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Subdivision – Land Use Report for a Living 1, 2 and 3 Environment

File reference	**SL 2100055**
PID	**P 3557 & 160746**
Applicant	**Onoke Heights Ltd**
Report Date	20 October 2023

Please consider the comments and recommendations as noted below for inclusion in your report on the above subdivision.

Reporting Engineering Officer – Jo Floyd

Preamble to Planner - Alister Hartstone

Proposal – Overall resource consent is non-complying activity.

- Subdivision to create 93 residential allotments (updated from an original proposed 95 allotments), drainage and recreational reserves to vest and other associated works. Land use to establish retaining walls up to a maximum height of 5m within the setback of road and side boundaries.
  - Residential Lots 1 - 93
  - Public road – Lot 300
  - JOAL – Lots 301 and 302
  - Drainage Reserves – Lot 200
  - Recreation Reserves – Lot 595

Subdivision and Land Use matters under consideration/rule breaches (from application and/or checklist)

Earthworks

- Rule EARTH-R1 (Earthworks associated with subdivision) – Controlled Activity

Subdivision

- Rule SUB-R2 (Subdivision) – Discretionary Activity: The area is recognised as a site of significance to Maori.
- Rule SUB-R5 (Subdivision in GRZ) –Controlled Activity

Critical Electricity Lines

- Rule CEL-R1 (Permitted Activity Land Use) – Permitted Activity: The overhead CEL will be relocated underground and will therefore not result in a reduction in ground clearance distances.
- Rule CEL-R2 (Restricted Discretionary Activities – Subdivision) – Restricted Discretionary: A CEL traverses the site.

General Residential Zone

- Rule GRZ-R4 (Building and Major Structure Setbacks) - Retaining walls due to height are considered to be major structures and will be located within 3m of Dip Road along the western boundary of proposed lot 48 for a length of approximately 12m and a retaining wall ranging in height from 2m to 4m is proposed to be located within 1.5m of the northern site boundary.

Three Waters Management

- Rule TWM-R2 (Stormwater) – Restricted Discretionary Activity.

Reviewed by Nadia de la Guerre 20/10/2023

- Rule TWM-R3 (Wastewater) – Restricted Discretionary Activity.
- Rule TWM-R4 (Water Supply) – Restricted Discretionary Activity.
- Rule TWM-R5 (Integrated Three Waters Assessment) – Controlled Activity: The proposed subdivision will result in 95 residential allotments; an integrated three waters assessment has been provided.

Transport

- Rule TRA-R13 (Subdivision) – Controlled Activity
- TRA-R14 (Any Activity) – Restricted Discretionary Activity: The proposal is for 93 vacant allotments. The application includes an Integrated Traffic Assessment.
- Rule TRA-R15 (Any Activity) – Restricted Discretionary Activity: The proposal is for 93 vacant allotments. The application includes an Integrated Traffic Assessment.
- Rule TRA-R16 (Construction of Any New Public Road) – Restricted Discretionary Activity: The proposal includes an extension of a public road.
- Rule TRA-R17 (Major Roading Alterations to an Existing Public Road) – Restricted Discretionary Activity: The proposal includes the construction of a new T intersection with the proposed new public road and Three Mile Bush Road

Light

- Rule LIGHT-R7 (Any subdivision) – Controlled Activity: The development will include street lighting.

Relevant standard

All engineering works forming part of this consent will be assessed under and are to comply with Whangarei District Council's Environmental Engineering Standard 2010 version and Council's district plan rules unless conditions specify otherwise.

Engineering Reports

- LDE Geotechnical Investigation Report ref 19103 dated 2 July 2021
- LDE Geotechnical Review Response Letter reference 19103 dated 2 February 2022
- LDE Geotechnical Review Response Letter reference 19103 dated 4 July 2023
- LDE Geotechnical RFI Responses reference 19103 date 1 September 2023
- Engineering Outcomes Integrated Transport Assessment dated 24 November 2021
- Engineering Outcomes Response to Comments from NTA dated 28 January 2022
- LDE Three Waters Design Report reference 19103 dated 25 November 2021, updated 2 February 2022
- LDE Response to WDC RC Checklist Requirements reference 19103 dated 2 February 2023
- LDE RFI Responses Stormwater reference 19103 dated 4 July 2023
- LDE Civil RFI Responses reference 19103 dated 31 August 2023
- LDE Memorandum: Pond Change to 80% predevelopment levels reference 19103 dated 2 October 2023

Hazards

- The site is mapped on Council's Geographic Information System maps as having a low instability hazard with an area of high instability hazard above the site behind the Councils Water Reservoir.

- The site has an area that is flood susceptible identified in Councils GIS system maps. It is not proposed to locate any residential lots in this area, and it is proposed to vest this area as reserve.
- The applicant has submitted a Geotechnical Investigation report dated 2 July 2021, and Earthworks design letter dated 24 November 2021 compiled by Land Development and Engineering Ltd (LDE) in support of the application, these reports includes a detailed site investigation and concludes that subject to restrictions and recommendations the site is suitable for development.
- It is stated that the proposal complies with SUB-R5 and EARTH-R1 as every allotment contains an identified building area of at least 100m^2 and access to the building area is suitable to construct.
- The proposal has been reviewed by Tonkin & Taylor Consultants on behalf of Council. Further information was requested and provided as discussed below.
- Provided that the land is developed in accordance with the LDE reports and subsequent addendums and further information provided, it is considered that this proposal is able to satisfy Section 106 of the Resource Management Act 1991 with recommended conditions of consent which will mitagate the effects of associated works with the development of 67 Dip Road, Kamo.

Site visit details

- 24 January 2022

Approximate location of intersection onto Dip Road

Sightline left exiting proposed intersection on Dip Road

Sightline right exiting proposed intersection on Dip Road

Proposed roading connection onto Tuatara Drive

View to the NorthEast from proposed Lot 2

View to the SouthWest from proposed Lot 75

View to the SouthWest from proposed Lot 77

View to the NorthWest from proposed Lot 88

View to the NorthWest from proposed Lot 94

View to the West along proposed Lot 300 road to vest connecting Dip Road to Tuatara Drive

Proposed location for Lot 200 Drainage reserve to vest.

Telecommunications and Power

- Electricity connections will be provided to both Lots 1 – 93. This proposal therefore complies with Rule SUB-R2 Electricity
- Every allotment will be provided with the ability to connect to wireless telecommunications system.
- It is stated that the development is a Restricted Discretionary Activity as the proposal includes the subdivision of a site which is traversed by a Critical Electricity Line. It is necessary to relocate the CEL as it currently traverses the site. It is proposed to underground the CEL and locate it within the public road reserves. The effects of the development on the CEL are therefore considered to be less than minor.

Earthworks

- A significant volume of earthworks is required for construction of vehicle access with volumes over 5,000m^3; therefore, Northland Regional Council is required. A copy of the NRC was subsequently provided for reference.
- A significant volume of earthworks is proposed and certification from a suitably experienced chartered professional engineer/Council approved IQP will be required for these earthworks.

	Unadjusted	Adjustment factor	Adjusted
Cut	37,765m^3	1	37,765m^3
Fill	60,281m^3	1.25	75,351m^3
Net (fill)	22,516m^3	N/A	37,586m^3

- Note: The above table has been updated from Earthworks Plan ref 20253-01-PL-202 revision 6.

Roading and Access

- Dip Road is classified as a secondary collector road with a sealed surface in the area of the proposed vehicle access with a speed environment of between 70 to 80 km/h requiring sight lines of 140 to 175m.
- Tuatara Drive is classified as a local road with a sealed surface in the area of the proposed vehicle access with a speed environment of between 40 to 50 km/h requiring sight lines of 30 to 40m.
- The application includes a Traffic Effects Assessment compiled by Engineering Outcomes Ltd dated 24 November 2021 this report investigates the existing roading network directly affected by this proposal and determines that the traffic effects relating to the proposal will be no more than minor with the proposed mitigation measures which include footpaths and walkways linking to existing networks exiting points onto different roads splitting traffic movements into existing roading network.
- Lots 24 - 26 will all gain vehicle access via the proposed right of way 'A' (Lot 301) which is to be constructed in accordance with Table 3.7 of Council's Environmental Engineering Standards 2010 Edition.
- Lots 59-66 will all gain vehicle access via the proposed right of way 'B' (Lot 302) which is to be constructed in accordance with Table 3.7 of Council's Environmental Engineering Standards 2010 Edition.

Right of way section	Category	Users	Lot(s) (JOAL)
'A' (Lot 301)	A	3	Lots 24 - 26

Right of way section	Category	Users	Lot(s) (JOAL)
'B' (Lot 302)	B	8	Lots 57 – 64

- Each of the proposed new vehicle crossings and intersections can achieve complying sight lines.
- Northland Transport Alliance has reviewed the proposed roading design with the application and provided their feedback. Their feedback and the responses received are discussed below.
- The future effects of the proposed development on the existing roading network were originally considered to be more than minor in this case, and further information was requested to confirm otherwise as discussed below. Further information provided now confirms that overall, the effects of the development are no more than minor with proposed mitigation measures.

Rule assessment

- TRA-R13 Subdivision – Controlled
- TRA-R14 Any Activity – Restricted Discretionary as is a 6.8Ha site within GRZ – requiring Integrated Transport Assessment.
- TRA-R16 Construction of Any New Public Road or Service Lane and TRA-R17 Major Roading Alteration to an Existing Public Road – RDA – needs to provide information to the requirements of REQ-3.
- This proposal complies with TRA-R8 Property Access as every allotment is capable of having vehicular access to a road and access shall be provided where it is shared by 2 or more allotments and the access will comply with Council's Environmental Engineering Standards.
- LIGHT-R7 Any subdivision – Controlled: Plan ref 20252-01-RC-800 shows prelim lighting layout with street trees.

Three Waters

- An integrated Three Waters Assessment is required in order to comply with the requirements of REQ-1 which is required to comply with TWM-R5 as the subdivision results in 8 or more additional allotments from one parent allotment.
- A Three Waters Design Report compiled by LDE reference 19103 dated 25 November 2021, updated 2 February 2022 was provided in support of the application.
- This report does not confirm capacity for water and wastewater at the connection points.
- This report does not discuss the water supply trunk main located within the property and any effects of or on the development.
- This information was not requested during the Section 92 process and will therefore need to be confirmed at Engineering Plan Approval Stage.

Wastewater

- All lots will be connected to Council's reticulation; therefore, the application complies with Rule TWM-R3 Wastewater.
- It is noted that the sewer line the development proposes to connect to is old and shall require a condition assessment and CCTV at engineering design stage. Renewal and upgrade of some parts of the existing system may be required.

Water Supply

- All lots will be connected to Council's reticulation; therefore, the application complies with Rule TWM-R4 Water Supply.

- All lots will be connected to the existing Council watermain with a reticulation system to be constructed as part of the proposed development, this design must be adequate for firefighting purposes and the design shall conform with the New Zealand Fire Service Fire Fighting Water Supplies Code of Practice SNZ PAS 4509:2008.
- It was noted that although there is sufficient capacity, that water pressure may be unacceptable. It was later confirmed via flow tests that there is sufficient pressure available for firefighting supply..
- One of the main concerns for the Water Services department is the integration with existing infrastructure and the proposed upgrade of the water reservoir above the site.
- Overflow and stormwater from the water reservoir site will need to be managed through the site. I propose a condition of consent to deal with this.
- Lots bordering the reservoir site may be impacted by the installation of the new tank, as their development may be limited due to the surcharge from the tank above. It is proposed that the developer and Water Services department enter into an agreement for the developer to construct a retaining wall on the developer's side to mitigate any future building consent issues for those affected lots. I do not propose a consent condition in this case, as the sites will be suitable for development if they are not cut and retained. I propose a consent notice advising future owners of the limitation on the site. Should an agreement be reached with Council at a later stage, then the consent notice can be removed.
- There are existing bulk water mains running along the western boundary of the site. It is proposed to provide easements for these. This is not acceptable to the Water Services department as these pipelines are critical. It has been discussed with the developer to relocate the pipelines within the proposed road reserves. I propose a consent condition to this effect.

Stormwater

- Stormwater connections shall be provided for each residential allotment.
- NRC discharge permit has been sought for the overflow from pond which will later be transferred to WDC.
- Stormwater attenuation will be provided via a pond system at subdivision stage to cater for up to 60% impervious area within each allotment and also roads and footpaths. It was originally not proposed to limit flows from the site in accordance with Chapter 4 of Council's Environmental Engineering Standards 2010, however following further information requests, this requirement was eventually complied with (refer to the discussion below).
- Onsite stormwater attenuation will be required at building consent stage for any additional impervious area over 60% of the site coverage to limit flows from the site in accordance with Chapter 4 of Council's Environmental Engineering Standards 2010**,** and more specifically Section 4.11.
- Secondary flow paths will be provided within the public reserves within the development.
- Downstream flooding is a concern for this development, as witnessed in recent storm events. This aspect was not addressed satisfactorily originally in the consent application.
- Metis Consultants have reviewed the stormwater design on Councils behalf and provided their feedback as discussed below. The applicant subsequently provided sufficient information to confirm that effects from the development shall be less than minor.
- The application is therefore considered to comply with matters of discretion for Rule TWM-R2 Stormwater.

Development Contributions

- Contributions will need to be checked with the development contributions officer. 93 additional Lots are being created. Connections to council services are available.

Table Summary of Connection Requirements for Proposed Allotments	
	Lot 1–93
Sewer	Connection Required
Stormwater	Connection Required
Water	Connection Required

Requests for Further Information

Correspondence regarding Councils Queries – not all of them are under Section 92 as noted by the planner. I have included all comments to ensure all issues and proposed mitigation/ conditions are captured.

Parks Queries

How will stormwater be managed and disposed from Lots 1 – 16 and is there any intention to discharge stormwater from any one or more of these lots over the reserve to the stream?

Response dated 11 February 2022

Stormwater from proposed lots 9 – 15 will be directed to the Road being piped into the proposed stormwater pond, proposed lots 1- 7 will be piped and discharged to the stream.

WDC response.

The response appears to be satisfactory as stormwater is not piped directly to the reserve which can be problematic. I have included the above to ensure this is captured by conditioning. I suggest it is made clear that no stormwater connections shall be to a future reserve area.

Geotechnical Queries

Land instability

Please provide a copy of the stability analyses indicated to have been completed by LDE in the "Earthworks Design Review".

Response received 11 February 2022

1(a) The analysis printout for the design groundwater case at CS101 was appended to the earthworks design review report. Further printouts have been appended here for CS101, including the seismic and extreme groundwater cases, however the design groundwater case remains the critical case. These exported models have been limited to failure depths >5.0m to focus failure surface searching to deeper failures (discussed below).

WDC Response

We note that one of the printouts has partially obscured the material parameters. LDE has indicated that the analyses were limited to greater than 5m failures. This leaves a large portion of the soil profile that has been unassessed for stability. How has the upper 5m been assessed?

Response received 24 July 2023 (LDE Memo labelled Geotechnical Review Response – Additional Comments dated 4 July 2023)

Failure search was filtered to >5m depth to ensure that the automatic failure surface search method looks for and optimises failures that are within the influence of the earthworks, for the purpose of the earthworks design review. Because the failure search optimises for the most critical failure mode (i.e. lowest FoS), without the filter it optimises for shallow slips above the property boundary, not affecting

the site, and then does not assess the effect of the proposed cut at all, which is what we are concerned about. The hazard from shallower instability, being an inundation hazard to these lots, was assessed separately in the geotechnical report and commented on in (b) below.

WDC response

T&T had previously noted that the printouts has partially obscured the material parameters. Please send the printouts.

Response dated 1 September 2023:

Table showing soil parameters attached (noted these were sent on 4 July 2023).

We note that the shallow soils above Lots 80-92 are indicated to have a factor of safety of 1.2 in the static case. Please discuss how the risk of future inundation has been addressed from potential failure of the slope above these lots noting that the standard requirement for land development is a factor of safety of 1.5.

Response received 11 February 2022

1(b) Stability analysis was undertaken to assess the effects of the proposed earthworks on deep-seated/global instability at the site. The shallow failures identified are in steep bush covered areas outside the property boundary and are outside the influence of the proposed earthworks.

The model does not account for support provided by the bush cover on the slope and due to the lack of investigation data on the slope above the site, the depth and strength of the shallow soils on the scoria cone slope were very conservatively estimated.

The inundation hazard from shallow failure of this slope is therefore expected to be less than indicated by the model. However, as discussed in the geotechnical investigation report, consideration of this hazard will be required for the development of these lots.

The hazard will be heavily influenced by the future development within the affected lots (building arrangement, earthworks, retaining). Allowance for a drop zone or debris fence on the upper edge of these lots may or may not be required and will be confirmed at the time of earthworks completion and through any subsequent site-specific assessments.

WDC response

This could be conditioned, but ultimately, they have identified that a hazard is present. Whether Council feel that this is appropriate to leave to individual lot owners or addressed by the developer as part of earthworks/subdivision works stage. At the very least as part of the GCR the hazard should be highlighted and a solution/design provided that owners can implement to address the hazard.

Response received 24 July 2023 (LDE Memo labelled Geotechnical Review Response – Additional Comments dated 4 July 2023)

The nature of the inundation hazard is highly dependent on lot specific development. The analysis shows that the bulk cut for the subdivision does not affect this hazard, but indicated that cuts further up the slope, and closer to the steeper part of the slope, may have a significant impact. The hazard is therefore highly dependant on lot specific development proposed (e.g. whether building on grade, cut and retaining etc.) so we consider in this case stabilisation work as part of the subdivision works is not appropriate. This can be assessed further as part of the GCR based on any further investigation work and site observation.

WDC response

T&T propose the following conditions to address the above:

- The site shall be developed in accordance with the LDE report dated XXXXX, reference XXXX.
- Upon completion of earthworks, a geotechnical completion report shall be submitted to Council certifying the earthworks and suitability of lots for future development. The geotechnical completion report shall outline the restrictions on future development within the future residential lots and be the subject of further review by Council prior to the award of the s224c.
- The slope above residential lots on the eastern boundary of the development are noted to have a factor of safety less that commonly accepted guidelines which increases the inherent potential risk of upslope failure inundating the downslope lots. At the time of the Geotechnical Completion

Report (GCR), the residual risk of this will need to be assessed and highlighted to the future lot owners. Additionally, mitigation options should be included in the GCR to advise the future lot owners of the potential options they could consider as part of lot specific development to address this risk.

Please provide comment with respect to slope stability on Lots 94 & 95 (subsequently changes to Lots 93 and 94) noting the proposed cut and no indicated retaining wall.

Response received 11 February 2022

1(c) The existing slope through these sites, and the slope extending for some ~10m above, is much gentler compared to the slopes through the adjacent lots to the northeast (80-92). At Lots 94 and 95 an unretained batter slope is expected to be stable. The sites may be cut back further and retained as part of site specific development, if desired when a dwelling is built.

WDC response

Not sufficiently addressed. LDE 'expects' the slope to be stable. This needs to be assessed noting that they are steepening the toe of the slope. They have already identified that shallow surficial failures could potentially occur upslope of the adjacent properties and the hazard should be constrained.

Response received 24 July 2023 (LDE Memo labelled Geotechnical Review Response – Additional Comments dated 4 July 2023)

Our understanding is that the current proposal is to cut up to about 2.0m at a grade of 1V:2H. It is reasonable to expect that this can be safely achieved given the available geomorphic evidence and analysis of the adjacent slope:

- *The slope above the boundary is relatively gentle at about 1V:3H for some distance above, compared to existing slopes of up to about 1V:1.5H for heights of 10-15m adjacent.*
- *The materials were found through detailed investigation and laboratory testing to be highly cohesive and light which are both favourable factors for short unretained batter slopes.*
- *It can reasonably be inferred that if the factor of safety of the 1V:1.5H slope at CS-101, outside of the development area, is 1.2 in the extreme case, then a slope of the same materials at 1V:3H would easily exceed minimum requirements.*
- *Likewise, the steep slopes, inferred to be quarried faces, to the north of the site show no evidence of instability despite being cut significantly steeper than 1V:1H.*

WDC response

The information provided is sufficient.

Please include an assessment of the global stability of the slope in Lot 78 with respect to the effect of the proposed earthworks on the existing water reservoir.

Response received 11 February 2022

1(d) Stability analysis has been undertaken for Lot 78, to assess the stability of a possible cut slope at the rear of the site, and to assess the effects of excavation on the global stability of the reservoir. It should be noted that as part of the earthworks design review, we have recommended that this lot be graded evenly and not cut flat during developmental earthworks. The analysis therefore represents a future, site specific development scenario.

The model has been developed based on nearby site investigation data, with parameters adopted as used for previous stability analysis. A uniformly distributed load of 100kPa has been adopted for to represent the existing reservoir.

The analysis shows that the critical stability section is the cut slope within the lot, with deeper failures extending beneath the reservoir (i.e. global/bearing failures) having a greater factor of safety.

The modelled factor of safety exceeds minimum criteria for all scenarios (design and extreme groundwater, ULS seismic). The critical case was found to be seismic with a factor of 1.9 for the local slope and >2.0 for surfaces extending beneath the reservoir.

Based on the results of the analysis we consider that future earthworks at Lot 78 will not have any appreciable effect on the stability of the existing reservoir.

However, future development of the site will need to consider appropriate design boundary surcharges for the design of any cut batters or retaining walls.

WDC response

This will need to be reassessed. Updated plans show Lot 77 (formally lot 78) as now having a retaining wall the order of 4-5m high.

They should also be checking the IL4 seismic case as the tanks are effectively an IL4 structure.

We also note that additional geotechnical information at the location of the tanks is available in the NZGS. These shows loose gravels being present which would be expected to have little/no cohesion vs. the parameters adopted in the model. It is not clear how the assumed surcharge for the tank of 100 kPa has been determined and/or reflective of the tank loading/surcharge.

Sent 8 May 2023 but it looks like wrong reference used – this is response to item 1(d) not 1(c)

Response received 24 July 2023 (LDE Memo labelled Geotechnical Review Response – Additional Comments dated 4 July 2023)

Response dated 24 July (BW submission 3 July):

Retaining walls are designed and batters where the developer would like them. The sites identified above do not need retaining walls. While retaining walls are beneficial for helping to create usable space on a lot, it is a developers' decision as to where they see the value in creating these walls or leaving them as batters.

WDC response

The stability assessment is based on Lot 77 as retained cut slope; however, it is not proposed to provide retaining at subdivision stage. Earthworks plans currently show a retaining wall. Council requests a retaining wall is constructed on its side to futureproof stability of the sites as part of the development and is intending to enter into an agreement with the developer.

A stability assessment for the current earthworks plan has been provided but this does not currently provide for surcharge on Councils side of the retaining wall. In future, it is expected that there will be an access track located on Councils side of the retaining wall.

At a meeting with WDC project manager for the Water Reservoir project, it is requested that a retaining wall is constructed by the developer on Councils side of the boundary with the development. The retaining wall will be designed to accommodate future loading. It is not acceptable to leave this to future owners of the lot. Deva is working on an MOU that will become tied in with a consent condition.

Proposed advice note by T&T – to be updated to a condition: The retaining walls along the northern property boundary shared by Council will need to consider the future requirements of Council in their design. This may include but not strictly limited to, passage of heavy machinery. Consultation with Council regarding the wall design should be undertaken prior to building consent submission.

Please confirm that the applicant accepts this matter may be covered by a consent condition.

Meeting 17 August 2023:

At the meeting held on 17 August 2023 (present were DW, CN, AH, DH, NG, JF and MM), it was discussed that the retaining wall will need to be located on the Reservoir side on the boundary due to the wall being a MSE wall. It would be untidy to have the wall straddle the property boundaries. It is proposed that the developer constructs the retaining wall.

Council is proposing a condition that ties the development to an MOU.

It was noted that the MSE wall may need an outline plan approval. Deva/Christine to confirm.

Actions from meeting:

Dayle Widdup and Deva Howat are to work on the MOU.

Deva Howat to confirm if OPW is required for retaining wall. This does not have a direct bearing on this consent.

Response dated 1 September 2023:

It was noted that this point is not really within the scope of the geotechnical review, and that it should be covered by any agreement between the developer and Council.

WDC response:

T&T noted that LDE's analysis also does not account for the surcharge of the tank or potentially imposed loads thereby not addressing the specific request. T&T suggested that a graded slope should be adopted for the affected lots for now, then once an agreement was reached with Council, then this matter can be reassessed.

This matter can be covered by an agreement/ MOU for any retaining/ boundary treatment which can be a separate process outside of the consent as the lots potentially affected by the reservoir project are able to be developed as they will be stable if they are not cut and retained. I recommend a consent notice is applied to the subject lots to advise future owners of the limitation on their development. The consent notice may be removed once an agreement has been reached with Council.

Developing high fills and cuts on site will increase the shear stresses acting on the allophanic soil layer. Please provide comment on whether the allophanic soils could suffer a critical loss of shear strength due to these increased shear stresses from straining of these soils, that then leads to instability of the cuts or fill.

Response received 11 February 2022

1(e) Triaxial testing has been undertaken to characterise the shear strength and failure mode of the tephra soils in apparent worst-case areas (as identified in in situ testing). Test data will be incorporated into the detailed design of the MSE walls to provide an adequate factor of safety against bearing failure.

WDC response

The specific question has not been answered, but they have indicated that further analysis will be undertaken during detailed design using laboratory testing data from soil samples. This can be considered closed out by way of a specific future consent condition.

Proposed conditions are as recommended above.

Earthworks and retaining walls

Please confirm that in areas of significant filling, settlement monitoring is intended to be undertaken to confirm the assumption of settlement not occurring beyond subdivision development stage.

Response received 11 February 2022

2(a) Further investigation is being undertaken to support settlement analysis for the proposed MSE walls. Any specifications for additional monitoring will be informed by analysis and outlined in the detailed design for the structures and incorporated into the development's completion reports.

WDC response

The specific question has not been answered but can be conditioned that settlement monitoring is undertaken.

Proposed conditions:

As part of the building consent application for the proposed Mechanically Stabilised Earth (MSE) Walls the engineer shall assess the potential for the wall to trigger slope instability within the underlying sensitive soils as identified in the LDE suitability report. The global stability of the slope on which the wall is to be located shall comply with WDC's Land Development Stabilisation – Technical Design Requirements policy (2018).

MSE walls shall have a design life of not less than 100 years.

Meeting 17 August 2023 with Applicant:

At the meeting held on 17 August 2023 it was queried why Council requests a 100-year design life. It was discussed that timber retaining walls have a design life of 50 years which is required by building code.

It was noted that MSE walls (which are being used on this development) typically have a design life longer than this. It was questioned where else Council has required a 100-year design life for other developments. It was noted that this has been required where walls are required for slope stability mitigation. A design life of 50-years is acceptable where being used to create level building platforms.

Nadia noted that the development must comply with S106, therefore a design life of 100-years is required for retaining required for slope stability mitigation. She understood this to be based on caselaw.

WDC response:

If the retaining wall supports or spans across multiple lots, then a 100 year design life. These walls is required with evidence of a building consent being applied for and code of compliance provided prior to s224C being issued. The same will apply where the wall supports vested infrastructure.

Specific approval will be required where retaining walls are proposed over services.

Separate set of plans overlaying the retaining walls over infrastructure will allow Council to check for any cross overs.

We note that the order of 4 m to 6.4 m of fill is intended to be placed to form the stormwater pond. Please confirm what the settlement effects are likely to be on neighbouring properties as a result of this fill placement.

Response received 11 February 2022

2(b) Preliminary analysis using worst-expected soil conditions indicates settlement less than 25mm at the toe of the embankment with no significant settlement predicted beyond the development boundary. Further analysis will be undertaken as part of detailed design, incorporating any structure specific testing for the embankment.

WDC response

The preliminary analysis confirming their statement has not been provided. Please provide a copy of the analysis for council review/records. This should outline the parameters and assumptions with respect to induced loads and ground model at the pond location.

Response received 24 July 2023 (LDE Memo labelled Geotechnical Review Response – Additional Comments dated 4 July 2023)

Preliminary analysis was undertaken with Settle3. The case was modelled as follows:

- *Embankment modelled as settle3 'Embankment load':*
  - *40m base width*
  - *Side slopes of 1V:3H.*
  - *Height of 6m.*
  - *Load of 17.5kN/m3.*
- *The soil profile was modelled as:*
  - *0 – 2.5m depth: Residual soil/alluvium (very stiff to hard clay)*
    - *mv of 5e-5 m2/kN (i.e M = ~20 MPa, conservative from DMTs)*
  - *2.5 – 7.0m depth: Tephra (loose/firm to stiff gravelly silt)*
    - *mv of 5e-4 m2/kN.*
    - *This is inferred to be the critical layer controlling settlement. Parameter is conservative estimate from in situ (DMT + CPT) testing and consol stage of triaxial tests in this material.*
  - *Basalt beneath treated as incompressible.*
- *Results indicate 20mm settlement at embankment edge tapering to nothing at about 5m off the embankment.*

It should be noted this is highly conservative and is intended only to demonstrate that effects on neighbouring properties is very unlikely. It is widely recognised that settlement modelling in volcanic, especially tephra soils often greatly overpredicts settlement.

WDC response

The commentary indicates that a "Load 17.5 kN/m3" was modelled. Please confirm whether this is intended to be the unit weight of the soils, as a 6m high fill embankment would be expected to exert a load significantly greater than what is stated.

Proposed conditions:

Static settlements associated with the fill placed to form the stormwater attenuation pond shall be monitored along the property boundary adjacent to the fill embankment to demonstrate effects of the fill are not having an adverse cross boundary settlement effect on the adjacent properties. Settlement monitoring data shall be collected and presented in the Geotechnical Completion Report.

Response received 1 September 2023:

In regard to the soil weight, testing indicates that the soil weights for some of the sites material is as low as 13kN/m³, the 17.5kN/m³ soil weight has just been used for resource consent purposes, and the design of any structure dam or otherwise within the development would consider the actual material weight of the source material to ensure that they are robustly designed.

WDC response:

The response is satisfactory.

Other comments/areas of concern

A retaining wall is proposed immediately adjacent to the Waitaua Stream. Do the walls need to be designed with consideration of scour/undermining noting the 'flood susceptible' zoning of the land?

Response received 11 February 2022

3(a) The lower retaining walls are located with significant offset from the stream, allowing for a recreation reserve strip between the lots and the stream. The plans have been adjusted which moves the lots and walls outside of the mapped flood susceptible zone and will not be subject to scour or undermining.

3(b) None of the lots or retaining walls fall within the 5m setback from the stream in the geotechnical report. The stream has been surveyed and the proposed works are at a minimum 10m back from the stream in all locations.

WDC response

The response is satisfactory.

Engineering Plans

Please extend the retaining wall location plan to include Lots 93 to 95 and the access road. We note that these lots have 'cut' shown and likely to require retaining of the slope. LDE have also indicated a retaining wall is likely to be required for the '*Stream band Slope (Road)*'.

Response received 11 February 2022:

Addressed by updated plans.

We note that the indicated location of the water supply main in Lots 79-93 varies from the Council GIS. Please confirm how the location of the water supply main has been determined.

Response received 11 February 2022:

Addressed by updated plans.

Response received 11 February 2022:

Updated engineering plans were provided dated January 2022.

WDC response

The response is satisfactory.

Further request for information 28 July 2023 in response to Engineering Plans:

T&T would like to highlight the area below shown on the earthwork plans. Can we please request Blue Wallace explains what is going on here? What is proposed to stabilise the stream bank? Why are contours not shown.

Response received 1 September 2023:

As outlined in the original earthworks design review the proposed subdivision design shows the road passing near the crest of the stream bank slope, with fills extending over the slope crest. Additional investigation has been undertaken in this area which indicates that a pole type retaining wall will be suitable as outlined in previous responses. The preliminary testing indicates that the wall will need to be designed to support any fill and an additional 2m or more (depending on the walls final design location) to provide a suitable design to support the road and meet the required standards. The detailed design of this and the other walls within the development will be completed once resource consent is granted.

WDC response:

The response is satisfactory.

Stormwater

Floodplain Management

It is unclear which flood map has been used to plot the 100yr flood plain. The most up to date flood mapping is the NRC Mapping (https://www.nrc.govt.nz/floodmaps/ and shown in Figure 2 below). There is no 100yr flood plain shown the WDC Flood Map referred to in Section 4.4. The WDC map only shows a 'flood susceptible area' (not a 100yr flood plain as described in the text). Please check and correct this.

Response received 11 February 2022

The southern lots have been adjusted to be outside the latest 100-Year ARI floodplain as mapped in the NRC Flood Map and will therefore not affected by flooding.

WDC response

The revised application states the flood plain used is the 100-year ARI from NRC GIS Flood Hazard Maps (Section 4.4). No further action required.

The flood analysis completed at Lot 15 is not representative of all lots potentially at risk of flooding along the Waitaua Stream channel. The following is required (analysed separately as (a to g) below):

(a) Please confirm if the 100yr flood analysis completed includes climate change or not (it needs to include a 20% allowance for climate change).

Response received 11 February 2022

No response received.

WDC response

Section removed from application – based on the site now outside flood plain. No further action required.

(b) Please provide further detail on the nature of surveying completed to confirm stream channel shape, levels and centreline – the WDC GIS Contours are not of sufficient accuracy for estimating flood levels in this context (they are LiDAR survey based and under heavy tree cover – which means they will be of low accuracy). A cross section survey of the stream channel at key locations is recommended.

Response received 11 February 2022

No specific response received.

WDC response

Section removed from application – based on the site now outside flood plain. No further action required.

(c) Please advise if the location of the stream channel centreline has been confirmed via survey – the location of the channel varies on several of the supplied drawings (e.g. compare 20253-01-PL-102 and Figure 5). The stream channel and associated flood extents must be accurately plotted on all relevant drawings.

Response received 11 February 2022

No specific response received.

WDC response

The revised application removed the stream channel centreline from 20253-01-PL-102. The stream centreline was not confirmed. Please confirm the stream centreline.

Response dated 24 July (BW submission 3 July):

Centreline was removed from plan to prevent cluttering. Boundaries are shown on scheme plan as per normal practice. Stream centreline has been fixed by survey and is shown on existing contour plan and proposed contour plan.

Updated stormwater plans show stream centreline and 100 year flood extent.

WDC response:

Accepted. No further action is required.

(d) Further detail is needed on channel roughness assumptions (in channel and out of bank).

Response received 11 February 2022

No response received.

WDC response

The revised application has not addressed this comment. Please address comment.

Response received 24 July 2023 (LDE Memo labelled RFI Responses Stormwater dated 4 July 2023)

The stream flood levels are from NRC flood mapping, and rather than reanalysing it, it was decided to simply kept all development outside the mapped 100yr flood plain areas to avoid triggering the earthworks rules around working in flood plains.

WDC response

Accepted. No further action is required.

(e) Further detail is needed on the potential impact of the walkway proposed beside and over the stream channel (as shown in the concept scheme plan - 20253-01-PL-102) will have on post development flood extents.

Response received 11 February 2022

No response received.

WDC response

The revised application has not addressed this comment. Please address comment.

Response received 24 July 2023 (LDE Memo labelled RFI Responses Stormwater dated 4 July 2023)

The walkway is to be a gravel path constructed at grade along the edge of the river bank similar to other walkways in this sort of area so it will not have any noticeable effect on the streams flows, or flooding.

No further action is required. Considering the footpath will not change the topography within the 100 year flood plain.

(f) Pre and post development flood levels should be analysed at Lot 1, Lot 9, Lot 15 and at the downstream extent of the earthworks required to create the pond as a minimum.

WDC response

Refer below regarding stormwater management.

(g) The proposed retaining walls for several of the lots are adjacent to the stream channel – the flood level analysis in the previous point needs to show that no net change to flood plain volume occurs and that no increased flood risk occurs to adjacent or downstream properties.

Response received 11 February 2022

The southern lots have been adjusted to be outside the latest 100-Year ARI floodplain as mapped in the NRC Flood Map and will therefore not affected by flooding.

WDC response

The revised application has adjusted the properties in catchment E to be outside the 100 Year ARI flood plain. (Attachment 2: Section 4.4: Figure 5). No further action required. Note - Appendix 5 table 1, the catchment sizes have changed, and the total site size has decreased in size, ~900m2.

WDC response

Refer below regarding stormwater management.

Overland Flow Paths

Overland flow paths (refer Figure 1 below) have not been included in the drawings and have not been adequately addressed in the concept design (refer point (2b) below). The applicant must show these in the existing site drawings and demonstrate how they have been accommodated in the concept design.

Response received 11 February 2022

Please see updated plans showing overland flow paths for the proposed development.

WDC response:

With reference to Attachment 2 – Appendix C: Site post development OLFP, no existing OLFP shown. Please provide existing OLFP within application.

Response dated 24 July (BW submission 3 July):

Overland flow paths added to Plan 200

WDC response:

Existing OLFP shown. No further action required.

Please check and revise the post-development overland flow path routes to address the following issues (compare Appendix C Sheet 1 of 3 and 20253-01-RC-201):

(a) Uphill flow shown adjacent to Lots 64-67 and 58-61

Response received 11 February 2022

This flow path direction has been updated. Please see updated plans.

WDC response:

No further action required (Revised application has switched the direction of the OLFP)

(b) Demonstrate how the overland flow will be directed into the pond (20253-01-RC-201 shows contours uniformly decreasing to the east with no diversion into the pond)

Response received 11 February 2022

Please see updated plans showing overland flow paths for the proposed development.

WDC response:

Two megapits added adjacent to pond on road to direct flow path. No further action required.

(c) Demonstrate how the overland flow will be directed down the road adjacent to Lots 5-8 (20253-01-RC shows contours directing the flow into Lots 6/7)

Response received 11 February 2022

The scheme plan has been updated due to earthwork around a stream and overland flow is directed towards the stream and not the road from these lower lots.

WDC response:

The question is referring to how the OLFP from the catchment above the road is contained within the road instead of passing through Lots 6 & 7. The response has not addressed this query. Please demonstrate how the OLFP will be contained along the road and ultimately directed into the pond.

Response dated 24 July (BW submission 3 July):

Section detail shows flood level within road corridor.

Response received 24 July 2023 (LDE Memo labelled RFI Responses Stormwater dated 4 July 2023)

The road drains down towards the pond at a continuous fall with the grade generally 0.6% for most of its length, so all runoff upstream of the road is collected into the road and drains towards the pond along the road. Hynds Megapits have been specified in one of the previous RFI responses provided for this development as the collection device in the road to divert it into the pond. The road cross section is shown in attached drawings with sections through lots 6 and 7. The 100yr flow into the pond from the modelling of the subdivisions upstream catchments including climate change entering the pond is 1.585m³/s.

The hydroflow calculation shows the water depth in the road in the 100year storm including climate change will be 271mm in depth at the location of the Megapits, it is expected to be substantially lower than this back up the road near lots 6 and 7.

WDC response

It is recommended to include a resource consent condition that requires the Engineering Plans to show how the overland flow path outside Lots 6 and 7 will be managed while ensuring access can be provided for these lots in line with WDC ES 2022 requirements.

I recommend that the vehicle crossings for Lots 6 and 7 are constructed at subdivision stage to ensure overland flows are maintained within the road channel. If the applicant does not agree to this, then I recommend that the crossings are designed, and a consent notice requires them constructed to the design. If they do not agree to either, then they will need to provide an overland flow path through the lots.

Response received 1 September 2023:

Although no comment is required, it is worth noting here that there will be no overland flow path through lots 6 and 7 in the finished development. (Refer to the earthworks plans), so no consent condition is required, all flows will be captured by the road above which direct them towards the pond, so within those lots the only flows generated are those within each lot boundary, there is no upstream catchments running through any of these lower lots. The snip below from the engineering plans show the roads long section with the continuous fall.

Stormwater Management:

Please check and confirm the correct HIRDS V4 rainfall data has been used in the design (Appendix A shows values that are substantially higher than a 20% increase to historic rainfall intensities)

Response received 11 February 2022

We can confirm the HIRDS V4 rainfall data has been used with a 20% increase to historic rainfall intensities. These values also include an allowance for standard errors which maybe the reason the values appear higher.

WDC response:

As commented above. No further action required.

WDC Asset mapping shows two AC watermains (225mm and 300mm diameter) running through the pond location. This needs to be acknowledged and addressed in the concept design.

Response received 11 February 2022

No response

WDC response:

The revised application has not addressed this comment. Please address comment.

Response dated 24 July (BW submission 3 July):

Section plan to show actual location of water lines and pond to show relative location. WDC asset location out of place. See plan 503.

WDC response:

Plan 503 shows existing water line located outside pond extents. No further action required.

Section 4.2 – Figure 4 and Table 1: Please check and confirm catchment areas. The values in Table 1 do not add up to the catchment areas shown to in Figure 4.

Response received 11 February 2022

Please find updated report with the values in Table 1 and Figure 4 now being consistent.

WDC response:

The table and figure catchment area match. No further action required.

As per EES 4.6.4.1 & EES 4.11.1, post development flows (including climate change) must be limited to 80% of pre-development flows. The proposed design does not achieve this – Section 6.3 Table 4 show

no reduction compared to pre-development flows. The supplied report does not clearly reference or acknowledge this EES requirement.

Response received 11 February 2022

Following the Three Waters environmental hearing earlier this year between Kainga Ora housing and WDC, we understand that a precedent has been set that supersedes council 2010 EES requirement and eliminates the need to provide for a reduction in stormwater flows to 80% of existing pre-development flows on top of applying a 20% climate change increase.

The design has therefore applied the climate changes 20% increase but has not mitigated the discharge rates to 80% below existing levels.

WDC response:

Please note that the change to the Three Waters component of the District Plan does not supersede WDC 2010 EES requirements. The EES provides a pathway for compliance with the District Plan, but alternatives are also accepted when supported by relevant evidence and analysis. As per the Matters of Discretion associated with the District Plan TWM-R2, the development should provide 'the appropriate level of attenuation within the allotment based on surrounding and downstream flooding risks' and manage the 'adverse effects on the surrounding environment and neighbouring properties from the collection, treatment and disposal of stormwater'. This can be achieved by either:

I. Providing attenuation in line with the 2010 EES (including 100yr + Climate Change)

II. Providing a detailed assessment of upstream, downstream and environmental effects relating to the increased discharge of stormwater

Please provide an attenuation design that meets the requirements of point (I) above or an analysis that shows the development will not increase flood risk off site.

Response received 24 July 2023 (LDE Memo labelled RFI Responses Stormwater dated 4 July 2023)

We maintain our stance that this is an unreasonable request, given the approvals in the surrounding developments, and the court case with Kianga Ora housing so will not be providing the additional 20% mitigation on top of the climate change requirements at this time.

WDC response

It is noted that the WDC ES have been revised since the original submission of this application. We will accept a design that shows compliance with Table 4-1 of the WDC ES 2022 (Attenuation of 50% and 20% AEP flows to pre-development flows with climate change applied to pre and post development conditions & limiting 1%AEP flows to 80% of pre-development levels with no climate change allowance). These requirements have consistently been applied and accepted by developers across the WDC area since mid-2022. Please adjust your calculations accordingly.

Meeting 17 August 2023 with Applicant:

The applicant does not agree to limiting post development flows to 80% of pre-development flows.

It was noted that the development discharges directly into the receiving environment rather than to WDC network.

We discussed that the alternative is as Michael Arthur has noted above, which is the show that the development does not increase downstream flooding.

Actions from meeting:

The above concern is still to be addressed. It is necessary to justify why the level of attenuation required by EES 2010 or ES 2022 is not required.

Response received 1 September 2023:

It is our opinion that this is an unreasonable request, given the approvals in the surrounding developments, and the recent court case with Kianga Ora housing. The pond is mitigating the peak flows from the completed development (including 20% for climate change which is higher than the normal RCP8.5 climate change guidance used in other regions of NZ) to less than predevelopment flows. The pond discharges into a stream so does alter the developments catchment discharge location and does not increase predevelopment peak flows into this stream even when considering climate change. It is not discharging into councils reticulated piped systems, which we would assume is the reason for this additional 20% mitigation being required, because many of the piped networks in

the district are undersized for the existing catchments. As this development is not discharging into a reticulated pipe system we believe that it is unreasonable to require the additional mitigation and for the additional expense of this to be borne by the development.

WDC response:

The response does not actually provide any further information to determine effects on downstream flooding as a result of the development. This would enable Council to accept that post-development flows do not needs to be reduced to 80% of pre-development flows.

Feedback received from Mazza Azziz:

I understand that the ultimate discharge point is the stream through an attenuation pond. I align with the applicant's assertion that they meet the District Plan's (DP) requirements by demonstrating that post-development flow rates do not exceed pre-development levels. However, it's essential to note that the District Plan serves as a standard document in accordance with the Resource Management Act (RMA), designed to accommodate various land development activities. Consequently, it lacks the capacity to specify detailed stormwater management requirements.

This is where the WDC EES2022 comes into play, as it allows us the flexibility to provide stormwater management guidance. While it may not be an enforcement document, it serves as a compliance tool for the Whangarei District. If the applicant chooses to use WDC EES2022 as a means of compliance, they must adhere to its requirements and follow the stormwater management guidelines outlined therein.

Considering that the proposal involves discharging into the stream, and there is a significant downstream flood risk hazard, the minimum stormwater management requirements include:

- Implementing 1% Annual Exceedance Probability (AEP) flood control to limit post-development peak flow rates to 80% of pre-development levels.
- Employing volume control measures such as water retention systems. WDC EES2022 allows flexibility for customers to explore best practice methods suitable for their development scheme and feasible to the subject site.
- Complying with DP's requirement that any attenuation should accommodate an additional 20% for climate change. While the applicant suggests that 20% is conservative compared to other regions in New Zealand, this figure is the minimum climate change consideration for Whangarei, taking into account various factors like Whangarei's hydrology, geography, existing infrastructure, and growth potential etc.
- Determining the need for Flow Attenuation (Attenuation of the 50% and 20% AEP events) through an engineering assessment. This assessment should demonstrate that the receiving environment (the watercourse) can handle runoff generated from the subject site during 50% and 20% AEP events, including a 20% climate change factor. If there is sufficient capacity, flow attenuation for these small events may not be required.
- Ensuring that all secondary flows generated from the proposed development are appropriately managed and conveyed to the point of discharge, with no flooding issues affecting habitable floors within the development site.

I trust this clarifies the interpretation of rules and standards, as well as the required stormwater management for the proposed development on the subject site. It's crucial for the applicant to understand that the primary concern with attenuation requirements is mitigating the existing downstream flood risk hazard. The goal is to strike a balance between development and environmental considerations, with a focus on responsible stormwater management to ensure that increased development density in the district doesn't contribute to or worsen the existing flood risk hazard.

WDC ES requirements are as per table 4-1.

Climate change does need to be factored as required by the WDC DP.

If not complying with WDC ES 2022, then the designer will need to demonstrate that development does not increase downstream flooding risk.

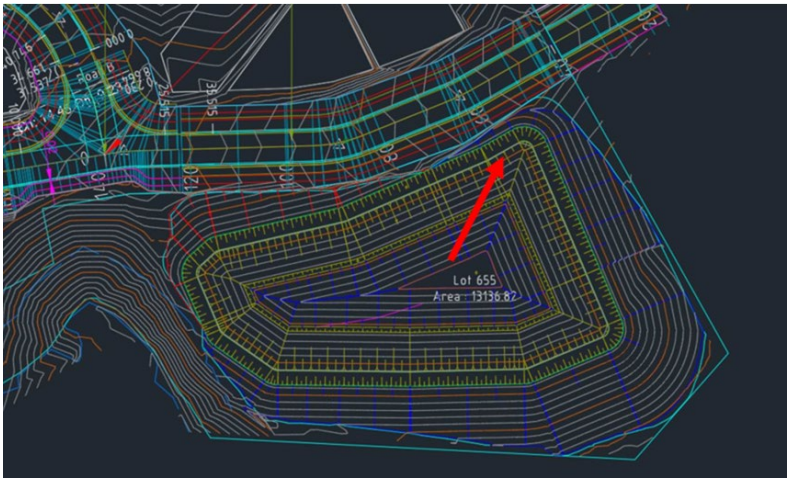
We also discussed that it is not acceptable to rely on other development conditions as each development must be considered separately to take into consideration the differences in the development and the receiving environment.

Response dated 2 October 2023:

We have decided to agree in principle to the increase in detention required to accommodate the 80% predevelopment request, attached is a brief summary of the effects and we will update the plans and more detailed bits of information like the drawings if that's acceptable for this change as part of the EPA once consent is granted.

The pond size has obviously increased as a result, but I have managed to keep it within the original reserve area without affecting any of the other restrictions like moving anything closer to the stream.

A summary of the changes was provided. The ponds footprint is the same shape as in the current plans just stretched a bit uphill mainly in the direction of the arrow to get the additional volumes required to achieve the additional mitigation, the slopes batter benches etc remain unchanged.



WDC response:

Subject to provision of further detail and calculations at Engineering Design stage, the response is accepted. This matter is considered closed.

It was also confirmed that the increase in the size of the pond will not require an amendment to the regional consent.

The pond, stream channel and discharge (piped and emergency spillway) locations are unclear and need to be confirmed. 20253-01-RC-201 & 20253-01-PL-102 show the pond embankment extending into the stream channel while Appendix C Sheet 1 of 3 and 20253-01-RC-201 shows a different stream channel location.

Response received 11 February 2022

No response

WDC response:

The revised application has addressed stream channel location issues, but no updates have been made to address other queries. Please provide a response to the remaining queries.

Response dated 24 July (BW submission 3 July):

The locations have been updated and shown on BW plan 500 in the same location where LDE have proposed them. These have been placed based on survey accurate data.

WDC response:

Accepted. No further action required.

The applicant needs to demonstrate that the positioning of the emergency spillway will not increase flood risk to adjacent properties and aligned at less than 90 degress to the stream alignment.

Response received 11 February 2022

The emergency spillway is to convey flows for events in excess of the 100-year ARI storm event or if there was a blockage and will therefore not increase flood risk to adjacent properties.

The 100-year ARI storm event will be discharged through the scruffy dome. The proposed outlet pipe from the pond to the stream is at 90 degrees, no more than this as shown in the plans.

There will also be a shallow grassed dish formed where the emergency spillway is indicated on top of the pipeline alignment to direct flows towards the stream.

Earthworks volumes for the pond outlet pipe and headwall within 10m of the stream is approximately 50m³, assuming up to a 2m width is excavated for installation of the pipe.

WDC response:

No further action required.

The applicant needs to explain how the 100-year flows will be collected and directed into the pond from the road.

Response received 11 February 2022

A mega pit will be installed on each side of the road which will collect all runoff from each side of the road. The 100 year flow to be collected is approximately 1.3m³/s in total, with each mega pit capable of capturing up to 1m³/s per pit. The location and detailed design of these and the rest of the stormwater system will be done as part of the EPA.

WDC response:

No further action required. (Cover, grade, alignment, outlet/inlet structures all look ok for RC stage). Note that Hynds mega pit capacity is 0.8m3/s – but this still provides sufficient flow capacity.

New item associated with WDC Reservoir Project

At a meeting with WDC project manager for the Water Reservoir project adjacent to the site, he requested that I confirm that the level spreader design proposed for the stormwater discharge from the reservoir site onto Onoke development site has been accepted by Onoke Heights and in future, flows will be incorporated into the stormwater design for that development). He also requested that I propose a condition to that affect.

Please confirm that the level spreader design for the attenuated stormwater and tank overflow is acceptable to be located on the development site as a temporary measure with the discharge being incorporated into the stormwater reticulation design for the development in the future.

Please confirm that the applicant accepts this matter may be covered by a consent condition.

Meeting 17 August 2023 with Applicant:

At the meeting held on 17 August 2023 it was discussed that Councils preference is that this issue is sorted out via an MOU which would include that a temporary stormwater disposal structure was able to be located on the Onoke site, with the stormwater incorporated into the design of the future network. The MOU would be tied into the consent conditions.

It was noted that the discharge will be a point discharge from the proposed attenuation pond on the Reservoir site. It was noted that the Onoke land currently receives stormwater via sheet flow from the reservoir site. There is no space on the reservoir site to dispose of stormwater via a level spreader.

WDC response:

It is understood that the developer is not able to enter into an agreement with Council at this time. As it is usual practice that upstream flows are managed within the development, then I do not see any reason for a special consent condition. The boundary issue with the reservoir site can be dealt with as a separate issue.

Water Services

New item associated with WDC Reservoir Project

Council requests that the Ø450 OD water main is relocated to the proposed road as it cannot be located in the back yards on private properties. Council is prepared to supply the pipe and requesting the contractor installs it. The existing pipe can remain in situ. Deva is working on an MOU that will become tied in with a consent condition.

Please confirm that the applicant accepts this matter may be covered by a consent condition.

Meeting 17 August 2023 with Applicant:

At the meeting held on 17 August 2023 it was discussed that the bulk water mains cannot remain in the back of the new sections and need to be relocated into the vested roads.

Council is proposing they provide the pipe, and that the developer installs it.

It was requested to confirm the location of the pipe as there is insufficient space in the berm for it/ them to go. In the past NTA has pushed back at having assets under the carriageway.

It need to be confirmed if they will accept this, and whether they prefer the pipes located in the centre of the road, or the centre of a lane.

WDC response:

The location of bulk pipelines within the new road needs to be confirmed with NTA.

I recommend a consent condition requiring the relocation of the bulk water pipelines.

Roading and Access

[Planner raised] My understanding in reading the Integrated Traffic Impact Assessment is that only Lots 1 – 4 will have access directly onto Dip Road. All other lots with frontage to Dip Road (Lots 44 – 48, 62 – 64, and 71 – 74) will obtain access internally. It's not clear whether this is a necessity for traffic safety to avoid effects on Dip Road, a matter of practicality (given earthworks and retaining walls) or more of an amenity issue. However, if it is a traffic safety matter, presumably a condition of consent should address this.

Response received 11 February 2022

The development has been designed to reduce the number of vehicle crossings from Dip Road for multiple reasons including, site layout, internal amenity, pedestrian and vehicle safety and manoeuvring throughout the development. Maintaining traffic safety of Dip Road is a priority. As such I agree that a consent condition should be applied to restrict future vehicle access from proposed lots 43 – 47, 61 - 63 and 70 – 73 and would support the inclusion of a consent notice to this effect.

WDC response (NTA)

Based on NTA requests below, the response is satisfactory. The consent notices are acceptable to limit access from Dip Road.

The suitability of proposed lost 1 – 4 gaining access internally has been discussed by Mr Scanlen in response to a further information request below.

Roading and Access (Addendum 24 December)

Please provide details on Lot 595 – minimum 2.2m concrete path

Response received 11 February 2022

Lot 595 is proposed to be vested as recreation reserve and is a strip of ground between the subdivision and Waitaua Stream. The proposal includes a paved pathway along this reserve – 2.2 metres wide with a surfacing of compacted fine aggregate.

WDC response (NTA)

Disagree - Compacted fine aggregate is not acceptable for an urban development. The surfacing type should be concrete.

Meeting 17 August 2023 with Applicant:

At the meeting held on 17 August 2023 it was discussed that the aggregate track is considered most suitable for the situation located adjacent to the stream. It was noted Council has accepted this previously (ref Totara Parklands), and that this is not a roading asset. There is a sealed alternative.

Actions from meeting (not discussed):

I note that EES 2010 requires a central permanently surfaced (permeable pavers, turf block pavers, or porous concrete) shared path 2.20m in width.

As this will be a Parks asset, I consider that this is a decision from them.

Noted from WDC Parks and Reserves 10 March 2022 in an email to the planner: *We understand that the proposed path will be 2.2m wide and will be metal. While we do have some reservations about potential scouring and shifting of the metal in a flood event. While we would prefer that a concrete path is installed, we are prepared to accept the metal path.*

I therefore conclude that the aggregate path is accepted.

Removable barriers shall be installed to control vehicle access and allow maintenance. These barriers shall be to the approval of the parks manager.

Access for Lots 1-4 off of Dip Road – the preference is all lots are accessed off of Roads A/B/C rather than individual access for Lots 1-4 in addition to the intersection of Dip Road/Road A.

Response received 11 February 2022

There is not enough space for Lots 1 to 4 to be accessed from internal subdivision roads. Furthermore, any such direct access would be in close proximity to both the Dip Road/Road A and Road A/Road B intersection and is unlikely to be superior to the proposed direct access from a traffic safety viewpoint.

I would further comment that Dip Road and Road A will carry very similar levels of traffic in future. At full development of the subdivision and the land zoned low-density residential around the northern end of Dip Road, I estimate 830 to 830 movements per day on the western end of Road A and fewer than 1,100 per day on Dip Road south of Road A.2 This is light traffic by urban standards.

WDC response (NTA)

Agreed. At building consent stage, there should be adequate manoeuvrability on-site, such that homeowners would not need to reverse into the live lane.

Further it is expected that proposed Road A and Dip Road will carry similar levels of traffic.

Requests for clarification/additional information on the ITA

Section 5.1 Route Usage – please clarify if the ITA is indicating that in addition to subdivision traffic an additional 260-270 existing trips on Dip Road will divert to Road A for a total of approximately 1000 movements on Road A. Does this affect the major/minor road relationship between Dip Road and Road A.

Response received 11 February 2022

This is the diversion rate I estimate, although I also estimate total traffic at the eastern end of Road A (and additional traffic on Tuatara Drive) of close to 900 movements per day at full subdivision development. At the western and of Road A, I estimate fewer than 450 movements per day at full subdivision development plus a proportion of the traffic from future subdivision and development around the northern end of Dip Road.

As such, I estimate that Road A and Dip Road will eventually carry similar levels of traffic, none of which is busy by urban standards. There will be a bias of Road A traffic to/from the north but, with the low volumes, nothing will be gained by changing the priority route at the Dip Road/Road A intersection.

WDC response (NTA)

The response is satisfactory.

Section 5.1 Route Usage – The ITA estimates that only 20% of subdivision traffic will use the Dip Road intersection. Please describe how this estimate was reached. If an assumption that 50% of subdivision traffic was to use the Dip Road intersection how would this change the need for upgrades to this intersection or the intersection of Dip Road and Three Mile Bush Road?

Response received 11 February 2022

My estimate of the proportion of subdivision traffic that will travel to/from Dip Road is based on a qualitative gravity model that considers the numbers and intensity of destinations in both directions. The key destinations that would attract subdivision traffic to/from the west are Hurupaki School and Northland golf course. To the east, there is almost all of the Whangarei urban area, including Kamo, and everywhere to its south. Road A/Tuatara Drive will provide the shortest and quickest route to all of those destinations.

In fact, I have very likely over-estimated the proportion of subdivision traffic that will travel to/from the west and I do not consider it credible to assign more than 20% to/from those destinations.

Even if that proportion does increase, for example because a major new attraction is developed that would attract significantly more subdivision traffic to/from the west, the Dip Road/Road A intersection will remain adequate. This is because the traffic through the priority intersection route will not reach be more than 100 movements per hour for many decades at least. This is still a very lightly trafficked route by urban standards.

WDC response (NTA)

The response is satisfactory.

With reference to 6.2.1 Pedestrian Safety – please advise if the increased traffic on Dip Road would warrant pedestrian crossing improvements/upgrades at Hurupaki School.

Response received 11 February 2022

I estimate that Road A will divert more traffic off Dip Road, to its south, than the subdivision will add to it, i.e. I expect the proposal to decrease the traffic on Dip Road past the school.

For the record, there is a Kea crossing on Dip Road for school pupils. Those are suitable, and used, on significantly busier roads than Dip Road.

WDC response (NTA)

The response is satisfactory.

With reference to 6.2.3 Safety of internal roads - Any proposed recessed parking bays and tree pits within the road reserve should be shown on the design plans. Vehicle crossings shall be designed and constructed at the time of subdivision where recessed parking bays are proposed and vehicle crossings should be designed to be clear of recessed parking bays.

Response received 11 February 2022

The recessed parking bays and tree pits within the road reserve are shown on the plans of road design. Those have been located to minimise the impact on the lots they front and to ensure there is sufficient space on all frontages for a vehicle crossing.

Additionally, a consent notice will be placed on titles in which a parking bay is proposed on the frontage. This is the same as the consent notices for the James subdivision (115 Three Mile Bush Road), which is:

> *All vehicle crossings shall be designed to minimise the loss of on-street parking where a parking bay has been constructed on the roadway adjacent to the Lot. The crossing shall be located to ensure that a minimum parking space length of 5.5 metres remains between the crossing and the end of the parking bay. The maximum width of the crossing shall be limited to 5.5m including the splays (unless a wider crossing is approved by WDC through the vehicle crossing permit process). The details of the crossing shall be submitted as part of the vehicle crossing permit application. The application shall be made prior to or in conjunction with the Building Consent application.*

As such, it is not necessary to form vehicle crossings on the lots with a parking bay on the frontage, either at subdivision development stage or prior to the development of each of the lots.

WDC response (NTA)

The response is satisfactory.

Overall Conclusion; The Application has effects in regard to engineering aspects which are ***no more than minor*** as detailed above.

Recommendation

Subject to proposed conditions of consent, that the application be approved.

Recommended Conditions

Recommended Land Use Conditions:

General Accordance

1. The site shall be developed in accordance with the following plans and reports:

- Blue Wallace Scheme Plan reference 20253-01-PL-102 dated April 2023 revision 20
- LDE Geotechnical Investigation Report ref 19103 dated 2 July 2021
- LDE Geotechnical Review Response Letter reference 19103 dated 2 February 2022
- LDE Geotechnical Review Response Letter reference 19103 dated 4 July 2023
- LDE Geotechnical RFI Responses reference 19103 date 1 September 2023

Recommended Subdivision Conditions

1. Prior to issue of a Section 223(c) certificate

a The consent holder must submit a detailed set of engineering plans prepared in accordance with Council's Engineering Standards 2010 Edition. The engineering plans are to be submitted to the Development Engineer for approval.

All work needing design/certification by a CPEng will require completion of a producer statement (design) (EES-PS1 or similar).

The Consent holder is to submit all documentation as required by Council "Quality Assurance/Quality Control Manual – Vested Assets". This will include nomination of a site Engineer and an "Inspection and Test Plan" for approval by the Development Engineer before any works commence.

Plans need to be prepared noting recommendations of the following reports unless an alternative engineering report(s) prepared by suitably experienced Chartered Professional Engineer(s) is/ are approved in writing by Council.

- LDE Geotechnical Investigation Report ref 19103 dated 2 July 2021
- LDE Geotechnical Review Response Letter reference 19103 dated 2 February 2022
- LDE Geotechnical Review Response Letter reference 19103 dated 4 July 2023
- LDE Geotechnical RFI Responses reference 19103 date 1 September 2023
- Engineering Outcomes Integrated Transport Assessment dated 24 November 2021
- Engineering Outcomes Response to Comments from NTA dated 28 January 2022
- LDE Three Waters Design Report reference 19103 dated 2 February 2022
- LDE Response to WDC RC Checklist Requirements reference 19103 dated 2 February 2023
- LDE RFI Responses Stormwater reference 19103 dated 4 July 2023
- LDE Civil RFI Responses reference 19103 dated 31 August 2023
- LDE Memorandum: Pond Change to 80% predevelopment levels reference 19103 dated 2 October 2023

Plans are to include but are not limited to:

i Design details showing proposed Earthworks and Retaining walls. All retaining walls shall be of specific engineered design by a Chartered Professional Engineer.

Any retaining walls shall be shown on the services plans and may require approval from the asset owner as per the Building over Services Policy.

Where retaining walls support or span across multiple lots, or support assets to be vested then they shall be designed for a 100-year lifespan. All retaining walls shall be of specific engineered design by a Chartered Professional Engineer.

Further laboratory analysis shall be undertaken to confirm soil parameters for the design of the retaining walls.

The retaining walls along the northern property boundary shared by Council will need to consider the future requirements of Council in their design if they are proposed. This may include but not strictly limited to, passage of heavy machinery. Consultation with Council regarding the wall design should be undertaken prior to building consent submission.

Retaining walls will require building consent. Engineering plan approval is not a substitute for building consent.

ii Design details of the combined services plan showing the layout and cross sections for the relocation of the critical electricity line, along with Northpower approval of the plan.

iii Road A (chainage 0-392m) Design details of the construction of legal road in general accordance with Table 3.1 Category B and Sheet 2 of Council's Environmental Engineering Standards 2010 Edition requirements and Blue Wallace Plans reference 20253 sheets 301 and 302 including a typical cross section, long section, culverts, drainage flow paths and overland flow.

Any proposed recessed parking bays and tree pits within the road reserve shall be shown on the design plans. Proposed vehicle crossings shall be shown on the subdivision plans where recessed parking bays are proposed. Vehicle crossings shall be designed to be clear of recessed parking bays.

iv Road B (chainage 0-289m) Design details of the construction of legal road in accordance with Table 3.1 Category B and Sheet 2 of Council's Environmental Engineering Standards 2010 Edition requirements and Blue Wallace Plans reference 20253 sheets 303 and 304 including a typical cross section, long section, culverts, drainage flow paths and overland flow.

Any proposed recessed parking bays and tree pits within the road reserve shall be shown on the design plans. Proposed vehicle crossings shall be shown on the subdivision plans where recessed parking bays are proposed. Vehicle crossings shall be designed to be clear of recessed parking bays.

v Road C (0-215m) Design details of the construction of legal road in accordance with Table 3.1 Category B and Sheet 2 of Council's Environmental Engineering Standards 2010 Edition requirements and Blue Wallace Plans reference 20253 sheet 305 including a typical cross section, long section, culverts, drainage flow paths and overland flow.

Any proposed recessed parking bays and tree pits within the road reserve shall be shown on the design plans. Proposed vehicle crossings shall be shown on the subdivision plans where recessed parking bays are proposed. Vehicle crossings shall be designed to be clear of recessed parking bays.

vi Design details of street signage in accordance with MOTSAM, and Councils Environmental Engineering Standards 2010 Edition.

vii (Lot 301) Design details of the construction of right of way 'A' in accordance with Table 3.7 Category A and Sheet 2 of Council's Environmental Engineering Standards 2010 Edition requirements and Blue Wallace Plans reference 20253 sheet 306 including a typical cross section, long section, culverts, drainage flow paths and overland flow.

viii Design details of the construction of right of way 'B', in accordance with Table 3.7 Category B and Sheet 2 of Council's Environmental Engineering Standards 2010 Edition requirements including a typical cross section, long section, culverts, drainage flow paths and overland flow.

ix Design details for Road and Public Space lighting to be installed. The street light design shall be overlain on the Civil design and Landscape drawings to ensure there are no areas of conflict.

"All materials, design and installation of Road and Public Space lighting shall comply with the requirements of the Northland Transportation Alliance Design Manual - Street Lighting Version 1_15/10/2020"

x Design details of the construction of new vehicle crossings for lots 4, 6, 7, 21, 45, 46, 60, 89, 90 and 93 in accordance with Sheet 18 Residential Single Width Crossing also in accordance with Sheets 22 & 23 of Council's Environmental Engineering Standards 2010 Edition. Entrance crossings are to be designed and constructed in such a manner that will control stormwater run-off entering a property from the road, and that likewise prevent stormwater and detritus, including gravel, dirt and other materials, migrating onto the road reserve from a property. Urban accessways and private driveways sloping up from the road shall have a stormwater collection and disposal system at the boundary as detailed on Sheet 19.

xi Design details of the construction of new vehicle crossings for Access Lots 301 and 302 in accordance with Sheet 19 Commercial Crossing also in accordance with Sheet 22 of Council's Environmental Engineering Standards 2010 Edition. Entrance crossings are to be designed and constructed in such a manner that will control stormwater run-off entering a property from the road, and that likewise prevent stormwater and detritus, including gravel, dirt and other materials, migrating onto the road reserve from a property. Urban accessways and private driveways sloping up from the road shall have a stormwater collection and disposal system at the boundary as detailed on Sheet 19.

xii Design details of the construction of a 2.2m wide aggregate footpath in reserve to be vested Lot 201 in general accordance with the Blue Wallace Scheme Plan ref 20253 revision 20.

xiii Design details of sewerage mainline reticulation inclusive of any manholes, fittings, and connections necessary to service to all residential lots, inclusive of calculations in accordance with Section 5 of Council's Environmental Engineering Standards 2010 Edition.

Note: The capacity and condition of the existing network needs to be confirmed at the time of design, and any remediation works undertaken as agreed by Council.

xiv Design details of sewer connections for lots 1 to 93 in accordance with Section 5 of Council's Environmental Engineering Standards 2010 Edition.

xv Design details of water connections for lots 1 to 93 in accordance with Sheet 46 or 47 of Council's Environmental Engineering Standards 2010 Edition including firefighting coverage in accordance with Sheet 45 and Section 6.11.

xvi Design details of water main extensions inclusive of any valves, bulk water meters, fittings and connections necessary to service all residential lots, inclusive of calculations in accordance with Section 6 of Council's Environmental Engineering Standards 2010 Edition.

Note: The capacity and condition of the existing network needs to be confirmed at the time of design, and any remediation works undertaken as agreed by Council.

xvii Design details of relocation of bulk water mains from being located within proposed lots 77 to 92 to the public road, including all valves and fittings necessary for the rerouting of the pipeline.

xviii Design details of stormwater connections for lots 1 to 93, in accordance with Sheet 36 or 37 and Section 4 of Council's Environmental Engineering Standards 2010 Edition. No stormwater connections shall be made directly to the reserve.

xix Design details of stormwater mainline reticulation inclusive of any upgrades to the existing reticulation, sumps, manholes, treatment devices, detention structures and connections necessary to service the development in accordance with Section 4 of Council's Environmental Engineering Standards 2010 Edition. The design is to include evidence that the new system is capable of receiving stormwater from further upstream development (this applies to the Councils Water Reservoir site).

xx Design details for a stormwater attenuation and treatment pond located within Lot 200 in accordance with Section 4 of Council's Engineering Standards 2022 Edition including the following detail:

- A minimum of 5 metre setback distance from the pond edge to the boundary
- A minimum of 3.5 metres of unrestricted permanent maintenance access
- Space for sediment drying area
- Layout to accommodate internal slopes of:
  - Below Permanent Water Level – 1:4 or gentler slope except on the south-eastern side of the pond which shall be 1:2 gradient
  - Above Permanent Water Level – 1:3 or gentler slope except on the south-eastern side of the pond which shall be 1:2 gradient and fully planted
  - Mowable areas, sediment drying area and access – 1:4.5 or gentler slope. Areas proposed to be fully planted may be steeper
- Riprap and gabion mattress details and sizing calculations to accommodate in excess of 200-year ARI storm event.
- Maintenance manual for ongoing maintenance of the pond

b The consent holder shall provide evidence that Building Consents have been applied for, for all retaining walls applying to condition 2(a)(i) to the satisfaction of the Development Engineer including evidence that retaining walls have been designed such that for building consent application for the proposed Mechanically Stabilised Earth (MSE) Walls the engineer shall assess the potential for the wall to trigger slope instability within the underlying sensitive soils as identified in the LDE suitability report. The global stability of the slope on which the wall is to be located shall comply with WDC's Land Development Stabilisation – Technical Design Requirements policy (2018).

c The consent holder shall provide written confirmation from the telecommunications utility service operator of their consent conditions in accordance with Council's Environmental Engineering Standards 2010 Edition and show necessary easements on the survey plan to the approval of the Councils' Post Approval Officer or delegated representative. Or the consent holder is to confirm that telecommunication connections are not proposed in which case consent notice will be registered on the title of proposed Lots 1 to 93 prior to the issue of the Section 224(c) certificate alerting future owners of this situation.

d The consent holder shall provide written confirmation from the power utility service operator of their consent conditions in accordance with Council's Environmental Engineering Standards 2010 Edition and show necessary easements on the survey plan to the approval of the Councils' Post Approval Officer or delegated representative.

e The consent holder shall provide a Landscape Plan prepared by a suitably qualified person for the development including for all reserves to vest to the approval of the Development Engineer or delegated representative. The plan shall show removable barriers for access onto the reserve, preventing public vehicle access to the reserve.

f The consent holder must create easements over proposed and existing services and rights of way to the approval of the Development Engineer or delegated representative.

g The consent holder must create easements over any stormwater overland flow paths affected by the development or as directed by the Development Engineer or delegated representative.

Areas of proposed development shall be designed to avoid these overland flowpaths and noted in the Site Suitability report.

Note: Overland flow paths are to be assessed in accordance with Section 4 of Council's Environmental Engineering Standards 2010 Edition and are to be certified by an IQP/CPEng.

h The consent holder must provide Council with three proposed road and access names in writing for Roads A and C and Access Lot 302 in accordance with Council's Road Naming Policy, and in order of preference, giving reasons for each proposed name, for approval by Council. It is noted that Road A will be an extension of Tuatara Drive. A clear plan detailing the route of the proposed roads and access should also be submitted and any evidence of consultation relating to the proposed names.

Please refer to the road naming policy and guidelines available on Council's website http://www.wdc.govt.nz/PlansPoliciesandBylaws/Policies/Pages/Road-Naming-Policy.aspx

Note: This condition will not be deemed to be satisfied unless Council has approved the submitted names in writing

2 Prior to issue of a section 224 (c) certificate;

a The consent holder is to submit a Construction Management Plan in accordance with Council's Environmental Engineering Standards to the approval of the Development Engineer or delegated representative.

b The consent holder is to submit a Corridor Access Request application to Council's Road Corridor Co-ordinator and receive written approval for all works to be carried out within Council's Road Reserve in accordance with Council's Environmental Engineering Standards 2010 to the satisfaction of the Development Engineer or delegated representative (refer to the advisory clause below for the definition of a Corridor Access Request).

c The consent holder shall notify Council, in writing, of their intention to begin works (including retaining walls and earthworks), a minimum of seven days prior to commencing works. Such notification shall be sent to the Development Engineer and include the following details:

- Name and telephone number of the project manager/ IQP.
- Site address to which the consent relates.
- Activities to which the consent relates.
- Expected duration of works.

A copy of the approved engineering plans and a copy of the resource consent conditions, Inspection and Test Plan, approved corridor access request and the above letter are to be held onsite at all times during construction. All personnel working on the site shall be made aware of and have access to the resource consent and accompanying documentation.

d A prestart meeting is required to be undertaken with the consent holder's representative, contractor(s) and all other IQP's or agents for consent holder and the Development Engineer prior to any works being undertaken on the site to the satisfaction of the Development Engineer or delegated representative.

e All work on the approved engineering plans in Condition 1(a) is to be carried out to the approval of the Development Engineer. Compliance with this condition shall be determined by;

Site inspections undertaken as agreed in Council's engineering plan approval letter/ Inspection and Test Plan.

Results of all testing, video inspection records of all wastewater and stormwater reticulation, PE pipeline pressure testing and weld data logging results.

Static settlements associated with the fill placed to form the stormwater attenuation pond shall be monitored along the property boundary adjacent to the fill embankment to demonstrate effects of the fill are not having an adverse cross boundary settlement effect on the adjacent properties. Settlement monitoring data shall be collected and presented in the Geotechnical Completion Report required by condition 2(s).

PS4 and approval of supporting documentation provided by the developer's representative/s including evidence of inspections by those persons, and all other test certificates and statements required to confirm compliance of the works as required by Council's QA/QC Manual and the Council's Environmental Engineering Standards 2010.

PS3 "Certificate of Completion of Development Works" from the Contractor.

No construction works are to commence onsite until the engineering plans required in condition 1(a) have been approved (this includes retaining walls and earthworks).

f The consent holder must submit a certified and dated 'Asbuilt' plan of completed works and services in accordance with Council's Environmental Engineering Standards 2010 Edition. This condition shall be deemed satisfied once the as builts have been approved by Councils' Development Engineer or delegated representative.

g The consent holder must submit certified RAMM data for all new/upgraded Roading infrastructure prepared by a suitably qualified person in accordance with Council's Environmental Engineering Standards 2010 Edition to the satisfaction of the Development Engineer or delegated representative.

Warranty documents shall be transferred to Council for all streetlights installed.

h The Consent Holder shall provide the Code of Compliance certificate(s) for Building Consents obtained for retaining walls to the satisfaction of the Development Engineer or delegated representative.

i The consent holder shall submit written confirmation from power utility services operators that their conditions for this development have been satisfied in accordance with Council's Environmental Engineering Standards 2010 Edition to the approval of the Councils' Post Approval Officer or their delegated representative.

j The consent holder shall submit written confirmation from the telecommunication utility services operator that their conditions for this development have been satisfied in accordance with Council's Environmental Engineering Standards 2010 Edition to the approval of the Councils' Post Approval Officer or their delegated representative. Or if the consent holder has confirmed that telecommunication connections are not proposed as per condition 1(c) then the consent notice condition 2()(v) is applicable.

k The consent holder shall ensure that spoil from the site are not tracked out onto Council or State Highway Road formations to the satisfaction of the Development Engineer or delegated representative.

l Dust nuisance must be controlled onsite (by use of a water cart or similar) by the applicant so as not to cause "offensive or objectionable" dust at or beyond the boundary of the development.

m The consent holder must provide written confirmation from a Licensed Cadastral Surveyor that all services and accesses are located within the appropriate easement boundaries to the satisfaction of the Development Engineer or delegated representative.

n The consent holder must reinstate Council's footpath, kerb and channel, road carriageway formation, street berm and urban services where damage has been caused by the demolition and/or construction works associated with the subdivision or land use consent. The assets shall be reinstated in accordance with Council's Environmental Engineering Standards 2010 Edition at the expense of the consent holder and to the satisfaction of the Development Engineer or delegated representative.

o Road A: The consent holder must supply and erect the Public road name for Road in accordance with Sheet 24 of Council's Environmental Engineering Standards 2010 Edition, inclusive of the approved road name. The sign shall be in a position where it is most visible for road users to the satisfaction of the Development Engineer or delegated representative.

p Road B: The consent holder must supply and erect the Public road name for Road in accordance with Sheet 24 of Council's Environmental Engineering Standards 2010 Edition, inclusive of the approved road name. The sign shall be in a position where it is most visible for road users to the satisfaction of the Development Engineer or delegated representative.

q Road C:The consent holder must supply and erect the Public road name for Road in accordance with Sheet 24 of Council's Environmental Engineering Standards 2010 Edition, inclusive of the approved road name. The sign shall be in a position where it is most visible for road users to the satisfaction of the Development Engineer or delegated representative.

r Access Lot 302: The consent holder must supply and erect the Private access name for Access Lot in accordance with Sheet 25 of Council's Environmental Engineering Standards 2010 Edition, inclusive of the approved access name. The sign shall be in a position where it is most visible for road users to the satisfaction of the Development Engineer or delegated representative.

s The consent holder must submit for approval Geotechnical Completion Report (GCR) including a 'statement of professional opinion as to suitability of land for building development' (form EES-PO1) including a detailed site plan of any areas of or ground stabilisation, cut or fill, from a Chartered Professional Engineer. The GCR shall include details of all construction monitoring and test results. Any site restrictions including lot-specific recommendations shall be included and confirmation that the land is suitable for building development, to the satisfaction of the Development Engineer or delegated representative. The GCR and associated ES PO1 form (including associated reports, plans and similar) will be registered against the relevant titles via a consent notice.'

Note: The slope above residential lots on the eastern boundary of the development are noted to have a factor of safety less that commonly accepted guidelines which increases the inherent potential risk of upslope failure inundating the downslope lots. The Geotechnical Completion Report (GCR) will assess the residual risk and highlight the risk to future lot owners via a consent notice. Any mitigation options should be included in the GCR to advise the future lot owners of the potential options they could consider as part of lot specific development to address the identified risk.

Note: A copy of the code of compliance certification shall be included within the Geotechnical Completion Report for retaining walls.

t The consent holder must submit a certified and dated 'As built' plan of all the vested Landscaping items in accordance with Council's Engineering Standards 2022 Edition. This condition shall be deemed satisfied once the as builts have been approved by Councils' Parks Manager or delegated representative.

u Pursuant to Section 221 of the Resource Management Act 1991, a consent notice must be prepared and be registered on the Computer Freehold Register of Lots 1 to 93 at the consent holder's expense, containing the following conditions which are to be complied with on a continuing basis by the subdividing owner and subsequent owners:

i Any development shall comply with the restrictions and recommendations identified in the LDE Land Development Engineering LTD engineering report reference 19103 dated 2 July 2021 and Geotechnical Completion Report provided on completion of this development provided under condition 2(s) unless an alternative engineering report prepared by a suitably experienced Chartered Professional Engineer is approved in writing by Council.

ii At the time of building consent provide suitable evidence/design to illustrate that, stormwater attenuation will be provided for all impervious surfaces exceeding 60% to ensure compliance with Chapter 4 of Council's Environmental Engineering Standards 2010, to the satisfaction of the Building Officer.

iii [Where applicable] The vehicle crossing constructed at the time of subdivision shall not be altered without prior approval from Councils' roading department.

iv At the time of building consent, the owner shall apply for a vehicle crossing permit where it has not been constructed as part of the subdivision. The vehicle crossing shall comply with Council's current Environmental Engineering Standards. The works shall be completed to the satisfaction of Councils' Roading Corridor Coordinator or delegated representative prior to the Code Compliance Certificate being issued by Council for the first new building consent granted for the Lot.

Note: All vehicle crossings shall be designed to minimise the loss of on-street parking where a parking bay has been constructed on the roadway adjacent to the Lot. The crossing shall be located to ensure that a minimum parking space length of 5.5 metres remains between the crossing and the end of the parking bay. The maximum width of the crossing shall be limited to 5.5m including the splays (unless a wider crossing is approved by WDC through the vehicle crossing permit process). The details of the crossing shall be submitted as part of the vehicle crossing permit application. The application shall be made prior to or in conjunction with the Building Consent application.

v Lots 42 to 46, Lots 60 to 62, and Lots 70 to 72 shall gain access from the internal access and roads within the development, and no access from Dip Road shall be permitted.

vi **(Refer to conditions 1(c) & 2(j) to determine if this condition is applicable)** No conventional telecommunication connection has been provided to Lot 1 to 93 as part of the subdivision works as it is intended that wireless or satellite technology will be utilised if/when a telecommunication connection is required. Whangarei District Council will not be responsible for ensuring nor providing telecommunication connections to the proposed lots, upon future development of the site, or at the time of further subdivision.

Pursuant to s128 of the RMA, the consent authority may at six monthly intervals from the date of the grant of consent serve notice on the consent holder of its intention to review the conditions of this consent to deal with an effect on the environment which arises after the date of the grant of the

consent where such effect is contrary to, or is otherwise not in accord with, the engineering/geo-technical assessments provided with the application for the consent.

Advisory Clauses

1 The Consent Holder shall pay all charges set by Council under Section 36 of the Resource Management Act 1991, including any administration, monitoring, inspection and supervision charges relating to the conditions of this resource consent. The applicant will be advised of the charges as they fall.

2 Any works carried out within Council's road reserve will require an approved Corridor Access Request.

3 A Corridor Access Request (CAR) is defined in the new "National Code of Practice (CoP) for Utilities access to the Transport Corridors". This CoP has been adopted by Council. It provides a single application for Traffic Management Plans/Road Opening Notice applications. Enquiries as to its use may be directed to Council's Road Corridor Co-ordinator, ph 430 4230 ext. 8231.

4 The WDC QA/QC Manual document can be located at the following link:
http://www.wdc.govt.nz/BuildingandProperty/GuidelinesandStandards/Pages/default.aspx

5 Building Consents are required for retaining structures.

6 **T**he discharge across boundaries, particularly with regard to the concentration of flows, shall be managed at all times, to avoid the likelihood of damage or nuisance to other properties in accordance with the Council Stormwater Bylaw.

7 Council policy prohibits the building of any structure over an existing water/sewer/stormwater reticulation main.

8 All earthworks are required to comply with the Northland Regional Council Regional Water and Soil Plan for Northland noting Erosion & sediment control and dust suppression requirements.

9 All works to be carried out pursuant to Condition 1(a) above shall be undertaken on public land unless written right of entry is obtained from the owners of all private land upon which work is to be carried out. Where any necessary written right of entry has not been obtained, any such infrastructure work shall be re-routed to achieve compliance with this condition.

10 The applicant is advised that a further site inspection of completed works will be required if a period greater than 3 months has passed since the last Council inspection prior to Council issuing the 224(c) certificate.

11 Erosion and Sedimentation Control shall be designed and carried out in accordance with GD05 "Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region"