

4th October 2023

Jimmy Zhang
Central/ South Planning Unit,
Plans and Places
Auckland Council

Dear Jimmy,

Southwest WWTP Notice of Requirement – Designate 372 Glenbrook Beach Road, Glenbrook - Section 92 Response

In response to your letter dated 15 September 2023, please find enclosed Watercare Services Ltd's (WSL) written response to the request for further information under s92 of the Resource Management Act 1991, in relation to the Southwest Wastewater Treatment Plant Notice of Requirement Application.

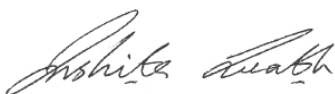
The following information is provided as part of WSL's response:

- Appendix 1: S92 request for further information response
- Appendix 2: Southwest WWTP NoR Proposed Consent Conditions

Additionally, WSL would welcome the opportunity to discuss the matters contained within the response, and the Proposed Conditions, with the relevant technical advisors', at the Council's earliest convenience.

Should you have any further queries, please do not hesitate to contact me.

Yours Sincerely,






Anshita Jerath
Senior Resource Consent Planner
Watercare Services Limited

Appendix 1: Section 92 request for further information response

#	Category of information	Specific request	Reason for request	Watercare Response
1	Planning – Conditions	Please clarify how the various mitigation measures proposed to address the specific effects associated with the WWTP can be secured as part of the designation process if no conditions are proposed?	<p>The application has referenced designation conditions at several sections of the AEE and in the acoustics assessment. As well, several mitigation measures have been mentioned which directly address the potential effects of the WWTP. Some examples include:</p> <ul style="list-style-type: none"> • <i>'The site will be planted with screen planting in accordance with the Landscape Planting Plan'</i> • <i>'comprehensive mitigation planting is proposed on the site... by including native species'</i> • <i>'avifauna management plan...'</i> • <i>'it is proposed that a Construction Management Plan will be developed in consultation with Auckland Transport to ensure that the effects are managed'</i> • <i>'..concrete pour activities outside normal construction hours (7:30am to 6:00pm Monday to Saturday) will be managed via a Construction Noise Management Plan with associated communication requirements ...'</i> • <i>'..indirect impacts are expected to be managed through the implementation of erosion and sediment controls required to be in place under the conditions of this designation ...'</i> • <i>'the erosion and sediment controls recommended to be in place under the designation...'</i> • <i>'as a result of the range of mitigation measures proposed in the specialist technical assessments submitted in support of the notice of requirement (NoR), construction effects will be appropriately managed..'</i> • <i>'buildings will be less than 15m tall'</i> • <i>'in terms of operational noise, it is proposed to set (through a designation condition) a noise limit that is lower'</i> <p>The acoustics report has also proposed a set of designation conditions in section 9 relating to operational noise and construction noise.</p> <p>No conditions have been attached to the proposed designation. The conditions of a designation provide a clear framework for preparing and considering an outline plan of works, including how adverse effects of the proposal will be mitigated. The current approach provides little guidance on how effects are to be managed going into the outline plan of works process.</p>	Draft Conditions for Southwest Wastewater Treatment Plant Notice of Requirement are provided with the s92 response.

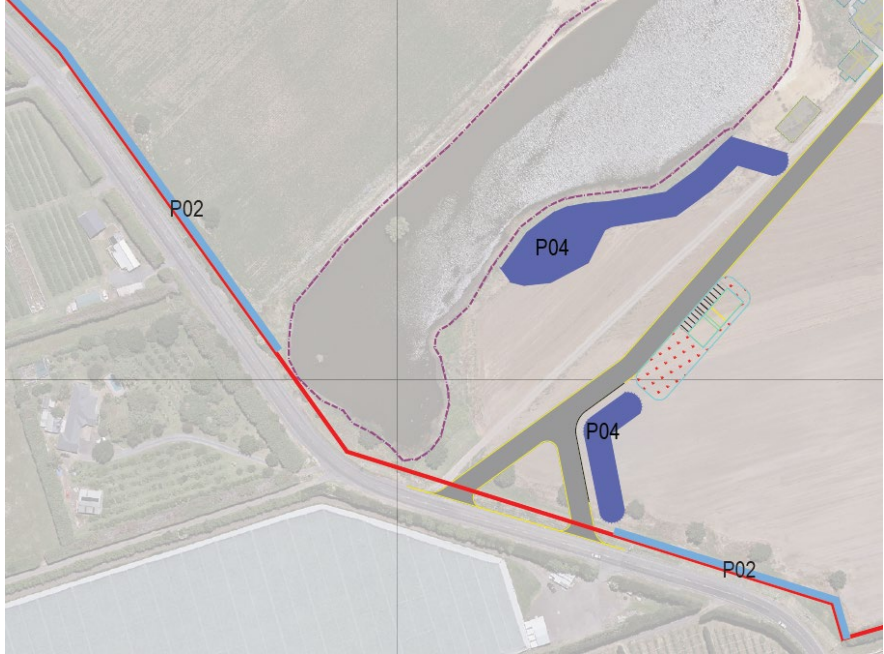
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2	Planning – background to the 200m buffer	<p>Please confirm how the 200m ‘buffer’ distance was determined? (i.e. was it a recommendation from an expert to ensure sufficient space to disperse odours)</p> <p>Please confirm if a 200m buffer is a common approach for mitigating any adverse effects of odour when Watercare considers the layout of a new WWTP?</p>	The 200m buffer (between the site boundary and the main parts of the plant containing odour generating processes) is frequently mentioned in the AEE. It is understood that the buffer is able to contain unexpected or accidental odour emissions within the site. It would be helpful to understand how/where this metric was derived.	<p>The proposed buffer distance of 200 metres for the Wastewater Treatment Plant (WWTP) was designed to minimize the risk of adverse odour being experienced outside the site boundary, particularly during upset conditions. The buffer distance was based on the odour performance observed at other WWTPs as well as the separation distances implemented at those sites. Additionally, the sensitivity of the surrounding land use was taken into consideration when establishing this buffer. The land surrounding the site is primarily used for agriculture, which has a lower sensitivity to odour effects. Therefore, the risk of adverse odour effects is relatively low.</p> <p>In response to the second question, odour buffers are a common approach to mitigating potential adverse effects from a new WWTP, and one which Watercare considers in the early stages of planning for a new WWTP. When considering the extent of an odour buffer Watercare looks at various factors including published literature/standards and its own experience with odour buffers around existing WWTPs, as noted in the previous paragraph.</p> <p>Published separation distances for mitigating odour effects are all based on the separation distance between WWTPs and sensitive receptors. These distances are applied in locations where people have a higher probability of exposure and expect a higher level of air quality, rather than at the fence line. As discussed in the Assessment of Environmental Effects (AEE), the minimum separation distance between the WWTP facilities and the nearest existing dwelling will be at least 300 metres. In practice, this separation distance will exceed 300 metres. These minimum separation distances between treatment processes and the nearest existing dwellings exceed those at other WWTPs in Auckland such as Snells-Algies and Pukekohe (where the closest rural dwellings are 260m and 270m respectively). Further, these separation distances align with recommendations from the Victorian Environment Protection Authority (Vic EPA). As discussed in the AEE the Vic EPA separation distance are considered to be conservative.</p>
3	Planning – future expansion	Please provide information about any likely future scenarios or operational reasons that may require Watercare to expand beyond the anticipated 6ha primary plant footprint.	The AEE notes that designating the site allows for the establishment of a WWTP that may expand over time. It is understood that this relates to the ‘three stages’ of development that will likely be established with a 6ha footprint. It would be helpful to understand if there are any likely scenarios that may lead Watercare to consider expanding the plant beyond the anticipated 6ha footprint.	<p>Watercare’s current plans are explained in the Indicative Design and Operational Report submitted with the Notice of Requirement. The 6ha referred to is the amount of new impervious area expected to be on the site in terms of stormwater discharge. This is based on the full build out shown in the site layout referred to in Indicative Design and Operational Report.</p> <p>There are currently no scenarios that involve expanding the operational plant outside the 6ha footprint, but it is noted that stormwater detention and treatment ponds and access arrangements around the site may be additional to the 6ha.</p>
4	Planning – mana whenua engagement	Please confirm if mana whenua have provided any recommendations relating to the matters (as summarised in the AEE) raised following consultation?	Consultation with mana whenua has been covered in the AEE and appendix D. The key matters of concern to mana whenua have been summarised. It is unclear however if mana whenua have made any recommendations or have expressed any expectations (i.e. around native plantings) for this stage of the development process.	<p>During the Options Assessment phase, Mana Whenua raised the following matters:</p> <ul style="list-style-type: none"> • Sufficient setback is required from sensitive coastal headlands; • Avoid draining the wetlands on site; • Archaeologist to carry out on site assessment; and • Plant native trees. <p>As shown in the Indicative Design and Operational Report these matters are able to be incorporated in the design as all structures will be set back from the coastal</p>

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				<p>boundary and the wetlands to ensure sufficient separation is maintained. The Project Archaeologist completed a site walkover with Mana Whenua and there are no archaeological sites recorded at this site. As noted in the Landscaping Plan prepared by Boffa Miskell, native planting is proposed around the site.</p>
5	Landscape and visual amenity	<p>Has or can Watercare and / or its consultants considered architectural treatment (as mitigation) for the plant that would reduce its industrial profile and character, and lend it a more 'rural' appearance?</p>	<p>The Pukekohe plant on Parker Lane has a profile and visual signature that is markedly utilitarian and industrial in appearance – as shown in the photo below. However, it is located in a quite remote, visually recessive, location. By contrast, the proposed WWTP would be much more prominent near Glenbrook Beach Road, with vehicle movements to and from the settlements of Glenbrook Beach and Kahawai Point passing the proposed plant on a regular basis, while local residents living on 4-6 nearby properties would be more directly exposed to the plant. In order to ameliorate and mitigate the effects associated with such exposure, it would appear appropriate to employ measures designed to integrate the WWTP into its landscape setting, including the use of architectural forms, detailing and colouring that is sympathetic to its rural location. These concerns form the basis for this request.</p> 	<p>As Boffa Miskell has discussed in the assessment provided with the NoR, the views from Glenbrook Beach Road will not be an issue in the medium to long term due to the site being screened from view road users by the karo hedge proposed along the western site boundary. Visual impacts on the closest 4-6 residential properties have been taken into account in the AEE (see Appendix 9 - Landscape, Visual and Natural Character Effects Assessment). See in particular the Mitigation Planting Strategy within Appendix 5 of that report, as well as section 8 of the report which discusses how planting proposed under the Mitigation Planting Strategy will break up the scale and bulk of the structures, and where possible screen the project from adjacent properties.</p> <p>The articulation suggested of the proposed structures and buildings to integrate the WWTP into its landscape setting is unlikely to be possible. However, the use of more recessive colours and finishes within the Watercare colour palette and beyond if necessary will be explored. The intention will be to give buildings and structures a similar appearance to other large rural buildings in the wider landscape (see agricultural buildings at 91 Brookside Road below).</p> 

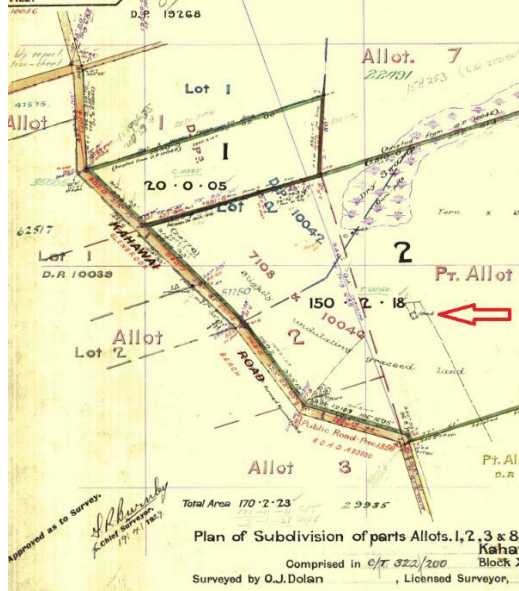

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6	Stormwater/ Flooding	Please complete an assessment of natural hazard and climate change objectives and policies in AUP Chapter B10 Environmental Risk, including coastal hazards.	To better understand the effects of natural hazards on the site.	Refer to the objectives and policies table below.
7	Transport– access design	<p>Provide drawings of the layout of the proposed site access arrangements at the locations for Option 1 and for Option 2 that show:</p> <p>For Option1, the effects on the alignment of Glenbrook Beach Road north of the site access location.</p> <p>For Option 2, the effects of the access arrangements on the existing vehicle accesses to properties on the southwestern side of Glenbrook Beach Road.</p>	<p>The Transportation Report states in Section 6.2 that the proposed site access at the location in Option 2 would likely require the redesign of the vehicle crossings on the southwestern side of Glenbrook Beach Road. No drawings have been provided to show the design of the site access and what the changes would be to the existing vehicle crossings affected. Therefore, the effects on these accesses are unable to be assessed.</p> <p>Furthermore, no drawings have been provided on the upgrade proposed to the site access at the location in Option 1 and how this may affect the layout of Glenbrook Beach Road.</p> <p>It is acknowledged that design detail will be prepared during the development of the Outline Plan of Works and that discussions will be held with Auckland Transport, but without drawings of the proposed site access arrangements it is difficult to confirm whether the proposals would appropriately address the traffic effects on Glenbrook Beach Road.</p>	<p>The layout for the proposed access shown in the Transport Assessment is indicative.</p> <p>The access arrangements will need to ensure that the access integrates with the other site development requirements such as landscaping to mitigate visual effects and stormwater management relating to the culverts under Glenbrook Beach Road and the pond located at the front of the site. The final form of the access to the site will be developed through the detailed design process and will not be able to be confirmed until Watercare has consulted Auckland Transport, and Auckland Transport is happy to approve the new vehicle crossing(s).</p>
8	Transport– access design	Provide an explanation as to why a right turn bay is not required if two vehicle accesses are provided. If a bay is not required, provide details of how the traffic related effects of right turning vehicles into the site on the safe and efficient operation of Glenbrook Beach Road would be addressed.	The Transportation Report in Section 6.3 states that a right turn bay would only be required if one site access is provided. The right turn bay is required to accommodate right turning vehicles into the site safely, particularly during construction. Should two vehicle accesses be provided (one ingress and one exit as discussed in the Transportation Report), it is not clear how the omission of the right turn bay would address the traffic related effects of right turning vehicles on the safe and efficient operation of Glenbrook Beach Road.	<p>The section of the statement “a right turn bay is incorporated into the access design for any access to the site that involves a single driveway” in Section 6.3 of the Transportation Assessment was an error and the sentence should have read “The vehicle crossing(s) should at a minimum accommodate two-way light vehicle movements and it is recommended that a right turn bay is incorporated into the access design for any access to the site”.</p> <p>The intended operation of the Option 3 scenario is that one driveway would be reserved for entry movements, and one would provide for exit movements. A right turn bay would be provided for the entry driveway.</p>

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9	Transport – traffic modelling	Provide updated modelling of the proposed site access arrangement that includes a right turn bay as described in the Transportation Report.	The description of the proposed site access includes a right turn bay on Glenbrook Beach Road. However, the SIDRA layout provided in the Appendix to the Transport Report does not include the right turn bay. The traffic modelling should reflect the intended layout of the intersection.	<p>The SIDRA model excluded the right turn bay in order to provide a more conservative assessment of the potential traffic effects and delays during WWTP construction phase (as right turning traffic would need to do so from the through northbound lane). To address this s92 query, however, the SIDRA model has been updated to incorporate the right turn bay. SIDRA results from the updated modelling for both situations – no right turn bay and with a right turn bay are provided in tables below. Additionally, an error in the turning volumes from the site access leg was corrected.</p> <p>Table 1: SIDRA Model Results - No Right Turn Bay</p> <table border="1"> <thead> <tr> <th rowspan="2">Intersection Leg</th> <th rowspan="2">Movement</th> <th colspan="2">Morning Peak Hour</th> <th colspan="2">Afternoon Peak Hour</th> </tr> <tr> <th>Level of Service</th> <th>Delay (seconds)</th> <th>Level of Service</th> <th>Delay (seconds)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Glenbrook Beach Road (south)</td> <td>Through</td> <td>A</td> <td>1.3</td> <td>A</td> <td>0.1</td> </tr> <tr> <td>Right</td> <td>B</td> <td>10.9</td> <td>B</td> <td>11.0</td> </tr> <tr> <td rowspan="2">Glenbrook Beach Road (north)</td> <td>Through</td> <td>A</td> <td>0.1</td> <td>A</td> <td>0.0</td> </tr> <tr> <td>Left</td> <td>A</td> <td>7.0</td> <td>A</td> <td>7.0</td> </tr> <tr> <td rowspan="2">Site Access</td> <td>Left</td> <td>B</td> <td>14.2</td> <td>B</td> <td>10.5</td> </tr> <tr> <td>Right</td> <td>C</td> <td>16.5</td> <td>C</td> <td>20.7</td> </tr> <tr> <td>Intersection</td> <td></td> <td>C (worst)</td> <td>1.1 (average)</td> <td>C (worst)</td> <td>0.6 (average)</td> </tr> </tbody> </table> <p>Table 2: SIDRA Model Results - Right Turn Bay Provided</p> <table border="1"> <thead> <tr> <th rowspan="2">Intersection Leg</th> <th rowspan="2">Movement</th> <th colspan="2">Morning Peak Hour</th> <th colspan="2">Afternoon Peak Hour</th> </tr> <tr> <th>Level of Service</th> <th>Delay (seconds)</th> <th>Level of Service</th> <th>Delay (seconds)</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Glenbrook Beach Road (south)</td> <td>Through</td> <td>A</td> <td>0.0</td> <td>A</td> <td>0.1</td> </tr> <tr> <td>Right</td> <td>B</td> <td>10.0</td> <td>A</td> <td>9.3</td> </tr> <tr> <td rowspan="2">Glenbrook Beach Road (north)</td> <td>Through</td> <td>A</td> <td>0.1</td> <td>A</td> <td>0.0</td> </tr> <tr> <td>Left</td> <td>A</td> <td>7.0</td> <td>A</td> <td>7.0</td> </tr> <tr> <td rowspan="2">Site Access</td> <td>Left</td> <td>B</td> <td>14.2</td> <td>B</td> <td>10.5</td> </tr> <tr> <td>Right</td> <td>C</td> <td>22.3</td> <td>D</td> <td>29.5</td> </tr> <tr> <td>Intersection</td> <td></td> <td>C</td> <td>0.7 (average)</td> <td>D</td> <td>0.6 (average)</td> </tr> </tbody> </table> <p>As can be seen from the model results, the introduction of the right turn bay generally reduces the delays associated with the proposed turning movements. There is a minor increase in the delays for the right turn movement from the site. However, it is considered that few vehicles will undertake this turn from the site.</p>	Intersection Leg	Movement	Morning Peak Hour		Afternoon Peak Hour		Level of Service	Delay (seconds)	Level of Service	Delay (seconds)	Glenbrook Beach Road (south)	Through	A	1.3	A	0.1	Right	B	10.9	B	11.0	Glenbrook Beach Road (north)	Through	A	0.1	A	0.0	Left	A	7.0	A	7.0	Site Access	Left	B	14.2	B	10.5	Right	C	16.5	C	20.7	Intersection		C (worst)	1.1 (average)	C (worst)	0.6 (average)	Intersection Leg	Movement	Morning Peak Hour		Afternoon Peak Hour		Level of Service	Delay (seconds)	Level of Service	Delay (seconds)	Glenbrook Beach Road (south)	Through	A	0.0	A	0.1	Right	B	10.0	A	9.3	Glenbrook Beach Road (north)	Through	A	0.1	A	0.0	Left	A	7.0	A	7.0	Site Access	Left	B	14.2	B	10.5	Right	C	22.3	D	29.5	Intersection		C	0.7 (average)	D	0.6 (average)
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10	Transport – traffic modelling	Update the traffic modelling with the traffic volumes for the site access corrected to reflect the traffic volumes in Table 3 of the report.	The traffic turning volumes for the left and right turning movements from the site in the traffic modelling have been transposed from those in Table 3 of the Transportation Report in both the AM and PM peaks. Therefore, the modelling does not reflect the anticipated traffic turning movements.	<p>The SIDRA summary data presented in the Appendix B of the Transportation Assessment report shows the demand flows used in the models, not the input flows. In line with typical traffic environments, SIDRA assumes that the traffic volume profile over the peak hour is not constant i.e., there is a peak period within the peak hour. This peak hour profile/ factor (PHF) creates a higher demand volume that is then used in the model to provide a more robustly conservative assessment. For the WWTP modelling, standard SIDRA parameters with a PHF of 0.95 have been employed, thus the demand volumes will be 5% higher than the input volumes. The table below shows a comparison for the Morning Peak Hour model.</p> <p>Table 3 SIDRA Model Results – Demand vs Input Volumes</p> <table border="1"> <thead> <tr> <th>Intersection Leg</th> <th>Movement</th> <th>Input Volume</th> <th>Demand Volume</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Glenbrook Beach Road (East)</td> <td>Through</td> <td>275</td> <td>289</td> </tr> <tr> <td>Right</td> <td>52</td> <td>55</td> </tr> <tr> <td rowspan="2">Access Road (WWTP)</td> <td>Right</td> <td>1</td> <td>1</td> </tr> <tr> <td>Left</td> <td>7</td> <td>7</td> </tr> <tr> <td rowspan="2">Glenbrook Beach Road (west)</td> <td>Through</td> <td>1</td> <td>1</td> </tr> <tr> <td>Left</td> <td>620</td> <td>653</td> </tr> </tbody> </table> <p>Accordingly, beyond the amendments to the modelling to incorporate the right turn bay and to correct an error in the turn distribution of the traffic from the access road (as discussed and reported above), no further adjustment to the SIDRA modelling is considered necessary.</p>	Intersection Leg	Movement	Input Volume	Demand Volume	Glenbrook Beach Road (East)	Through	275	289	Right	52	55	Access Road (WWTP)	Right	1	1	Left	7	7	Glenbrook Beach Road (west)	Through	1	1	Left	620	653
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11	Transport – traffic modelling	Undertake sensitivity modelling of the operation of the site access which includes for traffic associated with the horticultural operations on the site during the construction period.	Section 4.4 of the Transportation Report states that some horticultural operations will likely continue on the site. Traffic associated with these operations has not been taken into account in the traffic modelling. It is acknowledged that data is not available on traffic volumes and that traffic is likely to be dependent on the operations on site (e.g. greater traffic during harvesting), however, these operations may affect the safe and efficient operation of the proposed site accesses when considered with the construction traffic. Sensitivity testing would assist in providing confidence on the operation of the site access at peak operation times.	As noted in the AEE and the s 92 response the NPS -HPL requires that the potential for the land to still be used for productive purposes is maintained. The scale of use of the site for horticulture during construction of the WWTP is currently uncertain as are the requirements of any construction contractor to access the site and the need to manage conflict between access users. A construction traffic management plan as recommended in the Transport Assessment and proposed in the draft conditions provided with this s92 response will be the best place to address this issue. At that time, the required construction area and programme will be clearer, and if necessary, measures will be able to be introduced to manage access to the site.																									
12	Transport – notice of requirement conditions	Confirm whether conditions are included in relation to on-going maintenance of vegetation on Glenbrook Beach Road to ensure visibility from accesses are maintained during the construction and operation of the site.	Section 6.2 of the Transportation Report states that vegetation will be maintained along the Glenbrook Beach Road frontage. This would be required for the safe operation of the site accesses, particularly at the location in Option 1. No conditions have been provided to ensure that this would occur.	While the Transport Assessment noted that the height and extent of the vegetation along the frontage will need to be maintained on an ongoing basis, the Landscape, Visual and Natural Character Effects Assessment identified the need to mitigate views of the WWTP for road users through screening the site. That assessment noted that if the irrigation pond close to the road was removed, additional planting could be provided to extend the proposed boundary hedge. In addition, as noted in the Stormwater and Flooding Assessment there are issues with flooding on Glenbrook Beach Road associated with the culverts under the road draining to the irrigation pond.																									

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				 <p data-bbox="1834 854 2795 1115">The mitigation planting shown in the appendix to the Landscape, Visual and Natural Character Effects Assessment shows the planting proposed. It is not proposed to include conditions to maintain the vegetation in the current location as there are changes likely in order to accommodate the two access legs and possible changes to the drainage arrangements to address the flooding, hence removing the vegetation from the critical zones, which currently impinge on the sightlines. The <i>Pittosporum crassifolium</i> - Karo hedge offered as mitigation will be managed at 3m tall as noted in the planting schedule in Appendix 5 and will be maintained.</p>
13	Transport – notice of requirement conditions	Please provide any proposed conditions in relation to transport for the site, including but not limited to, any conditions concerning the site access arrangements and conditions for a Construction Traffic Management Plan.	No Notice of Requirement conditions have been provided with the application. Without the proposed conditions it is not possible to confirm that the traffic and transportation effects will be appropriately managed.	Draft Conditions for Southwest Wastewater Treatment Plant Notice of Requirement are provided with the s92 response.
14	Acoustics	Briefly explain what ‘Acoustic Centre’ means, its relevance to the setback distances set out in Table 1 and, the approximate co-ordinates for the Acoustic Centre adopted for modelling purposes.	To assist in better understanding how predicted LAeq levels were calculated.	With respect to an area source or plant dispersed over a relatively wide area, the term ‘acoustic centre’ refers to a point located in the centre of the area from which noise is emitted. The term is useful for determining source-to-receiver setback distances.
15	Acoustics	Please identify the source(s) of the indicative sound power levels set out in Table 10 and adopted for modelling purposes.	To assist in validation of predicted LAeq levels.	There is no “source” for these sources. It’s a sound power level that is back-calculated from a compliant noise level at the worst-case dwelling position. We have however applied an industrial frequency spectrum representative of a WWTP when predicting noise contours.
16	Acoustics	Please show the critical 454m setback distance on an aerial map (e.g. a hypothetical 3600 circle originating from the Acoustic Centre) based on a total noise budget of 113 dB LWA.	To identify the extent of surrounding land which is predicted to be exposed to noise exceeding the permitted night time noise level of 45 dB LAeq	Refer to Figure 2 in our report Rp 002 dated 31 Aug 2023. This is shown as an orange dotted line.

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17	Acoustics	Please clarify if adjustments, in accordance with NZS 6802:2008, were applied to predicted LAeq levels to derive noise rating levels.	To assist in validation of predicted LAeq levels.	No rating level adjustments have been applied based on the understanding that WWTP noise is 24/7.
18	Acoustics	Please provide additional comments on rural character and rural amenity effects relative to the existing noise environment.	To assist with better understanding effects on amenity, for example, will noise have a discernible day to day effect	<p>From our site observations the existing acoustic environment in the area is comprised of noise from farming activities, vehicle movements on Glenbrook Beach Rd and environmental sounds e.g., birds and insects. The ambient noise level ranges from 30-61 dB LAeq (49 dB average) in the daytime; while the background noise level ranges from 24-56 dB LA90 (42dB average) in the daytime: see Table 2 in the Marshall Day report attached as Appendix J to the AEE. These levels typify a rural (farming) setting adjacent to a collector road i.e., a well-used road during the daytime. These aspects define “daytime rural character” in this context. WWTP noise in the context of the daytime acoustic environment would be audible but unintrusive as a worst-case, but generally would be inaudible.</p> <p>At night, vehicle movements on Glenbrook Beach Road are sporadic. Farming activity decreases significantly from daytime levels of activity, and these factors result in a quieter night-time acoustic environment: the Marshall Day report attached as Appendix J refers to an ambient noise level of 28-51 dB LAeq (39 dB average) in the night time; and background noise level of 24-43 dB LA90 (31dB average) in the night time. Environmental sounds would typify the “night-time rural character”, interspersed with occasional vehicle movements on the road or other distant man-made sound. WWTP noise in the context of the night-time acoustic environment would be clearly audible and likely control the background noise environment. Inside the closest dwellings WWTP noise may be audible with windows ajar for ventilation. With windows closed the WWTP would likely be inaudible or faint.</p>
19	Heritage/ Archaeology	Noting the RMA definition does not have a terminus ante quem date, the assessment should incorporate a discussion of a 1920s shed shown on cadastral plans DP21299 (1927) and DP22174 (1929) (the relevant part of the 1929 plan is produced below)	The SW WWTP NoR archaeological assessment should be updated to include RMA historic heritage requirements that incorporate post 1900 historic heritage features.	DP 22174 was georeferenced into the project GIS. There is no evidence that the building referred to in the s92 request predates 1900 and so is not an archaeological site under the Heritage New Zealand Pouhere Taonga Act. It could potentially have some heritage value, but it is in the same location as the current farm buildings and turning circle. It is unlikely that any evidence of it will remain in situ and the site is effectively destroyed.


#	Category of information	Specific request	Reason for request	Watercare Response
		 <p>Plan of Subdivision of parts Allots. 1, 2, 3 & 8, Kahay Block X Comprised in O/T 322/200 Surveyed by O.J. Dolan, Licensed Surveyor, 1926</p>		
20	Heritage/ Archaeology	The recommendation section in the assessment (Section 6) is framed solely for provisions of the Heritage New Zealand Pouhere Taonga Act. This section should be expanded to explicitly cover any proposed conditions to attach to the designation and any regional consents that will be applied for	As above.	<p>The only known early 20th century structure known is a shed which is assessed as effectively destroyed.</p> <p>An Accidental Discovery Protocol condition has been proposed – please refer to the proposed draft conditions document.</p>

Response to Question 6

B10.2. Natural hazards and climate change

B10.2 Objective and Policies	Assessment
<p><u>B10.2.1. Objectives</u></p> <p>(1) Communities are more resilient to natural hazards and the effects of climate change.</p>	<p>Enabling the operation of the WWTP at all times is a way of ensuring resilience for an essential network that the community relies on. This is expected to be achieved by designating this site and placing the WWTP above the anticipated 1 in 100 year return 2 m sea level rise.</p>
<p>(2) The risks to people, property, infrastructure and the environment from natural hazards are not increased in existing developed areas.</p>	<p>The Stormwater and Flooding Assessment noted that while the WWTP will increase impervious areas on the site and that will increase runoff and that the WWTP may have some elements located in flood prone areas and obstruct existing overland flow paths, existing properties/buildings with habitable floor levels were not identified within the existing 1% AEP (Annual Exceedance Probability) flood plain and even <u>without</u> mitigation effects were low. The Assessment noted that the site is large enough that mitigation, such as diverting overland flow paths – while still enabling flows to wetlands and streams, can be undertaken.</p>
<p>(3) New subdivision, use and development avoid the creation of new risks to people, property and infrastructure.</p>	<p>The designation of the site and its use as a WWTP with the increase in runoff and diversion of flows does not create new risks to people and property. The WWTP will be designed to manage the risk of flood inundation.</p>

(4) The effects of climate change on natural hazards, including effects on sea level rise and on the frequency and severity of storm events, is recognised and provided for.	The WWTP will be designed to address the future climate change conditions and maintain functionality.
(5) The functions of natural systems, including floodplains, are protected from inappropriate subdivision, use and development.	As noted in the Stormwater and Flooding Assessment none of the wetlands are being directly affected or obstructed by the location of proposed WWTP, and the existing planting around the streams and wetlands will be retained. While diversions of overland flow paths around new structures was likely to be needed the functions of the natural systems present on the site will be protected.
(6) The conveyance function of overland flow paths is maintained	The overland flow path routes may change but as noted in the Stormwater and Flooding Assessment sufficient land is available within the site to divert the flows successfully to maintain conveyance.
B10.2.2. Policies Identification and risk assessment (1) Identify areas potentially affected by natural hazards, giving priority to those at high risk of being affected, particularly in the coastal environment.	The areas potentially affected by natural hazards on the site and adjacent to it have been identified in the Stormwater and Flooding Assessment based on the indicative design and desktop information available from Auckland Council GIS (GeoMaps) and through the recent experience on 27 January 2023. There are none proposed in locations where a high risk currently exists. Through the detailed design process, careful consideration will be given to the location and nature of earthworks and buildings in relation to those areas affected by natural hazards to ensure that the risk is not increased as a result of development.
(2) Undertake natural hazard identification and risk assessments as part of structure planning.	This is not a structure plan process.
(3) Ensure the potential effects of climate change are taken into account when undertaking natural hazard risk assessments.	The Stormwater and Flooding Assessment has considered future effects of climate change and the detailed design process will consider this as well.
(4) Assess natural hazard risks: (a) using the best available and up-to-date hazard information; and (b) across a range of probabilities of occurrence appropriate to the hazard, including, at least, a 100-year timeframe for evaluating flooding and coastal hazards.	The Stormwater and Flooding Assessment noted that the available LiDAR data from 2017 and the catchment and hydrology information from AC GIS regarding ponds, low lying areas and existing overland flow paths, are outdated due to modifications that have occurred in relation to the horticultural activities on the site. As part of the detailed design process Watercare will have the site surveyed to provide more up-to date information.
(5) Manage subdivision, use and development of land subject to natural hazards based on all of the following: (a) the type and severity of potential events, including the occurrence natural hazard events in combination; (b) the vulnerability of the activity to adverse effects, including the health and safety of people and communities, the resilience of property to damage and the effects on the environment; and (c) the cumulative effects of locating activities on land subject to natural hazards and the effects on other activities and resources	The WWTP's design and development of the site will consider the potential for natural hazard events and while the WWTP is not a less or more vulnerable activity as defined in the AUP, the ongoing operation of the plant and its design to ensure it is resilient is essential for the benefit of the wider community and the cumulative effects of locating the WWTP on the site.
(6) Adopt a precautionary approach to natural hazard risk assessment and management in circumstances where: (a) the effects of natural hazards and the extent to which climate change will exacerbate such effects are uncertain but may be significant, including the possibility of low-probability but high potential impact events; or (b) the level of information on the probability and/or impacts of the hazard is limited.	Given the significance of the infrastructure a precautionary approach will be adopted. Watercare adopts a Safety in Design approach that includes ensuring the health and safety of all those who may be affected by the asset, by taking responsibility to provide information on existing hazards associated with a project, making decisions relating to potential risks, hazards, and the mitigation measures identified by the Safety in Design process.
Management approaches (7) Avoid or mitigate the effects of activities in areas subject to natural hazards, such as earthworks, changes to natural and built drainage systems, vegetation clearance and new or modified structures, so that the risks of natural hazards are not increased.	Earthworks are necessary as part of development of the site and will be subject to a separate regional consent process. However, works that have the potential to result in changes to the conveyance function of existing overland flow paths or obstruction of flow that could impact on natural hazards will be carefully assessed to ensure that there are no increased risks associated with the works.
(8) Manage the location and scale of activities that are vulnerable to the adverse effects of natural hazards so that the risks of natural hazards to people and property are not increased.	Elements of the WWTP are more vulnerable to risk than others. The Stormwater and Flooding Assessment notes the need to consider the location of the control building and workshop area as they will require habitable floor levels above the 1% AEP flood plain. Other activities need to ensure that they are above the 1% AEP flood levels.
(9) Encourage activities that reduce, or do not increase, the risks posed by natural hazards, including any of the following: (a) protecting and restoring natural landforms and vegetation; (b) managing retreat by relocation, removal or abandonment of structures; (c) replacing or modifying existing development to reduce risk without using hard protection structures; (d) designing for relocatable or recoverable structures; or	Retention of the streams and wetlands and associated planting and avoiding works close to them wherever possible will as a minimum maintain the status quo in relation to natural landforms and vegetation.

(e) providing for low-intensity activities that are less vulnerable to the effects of relevant hazards, including modifying their design and management.	
(10) Encourage redevelopment on land subject to natural hazards to reduce existing risks and ensure no new risks are created by using a range of measures such as any of the following: (a) the design and placement of buildings and structures; (b) managing activities to increase their resilience to hazard events; or (c) change of use to a less vulnerable activity	The culvert crossings at Glenbrook Beach Road that drain the upstream catchment under the road into the site have been identified as constrained. The two irrigation ponds on the site were not included in the flood model analysis undertaken in 2009. The works being undertaken on the site are expected to consider these elements and to allow for adequate peak flow capacity to ensure that existing flooding risk is not increased.
Role of natural systems (11) Strengthen natural systems such as flood plains, vegetation and riparian margins, beaches and sand dunes in preference to using hard protection structures.	N/A
Infrastructure (12) Minimise the risks from natural hazards to new infrastructure which functions as a lifeline utility by: (a) assessing the risks from a range of natural hazard events including low probability but high potential impact events such as tsunamis, earthquake and volcanic eruptions; (b) utilising design, location and network diversification to minimise the adverse effects on infrastructure and to minimise the adverse effects on the community from the failure of that infrastructure.	Watercare is defined as a lifeline utility in terms of Schedule 1, Part B of the Civil Defence Emergency Management Act 2002 as it is an entity that provides a wastewater or sewerage network or that disposes of sewage. The WWTP proposed on the site will be a fundamental part of the wastewater network in Southwest Auckland. Watercare is aware of the risks related to the site and will minimise adverse effects on the WWTP and the adjacent road related to flooding and diversions of overland flow paths.
Coastal hazards (13) Require areas potentially affected by coastal hazards over the next 100 years to do all of the following: (a) avoid changes in land use that would increase the risk of adverse effects from coastal hazards; (b) do not increase the intensity of activities that are vulnerable to the effects of coastal hazards beyond that enabled by the Plan; (c) in the event of redevelopment, minimise natural hazard risks through the location and design of development; and (d) where it is impracticable to locate infrastructure outside of coastal hazard areas, then ensure coastal hazard risks are mitigated.	<p>The risk of coastal inundation is limited to the coastal areas of the site as can be seen in Figure 5-10 of the AEE.</p>  <p>The bulk of the WWTP even at full build out as can be seen from the Indicative Design and Operational Report is avoiding the area shown as subject to the 1 in 100-year return at both 1 m and 2 m sea level rise.</p>

Given the above points, we consider that Watercare has satisfactorily responded to your section 92 letter with regards to the matters raised above. If you have any further questions, please contact me.

Yours sincerely



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