23/01/2023

Dear Tessa Robins,

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

Notice of requirement: SH16 Stage 2

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.

The information requested below will enable the council to undertake a full and proper assessment of the notice of requirement and provide a recommendation on it.

Under section 92 of the Resource Management Act 1991, I request the following further information:

(1) **Noise and vibration**

1. Related to the assessment of construction effects please confirm:
    a. how many dwellings are within 25 m of the proposed construction works; and
    b. which properties (or how many properties) are close enough for relocation to be expected to be required due to night-works.
2. The potential acoustic screening efficacy was not provided for 436 SH16 before noting no screening is proposed. Could screening be effectively implemented to reduce to this property Cat A as has be proposed for other properties?
3. What height screening would be required to reduce the levels at 299 SH16 to Cat B?
4. What further extent of screening would be required to reduce 218 SH16 to Cat A?
5. Please confirm whether the recommendations in Section 6.6 of the acoustic assessment related to avoiding ATP within 100m of dwellings and providing signage or design to avoid engine braking form part of the proposed design.

(2) **Transport**

1. Details of the performance of the intersections between SH16 and adjoining side roads are not included within the NoR application. Some brief indication of intersection performance

of the SH16 / Coatesville Riverhead Highway are provided in Appendix B - Assessment of Alternatives but this is insufficient to compare the relative performance of the intersections. It is necessary to understand the effects of the changes on the operation of the network, including any changes to the operation of the SH16 and of side road approaches (including the Coatesville Riverhead Highway intersection, Old North Road roundabout and the Brigham Creek Road roundabout). The information is required to demonstrate that the layout proposed is appropriate and the effect on the side road approaches.

Please provide traffic modelling reports that demonstrate the forecast operation of the intersections within the Notice of Requirement. The modelling should include specific performance related parameters for the intersections (queues, delays, level of service, degrees of saturation). The modelling should take into account the effects of any pedestrian crossings on the operation of the intersections.

Details of the forecast operation of the SH16 / Coatesville Riverhead Highway intersection, SH16 / Old North Road roundabout and the SH16 / Brigham Creek Road roundabout should be provided as these will be directly affected by the proposals.

2. Details of the assumptions in the traffic modelling in terms of what development and wider traffic upgrades have been included in the assessment have not been provided. For instance Plan Change 69 Spedding Block includes development that was out of sequence from that envisaged in the Whenuapai Structure Plan with the development occurring earlier than envisaged. There is also a plan change that has recently been lodged with Council for development in Riverhead which would directly impact on the SH16/Coatesville Riverhead Highway intersection.

   Please provide details of the assumptions used in the traffic modelling, including what traffic upgrades were included and what development has been allowed for, including whether PC69 and development in Riverhead was included in the traffic modelling.

3. Details of forecast traffic volumes on each section of the corridor and the turning movements at each intersection have not been provided. These are required to assist in confirming that the appropriate number of lanes (and capacity) along the corridor have been provided.

   Please provide details of the forecast traffic volumes along links and turning movements at key intersections (including Kennedy Road).

4. The reporting does not include sufficient detail of the performance of different options for the intersection layouts assessed in deriving the NoR layout. This information is required to demonstrate that the most appropriate layout (and associated designation area) has been chosen.

   Please provide details of traffic modelling (including outputs) on alternative intersection layout options considered, including the SH16 / Coatesville Riverhead Highway intersection.

5. The assessment notes that the proposed mitigation measures for Plan Change 69 Spedding Block does not affect the forecast operation of the Stage 2 works. It is not clear whether the assessment of the NoR includes or excludes the PC69 mitigation measures.

   Please clarify whether the assessment of the operation of the corridor includes or excludes the PC69 mitigation measures (roundabout metering).

   If the mitigation measures have not been included, please provide an assessment of the effects of these mitigation measures on the performance of the corridor.

6. The Alternatives Assessment – Appendix G provides a table that summarises the changes in travel times by direction for the whole of Section A to C. The summary table does not enable an assessment of how the various sections of the proposals contribute to these travel times, noting that not all traffic will travel along the entire length of Section A to C; for instance, a significant volume of traffic will only travel through sections A and B.

   Please provide details of traffic modelling (including outputs) on the operation of the Stage 2 corridor as a whole. This should include the journey times for the whole route (by direction) and for each section of the corridor.

   The output should be provided for the identified option and any alternatives considered.

7. Details of the traffic modelling for travel times along the corridor have not been provided. It is therefore not clear over what length the travel times have been reported. For instance, for northbound travel times, it is not known whether the travel time has been taken from north or south of the Brigham Creek Roundabout.

   Please provide details of the location of the start and finish positions of the travel times reported along the corridor.

8. Turning movements at the Kennedy Road intersection are to be restricted to left-in and left-out only. Right turn movements would be required to U-turn at the roundabouts at either Brigham Creek Road or the Coatesville Riverhead Highway intersection. No details of the volumes of vehicles affected or the additional travel times are provided. To understand the effect on these vehicle movements details of the volumes affected and the change in travel times should be provided.

   Please provide details of the turning volumes affected by the right turn bans at the Kennedy Road intersection, and the resulting additional travel times for these affected vehicles.

9. Details of the existing crash record and the forecast crash savings have not been provided except at a high level. This information is required to confirm the claimed improvements in the safety record of SH16 and associated intersections.

   Please provide details of the locations of the crashes, including crash types along the corridor, and details of the assessment of the crash savings forecast with the proposed NoR for these crash types. The assessment should also be provided for any alternative options considered. Details should be provided for the individual sections and key intersections.

10. Vehicle tracking has not been provided at any of the intersections or vehicle crossings. Vehicle tracking is required to demonstrate that design and check vehicles are able to be accommodated with the proposed design and within the designation area.

    Please provide vehicle tracking of design and check vehicles at the following locations:

    • SH16 / Coatesville Riverhead Highway intersection,

    • Vehicle crossing for 1411 Coatesville Riverhead Highway intersection (all turning movements into and out of the vehicle crossing)

    • Turning movements into Soljans Estate Winery

11. The proposals will significantly change the design of the existing corridor and intersections. With such significant changes it is important that the design operates safely. No details of safety audits have been provided. Should modifications to the design be required to address safety audit comments, this may alter the designation requirements or alter the

operation of the corridor. Areas which could be of concern include the use of the double left turn from Coatesville Riverhead Highway to SH16 southbound, the use of courtesy pedestrian / cycle crossings at the roundabouts where these cross multiple traffic lanes and the use of shared cycle/footpaths rather than separated facilities.

Please provide road safety audits of the proposed design, including designers response and Client Decisions.

12. The NoR does not provide details of how the proposed works are constructed and the associated traffic management. As this section of SH16 is the only arterial that serves the area north west of Whenuapai, traffic management may adversely affect the operation of the corridor, including side roads connecting to SH16.

    Please provide details of the planned Construction Traffic Management Plan.

    Please provide an assessment of the effects of construction on the operation of SH16.

(3) **Ecology**

1. Currently the ecology report concludes that the magnitude and level of effects on herpetofauna and bats 'cannot be assessed'. It is inappropriate for an ecological impact assessment to conclude that some ecological effects cannot be assessed. These effects can be assessed and have been for other similar past projects (e.g. SH20B upgrades). Recommending a condition of consent requiring surveys of lizards to determine if native lizards are present, and thus the effects on lizards is not appropriate. For bats, static loggers can also be deployed in key locations to determine if bats are using the area. Tree assessments can be done as a minimum from the ground to identify obvious roost features. These trees would be flagged for further inspection prior to felling.

   Please undertake the required assessments to determine the magnitude and level of effect on herpetofauna and bats.

(4) **Urban Design**

Planting

1. The consistent design along the corridor means that it does not appear to be responsive to local place-making or locally significant features.

   Please provide information and context on why this design approach has been taken and why a context-based design (including views out of the corridor) wasn't.

2. In addition, confirmation is required that the species selection is consistent with WF7, WF8 or WF11 where appropriate.

3. The Ecological assessment refers to restoration planting but it is not clear if this is included on the Landscape and Ecological Plans.

Roundabout

4. The proposed roundabout design at the Coatesville-Riverhead Highway does not appear to reference the local rural environment.

   Provide explaination for in particular the usage of stones/boulders in the design.

Shared Path

5. The general arrangement drawings show the shared path labelled as having a 1m berm either side. This does not appear to be consistent with the typical sections and landscape plans that show narrower strips with planting on one side and chipseal on the other.

   Please provide clarification on these inconsitancies within the plans and what should we be expecting to see on the ground.

   Noise Walls

6. Reference is made to replicating the pattern and colour used on the nosie walls from Lincoln Road to Westgate –it is considered that this is an urban area.

   What information do you have to justify the use of noise walls and their design in a rural environment.

7. It is also noted that the proposed material for the noise walls is ply, which has been shown to deteriorate badly. A simple robust and rural design is recommended. Consideration should also be given to requiring noise walls to be removed when future subdivision or development occurs.

   Have you done any analysis of ply as a building material and have any conditions been thought about for removal of noise walls following future development?

8. While the majority of noise walls are suitably screened, the following are not and consideration should be given to mitigating effects: 218 SH16, 315 SH16, 340 SH16, and 550 Sh16 (low amenity planting only).

   Please provide justification for why these areas are not screened?

   Retaining Walls

9. Provide review of the retaining walls at Ch190900 and 191630 to ensure visual impacts are mitigated/screened.

(5) **Built Heritage**

Note that a second further information request will likely come through in regards to built heritage requests following the site visit of Councils built heritage specialist.

Sinton House

1. The sites of the Sinton Houses, two of which are identified as being pre-1900 and the third scheduled property, more than likely pre-1900. As a group these houses are of immense importance to the area. The name Sinton is synonymous with the development of Brigham Creek.

   Has there been any communication with NZHPT on the sites of the Sinton Houses?

(6) **Parks**

1. Recently the Rodney Local Board has implemented street tree planting from the corner of SH16 and Kennedy's Road, and along the road frontages of the Kumeu Centre. The

project identified available gaps in the road reserve berm and intends to improve the amenity and environmental outcomes.

The application arboricultural report identifies street trees as groups along the road corridor. Specific trees and locations are not shown however descriptions of the tree groups are provided. The Landscape and Ecological Plan drawings key “Existing Tree – To be protected and retained where practicable during construction”. However, it appears that individual trees worthy of retention (for example, street trees planted recently by the local board) are not identified on the landscape drawings for protection/retention. There appear to be locations where the existing street trees could be retained within the proposed design and are within garden bed footprints. For example, trees identified as ‘108’ are stated in the arboricultural report to be unaffected by the works, but the landscape drawing (Sheet 2) does not identify the specific trees to be retained.

Please explain why these existing street trees are not identified to be retained on the landscape drawings?

(7) **Healthy Waters**

Basis of Design (Section 3.4)

1. The imperviousness of rural zones has been stated as 10%; however, there is no information provided on how this assumption has been defined. Runoff from large rural areas can be difficult to model definitively due to the maximum permitted imperviousness set out in E8.6.2.4 of the Auckland Unitary Plan (AUP).

   Please provided some sensitivity analysis on the imperviousness of the rural area to assess potential impacts of development over the life span of Waka Kotahi Infrastructure to ensure that safety is maintained.

2. An allowance of 60% imperviousness has been allowed residential areas, which is lower than would be anticipated considering the extent of Terrace Housing and Apartment Blocks (THAB) that is currently zoned and the extent of FUZ that is present in the Redhills catchment.

   Please provide details on how the Future Urban Zone (FUZ) is included in the runoff assessment.

Stormwater Discharge and Diversion (Section 4.3)

3. Table 4-2: Changes in impervious areas at Discharge Points states that the post development impervious area draining to Outfalls Q and R will increase; however, Table 4-3: Proposed Stormwater Discharge Points and Conveyance Systems state that there is no change to the road pavement or drainage.

   Please provide clarification.

4. The treatment efficacies stated for swales in Table 4-3 appear to be meaningless (for example 436% treatment achieved for discharge point N). It is not clear within the report how this efficacy has been calculated and it is probably more realistic to state that the swale is larger than the minimum required length.

   Please provide clarification.

Cross Drainage (Section 4.6)

5. The section states that as this is a safety project there isn't a requirement to upgrade existing culverts that comply with current design standards and if the flooding effects are not worse than the current situation. Healthy Waters considers that flooding of the SH16 would be considered to be a significant safety issue, particularly at chainage 192570 where there is expected to be 1.55m of water on the carriageway (Table 4-5 Chang in HWL at culverts with capacity for 10% AEP rainfall event).

Flood Risk (Section 4.7)

6. The memorandums that have been provide din Appendix E of the Stormwater Report provide an assessment of flows for a range of events and development scenarios associated with the Kumeū No.1 Bridge and the Brigham Creek Culvert (Ngongetepara Stream).

It appears that a simple TP108 graphical analysis has been undertaken to establish upstream flows in the watercourses, and a 1D HEC-RAS model completed to identify the potential effects of flows on the proposed works.

The memorandums present level information within the document; however, it is not clear whether Beca have presented all levels with respect to a single vertical datum. LiDAR downloaded from the LINZ website is in New Zealand Vertical Datum 2016, whilst Healthy Waters model results are generally in Auckland 1946. The difference between these datums is not significant but could potentially have significant impacts on performance of infrastructure. Beca have undertaken an assessment of the flows upstream of the Brigham Creek Culvert. There is no information provided on the calculations undertaken, but it is assumed to be a TP108 Graphical analysis based on the catchment information provided throughout the Flood Report.

Healthy Waters has undertaken a TP108 graphical check on the flows presented by Beca in the memo, based on the catchment data. The results of this review indicate that the Beca flows are significantly lower than the Healthy Waters figures.

Please provide details of the calculations that have been undertaken.

The variation noted in the flows could result in SH16 being overtopped in the 100-year event and this will have an impact on the proposed footbridge to be constructed on the northern side of the bridge.

The table below presents the variation in flow calculations:

100-year flow estimates at the Brigham Creek Culvert			
	ED Scenario	MPD + 2.1° climate change	MPD + 3.8° climate change
Beca Flow (m^3/s)	74.9	107.3	124.2
Healthy Water Flow (m^3/s)	86.1	139.1	166.4
Percentage difference	+15%	+30%	+34%

Latest Regionwide Rural Rapid Flood modelling results (Healthy Waters, 2022) indicates that 100-year flows for 2.1 degrees and 3.8 degrees upstream of the Brigham Creek Culvert could be 136.9 m3/s and 183.9 m3/s respectively. Whilst this model is considered conservative due to the high-level nature, these flows are considerably higher than those presented in the Beca memo.

(8) **General Notes from Specialist (not requiring response)**

1. Ecology
    a. The Wetland/Riparian Planting schedule shown on landscape plan 3235084-AL-6300 contains sedges, rushes and flax. Very limited numbers of specimen trees are shown to be within the riparian planting zones. The inclusion of trees and shrubs into this mix will provide a more diverse ecological structure as opposed to the current low stature planting.
    Please consider including trees suitable to riparian areas into this planting mix.
    b. Passive reestablishment of vegetation has been noted in the EIA. Passive reestablishment of vegetation is only possible if there is a seed source located nearby of sufficient size and diversity. In this instance passive reestablishment should not be a recommended restoration technique.

2. Urban Design
    a. It is noted that Kanuka is a representative species that is not included in the palette. Pseudopanx arboreus and Melicytus ramiflorus are specified as 45L but are not readily available at this size.
    b. The inclusion of Chionochloa rubra is queried as this prefers a cool wet climate.
    c. It should be confirmed that Phormium cookianum Emerald Green is suitable for swales, and this species should be substituted for Phormium cookianum where visibility sightlines are required.
    d. Planting details should be checked against Waka Kotahi Standard Specifications (which should be referenced on the drawings or added as a condition).

3. Built Heritage
    a. The main concern is the demolition of the farm building (former barn or stables) at 222A State Highway 16. I note that the heritage impact assessment assesses the building is more likely mid-20th century, identifying reused earlier weatherboards and internal framing. Without physically inspecting the building, it is difficult to assess the age. However, based on the images provided in this assessment, noting the earlier timber framing and walls and the style of the barge boards, it is more than probable that this building was built in the late 19th early 20th century and modified progressively more than once. Given the history of the Sinton family and the produce they provided to the settlers in Brigham Creek from their land, I would say this was an important part of that production. I suggest it has been extended over time, but it appears the essence of the earlier building is still there, altered to accommodate the needs of the Sinton production at the time. I concur that the c1902 image indicates a much higher pitched roof. However, the building has been extended and a new roof span with a lower pitch to accommodate the extension would explain the change. Internal images also suggest this. Currently, without inspecting the building, I would favour its retention.
    A site visit to see the interior of this building will be necessary.
    b. The former Janet Sinton property at 191 State Highway 16, has a group of notable trees on the property. I agree with the arboricultural report in its recommended action which has led to changes in the proposed road alignment and underground stormwater connection away from the trees limiting the levels of alterations within the root zones of the trees and minimising the potential adverse effects. I agree with Plan Heritage that Tree Protection Methodologies be followed to avoid adverse effects.
    c. Council's Heritage Unit shall be involved in the detailed design of the cycleway and shared path in the vicinity of the Sinton properties. This is to be addressed via the Urban Design and Landscaping conditions.
    d. Interpretation will be necessary to mitigate the adverse effects of the cycleway and shared path in the vicinity of the Sinton properties. This shall be managed via the Historic Heritage Management Plan conditions.
    e. Should demolition of the former barn/stable be unavoidable, a condition will be required to manage its deconstruction and reuse of salvaged materials within the project footprint.

f. Mitigative planting and landscape features may be necessary to address the adverse effects of the project on the setting of the built heritage places.
g. There are other historic built places on the CHI along State Highway 16 that will be affected by the works that will progress under Stage 2. However, the effects appear to be of minor impact to the built structures and mainly affects the boundary where established trees are present. If any changes are made to the current proposal that changes this, then the heritage unit should be notified to address any concerns. These places are -
    - **37 Main Road Kumeu** – Former Kumeu railway goods shed – CHI 13242
    - **7 Main Road Kumeu** – Transitional bungalow – CHI 16385 –The 1940 aerial indicates that this has been relocated to this site.
    - **183 State Highway 16** – Early shop -CHI 3713 - There is an error in the Clough report table on page 21 for this place which is an early commercial building (early shop) rather than a transitional villa. Topsoil stripping and possible clearance of existing vegetation and trees is occurring within the proposed new designation boundary adjacent and very close to this building. This is deemed to be of minor impact to the building at present. However, if the scope of the work changes within the proposed new designation a specified management plan should be put in place to minimise that impact.
    - Places of Interest - **1411 Coatesville Riverhead Highway, Kumeu** – early bungalow. This is a place of historic interest that has not been identified by the CHI, that will be affected by the works that will progress under Stage 2. The works appear to mainly affect the boundary where established trees are present. There is some intervention in the entrance to the property, which is part of a new proposed designation boundary. This is close to the house and vibration effects on the house, from the earthworks should be taken into account as part of the management plan of this property to avoid adverse effects.
    - There is a villa at **393 State Highway 16**, but 1940 aerials indicate this has been relocated to the site.

4. Healthy Waters
    a. The report states that overall, 90% of the Stage 2 alignment will be able to receive treatment, which is a significant increase over what is currently provided. Whilst Healthy Waters acknowledges an overall improvement in the quality of discharges from the alignment, water quality management should not be considered at the end of the design process but should be thought of throughout the process.

You must provide this information within 15 working days (before 16th February 2023). 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, 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 Ben Willis.

Yours sincerely,

Ben Willis
Policy Planner
Regional, North, West and Island, Plans and Places