Prime
FLUID MANAGEMENT

Water Treatment Solutions

OUR PROCESS

The PRIME Project Delivery Pathway

Prime Fluid Management operates a robust project delivery process, ensuring timely, cost-effective, and realistic project plans through the PRIME Project Delivery Pathway.

Discover

We take a take time to understand your project and to gain a solid understanding your goals, drivers and constraints.

Design

Every client, site and project is unique. We focus on the solution that will perform best in all scenarios across the intended lifetime of your project.

Deliver

Once approved, we deliver. Depending on project or product requirements this may include install, commissioning, and on-site training.

Support

We are here if you need us. Whether you need parts, repairs, or further support we work fast to limit downtime on site.

Silt, sediment & discoloured water

Sediment-laden water clouds waterways, harming fish life by disrupting ecosystems and carrying pollutants. Managing sediment pollution is vital for preserving clean and healthy waterways and safeguarding fish populations

What is it?

- This is the most common form of contamination, found on many sites.
- This is when the water contains fine sand, silt and clay type particles in suspension. This type of pollution is easily visible and is very traceable.
- Heavier particles such as sand settle very quickly, these are rapidly settling solids, whereas fine clay particles are so fine they don't settle even when the water is left stagnant for long periods. They require chemicals such as coagulants and flocculants to help them 'clump' together to settle out.

Where does it come from?

- Surface water runoff from yards or processing plant areas.
- Quarry dewatering and temporary excavations.
- Process water from treatment systems.
- Washdown of equipment

How do you treat it?

- Treating solids in water depends on the type of solids and the flow rate required (how fast you want to discharge it). For rapidly settling solids and where 'visually' clear water isn't the priority, a basic settlement tank is suitable. However, if you require visually clean water, additional chemicals may be required to help achieve this.
- For larger volumes and to achieve visually clean water, the lamella clarifier tanks (e.g. HL20, HL40 & HL50) are used in conjunction with the treatment tanks (TT05 & TT10) and dosing units (TU02).
- There are also options such as silt trap socks and water polishing medias that can be used in more tricky situations

pH Imbalanced Waters

What is it?

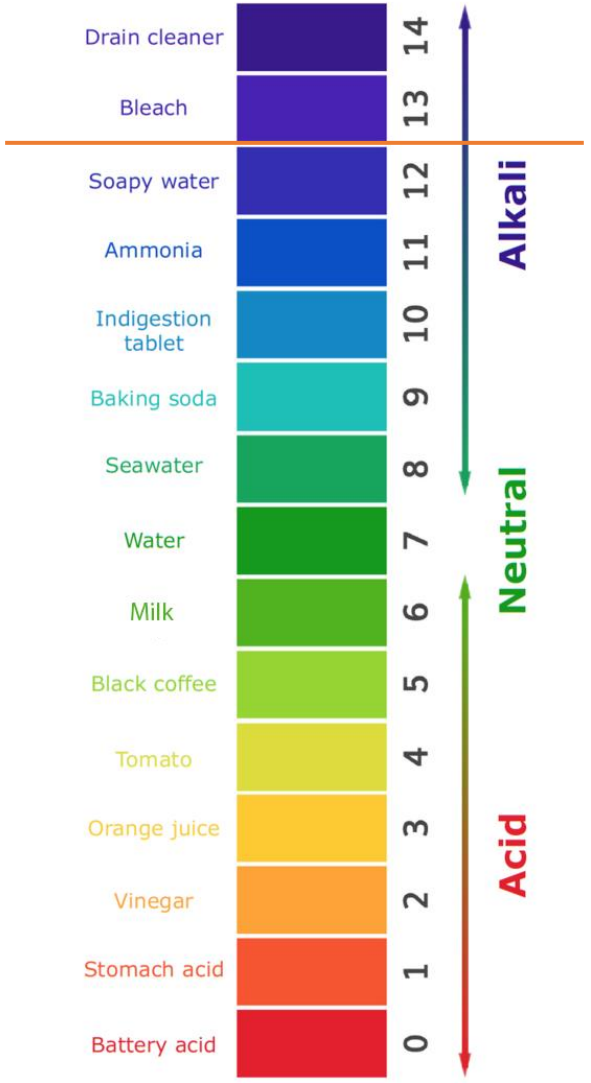
- Water with a pH that is above 8 or below 6 is typically classed as not safe for discharge to surface water (rivers, streams, lakes etc.). For foul drainage below 6 or above 10 is generally not permitted.
- pH imbalanced water comes from activities where the water comes into contact with a contaminant that changes the pH. This must be corrected before it can be discharged off site.
- A pH imbalance in water is not necessarily visible; the water can look very clean but be a serious health risk to humans and the environment.

Where does it come from?

- Concreting and washing down concreting equipment, grouting and hydrodemolition works.
- Dewatering in acidic or alkaline rock works areas.
- Remediation on contaminated land reclamation sites.

How do you treat it?

- Concrete wash down or hydrodemolition activity can use treatment tanks such as the CW01 and CT01 to treat the water. These use CO2 gas or acid to correct the pH. This is an automated process.
- Large volumes of water will require larger tanks such as the TT05 or TT10 in conjunction with a TU02 or CO2 gas dosing systems, depending on what pH correction is required.
- Correcting pH can be very sensitive – it is important not to overdose which would cause the pH to imbalance to opposite extremes.



Orange line indicates concrete water

Hydrocarbons in water

What is it?

- A less common form of organic contamination, this is for example where water contains petroleum based oils or fuels.
- There are ‘dense’ and ‘light’ hydrocarbons, the dense generally settle out with other solids, whilst the light may float, so sometimes they can be skimmed off the water surface. Often further treatment is required to remove them from the water.
- Hydrocarbons are generally visible in water. Left untreated they can have very damaging effects on nature, resulting in costly clean up and compensation charges.

Where does it come from?

- Land remediation activity of old contaminated sites.
- Process plant effluent where a chemical has been used as part of the process.
- Spills and incident clean up and remediation..

How do you treat it?

- The removal of hydrocarbons depends on the type, the volume in the contaminant and the volume of water in total.
- Light hydrocarbons can often be removed using a surface extraction bowl or skimmer. Likewise, dense hydrocarbons may settle out of the water and be able to be extracted as a sludge. However, frequently they can ‘clump’ or disperse through the water meaning they require more specialist treatment to remove them.
- Typically for simple applications the EnviroHub lamella clarifiers can remove both dense and light hydrocarbons. For more challenging applications a Dissolved Air Floatation (DAF) treatment system may be required, this essentially aerates the water and allows the fine air particles to attach to the unwanted contaminants and lift them to the surface so they can be skimmed off.

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Environmental Solutions

pH correction, intelligent dosing, settlement, discharge compliance

Lamella Plate Tank

EnviroHub

The HL lamella settlement tanks, are designed to efficiently recover suspended solid particles from water in continuous pumping applications.

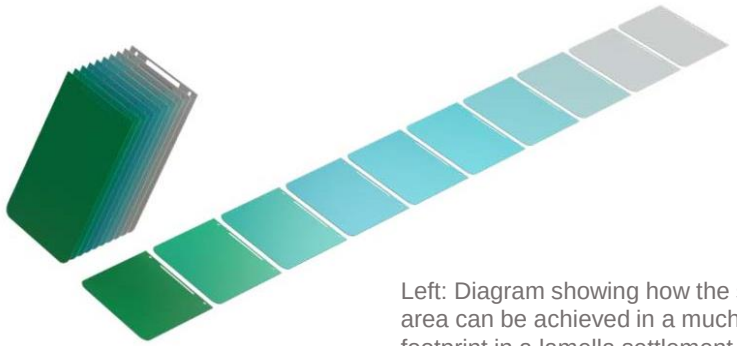
They are a simple but effective way of ensuring that environmental concerns of suspended solids in water from activity such as groundwork dewatering are safely & efficiently met.

Designed using scientifically proven lamella plate principles and refined by Prime Pump in consultation with leading NZ water quality specialists, lamella settlement tanks use an array of inclined plates to vastly increase the space efficiency of a settlement tank. These tanks have the greatest performance per m2 footprint compared to others on the market.

Why a Lamella settlement tank is a better solution for protecting the environment

What's the issue?

- If your site water goes directly into a river or
- watercourse, the discharge must meet strict standards set by the Environment Agency, and you must install the appropriate water treatment equipment.
- If your site discharges into a sewer, your obligations may appear much less onerous, however you must consider whether your equipment will cope when you have large flow rates, for example after a high rainfall event.
- A simple settlement tank that copes in dry weather may simply become a conduit for the waste to flow directly off your site untreated.



Left: Diagram showing how the same settling area can be achieved in a much smaller footprint in a lamella settlement tank (1) compared to a standard settlement tank (2)

Right: Top view of an HL tank in use

The Advantages of a Lamella Settlement Tank

Efficiency
Lamella tanks are significantly more efficient than settlement tanks. This means they keep protecting the environment even at much higher water flow rates.

Compact size
A lamella tank takes up a fraction of the footprint of a settlement tank of the same settlement capacity.

Convenience
Their size and mobility mean that short-term hire is an option, as they are easy to both install and decommission.

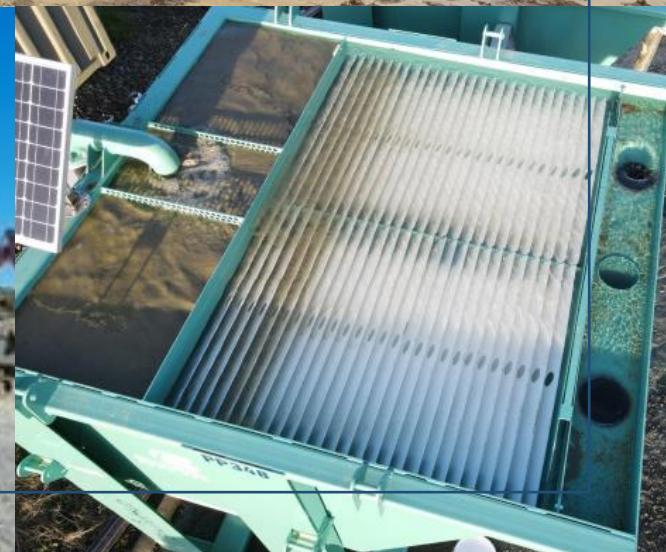
Modular design
The compact design of the lamella tank means it can be coupled with other water treatment units for extracting other substances from the water.

Robust construction
No moving parts or power required. This means running costs and maintenance requirements are minimised.

Water saving
The efficiency of lamella tanks means your water is treated quicker. This recycled water is available to be re-used in your plant, reducing the need for water storage.

Lamella Plate Tank
EnviroHub

- Safe solution for removing solids from water and minimizes environmental damage to waterways
- Ensures water discharge compliance
- Simple and easy to operate
- Large hopper – reduces emptying cycles
- Designed for easy transportation on almost any truck
- Fully scalable. Set up multiple units for larger flows.
- Large sludge holding capacity
- Specially designed sludge hopper for easy cleaning
- Several dosing options available



Settling Tanks

- Multiple sizes available (3m³ up to 20m³)
- Can be used in conjunction with our dosing systems
- Various inlet and outlet connections available
- Easy to deploy and shift on site
- Used in most applications where a lamella tank is not required.

Dosing units – Lamella Tank

Solar

Intelligent proportional module

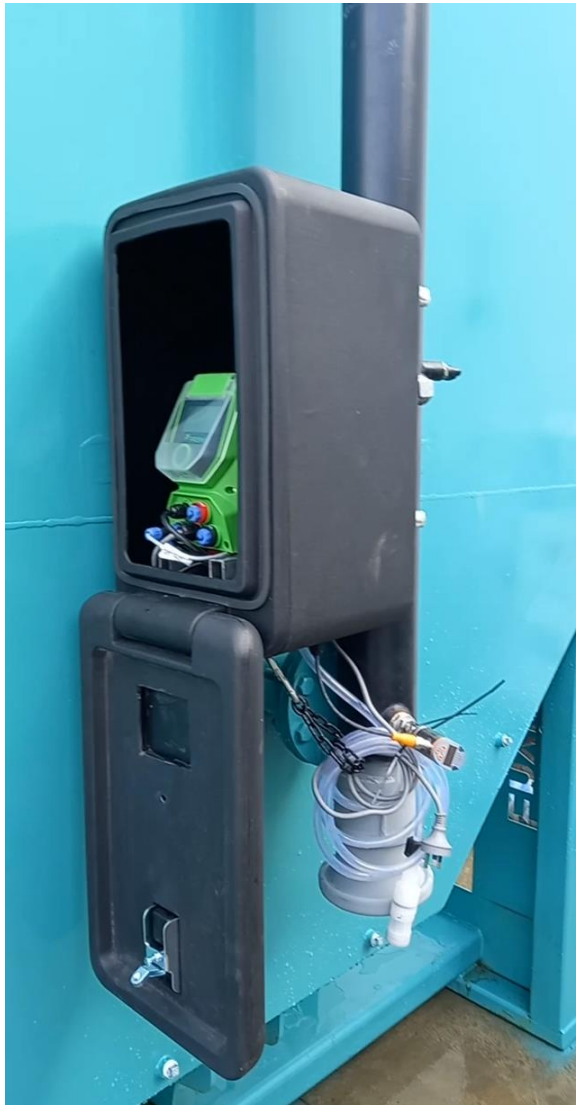
- Fully self sufficient – no grid power required
- Stepper motor diaphragm pump for precise dosing.
- Flow proportional dosing – automatically doses based on flow rate
- Digital flow meter
- Suitable for PAC, poly and other flocculant.
- Can be mounted on the unit as pictured or as stand alone

Dosing units – Lamella Tank

Mains powered

Mains powered module

- 240V Single phase
- Stepper motor diaphragm pump for precise dosing.
- Flow proportional dosing – automatically doses based on flow rate
- Digital flow meter
- Suitable for PAC, poly and other flocculant.
- Can be mounted on the unit as pictured or as stand alone



Dosing units – Shed

Flocculant dosing stations

- One station can be used to dose multiple tanks – reduces requirement for multiple dosing units
- Fully bunded chemical shed
- Fully self sufficient – no grid power required
- Stepper motor diaphragm pumps for precise dosing.
- Flow proportional dosing – automatically doses based on flow rate
- Digital flow meters
- Suitable for PAC, poly and other flocculant.

Dosing units – Inline / Sediment ponds

Solar

Inline module

- Fully self sufficient – no grid power required.
- Stepper motor diaphragm pump for precise dosing.
- Flow proportional dosing – automatically doses based on flow rate
- Digital flow meter
- Suitable for PAC, poly and other flocculant.
- Can be mounted on the unit as pictured or as stand alone
- Used in conjunction with settlement tanks or inline settlement ponds

Water Quality Monitoring Units

- Either cloud based, Wi-Fi, Cell Network, satellite or Data Logger.
- Solar Powered (fully self-sufficient)
- Lightweight, compact and easy to us
- Measures PH, Flow Rate, Turbidity, and salinity (other meters can be added) all well renowned quality meters used
- Portal log in provided.
- Can provide reports and data for councils and records
- Has adjustable set points to alert when parameters are breached
- Has extra outputs so valves can be automatically opened and closed as needed.

Concrete washout

The units are designed to contain and treat wash water from the mixer truck washdown procedure after delivery of the batch on site. It can then be pumped to a secondary unit for further processes such as pH correction

Benefits

- Minimises environmental impact of concrete washout water and ensures compliance.
- Good practice for Health, Safety and Environment requirements on site.
- Provides a clean aggregate product and filtered water that can be neutralised for safe disposal.
- Frequent operation capability, using onboard water recycling system preventing high volumes of contaminated water to dispose of.
- Easy and fast to deploy or move around site

pH Correction

pH Correction tanks are designed to treat alkaline wastewater arising from concreting activities on sites.

This provides a simple but effective way of ensuring that environmental pollution concerns of high pH water, from such as concreting or grouting are safely met, by neutralisation. This ensures compliance with authorities such as the Environment Agency and Water board’s site water standards requirements.

- Stand alone and permanent solutions.
- Batch dosing or custom continuous flow options
- Minimises environmental impact of concrete washout water and ensures compliance.
- Provides clean water for safe disposal.
- Easy and fast to deploy or move around site.
- When used in conjunction with an EnviroHub and concrete washout unit, ensures clean water after solids removal.
- One correction unit can be used in conjunction with several concrete washout (CW) units.

Sludge Handling dewatering bags

Used to drain further liquid from EnviroHub tank waste or other sludges and fluids with high solids content.

Set up as a chain so sludge can flow from one to the next

Bag acts as a filter to release water to further dewater sludge

Bags can be reused.

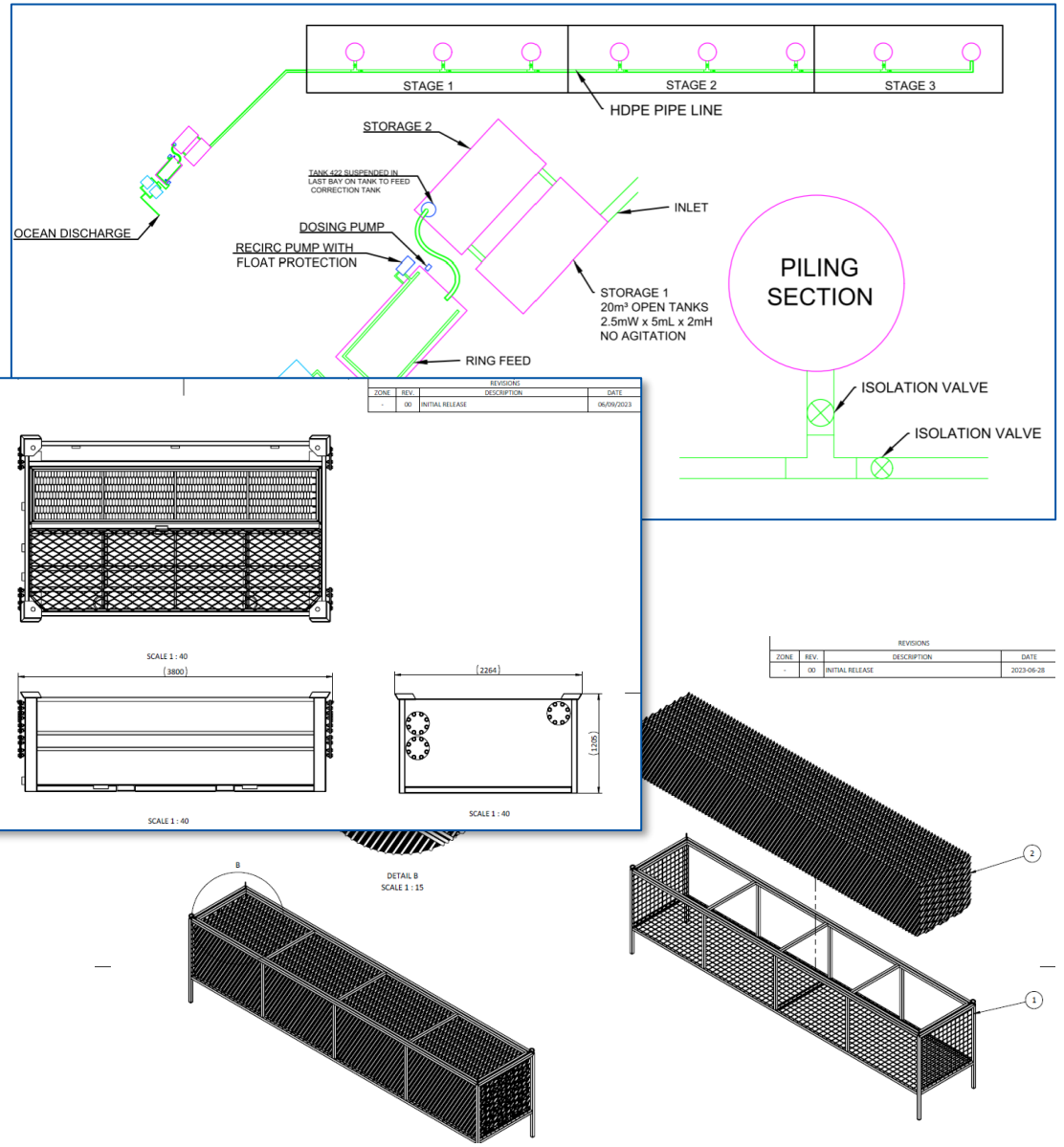
Custom design

Stand alone and in-built solutions.
We can design custom made solutions specifically for your application. This includes a specific methodology and products if required.

Team of highly skilled and experienced staff that can specify a specific solution according to your application.

The benefits of a custom solution

- ✓ Higher capacity, greater flow rates
- ✓ Storage as contingency in case of pH Correction failure (reduced risk)
- ✓ Full customizable to suit application.
- ✓ Peace of mind



Lab testing

We have partnered with a leading environmental supplies company to ensure we are compliant and that your project expectations are met.

- Bench testing
- Full laboratory
- Chemical treatment management plans (CTMP)

Get in touch

Talk to us today about how we can improve your site productivity through effective water treatment solutions.

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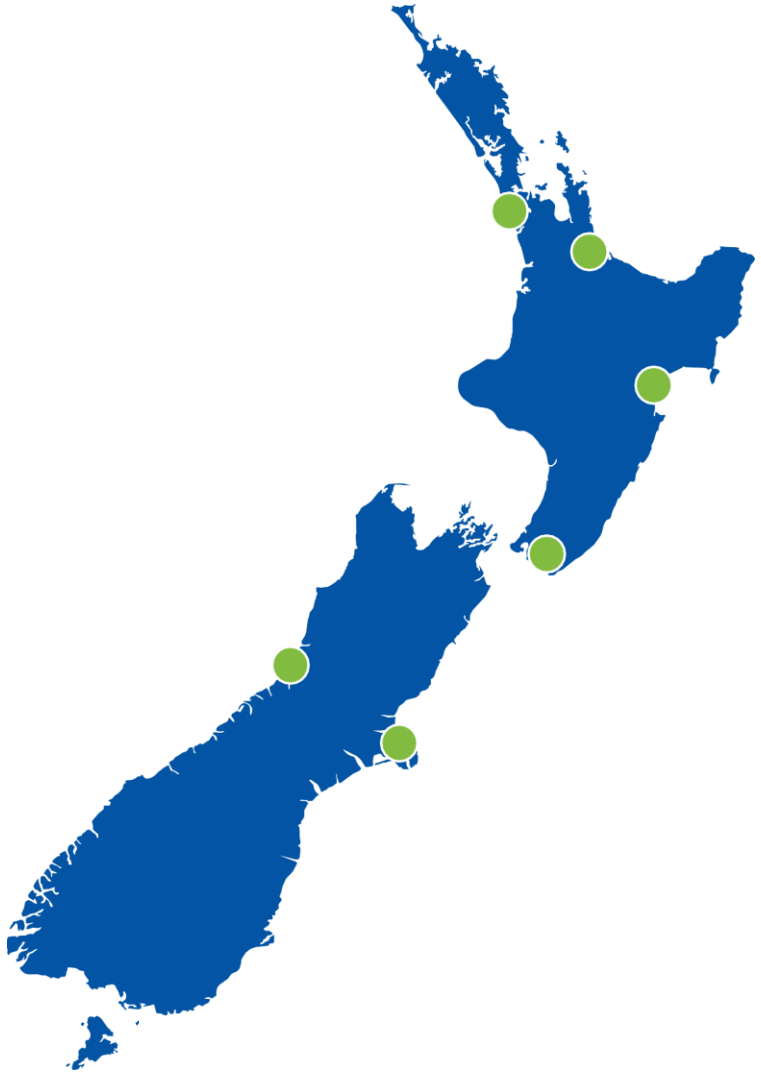

Expertise.
Equipment.
Results.

Sales & Hire Solutions

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