

Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 1 of 26
horizons regional council		Hydrology Operations Manual		

SoE and Periphyton Monitoring Run Guide

Upper Manawatū – Run 2

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

Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 2 of 26
horizons regional council		Hydrology Operations Manual		

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 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 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 & 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 FLOTATION DEVICE (PFD)
						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HI VIZ	SAFETY HARNESS	SUN BLOCK & 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"/>	

Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 3 of 26
horizons regional council		Hydrology Operations Manual		

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. 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 [HMP 18]
UV Radiation	✓			✓	✓		Horizons provide sunscreen and hats. Staff are encouraged to make use of these. [HMP 17]
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 aqueducts. 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]
Difficult Entry/Exit	✓			✓	✓		Entry and exit into waterways poses many risks and should be treated with caution. Sampling must 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. [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 advise on whether or not the fence is live and discuss alternative routes or options for avoiding the fence if possible.
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 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

Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 4 of 26
horizons regional council		Hydrology Operations Manual		

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
							all times when working around water [HMP18]
Trip Hazards	✓			✓	✓		Prior to sampling, staff must check area is clear of items that pose a risk. Trip Hazards 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 be done from stable level. Vehicles must be driven a sensible distance from any river or 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].
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]
Communications-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

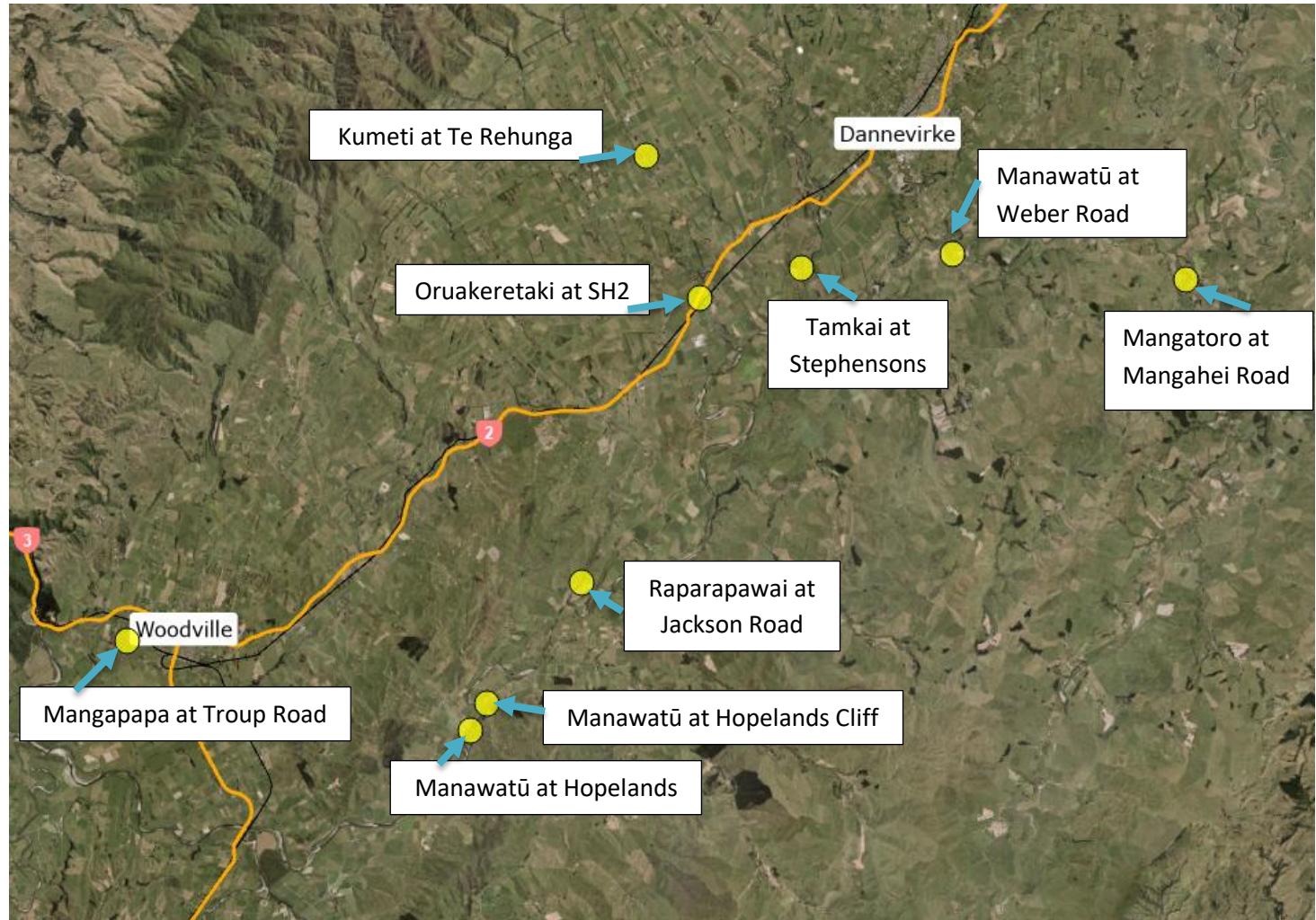
Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 5 of 26
horizons regional council		Hydrology Operations Manual		

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
							access to suitable PPE and spare clothing within their vehicle. [HMP 18]
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 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]

Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 6 of 26
horizons regional council		Hydrology Operations Manual		

Site Information

Hilltop Site Name	Easting/Long (NZTM)	Northing/Lat (NZTM)	Comments
Mangatoro at Mangahei Road	1871436	5540213	Water Quality Samples, SmarTroll, Black Disc. Hydro Inspection
Manawatū at Weber Road	1864903	5540904	Water Quality Samples, SmarTroll, Black Disc. Chlorophyll a Sample and Visual Assessment Hydro Inspection
Tamaki at Stephensons	1860701	5540503	Water Quality Samples, SmarTroll, Black Disc. Chlorophyll a Sample and Visual Assessment Hydro Inspection
Kumeti at Te Rehunga	1856406	5543533	Water Quality Samples, SmarTroll, Black Disc. Chlorophyll a Sample and Visual Assessment Hydro Inspection
Oruakeretaki at SH2 Napier	1857900	5539702	Water Quality Samples, SmarTroll, Black Disc. Chlorophyll a Sample and Visual Assessment Hydro Inspection
Raparapawai at Jackson Road	1854589	5532067	Water Quality Samples, SmarTroll, Black Disc. Hydro Inspection
Manawatū at Hopelands	1851498	5528097	Water Quality Samples, SmarTroll, Black Disc. Chlorophyll a Sample and Visual Assessment
Manawatū at Hopelands Cliff	1851947	5528811	Water Quality Samples, SmarTroll, Black Disc. Hydro Inspection
Mangapapa at Troup Road	1841946	5530489	Water Quality Samples, SmarTroll, Black Disc. Chlorophyll a Sample and Visual Assessment Hydro Inspection



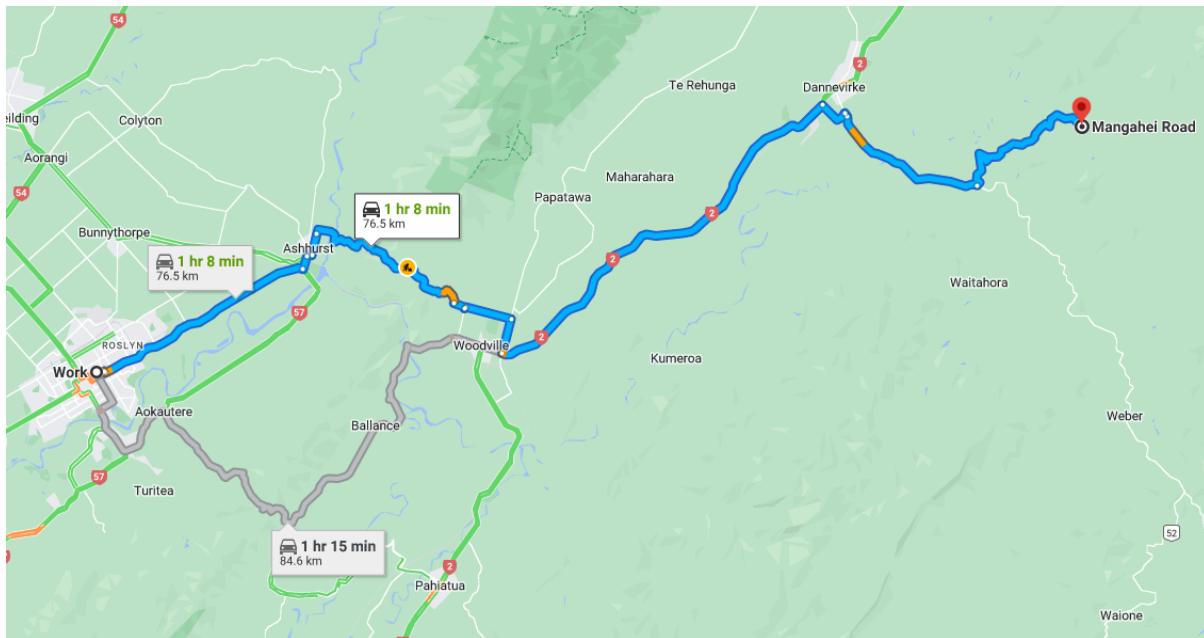
Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 8 of 26
horizons regional council		Hydrology Operations Manual		

Equipment Required

Sample Bottles	Refer to: http://tqm.horizons.govt.nz/Hydrology/SOPs/cd_om_0.2_Contents.htm
Sample Numbers	NINE (Water Quality) and SIX (Periphyton)
Equipment	<ul style="list-style-type: none"> • SmarTroll (calibrated) – including iPad • Bathoscope • Pottles (Approx 15) • Scrubbing brush, tooth brush, washer bottle, yellow sample bottle, lid and ice cream container • Sampling pole • Black disk, viewer, tape measure, clarity tube • Chilly bins and ice-packs • Disinfectant equipment for sampling equipment • Field sampling books • Sampling numbers for Chla and Water samples • Disinfectant equipment for sampling equipment • Alcohol gel • Personal Locator Beacon • 4WD Vehicle equipped with VHF Radio • Throw Bag

Version No: 01 Issue Date: 15/02/2023 Portfolio: Discrete Water Quality	Horizons Regional Council	Section No: 15.7 Appendix No: 14 Page: 9 of 26
horizons regional council	Hydrology Operations Manual	

SITE LOCATION MAP – Mangatoro at Mangahei Road



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day): These should link back to first page

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Machinery- mobile plant	Traffic / Vehicle Movements
Weather/Temperature Extremes	Stock/Farm Animals in paddocks	Slumping river banks	

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 & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	

DIRECTIONS:

- From Palmerston North head toward Dannevirke on SH3 and then SH2.
- Turn right onto Miller Street once you're in Dannevirke (just before the Warehouse opposite the railway crossing). This turns into Weber Road.
- Continue on Weber Road (past Hydrology Site near Sawmill).
- Turn left onto Mangahei Road.
- Continue on Mangahei Road past the Okarae Road Junction and over the bridge.
- Site is on the right past the bridge – look for the green hydro shed. Park in the clearing off road by gate.

ACCESS:

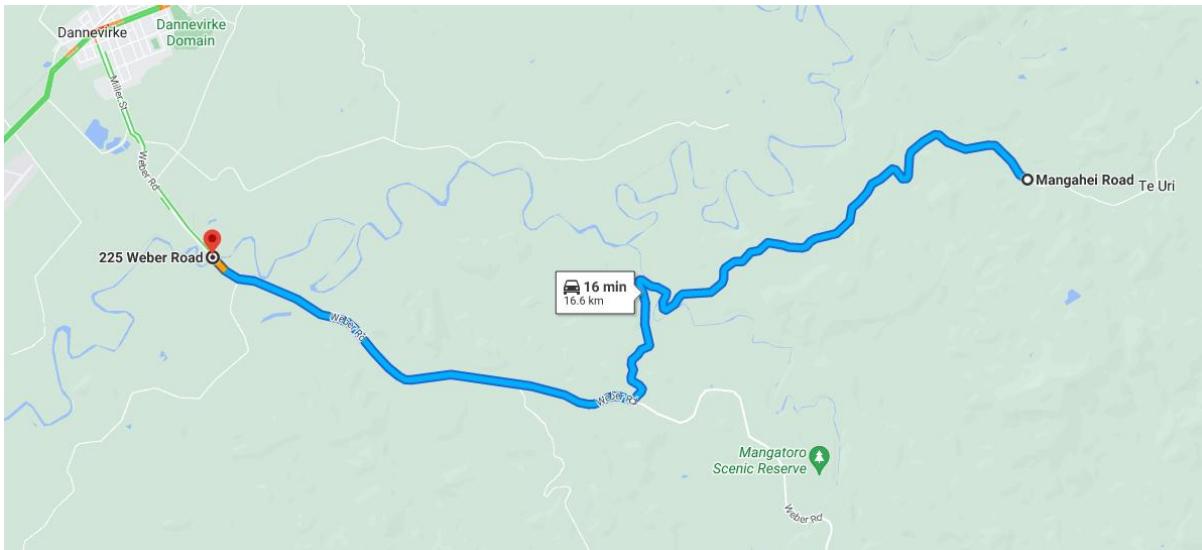
- Follow the track past the hydrology shed down to the river, the track can be slippery in the rain so be careful.

Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 10 of 26
horizons regional council		Hydrology Operations Manual		



Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 11 of 26
horizons regional council		Hydrology Operations Manual		

SITE LOCATION MAP – Manawatū at Weber Road



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day): These should link back to first page

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Machinery- mobile plant	Traffic / Vehicle Movements
Weather/Temperature Extremes	Remote Areas	Reduced Visibility	Communication – means of

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 & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	
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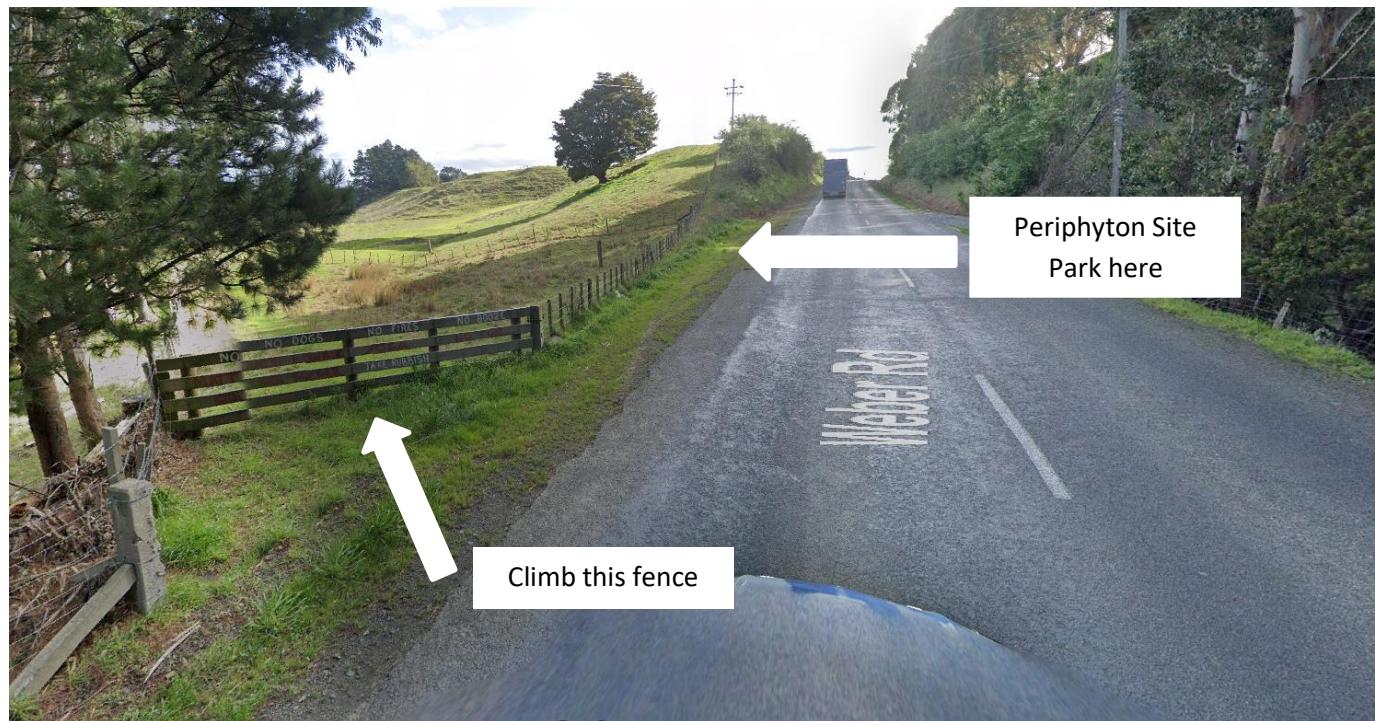
DIRECTIONS:

- Head back from Mangatoro at Mangahei Road toward Dannevirke by retracing your route along Mangahei Road and Weber Road.
- The Water quality and Hydro site is on left hand side of far side of Manawatū River Bridge (past Kiwi Lumber).
- The science team member will need to drop hydro member here and continue a short way up the road, past the driveway and line of trees. There is a clear space to park on the left by a wooden gate. Park as far of the road as possible and remember to turn on the flashing lights.
- Climb the gate and walk along the fence line. The fence will drop away to the left, but keep following the track straight down to where the river curves (approx. 200m).
- Sample just upstream of the riffle.

ACCESS:

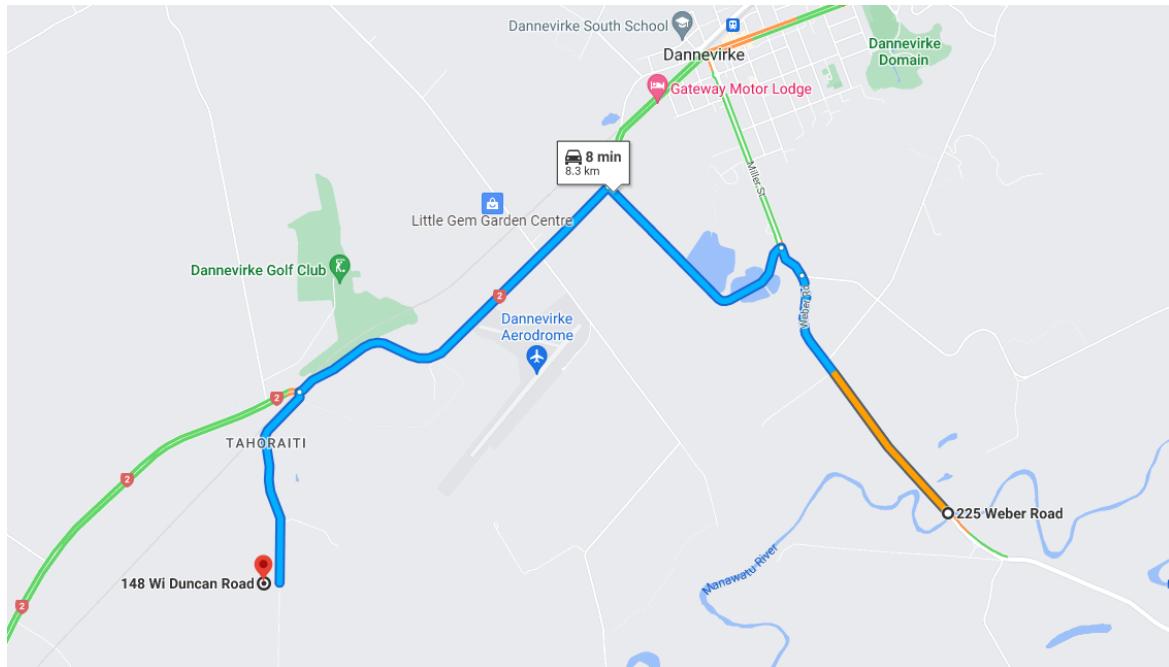
- Water Quality samples are taken down the track from the hydro shed back by the bridge.

Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 12 of 26
horizons regional council		Hydrology Operations Manual		



Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 13 of 26
horizons regional council		Hydrology Operations Manual		

SITE LOCATION MAP – Tamaki at Stephensons



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day): These should link back to first page

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Machinery- mobile plant	Traffic / Vehicle Movements
Weather/Temperature 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	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	

DIRECTIONS:

- Continue on Weber Road toward Dannevirke for 2km before continuing on to Miller St
- Shortly after take the left turn onto Makirikiri Road.
- Follow Makirikiri road to the end, turning left onto SH2.
- Just before the train track crossing make a left turn onto Wi Duncan Road and follow this for 1.5km until you get to a double gate on the left.
- Go through this double gate and then through the next set of gates to the right.
- Continue down the farm track, you will go through another set of gates. Be careful of wire lines across the track they can be hard to see.
- The track then goes steeply down the river terraces, follow this down and turn left at the bottom, you will go through one last gate.

Version No: 01 Issue Date: 15/02/2023 Portfolio: Discrete Water Quality	Horizons Regional Council	Section No: 15.7 Appendix No: 14 Page: 14 of 26
horizons regional council	Hydrology Operations Manual	

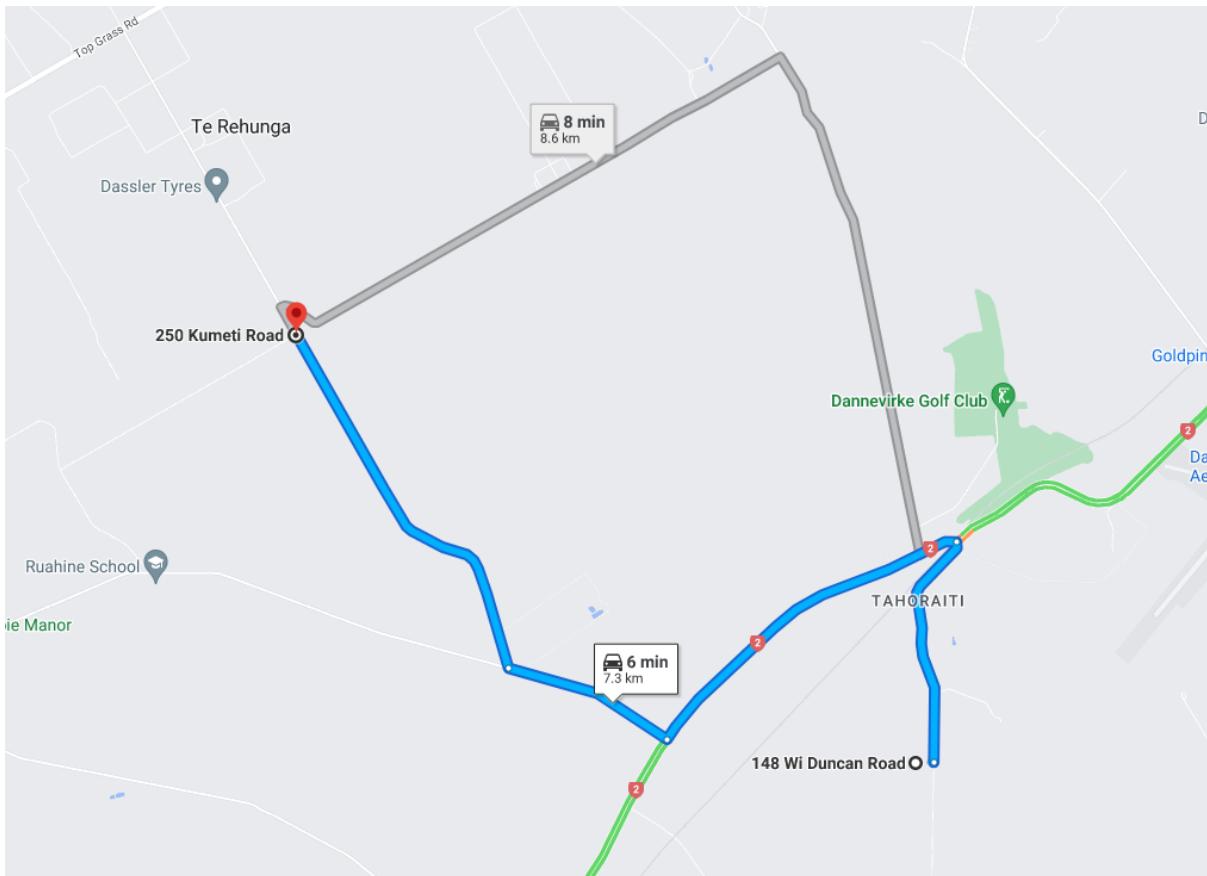
ACCESS:

- Past the hydro box there is a set of stairs that goes down into the river, sample here.



Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 15 of 26
horizons regional council	Hydrology Operations Manual			

SITE LOCATION MAP – Kumeti at Te Rehunga



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day): **These should link back to first page**

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Machinery- mobile plant	Traffic / Vehicle Movements
Weather/Temperature 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	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	
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DIRECTIONS:

- From the Stephensons site head back the way you came down Wi Duncan Road towards SH2 and turn left back towards Woodville.
- The second road on the right after approximately 2 kilometres is called Maharahara Road. There is a yellow road sign attached to the Maharahara Road sign which says Te Rehunga. Turn onto this road.

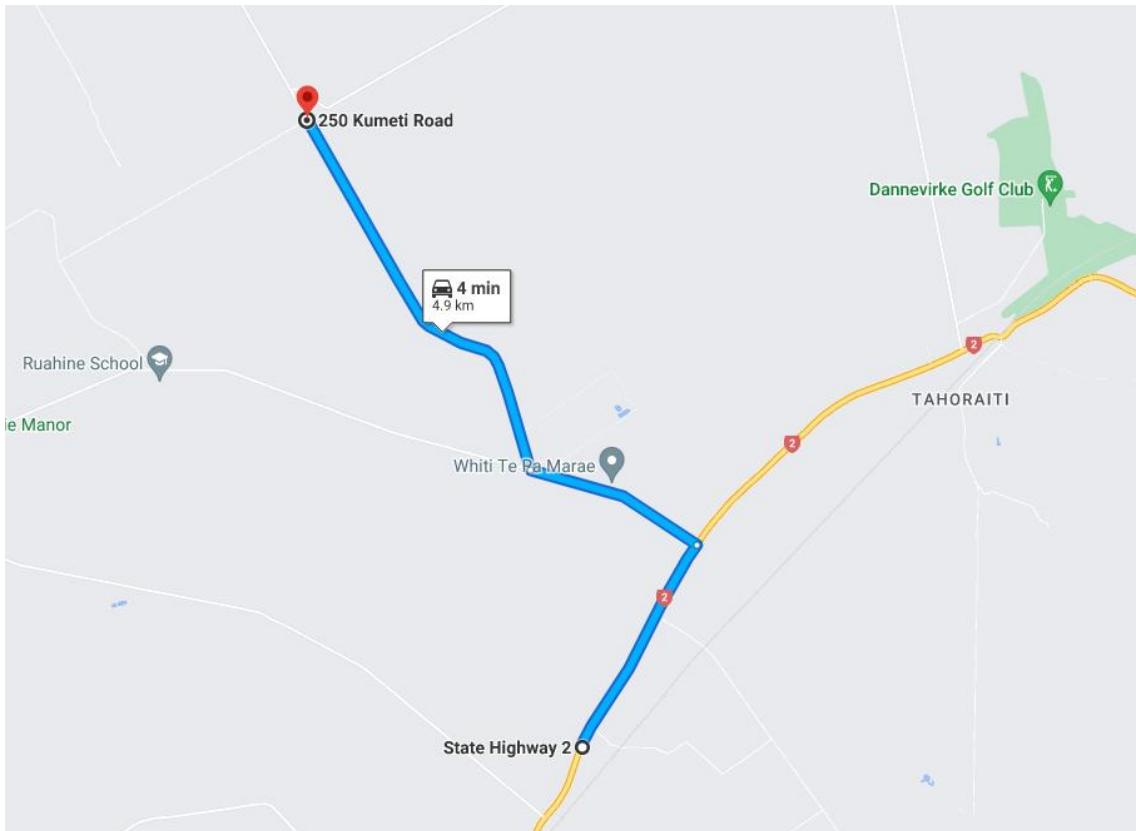
Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 16 of 26
horizons regional council	Hydrology Operations Manual			

- Travel up Maharahara Road for about a kilometre and then turn right onto Kumeti Road.
- Follow along this road for approximately 2 kilometres and on the right you will see the Te Rehunga Public Hall.
- Drive in beside the Te Rehunga Public Hall on the right hand side as you look at it from the road. Park behind the hall. From there you should see a track
- There is a hydrology site and weir. Sample immediately above this weir.



Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 17 of 26
horizons regional council	Hydrology Operations Manual			

SITE LOCATION MAP – Oruakeretaki at SH2 Napier



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day): **These should link back to first page**

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Machinery- mobile plant	Traffic / Vehicle Movements
Weather/Temperature 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	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	



Hydrology Operations Manual



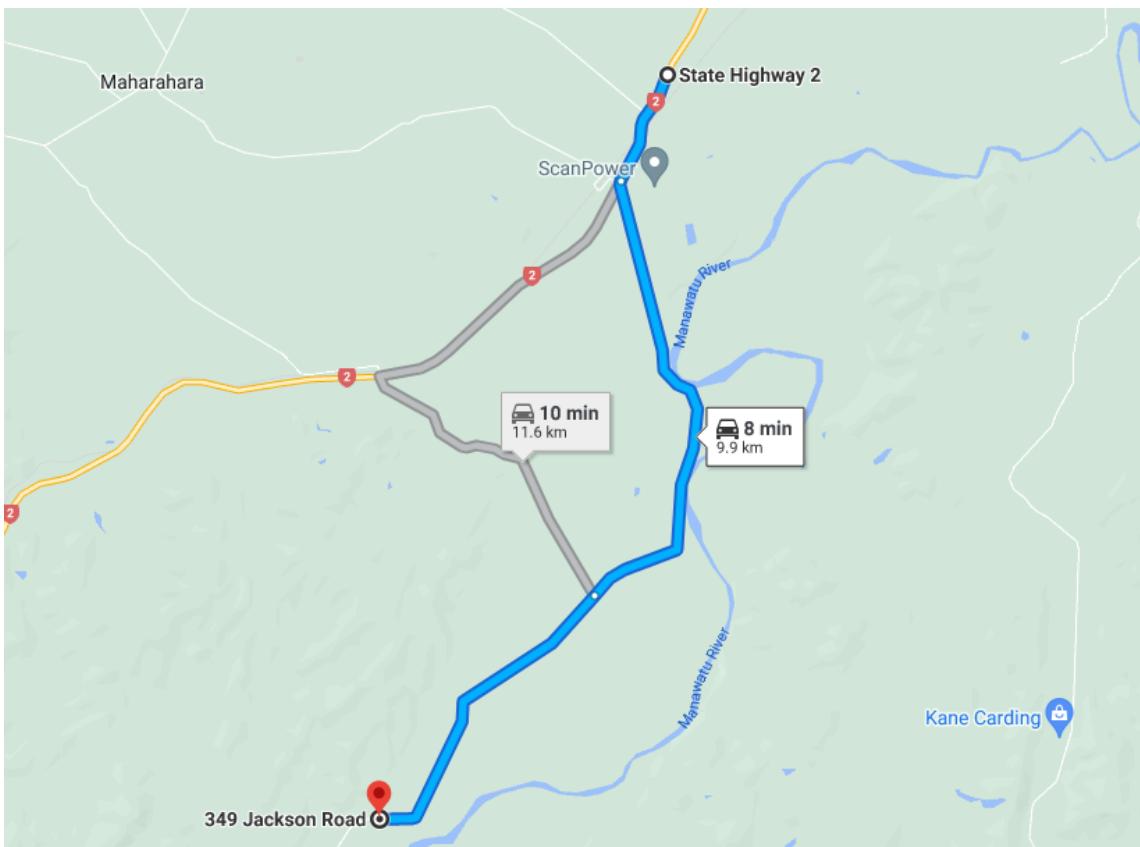
DIRECTIONS:

- From the Te Rehunga site head back the way you came, down Kumeti Road and then back onto Maharahara Road and turn right onto SH2.
- Travel along SH2 for about 1.5 kilometres. The first bridge you will come to is over the Oruakeretaki Stream. Just after the bridge there is a gate, turn in here.
- Drive through the gate and park in the paddock. Walk through a second gate and down to the hydro shed. This is where hydro will get the water quality samples.
- For periphyton sampling turn right and walk a short distance through the grass to the curve in the river. Sample here.



Version No: 01 Issue Date: 15/02/2023 Portfolio: Discrete Water Quality	Horizons Regional Council	Section No: 15.7 Appendix No: 14 Page: 19 of 26
horizons regional council	Hydrology Operations Manual	

SITE LOCATION MAP – Raparapawai at Jackson Road



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day): These should link back to first page

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Machinery- mobile plant	Traffic / Vehicle Movements
Weather/Temperature 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	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	

DIRECTIONS:

- From Oruakertaki, turn left onto SH2
- Drive for approx. 1.2 km, then turn left onto Orangi road after the rail bridge.
- Continue on Orangi road for 5km, it turns into Jackson road.
- Just before the bridge over Raparapawai stream pull over to the right and park on the grass by the farm gate.

ACCESS:

- Climb the farm gate into the paddock

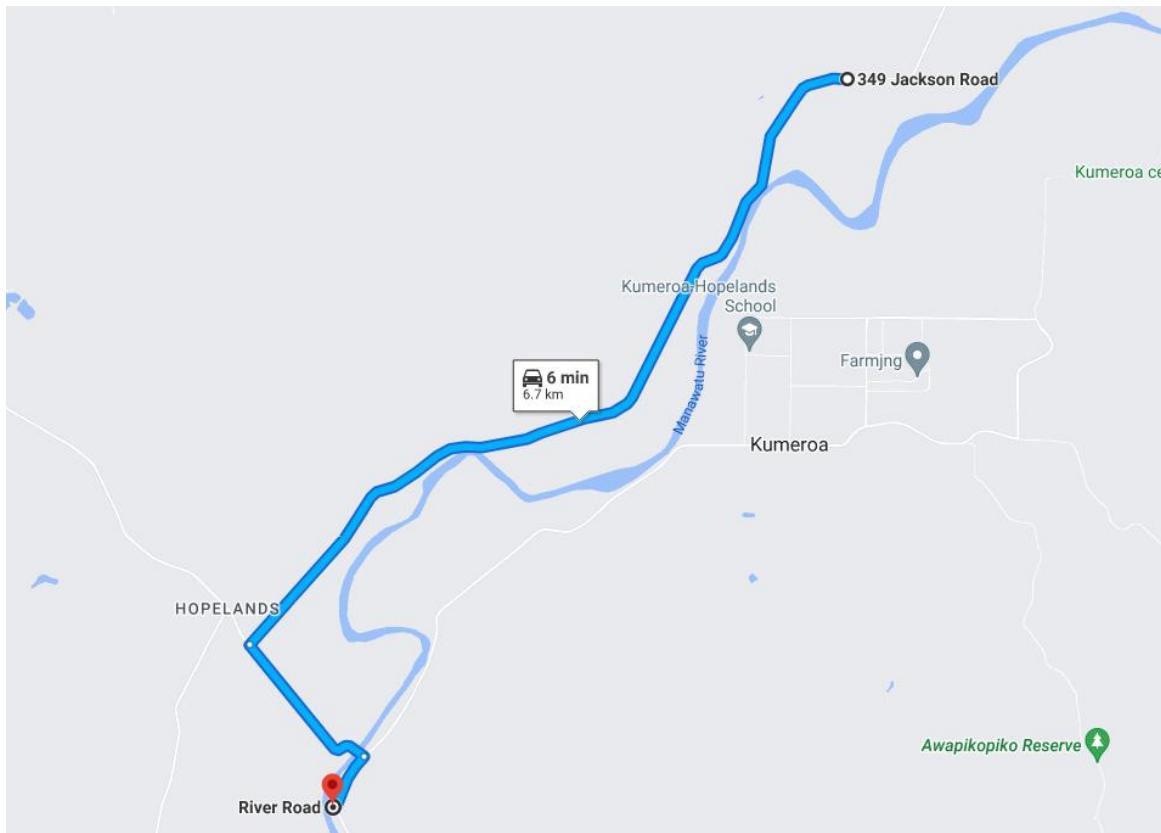
Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 20 of 26
horizons regional council		Hydrology Operations Manual		

- The easiest way to get down to the stream is to the right where the tree line starts
- Be careful, the bank is very undercut and the track down is slippery and steep.
- Sample at the bottom of the path.



Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 21 of 26
horizons regional council	Hydrology Operations Manual			

SITE LOCATION MAP – Manawatū at Hopelands



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day): **These should link back to first page**

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Machinery- mobile plant	Traffic / Vehicle Movements
Weather/Temperature 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	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	

DIRECTIONS:

- Continue down Jackson Road for 5 km
- At the end of the road turn left onto Hopelands road
- Cross the bridge and turn right onto River road
- Continue straight for a few hundred meters, as the road curves to the left you will see a white sign for Hopelands Reserve on the right, turn in here and park at the bottom.

Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 22 of 26
horizons regional council	Hydrology Operations Manual			

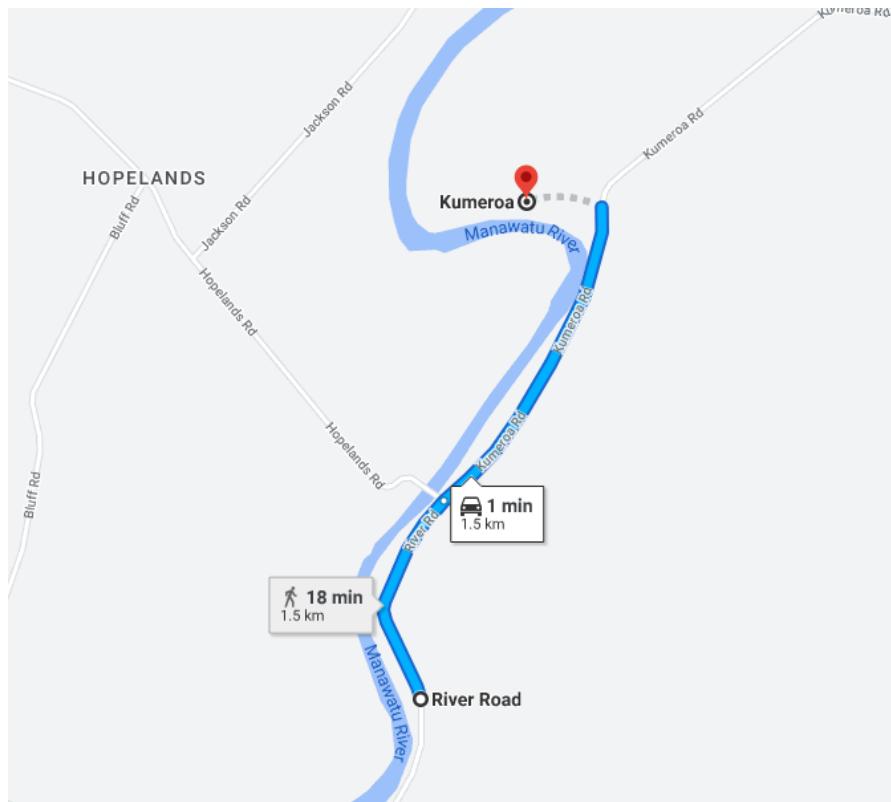
ACCESS:

- From here there is a track leading down to the river. You will then need to walk approximately 100m upstream past a little waterfall on the far side of the river. If you can't walk this far, make a note in the water quality book.



Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 23 of 26
horizons regional council		Hydrology Operations Manual		

SITE LOCATION MAP – Manawatū at Hopelands Cliff



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day): These should link back to first page

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Machinery- mobile plant	Traffic / Vehicle Movements
Weather/Temperature 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	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	

DIRECTIONS:

- Head back the way you came down river road, past the bridge for 1.5km
- You will come to a one way bridge, immediately after this you will see a small hydro box on the left
- Park here as far of the road as you can and use appropriate PPE.

ACCESS:

- Enter the paddock here and head down past the hydro box to the river.
- Be careful the path is steep and can be slippery

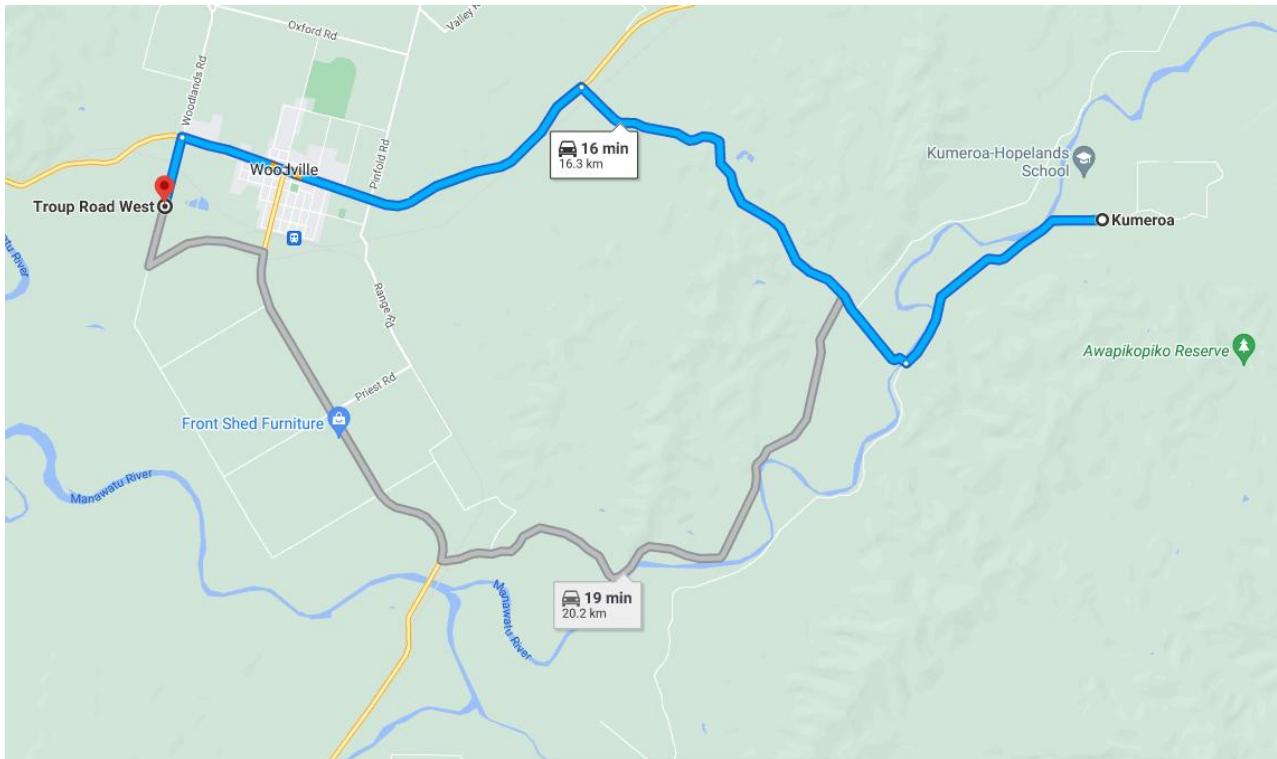
Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 24 of 26
horizons regional council	Hydrology Operations Manual			

- Take the water quality samples here U/S of the side tributary.



Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 25 of 26
horizons regional council	Hydrology Operations Manual			

SITE LOCATION MAP – Mangapapa at Troup Road



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day): **These should link back to first page**

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Machinery- mobile plant	Traffic / Vehicle Movements
Weather/Temperature 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	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	

DIRECTIONS:

- Head back the way you came down River Road and turn right to cross the Manawatū Bridge (Hopelands Road)
- Continue down Hopelands Road for approximately 6km, at the end of the road turn left onto SH3.
- You will pass through Woodville, after Woodville stay on SH3 towards the gorge by taking a left at the bypass intersection (pictured below). Just after this turn left onto Troup Road.
- Continue down Troup road, you will cross a railway. Just after the one lane bridge there is a farm gate, pull in here and park in the paddock.

ACCESS:

- Water quality samples can be taken at the hydro shed

Version No: Issue Date: Portfolio:	01 15/02/2023 Discrete Water Quality	Horizons Regional Council	Section No: Appendix No: Page:	15.7 14 26 of 26
horizons regional council		Hydrology Operations Manual		

- The periphyton site is on the other side of the bridge, either go back up to the road and cross the bridge, or if flow is low enough, walk under the bridge and approximately 20m further downstream.



Head back to the office