be confirmed through a detailed investigation during the design stage. Public drainage construction in this area often outpaces what is shown on GeoMaps which can result in incorrect connectivity issues and even incorrect pipes. Site investigation to confirm connection recommended early on in the design process.</i> • <i>Note: Relevant AUP rules relating HCGAs will be applicable. If there are any HCGA activities on site these will require GD01 treatment prior to discharging to the public network.</i> • <i>Note: Calculations provided in Appendix G appear to use NIWA's HiRDS data to estimate discharges from the site. It is noted that these rainfall figures appear to not include climate change. Design calculations should use 24-hour rainfall obtained from the TP108 hyetographs and be increased to reflect climate change.</i> 	