

Version No: 12 Issue Date: 20/08/2024 Portfolio: Discrete Water Quality	Horizons Regional Council	Section No: 15.7 Appendix No: 6 Page: 1 of 25
	Hydrology Operations Manual	

Water Quality Monitoring Run Guide

Oroua

POINT DISCHARGE
(monthly 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 checked="" type="checkbox"/>
Difficult entry/exit	<input type="checkbox"/>	Falling objects	<input type="checkbox"/>	Communication – means of	<input type="checkbox"/>
Oxygen deficiency/excess	<input type="checkbox"/>	Working near cranes and crane runways	<input type="checkbox"/>	Remote area	<input 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 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 type="checkbox"/>	Pressurized fluids	<input type="checkbox"/>	General waste	<input checked="" 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 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 type="checkbox"/>	Stock/Farm Animals	<input checked="" type="checkbox"/>		

Required PPE– 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	PROTECTIVE GLOVES	PERSONAL FLOATATION DEVICE (PFD)
						
<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
HI VIZ	SAFETY HARNESS	VEHICLE BEACON				
						
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>				

Known Hazard	Significant		Can it be Eliminated		Can it be Minimised		Method of control
	Yes	No	Yes	No	Yes	No	
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 or alternative access sought. Sampling only to commence if the sampler is satisfied that any slip, trip or fall hazards are isolated.
Slippery Surfaces – STP PONDS	✓		✓		✓		Pond edges and river banks can be slippery at any time. Note that sampling from the pond edge is not required at Dannevirke WWTP. PFD's must be worn by staff. Vehicles must be driven a sensible distance from any pond edges. [HMP18 & 30]
Slippery Surfaces – RIVER ACCESS	✓			✓	✓		River banks can be slippery at any time. Care should be taken in all conditions. PFD's must be available to staff for use is deemed appropriate. [HMP18]
Drowning - STP PONDS	✓		✓		✓		The Ratana STP pond can be deep, full of sediments, and have operating equipment on/within them. Horizons staff do not need to sample from the WWTP pond/Pond edge. [HMP18 & 30]
Drowning	✓			✓	✓		Staff should be trained in alignment with HRC's training requirements. PFD's must be available to staff for use is deemed appropriate [HMP18]
Machinery – mobile plant	✓			✓	✓		For sample sites within an operating waste water treatment plant, plant and machinery may be on-site during sampling. Staff to wear appropriate PPE, obey on site signage and instruction, and give way to all operational traffic.
Machinery – Farm	✓			✓	✓		For sample sites within/on a farm plant and machinery may be on-site during sampling. Staff to wear appropriate PPE, obey on site signage and instruction, and give way to all farm traffic.
Noise – plant and equipment	✓			✓	✓		Plant operation can create high levels of noise. Ear protection to be carried in HRC vehicle at all times. Ear protection to be worn when machinery is running [HMP 4]
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]

Known Hazard	Significant		Can it be Eliminated		Can it be Minimised		Method of control
	Yes	No	Yes	No	Yes	No	
General Waste		✓		✓	✓		General waste can be stored on sites depending on operating activity. Sample staff have no need to interact with any waste. All waste created by HRC staff to be taken with them and disposed of at HRC offices.
UV Radiation	✓			✓	✓		Horizons provide sunscreen and hats. [HMP 17]
Manual Handling	✓			✓	✓		There should be no need for sample staff to move any equipment etc. in order to carry out sampling activities.
Electrical – low /high voltage	✓			✓	✓		Sampling activity does not require any interaction with live circuitry or equipment. Staff should check sample area is clear of any hazards (i.e. loose cables, live equipment etc.) before sampling. If access/safety is considered compromised sampling is aborted. [HMP 23]
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]
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 of additional and appropriate clothing. [HMP 17] [HMP 34] [HMP 18]
Temperature Extremes - Hypothermia: following emersion	✓			✓	✓		Staff must have access to suitable PPE and spare clothing within their vehicle. [HMP18]
Traffic Vehicle movements	✓			✓	✓		On-Road/Off Road access: Some sample site(s) requires stopping within the road reserve in order to get to a safe parking location. Subsequently the HRC vehicle is to be parked in a safe and appropriate location as practicable to do so. Use of hazards lights must be considered. Hi-vis clothing must be worn. [HMP 16] [HMP 20] Work Site access: Sample sites may be within a functioning work. work vehicles liable to be present at any time. Staff to obey on site signage and instruction. HRC Vehicle to be parked in a safe and appropriate location. [HMP 16] [HMP 20]
Duck Shooting Season	✓			✓	✓		Some sample locations may be subject to duck shoots. Warning signs, (Tokomaru STP) must be adhered to. If Shoots are commencing on site, including access routes to site sampling should be

Known Hazard	Significant		Can it be Eliminated		Can it be Minimised		Method of control
	Yes	No	Yes	No	Yes	No	
							abandoned with any evidence recorded (i.e. photographs)

Site Information

Hilltop Site Name	Easting/Longitude		Northing/Lat		Comments
AFFCO Fielding at Industrial Waste water	NZMG:	2730319		6104659	Induction required. Sign in/out each visit. Follow on-site procedures Site now called: AFFCO New Zealand - Manawatu plant.
	NZTM:	1820305		5542958	
	WGS84:	175.589655		-40.234852	
Oroua at U/S AFFCO Fielding	NZMG:	2729821		6105050	Sample before AFFCO Fielding at Industrial Waste water Site is public access
	NZTM:	1819806		5543348	
	WGS84:	175.583658		-40.231474	
Oroua at d/s AFFCO Feilding	NZMG:	2729360		6104403	Site is public access Occasional traffic on river banks
	NZTM:	1819345		5542701	
	WGS84:	175.578468		-40.237418	
Rongotea STP at Secondary oxpond waste	NZMG:	2715062		6098568	Site Operated by Manawatu District Council
	NZTM:	1805045		5536863	
	WGS84:	175.412377		-40.293594	
Oroua at Mangawhata	NZMG:	2716665		6087574	Site is access via paddocks owned by Farmer
	NZTM:	1806649		5525866	
	WGS84:	175.434791		-40.392181	
Tokomaru at oxpond waste	NZMG:	2721950		6078205	Site Operated by Horowhenua District Council.
	NZTM:	1811936		5516497	
	WGS84:	175.500152		-40.475178	
Koputaroa Stream at Tavistock Road	NZMG:	2707752		6065094	Sample UPSTREAM of Weir Gauging Site # 32590 [KOP] Site is public access
	NZTM:	1797736		6603382	
	WGS84:	175.336873		-40.596737	

[Contact details can be found here.](#)

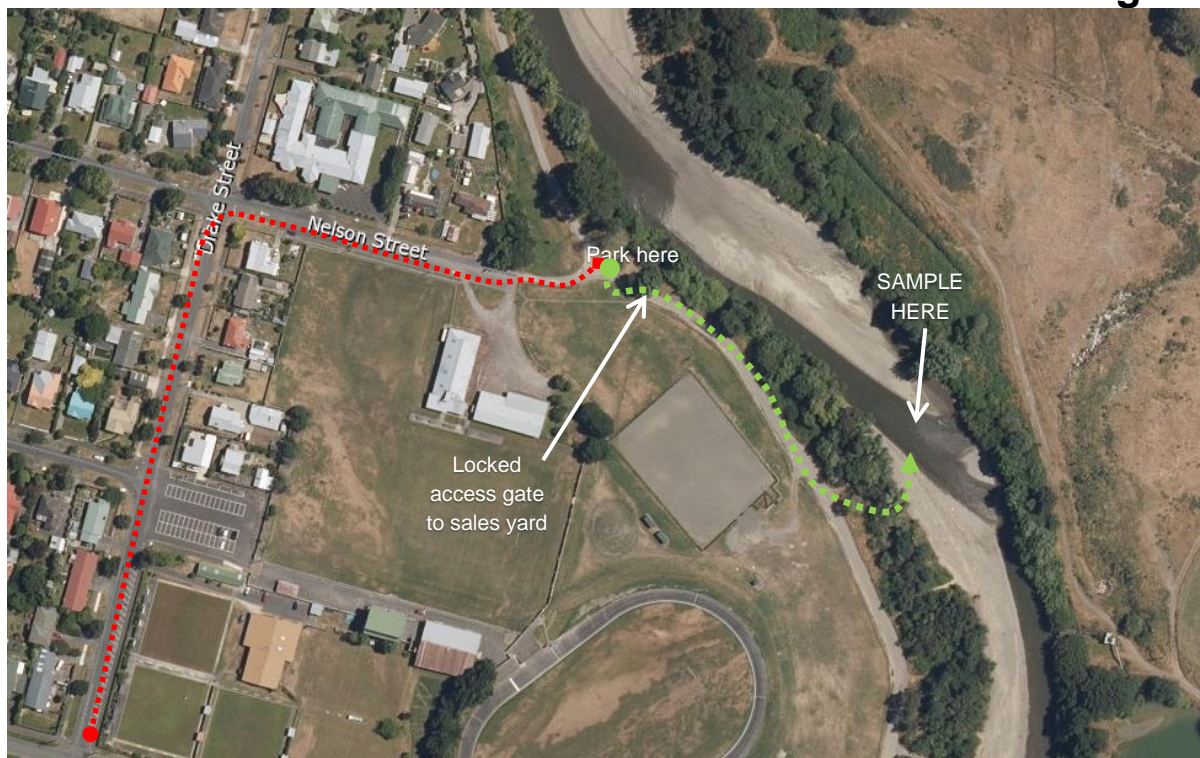
Equipment Required

Sample	TEN (10) sample bottle sets - refer to http://tqm.horizons.govt.nz/Hydrology/SOPs/cd_om_15.4_Appendix_4_ELS%20Bottle%20Guide.xlsx
Sample	SEVEN (7)
Equipment	<ul style="list-style-type: none"> • Handheld multi-parameter instrument (calibrated) – including iPad/screen • Black disc, viewer, tape measure • Clarity Tube • Sampling pole • Chilly bins and ice-packs • Bags for isolating effluent samples • Disinfectant equipment for sampling equipment • Field sampling books • Sampling ID labels (created using Hilltop Sampler) • Use gloves for wastewater and effluent samples • Alcohol gel
Additional Comments	<ul style="list-style-type: none"> • AFFCO Fielding at Industrial Waste water - sign in to access the rear of the yards via automatic gate. Induction required including finger print scans for front gate access. Rear gate may also be locked. Site contact found here. Discuss procedures with discrete water Quality portfolio holder prior to visiting site. • Oroua at U/S AFFCO Feilding – sample before waste. Vehicular access restricted due to locked gate at sales yard. • Oroua at d/s AFFCO Feilding - access track can be flooded in winter. • Rongotea STP at Secondary oxpond waste – key needed at entrance to race and entrance to pond compound. • Oroua at Mangawhata – typically slow deep and fine silted; typically not suitable for black disc, anticipate use of clarity tube and sample pole. • Oroua at Mangawhata – turn after bridge is too sharp, U-turn further along road. • Oroua at Mangawhata - Banks slumping – caution. • Tokomaru at oxpond waste – Discharges infrequently • Koputaroa Stream at Tavistock Road – Sample above weir. • AFFCO Fielding at Industrial Waste water – <i>During 2017 Duck shooting season a warning – no entry sign was placed on rear gate. If this occurs adhere to signage, document and abandon sampling.</i>

SITE LOCATION MAP – AFFCO Feilding at Industrial Wastewater; Oroua at US AFFCO Feilding and Oroua at DS AFFCO Feilding



SITE LOCATION MAP – Oroua at US AFFCO Feilding



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

Drowning – River	Traffic / vehicle movements – sales yard	Slippery surfaces – mud, periphyton	
Trip hazards – cobbles, uneven ground	UV Radiation		

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	HI VIZ	PFD	VEHICLE BEACON				
							

DIRECTIONS:

- Head to Feilding from Palmerston North via SH54.
- After crossing the Oroua Bridge, turn right onto East Street (crossing the rail line).
- Then turn right onto Nelson Street (your third right).
- Continue straight over the intersection with Drake Street.

ACCESS:

- Drive past the Retirement Home and continue onto the gravel track way.
- Follow this to the right past the stock-sales yard.
- Park up off the track before the locked bar gate to the sales yard – there is a small area by a memorial cross.

- You should see a small track heading downstream to the river. Follow this and sample at the bottom (See Map).
- Note this is a busy public area with dog walkers and joggers. Drive slowly with beacon on for maximum visibility. Be nice!

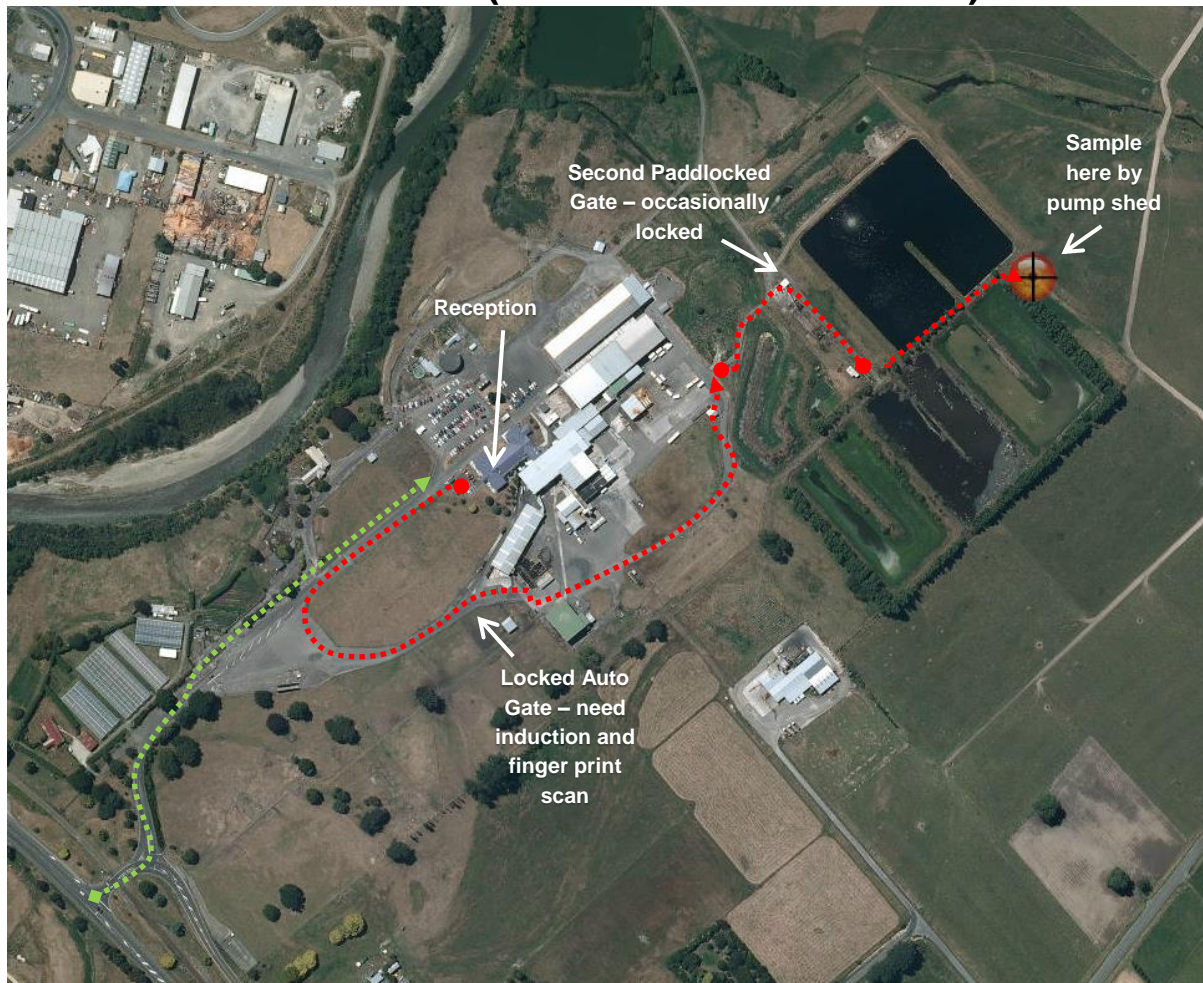


Oroua at US AFFCO Feilding Sample Point – view looking upstream



Oroua at US AFFCO Feilding Sample Point – view looking downstream NOTE the AFFCO discharge structure – sample above this!






SITE LOCATION MAP – AFFCO Feilding at Industrial Wastewater (AKA AFFCO Manawatu)



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

Drowning - ponds	Traffic / vehicle movements – meatworks traffic, haulage	General waste	Stock/Farm Animals -both within paddock areas at rear and unloading bays
Trip hazards -uneven ground	Machinery – mobile plant	Hazardous waste	Duck Shooting Season – Site may be closed off
Slippery surfaces – concrete floored areas, damp grass, mud	Noise – plant and equipment	UV Radiation	

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):

SAMPLING GLOVES	EAR PROTECTION	SAFETY GLASSES / GOGGLES	WORK BOOTS	HI VIZ	PFD	VEHICLE BEACON	
							

DIRECTIONS:

- Head back over the Oroua Bridge as if leaving Feilding by retracing your steps.
- Just after the Oroua Bridge, turn left onto Campbell Road.
- Immediately after crossing the tracks turn left into the AFFCO entrance roadway

ACCESS:

- Follow the roadway straight ahead and head for the main office (giving way to any other traffic)
- Park up in the car park and sign yourself in – ensure you have appropriate PPE etc.
- Access is via a finger print operated main gate – **you need to be inducted annually to access.**
- Drive back toward the entrance but follow the road to the left and access the automatic gate with your fingerprint.
- Drive with caution (vehicle beacon on) and give way to any works or transport traffic.
- **Jan 2024 – there is medium scale construction work happening near the pond track – be careful**
- Follow the outer roadway (skirting the fence line to the right of the compound) to the gate.
- Go through the gate (leaving it how you find it – sometimes sheep graze inside). If the gate is locked contact a staff member (if safe to do so – do not access site area you have not been induction for etc.) or travel back to reception.
- Park up by the ponds.
- The sample point is by the pump shed past the ponds.
- Sample at the tap – there is usually a pipe connected to it. **SEE PHOTO BELOW**
- Take a photo of the sample tap running; if the site is not discharging take a photo showing the end of the sample pipe/tap with the tap in both the off and on positions within the same frame to confirm no discharge.
- It is quite normal for the site not to be discharging in lower flows (due to consent condition/discharging to land). Take a photo regardless.
- After sampling return reception and sign out.
- **Site contact = Ethan Lawton**

June 2021. New sample location was installed and pump shed rebuilt.



AFFCO Feilding Sample Point – Sample at tap. Access from ponds is in the rear of the image

AFFCO Feilding at Industrial Wastewater (AKA AFFCO Manawatu): SITE MAP



OROUA DISCHARGE RUN








SITE LOCATION MAP – Oroua at DS AFFCO Feilding



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

Drowning - River	Traffic / vehicle movements – access and main road turning	Slippery surfaces –cobbles, periphyton
Trip hazards – cobbles, uneven ground	UV Radiation	

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):

SAMPLING GLOVES 	WORK BOOTS 	HI VIZ 	PFD 	VEHICLE BEACON 			
DIRECTIONS: <ul style="list-style-type: none"> • Head out of the AFFCO Compound (after signing and returning all keys!) • Turn left onto Campbell road in order to cross the rail line and re-join SH54. • Before the bridge leave SH54 turning right onto a gravel track leading to the Oroua 							
ACCESS: <ul style="list-style-type: none"> • Drive down and to the right so that you are upstream of both bridges – sample here. • In winter it may be necessary to walk down the track 							









Oroua at DS AFFCO Feilding Sample Point – view looking upstream



Oroua at US AFFCO Feilding Sample Point – view looking downstream.

SITE LOCATION MAP – Rongotea STP at secondary oxpond waste



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day):							
Stock/Farm Animals – in paddocks and on race			Traffic / vehicle movements – Farm and STP traffic		Slippery surfaces – pond edges		
Trip hazards tag lines, uneven ground and paddocks			UV Radiation				
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):							
SAMPLING GLOVES	WORK BOOTS	HI VIZ	PFD	SAFETY GLASSES / GOGGLES	VEHICLE BEACON		
							
DIRECTIONS:							
<ul style="list-style-type: none">• Head to Rongotea from Fielding via Awahuri after sampling AFFCO river sites• Follow signs towards Rongotea• You will come into Rongotea past the cemetery and into the main road							

- Go out the other side of Rongotea (Longburn-Rongotea Road) and just outside of town, you will see a trucking company with a big gravel parking area.
- Directly opposite the parking, area is the access gate to oxidation pond with MDC sign.

ACCESS:

- Follow along this track watching for electric wires across the track (leaving them as you find them after driving through) until you get to the oxidation pond with a small shed beside it.
- Drive around the ponds toward the rear of the STP site.
- Park at the rear of the STP compound.
- Access to the sample location (perforated pipe) is on foot through the paddock (using latched cyclone gate for access). Head for the fenced compound.
- Sample from the perforated pipe where the STP discharges into the ditch (Campbell's Drain) via the gravel apron.
- The drain can flood the perforated pipe. If so, take a sample from the large inspection chamber by opening the large aluminium hatch and a sample pole.



Rongotea STP – Sample from perforate pipe within fenced area







Rongotea STP – Back up sample [if pipe is flooded sample from inspection chamber via large hatch]

SITE LOCATION MAP – Oroua at Mangawhata



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

Stock/Farm Animals – in paddocks	Traffic / vehicle movements	Slippery surfaces- banks, paddocks and fine slit/clays
Trip hazards – banks/paddocks, uneven ground	UV Radiation	Drowning - River

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 	HI VIZ 	PFD 	VEHICLE BEACON 				
DIRECTIONS: <ul style="list-style-type: none"> • Head back into Rongotea and turn right around the roundabout (Banks Road) • Follow Banks Road until you see a turn off (on the right) for Sansons Road – go here. • Sansons Road then changes to Main Drain road as you pass through Glen Oroua. • Keep following the road until you see Hoihere Road (on the left). Turn in here. • Go over the bridge, and do a U-turn at the next corner (the turning to the paddock is too tight) 							
ACCESS: <ul style="list-style-type: none"> • The gate is half-buried in silt, you will need to park off the road in the access way • Climb over the gate to access the paddock and carefully walk down to the river – access is steep, be very careful • Sample at or downstream of the bridge – depending on what is safest on the day. • You will be limited to using and sample pole and clarity tube unless in very low flow. 							

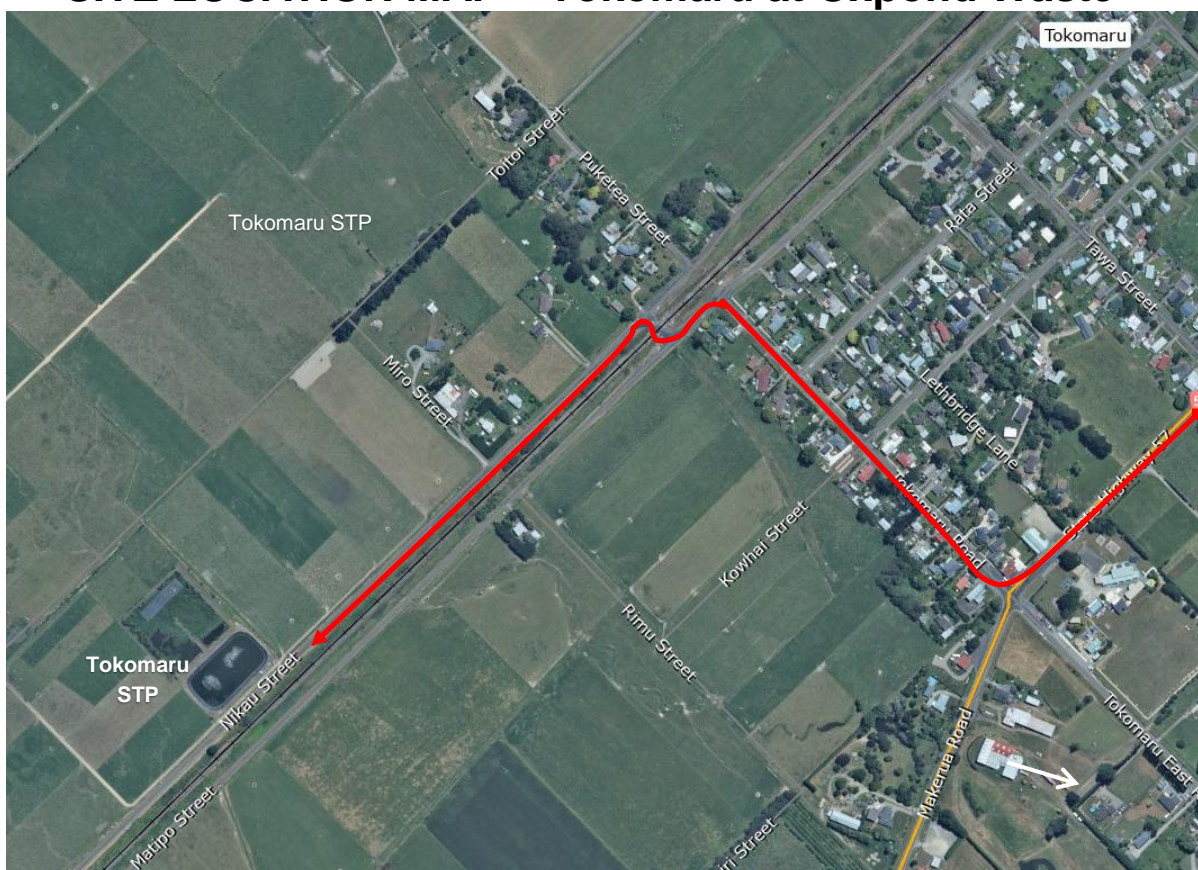


Oroua at Mangawhata view from sample point looking upstream toward road bridge



Oroua at Mangawhata view from sample point looking downstream

SITE LOCATION MAP – Tokomaru at Oxpond Waste



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

Stock/Farm Animals - paddocks	Traffic / vehicle movements – Farm and Site traffic	Slippery surfaces - banks/paddock, periphyton, stairwell
Trip hazards – banks, paddock, uneven ground	UV Radiation	

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):

PFD	WORK BOOTS	HI VIZ	VEHICLE BEACON				
							

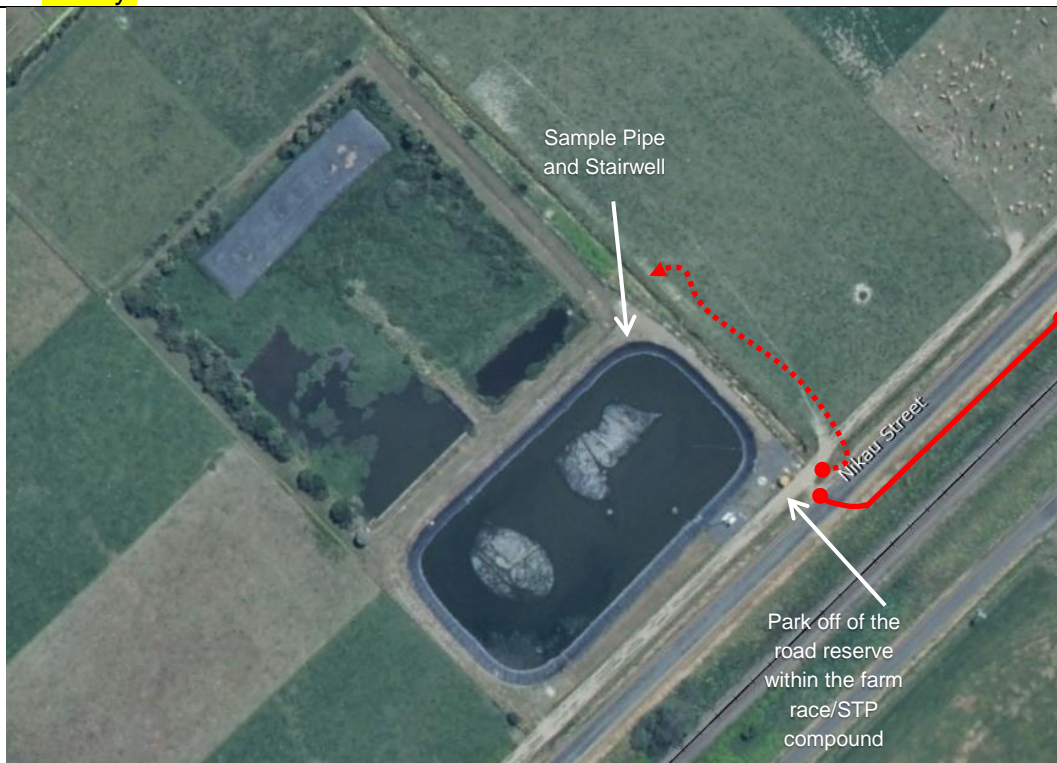
DIRECTIONS:

- From the Mangawhata site, go back to Main Drain Road, turn Left toward Rangiotu
- At Rangiotu Rd, turn left toward Palmerston North
- At the State Highway 56 intersection, turn Right toward Opiki
- After crossing the Manawatu River and coming into Opiki, take the Left at the School onto Tane Rd
- Continue on Tane Rd until you get to SH57 then, turn Right toward Tokomaru, at the intersection with the School and the Dairy, turn Right onto Tokomaru Rd
- At the end of the road turn left onto Matipo Street.
- After approx. 60m turn right and cross the rail line turning right onto Nikau Street.

- The STP is 500m further down this road on the right.
- Pull over off the road by the entrance – wear hi-vis and use vehicle beacon.
- Park off the road reserve by parking within the race (bungee gate).

ACCESS:

- The pond discharges into the creek on the right hand side of the wetland – through a small inverted white pipe.
- Access is via the paddock alongside the STP compound
- Collect sample from the pipe which discharges into the small ditch. Access is under the wire in the dip opposite the pipe
- Note that this site very rarely discharges.
- On rare occasions the sample pipe can be overtopped by floodwaters in the ditch – **there is no alternative sample location for this STP.**
- Access to the STP compound requires a key and induction from Downer – currently we have no key.

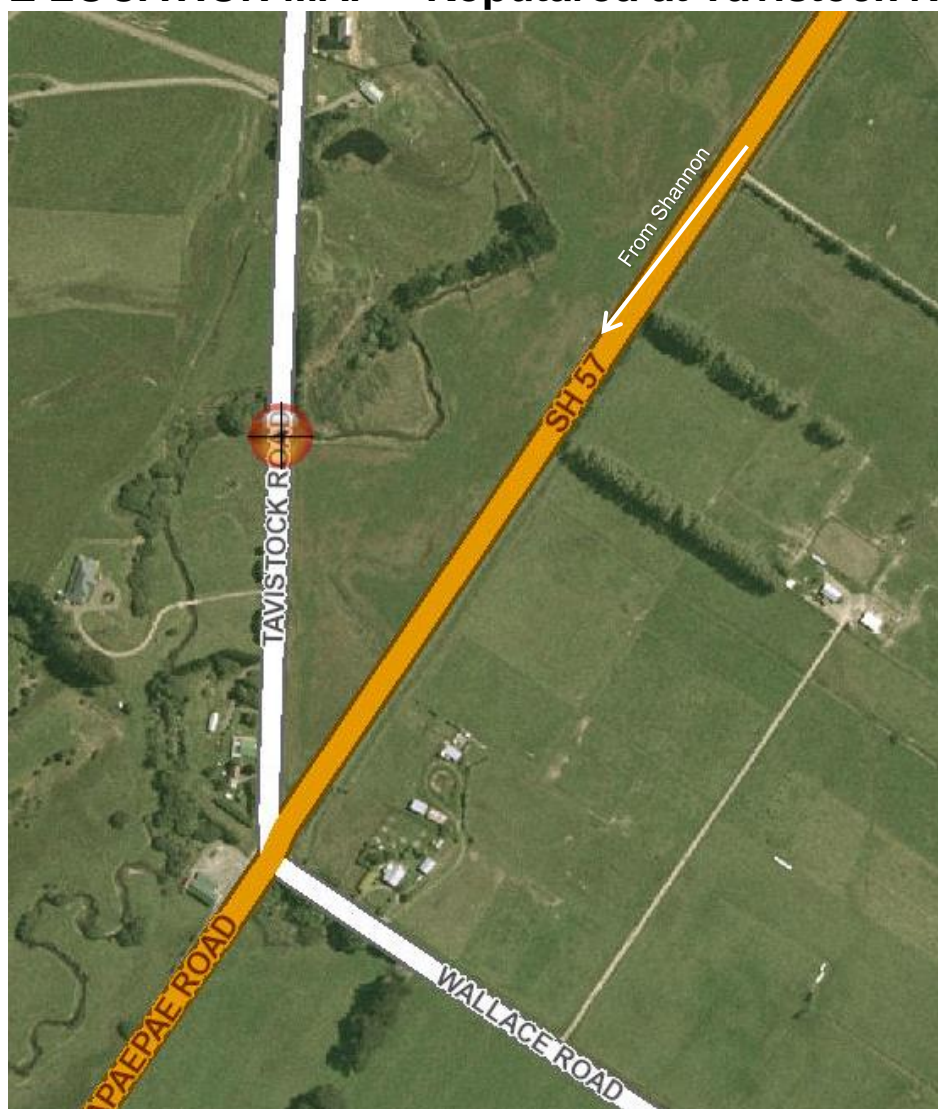






Tokomaru at oxpond waste: detail map



Tokomaru at oxpond waste: sample location (image taken from paddock)

SITE LOCATION MAP – Koputaroa at Tavistock Road



POSSIBLE SITE HAZARDS (this does not negate undertaking a hazard review prior to sampling on the day):							
Stock/Farm Animals – paddocks, pigeons nesting under bridge		UV Radiation		Slippery surfaces - banks/paddock, concrete weir surfaces, grass clippings dumped by access route			
Trip hazards – banks, paddock, uneven ground		Drowning- River					
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	HI VIZ	PFD	VEHICLE BEACON				
							
DIRECTIONS:							

- Head to Shannon.
- Follow SH57 out of Shannon in the direction of Levin.
- After approx. 10km, turn right onto Tavistock Road.
- The sample site is located at the hydro site under the bridge approx. 100m from the Tavistock Road and SH57 junction.
- Park on the side of the road before the bridge. Parking is limited to the road reserve - park on the inside of the bridge barrier- wear hi-vis and use vehicle beacon.

ACCESS:

- Access is by walking under the bridge from the bank on the upstream side of the bridge.
- Follow the bank down – **take care of grass clippings being dumped here.**
- **Watch out for pigeons** who nest under the bridge – Make loud noises as you approach
- Sample under bridge – u/s of weir, best location is from the old tower section.
- Gauge site too – best locations are downstream of the weir (due to weed build up upstream of the weir). In low flows when the 'v'notch weir is 'dry' the best gauging location is the entrance to the fish pass.
- Access to downstream gauging site can become overgrown and has uneven ground
- The site currently has a continuous water level recorder that is levelled to the staff gauge on the weir and will be rated once enough measurements have been taken



Koputaroa at Tavistock Road: detail map



Koputaroa at Tavistock Road: Sample location looking downstream from right hand bank



Koputaroa at Tavistock Road: view looking downstream from right hand bank