To	Barker & Associates Ltd (Cambridge)
Copy	Robin Walker, Harry Baxter
From	Sanjana Prakash
Office	Hamilton
Date	8 December 2023
File/Ref	3-39703.00
Subject	**Water Supply Hydraulic Modelling Assessment – 3 Kelly Road Development**
Status	Draft for Client Review

This document should be read in conjunction with the offer of service prepared for the **Water Supply Hydraulic Modelling Assessment – 3 Kelly Road Development** (Appendix A).

Scope

Barker and Associates have engaged WSP to conduct a hydraulic modelling assessment to assess if the existing DN 100 PVC supply main on Kelly Road can sufficiently service the proposed development consisting of 6-units under the 'compact housing' provisions of the Waipa District Plan. WSP will investigate:

- If the proposed development can meet the required Level of Service (LoS) and,
- Fire flow requirements; and,
- If the proposed development has any impact on the existing localised water supply network.

Results

Scenario 1 - Base Model Assessment

This section discusses the LoS results of the current base model before adding the increased development demand to the network.

Figure 1 shows the minimum pressure and headloss results of the base model.

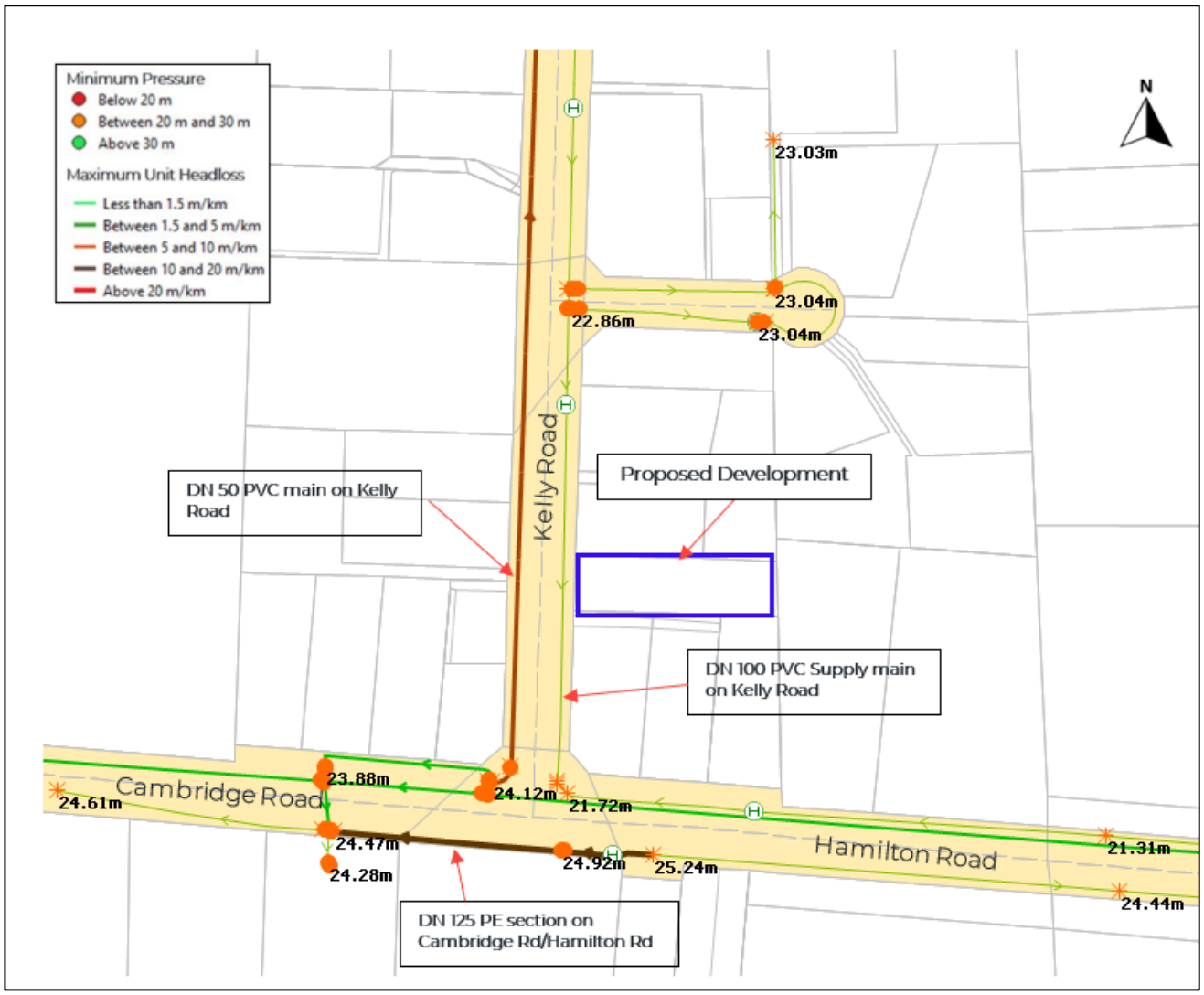


Figure 1 LoS results for the Scenario 1 - Base Model

As shown in the figure above, the minimum pressures around the proposed development are above 20 m, and are mostly within a range of 20 -25 m.

The maximum unit headloss of the DN 100 PVC supply main on Kelly Road is less than 1.5 m/km.

As shown in the figure, the existing DN 50 PVC pipe section on Kelly Road exceeds the maximum headloss criteria. However, this is an existing issue in the network.

A DN 125 PE pipe section on Cambridge/Hamilton Road also exceeds the headloss criteria. However, this pipe has no connections to the Kelly Road supply as it supplies the C2 and C3 growth cells.

Fire Flow Results

As per the client-supplied information (AEE.pdf), fire flow testing was conducted in the base model to assess if the nearby hydrant (Asset ID: 20150205112600) can supply sufficient fire-fighting requirements under the existing conditions.

The simulated fire event was created in the model for 30 minutes at 60% of peak day demand.

The fire flow results are shown in Table 1

Table 1 FW2 Assessment Fire Flow Results for the base model

Node	Hydrant Testing Result	Fire Flow Achieved (L/s)	Residual Pressure at Required Fire Flow (m)
ID: 20150205112600	Failed	0	0

As shown in the table, the hydrant does not meet the FW2 fire flow requirements. The hydrant cannot achieve the required flow of 25 L/s and does not maintain the required residual pressure.

Scenario 2 - Base model assessment after adding proposed development

This section discusses the minimum pressure and maximum headloss after adding the proposed 3 Kelly Road development demands to the base model.

Figure 2 shows the minimum pressure and headloss results for this scenario.

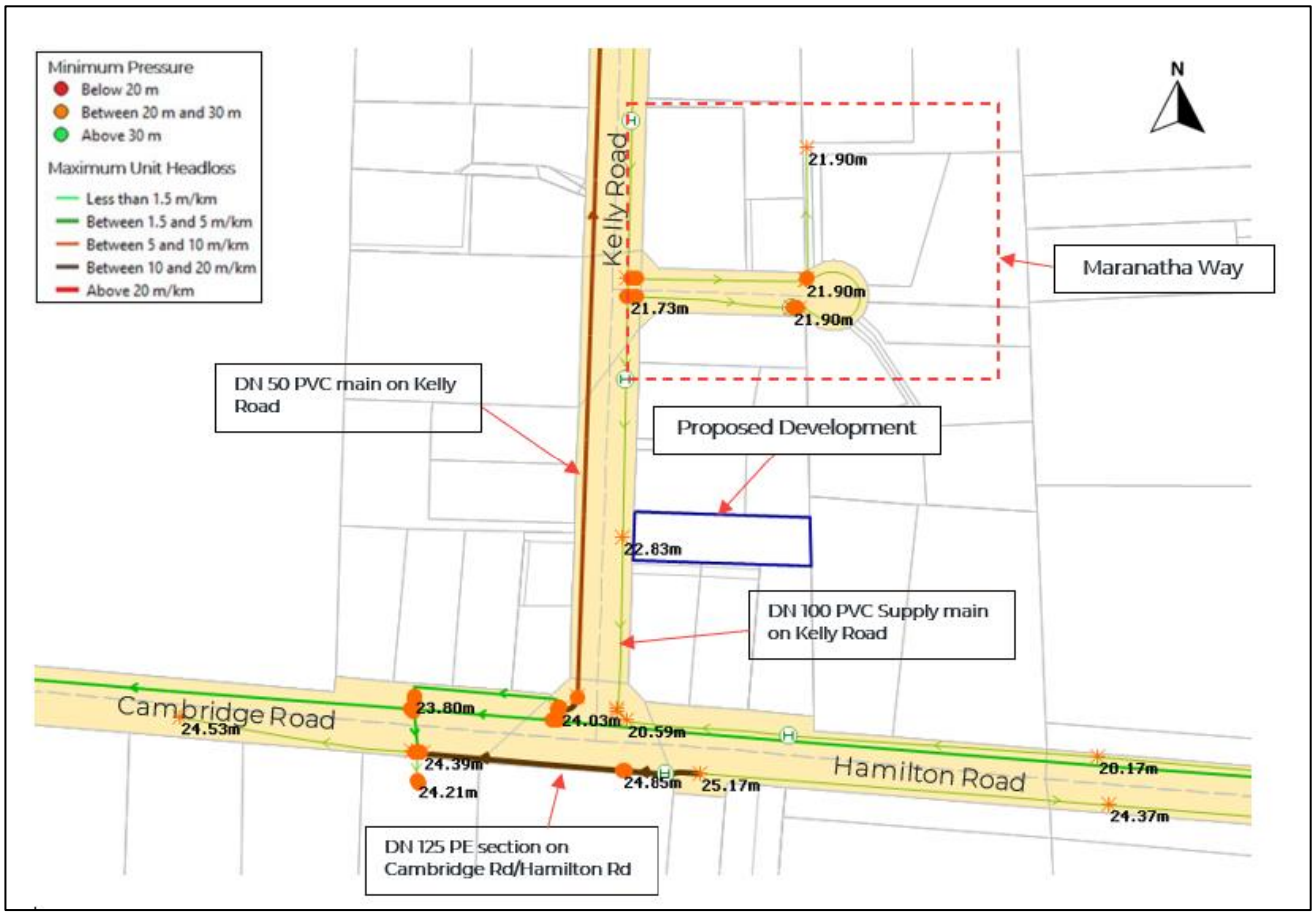


Figure 2 LoS Results for Scenario 2 – Addition of Proposed Development

The proposed development meets the minimum pressure criteria as the minimum pressure within the development is above 20 m. Similar to the base model results, the minimum pressure around the proposed development area remains between 20 -25 m.

The minimum pressures at the properties on Maranatha Way has slightly decreased by 1-2 m compared to the base model scenario, but still meet the criteria. This may have resulted from the increased demands at the proposed development.

The maximum unit headloss of the DN 100 PVC main on Kelly Road is less than 1.5 m/km.

The previously mentioned existing headloss issues (on DN 50 PVC and DN 125 PE mains) remain in this scenario.

There are no further impacts on the existing water supply network as a result of the increased demands at the proposed 3 Kelly Road development.

Fire Flow Results

Fire flow testing was also carried out in this scenario. However, as the hydrant (Asset ID: 20150205112600) failed to achieve the required fire flow in the base model, it was not expected to get any better in this scenario.

The results are shown in Table 2.

Table 2 FW2 Assessment Fire Flow Results for this scenario

Node	Hydrant Testing Result	Fire Flow Achieved (L/s)	Residual Pressure at Required Fire Flow (m)
ID: 20150205112600	Failed	0	0

As expected, the hydrant does not meet the FW2 fire flow criteria.

Scenario 3 - 2050 Growth Model Base Assessment

An assessment was carried out on the 2050 growth model to investigate the minimum pressure and maximum headloss results before the addition of the 3 Kelly Road development.

Figure 3 shows the LoS results in the localised area.

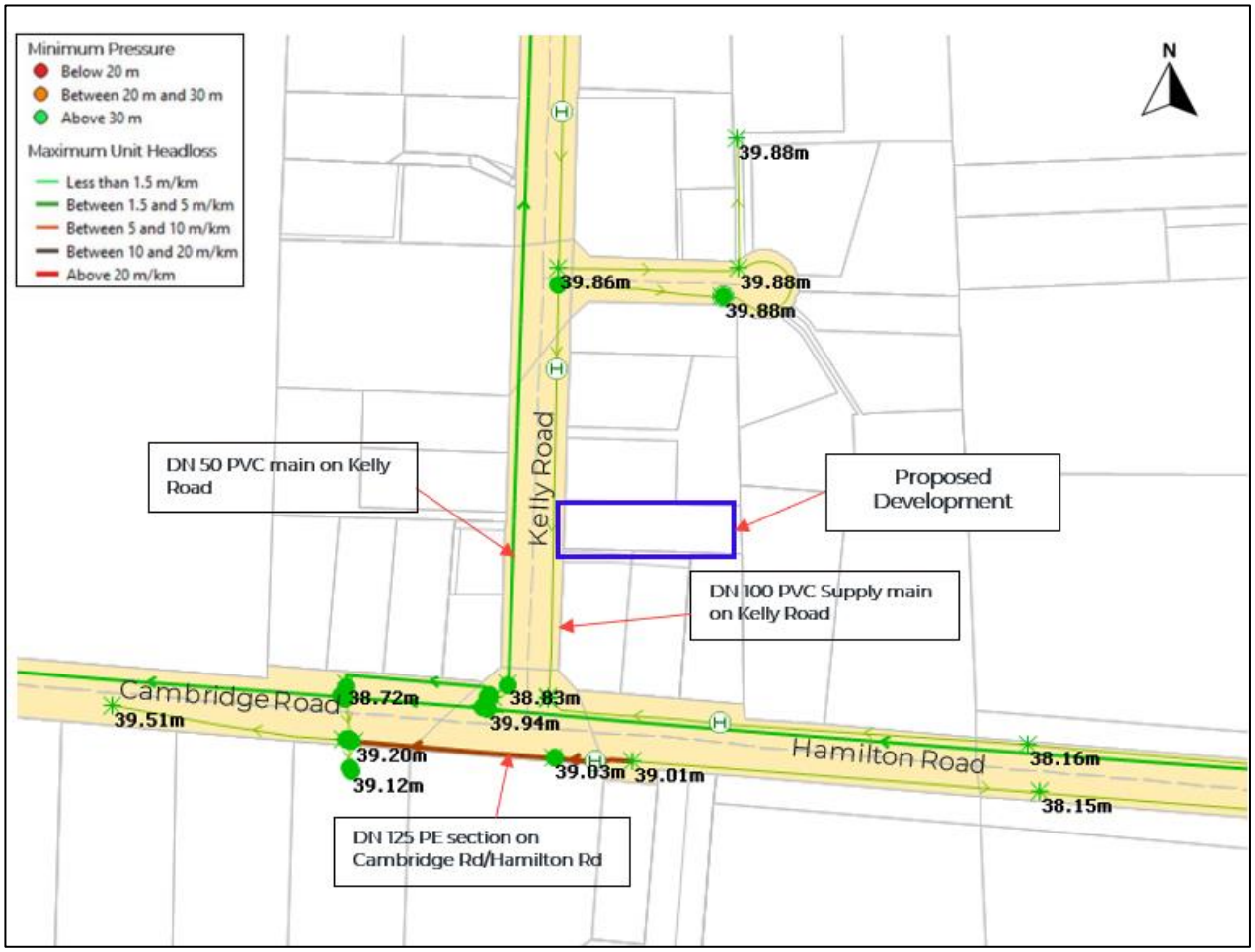


Figure 3 LoS results for Scenario 3 - 2050 Growth Model

The results show that the 2050 Growth Model meets the WDC LoS requirements as the minimum pressures in the localised area are above 30 m. The increase in the minimum pressure compared to the current base model is due to the additional supply from Alpha St WTP.

The maximum headloss of the DN 100 PVC supply pipe is less than 1.5 m/km.

The maximum headloss of the DN 50 PVC main on Kelly Road has decreased compared to the current base model results, but still slightly exceeds 1.5 m/km during the evening peak time. DN 125 PE section on Cambridge/Hamilton Rd exceeds the headloss criteria, but this main is not connected to the proposed development on 3 Kelly Road.

Fire Flow Results

Fire flow testing was carried out on the given hydrant (Asset ID: 20150205112600) in the growth model before adding the increased development demand.

The simulated fire event was created in the model for 30 minutes at 60% of peak day demand.

The fire flow results are shown in Table 3.

Table 3 FW2 Assessment Fire Flow Results for the base model

Node	Hydrant Testing Result	Fire Flow Achieved (L/s)	Residual Pressure at Required Fire Flow (m)
ID: 20150205112600	Failed	0	0

As shown in the table, the hydrant does not meet the FW2 fire flow requirements in the 2050 growth model scenario. The hydrant cannot achieve the required flow of 25 L/s and does not maintain the required residual pressure.

Scenario 4 - Growth model assessment after adding proposed development

This section discusses the LoS results after adding proposed development demands to the 2050 Growth Model.

Figure 4 shows the minimum pressure and headloss results for this scenario.

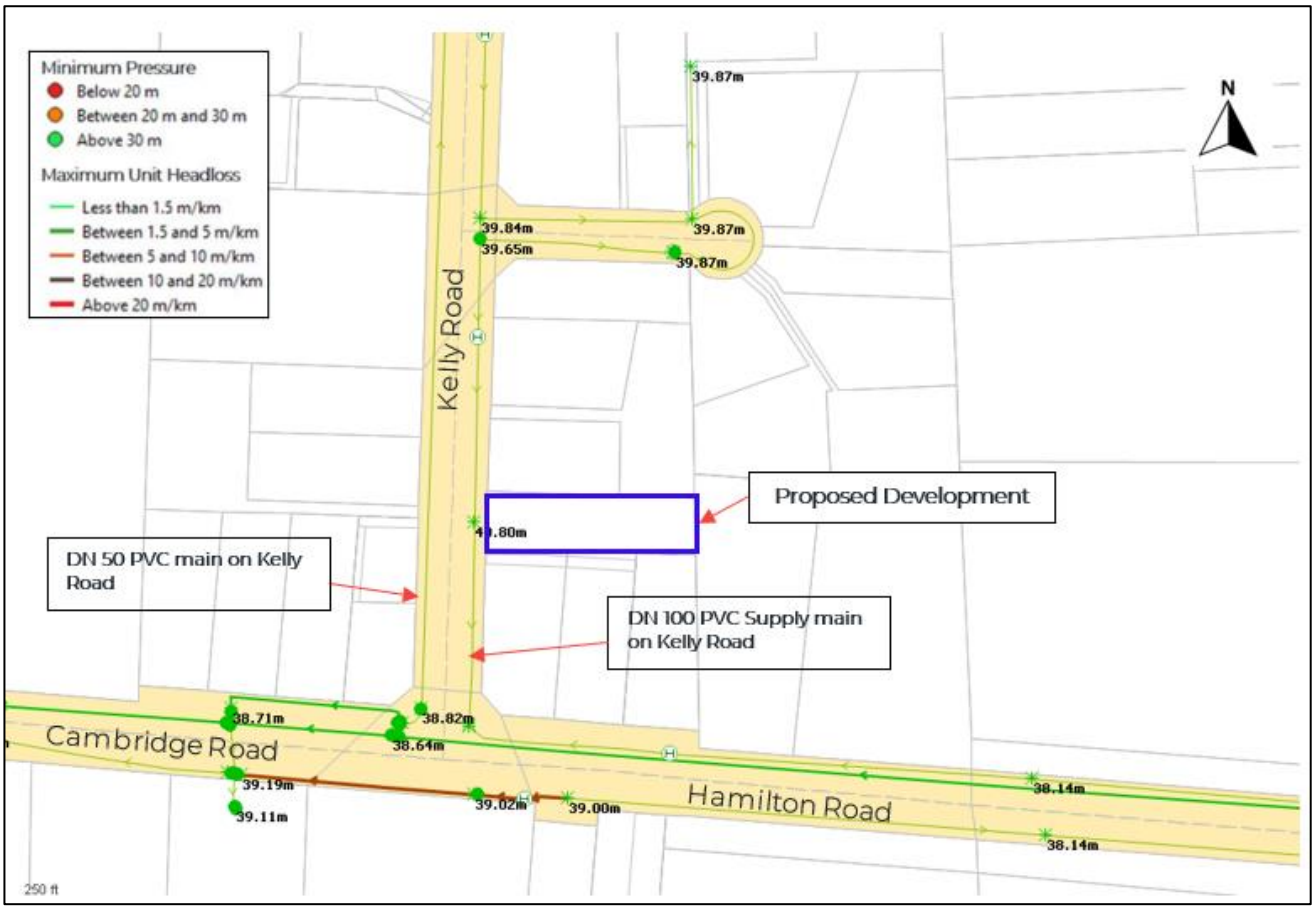


Figure 4 LoS results for Scenario 4 - 2050 Growth Model – Addition of Proposed Development

The proposed development meets the minimum pressure criteria as the minimum pressure within the development is approx. 40 m. Similar to the 2050 Growth base model results, the minimum pressure around the proposed development area remains between 30 – 40 m.

The maximum headloss of the DN 100 PVC supply pipe remains below 1.5 m/km and therefore, meets the criteria.

The unit headloss of the existing DN 50 PVC main Kelly Road has been slightly reduced and stays within the criteria now.

The LoS results of this scenario confirm that the increased demand in the 3 Kelly Road development has no significant impacts on the existing water supply network.

Fire Flow Results

The hydrant was not expected to meet the FW2 fire flow requirements in this scenario, as it fails to meet minimum criteria under the current conditions (2050 growth model).

The fire flow results in this scenario are similar to the previous scenario and shown in **Error! R eference source not found.**.

Table 4 FW2 Assessment Fire Flow Results for the growth model

Node	Hydrant Testing Result	Fire Flow Achieved (L/s)	Residual Pressure at Required Fire Flow (m)
ID: 20150205112600	Failed	0	0

As shown in Table 4 above**Error! Reference source not found.**, the hydrant did not pass the m inimum FW2 requirements.

Conclusions

WSP carried out a water supply modelling assessment for the proposed development on 3 Kelly Road to investigate if the existing DN 100 PVC supply main on Kelly Road can meet the increased demand.

LoS Results

Scenario 1 Base model

- The minimum pressure in the localised area is between 20-25 m in the base model. The total headloss of the DN 100 PVC supply pipe meets the headloss criteria.
- There are some existing headloss issues on some localised water mains (DN 50 PVC main on Kelly Road/ DN 125 PE main on Cambridge Rd and Hamilton Rd). However, these pipes are not expected to impact the proposed development demands on 3 Kelly Road.

Scenario 2 - Base model with development

- The proposed Kelly Rd development meets the acceptance criteria for minimum pressure. The minimum pressure in the localised network (Maranatha Way) has dropped slightly by approx. 1-2 m, but still maintain a minimum pressure between 20-25m. The total headloss of the DN 100 PVC pipe is less than 1.5 m/km.
- The existing headloss issues in the base model remain after adding the proposed development demands as well.

Scenario 3 – Growth model base assessment

- The minimum pressure of the localised area in the growth model is between 35 – 40m. The increase in the minimum pressure compared to the base model is due to the additional supply from Alpha St WTP. The DN 100 PVC supply pipe still meets the headloss criteria.
- The headloss of the DN 50 PVC main on Kelly Road has improved. DN 125 PE section on Cambridge/Hamilton Rd still exceeds the criteria. Both these mains are not connected to the proposed 3 Kelly Rd development.

Scenario 4 - Growth model base assessment with development

- The localised network in the growth model still maintains a minimum pressure between 35-40 m after adding the Kelly Road development demands. The minimum pressure at the proposed development is approx. 40 m. The total headloss of the DN 100 PVC pipe is less than 1.5 m/km.
- The total headloss of the DN 50 PVC main on Kelly Road has further improved and stays within the criteria in this scenario. DN 125 PE section on Cambridge/Hamilton Rd still exceeds the criteria.
- Overall, the proposed 3 Kelly Road development does not have any significant impact on the existing localised water supply network.

Fire Flow Results

- As per the information given by the client, fire flow testing was carried out on a single hydrant (Asset ID: 20150205112600) located closer to the proposed development. The hydrants failed to achieve the required fire flow in both the current base model and growth model (before adding the development demands). As expected, FW2 (fire flow criteria) was not achieved after adding the development demand.

- It was noted that all hydrants located on Kelly Road are meeting to fail FW2 fire flow assessment in the current base model and the growth model. This is an existing issue and further investigation is required to identify the required upgrades.

Recommendations

As per the current model set-up (confirmed with Waipa DC GIS), the DN 100 supply main on Kelly Road (that supplies the development) continues on Hamilton Road and terminates at Vogel St as shown in Figure 5.

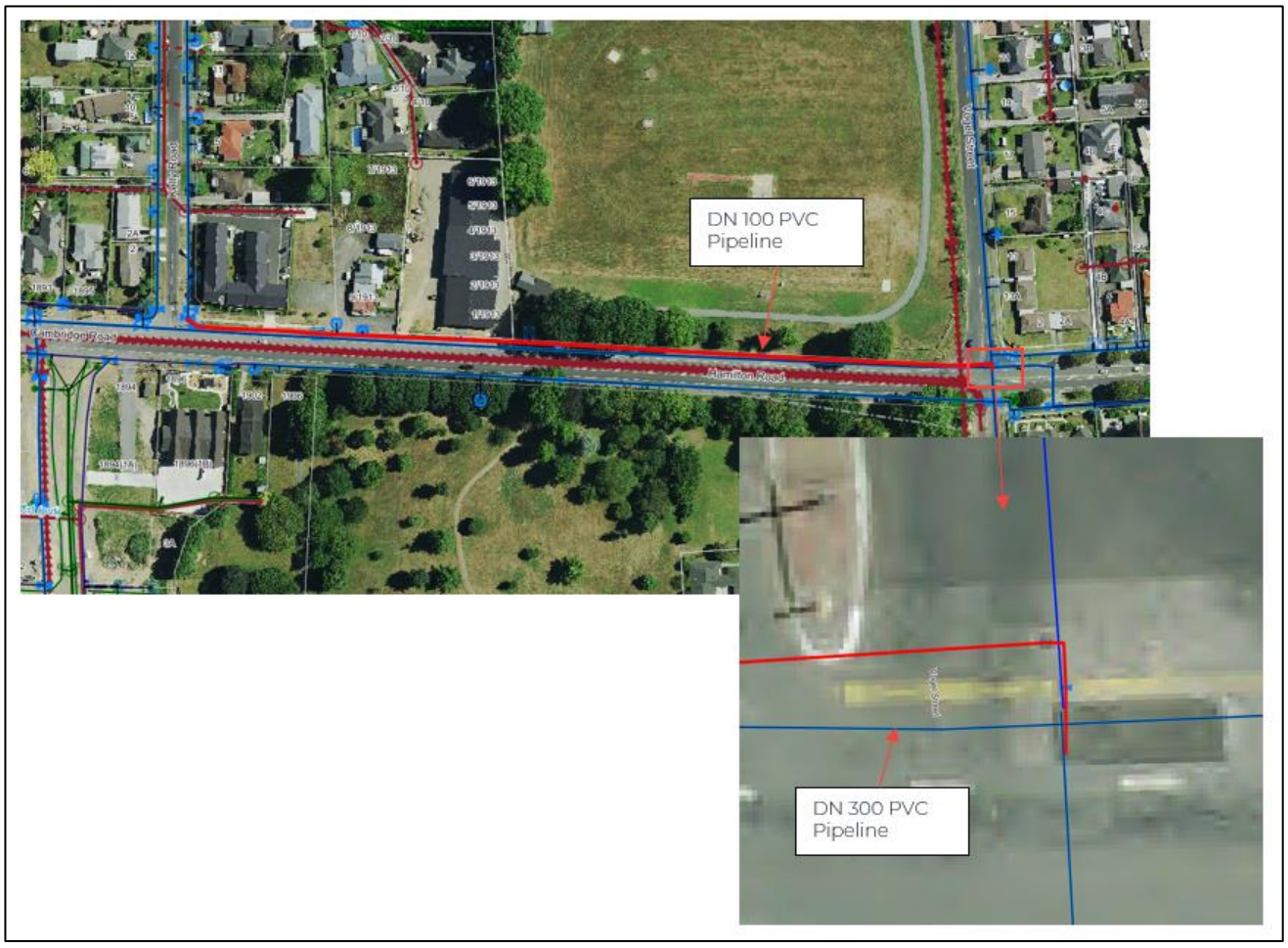


Figure 5 DN 100 PVC pipe alignment on Hamilton Rd/ Vogel St

The Vogel St end of the DN 100 PVC pipe could be connected to the DN 300 main on Hamilton Road that supplies C2 and C3 growth cells. This would create a ring main and could improve the headloss issues on the DN 50 PVC main on Kelly Road. This may also improve the available fire flow to Kelly Road.

Waipā District Council will further investigate the reticulation layout at the Vogel St/Hamilton Road intersection, to confirm that this will not affect the ability for Waipā DC to enable a connection based on the water supply herein.

Disclaimers and Limitations

This report ('Report') has been prepared by WSP New Zealand Limited ('WSP') exclusively for Kotare Consultants ('Client') in relation to 3 Kelly Road Wate Supply Modelling Assessment ('Purpose') and in accordance with the form if instruction for service dated 16 October 2023 ('Agreement'). The findings in this Report are based on and are subject to the assumptions specified in the Report. WSP accepts no liability whatsoever for any use or reliance on this Report, in whole or in part, for any purpose other than the Purpose or for any use or reliance on this Report by any third party.

In preparing this Report, WSP has relied upon data, surveys, analyses, designs, plans, and other information ('Client Data') provided by or on behalf of the Client. Except as otherwise stated in this Report, WSP has not verified the accuracy or completeness of the Client Data. To the extent that the statements, opinions, facts, information, conclusions, and/or recommendations in this Report are based in whole or part on the Client Data, those conclusions are contingent upon the accuracy and completeness of the Client Data. WSP will not be liable for any incorrect conclusions or findings in the Report should any Client Data be incorrect or have been concealed, withheld, misrepresented, or otherwise not fully disclosed to WSP.

WSP acknowledges that the limitation that the modelling has not considered potential intensification due to the implementation of the new Medium Residential Density Standards permitting greater intensification by way of Plan Change 26 that WDC has given effect to.

Appendix A

Offer of Service

12 October 2023

Joshua Te Weehi - jteweehi@gmail.com

Kelly Road Investments Ltd

Water and Wastewater Modelling Assessment – 3 Kelly Road Development

Dear Joshua,

Thank you for the opportunity to present our proposal which is detailed below.

1 Introduction

Kelly Road Investments Ltd is preparing to lodge a subdivision consent with Waipa District Council (WDC) for their proposed development at 3 Kelly Road, Cambridge. The proposed development comprises of 6-units under the 'compact housing' provisions of the Waipa District Plan as per client provided data (via email dated 21 August 2023).

The location of the proposed development is shown in Figure 1.

Figure 1: Location of the 3 Kelly Road development

WSP
Hamilton
Level 2, 160 Ward Street, Hamilton 3204
Private Bag 3057, Waikato Mail Centre, Hamilton 3240

+64 7 838 9344
wsp.com/nz

2 Scope of Work

Barker & Associates has approached WSP to conduct a hydraulic modelling assessment for both water and wastewater to ensure there is adequate capacity within existing water supply and wastewater networks to service the development.

The modelling assessment will identify if the proposed development can meet water supply and wastewater Level of Service (LoS) criteria, and the overall impact of it on the wider Cambridge water supply network.

WSP will continue to liaise with WDC throughout the modelling process, including providing results to WDC for review.

3 Water Supply

3.1 Background

The proposed development will be serviced by an existing DN 100 PVC main on Kelly Road. As per the client provided data, a hydrant (asset ID: 20150205112600) located 52.2 m North of the proposed development will be tested for residential fire flow criteria (FW2) as shown in Figure 2.

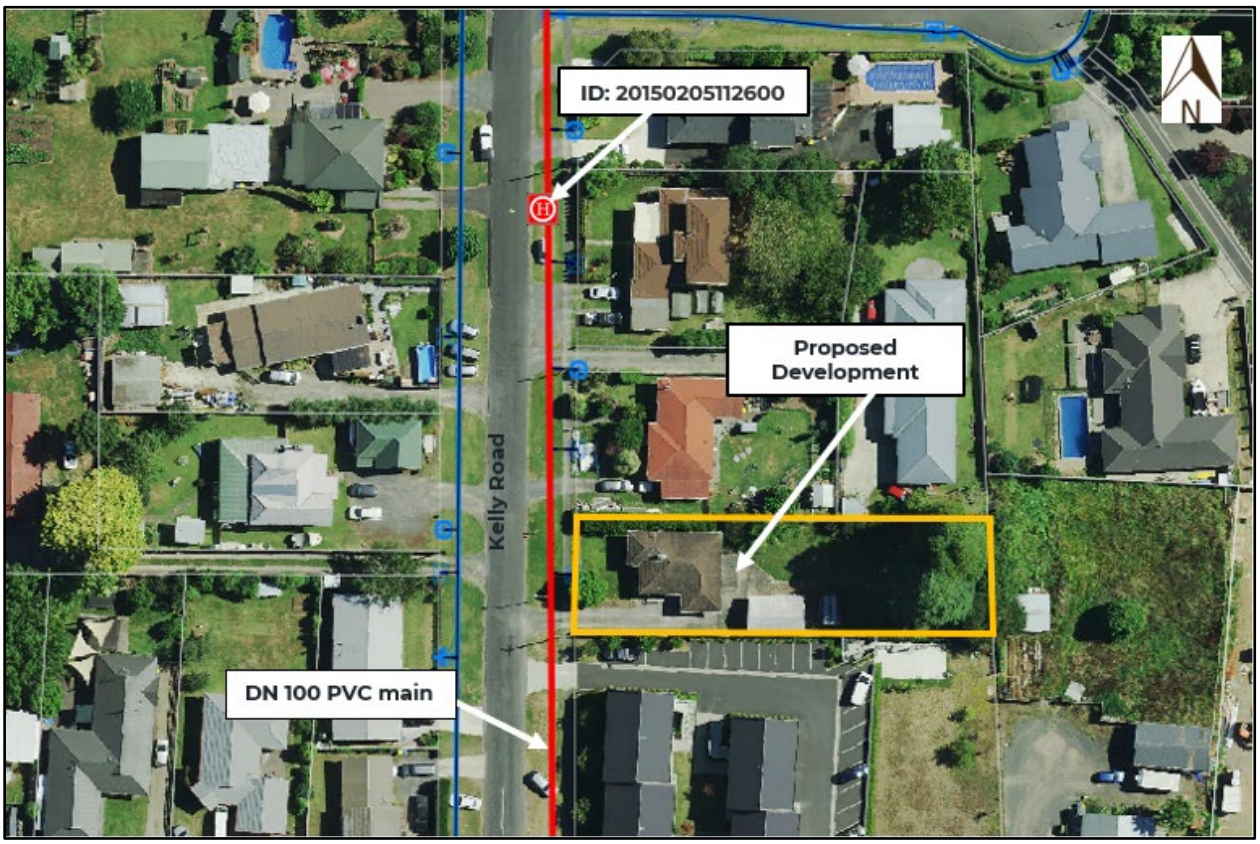


Figure 2: Overview of the water supply network

3.2 Acceptance Criteria

The following criteria will be used for the hydraulic assessment:

- **Level of Service (LoS) – Minimum pressure**: 200 kPa (20 m) pressure at every connection point as per RITS and WDC guidelines.

- **Level of Service (LoS) – Unit Headloss**: Unit Headloss (m/km) of the proposed pipe and the existing supply pipe was also investigated as per NZS 4404:2010.
  - 5 m/km for DN ≤ 150 diameter.
  - 3 m/km for DN ≥ 200 diameter.

- **Fire flow:** New Zealand Fire Service Code of Practice; SNZ PAS 4509:2008 and subsequent amendments, to the satisfaction of the New Zealand Fire Service.

Table 3-1 below lists the minimum fire flow requirements.

Table 3-1 Fire Flow Requirements as per Fire Fighting Water Supply Code of Practice

Code	Description	Requirements	
		Minimum Fire Flow (L/s)	Minimum Residual Pressure at Required Fire Flow (m)
FW2	Residential	12.5	10

Limitations in the hydraulic modelling software only allow the fire flow analysis for one hydrant at a time. Therefore, WSP has adopted a methodology used for Wellington Water for a similar exercise, as explained below.

For residential fire flows (FW2), the flow from a single hydrant is used to assess the likely flow from two hydrants. If the average flow is greater than or equal to 25 L/s, the flow from one hydrant meets the FW2 requirements.

The use of this approach also creates a buffer to cater to any uncertainty in the models.

Therefore, WSP used the values listed in Table 2 to test the fire hydrants.

Table 3-2: Fire Flow Requirements Used by WSP in this Assessment

Code	Description	Requirements	
		Minimum Fire Flow (L/s)	Minimum Residual Pressure at Required Fire Flow (m)
FW2	Residential	25	10

As per the client-supplied information (AEE.pdf), WSP will conduct the fire flow test on the fire hydrant as shown in Figure 2 above.

3.3 Methodology

Our proposed methodology to provide the water supply hydraulic assessment is as follows:

- Review the subdivision layout and digitise the proposed network in the model.
- Calculate the total demand of the proposed network following the steps below:
  - WSP will carry out the residential demand calculations as per RITS (pg. 507)

> **The water demand calculations in the subdivision design shall provide for:**
> **a) A domestic demand of 260 litre/person/day with a peak flow rate of five times this amount for On Demand Supply.**

  - WSP will use a 2.7 people/property occupancy rate to calculate demand.
- Allocate the calculated demand to the model.
- Run the model to see if the proposed development can meet WDC's LoS requirements as defined in Section 3.2.
- Run the model for FW2 fire flow criteria.
- Provide a 1-pager report including the results and findings.

3.4 Water Supply Model Assumptions:

1. The following models will be used in this assessment.
   - 2022 Waipa District Council Operational Model
   - 2050 Waipa District Council Growth Model

2. The 2022 WDC Operational model includes the proposed Watkins reservoir dedicated inlet main and upgraded pump station (due to be in service in Q3 of 2023).

3. Alpha St WTP is operating 365 days/year in the 2050 growth model.

4. The growth cell demands have been included in the models as detailed below:
   - 2022 Operational Model: Full demands of C1, C2 and C3 growth cells will be included. 1/3 of the C4 growth cell demand will be included. The currently established demands of C6, C8, C9, and C10 growth cells will be included as per current Waipa DC GIS data.
   - 2050 Growth Model: The full demand of master plan growth cells and network upgrades will be included.

- WSP will source contour data available on Waipa GIS to set up the ground elevations of the development.
- WSP has not allowed for any optioneering or network upgrades assessment in this Offer of Service.
- Any additional scope will be undertaken as a project variation.

3.5 Scenarios

Table 5 summarises the WS modelling scenarios, which have been discussed and confirmed with WDC.

Table 3-3 WS Modelling Scenarios

Scenario	Description	Model
1	2022 base model	2022 Operational Model
2	Scenario 1 + proposed development demand	
3	2050 base model	2050 Growth Model
4	Scenario 3 + proposed development demand	

4 Wastewater

WSP will conduct a wastewater assessment for the 3 Kelly Road development, as shown in Figure 2. The assessment will have two main objectives:

1. Confirm the potential connection for the 3 Kelly development.
2. Understanding how the 3 Kelly development will impact the entire Cambridge wastewater network, with regards to overflows, surcharge, and freeboard, using the RiTS (static) flow criteria.

4.1 WW Scope of Work and Methodology:

Our proposed methodology to provide the wastewater assessment is as follows:

- Digitise the proposed development in the WW model including the proposed connections. Development details were provided by Marne Cole (Barker & Associates Ltd) on 21st Aug 2023 as mentioned under Table 4.1.1.

Table 4.1.1: Development Details

Document Reference	Information
Appendix 3 District Plan Rules Assessment Appendix 4: 3W Assessment	Site locations and development details. Modelling assumptions

- Run the WW model as per the scenarios in Table 4.2 with the 5-year ARI design event.
- Understand the capacity available in the network to identify preferred discharge locations.
- The results of the work above should be discussed with WDC before moving to the next stage.
- Static flow is calculated as per RiTS as mentioned in Table 4.1.2 This will be added as a constant flow in the model.
    - Outcome required: Does the WDC wastewater network have the capacity to convey the 3 Kelly without failing LoS?

Table 4.1.2 – Flow from development

Zone	Catchment area (ha)	Total Lots	Pop Equivalent	Peaking factor	PWWF l/s
3 Kelly	0.101	6	120	5	1.41

4.2 WW Scenarios and modelling results analysis:

Table 4.2 summarises the WW modelling scenarios.

Table 4.2: WW Modelling Scenarios

Scenario	Network
1	Wastewater 2022 base model network includes C1, C2 and C3 and 1/3 of the C4 development will be included. The currently established demands of C6, C8, C9, and C10 will be included as per current Waipa DC GIS data.
2	Wastewater 2022 base model network with 3 Kelly development. Identifying the preferred discharge location/s.
3	Wastewater 2050 Growth Model
4	Scenario 3 + Proposed Development

- Compare the model results of scenarios 1,2,3 and 4 to:
    - Identify current system constraints.
    - Identify impacts on the wastewater network with the 3 Kelly (surcharge and freeboard).
    - Identify new and increased manhole overflow volumes.
    - Identify preferred discharge location/s.
- Produce 1-pager report including the modelling results.

WW Model Assumptions:

- WSP will not consider the specific requirements of how the development will connect to the existing wastewater system.
- The assessment will consider the 5-year 2-hour rainfall as the critical duration.
- WSP will use the "Cambridge 2022 base model" and "Cambridge 2050 Network and Growth" for this assessment.
- No model updates will be made other than those outlined in the scope of work. i.e., representation of development flows.
- WSP will not model any pipework to service 3 Kelly in the option of discharging the WW flow to the network.
- The RiTS (static) flow will be used to predict the impact on the network.
- As this site already contains existing infrastructure, the current population of one dwelling will be accounted for by using an assumed ratio of 1 dwelling to 2.7 people.

- The subcatchment's existing shape will not undergo digital re-mapping, as the anticipated development's limited scale is unlikely to result in significant interconnected flow.

5 Programme and Outputs

- A one-pager report will be provided for each water supply and wastewater modelling assessments.
- The draft outputs will be delivered to WDC and the client in **5 weeks**, following the acceptance of the offer of service.
- The final outputs will be delivered within **1 week** following the receipt of feedback/comments from WDC or the client.

6 Fee

WSP will undertake the above work under the conditions set out in the IPENZ/ACENZ Short Form Agreement for professional service engagement.

The project will be managed and completed by our Hamilton office. Our fee for the scope as outlined above is **$7,500** (excluding GST) excluding provisional items. It is proposed to be undertaken on a lump sum basis.

7 Conditions of Engagement

If the Offer is accepted, WSP has assumed that the Scope of Work will be performed in accordance with the terms and conditions set out in IPENZ/ACENZ Short Form Agreement for Professional Services Engagement.

8 Information to be Provided by the Client

- AEE pdf including the appendices.

9 Assumptions and Qualifications

In preparing this Offer and calculating the Fees WSP has relied on the following assumptions and qualifications:

- WSP has relied upon the development details provided by Harrison Grierson and other information provided by or on behalf of Harrison Grierson ('Client Data'). WSP has not verified the accuracy or completeness of the Client Data and reserves the right to amend the Fees to the extent that any Client Data is subsequently found to be incorrect, incomplete, misrepresentative or otherwise not fully disclosed to WSP before its submission of the Proposal.
- COVID-19 - While we will make every effort to adapt our work methodology, we are unable to quantify the impact that COVID-19 may have on the performance of the Services. Any additional costs and/or delays to the programme will be treated as a Variation.

The offer set out in this letter is valid for 60 days from the date of its issue. Any changes to the assumptions and qualifications above, or any other matter set out in this Offer of Service, including any amendments to the terms and conditions of contract proposed, may result in an adjustment to the Fees and/or Programme. Global Metal Solutions may confirm its acceptance of the offer by signing this letter in the relevant section below and returning it to me before the expiry of the validity period. If you have any queries, please contact me.

Kind regards,

James Cassidy
Work Group Manager – Water and Wastewater

Offer of Service No: Approved/Not Approved

Name: Joshua Te Weehi Signed: _____

PO Number:

Comments: _____

Short Form Agreement for Consultant Engagement

Between: *Kelly Road Investments Ltd*

.....
(Client)

and: WSP

.....
(Consultant)

Collectively referred to herein as the "Parties" and individually as a "Party"

Project: *Water and Wastewater Modelling Assessment* - 3 Kelly Road Development	**Location:** 3 Kelly Road Development, Cambridge

Scope & nature of the Services: As per the Letter for Service dated 12 September 2023.

Barker & Associates has approached WSP to conduct a hydraulic modelling assessment for both water and wastewater to ensure there is adequate capacity within existing water supply and wastewater networks to service the development.

Programme for the Services: As per the Letter for Service dated 12 September 2023.
A one-pager report will be provided for each water supply and wastewater modelling assessments.

The draft outputs will be delivered to WDC and the client in 5 weeks, following the acceptance of the offer of service.

The final outputs will be delivered within 1 week following the receipt of feedback/comments from WDC or the client.

Fees & timing of payments: As per the Letter for Service dated 12 September 2023.

The project will be managed and completed by our Hamilton office. Our fee for the scope as outlined above is $7,500 (excluding GST) excluding provisional items. It is proposed to be undertaken on a lump sum basis.

Information or services to be provided by the Client: As per the Letter for Service dated 12 September 2023.

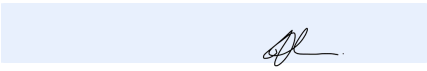
AEE pdf including the appendices.

The Client engages the Consultant to provide the Services described above and the Consultant agrees to perform the Services for the remuneration provided above. Both Parties agree to be bound by the provision of the Short Form Model Conditions of Engagement (overleaf), including clauses 2, 11 and 12 and any variations noted below. Once signed, this agreement, together with the conditions overleaf and any attachments, will replace all or any oral agreement previously reached between the Parties.

Variations to the Short Form Model Conditions of Engagement (overleaf):
Insert the following new clause 21:
"Any reports and/or other deliverables ('Deliverables') forming part of the Services are prepared exclusively for the Client in accordance with the requirements and for the purpose set out in this Agreement or the Consultant's Offer of Service ('Purpose'). The Consultant accepts no liability whatsoever for any use of the Deliverables, in whole or in part:
(i) for any purpose whatsoever other than the Purpose; or
(ii) by any party other than the Client, who indemnifies the Consultant from any loss, costs, damages or liability arising from the Client's unauthorised disclosure of the Deliverables.
Any use or any reliance on the Deliverables by any third party is at its sole risk without recourse to the Consultant. Third parties must make their own enquiries and obtain independent advice in relation to any matter dealt with or any conclusion expressed in the Deliverables."

Insert the following new clause 22:

"If the Client has not met the requirements of clause 8 of this Agreement, the Consultant will be entitled to suspend performance of the Services on 2 working days' notice in writing and withhold Deliverables until payment (including any reasonable costs incurred in relation to the suspension) is received in full. The Consultant will not be liable to the Client or any other person for any losses arising from the suspension of the Services or the withholding of any Deliverables under this clause."

Client authorised signatory (ies):	**Consultant authorised signatory (ies):**
	
Print name: Joshua Te Weehi	**Print name:** *James Cassidy – Work Group Manager – Water and Wastewater*
Date: 16-10-2023	**Date:**

SHORT FORM MODEL CONDITIONS OF ENGAGEMENT

1. The Consultant shall perform the Services as described in the attached documents.
2. The Client and the Consultant agree that where all or any of, the Services are acquired for the purposes of a business the provisions of the Consumer Guarantees Act 1993 are excluded in relation to those Services. However, nothing in this Agreement shall restrict, negate, modify or limit any of the Client's rights under the Consumer Guarantees Act 1993 where the Services acquired are of a kind ordinarily acquired for personal, domestic or household use or consumption and the Client is not acquiring the Services for the purpose of a business.
3. In providing the Services, the Consultant must use the degree of skill, care and diligence reasonably expected of a professional consultant providing services similar to the Services.
4. The Client shall provide to the Consultant, free of cost, as soon as practicable following any request for information, all information in the Client's power to obtain which may relate to the Services. The Consultant shall not, without the Client's prior consent, use information provided by the Client for purposes unrelated to the Services. In providing the information to the Consultant, the Client shall ensure compliance with the Copyright Act 1994 and shall identify any proprietary rights that any other person may have in any information provided.
5. The Client may order variations to the Services in writing or may request the Consultant to submit proposals for variations to the Services. Where the Consultant considers a direction from the Client or any other circumstance is a variation the Consultant shall notify the Client as soon as practicable.
6. As soon as the either Party becomes aware of anything that will materially affect the scope or timing of the Services, the Party must inform the other Party in writing.
7. The Client shall pay the Consultant for the Services the fees and expenses at the times and in the manner set out in the attached documents. Where this Agreement has been entered by an agent (or a person purporting to act as agent) on behalf of the Client, the agent and Client shall be jointly and severally liable for payment of all fees and expenses due to the Consultant under this Agreement.
8. All amounts payable by the Client shall be due on the 20th of the month following the month of issue of each GST Invoice or at such other timing as agreed in writing between the parties. If the Client fails to make the payment that is due and payable and that default continues for 14 days, the Consultant may provide written notice to the Client specifying the default and requiring payment within 7 days from the date of the notice. Unless payment has been made by the Client in full, the Consultant may suspend performance of the Services any time after expiration of the notice period. The Consultant must promptly lift the suspension after the Client has made the payment.
9. Where the nature of the Services is such that it is covered by the Construction Contracts Act 2002 (CCA) and the Consultant has issued a payment claim in accordance with the CCA, the provisions of the CCA shall apply. In all other cases, if the Client, acting reasonably, disputes an invoice, or part of an invoice, the Client must promptly give the reasons for withholding the disputed amount and pay any undisputed amount in accordance with clause 8.
10. Where Services are carried out on a time charge basis, the Consultant may purchase such incidental goods and/or Services as are reasonably required for the Consultant to perform the Services. The cost of obtaining such incidental goods and/or Services shall be payable by the Client. The Consultant shall maintain records which clearly identify time and expenses incurred.
11. Where the Consultant breaches this Agreement, the Consultant is liable to the Client for reasonably foreseeable claims, damages, liabilities, losses or expenses caused directly by the breach. The Consultant shall not be liable to the Client under this Agreement for the Client's indirect, consequential or special loss, or loss of profit, however arising, whether under contract, in tort or otherwise.
12. The maximum aggregate amount payable, whether in contract, tort or otherwise, in relation to claims, damages, liabilities, losses or expenses, shall be five times the fee (exclusive of GST and disbursements) with a maximum limit of $NZ500,000.
13. Without limiting any defences a Party may have under the Limitation Act 2010, neither Party shall be considered liable for any loss or damage resulting from any occurrence unless a claim is formally made on a Party within 6 years from completion of the Services.
14. The Consultant shall take out and maintain for the duration of the Services a policy of Professional Indemnity insurance for the amount of liability under clause 12. The Consultant undertakes to use all reasonable endeavours to maintain a similar policy of insurance for six years after the completion of the Services.
15. If either Party is found liable to the other (whether in contract, tort or otherwise), and the claiming Party and/or a Third Party has contributed to the loss or damage, the liable Party shall only be liable to the proportional extent of its own contribution.
16. Intellectual property prepared or created by the Consultant in carrying out the Services ("New Intellectual Property") shall be jointly owned by the Client and the Consultant. The Client and Consultant hereby grant to the other an unrestricted royalty-free license in perpetuity to copy or use New Intellectual Property. Intellectual property owned by a Party prior to the commencement of this Agreement and intellectual property created by a Party independently of this Agreement remains the property of that Party. The ownership of data and factual information collected by the Consultant and paid for by the Client shall, after payment by the Client, lie with the Client. The Consultant does not warrant the suitability of New Intellectual Property for any purpose other than the Services or any other use stated in the Agreement.
17. The Consultant has not and will not assume any duty imposed on the Client from time to time pursuant to the Health and Safety at Work Act 2015 ("the Act") arising out of this engagement. The Consultant and Client agree that, for the purpose of the Act, the Consultant will not at any time have management or control of the Project workplace.
18. The Client may suspend all or part of the Services by notice to the Consultant who shall immediately make arrangements to stop the Services and minimise further expenditure. The Client and the Consultant may (in the event the other Party is in material default that has not been remedied within 14 days of receiving the other Party's notice of breach) either suspend or terminate the Agreement by notice to the other Party. If the suspension has not been lifted after 2 months the Consultant has the right to terminate the Agreement and claim reasonable costs as a result of the suspension. Suspension or termination shall not prejudice or affect the accrued rights or claims and liabilities of the Parties.
19. The Parties shall attempt in good faith to settle any dispute by mediation.
20. This Agreement is governed by the New Zealand law, the New Zealand courts have jurisdiction in respect of this Agreement, and all amounts are payable in New Zealand dollars.