

Version No: 1.0 Issue Date: 24/05/2021 Portfolio: Discrete Water Quality	Horizons Regional Council	Section No: 15.7 Appendix No: XX Page: 1 of 17
	Hydrology Operations Manual	

Version 1.0 24/05/2021

Invertebrate Monitoring Run Guide

LOWER MANAWATU

STATE OF ENVIRONMENT (Annual Sampling)

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 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 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.

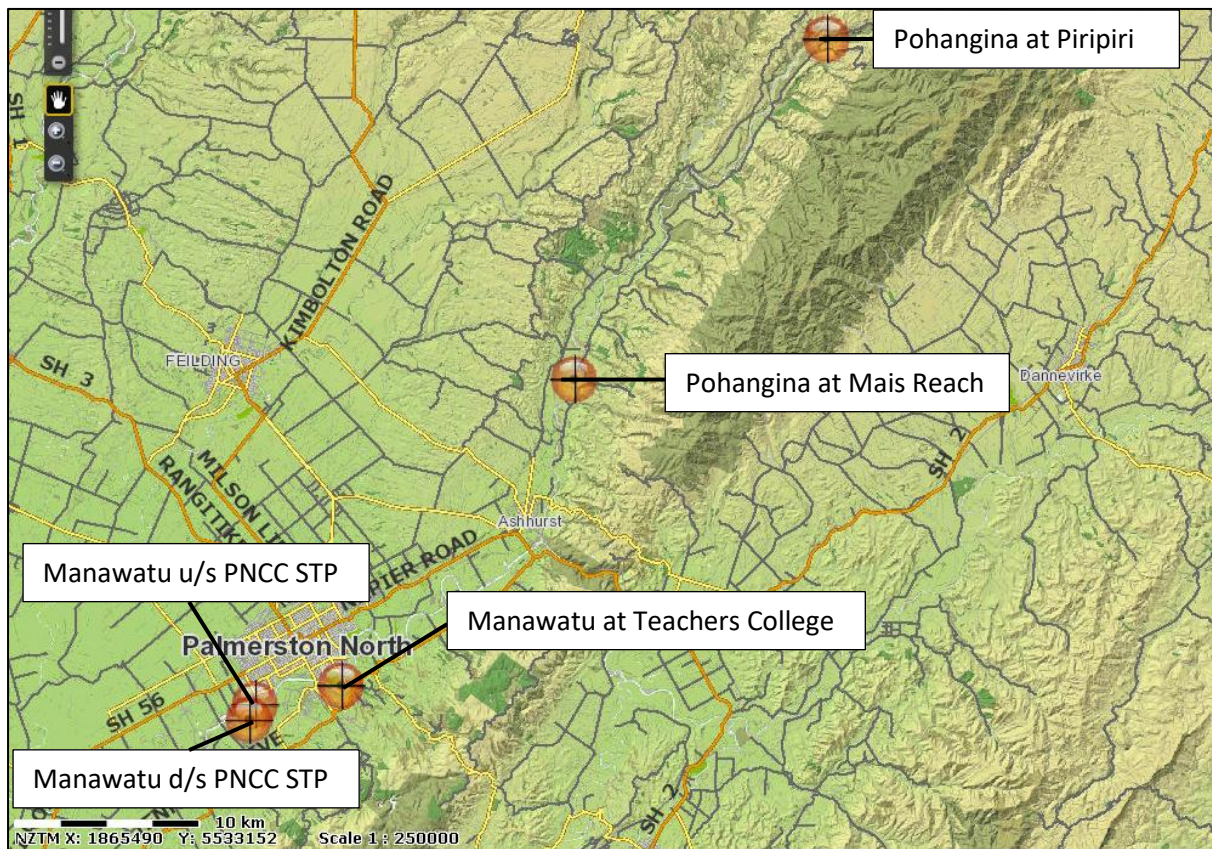
SAMPLING GLOVES	EAR PROTECTION	HARD HAT	SAFETY GLASSES / GOGGLES	WORK BOOTS / WADERS	PROTECTIVE GLOVES	PERSONAL FLOATATION DEVICE (PFD)
						
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<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"/>	

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]
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 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]
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.

Known Hazard	Significant		Can it be Eliminated		Can it be Isolated		Method of control
	Yes	No	Yes	No	Yes	No	
							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 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 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]

Site Information

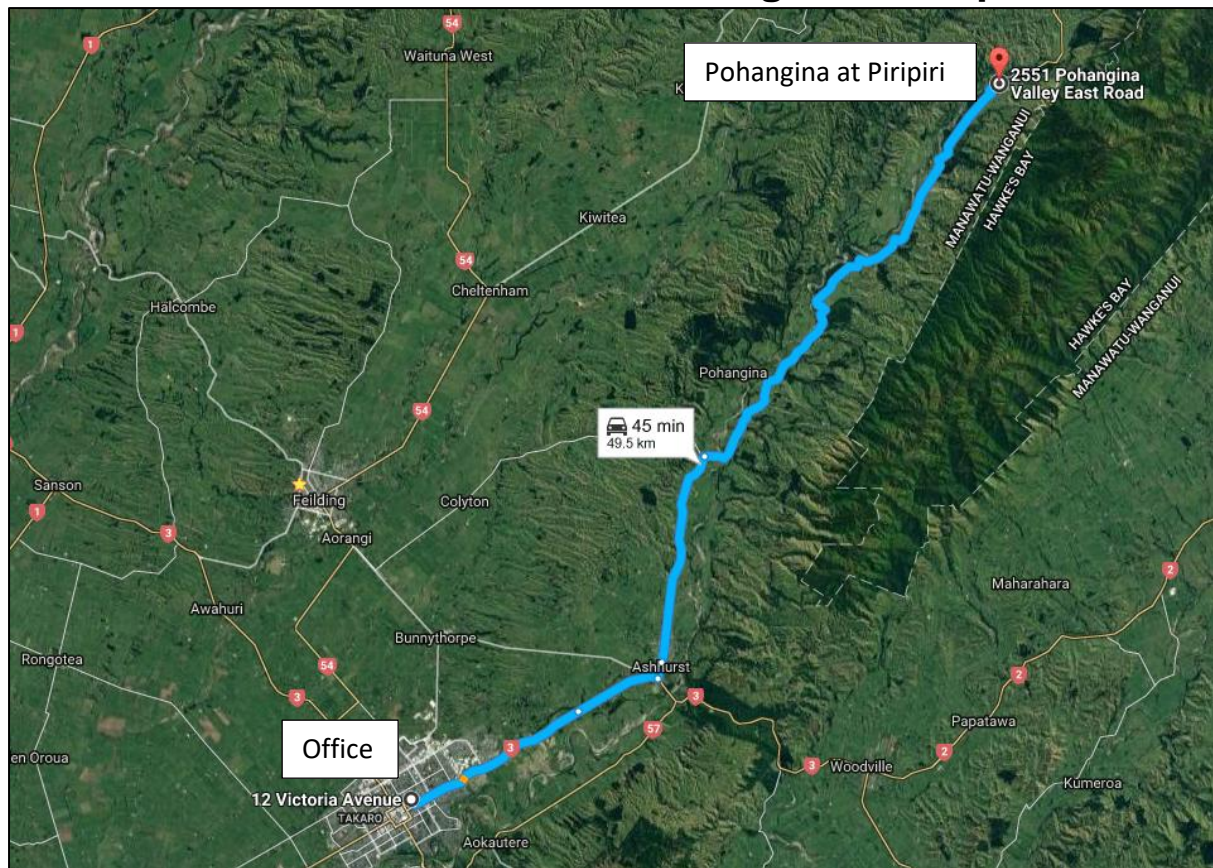
Hilltop Site Name	Easting/Long (NZTM)	Northing/Lat (NZTM)
Pohangina at Piripiri	1850601	5562333
Pohangina at Mais Reach	1836897	5543834
Manawatu at Teachers College	1824200	5527170
Manawatu at u/s PNCC STP	1819508	5526124
Manawatu at d/s PNCC STP	1819188	5525294



Equipment Required

Equipment	<ul style="list-style-type: none"> • Camera and GPS • Kick net • Invertebrate Pottles and Propan-2-ol • White plastic tray • Metal ruler • Gravelometer • Sampling Worksheet and Pencil • Bathoscope / Viewer • Scrubbing brush, tooth brush, washer bottle, yellow sample bottle lid and ice cream container • Pottles (Approx 10), chilly bins and ice-packs • Personal Locator Beacon • 4WD Vehicle equipped with VHF Radio • Throw Bag
Additional Comments/ Instructions	<ul style="list-style-type: none"> • Manawatu at Teachers College & Manawatu u/s PNCC STP – Remember to have PNCC Keys on hand in order to drive down to these sites, otherwise you will have to walk. • Manawatu d/s PNCC STP – Sign in and out at the gravel quarry office when arriving and leaving the site. This building is well signed – it is the only building in the quarry. Go through the entrance with the plastic dangling flaps and the book should be to your left.

SITE LOCATION MAP – Pohangina at Piripiri



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

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

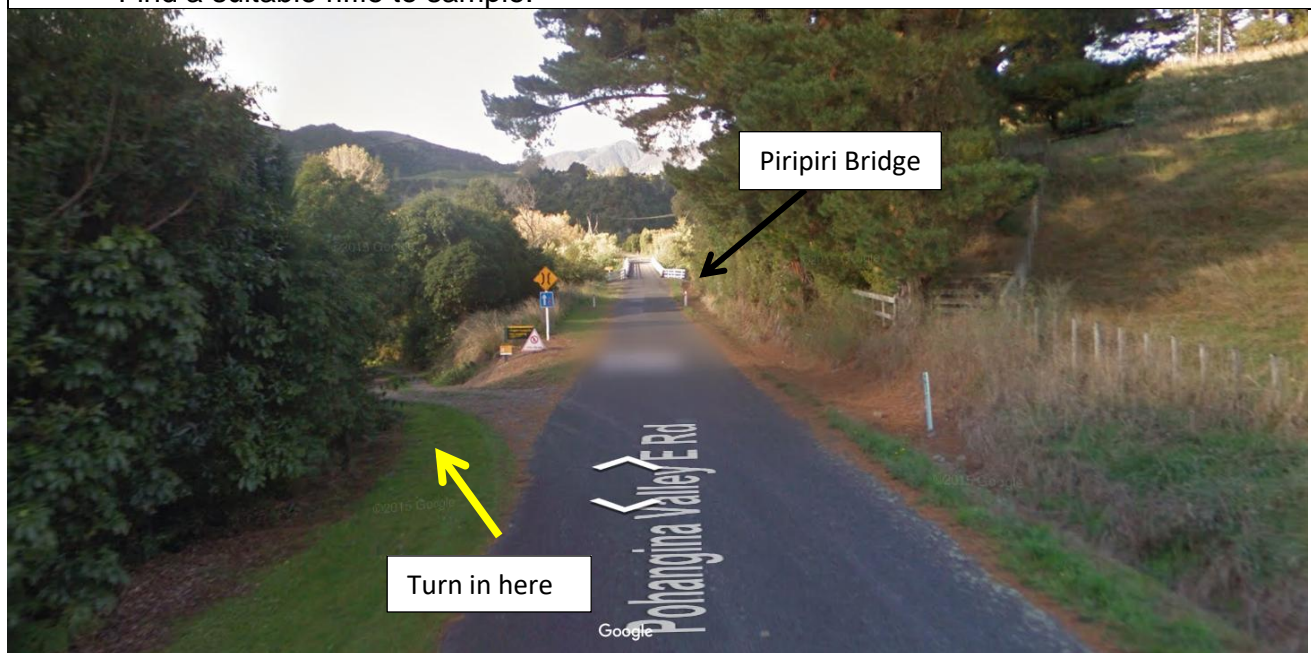
REQUIRED PPE (in accordance with above hazards – this does not negate undertaking a hazard review prior to sampling on the day and/or using additional PPE if deemed necessary):

WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	
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DIRECTIONS:

- From the Palmerston North office head north-east along Napier Rd (SH3) towards Ashhurst.
- In Ashhurst turn left onto Cambridge Avenue. Pass through the town heading north into the Pohangina valley. The road name will change from Cambridge Avenue to Pohangina Road once you are out of Ashhurst.
- Carry on out into the 100 km zone along Pohangina Road and stay on this road for the next 8.5 kilometres. On your right there will be a turn off for Pohangina-Valley-East Road. At this turn there will also be a sign for Totara Reserve. Take this turn.
- Follow Pohangina-Valley-East Road for approximately 25 kilometres. Along the way you will see on the right hand side Highland Home Christian Camp. The road here splits with Pohangina-Valley-East Road coming off on the right and Churchill drive on the left. Stay on Pohangina-Valley-East Road.

- Approximately 12 kilometres after you pass the Highland Home Christian Camp you will come to Piripiri Bridge.
- Before you cross Piripiri Bridge there is a track leading down from the road to the left. There is a DOC sign here which says Piripiri campsite. Follow this track down until its end and park here.
- From here walk upstream towards Piripiri bridge. Sample in a suitable run here. Make sure your sample point is not too far downstream of the bridge as there is a tributary that comes in on the true right side of the River. You must sample upstream of this tributary.
- Find a suitable riffle to sample.



SITE LOCATION MAP – Pohangina at Mais Reach



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

Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Weather/Temperature Extremes	Traffic / Vehicle Movements
Stock/Farm Animals	Communication- means of	Reduced Visibility	Remote Area

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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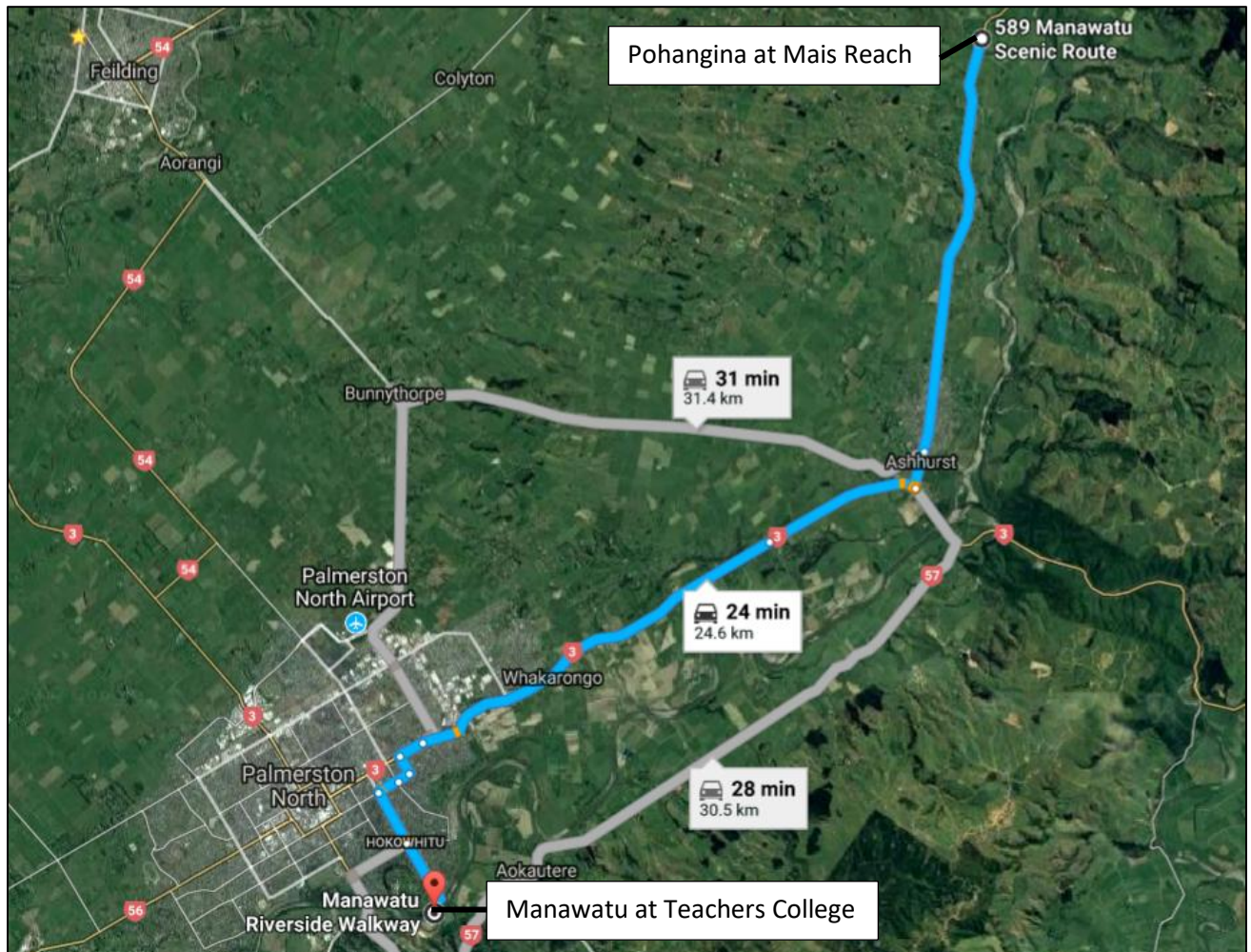
DIRECTIONS:

- From the Piripiri site head back the way you came towards Ashhurst along Pohangina-Valley-East Road. Turn left back onto Pohangina Road when you reach the road end.
- After turning back onto Pohangina Road continue back towards Ashhurst for approximately 1.5 to 2 kilometres. There is a left turn into Mai farm which can be slightly difficult to find. It is opposite a large green woolshed on the right. When you enter the driveway there is a house on the left hand side and a paddock on the right.
- Once in the driveway follow it down a steep hill that will take you down to a milking shed. Drive past the milking shed and take a sharp left hand turn around it. Continue following the track.
- The track will continue straight for a few hundred metres then split. Take the right hand turn towards the hayshed. Immediately past the shed there is a left hand turn follow this around the shed. Stay on the track and it will take you down to the river.
- Once down to the river you can either park here and walk or drive down the gravel beach (depending on the condition of the beach).

- Travel downstream for approximately 200 metres.
- Find a suitable riffle to sample.



SITE LOCATION MAP – Manawatu at Teachers College



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

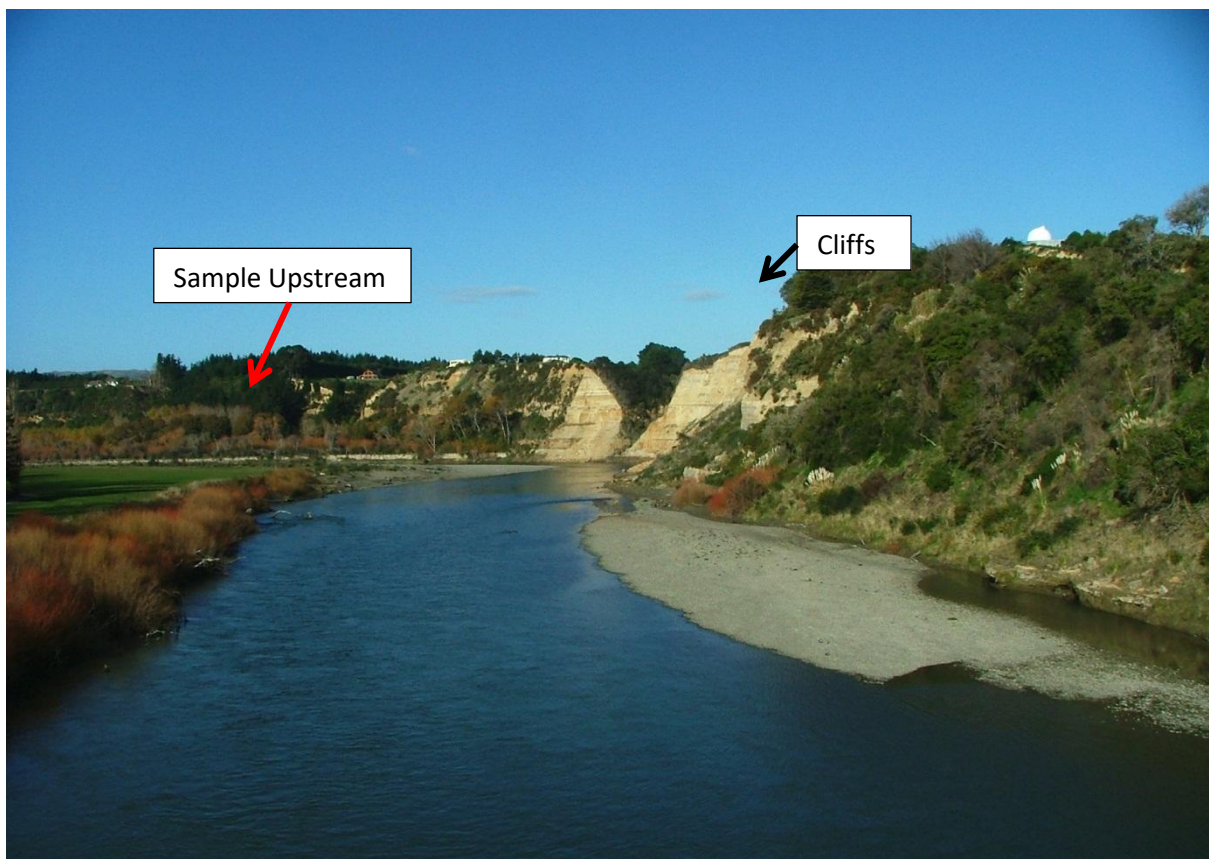
Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Weather/Temperature Extremes	Traffic / Vehicle Movements

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):

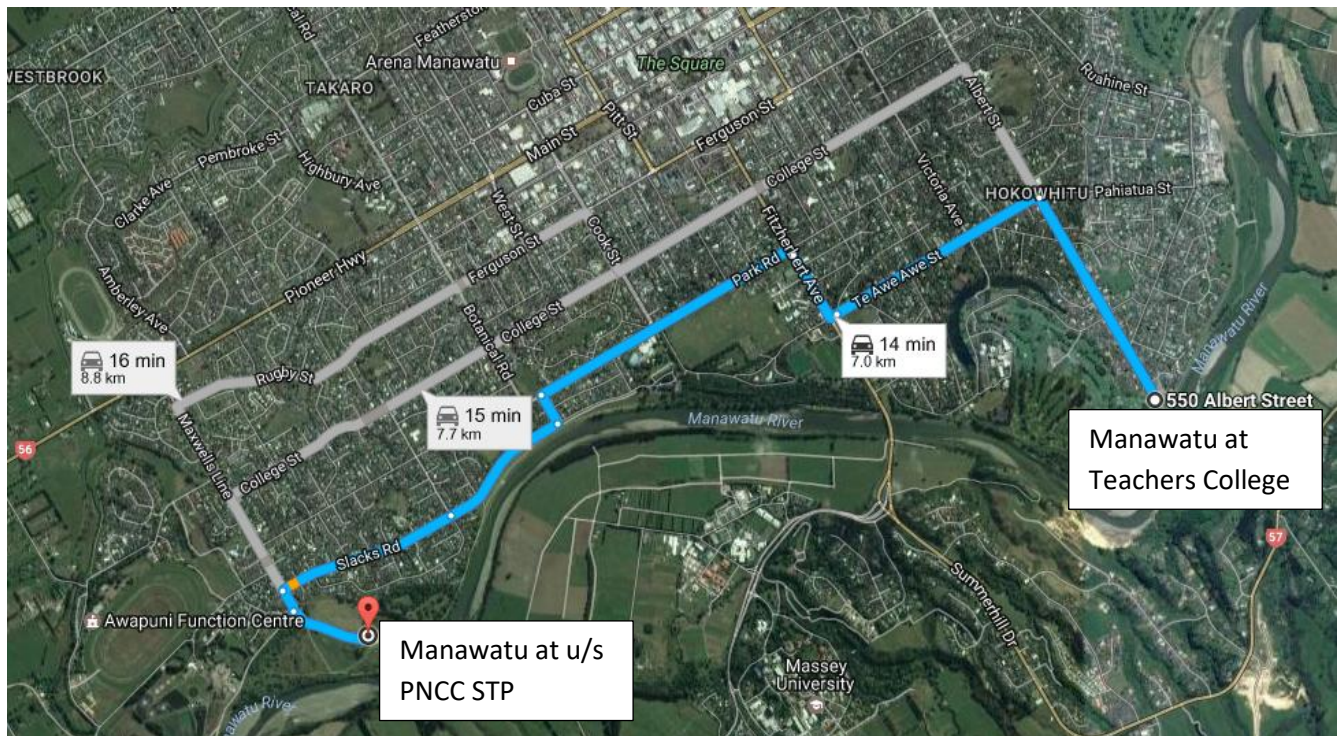
WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS
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DIRECTIONS:

- From the Mais Reach site head back to the main road and turn left towards Ashhurst. In Ashhurst turn right onto SH3 and drive to Palmerston North.
- Once in Palmerston North continue on SH3 which turns into Napier Road until you get to the intersection with Albert Street, there is a Dominos Pizza on the corner at this point. Turn left onto Albert Street and follow it right until you reach the end.
- At the end of Albert Street you will see a gate that leads over the stopbank to the river. If you have the PNCC Key open this gate and drive on, otherwise park here and walk. Lock the gate after you.
- From the top of the stopbank you will be able to see the Manawatu River and large cliffs. Head down to the river in the direction of the cliffs. Find a suitable riffle to sample.



SITE LOCATION MAP – Manawatu at u/s PNCC STP



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

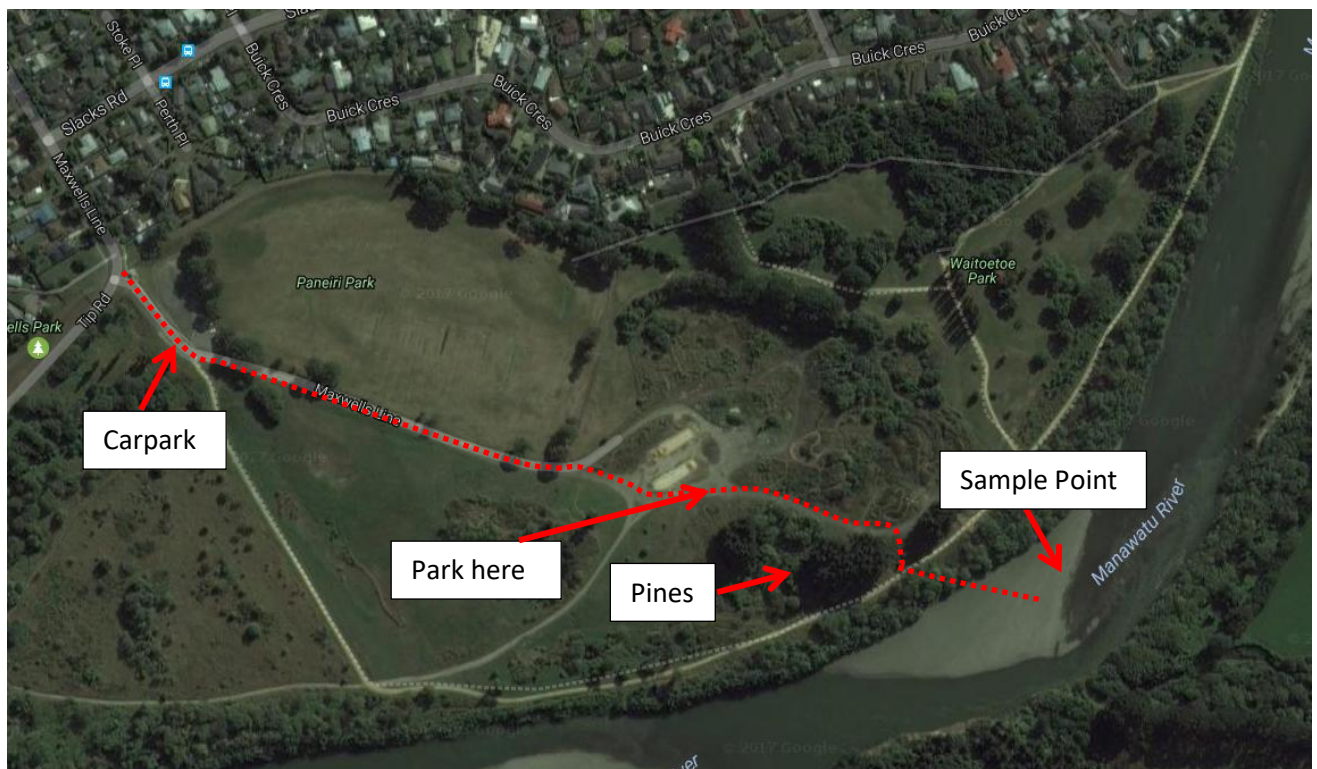
Drowning	UV Radiation	Slippery surfaces	Trip hazards
Difficult entry/exit	Potential for difficult rescue	Weather/Temperature Extremes	Traffic / Vehicle Movements

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):

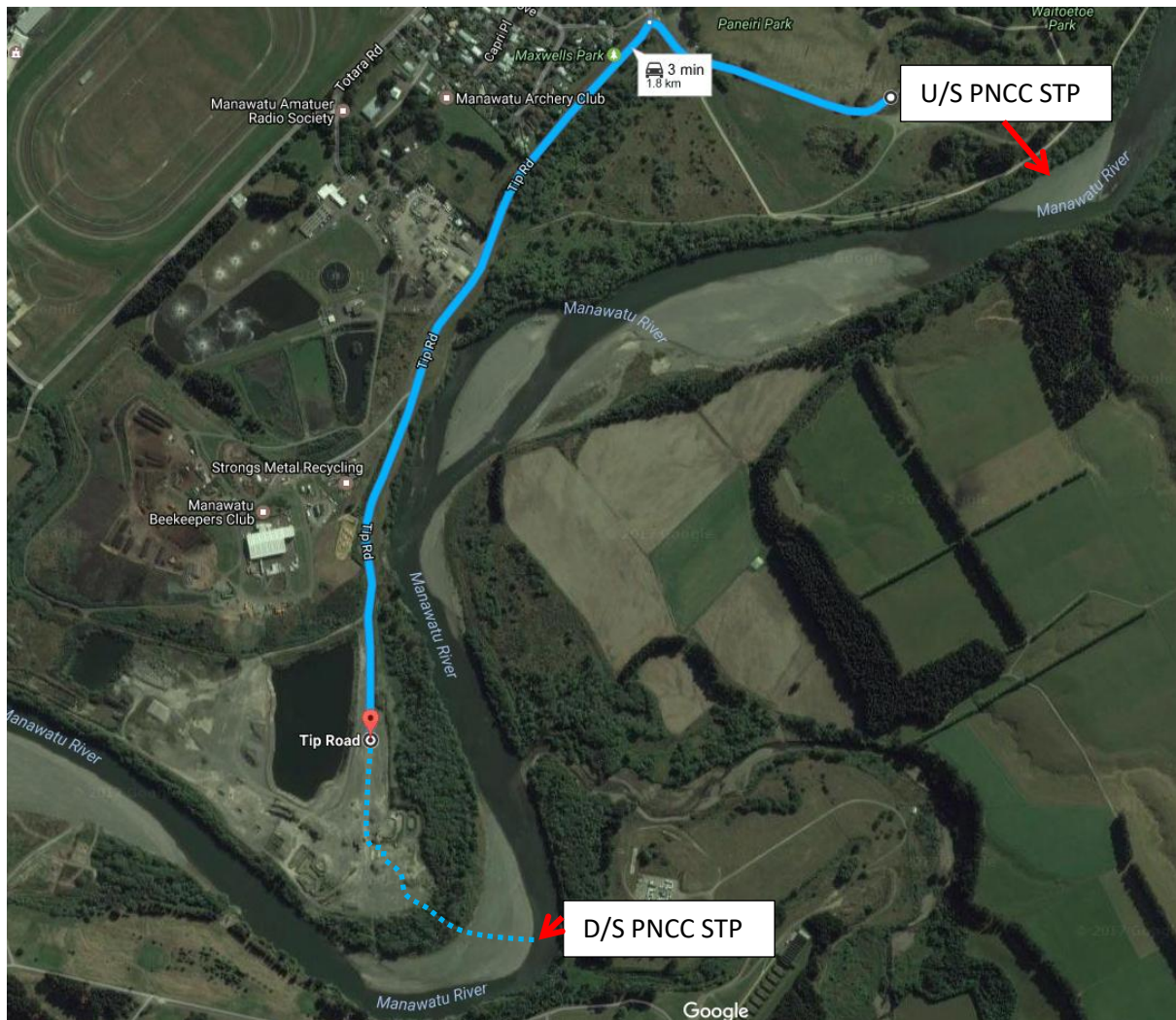
WORK BOOTS / WADERS	PFD	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS	
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DIRECTIONS:

- From Teachers College drive back up Albert Street the way you came and turn left down Te Awe Awe Street at the first roundabout.
- Follow Te Awe Awe Road until the end and then turn right onto Fitzherbert Avenue.
- Drive along Fitzherbert Avenue for approximately 400m, then turn left onto Park Road.
- Follow Park Road until you get to a sharp bend to the right, just before this bend turn left onto Katene Drive.
- Drive to the end of Katene Drive, then turn right onto Dittmer Avenue. Follow Dittmer Road, which eventually turns into Slacks Road right to the end. Once at the end turn left onto Maxwells Line.
- At the end of Maxwells line turn left into Paneiri Park. Drive to the end of this gravel road which is next to the sports fields and park at the end.
- To your right are a stand of pine trees. Follow the path past these trees towards the river and then sample at a suitable riffle.



SITE LOCATION MAP – Manawatu at d/s PNCC 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
Difficult entry/exit	Potential for difficult rescue	Weather/Temperature Extremes	Traffic / Vehicle Movements
Reduced Visibility	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	SUNSCREEN & HAND SANITISER	PERSONAL LOCATOR BEACON	THROW BAG	VHF RADIO	HI-VIS
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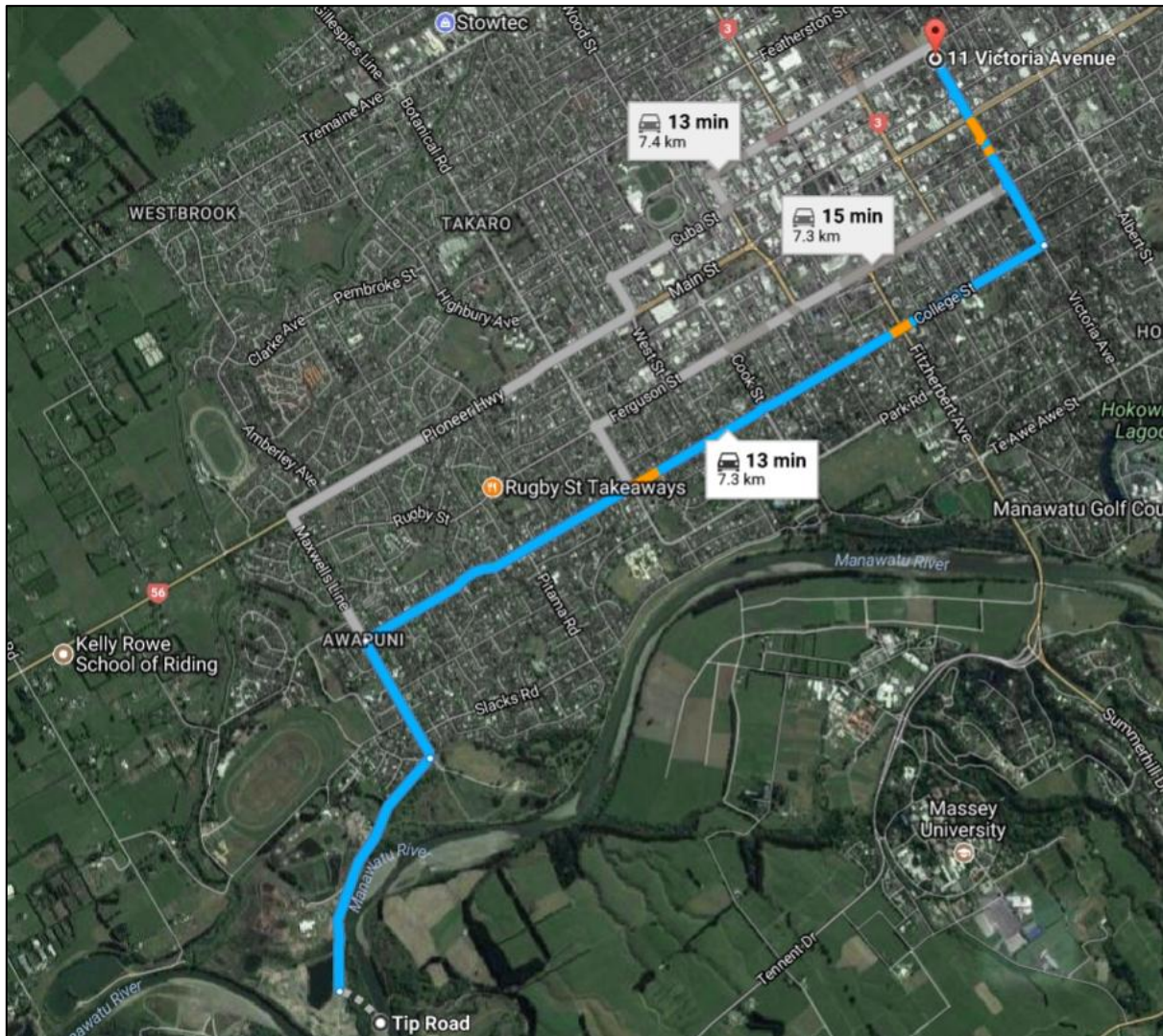
DIRECTIONS:

- From Paneiri Park turn left into Tip Road. This (unsurprisingly) takes you to the rubbish dump. This road splits to go up to the rubbish dump. Stick to the left hand branch next to the river and you will come to a gravel quarry.
- You will need to remember to take a key as the gate is sometime locked or there may be a combination lock with passcode 0366. Drive into the quarry and stay heading straight. You will see a building signposted 'office'; stop in here to fill out the sign-in sheet.

- As you drive towards the quarry office, on your far left there is a track that goes down to the river through the trees. If you stick to the track it should bring you out onto a gravel beach next to the river. Head upstream until the beach begins to run out. This will be your sample point. It is important to note that there is a tributary on the far side (true left) of the river. You must do your sample above this tributary (sometimes High River flows will not allow this, in that case it is acceptable to sample downstream).



RETURNING TO THE OFFICE



DIRECTIONS:

- From the d/s PNCC STP site head back the way you came to the quarry office to sign out, and then back out of the quarry and down Tip Rd.
- Turn left onto Maxwells Line and drive about 700m, then turn right onto College Street. Follow College Street for about 4.1km until you come to Victoria Ave. Turn left onto Victoria Ave and follow until you reach the Horizons Office.