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## Periphyton Monitoring Run Guide

# Whangaeahu Run 2

## POINT DISCHARGE/STATE OF ENVIRONMENT (Monthly Sampling)

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## Job Hazard & Task Analysis










### Hazard Identification – tick all that apply, write additional hazards identified:

The yellow highlighted hazards are known hazards at the time of compiling this document. This **does not negate** the need to assess for and potentially eliminate or isolate any hazards at *each* sample location at *every* visit

Hazard	Yes	Hazard	Yes	Hazard	Yes
Confined space	<input type="checkbox"/>	Suspended loads	<input type="checkbox"/>	Noise – plant and equipment	<input type="checkbox"/>
Difficult entry/exit	<input checked="" type="checkbox"/>	Falling objects	<input type="checkbox"/>	Communication – means of	<input checked="" type="checkbox"/>
Oxygen deficiency/excess	<input type="checkbox"/>	Working near cranes and crane runways	<input type="checkbox"/>	Remote area	<input checked="" type="checkbox"/>
Poisonous fumes/gas	<input type="checkbox"/>	Live rails-gantry cranes	<input type="checkbox"/>	Temperature extremes	<input checked="" type="checkbox"/>
Explosive gas	<input type="checkbox"/>	Trip hazards	<input checked="" type="checkbox"/>	Reduced visibility	<input checked="" type="checkbox"/>
Flammable materials	<input type="checkbox"/>	Slippery surfaces	<input checked="" type="checkbox"/>	Unauthorized persons	<input type="checkbox"/>
Combustible materials	<input type="checkbox"/>	Manual handling	<input checked="" type="checkbox"/>	High pressure water	<input type="checkbox"/>
Hazardous substances	<input type="checkbox"/>	Sharp materials	<input type="checkbox"/>	Vacuum	<input type="checkbox"/>
Drowning	<input checked="" type="checkbox"/>	Line of fire	<input type="checkbox"/>	Air emissions – dust, fumes	<input type="checkbox"/>
Engulfment	<input checked="" type="checkbox"/>	Pressurized fluids	<input type="checkbox"/>	General waste	<input type="checkbox"/>
UV Radiation	<input checked="" type="checkbox"/>	Pressurized air/gas	<input type="checkbox"/>	Hazardous waste	<input checked="" type="checkbox"/>
Electrical – low /high voltage	<input checked="" type="checkbox"/>	Traffic / vehicle movements	<input checked="" type="checkbox"/>	Hydrocarbon / chemical spill	<input type="checkbox"/>
Multiple electrical feeds	<input type="checkbox"/>	Machinery – mobile plant	<input checked="" type="checkbox"/>	Soil disturbance/erosion	<input type="checkbox"/>
Working at height	<input type="checkbox"/>	Moving parts	<input type="checkbox"/>	Habitat disruption	<input type="checkbox"/>
Ladders	<input type="checkbox"/>	Chemical reaction (Pyrophoric iron)	<input type="checkbox"/>	Lighting	<input type="checkbox"/>
Elevated work platforms	<input type="checkbox"/>	Transport of hazardous substances	<input type="checkbox"/>	Weather extremes	<input checked="" type="checkbox"/>
Potential for difficult rescue	<input checked="" type="checkbox"/>	Stock/Farm Animals	<input checked="" type="checkbox"/>		

### Required PPE and Safety Equipment– tick all that apply, write additional PPE required:

The yellow highlighted PPE are known required PPE at the time of compiling this document. This **does not negate** the need to assess for the appropriate required PPE measures at each sample location per visit.

SAMPLING GLOVES	EAR PROTECTION	HARD HAT	SAFETY GLASSES / GOGGLES	WORK BOOTS / WADERS	PROTECTIVE GLOVES	PERSONAL FLOATATION DEVICE (PFD)
						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HI VIZ	SAFETY HARNESS	SUNBLOCK & HAND SANITISER	VHF RADIO	THROW BAG	PERSONAL LOCATOR BEACON	
						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	

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Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
Drowning	✓			✓		✓	Staff should use a sample pole if access into the river/stream is unsafe. PFD's must be worn by staff. Vehicles must be driven a sensible distance from any pond edges. [HMP18]
Engulfment	✓			✓		✓	Rivers/streams are prone to flash flooding creating the potential for engulfment. Staff must be alert and aware at all times of how the waterways are behaving around them, especially in areas where water is dammed or has structures such as intakes and aquaducts. PFD's must be worn by staff and staff must be trained for working around water. Vehicles must be driven a sensible distance from any river or pond edges. Always carry a throw bag when working around water and have a personal locator beacon on hand. It is always preferable to have someone else with you at all times when working around water [HMP18]
UV Radiation	✓			✓	✓		Horizons provide sunscreen and hats. Staff are encouraged to make use of these. [HMP 17]
Trip Hazards	✓			✓	✓		Prior to sampling staff must check area is clear of any items that pose a risk. If there is any these should only be moved if safe to do so. Sampling only to commence if the sampler is satisfied that any slip, trip or fall hazards are isolated.
Slippery Surfaces	✓			✓	✓		Sampling must always be done from stable level. Vehicles must be driven a sensible distance from any pond edges. [HMP 18]. Staff driving four wheel drive vehicles must have adequate training [HMP 9]
Manual Handling	✓			✓	✓		Staff must wear sampling gloves, eye protection and have access to anti-bacterial hand-gel to sample treated effluent. Hepatitis B vaccinations are offered by HRC. [HMP 30] [HMP 35]
Traffic Vehicle movements	✓			✓		✓	The designated driver of a vehicle is responsible for ensuring the safety and operational requirements and recommendations are met. All staff working within the road reserve must wear high visibility clothing to AS/NZS 1906.4:2010. This clothing must be fluorescent red orange in colour unless the individual is the site STMS then the garment must be fluorescent lime yellow. [HMP 9] [HMP 16] [HMP 20].
Machinery – mobile plant	✓			✓		✓	Staff are to wear appropriate PPE, obey on site signage and instruction, and give way to all operational traffic.

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Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
Stock/Farm Animals	✓			✓	✓		Although generally docile, farm animals can still be hazardous. The risk should be isolated by finding alternative access routes to the sample location or contacting the owner for assistance. [HMP26]
Communication-means of	✓			✓	✓		Cell phone coverage is not available at all sites. Staff must be capable of communicating via VHF radio in an equipped vehicle. [HMP 24]
Remote Area	✓			✓	✓		Most council vehicles are fitted with the E-Road vehicle locator system. Many vehicles are also fitted with a radio operating on the Horizons digital radio network providing communication and tracking coverages across a majority of the region. [HMP 24]
Temperature/ Weather Extremes	✓			✓		✓	During the duration of a sampling run varying types and degrees of weather may be experienced. All sampling staff are to have access within their HRC vehicle to additional and appropriate clothing. Staff must have access to suitable PPE and spare clothing within their vehicle. [HMP18]
Reduced Visibility	✓			✓		✓	If you find you are driving in limited visibility slow your driving speed and turn your fog lights on and watch out for vehicles that aren't using their lights. When working in limited visibility if you cease to be able to make out your surrounding environment stop work immediately. If working at night it is advisable to traverse the property in daylight first to map out an action plan outlining walking tracks, vehicle tracks, fence lines, stock positions, ponds, waterways, houses, and sheds as well as other significant items of interest. [HMP12]
Potential for difficult rescue	✓			✓		✓	Sampling must always be done from stable level ground. Staff should use a sample pole if access into the river/stream is unsafe. PFD's must be worn by staff and staff must be trained for working around water. Vehicles must be driven a sensible distance from any pond edges. Always carry a throw bag when working around water and have a personal locator beacon on hand. It is always to have someone else with you at all times when working around water [HMP18]
Electrical-low/high voltage	✓			✓	✓		Many of the rural sampling sites require traversing across farm paddocks equipped with electric fences that contain stock. If unknown treat every farm fence as electric and avoid direct contact. Contact the landowner for advice on whether or not the fence is live and discuss

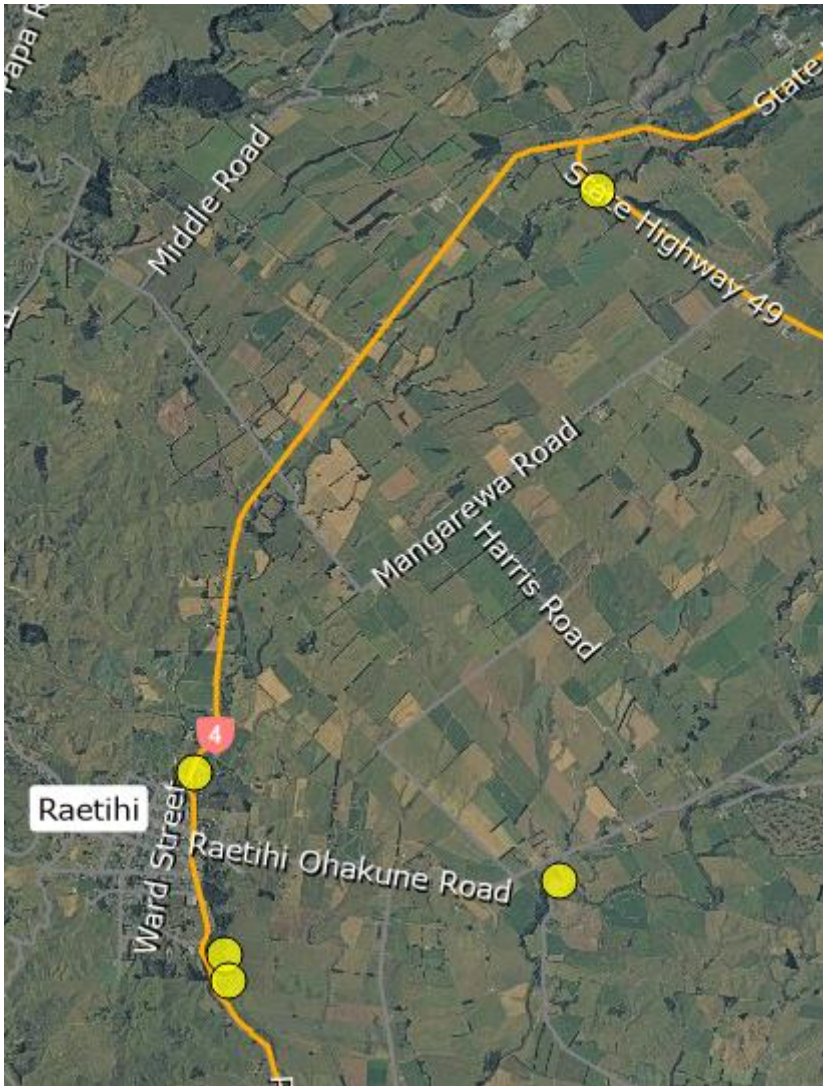
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Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
							alternative routes or options for avoiding the fence if possible.
Difficult entry/exit	✓			✓		✓	Entry and exit into waterways poses many risks and should be treated with caution. Sampling must always be done from stable level ground. Staff should use a sample pole if access into the river/stream is unsafe. PFD's must be worn by staff and staff must be trained for working around water. Vehicles must be driven a sensible distance from any pond edges. [HMP18]
Hazardous Waste – treated Effluent	✓			✓	✓		Sampling activities require the collection of a sample of treated effluent. Staff must wear sampling gloves, eye protection and have access to anti-bacterial hand-gel to sample. Hepatitis B vaccinations are offered by HRC [HMP 30] [HMP 35]

## Site Information

Hilltop Site Name	Northing/Lat NZTM:	Easting/Long NZTM:	Comments
Mangawhero at Pakihi Rd Bridge	5632848	1799897	Visual Assessment, Chlorophyll a Sample
Makotuku at u/s Raetihi STP	5632136	1796704	Visual Assessment, Chlorophyll a Sample
Makotuku at d/s Raetihi STP	5631897	1796748	Visual Assessment, Chlorophyll a Sample
Makotuku at Raetihi	5633885	1796427	Visual Assessment, Chlorophyll a Sample
Makotuku at SH49A	5639451	1800258	Visual Assessment, Chlorophyll a Sample

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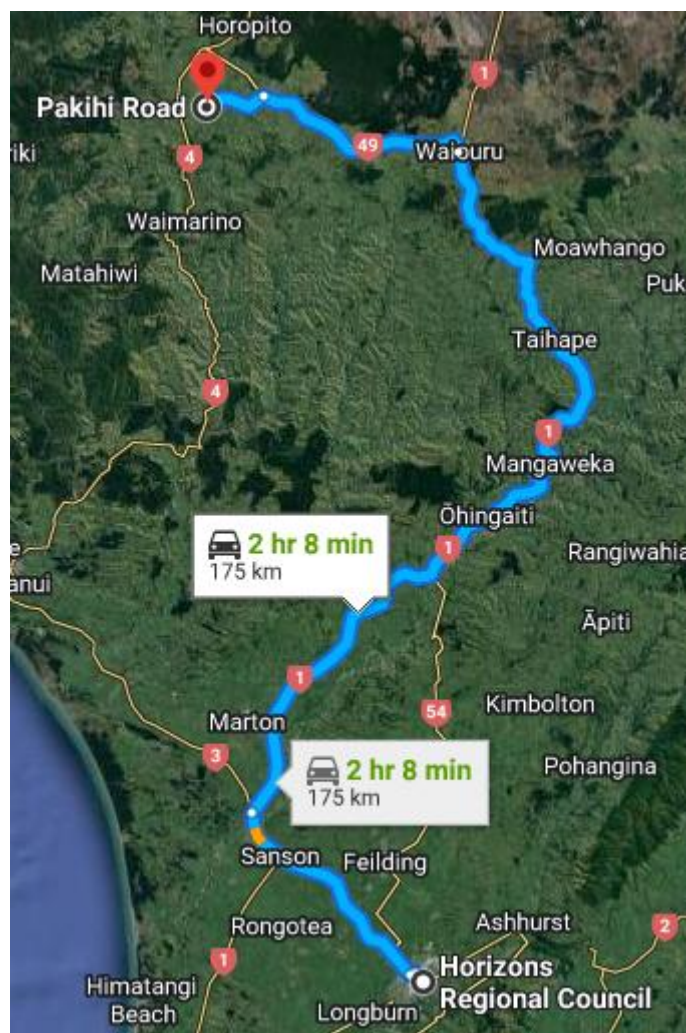
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## Equipment Required

	<p style="text-align: center;"><b>ZERO (Water Quality)</b></p> <p style="text-align: center;"><b>FIVE (Periphyton)</b></p>
<b>Equipment</b>	<ul style="list-style-type: none"> <li>• iPad</li> <li>• Bathoscope / Viewer</li> <li>• Pottles (Approx 20)</li> <li>• Scrubbing brush, tooth brush, washer bottle, yellow sample bottle lid and ice cream container</li> <li>• Chilly bins and ice-packs</li> <li>• Disinfectant equipment for sampling equipment</li> <li>• Sample labels</li> <li>• Alcohol gel</li> <li>• Personal Locator Beacon</li> <li>• 4WD Vehicle equipped with VHF Radio</li> <li>• Throw Bag</li> </ul>
<b>Additional Comments/ Instructions</b>	<ul style="list-style-type: none"> <li>• <b>Raetihi STP key</b></li> <li>• <b>Contact from Ngati Rangī:</b>  Assistants can be requested from the local iwi, to arrange this contact,   Holly Molesworth  Environmental Researcher  027 206 8244  06 385 9500 / 0800 NRANGI  <a href="mailto:holly@ngatirangi.com">holly@ngatirangi.com</a> </li> </ul>

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## SITE LOCATION MAP – Mangawhero at Pakihi Rd Bridge



**POSSIBLE SITE HAZARDS** (this does not negate undertaking a hazard review prior to sampling on the day):

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Weather Extremes	Traffic / Vehicle Movements		

**REQUIRED PPE** (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS / WADERS	PFD	SUNSCREEN &	HI- VISIBILITY GARMENT	PERSONAL LOCATOR BEACON	THROWBAG		
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		HAND SANITISER					
<b>DIRECTIONS:</b> <ul style="list-style-type: none"> <li>From the office head north on SH1 to Waiouru. Turn left onto SH49 towards Ohakune.</li> <li>At Ohakune turn left at the BP onto Raetihi-Ohakune Road. Follow this road for approximately 7.5 kilometres until you reach Pakihi Road which will be on your left-hand side.</li> <li>Turn right onto Pakihi Road and follow until you reach a bridge. Go over the bridge and immediately on your left there will be two farm gates into a paddock. Using the far farm gate, drive into the paddock and park up by the hydro shed.</li> <li>Commence sampling down by the hydro shed.</li> </ul>							
<b>ACCESS:</b> <ul style="list-style-type: none"> <li><b>Warning it is quite a sharp turn into the farm paddock across the other side of the bridge. If you feel necessary, drive up the road past the paddock turn off and find a safe place to turn around and then drive back into the paddock.</b></li> <li><b>This site is very deep, chest waders can be good and you will most likely not get all the way across</b></li> </ul>							



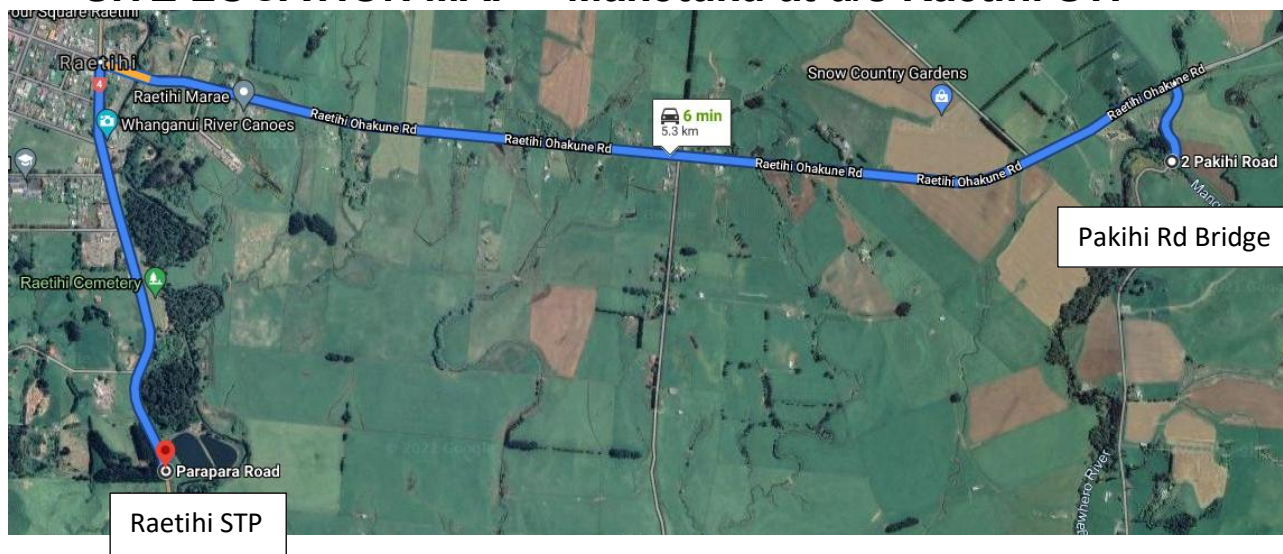
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## SITE LOCATION MAP – Makotuku at u/s Raetihi STP



**POSSIBLE SITE HAZARDS** (this does not negate undertaking a hazard review prior to sampling on the day):

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Weather Extremes			

**REQUIRED PPE** (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS/ WADERS	PFD	HI - VIS	SAFETY GLASSES / GOGGLES	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROWBAG	
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### DIRECTIONS:

- From Pakihi Rd Bridge head back to Raetihi-Ohakune Rd and turn left towards Raetihi.
- When in Raetihi turn left at the main intersection.
- A few minutes out of Raetihi you will see the sewage ponds on the left hand side of the road. This is very obvious so you should have no problem seeing it. Turn in here. If you have keys drive into the facility, if not park outside the gate (but do not block access) and climb the gate.
- As you enter the STP grounds walk left and around the ponds and head away from the road to the far left corner of the pond farthest from the road. From here continue on down to the river.
- Cross small drain and head steeply upstream to the bush, cross the fence and follow the track through the trees, over another fence and then down to a clearing.
- This gravel beach is your sample site. It may be necessary to travel a small distance (approximately 20 metres) upstream if livestock have recently been in the river at this point.

### ACCESS:

- **Remember to bring Raetihi STP (Ruapehu key) keys with you to save walking.**

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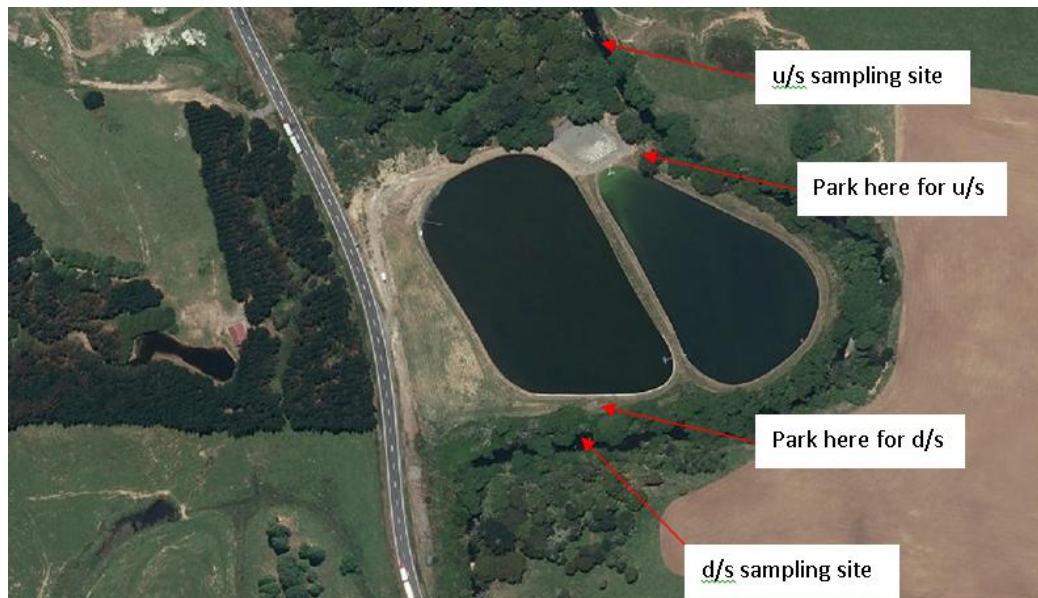
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## SITE LOCATION MAP – Makotuku at d/s Raetihi STP



**POSSIBLE SITE HAZARDS** (this does not negate undertaking a hazard review prior to sampling on the day):

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Weather Extremes	Traffic / Vehicle Movements	Manual Handling	Machinery- Mobile Plant

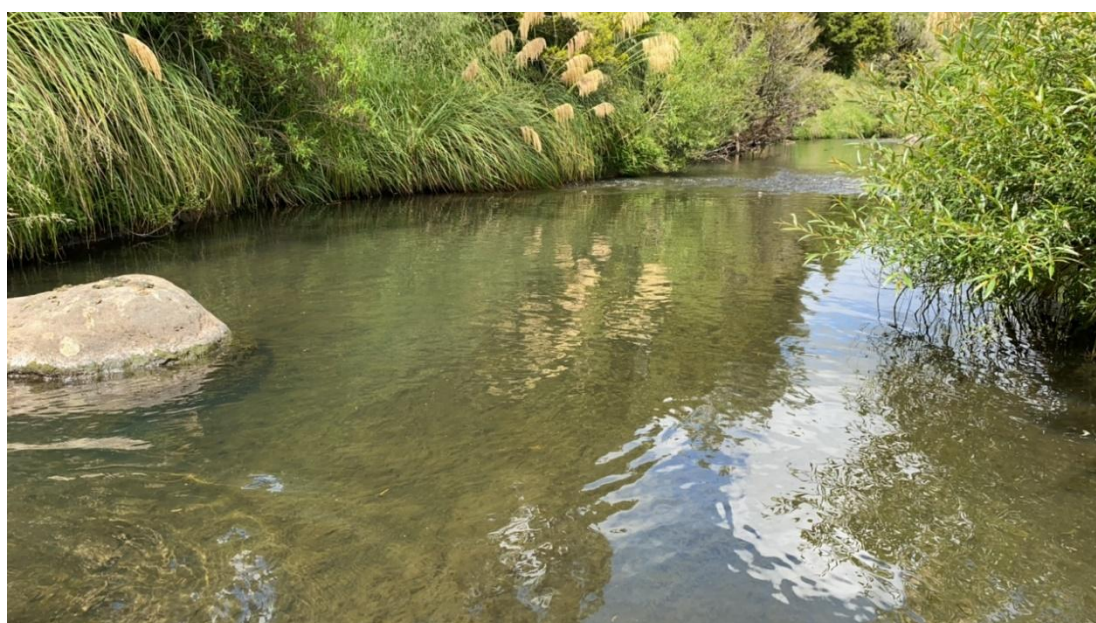
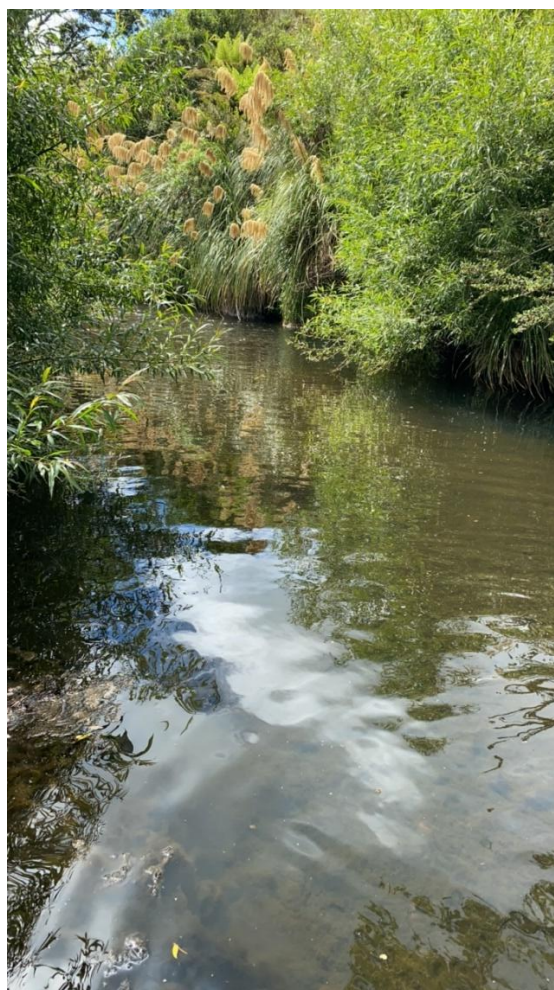
**REQUIRED PPE** (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS/ WADERS	PFD	HI - VIS	SAMPLE GLOVES	SAFETY GLASSES / GOGGLES	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROWBAG
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### DIRECTIONS:

- From the upstream Makotuku STP site walk back downstream until you reach the ponds.
- Drive around the outside of the ponds to the other end where the track down the middle of the ponds head off. Drive 20 more meters and park here.
- From here head down to the stream by walking away from the ponds towards the nearest bush edge. When you reach the river walk on the side downstream for a further 50 metres. This will be your downstream sampling site.

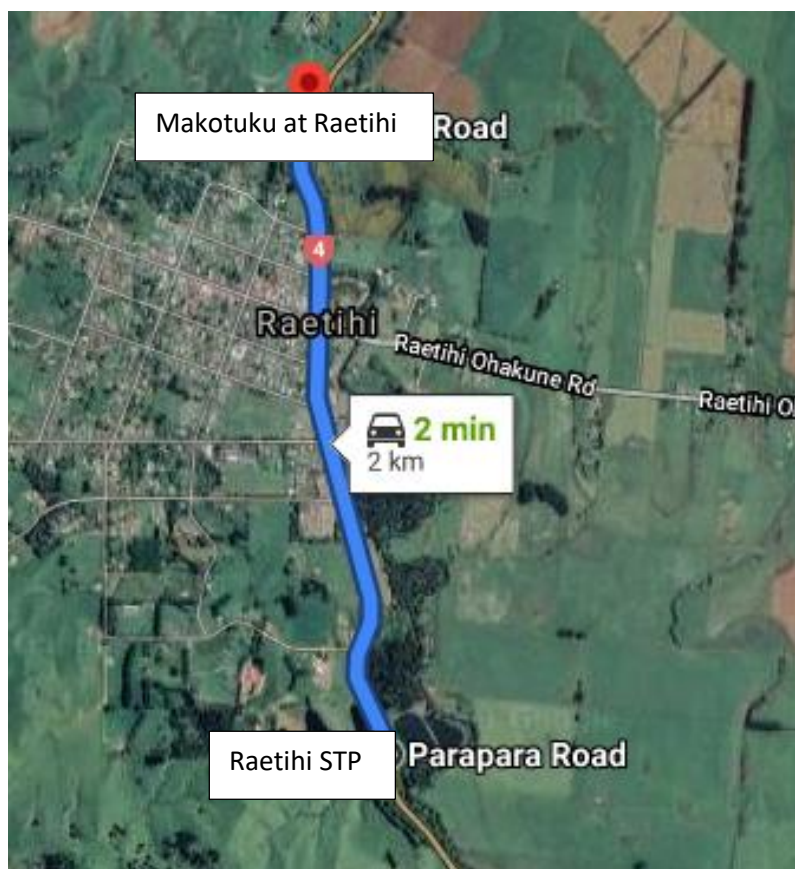
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## SITE LOCATION MAP – Makotuku at Raetihi



<b>POSSIBLE SITE HAZARDS</b> (this does not negate undertaking a hazard review prior to sampling on the day):							
Drowning		UV Radiation		Slippery surfaces		Trip hazards	
Weather Extremes							
<b>REQUIRED PPE</b> (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):							
WORK BOOTS/ WADERS	PFD	HI - VIS	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROWBAG		
<b>DIRECTIONS:</b> <ul style="list-style-type: none"><li>From Raetihi STP head back through Raetihi northbound.</li><li>There will be a grassy bit on your right hand side. You can see a concrete patch with a hydro box on it. Park there.</li></ul>							



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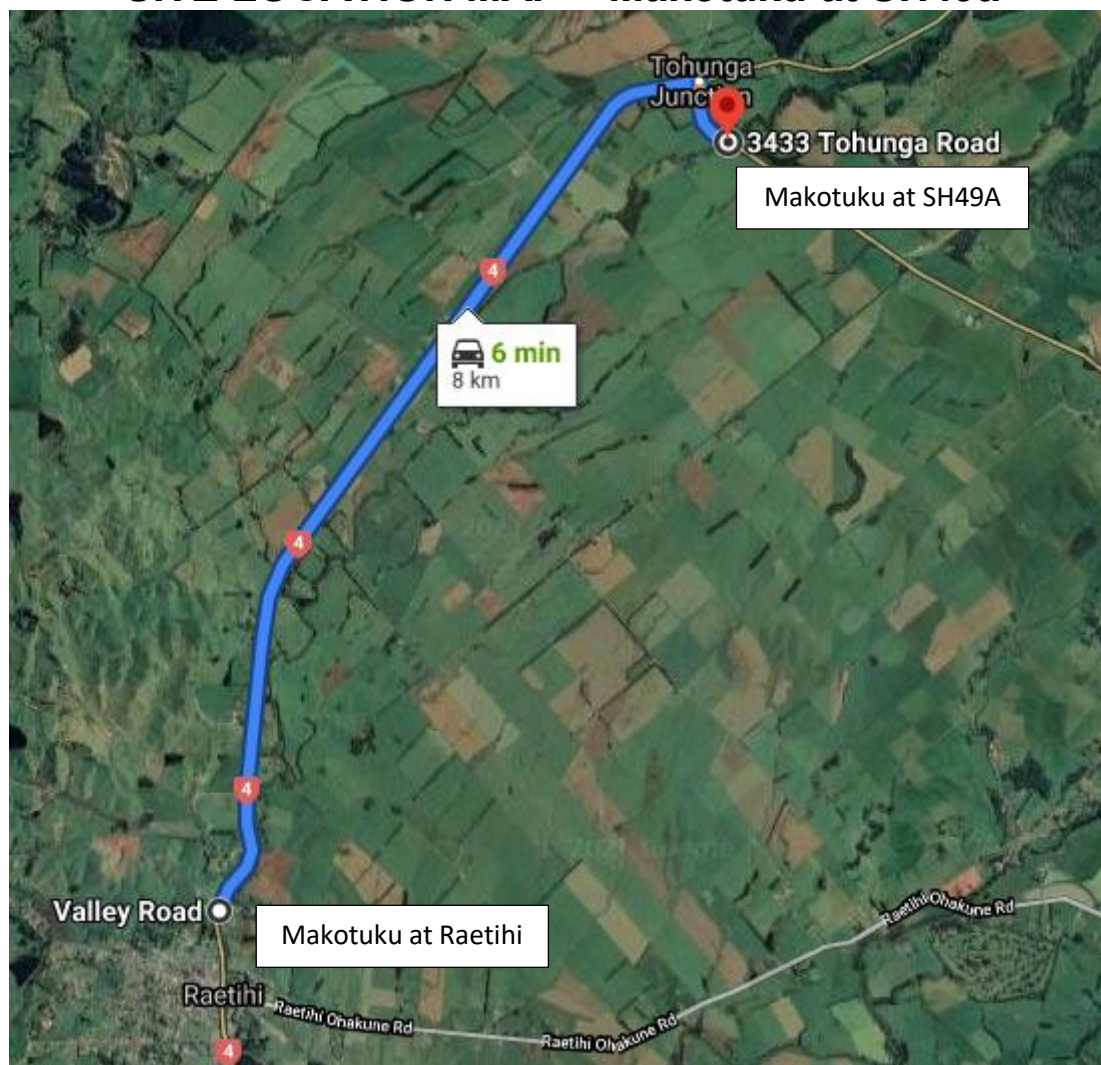
- There is a weir blocking the river here. This is another site where chest waders are recommended. Ideally depending on the flows climb over the weir in the middle where there is a step or the far side and do 2 transects below and 2 above.





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## SITE LOCATION MAP – Makotuku at SH49a



**POSSIBLE SITE HAZARDS** (this does not negate undertaking a hazard review prior to sampling on the day):

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Weather Extremes			

**REQUIRED PPE** (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS/ WADERS	PFD	HI - VIS	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROWBAG		
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#### DIRECTIONS:

- Turn right onto SH4 from Makotuku at Raetihi.
- Turn right onto SH49 at the major intersection – signs for Ohakune.
- Just after first bridge on SH49 there is a farm gate on the left. Turn into this gate.
- You should be able to see a small Hydrology station on the far left of the paddock. Park by this.
- Cross the fence it is next to and make your way down to the river here.
- There is a weir blocking the river here. Sample just upstream of this.



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**Return to office.**

