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THREE BLOKES LIMITED

362 Matakana Valley Road, Matakana

Application for Groundwater Take

Assessment of Environmental Effects

DECEMBER 2020

Report prepared for:
Three Blokes Limited

Report prepared by:
HAZARD CONSULTING LIMITED
PO Box 66027, Auckland 0749
Phone: +64 21 422913

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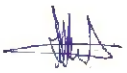
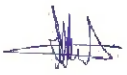
1	15 December 2020	Draft	NH 	BC
2	20 December 2020	Final	NH 	

HAZARD CONSULTING LIMITED – NICK HAZARD BSc (Geology), GradDipSci(GwHyd)
P.O. Box 66027, Auckland 0749 – Ph: 021422913 -- Email: nick@hazardconsulting.co.nz

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1. INTRODUCTION

1.1. Background

Three Blokes Limited (TBL) own a 2.5268*ha* block of land (Pt Allot 51, Parish of Matakana) at 362 Matakana Valley Road (Figures 1 and Figure A) which historically had an active timber mill but now is host to a variety of businesses including timber milling for furniture production. TBL now plan to utilise the bore on site for a water carrier business.

TBL wishes to obtain groundwater for potable use in the industrial units on site, for irrigation of native plantings and for miscellaneous site use.

Hazard Consulting Limited have been engaged by TBL to prepare a report in support of a consent application for a Waitemata aquifer groundwater take (115m^3/*day* and 25,000m^3/*year*) to allow for the commencement of a water carrier business. The bore is located in the north western corner of the site. The borehole location is shown on the plan in Figure A below and in attached plan Figure 1.

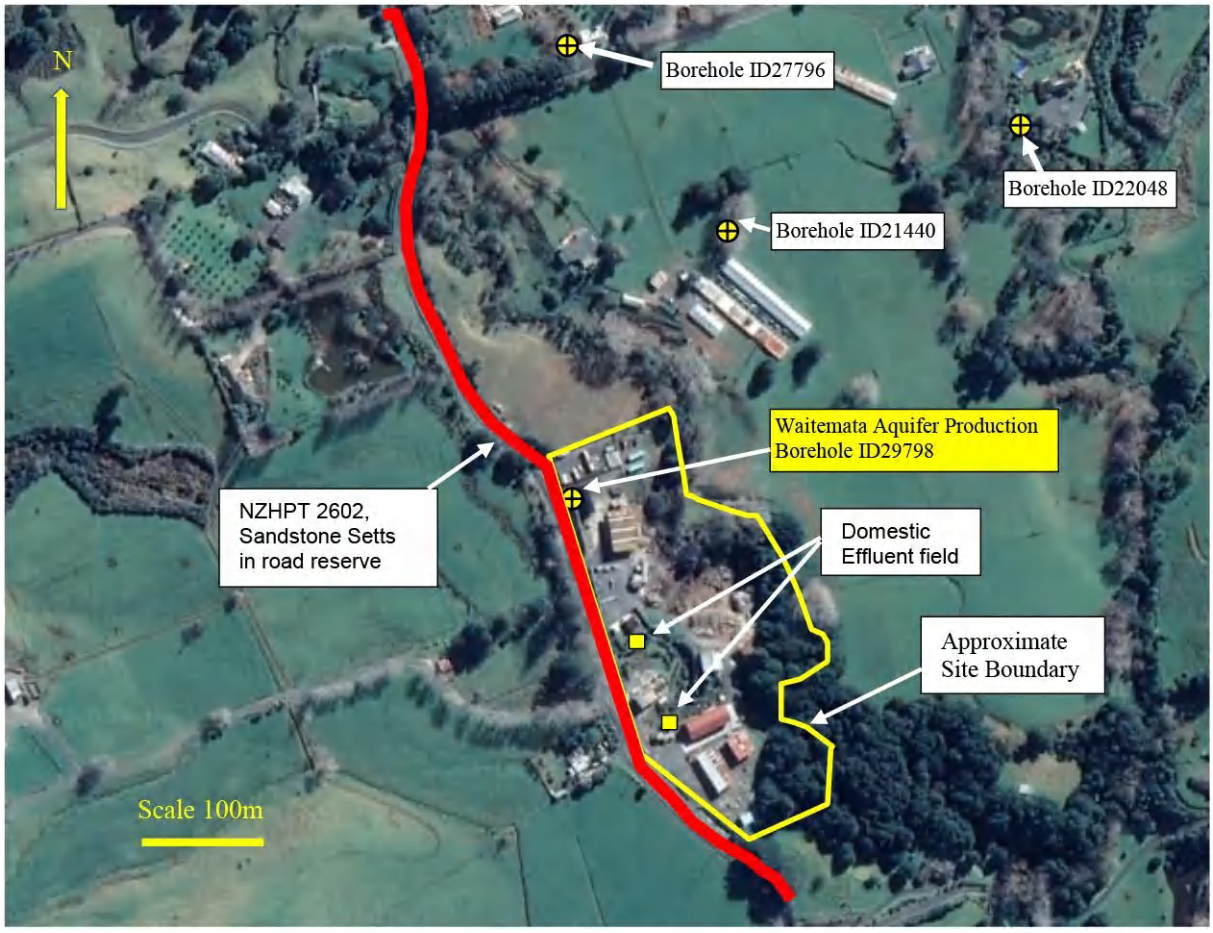

Figure A: Three Blokes Limited Site Location Plan

The following groundwater effects have been assessed:

i. Groundwater availability.
ii. Bore yield.
iii. Pumping interference effects on neighbours' bores.
iv. Saline intrusion.
v. Groundwater quality.
vi. Surface water effects.
vii. Ground settlement.

1.2. Issued and Previous Consents

No prior consents are recorded on this property.

1.3. Water Demand

TBL have indicated that they will require up to 25,000m^3/*year* of groundwater from the Matakana Waitemata aquifer to meet the potable demand for the water carrier business and for planned new businesses on the site. Up to 115m^3/*day* of groundwater is sought to be abstracted from bore ID29798. A complete analysis of water quality for aesthetic and health chemical parameters will be carried out on the production groundwater in line with health requirements for the supply of drinking water.

'The Health (Drinking Water) Amendment Act 2007' requires that all community drinking water supplies apply to be included in the '*Register of Community drinking water supplies and suppliers in New Zealand*'. The proposed take will be required to be registered in accordance with the Act. Provision of the water supply will also be covered by the Drinking Water Standards for New Zealand 2005 (Revised 2018) which specifies minimum standards for the water supply.

Provision of drinking water is regulated under Part 2A of the Health Act 1956 revised 7 August 2020 and referred to as the Health (Drinking Water) Amendent Act 2007 revised 1 April 2008. Because the water is required for commercial supply TBL is deemed a "*drinking water supplier*" under section 69G of the Health Act 1956, rev 2020 and is required to be registered under s69K of the Act. The supply of water is required under s69V of the Act, to comply with the Drinking Water Standards for New Zealand (2005 rev 2019).

It is proposed to build up 12 new units on the site as market stalls and landscaping that is already being undertaken requires irrigation. Water is also required for domestic use around the site. This site use amounts to 5000m^3/year and is equivalent to the volume allowed under Permitted Activity Rule A15, Table E7.4.1 of the AUP-OiP for the Matakana Waitemata AMA.

Table 1: Three Blokes Limited Site Water Demand

Water Demand Summary				
	Maximum Daily Take	Requirement (m^3/person/day)	Maximum Requirement (m^3/day)	Total (m^3/year)
Water Carrying				
1 December to 31 March	10 Trucks@10m^3/truck		100	12,000
1 April to 30 November	10 Trucks@10m^3/truck		100	8,000
Other Demand				
Site Domestic Use				
Landscape Plant irrigation				
Market Development			15	5,000
		Total	**115**	**25,000**

The justification for the groundwater demand is provided in associated documents for the landuse consent.

1.4. Consent Requirements

Consent is required under the Auckland Unitary Plan, Chapter E7.4, Table E7.4.1 Activity Table, Rule A26, to take up to 115*m^3/day* and 25,000*m^3/year*, from the Waitemata Matakana Aquifer Management Area. This rule is a discretionary activity. The plan provides for the taking of freshwater for stock purposes under s14 of the RMA subject to there being no adverse environmental effects.

Appendix 3 of the Auckland Council Unitary Plan, Operative in Part (AUP-OiP), does not provide a specific groundwater availability for the Matakana Waitemata AMA. The AUP-OiP does provide groundwater availability guidance for aquifers not separately listed as 35% of average annual recharge, as determined by Auckland Council, for aquifers with connection to a surface water body.

1.5. Matakana Waitemata Aquifer Management Area Groundwater Availability

Auckland Council has recently advised (email; S.Crane dated 4 December 2020), a revised groundwater availability of 233,738*m^3/year* and groundwater available for allocation in excess of 973,000*m^3/year*. This is summarised in Table 2 below. The application annual volume of 25,000m^3/year sought by TBL is within the groundwater available for allocation.

Table 2: Matakana Waitemata AMA Groundwater Availability

Water Availability for Matakana Waitemata AMA from AC	1,341,236m^3/year
	(m^3/year)
Issued Consents	18,000
For Stock, Domestic Use	264,794
Permitted Activity granted prior to 2002[1]	*85,000*
Sub Total	**367794**
Remaining for Allocation	**973,442**
Proposed TBL Application (if granted)	**25,000**
Total Groundwater Available after the proposed abstraction is taken into account	**948,442**

1.6. Alternative Water Supplies

Water use on the site is proposed to be from groundwater only. The only viable available groundwater at the site is from the Matakana Waitemata Aquifer Management Area (Matakana Waitemata AMA).

The only other groundwater alternative is the greywacke aquifer, however this will be at considerable depth beneath the site and water quality will not be as good as the Waitemata aquifer.

Roof rainfall catchment has not been considered due to the site complexity and maintaining a single quality water source for sale.

2. LOCAL GROUNDWATER CONDITIONS

2.1. Topography and Surface Water Drainage

The project site is located within a flat valley floor adjacent to the Matakana River. The surrounding area comprising pasture on the valley floor and adjacent slopes with the steeper areas and drainages bush clad.

The Matakana River drains to Sandspit Harbour, within Kawau Bay. A waterfall located just south of Matakana Village forms a divide between tidal saline waters of the river and the freshwater flow of the upper reaches. This waterfall is located approximately 2.3km south of the TBL production bore.

Topography within the immediate area of the site is relatively flat along the Matakana Valley Road western boundary but dropping away with some steep banks to the Matakana River on the western boundary. On the western boundary the elevation at the northern end of the site is approximately RL28.0*m* reducing to RL23.0*m* at the southern end of the site. The river surface is approximately at RL19.0*m* along the western boundary.

2.2. Geological Setting

The regional geological map at a scale of 1:250,000 prepared by Edbrooke (2001) shows that the site is located within Puketoka Formation alluvial peat rich soils that are mapped within the Matakana valley floor and towards the Sandspit Harbour.

Bore logs from the site bore and those in the near vicinity where available (ID22048 and ID29798) indicate there is likely to be up to 30*m* of Tauranga Group sediments underlying the site. The sediments include sands, yellow clays, 'marine muds", peats and timber. Pukematakeo Mountain (Sugarloaf), 2.0*km* east of the site, comprises the neck of a small basaltic cone dated at 8.4 million years and is considered to be part of the Ti Point volcanics. It is expected there will be volcanic ash and basaltic material within and towards the base of the Tauranga Group sediments.

Waitemata Group sandstone and siltstone sediments underlie the volcanic ash and Tauranga Group sediments. Review of available borelogs in the vicinity of the site, indicates the sandstone rock has limited fracturing although bore ID27796 achieved 25m^3/*hour* from a short airlift test.

Tauranga Group, (Walton Subgroup)

- From the ground surface extending to depths of more than 32*m*, decreasing away from the river flats. Bore ID23098 located 500*m* west of the site did not appear to intersect Tauranga Group sediments. Bore ID22048 located 400*m* east of the site intersected up to 13*m* of Tauranga Group sediments.
- Consisting of black sands, yellow clays, 'marine muds", peats and timber.

Waitemata Group

- Alternating feldspathic sandstones and siltstones.

2.3. Hydrogeological Setting

i. The Tauranga Group aquitard is expected to be recharged dominantly from rainfall recharge and is likely to interact strongly with Matakana River where peats and sands are exposed. Clays and muds (silts) form an aquitard over the Waitemata Sandstones.

   It is evident from multiple bore logs that artesian conditions prevail for the confined Waitemata aquifer beneath the Tauranga Group in the vicinity of the site. This indicates a strong upward gradient and the generally confining nature of the Tauranga Group sediments.

ii. Waitemata aquifer groundwater flows towards the Sandspit Harbour and to Kawau Bay.

The elevation of the aquifer management area at the north western corner is approximately RL325*m*, 3.8*km* northwest of the TBL site. This reduces to sea level just below the waterfall at Matakana Village.

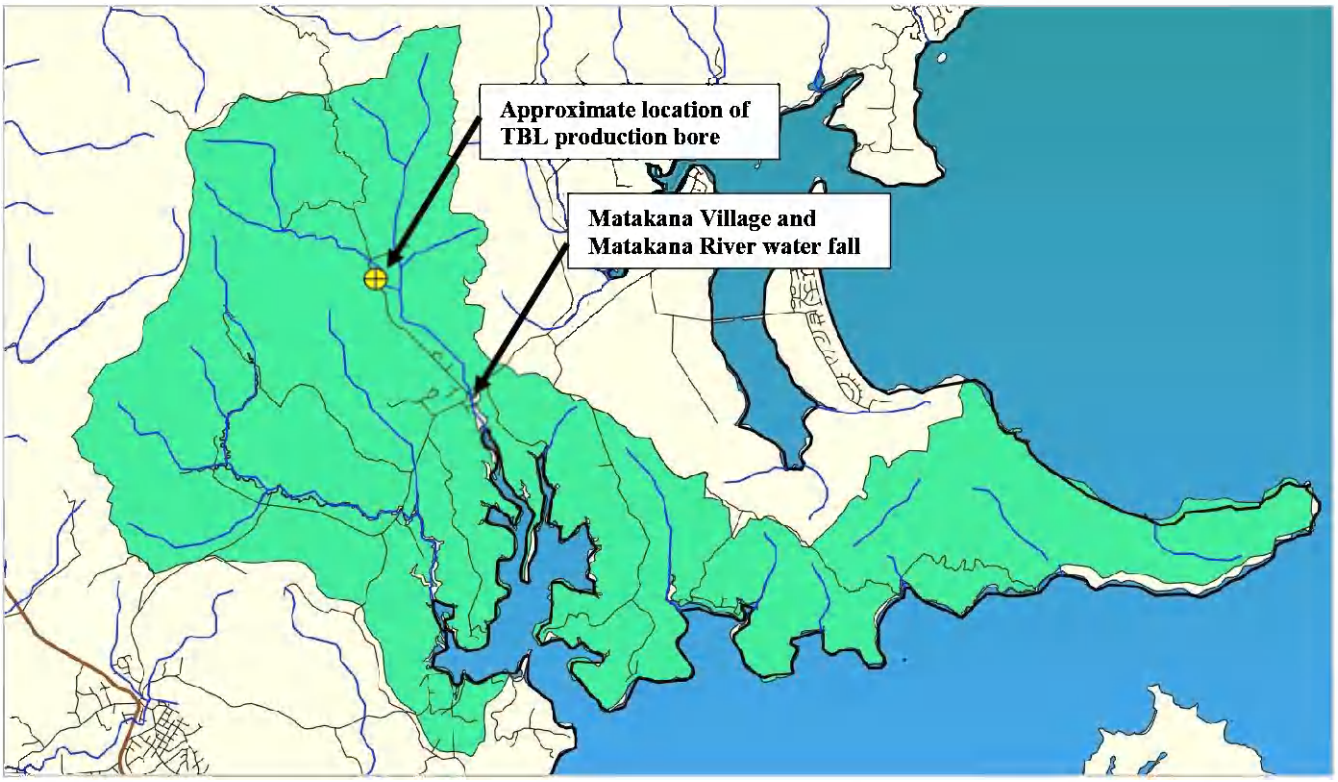

Figure B: Approximate Area of Matakana Waitemata Aquifer (shown in green)

2.4. Hydrogeology and Conceptual Model

On the basis of the above information, the conceptual groundwater model adopted for the site is as follows:

i. Site hydrogeology consisting of:

- Aquitard – Formed by the Tauranga Group of >30*m* thick which is characterised by low vertical permeability within clay horizons but with local thicknesses of transmissive peat horizons and sand overlying the Waitemata aquifer.

- Semi confined Waitemata Aquifer consisting of:-
  - low permeability sandstone that is expected to be at least 300*m* deep below the site.
  - Presence of artesian bores in the vicinity of the site indicate the confined nature of the aquifer.

- Unconfined shallow Waitemata aquifers along the surface water divide and hills within the management area are considered to represent the main recharge zones to the deep aquifer.

3. SITE GROUNDWATER

3.1. Groundwater Quality

Water quality in the region is good and is utilised for water tank top up of domestic potable water from nearby bores (eg ID27796).

A complete analysis of water quality for aesthetic and health chemical parameters will be carried out on the production groundwater in line with health requirements for the supply of drinking water. The '*The Health (Drinking Water) Amendment Act 2007*' and the '*Drinking Water Standards for New Zealand 2005 (Revised 2018)*' require water quality testing.

The site has historically been used as a timber yard and therefore there is potential as an industrial site for various chemicals to have been used within the site. I have discussed the construction of the borehole with the driller, Mr Chris Brown. It is understood that a 150*mm* hole was drilled to 75*m*. The 104*mm* diameter plastic casing was lowered into the hole and supported just above the base of the hole. A total of 28 bags of cement grout were mixed up and pumped down the hole and allowed to flow up the outside of the casing to surface, providing a grout seal. Once grouted the remainder of the hole was drilled removing any chance of surface soils being able to flow into the hole.

At the time of the site visit, the production bore ID29798 was observed to have an artesian flow of around 0.1*l/s*. This upward gradient precludes the likelihood of any near surface contamination, should it exist, migrating downwards to the aquifer. It is far more likely that any surface contamination would migrate to more permeable horizons (peats and sands) within the Tauranga Group sediments and flow laterally, diluted, to the Matakana River. I have not read any correspondence or reports relating to surface contamination for the site.

Comprehensive water sampling and proposed water quality treatment will remove any cause for concern regarding water quality.

3.2. Aqulfer Parameters

Drawdown data from the driller bore log for ID29798 was assessed using Horslev (1951) to determine a value of Transmissivity $T = 75m^2/day$. A short pumping test at $7.2m^3/hour$ caused a drawdown of 8.5*m*.

Site geology and borehole design have been used to establish a value for Storativity S at the site using the methods of Van der Gun (1979), detailed in Kasenow (2006) and Younger (1993).

Table 3: HYDROGEOLOGICAL PARAMETERS

Bore	Comment	Methodology	Storativity (S)		Transmissivity (T)
				Geometric Mean	Average (m^2/day)
Bore ID29798		Horslev MJ (1951)			75
		Van der Gun (1979)	2×10^{-3}	1.0×10^{-3}	
		Younger (1993)	5×10^{-4}		
		Average Value		**1.0×10^{-3}**	**75**

For assessing drawdown effects on neighbouring bores the following parameters have been used:-

Transmissivity T = 75 m^2/day
Storativity S = 1×10^{-3}

3.3. Groundwater Levels

Groundwater levels measured in the bore ID29798 at the TBL site indicate artesian conditions with a piezometric surface of approximately RL27.8*m*. Bore holes ID27796 and 22048 indicate groundwater levels around RL30*m*. West of the site the groundwater level was measured at RL19m at time of drilling bore ID23089. This groundwater level is considered to reflect a shallow groundwater level and potentially indicates there is upward gradient present from the deep groundwater intothe shallow Waitemata aquifer in the lower lying central portions of the surface water catchment area defining the Matakana Waitemata aquifer.

The shallow bore ID21440, drilled to 38*m* has a measured SWL of 1.8 to 2.4*m* equating to RL25.4*m*. This indicates the upward gradient is maintained in the shallow Waitemata aquifer beneath the Tauranga Group sediments. The Matakana River surface level is expected to be at RL19*m* near the bores ID29798 and ID21440.

4. POTENTIAL EFFECTS OF GROUNDWATER ABSTRACTION

4.1. Bore Yields

Existing boreholes within a 2.0*km* radius have been identified and bore logs where available inspected. For several of the recorded borehole sites in the AC database, logs could not be sourced. A concrete plinth above the surrounding ground has been constructed and the site slopes away from the location of the bore collar. A roadside drain immediately adjacent to the bore and an associated bund precludes any overland flow towards the bore position. The bore collar is pictured below showing the artesian flow, the raised concrete plinth and the adjacent bund.

Figure C: Collar of Production Bore ID29798 showing Artesian Flow

Logs of the production borehole and neighbouring borehole 27796 are summarised as follows:

ID 29798

- 100*mm* Ø bore, 146*m* deep, cased to 75.0*m*,
- Air lift test = 14.4m^3/*hour*
- Estimated pumping yield = 345m^3/*day*
- Artesian head +0.3*m*, flow of 0.25m^3/*hour*

- Drillers Log SWL +0.3*m*, RL27.5*m* (GIS Viewer), Water Level RL27.8*m*
- Specific capacity 0.85m^3/*hour/metre*
- TBL Production bore

ID 27796

- 100*mm* Ø bore, 150*m* deep, cased to 60.0*m*,
- Air lift test = 25.0m^3/*hour*
- Estimated pumping yield = 600m^3/*day*
- Artesian head +0.5*m*, flow of 0.6m^3/*hour*
- Drillers Log SWL +0.5*m*, RL29.5*m* (GIS Viewer), Water Level RL30*m*
- Located 325*m* north of the TBL production bore site

The groundwater take sought is 115m^3/*day*. Yields from the production bore and neighbouring bore indicate that 115m^3/*day* is achievable as a sustainable yield from the 100*mm* diameter bore ID29278.

4.2. Pumping Interference Effects

I have assessed the potential drawdown effects of the proposed abstraction using the following parameters.

Transmissivity T = 75 m^2/*day*
Storativity S = 1 x 10^{-3}

Using the well equation, estimated drawdown on the closest neighbouring bore (ID21440) has been calculated to be 0.7*m* as shown in Table 4 below. This estimate is made on the basis of continuous pumping for four months during peak seasonal use. In well drawdown is approximately 1.0m (pers comm Mr Leach, owner) leaving approximately 4.4m of submergence. This bore is shallow and groundwater levels indicate there is not likely to be direct connectivity with the TBL production bore. Mr Leach uses his bore for supply to a single domestic toilet and trough supply for stock drinking water for 100 sheep.

Similarly bore ID23089 is shallow and unlikely to have direct connectivity with the TBL bore. Hence any drawdown calculations are expected to be conservative. This bore is utilised as a top up for domestic supply when roof rainfall catchment is insufficient.

The nearest deep bore is bore ID27796 located 325*m* north of the TBL bore. This bore is an artesian bore with a surface mounted pump. The pump intake is expected to be 10*m* to 13*m* below the top of casing, although is unknown. The bore is utilised for domestic purposes when roof rainfall catchment is insufficient and for garden watering. The pump is expected to abstract at <1m^3/*hour*.

In respect of the other neighbouring bores similar calculated drawdowns will have negligible effect on the operation and ability of the owners to obtain their legal water requirements.

The well equation is conservative as it does not take into account recharge and is expected to overestimate actual groundwater drawdown. Drawdown effects are not significant given the size of the drawdown, the pump submergence and the artesian nature of the adjacent bores.

Table 5: Predicted Groundwater drawdown Effects

Bore Number	Depth	Casing Depth	Distance to TBL Bore Site	Estimated Collar RL (TOC masl)	SWL	Water Level	Pump intake depth[1]	In-well drawdown[2]	Calculated Drawdown (m) Effect from TBL Pumping after FOUR months continuous pumping at 115m³/day (T=175m²/day), Theis 1935	Pump Submergence
	(m)	(m)	(m)	(mRL)	(m)	(mRL)		(m)	(m)	(m)
29798	146	75		27.5	+0.3	27.8				
21440	38.1	22.9	221	27.2	2.1	25.1	8.2	1.0	0.7	4.4
27796	150	60	316	29.5	+0.5	30.0		1.2	0.6	8.7
22048	161.0	53	411	25.5	+5	30.5	10	1.0	0.6	13.4
23089	72	54	495	44.2	25	19.2	50	20	0.5	4.5

Note 1: Surface piston pumps less than 1m³/hour for bores ID21440, ID27796 and ID22048 In line with other surface pumps intake zone for pump in bore ID27796 likely to be around 10m.
Note 2: In-well drawdown was provided as 3' from bore owner ID21440. For bore ID27796 specific capacity used to calculate in-well drawdown from bore ID29798. This is considered conservative as air lift tests indicate twice the yield achieved from bore ID27796 than ID29798.

4.3. Saline Intrusion

The closest saline water to the site is located 2.3k*m* to the southeast of the proposed production bore. Saline water is restricted at the Matakana Township by a rock wall forming waterfall and rapids. East of this point the river is tidal.

Calculated drawdown at this position is 0.18*m* after four month's continuous pumping using the Theis (1935) well equation and parameters listed in section 4.2 of this report. This is a conservative calculation as there is no allowance for recharge and the calculation is for continuous pumping.

The groundwater availability established by Auckland Council for the aquifer provides an allowance of 35% of rainfall recharge for through-flow to the coast to protect against potential for saline intrusion.

The potential for saline intrusion effects at the coast caused by the proposed groundwater take by Three Blokes Limited are considered to be negligible.

4.4. Effects on Surface Water

The proposed production bore site is located close to the main stem of the Matakana River (No. 65280). The river invert levels are positioned within Puketoka Formation sediments.

The production bore is proposed to abstract groundwater from a deep source with very limited hydraulic connectivity with surface water bodies in the vicinity of the site. This is primarily due to the significant thickness of overlying Tauranga Group sediments which form an aquiclude and that baseflow is most likely to be dominated by flow from Tauranga Group sediments and Waitemata Group sediments in the headwaters of the river.

There will be no adverse effects on surface water bodies by the applicant's proposed take.

Potential surface water effects are considered to be negligible.

4.5. Subsidence

Groundwater drawdown effects associated with the TBL proposed pumping are expected to be limited to the deep Waitemata aquifer.

The Waitemata aquifer comprises a strong sandstone and siltstone rock unit and the proposed abstraction from fresh rock at depth will not cause any risk of subsidence.

The site lies within 10m of a listed heritage site NZHPT 2602 relating to sandstone paving within the Matakana Valley Road Reserve, thought to be constructed around 1919. As stated above the historic site will not be affected by the proposed abstraction as the groundwater drawdown is within the deep sandstone aquifer and therefore there will be negligible settlement, if any. The borehole is already constructed and within the confines of the site and therefore there will be no effects on this heritage site due to the abstraction of groundwater.

No significant ground settlement effects are expected due to the low compressibility of the aquifer materials. Potential settlement effects are considered to be negligible.

4.6. Effects on other Aqulfers

The deep Waitemata aquifer is the main source of groundwater in the district. There are a few shallow bores (<100*m)* utilising shallow Waitemata Group aquifer weathered sandstones.

There may be some shallow bores sourcing groundwater from The Tauranga Group sands within the management area however these are likely to be very limited and likely disused. There is limited connectivity between the two aquifers is evidenced by the strong upward gradient present in the vicinity of the site and confined nature of the Waitemata aquifer beneath the Tauranga Group.

Any effects on the Tauranga Group aquifer is expected to be negligible by the proposed abstraction.

5. PROPOSED CONSENT CONDITIONS

As outlined above there are no potentially adverse effects likely to be caused by the proposed abstraction by Three Blokes Limited from the proposed production borehole.

Proposed conditions are as follows:

a) An electronic pulse water meter is to be attached to the outlet of the pump.
b) Water meter to be read weekly.
c) A five yearly verification of the meter accuracy is recommended.

6. SUMMARY

The proposed conditions of consent and the above analysis provides confidence that the proposed abstraction of up to 115m^3/*day* and 25,000m^3/*year* will be sustainable. There is considered to be sufficient capability from the proposed bore to obtain the maximum daily yield sought.

The proposed take has been assessed in terms of interference effects, interaction with surface water bodies and potential saline intrusion. The size of the proposed take and the conditions of consent ensure that there will be no adverse effects.

There will be negligible groundwater level drawdown in neighbouring bores and the owners of these bores will not be affected by the proposed abstraction.

The proposed bore is capable of obtaining the required yield.

The proposal for 25,000m^3/*year* is within the estimated surplus availability and no adverse effects are evident in the long term monitoring of the aquifer. The take is therefore considered sustainable.

Iwi consultation process offered by Auckland Council will be accepted.

There are considered to be no affected parties, subject to sufficient pump submergence, and less than minor effects on the environment and, therefore, limited or public notification is not considered necessary.

Report prepared by:

N J HAZARD

Senior Hydrogeologist

HAZARD CONSULTING LIMITED

20 December 2020

This report has been prepared by HC for Three Blokes Limited as our client with respect to the particular brief given to us. HC accepts no liability if the report is used for a different purpose or if it is relied on by any other person. Any such use or reliance will be solely at their own risk.

7. REFERENCES

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HC Hazard Consulting
Hazard Consulting Ltd.
P.O. Box 66027, Beach Haven 0749
Ph: 021422913
E: nick@hazardconsulting.co.nz

Groundwater Take Application
362 Matakana Valley Rd, Warkworth
Three Blokes Ltd

Bore and Site Location Plan		Drawing No: **Fig. 1**
Checked: NH	Scale (A3): 1:10000	Version: A
Date: 30/11/20		Ref: 7620

Appendix A:- Application Checklist

Checklist for a permit to take, use or Divert groundwater

This checklist is designed to ensure that you submit all the required information with your resource consent application. Please read it and answer all relevant questions in your Assessment of Environmental Effects (AEE). Please attach this checklist to Form A when submitting your application. If you provide inadequate information, the processing of your application may be delayed.

The level of information provided should be both relevant and appropriate to the scale of the proposal. This may require independent specialist(s) input. This checklist is not exhaustive. Depending on the specific nature of your application, the council may require further information during processing to enable a better understanding of the effects of your proposal.

Introduction

Take, use or divert groundwater – why is a resource consent required?

Section 14 of the Resource Management Act 1991 (RMA) provides for the regulation of the taking, use, damming and diversion of both freshwater and geothermal water.

Chapter 6 'Water allocation' of the Auckland Council Regional Plan: Air, Land and Water (ACRP: ALW) and Part 2, Chapter C, 5.14 and 5.15 of the Proposed Auckland Unitary Plan (PAUP) deals with issues associated with water quality and allocation, that is the:

- taking and use of fresh water and geothermal water
- damming of surface water
- diversion of groundwater
- quality, level and flow of water in any water body.

Drilling is also addressed because of its association with the taking of groundwater.
The status of an application to take, use or divert groundwater is determined by whichever rule in the plan provides for the activity. The ACRP: ALW and the PAUP also contain a number of policies that outline what proposals to take, use or divert groundwater or geothermal water must demonstrate in order for consent to be granted – refer to policies 6.4.5, 6.4.33, 6.4.35, 6.4.37and 6.4.49 and PAUP policies in Part 2, Chapter C, 5.15.2. .

It is important to know whether the activity is within a high use aquifer management area (HUAMA) which are identified on the ACRP: ALW Map Series 2 (sheets 1-19) and described in Section 3.8 of the ACRP: ALW and identified in Table 1 of PAUP Overlay in Part 2, Chapter E 7.1 High Use Aquifer Management Areas.

The drillers bore log will also assist in determining if your bore abstracts water from a HUAMA. Contact the Council if you are uncertain.

Description of proposal

Describe the proposal in a separate report including, but not limited to, the following.						
Customer Use (circle as appropriate)			**Description**	**Council use only**		
Yes	No	N/A	Describe the reasons for the resource consent(s).	Yes	No	N/A
Yes	No	N/A	If you are not the owner of the water source, attach written approval from the owner to use the source	Yes	No	N/A
Yes	No	N/A	Attach all relevant formal documentation confirming easements and/or covenants including Certificates of Title of the property where the take occurs	Yes	No	N/A
Yes	No	N/A	If you share the bore with any neighbours, list their name, address and use of the water, e.g. stock, domestic or irrigation	Yes	No	N/A
Yes	No	N/A	State the purpose for which water is to be taken and/or used: • irrigation • industry • vegetable washing • private community water supply	Yes	No	N/A

Describe the proposal in a separate report including, but not limited to, the following.						
			• municipal • stock purposes • domestic • dairy shed • ground dewatering • pumping test • geothermal • groundwater diversion • other.			
Bulk WATER SUPPLY				Council use only		

Water for irrigation use			Entire section N/A ☑			
Note: If water is to be taken for irrigation, provide details of the calculation of your water requirements, including any information supplied to you by consultants and any meteorological data or scientific information on crop water use that you have used. The level of detail required may depend on the scale of activity.						
Customer Use (circle as appropriate)			**Description**	**Council use only**		
Yes	No	N/A	State the area (ha) irrigated of each of the following: • orchard • pasture • glass or plastic house • nursery • market garden • sports field or golf course • other	Yes	No	N/A
Yes	No	N/A	For pasture, state stock type and number grazing	Yes	No	N/A
Yes	No	N/A	For crop irrigation, state principal crops, area of each irrigated and if this may vary from year to year	Yes	No	N/A
Yes	No	N/A	Indicate whether the area to be irrigated is existing, partly developed or proposed	Yes	No	N/A
Yes	No	N/A	Indicate total area to be irrigated on a daily basis (ha/m2)	Yes	No	N/A
Yes	No	N/A	Indicate maximum area to be irrigated on a daily basis (ha/m2)	Yes	No	N/A
Yes	No	N/A	Provide average yield per hectare for all orchard and glasshouse crops. Also provide expected target or yield of the crop for all orchard or glasshouse crops. Water use is strongly related to the crop type and the expected or targeted yield	Yes	No	N/A
Yes	No	N/A	What is the target (net) application rate?	Yes	No	N/A
Yes	No	N/A	Describe the soil types of the areas to be irrigated and state the source of this information.	Yes	No	N/A
Yes	No	N/A	Indicate the months of the year that irrigation may occur.	Yes	No	N/A
Yes	No	N/A	What is your planned method of irrigation (sprinkler, trickle, etc.) and what is the efficiency of delivery to the crop, if known?	Yes	No	N/A
Yes	No	N/A	Give the make and model of any travelling irrigator and provide any technical specification needs.	Yes	No	N/A
Yes	No	N/A	What is the maximum irrigation rate that this system can deliver? You can determine this from the technical specifications or if you already have a water meter, by taking two readings an hour apart	Yes	No	N/A
Yes	No	N/A	What is your total annual demand?	Yes	No	N/A
Yes	No	N/A	What times of the day will you irrigate and for how long?	Yes	No	N/A
Yes	No	N/A	Are there any records of previous water use on the site or elsewhere that would help to demonstrate the quality of water required? If so, you should provide them.	Yes	No	N/A
Yes	No	N/A	State if there are any programmes in place at the site for measuring soil moisture levels and if these are used as a trigger for irrigation, for water conservation or for leak detection inspections and test programmes.	Yes	No	N/A
Yes	No	N/A	Give details of any proposed future expansion or charges to crop types and approximate timetable	Yes	No	N/A
				Council use only		

Water for industry or vegetable washing use				Entire section N/A ☑			
Note: *If water is to be taken for industrial or vegetable washing purposes, you may be required to undertake a water audit of the site water use. Council staff can advise you on this requirement and provide you with water audit guidelines if necessary. Even where an audit is not required, a justification of the quantities applied for must be attached in a separate letter or report. This must include details of any water conservation or leak detection programmes practised at the site.*							
Customer Use (circle as appropriate)			**Description**	**Council use only**			
Yes	No	N/A	Describe the type of industry and the process in which water is used	Yes	No	N/A	
Yes	No	N/A	Include a justification for the quantities applied for	Yes	No	N/A	
Yes	No	N/A	Has a water audit been completed on your activity? Provide details	Yes	No	N/A	
Yes	No	N/A	Are there any water conservation or leak detection programmes? Provide details	Yes	No	N/A	
Yes	No	N/A	Provide a report or letter justifying the quantities applied for.	Yes	No	N/A	
				Council use only			

Water for private community water supply use				Entire section N/A ☐			
Note: *Private community water supplies are typically owned and operated by private individuals, trusts or institutions and supply more than one household or institutions that may accommodate large numbers of people, e.g. campgrounds or hospitals. For applications to supply water to households, the council considers that up to 1,000 litres per day per household may be considered 'reasonable domestic use'. For all applications, the calculation of water requirements is needed.*							
Customer Use (circle as appropriate)			**Description**	**Council use only**			
Yes	No	N/A	What type of institution or development uses the water?	Yes	No	N/A	
Yes	No	N/A	For households, provide the number of households supplied.	Yes	No	N/A	
Yes	No	N/A	For campgrounds, provide the maximum number of visitors and staff.	Yes	No	N/A	
Yes	No	N/A	For schools, provide the maximum number of students and staff	Yes	No	N/A	
Yes	No	N/A	Other.	Yes	No	N/A	
				Council use only			

Water for public community (municipal) supply use				Entire section N/A ☑			
Note: *Public community water supplies are typically owned and operated by local authorities*							
Customer Use (circle as appropriate)			**Description**	**Council use only**			
Yes	No	N/A	State population supplied	Yes	No	N/A	
Yes	No	N/A	Provide all of the following: • a demand management plan or programme • a drought management plan • a network efficiency and water conservation management plan • an analysis of the wastewater disposal requirements associated with the water take	Yes	No	N/A	
				Council use only			

Water for public dairy shed or stock use				Entire section N/A ☑			
Note: *If some water is to be used for dairy shed or stock purposes, state type of animal, number and purpose, e.g. drinking water, wash down). Different animals have different drinking water requirements. As a general rule, the council considers 0.2l/day/bird poultry, 10l/day/ head sheep, 50l/day/head cattle, 15l/day/head deer, 70l/day/head dairy cows (or 120l/day for the period when a dairy shed is used) to be reasonable. However, your estimates may differ to that of the council. If this is so, state the estimated amount required and the source of your information*							
Customer Use (circle as appropriate)			**Description**	**Council use only**			
Yes	No	N/A	Please provide: • animal type • animal numbers. • purpose	Yes	No	N/A	
				Council use only			

Water for ground dewatering use

Entire section N/A ☑

Note: If water is to be diverted and taken for the purpose of ground dewatering, describe purpose. e.g. building basement or road excavation.
You must provide a detailed assessment of the quantity to be taken, anticipated changes in groundwater levels and ground settlement that may result, and effects on structures, buildings and services. Refer to Policy 6.4.49 of the ACRP: ALW for more details. The council will also be able to advise you on this.

Customer Use (circle as appropriate)			Description	Council use only		
Yes	No	N/A	Provide a separate report from a professional geotechnical engineer assessing the quantity and water levels	Yes	No	N/A
Yes	No	N/A	If water is taken for the purpose of a pumping test, describe purpose, e.g. bore capacity, effect on neighbouring bores, aquifer parameters.	Yes	No	N/A
Yes	No	N/A	Will the pumping test be a step test or a constant discharge test?	Yes	No	N/A
Yes	No	N/A	Describe discharge rate, length of steps or test and any observation piezometers to be monitored.	Yes	No	N/A
Yes	No	N/A	If applying for a permit to divert groundwater, describe purpose, e.g. building basement or in-ground tank construction	Yes	No	N/A
Yes	No	N/A	Will the diversion be permanent or temporary? If temporary, for how long?	Yes	No	N/A
Yes	No	N/A	Provide details of calculations of quantity to be diverted (where relevant).	Yes	No	N/A

Groundwater diversion is defined as significantly changing the permeability of the aquifer and/or re-routing the ambient groundwater flow regime (by draining, piping or physically impeding the flow of groundwater). An example of this is when the groundwater is removed from the aquifer, for example for dewatering. After the completion of construction this groundwater will be diverted around the in ground structure. If the structure is 'leaky', a ground water take is required for long-term pumping. The effects of taking that water, e.g. lowering the groundwater levels, and associated settlement need to be addressed. You should attach details of your calculations of the quantity to be diverted, and you may be required to further provide a detailed assessment of the quantities of water to be diverted and anticipated changes in groundwater levels. Contact council staff if you are uncertain of what is appropriate for your proposal.

Council use only

Pump details

Entire section N/A ☐

Customer Use (circle as appropriate)			Description	Council use only		
Yes	No	N/A	Indicate whether the pump is new or existing.	Yes	No	N/A
Yes	No	N/A	Indicate pump make and model.	Yes	No	N/A
Yes	No	N/A	Indicate maximum pumping capacity – cubic metres per hour, litres per second.	Yes	No	N/A
Yes	No	N/A	Will a backflow prevention device be installed to prevent nutrient solutions or any other contaminants flowing back down the bore when the pump is switched off? Provide details	Yes	No	N/A

Council use only

Quantities of water applied for

Note: The quantity of water you are applying to take must be specified. If you are applying for a replacement consent, check your existing consent to see if the quantity stated will meet your current (and likely future) needs or if you now require less water. If you require a greater volume than is currently consented, this water may not be available to you under the same conditions as your expiring or existing consent, as many aquifers in the Auckland region are now highly allocated. If you do require a greater volume, discuss available allocations with the council before you submit your application

Customer Use (circle as appropriate)			Description	Council use only		
Yes	No	N/A	Indicate maximum rate of take in cubic metres per hour	Yes	No	N/A
Yes	No	N/A	Indicate maximum daily quantity in cubic metres per day	Yes	No	N/A
Yes	No	N/A	Indicate total annual quantity in cubic metres per year	Yes	No	N/A
Yes	No	N/A	Demonstrate that the bore is capable of extracting the quantities applied for	Yes	No	N/A

Council use only

Water meter details			Entire section N/A ☐			
Note: Include all digits, including zero, before and after the decimal point for this current reading and subsequent readings that are required as a condition of consent. Digits after the decimal point are often in red. Indicate if any zero is a fixed zero (written on face plate of meter), e.g. 0041962.1m3						
Customer Use (circle as appropriate)			**Description**	**Council use only**		
Yes	(No)	N/A	Has an operational water flow meter been fitted? if 'yes', provide details of make, model, size	Yes	No	N/A
Yes	No	(N/A)	Indicate current meter reading in units (m3/litres/gallons) on (specify date).	Yes	No	N/A
Yes	No	(N/A)	Is there a length of straight pipe, equal to 10 times the internal pipe diameter fitted before the meter?	Yes	No	N/A
Yes	No	(N/A)	Provide a 'most recent' certificate verifying accuracy of the meter	Yes	No	N/A
Note: RMA regulations require a meter capable of providing output in a form suitable for electronic data storage for all takes of five litres per second and greater. Contact council staff for further details.						
				Council use only		

Bore heads – existing bores			Entire section N/A ☐			
Note: *It is important that the bore head is protected to prevent possible contamination of the groundwater resource. Provision for water quality sampling and water level monitoring are also important. Bores drilled after 1987 are subject to certain conditions covering these aspects of bore construction and maintenance (check your bore permit). Older bores may require upgrading to meet these requirements*						
Customer Use (circle as appropriate)			**Description**	**Council use only**		
(Yes)	No	N/A	Is there a concrete pad in place around the bore head?	Yes	No	N/A
(Yes)	No	N/A	Does the top of the casing rise at least 0.3 metres above the ground level?	Yes	No	N/A
Yes	(No)	N/A	Is there access for water level monitoring, e.g. a plugged hole or large slot at least 20 millimetres in size in the casing top plate?	Yes	No	N/A
(Yes)	No	N/A	Is there access for taking a water sample, e.g. a tap close to the bore head before any filter or tank?	Yes	No	N/A
(Yes)	No	N/A	Provide a photograph of bore head and meter.	Yes	No	N/A
				Council use only		

Site Plan

Details to be provided on site plan						
Note: It is important that the bore head is protected to prevent possible contamination of the groundwater resource. Provision for water quality sampling and water level monitoring are also important. Bores drilled after 1987 are subject to certain conditions covering these aspects of bore construction and maintenance (check your bore permit). Older bores may require upgrading to meet these requirements						
Customer Use (circle as appropriate)			**Description**	**Council use only**		
Show the following on the site plan (provide one set of plans reduced to A3 or A4):						
(Yes)	No	N/A	title box including: • the name of the person and/or company that prepared the plans. • address of property/site (adjacent to the location of the proposal in the Coastal Management Area (CMA) • date plans were drawn • unique plan reference or identification, or variation number where relevant	Yes	No	N/A
(Yes)	No	N/A	legend explaining symbols on the site plan	Yes	No	N/A
(Yes)	No	N/A	north point (orientated to the top of the page if possible)	Yes	No	N/A
(Yes)	No	N/A	scale bar	Yes	No	N/A
(Yes)	No	N/A	appropriate metric scale, e.g. 1:2000 (1cm = 20m), and page size reference, e.g. @ A3	Yes	No	N/A
(Yes)	No	N/A	total site area in hectares (ha) or square metres (m^2) (where relevant)	Yes	No	N/A
Yes	(No)	N/A	road frontages and names	Yes	No	N/A
Yes	(No)	N/A	property boundary dimensions – existing and future (where relevant)	Yes	No	N/A
Yes	(No)	N/A	adjoining street numbers	Yes	No	N/A
Yes	No	(N/A)	location of any upstream or downstream users or other dams	Yes	No	N/A

Details to be provided on site plan						
Yes	No	N/A	catchment areas	Yes	No	N/A
Yes	No	N/A	steep slopes (>15°) highlighted	Yes	No	N/A
Yes	No	N/A	any waterfalls, wetlands or dams	Yes	No	N/A
Yes	No	N/A	location of any cultural heritage features including historic waahi tapu and archaeological sites on the site and environs or Sites and Places of Significance to Mana Whenua, Sites and Places of Value to Mana Whenua (as identified in ARC :ALWP Maps and in PAUP Overlay Maps or Appendices)	Yes	No	N/A
Yes	No	N/A	location of any natural heritage features, e.g. indigenous vegetation and/or any significant ecological or geological features, or features with significant natural heritage and/or conservation values, e.g. wetlands, on the site and environs (as identified in ARC :ALWP Maps and in PAUP Overlay Maps or Appendices)	Yes	No	N/A
Yes	No	N/A	location of bore (actual or proposed), sump or well	Yes	No	N/A
Yes	No	N/A	the area in which the water is to be used	Yes	No	N/A
Yes	No	N/A	location of existing and proposed structures, roads, buildings, fences, etc	Yes	No	N/A
Yes	No	N/A	location of nearby bores (including those on neighbouring properties), springs, wetlands, rivers or streams	Yes	No	N/A
Yes	No	N/A	location of any septic tanks, offal pits, contaminated sites or areas, or other waste disposal areas within 150 metres of the take point	Yes	No	N/A
Yes	No	N/A	location of any fill, semi-consolidated sediments or reclaimed land on the site (for diversion and taking of groundwater)	Yes	No	N/A
Yes	No	N/A	location of mean high water springs (MHWS) or Coastal Marine Area (CMA) if within 500 metres of the take point, bore or well	Yes	No	N/A
				Council use only		

Actual and potential effects on the environment

Identify, describe and assess the actual or potential effects on the environment of your proposed activity. For the purposes of this section, you need to consider the effects of your proposed take under the 'worst case scenario'. For most water takes, the worst case scenario is when the quantity of water being taken is greatest and occurring over the longest time period, e.g. drought conditions for irrigation.

Effects on groundwater availability

Note: Groundwater is held in a range of rocks and deposits termed 'aquifers' at varying depths beneath the ground surface. Rainfall travels through the most porous areas of these rocks and deposits to replenish or 'recharge' water which is abstracted from bores or which discharges from the aquifer, typically to a deeper aquifer, at surface springs or at the coast. The quantity of groundwater available for abstraction is limited by the quantity which is recharged from rainfall each year. The abstraction of more than the annual availability can lead to a fall in groundwater levels and deterioration in groundwater quality and supply.

In areas of high groundwater use, the council has regional plan rules or water allocation strategies in place which set the limits of how much water can be allocated.

These availabilities are based on annual rainfall recharge and on maintaining minimum aquifer levels, base flow of streams and springs, recharge of other aquifers and outflow at the coast to prevent saltwater intrusion. You should check whether a rule or strategy exists for your area or aquifer, and if so, whether water is currently available for allocation. If no such rule or strategy is in place and you wish to take a significant quantity of water, you may have to provide your own estimate of groundwater availability, prepared by an appropriate consultant. Staff at the council will be able to advise you whether or not this is required

Customer Use (circle as appropriate)			Description	Council use only		
Yes	No	N/A	What is the predominant geology (aquifer) from which the groundwater is to be taken? Aquifers can be one of the following: Alluvium (soil or fill), Geothermal, Greywacke, Kaawa shell, Sand/gravel, Volcanic, Waitemata sandstone or other. Note: This is the geology adjacent to the screen zone or between the bottom of the casing and the base of the bore, as shown on the driller's bore log)	Yes	No	N/A
Yes	No	N/A	Is your bore take in an ACRP: ALW High Use Aquifer Management Area (HUAMA) identified on the ACRP: ALW Map Series 2 (sheets 1-19) and described in Section 3.8 of the ACRP: ALW and identified in Table 1 of PAUP Overlay in Part 2, Chapter E 7.1 High Use Aquifer Management Areas.	Yes	No	N/A
Yes	No	N/A	Is there a council groundwater availability for the aquifer or sub-zone of the	Yes	No	N/A

Effects on groundwater availability						
			aquifer? Give name of aquifer or zone. Detail availability. Note: You can find this information in Schedule 2 of the ACRP: ALW 2012 and Map Series 2 – sheets1-19 and the PAUP Appendix 5.5.			
(Yes)	No	N/A	Have you or a hydrogeologist (or other appropriate consultant), prepared an assessment of groundwater availability in the area, aquifer or aquifer zone. Detail availability.	Yes	No	N/A
				Council use only		

Effects on the groundwater resource and other water users						
Note:			*The taking of groundwater leads to a fall in water levels in the aquifer surrounding the point of abstraction. The extent of the area affected and length of time that the levels remain drawn-down depends on the pumping rate, pumping duration, aquifer parameters and aquifer geometry (boundaries). Where significant drawdown occurs, this can result in interference with water levels in the surrounding bores. This can affect the ability of neighbours to draw water, e.g. water levels falling below the pump in their bore and reduced flow at springs. The water level drawdown will depend on the quantity of water you propose to take relative to the aquifer properties, bore depths, spring elevations, and distance to springs and other bores.* *Provide as much detail as possible on nearby water sources and users, and consider whether or not any of these will be affected. You may need to provide a more detailed assessment depending on the quantity you wish to take and the location of potentially affected water sources and parties. The council will be able to advise you on this.* *Use table 1 below (as an example) to provide the following information relating to all adjacent properties and to the nearest property with a bore in each direction (if not adjacent).*				
Customer Use (circle as appropriate)			**Description**	**Council use only**		
Yes	No	(N/A)	Provide: • the names, postal addresses (including RD or PO Box number), site address (including street number on gate) of the property owners/occupiers • details of whether or not there are any bores (and give bore depth if known), springs, wetlands or streams on each of these properties • details of whether or not water is taken from any water sources and any permit numbers (if known) • the distance between each water body or source and your existing or proposed bore, well or sump • a description of the purposes for which they take water, e.g. stock water, domestic supply, irrigation, etc	Yes	No	N/A

Table 1:

Name and postal address e.g. Ann Bode, PO Box 100 Auckland	**Site address** e.g. 100 Main Road, Pukekohe	**Water body/ source(s)** e.g. stream/bore/ spring	**Is water taken?** Yes/No	**Distance to your proposed take (m)** e.g. 300m	**Use(s) of water** e.g. domestic supply

Yes	No	(N/A)	The names of property owners and locations of water sources should also be shown on your location map.	Yes	No	N/A
Yes	(No)	N/A	Will your proposal to take groundwater cause reduced spring flow or adverse interference effects on water levels in neighbouring bores to the extent where the neighbouring spring/bore owner is prevented from obtaining their lawfully established water requirements? Explain in your AEE	Yes	No	N/A
				Council use only		

Effects on water quality						
Note:			*The pumping of groundwater can lead to the movement of materials disposed of nearby such as septic tank effluent if these become dissolved or mixed into the groundwater flow. This can lead to a deterioration in the quality of water supplies and the groundwater resource as a whole. Abstraction close to the coastline can lead to the contamination of the groundwater resource by the landward movement of seawater. A detailed assessment may be necessary depending on the quantity which you wish to take and the proximity to potential sources of contamination and the coastline*				
Customer Use (circle as appropriate)			**Description**	**Council use only**		
Yes	No	N/A	Has a water quality analysis been undertaken on groundwater taken from your bore (well or sump) or do you have access to the results of an analysis on any nearby bores? If 'yes', attach a copy of the results.	Yes	No	N/A
Yes	No	N/A	Within 50 metres of the take point, are there any septic tanks, offal pits, contaminated sites or other waste disposal areas? If so, indicate on site plan and give the distance between these and your take point. Detail the nature and distance from take point (metres) of the waste disposal	Yes	No	N/A
Yes	No	N/A	Is your proposed take point within proximity (500 metres) of the coastline? If 'yes', indicate the location and distance to the coastline on your site plan. Describe effects	Yes	No	N/A
Yes	No	N/A	Do you anticipate that your proposal to take, use or divert groundwater will affect the water quality of the groundwater resource, e.g. contamination from septic tanks or other waste disposal areas, saltwater intrusion?	Yes	No	N/A
				Council use only		

Effects on land and buildings				**Entire section N/A** ☐		
Customer Use (circle as appropriate)			**Description**	**Council use only**		
Yes	No	N/A	Is your proposed take point in close proximity to any fill, reclaimed land, unstable ground, or other land subject to settlement or movement?	Yes	No	N/A
Yes	No	N/A	If 'yes', do you anticipate that your proposal to take, use or divert groundwater may result in any effects on land, structures, buildings and services, e.g. roads, pavements, power, gas, electricity and fibre optic cables?. Effects may include settlement of ground surface or building foundations that result in damage to structures, buildings and services. Effects also include cumulative effects that may arise from a number of groundwater diversions in the same area. Provide a separate report from a professional geotechnical engineer assessing the effects.	Yes	No	N/A
Yes	No	N/A	If relevant, describe any effects on ecosystem habitats – terrestrial and freshwater.	Yes	No	N/A
				Council use only		

Effects on cultural heritage				**Entire section N/A** ☐		
Customer Use (circle as appropriate)			**Description**	**Council use only**		
Yes	No	N/A	Are there any cultural effects?	Yes	No	N/A
Yes	No	N/A	The following may help you identify any cultural heritage features on your site. • Check the Auckland Regional Cultural Heritage Inventory (CHI) for historic or cultural heritage information. • Heritage New Zealand (formerly NZ Historic Places Trust) has the 'Heritage List' (formerly 'The Register') of historic places, archaeological sites, historic areas and waahi tapu areas. • Schedules 1 and 2 of the Auckland Council Regional Plan: Coastal (ACRP:C) contain a list of protected and preserved historic and cultural heritage sites. • District plans have schedules of protected cultural heritage items. • Appendix B of the Auckland Council Regional Policy Statement (ACRPS) contains a list of significant natural heritage values and identifies sites and areas of special value to tāngata whenua. • The PAUP Historic Heritage Overlay Map and Appendix 9.1 Schedule of Significant Historic Heritage Places • The PAUP Sites and Places of Significance to Mana Whenua Overlay Map and Appendix 4.1	Yes	No	N/A

Effects on cultural heritage			Entire section N/A ☐			
			• The PAUP Sites and Places of Value to Mana Whenua Overlay Map and Appendix 4.2 Areas or places that are significant to tāngata whenua may only be identified during consultation.			
Yes	No	N/A	In reasonable proximity of the proposed take and water use site, are there any archaeological or cultural heritage features, e.g. historic place, building, or any areas or aspects of significance to Maori or tāngata whenua, e.g. waahi tapu, pa site?	Yes	No	N/A
If 'yes' to any of the previous features, describe what is present and identify what adverse effects your activity may have.						
				Council use only		

PAUP Cultural Impact Assessment (CIA) Requirements			Entire section N/A ☐			
Customer Use (circle as appropriate)			**Description**	**Council use only**		
Yes	No	N/A	If your proposal is located within a "Site or Place of Significance to Mana Whenua" or a "Site and Place of Value to Mana Whenua" as identified in the PAUP Overlays, or if your proposal is one of those types of application listed under the Rule in Part 3, Chapter G 2.7.4 of the PAUP, then you will need to establish whether a Cultural Impact Assessment (CIA) is required from iwi. To do this you will need to contact all the relevant iwi groups identified as having an interest in your area. You will need to provide details with your application of all Mana Whenua groups contacted and their responses. Please note that providing this information with the lodgement of your application will assist in processing your application in a timely manner. If you have not provided the relevant information your application may need to be placed on hold while this information is obtained. In any case, please note that the council can assist you in determining whether the PAUP provisions referred to above apply and, if so, which Mana Whenua groups need to be approached. For more information contact Council	Yes	No	N/A
				Council use only		

Effects on natural heritage			Entire section N/A ☐			
Customer Use (circle as appropriate)			**Description**	**Council use only**		
Yes	No	N/A	Are there any natural heritage effects? Note: The following may help you identify any natural heritage features on your site. • Check the Natural Heritage Database (held by the council) – contact the council for assistance. • Appendix B of the Auckland Regional Policy Statement (ACRPS) identifies areas of significant natural heritage values. Map Series 2 of the ACRPS illustrates their location. • Schedule 4 of the ARP: C shows areas of significant conservation value as identified by the Ministry of Conservation. • Plan change 9 of the ACRPS and Schedule 3 of the ARP: C identify sites that have geological, landscape or coastal heritage value, including volcanic cones and coastal protection areas. • The PAUP Natural Heritage Overlays identify natural character area and natural features and landscapes i.e Coastal Natural Character Areas Overlay; (ONC areas); Outstanding Natural Features Overlay; Outstanding Natural Landscapes Overlay • The PAUP Natural Resources Overlays identify streams, aquifers, stream management areas and stormwater management areas etc i.e. Indicative Streams Overlay; Aquifer Overlay, High Use Stream Management Area Overlay; Significant Ecological Area (SEA) Overlay; Natural Stream	Yes	No	N/A

Effects on natural heritage				Entire section N/A ☐		
			Management Area Overlay; Water Supply Management Area Overlay; Lake Management Area Overlay; Stormwater Management Area Overlay. • Sections 3.2 and 3.3 of Chapter 3 of the ACRP: ALW and Part 2, Chapter E.7.6 and 7.9 of the PAUP provide a description and management approach for wetland management areas and natural lake management areas respectively. • Schedule 1 of the ACRP: ALW and Appendix 5.3 of the PAUP identifies significant wetlands which constitute the wetland management areas. Information on the boundaries is available from the council's Natural Heritage Information Database. The natural lake management area contains the identified lake and a 50-metre buffer strip around the lake. • Section 3.4 of Chapter 3 of the ACRP: ALW and Part 2, Chapter E.7.4 of the PAUP provides a description, criteria, and management approach for natural stream management areas. • Maps Series 1 of the ACRP: ALW and the PAUP Appendix 5.3 and Appendix 5.4 and the PAUP Natural Stream Management Areas Overlay identifies wetland and natural lake management areas, and also illustrates natural stream management areas in and indicative manner. • The PAUP Significant Ecological Area Overlay identifies area of high ecological value			
Yes	No	N/A	Is any proposed bore located in a Wetlands Management Area as identified in schedule one of the ACRP: ALW and Appendix 5.3 to the PAUP?	Yes	No	N/A
Yes	No	N/A	In reasonable proximity to the proposed take and water use site, are there any natural heritage features, e.g. indigenous vegetation and/or any significant ecological or geological features, or features with significant natural heritage and/or conservation values, e.g. volcanic cones, lakes, wetlands, areas of significant indigenous vegetation or habitats of indigenous fauna and environs. If 'yes', describe what is present and any adverse effect your activity may have	Yes	No	N/A
Yes	No	N/A	Discuss and adverse effects of the activity on any abstraction point for a registered drinking water supply as required by sections 6, 7 and 8 of the Resource Management (National Environment Standards for sources of human drinking water) regulations 2007. Contact council staff if you require assistance	Yes	No	N/A
				Council use only		

Alternative locations and methods				Entire section N/A ☐		
Note:			*As part of your AEE, it may be appropriate to consider if there are alternative sources of water or alternative methods of undertaking your activity which may have lesser adverse effects, for instance, collection and use of rainwater in areas of high groundwater use. For example, shallow aquifers (particularly volcanic rocks) contribute to spring flow and are also commonly used by stock water bores. Constructing proposed bores to a deeper aquifer may significantly reduce effects on springs and nearby bore users. Constructing proposed bores to fully penetrate the target aquifer make them less susceptible to aquifer water level fluctuations in future and allow more efficient abstraction of water from groundwater resources*			
Customer Use (circle as appropriate)			**Description**	**Council use only**		
Yes	No	N/A	State any alternative water sources or methods available	Yes	No	N/A
Yes	No	N/A	Describe why you have chosen to take groundwater from a particular aquifer or depth in an aquifer and not from any of these other water sources	Yes	No	N/A
Yes	No	N/A	State any alternative methods of undertaking your activity. Identify whether these are more or less water efficient. If they are more water efficient, explain why you have not chosen the alternative	Yes	No	N/A
The council must ensure that the water resource is used efficiently. Measures that may be undertaken to minimise wastage and maximise efficient use will differ depending on what the water is used for. The following are examples for different water uses. • *For irrigation takes, water may be applied at night, and in calm weather conditions only. Irrigation consultants can provide technical information on exactly how much water certain soil and crop types require in different areas of the Auckland region.* • *For industrial purposes, a known volume of water may be required per unit of product for certain purposes. Maintenance of equipment may minimise leakages.* • *For private or public community water supplies, water restrictions may be applied during water short periods, e.g. hand-held watering of gardens only, restrictions on car washing etc. Some public supplies may have flow restrictors. Refer to the fact sheet 'Using Water Wisely'.*						
				Council use only		

Alternative locations and methods	Entire section N/A ☐

Proposed mitigation

Note: Adverse effects such as interference with nearby bores can be mitigated by:

- *in some cases, constructing a proposed bore to a deeper aquifer or casing it deeper*
- *taking the same daily quantity but at a lower pumping rate or alternative timing*
- *relocating a proposed bore*
- *providing an alternative supply for those affected water conservation options in times of reduced water availability.*

For larger takes, details of proposed mitigation measures must be provided as a part of a more detailed assessment of effects. This should describe which adverse effects the measures are designed to mitigate and provide details of the ways in which this mitigation will be achieved.

Customer Use (circle as appropriate)			Description	Council use only		
Yes	No	(N/A)	Describe steps you propose to take to mitigate any adverse effects described in your answers to all questions in Section 4 above.	Yes	No	N/A
				Council use only		

Monitoring

Note: You will be required to monitor your own water use with a water meter (refer to the fact sheet Why you have to fit a water meter) and submit records to the council. Where the scale of the activity and related effects are significant, e.g. potential for significant reduction in yield of neighbouring bores, then monitoring of these effects and the effectiveness of mitigation measures may be appropriate. This may include monitoring static water levels in your own and other bores, monitoring spring flows or monitoring bore water quality if saltwater intrusion is possible.

For diversion and taking of groundwater, for instance at construction sites which can lead to settlement of semi-consolidated sediments, measurement and recording of the movement of ground, buildings and other structures may be appropriate.

Customer Use (circle as appropriate)			Description	Council use only		
(Yes)	No	N/A	Do you intend monitoring the effects your taking, use or diversion of groundwater may have on other water users, on the resource as a whole and ground settlement as appropriate? If 'yes', provide details. *The data obtained from water meters must be collected and recorded. Often this is done manually, but manual recording, e.g. daily visits to the water meter, is not always convenient to the consent holder, and recording may become sporadic. In addition, errors can occur when data is recorded incorrectly (e.g. numbers are transposed). Data-loggers are an automatic electronic way of obtaining and recording data from certain types of water meters with a pulse output. Depending on the type of water take you are applying for, and the rate and volume of water sought, the council may require that you install a data-logger to record details of your taking.*	Yes	No	N/A
(Yes)	No	N/A	For water-metered groundwater takes, how do you propose to record the information? Frequency? *Note: RMA regulations require a meter capable of providing output in a form suitable for electronic data storage for all takes five litres per second and over. Contact council staff for further details.*	Yes	No	N/A
				Council use only		

Find out more: phone 09 301 0101 or visit www.aucklandcouncil.govt.nz

Appendix B:- Bore Log

Chris Brown Ltd
WELLDRILLERS

Chris Brown
0800 WE DRILL
Mobile: 021 429 791
A/H: 09 424 8495
www.wedrill.co.nz

Customer	Three Blokes Ltd
Address	362 Matakana Valley Road
City	Matakana

Permit #	REG-64137	Bore ID	29798
Grid Reference	1752691 mE, 5977438 mN	Drilling Method	R/M
Purpose of Bore	Commercial	Driller	Chris Brown
Date of Starting	26/04/2016	Date of Finishing	29/04/2016

BORE LOG

Depth from Surface		Description of Ground Passed Through
Top	Bottom	
0	32	Soft marine mud with timber
32	34	Fine Sandstone
34	146	Firm Sandstone with some hard layers
		Flow Test @ 60m = 14400
		Flow Test @ 30m = 8500

WELL CONSTRUCTION

Depth of Bore:	146			(M)
Depth of Casing:	75			(M)
Diameter of Casing:	104			(mm)
Screens:				
Diameter(s):				
Interval(s):	From:		To:	
Slot Size & Type:				
Grouting:		Bags:	28	

PUMP TEST

Static Water Level:	+ .3	
Method of Development:	Air	
Test Discharge:	14.4	(M^3/hr)
Drawdown level at Discharge:		(M)
Duration of Test:	6	Hours

Recommended Pump Depth:	Surface Pump	(M)
Recommended Pump Volume:	7200	(ltrs p/hr)
Recommended Pump Type:	To suit	

WATER QUALITY: (Basic on-site taste test)
Taste test: Good

COMMENTS

Surface pump 7200 with draw down of 8.5m

Appendix C: AUP-OIP Objectives Policies and Rules

Auckland Unitary Plan – Operative in Part (2020)

OBJECTIVES AND POLICIES ASSESSMENT

	Objective/Policy	Comment
A1	REGIONAL POLICY STATEMENT OBJECTIVES	
	Chapter B: Natural Resources B7.3. Freshwater systems	
1	**Degraded freshwater systems are enhanced.**	N/A
2	**Loss of freshwater systems is minimised.**	There is not expected to be a loss of freshwater systems due to proposed groundwater abstraction
3	**The adverse effects of changes in land use on freshwater are avoided, remedied or mitigated.**	N/A
	B7.4.1 Coastal water, freshwater and geothermal water	
1	**Coastal water, freshwater and geothermal water are used within identified limits while safeguarding the life-supporting capacity and the natural, social and cultural values of the waters.**	The proposed groundwater take is within the calculated sustainable groundwater availability established by Auckland Council. Outflow at the coast will be maintained to allow preservation of coastal waters and avoid saline intrusion. Groundwater will not be drawn down below sea level and the calculated groundwater availability takes into account aquifer contribution to stream base flow.
2	**The quality of freshwater and coastal water is maintained where it is excellent or good and progressively improved over time where it is degraded.**	Abstraction of freshwater is within sustainable limits.
3	**Freshwater and geothermal water is allocated efficiently to provide for social, economic and cultural purposes.**	The proposed abstraction will provide an efficient use of the local water resource for provision of potable water to communities that do not have reticulated supply and when roof catchment of rainfall is not sufficient to meet demand. Overall the proposed sustainable use of the resource will provide social and economic benefits to the local community.

	Objective/Policy	Comment
4	The adverse effects of point and non-point discharges, in particular stormwater runoff and wastewater discharges, on coastal waters, freshwater and geothermal water are minimised and existing adverse effects are progressively reduced.	N/A
5	The adverse effects from changes in or intensification of land use on coastal water and freshwater quality are avoided, remedied or mitigated.	The proposal will not adversely affect freshwater quality or coastal waters.
6	Mana Whenua values, mātauranga and tikanga associated with coastal water, freshwater and geothermal water are recognised and provided for, including their traditional and cultural uses and values.	Mana Whenua values with respect to the groundwater take are acknowledged. Auckland Council Iwi facilitation process is sought for this applications if necessary.
A2	AUCKLAND WIDE OBJECTIVES	
	Chapter E E1.2. Water quality and integrated management	
1	Freshwater and sediment quality is maintained where it is excellent or good and progressively improved over time in degraded areas.	The proposed groundwater take will not cause any degradation of the Matakana Waitemata Aquifer Management Area as it is within sustainable limits.
2	The mauri of freshwater is maintained or progressively improved over time to enable traditional and cultural use of this resource by Mana Whenua.	The abstraction will not cause any adverse effects on the aquifer.
3	Stormwater and wastewater networks are managed to protect public health and safety and to prevent or minimise adverse effects of contaminants on freshwater and coastal water quality.	N/A
	Chapter E: Natural Resources E2.2 Objectives; Water quantity, allocation and use	
1	Water in surface rivers and groundwater aquifers is available for use provided the natural values of water are maintained and established limits are not exceeded.	The proposed take is within the sustainable yield of the Matakana Waitemata Aquifer MA.
2	Water resources are managed within limits to meet current and future water needs for social, cultural and economic purposes.	The proposed groundwater take will assist in providing an improved bulk water service to the local community for those that do not have access to reticulated water. The proposed abstraction is sustainable.
3	Freshwater resources available for use are managed and allocated in order of priority to provide for domestic and municipal water supplies, animals, and economic development.	N/A
4	Water resources are managed to maximise the efficient allocation and efficient use of available water.	Monitoring of pumping volumes are proposed as conditions of consent. There is limited potential for water loss

	Objective/Policy	Comment
5	Mana Whenua values including the mauri of water, are acknowledged in the allocation and use of water.	It is recognized that Mana Whenua values will include the management of the Matakana Waitemata Aquifer resource. The Auckland Council Iwi facilitation process is sought for these applications.
B	POLICIES	
	Chapter B B7.3.2. Integrated management of land use and freshwater systems	
	Integrated management of land use and freshwater systems	
1	Integrate the management of subdivision, use and development and freshwater systems by undertaking all of the following: (a) Ensuring water supply, stormwater and wastewater infrastructure is adequately provided for in areas of new growth or intensification; (b) Ensuring catchment management plans form part of the structure planning process (c) Controlling the use of land and discharges to minimise the adverse effects of runoff on freshwater systems and progressively reduce existing adverse effects where those systems or water are degraded; and (d) Avoiding development where it will significantly increase adverse effects on freshwater systems; unless these adverse effects can be adequately mitigated.	N/A
2-3	Not relevant	
4	Avoid the permanent loss and significant modification or diversion of lakes, rivers, streams (excluding ephemeral streams), and wetlands and their margins, unless all of the following apply: a. it is necessary to provide for: i. the health and safety of communities; or ii. the enhancement and restoration of freshwater systems and values; or iii. the sustainable use of land and resources to provide for growth and development; or iv. infrastructure; b. no practicable alternative exists; c. mitigation measures are implemented to address the adverse effects arising from the loss in freshwater system functions and values; and d. where adverse effects cannot be adequately mitigated, environmental benefits including on-site or off-site works are provided.	N/A to this application
5	Manage subdivision, use, development, including discharges and activities in the beds of lakes,	N/A

	Objective/Policy	Comment
	rivers streams, and in wetlands, to do all of the following: a. protect identified Natural Lake Management Areas, Natural Stream Management Areas, and Wetland Management Areas; b. minimise erosion and modification of beds and banks of lakes, rivers, streams and wetlands; c. limit the establishment of structures within the beds of lakes, rivers and streams and in wetlands to those that have a functional need or operational requirement to be located there; and d. maintain or where appropriate enhance: i. freshwater systems not protected under Policy B7.3.2(5)(a); ii. navigation along rivers and public access to and along lakes, rivers and streams; iii. existing riparian vegetation located on the margins of lakes, rivers, streams and wetlands; and iv. areas of significant indigenous biodiversity.	
6	Restore and enhance freshwater systems where practicable when development, change of land use, and subdivision occur.	N/A
	Chapter B B7.4.2. Integrated management	
1	Not relevant	
	National Policy Statement for Freshwater Management	
2	Give effect to the National Policy Statement for Freshwater Management 2014 by establishing all of the following: (a) freshwater objectives; (b) freshwater management units and for each unit: (i) values (ii) water quality limits; (iii) environmental flows and/or level; and (c) targets and implementation methods where freshwater units do not meet freshwater objectives	N/A
3	Integrate Mana Whenua values, matauranga and tikanga when giving effect to the National Policy Statement for Freshwater Management 2014 in establishing all of the following: (a) water quality limits for freshwater, including groundwater (b) the allocation and use of freshwater resources, including groundwater; and	The calculated water availability takes into account Mana Whenua values

	Objective/Policy	Comment
	(c) measures to improve the integrated management of the effects of the use and development of land and freshwater on coastal water and the coastal environment	
4 - 10	Not relevant	
	Freshwater and geothermal water quantity, allocation and use	
11	Promote the efficient allocation of freshwater and geothermal water by all of the following: (a) establishing clear limits for allocation; (b) avoiding over allocation of water, including phasing out any existing over allocation; (c) safeguarding spring flows, surface waterbody flows, ecosystem processes, life supporting capacity, the recharge of adjacent aquifers and geothermal temperature and amenity; and (d) providing for the reasonable requirements of domestic and municipal supplies	The groundwater availability for the aquifer has been calculated on the basis that there is a direct connection to surface water. This is considered conservative because for the most part within the surface water catchment area there is limited connection with surface water because regional groundwater levels indicate a strong upward gradient beneath the invert level of streams. There is likely to be some leakage but not direct connectivity.
12	Promote the efficient use of freshwater and geothermal water	The water is proposed to be trucked off site. There is limited potential for losses on site and due to the cost of water and that the recipients are reliant on roof rainfall catchment efficient use is expected.
13	Promote the taking of groundwater rather than the taking of water from rivers and streams in areas where groundwater is available for allocation	The application is in accordance with this policy
14	Enable the harvesting and storage of freshwater and rainwater to meet increasing demand for water and to manage water scarcity conditions, including those made worse by climate change	This is not applicable to this site.
	Chapter E E3.3. General	
1	Avoid significant adverse effects, and avoid where practicable or otherwise remedy or mitigate other adverse effects of activities in, on, under or over the beds of lakes, rivers, streams or wetlands within the following overlays: a. Natural Stream Management Areas Overlay; b. Natural Lake Management Areas Overlay; c. Urban Lake Management Areas Overlay; d. Significant Ecological Areas Overlay; and e. Wetland Management Areas Overlay.	N/A
2	Manage the effects of activities in, on, under or over the beds of lakes, rivers, streams or wetlands outside the overlays identified in Policy E3.3(1) by: a. avoiding where practicable or otherwise remedying or mitigating any adverse effects on	N/A

	Objective/Policy	Comment
	lakes, rivers, streams or wetlands; and b. where appropriate, restoring and enhancing the lake, river, stream or wetland.	
3	Enable the enhancement, maintenance and restoration of lakes, rivers, streams or wetlands.	N/A
4	Restoration and enhancement actions, which may form part of an offsetting proposal, for a specific activity should: a. be located as close as possible to the subject site; b. be 'like-for-like' in terms of the type of freshwater system affected; c. preferably achieve no net loss or a net gain in the natural values including ecological function of lakes, rivers, streams or wetlands; and d. consider the use of biodiversity offsetting as outlined in Appendix 8 Biodiversity offsetting.	N/A
5	Avoid significant adverse effects, and avoid, remedy or mitigate other adverse effects of activities in, on, under or over the beds of lakes, rivers, streams or wetlands on: a. the mauri of the freshwater environment; and b. Mana Whenua values in relation to the freshwater environment.	N/A
6	Manage the adverse effects on Mana Whenua cultural heritage that is identified prior to, or discovered during, subdivision, use and development by: a. complying with the protocol for the accidental discovery of kōiwi, archaeology and artefacts of Māori origin; b. undertaking appropriate actions in accordance with mātauranga and tikanga Māori; and c. undertaking appropriate measures to avoid adverse effects, or where adverse effects cannot be avoided, effects are remedied or mitigated.	N/A
7-16	Not relevant	
	Chapter E: Natural Resources E2.3 Policies; Water allocation and availability guidelines	
	Priority of Water Use	
1	Manage the allocation of freshwater within the guidelines provided by Appendix 2 River and Stream minimum flow and availability and Appendix 3 Aquifer water availabilities and levels and give priority to making freshwater available for the following uses (in descending order of priority): a. existing and reasonably foreseeable domestic and municipal water supply and animal drinking water requirements;	Groundwater availability for the Matakana Waitemata Aquifer MA is not included in Appendix 3 of the AUP-OIP. Establishment of this availability is based on the guidelines in Appendix 3.

	Objective/Policy	Comment
	b. Existing lawfully established water users c. Uses of water for which alternative water sources are unavailable or unsuitable; and d. All other uses.	
2	Ensure allocations support the outcomes sought by relevant objectives and policies in B7.3 Freshwater systems.	N/A.
3	Manage the allocation of geothermal water, heat or energy within the guidelines by Appendix 3 Aquifer water availabilities and levels and give priority to making water, heat or energy available for (in descending order of priority): a. in accordance with tikanga Maori for the communal benefit of Mana Whenua of the area; b. existing lawfully established water uses c. heating public pools; or d. all other uses.	N/A
	Efficient Allocation and Use	
4	Promote the efficient allocation and use of freshwater and geothermal water by: a. Requiring the amount of water taken and used to be reasonable and justifiable with regard to the intended use, and where appropriate: (i) municipal water supplies are supported by a water management plan; (ii) industrial and irrigation supplies implement best practice, in respect of the efficient use of water for that particular activity or industry; or (iii) all takes (other than municipal water supplies from a dam) are limited to a maximum annual allocation based on estimated water requirements; b. Requiring consideration of water conservation and thermal efficiency methods c. Facilitating the transfer of surface water permits, provided the transfer is within the same surface water catchment and does not result in site specific adverse effects; d. Encouraging the shared use and management of water through water user groups or other arrangements where it results in an increased efficiency in the use and allocation of water; and e. Providing for storage and harvesting of fresh water.	(a) Water use will be managed efficiently on site and due to the cost of delivered water it is expected the clients of TBL will be efficient users of the water. On site use is equivalent to a permitted activity volume and is likely to be charged to those requiring it within the proposed market. (b) Groundwater use will be dictated by the extent of summer rainfall and whether there is a significant dry period where roof rainfall catchment is not sufficient to meet individual households to meet demand. (c) N/A (d) N/A. (e) Roof rainfall catchment is not applicable to this site
5	Manage the taking and use of surface water from rivers, streams and springs and taking and use of groundwater from aquifers to meet all of the following except where water allocation exceeds or is close to exceeding the guidelines (refer to Policy E2.3(11)): a. the minimum flow and availability guidelines in Table 1 River and stream minimum flow	The proposed abstraction will not exceed the sustainable groundwater established for the aquifer. The contribution to stream baseflow by the Waitemata aquifer in the vicinity of the site is expected to be negligible. Groundwater is sourced from the deep Waitemata aquifer which is not directly connected to surface water bodies in the vicinity of the site.

	Objective/Policy	Comment
	and availability in Appendix 2 River and stream minimum flow and availability are not exceeded; and b. the aquifer availability and groundwater levels in Tables 1 Aquifer water availabilities and Table 2 Interim aquifer groundwater levels in Appendix 3 Aquifer water availabilities and levels are not exceeded	
	Take and use of water	
6	Require proposals to take and use water from lakes, rivers, streams, springs or wetlands to demonstrate all of the following: a. the taking of surface water from any river or stream is within the guideline in Table 1: Aquifer water availabilities in Appendix 2 River and stream minimum flow and availability, except in accordance with Policy E2.3(11); b. appropriate water levels and downstream flow regimes will be maintained, including: i. low flows in rivers and streams to protect in-stream values ii. flow variability in rivers, streams and springs iii. water levels and flows in wetlands ensure the vegetation and habitat values of the wetland are protected throughout the year; Proposed Auckland Unitary Plan Decision Version 19 August 2016 3 E2 Water quantity, allocation and use iv. water levels in lakes maintain the ecological values and water quality of the lake and its shoreline stability, and enable recreational use; and v. existing lawfully established taking of water is not adversely effected; c. the taking of water will be at times of the day or year that will safeguard the identified freshwater values of the water body d. intake structures will be designed, constructed, operated and maintained to avoid adverse effects on biota, including the entrainment and impingement of fish; and e. there are options for implementing water conservation measures in times of water shortage.	N/A
7	Require all proposals to take and use groundwater from any aquifer to demonstrate that: a. the taking is within the water availabilities and levels for the aquifer in Table 1: Aquifer water availabilities and Table 2: Interim aquifer groundwater levels in Appendix 3 Aquifer water availabilities and levels, except in accordance with Policy E2.3(11), and meeting all of the following: i. recharge to other aquifers is maintained; and	The following Policy 7 items have been demonstrated in the AEE: a. Recharge to other aquifers is not affected. Ground settlement effects are negligible.

	Objective/Policy	Comment
	ii. aquifer consolidation and surface subsidence is avoided b. the taking will avoid, remedy or mitigate adverse effects on surface water (b) flows, including: i. base flow of rivers, streams and springs; and ii. any river or stream flow requirements and in particular the minimum stream flow and availability in Appendix 2 River and stream minimum flow and availability. c. the taking will avoid, remedy or mitigate adverse effects on terrestrial and freshwater ecosystem habitat; d. the taking will not cause saltwater intrusion or any other contamination; e. the taking will not cause adverse interference effects on neighbouring bores to the extent their owners are prevented from exercising their lawfully established water takes; f. Policy E2.3(7) (e) above will not apply in the following circumstances: i. where it is practicably possible to locate the pump intake at a greater depth within the affected bore; or ii. where it can be demonstrated that the affected bore accesses, or could access, groundwater at a deeper level within the same aquifer, if drilled or cased to a greater depth. g. the proposed bore is capable of extracting the quantity of groundwater applied for; and h. the proposal avoids, remedies or mitigates any ground settlement that may cause distress, including reducing the ability of an existing building or structure to meet the relevant requirements of the Building Act 2004 or the New Zealand Building Code, to any existing: i. buildings; ii. structures; or iii. services including roads, pavements, power, gas, electricity, water and wastewater networks and fibre optic cables.	b. The deep Matakana Waitemata Aquifer MA has no permanent direct connection to fresh surface water bodies in the near vicinity to the site. The Waitemata aquifer is confined to semi confined beneath the weathered profile of the Pakiri Group sediments and the Tauranga Group sediments. Surface water effects are considered negligible. Surface water effects due to the proposed take increase are considered negligible. c. The proposed taking of water is sustainable and it is considered there will be negligible effects on surface water bodies and therefore no effects on freshwater habitat. There will be no effects on terrestrial habitat. d. Assessment of saline intrusion has been completed and there is considered to be negligible risk from saline intrusion e. Drawdown effects on neighbouring bores are estimated from the proposed abstraction to provide sufficient pump submergence. The owners of the neighbouring bores will not be prevented from exercising their lawfully established water takes. f. The proposed bore will be able to extract the quantity of groundwater applied for. g. Ground settlement effects are considered negligible
8	Consider mitigation options, where there are significant adverse effects on the (8) matters identified in policies E2.3(6) and (7) above, including the following: a. consideration of alternative locations, rates and timing of takes for both surface water and groundwater; b. use of alternative water supplies; c. use of water conservation methods when water shortage conditions apply; d. provision for fish passage in rivers and streams;	N/A.

	Objective/Policy	Comment
	e. wetland creation or enhancement of existing wetlands; f. riparian planting; or g. consideration of alternative designs for groundwater dewatering proposals.	
9	Require proposals to take and use surface water and groundwater to monitor the effects of the take on the quality and quantity of the water resource and to: a. measure and record water use and rate of take; b. measure and record water flows and levels; c. sample and assess water quality and freshwater ecology; d. measure and record the movement of ground, buildings and other structures; and e. monitoring should be of a type and scale appropriate for the activity.	The Applicant is proposing to measure and record water use.
10	Not relevant	
11	Allow takes that exceed the guidelines in Table 1 River and stream minimum flow and availability in Appendix 2 River and stream minimum flow and availability and Table 1 Aquifer water availabilities and Table 2 Interim aquifer groundwater levels in Appendix 3 Aquifer water availabilities and levels in the following circumstances: a. for guidelines in Table 1 River and stream minimum flow and availability in Appendix 2 River and stream minimum flow and availability, when the river or stream flow is greater than the median flow, provided the total take does not exceed 10 per cent of the flow in the river or stream at the time of abstraction, and natural flow variability is maintained; or b. for all guidelines, where it is appropriately demonstrated in terms of the requirements of Policy of E2.3(6)(b) or Policy E2.3(7), that additional water is available for allocation.	Auckland Council has assessed the groundwater availability under the guidelines of Appendix 3 of the AUP.
12	Not relevant	
C	AUCKLAND UNITARY PLAN POLICIES REQUIRED BY THE NATIONAL POLICY STATEMENT ON FRESHWATER MANAGEMENT (2014)	
13	When considering any application the council must have regard to the following matters: a. the extent to which the change would adversely affect safeguarding the life-supporting capacity of fresh water and of any associated ecosystem; and b. the extent to which it is feasible and dependable that any adverse effect on the life-supporting capacity of freshwater and of any associated ecosystem resulting from the change would be avoided.	The proposed groundwater take is from an aquifer that is confined to semi confined. The aquifer has negligible connection with surface water in the vicinity of the site and locally is not considered to provide stream baseflow. The take will therefore not adversely affect the life-supporting capacity of freshwater and any associated ecosystem.

	Objective/Policy	Comment
14	Policy E2.3(13) applies to: a. any new activity; and b. any change in the character, intensity or scale of any established activity that involves any taking, using, damming or diverting of freshwater or draining of any wetland which is likely to result in any more than minor adverse change in the natural variability of flows or level of any fresh water, compared to that which immediately preceded the commencement of the new activity or the change in the established activity (or in the case of a change in an intermittent or seasonal activity, compared to that on the last occasion on which the activity was carried out).	The proposed abstraction is not considered to adversely affect aquifer freshwater systems in the vicinity of the site.
15-21	Not relevant	
	Surface water diversions	
22	Require proposals to divert surface water to demonstrate the diversion will to the extent practicable avoid significant adverse effects and remedy or mitigate other adverse effects including where relevant, effects on: a. existing lawfully established surface water takes including those allowed by section 14(3)(b) of the Resource Management Act 1991; b. existing buildings, structures and services; c. existing flood hazard risks; d. river bank stability; e. scheduled historic heritage places or scheduled sites and places of significance to Mana Whenua; f. people and communities; and g. the life supporting capacity of freshwater, ecosystem processes, and indigenous species and their ecosystems.	N/A
23	Not relevant	
	Drilling holes and bores	

	Objective/Policy	Comment
24	Require proposals to drill holes or bores to demonstrate that the location, design and construction: a. complies with the New Zealand Standard on the Environmental Standard for Drilling of Soil and Rock (NZS 4411:2001); b. prevents contaminants from entering an aquifer; c. prevents cross-contamination between aquifers with different pressure, water quality or temperature; d. prevents leakage of groundwater to waste; e. avoids the destruction, damage or modification of any scheduled historic heritage place or scheduled sites and places of significance to Mana Whenua; and f. avoids disturbance of wetlands and significant ecological areas where practicable.	N/A
	Quarrying	
25	Enable regionally significant mineral extraction activities (extraction within groundwater and dewatering) provided that significant adverse effects are managed through considering all of the relevant policies in this section.	N/A
D	Resource Management (Measurement and Reporting of Water Takes) Regulations 2010	
26	Regulations apply to takes of more than 5ℓ/*s*: a. records of all meter readings must be kept b. verification of meters is required c. daily measurement of water volumes is required	The groundwater take is less than 5*l/s* and is not subject to the metering regulations. A meter will be fitted and read weekly in accordance with proposed conditions.