

**Before the Hearing Panel
Appointed by the Gore District Council**

In the Matter of

The Resource Management Act
1991 (**Act**)

And

In the Matter of

submissions and further
submissions on the Proposed Gore
District Plan

**Statement of Rebuttal Evidence of
Justin Gregory Ralston
for McNab Management Limited**

Dated: 21 November 2024

Lane Neave
2 Memorial Street
Queenstown
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lane neave.

INTRODUCTION

Qualifications and Experience

1. My name is Justin Gregory Ralston. I am a Senior Civil Engineer with Airey Consultants Limited.
2. I have the qualifications and experience set out at paragraphs [3] of my statement of evidence dated 7 October 2024.

Code of Conduct

3. Whilst this is not an Environment Court hearing I reconfirm that I have read and agree to comply with the Code of Conduct for Expert Witnesses in the Environment Court Practice Note 2023. This evidence is within my area of expertise, except where I state that I am relying on material produced by another person. I have not omitted to consider material facts known to me that might alter or detract from the opinions that I express.

SCOPE OF EVIDENCE

4. My rebuttal evidence responds to the section 42A Report of Victoria Woodbridge and Courtney Bennett for Gore District Council (**Council**). In particular, my rebuttal evidence will address the issue of the feasibility of servicing the land at 10 McKinnon Road, Gore (**Site**).

FEASIBILITY OF SERVICING THE SITE

5. As outlined in my primary statement of evidence there are numerous potential engineering solutions to provide three waters servicing to allow further development of the site. These can be investigated in more detail at the time of development. But servicing the Site is not an overriding limiting factor to the ultimate density determined.
6. There is a balancing act between density, potential yield and cost of infrastructure that should be considered with any rezoning request. while also taking due consideration to the longer term (30-50 years), so as to not limit future generations options. Planning mechanisms and/or Developers agreements can be used to provide more certainty on the timing, delivery and cost of infrastructure.

7. The Reporting Officers consider that, while there are options for how servicing can be achieved on the Site, it is unclear whether connections to Council's reticulated network would be economically viable and how this would work in practice.¹
8. We are in agreement with the Council Reporting Officer that the options to connect to Council's services can be worked through during the development and staging.²
9. On site options to provide water supply and disposal of wastewater are feasible possibilities if connections to council's services do not eventuate, but will provide constraints to further intensification in the long term (30-50 year).

WASTEWATER

10. Connection to council's reticulation is just one of three potential options for wastewater disposal and would future proof for subsequent intensification of the surrounding area and site in the long term (30-50 years).
11. With the uncertainty around demand and rates of growth and potential discharge volumes from the industrial area, a logical sequence of development would be to initially develop a centralise modular and scalable on site treatment and disposal system. That can be removed and replaced with a connection to the council's reticulation in the medium term (10-20 years).
12. On the viability of connecting to Council's services, we can provide the following rough order of costs for construction, based on projects of a similar scale recently completed outside the District. This is set out below.

Option 1 (Connect to Council Network)

13. The anticipated costs for Option 1 are as follows:
 - (a) A 2.23km rising main would cost roughly \$300-\$350 per linear metre (\$670k)
 - (b) Pump station would cost roughly \$1m
 - (c) **Total:** =\$1.67m
14. Note that limited initial flows and slow growth would need flushing.

¹ Section 42A Report – McNab Management Limited Submission, at para [150].

² Section 42A Report – McNab Management Limited Submission, at para [150]-[151].

Option 2 (Individual On-Site Disposal)

15. The anticipated costs for Option 2 are as follows:
- (a) On site treatment for residential 42 lot @ \$25-30k each = \$1,05m to \$1.62m
 - (b) Industrial (assume minor producers like Res) 67 lots @ \$25-\$30k each = \$1,675m to \$2.010m
 - (c) **Total** = \$2.725m to \$3.36m
16. Note cost borne by lot purchaser, limited future upgrade options, industrial discharges hard to predict.

Option 3 (Centralise On-Site Treatment)

17. The anticipated costs for Option 3 are as follows:
- (a) Aubin system or similar to Gibbston Tavern system. See attached 250k per 20m³ + disposal fields at **Appendix A**;
 - (b) 42 lots x 2m³ per lot – 84m³/20 = 4.2 units @\$300k (\$1.260m)
 - (c) 67 lots x 2m³ per lot = 134m³/20 = 6.7 units @ \$300k (\$2.01m)
 - (d) **Total** = \$3.27m.
18. Note the Aubin system modular reusable can grow with development. Future connection to Council system is still possible.

Water

19. With water usage and uncertainty around demand and rates of growth and potential industrial usage, the logical sequence would be to design the development around a centralise modular and scalable potable water treatment system. That can be removed and replaced with a connection to the council's reticulation in the medium term (10-20 years).
20. On the viability of connecting to Council's services, we can provide the following rough order of costs for construction, based on projects of a similar scale recently completed outside the District. This is set out below.

Option 1 (Connect to Council Network)

21. The anticipated costs for Option 1 are as follows:

- (a) A 1.85km rising/falling main would cost roughly \$300-\$350 per linear metre (\$555k)
- (b) Booster pump would cost roughly \$350 - \$500k
- (c) **Total = \$0.9m**

Option 2 (Individual On-Site Disposal)

22. The anticipated costs for Option 2 are as follows:

- (a) Containerised treatment plant (see attached Ranfurly/Pateroa upgrade, **Appendix B**) at \$800k=\$1.3m
- (b) Bore and head workings at \$200k
- (c) **Total = \$1.5m**

23. Note additional storage tanks also required. Roof water and water reuse could be investigated.

CONCLUSION

24. Based on the above high level order of costs, I believe that ultimately connecting to Council's system is viable and limits on the density of the development should not be placed on the rezoning due to servicing constraints.



Justin Ralston

21 November 2024

ANNEXURE A - AUBIN SYSTEM - 250K PER 20M³ + DISPOSAL FIELDS

HYDROS

BY **AUBIN**
ENVIRONMENTAL



**SMART SEWAGE TREATMENT
FOR A CLEANER TOMORROW**

Your Sewage Solution.

Developed over 10 years, HYDROS has evolved to become one of the smartest, most efficient modular sewage treatment plants available on the market, without breaking the bank.



Meets all Government and Council Regulations

At Aubin Environmental, we have spent years perfecting HYDROS to ensure it meets all government regulations concerning your waste management and disposal well into the future.

Our extensive experience can even allow us to help you with any application processes if required.



Automated, Remote Monitoring Laboratory

We often get asked "how do we know if the system is working? Do we need an expert?" The answer is ROBOLAB, our remote access laboratory that both you and us can access 24/7 to check treatment quality and more.



We've always got your back, anywhere.

Our philosophy of "no one gets left behind" means we've got your back, no matter where you are in the world. With the ability to monitor your system remotely using our WATCHDOG System we're always there for you.

HYDROS is an Australian made, smart sewage treatment system designed specifically for commercial-sized organisations that aren't connected to mains sewer. This remote controlled sewage treatment plant doesn't just take away your sewage; it removes all the headaches too.

Who is Aubin Environmental?

Aubin Environmental are a collective of passionate scientists and engineers, dedicated to the field of waste management and treatment.

They are a part of the Global Group of companies, an industry leader in Environmental Protection and Waste Treatment, with an annual turnover of \$25M and over 40 years of history, which means you can feel comfortable knowing our part in a larger organisation means we will be around long into the future.

Our key people.

STEVE PEREIRA

Aubin Environmental's Founder and Managing Director, Steve is an innovative environmental professional with more than 20 years' experience in environmental solutions. Steve is well known for always going above and beyond to look after his customers.

ROBERT WATSON

A successful entrepreneur since the 70's, Rob has a passion manufacturing and supporting good businesses that last. As the head of Global Group, he provides ongoing business guidance and support.

GREG LORIOT

Our workshop manager and fitter, Greg is responsible for the construction of each HYDROS. He is an artisan in his field and has skill on the tools that's rarely found these days. He can build anything, and is responsible for training our elite squad of workshop professionals.

BRADLEY MCCLEAN

Brad was previously head process manager at Werribee Sewage Treatment plant. We are indeed fortunate that he was drawn to our philosophy of innovation, because his depth of understanding of the sewage treatment process is unparalleled.

TONY TRUMAN

Tony brings an irreplaceable wealth of engineering, knowledge and youthful creativity that belies is 80+ years of age. Having worked in environmental chemical engineering since it first emerged, including projects with the CSIRO, he's a legend in our industry.

OUR CLIENTS

Most importantly, our clients become members of our family too. We genuinely enjoy developing these relationships and enthusiastically help all our clients in any way we can, from EPA applications or audits, process engineering, or any other issue that pops up.



Why choose HYDROS.



Plug & Play Installation

The intelligence of the HYDROS system allows for a simplistic plug-and-play application, that is capable of bolting on to any existing systems.



Smart Lab Monitoring

RoboLab lets you monitor your HYDROS System 24/7. This means you're in full control, always. It also means you're able to identify problems before they exist!



Government Requirements

The HYDROS system is designed to always meet Government and Council regulations for waste disposal, giving you peace-of-mind for years to come.



Scarce Resource Recovery

HYDROS, in a league of its own, is unique in its ability to recover scarce resources in the waste it treats, making them available for agriculture and remote community restoration applications.



Modular & Out-of-the-Box

HYDROS has been designed to be simple to install, and easy to scale. We have designed it to be completely modular, meaning HYDROS can handle any size application, anywhere in the world.



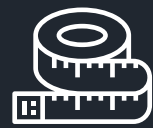
Robust & Built-to-Last

We've stripped away all of the unnecessary, convoluted hardware seen in so many systems around the world and condensed HYDROS into a serious beast when it comes to being robust and built-to-last.



Easy Maintenance

Any member of your maintenance team can operate and look after your system, and like we mentioned before, you're never alone. That means if you need help, we're right here when you need us.

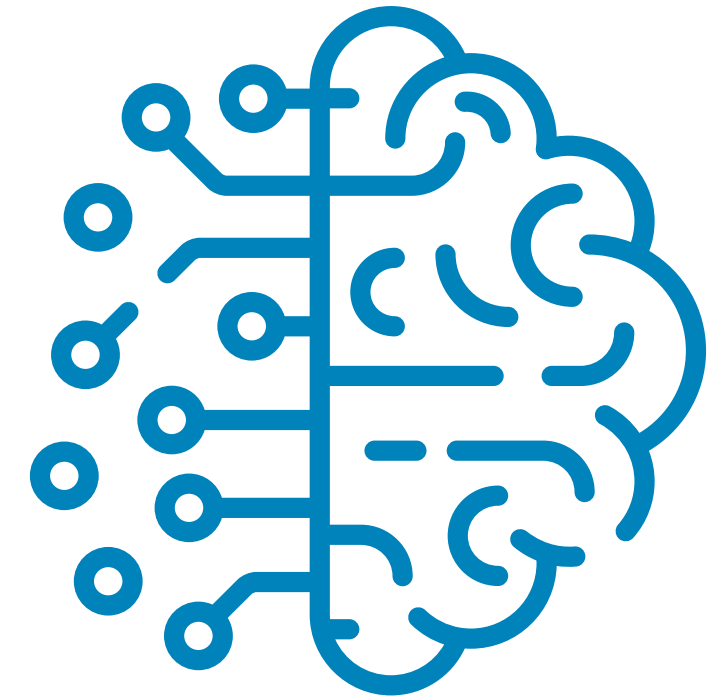


Tailored to your Operation

So many systems in the world are "one size fits all". This concept doesn't work for us, because we know that every site has different requirements. That means we tailor your system to suit exactly what you need.

“The HYDROS System is built inside of a modified shipping container eliminating the headaches of custom installation, transportation or scalability.”





Remote System Monitoring.

Every HYDROS Smart Sewage Treatment Plant features our proprietary ROBOLAB and WATCHDOG systems, allowing for remote laboratory monitoring and maintenance. Using a combination of WATCHDOG sensors and CCTV we're able to monitor everything that is happening inside of your plant. This means we can see potential problems before they can occur, resulting in lower maintenance costs and downtime.

Our ROBOLAB system is capable of remote testing and giving real-time results, meaning at any point in time, you can see how stressed your system might be, the quality of water it's producing and the health of each treatment tank.



The Benefits of Remote Monitoring

Total System Transparency

At any given time we can see exactly what's happening in your system, and so can you. This means superior fault-finding, ensuring government compliance within discharge parameters and overall health monitoring of the treatment process.

Pre-Maintenance Alerts

If a failure is detected, an alarm is immediately sent to all nominated representatives (*AUBIN and/or site crew*) and the standby pump is automatically activated to allow continuity of the treatment process, giving maintenance staff days (*not minutes or hours*) to replace the faulty pump.

All equipment is **plug and play**. It's a simple matter of unclipping any faulty equipment, putting the replacement into position, and plugging it in. With maintenance being so easy and achievable, **it actually happens**, meaning the machine is maintained and always in excellent condition. There is also a built-in 'live' maintenance schedule that sends task lists for any upcoming routine maintenance.

24/7 Health Monitoring of Plant

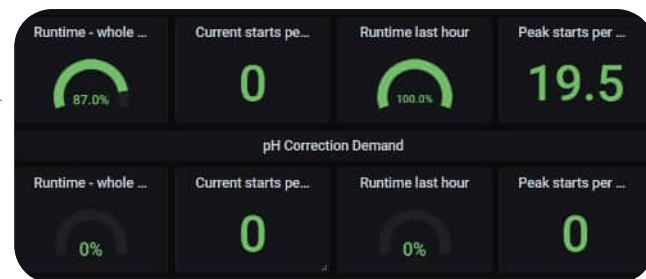
ROBOLAB automatically collects and analyses samples that provide information, that has never been available online. This information **is the only** way to truly understand if a treatment system is fundamentally healthy, and foresee failure of the biological ecosystem, enabling the prevention of the discharge and reuse of dangerously untreated effluent.

Remote Access Assistance, Anywhere.

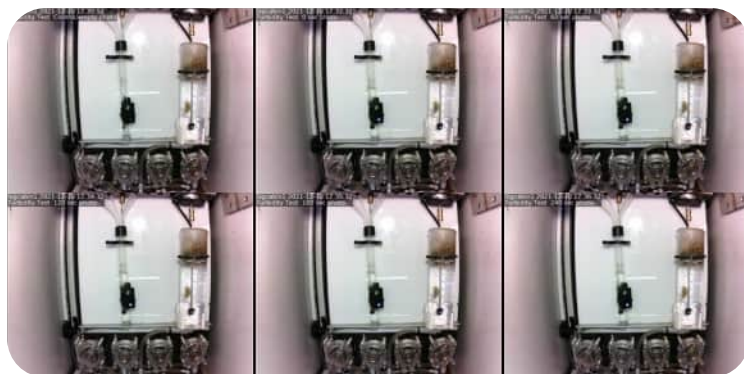
Not only is it important to receive alerts and warnings well in advance, but our philosophy of "No Man (or Woman) Gets Left Behind" means our team of engineers is ready to assist from anywhere in the world. This means **you have our full support, always**.



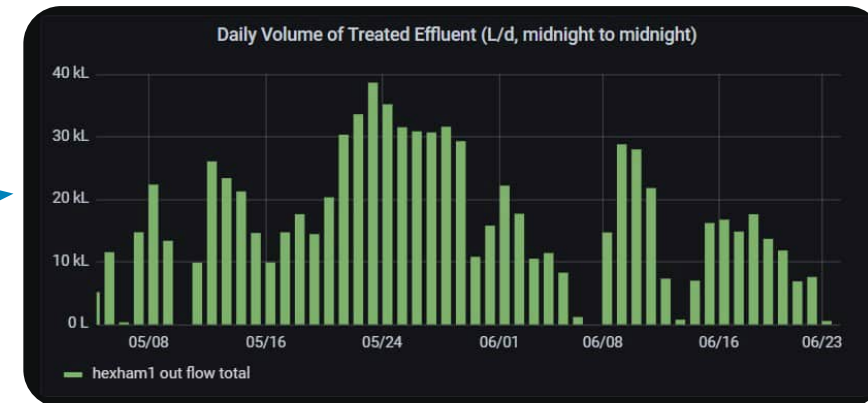
General System Overview



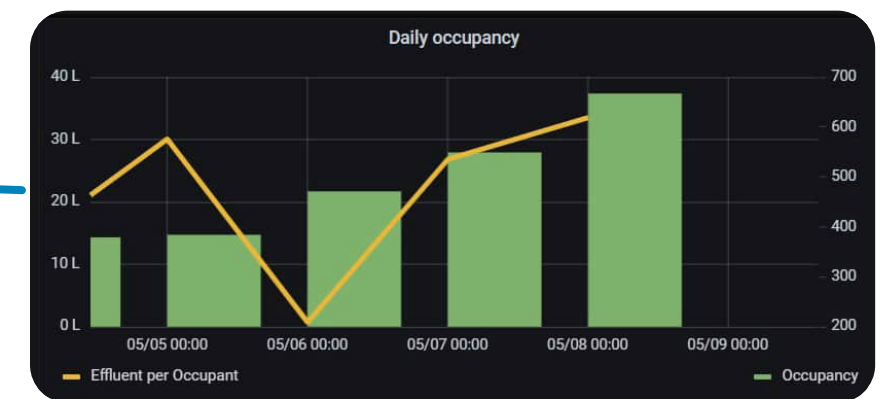
System Statistics



ROBOLAB Remote Video Monitoring



Daily Treated Effluent Graph



Daily Occupancy Graph



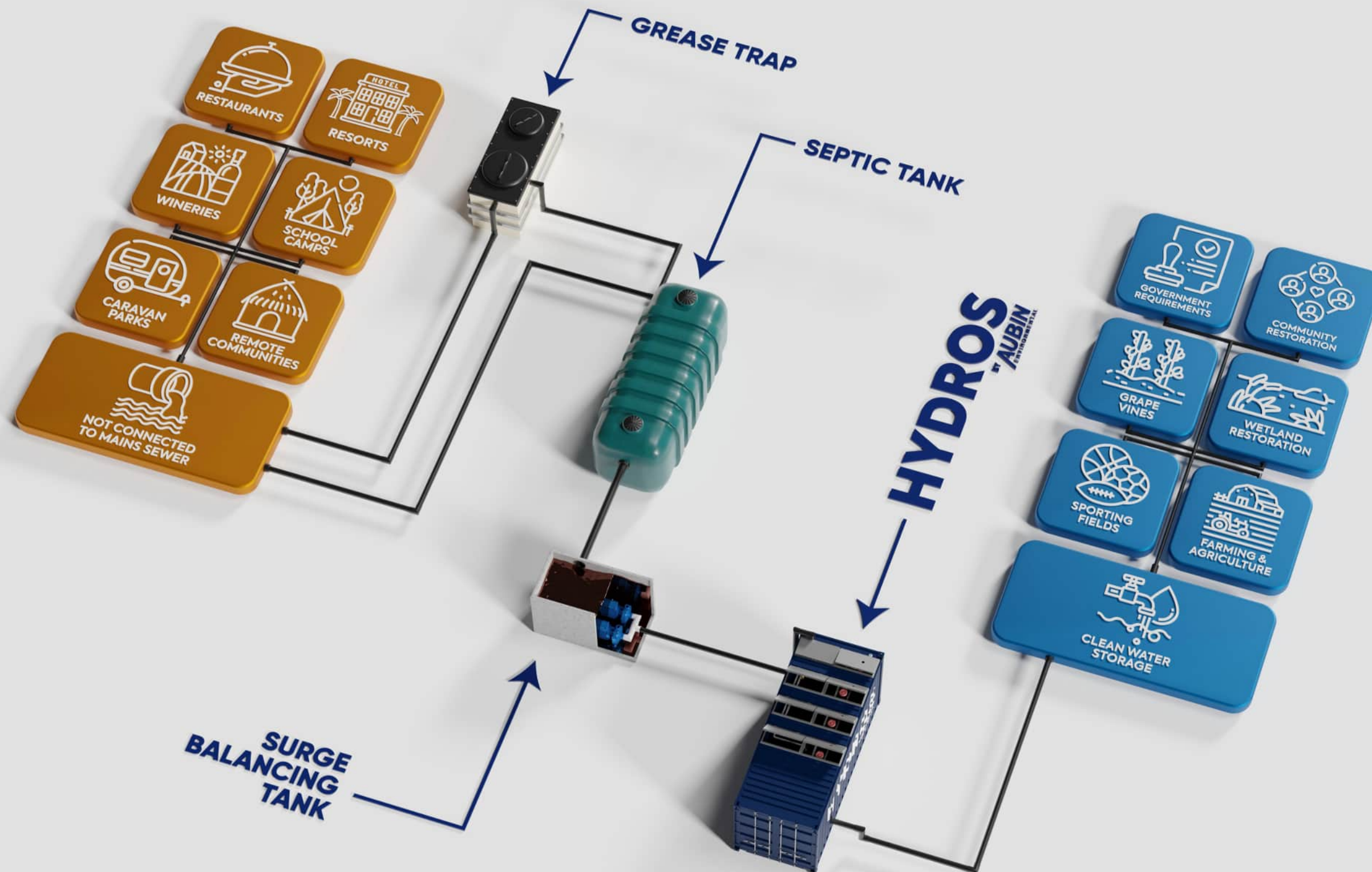
PH & DO Monitoring Graph

Device	Active	Health
Airlift blower 1a	●	●
Mixer 1	●	●
pH mixer	●	●
Raw pump B	●	●
Aeration blower 2	●	●
Aeration blower 3	●	●
Airlift blower 1b	●	●
CIP drum level	●	●
Computer voltage	●	●
Container temperature data	●	●
DC circuit breaker	●	●
DO controller data	●	●
Emergency Stop	●	●
Mains power	●	●
Mixer 2	●	●
Mixer VSD	●	●
Panel temperature data	●	●
pH controller data	●	●

Easy Recognition Traffic Light Monitoring

Flow Schematic.

Capable of **plugging into practically any existing system**, HYDROS sits downstream from your **grease trap & septic tank or septic tank only** set-up. We ensure a **surge-balancing-tank** is installed to manage over-flow, and finally **HYDROS is connected** to process all of the waste, leaving your with beautiful, **clean water to use in a variety of applications**.



Specifications.

Treatment Capacity	Single units: 5, 10 or 20kL per day Combinations can cater for up to 500kL per day.
Treatment phases included in the shipping container	» Aerated digestion of raw contaminants (BOD and NH3) » Anoxic digestion of aerobic by-products (aka nutrient removal or de-nitrification) » Gravity clarification for solids removal » Disinfection (multi-pass UV, or chlorine)
Treatment phases not included	It's designed to be modular to reduce cost by reusing equipment already on site or standard equipment that is already available locally. These include: » Grease trap » Primary treatment tank (septic tank, anaerobic digester) » Surge buffer tank and raw water pumps » Treated effluent storage and disposal In all cases AUBIN engineers design this part of the system. We can help find it locally or include it in our scope of supply if that ends up being the cheapest and easiest option for you.
ROBOLAB	The automated water quality laboratory automatically uploads results to AUBIN's cloud server. These are directly available to you at all times, letting you see: » Ammonia, nitrate and nitrite (batch samples) » Beneficial bacteria volume and health (batch samples) » Dissolved oxygen (continuous) » Turbidity/clarity/suspended solids (batch samples) » Daily flow profile and total daily effluent volume
Alarms	Automated alarms can be emailed or SMS'd to any nominated personnel, including AUBIN engineers. Standard alarms include water quality and pump or air blower failure. Other alarms required for your site can be added to the onboard computerised system.
Typical target effluent quality	The standard units achieve better than Class C, which is the most common set of effluent quality parameters. BOD <20 mg/L Suspended solids < 30 mg/L Coliforms 1000 cfu/100ml
Custom effluent quality targets	Some sites are required to achieve better than Class C effluent quality when located in sensitive environments or with little to no buffer distances. We have variations available that can meet any of these circumstances.
Power	240V AC, 10A domestic supply (no 3-phase power is required).
Maintenance requirements	All systems have been designed to be easily repaired or maintained by domestic plumbers, maintenance contractors or your local handyman.

Flow Guide.

Contributing Source	Daily Flow * (Litres/person)	Organic Load ** (g BOD/person/day)	No. of persons (unless noted)
Residential Flats and Units			@ 2.5 persons/unit. ie Toilet 15L, Bathroom 50L, Laundry 45L plus misc. 40L
"A" Rated	125 - 180	45 - 55	
"AA" Rated	100 - 150	45 - 55	
"AAA" Rated	80 - 125	45 - 55	
Established Residential Housing	125 - 180	50 - 60	3.0 persons/house
New Subdivisional Schemes	150 - 200	60 - 75	3.5 persons/allotment
Casual Camping Sites	75 - 125	40 - 60	2.5 residents per site
Hotels, Motels & Guest Houses			
Bar Trade	5 - 8	5 - 10	Per customer
Per Resident Guest	100 - 180	30 - 40	1.5 per room
Per Bar Attendant	750 - 1200	75 - 150	Effective full time
Hospitals - Nursing	200 - 500	90 - 200	per patient bed
Restaurants			
Premises with less than 50 seats	30 - 50	40 - 65	
Premises with more than 50 seats	20 - 35	28 - 45	
Eating Houses	12 - 15	18 - 25	
Tea room / Coffee shop	5 - 8	8 - 12	
Shops & Shopping Centres			
Per employee	10 - 15	10 - 15	5 persons per 100m2
Public Access	5 - 8	3 - 10	10 persons per 100m2 retail floor area
Factories, Offices, Childcare Centres	15 - 25	10 - 20	5 persons per 100m2 excluding laundry
Schools & Day Training Centres			
Day Students	10 - 20	10 - 15	50 per 100m2
Student Boarders	100 - 150	45 - 60	Staff included
Conference Facilities & Refreshments	10 - 30	15 - 35	
Public Recreation Areas			
Meeting Halls & Sports Centres	~ 2	~ 1	50 per 100m2
Picnic Areas/Wine Tasting & Theatre	~ 3	~ 1.5	-
Golf Clubs, Private & Social Clubs	~ 10	~ 3	100 per 100m2
Basketball, Squash and Golf Courses	~ 5	~ 2	20 per court / 400 per 18 holes
Miscellaneous			
Laundries - per wash load	85 - 145	40 - 65	8 loads / machine / day
Shower & Bath Facilities	35 - 65	5 - 8	Use per person

SOURCE: EPA Victoria

Note: Variations of 25% in hydraulic flow are possible for each water reducing stage. The range of values listed above for AAA to A ratings are the best available at this time. Investigate each case at design stage, especially if there is an existing system or if more water efficient appliances and taps are to be used.

* Daily flow varies according to number and type of water efficient appliances used. Flow figures are per person, per day unless otherwise noted.

** Organic Daily Loadings may be averaged over population served per week and/or waste management procedures implemented.

Case Study.

Log Cabin Camp, Victoria

Log Cabin Camp is an adventure camp in Creswick, Victoria, which caters for up to 160 children and adults. After it was purchased by owners, Grant and Christine, they soon realised that the toilet waste system wasn't up to EPA standards.

"As a camp with kids, we didn't want to risk putting anything harmful into the environment," says Christine. "But we also hadn't expected to face such a big overhaul so early on." So, Grant and Christine contacted Aubin to see could be done.

We saved them money by integrating HYDROS with their existing tanks. Our free, continuous monitoring ensured that their treated water was always clean, and they now store it to keep play areas green in dry months. We also helped them use that water to create a new wetland area, which is attracting birds and wildlife to the camp.

"We're so happy with the help they've given us," says Grant. "The wetlands are a great addition and HYDROS works brilliantly. I can't recommend them highly enough."



Testimonials.

//

AUBIN thoroughly reviewed ours, the local council's and the EPA's requirements and designed and developed a very efficient custom system tailored to our needs. Stephen's technical understanding and professional approach was invaluable and enabled us to meet our environmental, regulatory and budget requirements.

The team at AUBIN possess a confidence inspiring level of knowledge and engineering abilities. Knowing I can refer to them at any time to work through my installation issues has made the difference between success and failure. Thanks guys.

//

Our Partners



CropBioLife

ATLAS
BLUE2

aws
ARCHITECTURAL WATER SOLUTIONS

CQuest

A large, dark blue hexagon is centered on the page. Inside the hexagon, the text "Get in touch." is written in a bold, white, sans-serif font. The text is arranged in two lines: "Get in" on the top line and "touch." on the bottom line.

**Get in
touch.**

15 Fordson Road, Campbellfield

www.aubin.com.au

1800 921 464

TREATMENT PROCESS AND DESIGN OVERVIEW

The HYDROS sewage treatment plant has been reverse engineered specifically to comply with modern regulatory requirements and 'world best practise', now and many years into the future.

HYDROS-20k is the standard plant and is based on producing Class C / B standard effluent. This is effluent quality that regulators require for most sites. The treated water is normally reused for irrigation purposes (either agricultural and horticultural) or discharged into surface waterways in low-risk areas



FIGURE 1: HYDROS advanced sewage treatment plant

The HYDROS treatment plant is normally installed into an overall process as shown below. This may vary depending on your site activities. Please ask your AUBIN representative for advice.

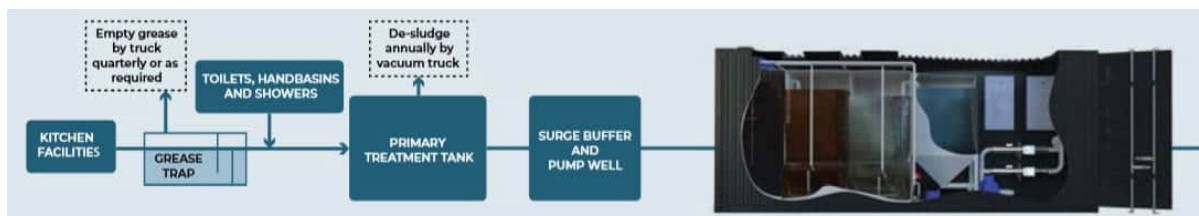


FIGURE 2: HYDROS advanced sewage treatment plant overall schematic



SCOPE OVERVIEW

INCLUDED:

- Septic tank and flow balancing tanks
- HYDROS-20k
 - Anoxic denitrification
 - Aerobic activated sludge (aerated)
 - Gravity clarification
 - UV disinfection
 - Class C standard effluent
- Delivery
- Installation of the treatment system
- Wet weather storage tanks
- Irrigation system design
- Commissioning (excluding independent laboratory testing)
- Intensive operational support and training for minimum of 12 months (online)

EXCLUDED

- Irrigation system supply and install

These can be included following detailed site inspection and design.

HYDROS-PRO SPECIFICATIONS

Treatment capacity	20 kL/day peak flow rate (nominal, based on standard domestic sewage characteristics)
Waste type	Sewage only (no industrial or trade waste)
Target effluent quality Class B	BOD <20 mg/L Suspended solids < 30 mg/L Coliforms < 1000 org/100ml (average) ~~Media filter upgrade~~
Noise	The blowers are approximately 50dB, at 1 meter, but this noise is baffled by being mounted within the shipping container.
Odour	Minimal buffer distance is required as the primary treatment tanks are sealed and the secondary treatment is reliably aerobic and this produces only a benign musty smell that is not offensive. Note that if poly tanks are used for the primary treatment works then extra works may be required to seal these effectively or apply odour extraction (fan-forced ventilation) if odours become a nuisance.
Power requirements per container:	Single phase, 240VAC, peak draw is < 2kW (intermittent, on-demand)

O & M COST ESTIMATES

ALL ROUTINE MAINTENANCE CAN BE COMPLETED BY ONE 'GARDEN VARIETY' HANDY MAN.

Actual consumption of consumables depends on site specific variables such as raw water quality (salinity, alkalinity etc).

Power consumption will also vary. The control systems operate powered items on demand only, minimising total daily consumption to the minimum possible.

The following tables provide an indication of typical consumption rates.

Consumables	Frequency (months)	\$ / occasion	Annual Consumables	5-Year Service
Annual access fee for online dashboard	12	300	\$300	
Chemical Refill - CIP cleaning solution	2	\$60	\$100	-
Chemical Refill - pH correction solution	as required (on demand)			
Chemical Refill - ROBO-Lab Reagents ('swap and go')	2	\$60	\$360	-
Cleaning - pH and DO probes	2		nil	
UV Lamp	12	\$350	\$350	-
UV recirculation and discharge valve actuator	12	\$75	-	\$75
Dissolved oxygen and pH probe replacement	12		\$450	
4G internet, if required (aldi mobile or equivalent)	12	\$95	\$95	-
Diffuser plates	24		\$175	\$350
UV PSU	60			\$350
Paddle mixer motor replacement	60		-	\$350
Air blower replacement	60	\$499	-	\$1,497
Supply pump	60		-	\$490
WAS valve actuator	60	\$45	-	\$45
			\$1,830	\$3,157

Monitoring and Maintenance Contract

AUBIN provide the following service for **the first 12 months free of charge** (included in the purchase price).

We can provide this service on an ongoing basis under contract. The scope of supply includes:

- Review of alarms and manage any actions required
- Routine health checks (fortnightly)
- Supply of all spares and consumables
- Routine maintenance and servicing

This contract does not include emergency call outs and is reliant on working in conjunction with a designated site operator for onsite duties.

Frequency	Action	Purpose and Outcomes
365 days / year	Review alarms and alerts	Every alarm is reviewed and understood, any actions required are managed by AUBIN through to completion.
Fortnightly	Online diagnostics and health check	Early detection allows preventative actions: Key performance indicators (KPI's) are reviewed to identify trends that may eventuate in non-compliance or inefficient operation such as overconsumption of dosing chemicals etc.
		Key performance indicators include: Bio-reactor Health - Bacterial population size, age health, physical state, interpretation of supernatant characteristics Treated Effluent Water Quality Parameters - pH, oxygen demand, ammonia, nitrate and nitrite. System alarm status Dosing chemical consumption rates
		Drive and manage any investigation or corrective actions that are required.
Quarterly	Site inspection (conducted by AUBIN representative) **	Visually inspect all aspects of the treatment system
		Clean and calibrate DO and pH probes
		Conduct routine maintenance as per maintenance schedule
Quarterly	High level desktop engineering review of system performance	Overall assessment of meeting effluent water quality targets.
		Team meeting to discuss historical records and system performance
		Identification of any recurring or systemic issues
		Identification of any possible improvements, prioritising quality control over effluent quality and improving O&M costs.
		Implementing continuous improvement upgrades as they become available, and are approved by the client.
Annual	Performance report	Compliance statement
		Tabulated summary of all external laboratory results
		Summary of all key performance indicators
		Summary of all recurrent and significant alarms, failures and repairs
		Recommendations for future improvements - immediate and long term

YOU ARE NOT ALONE – WE CAN HELP ONLINE

Development of the revolutionary biochemical health testing laboratory has made it possible for us to provide top level biochemical engineering support without the prohibitive cost of site visits.

All sewage treatment plants are living biological organisms. They are basically like a big fish tank.

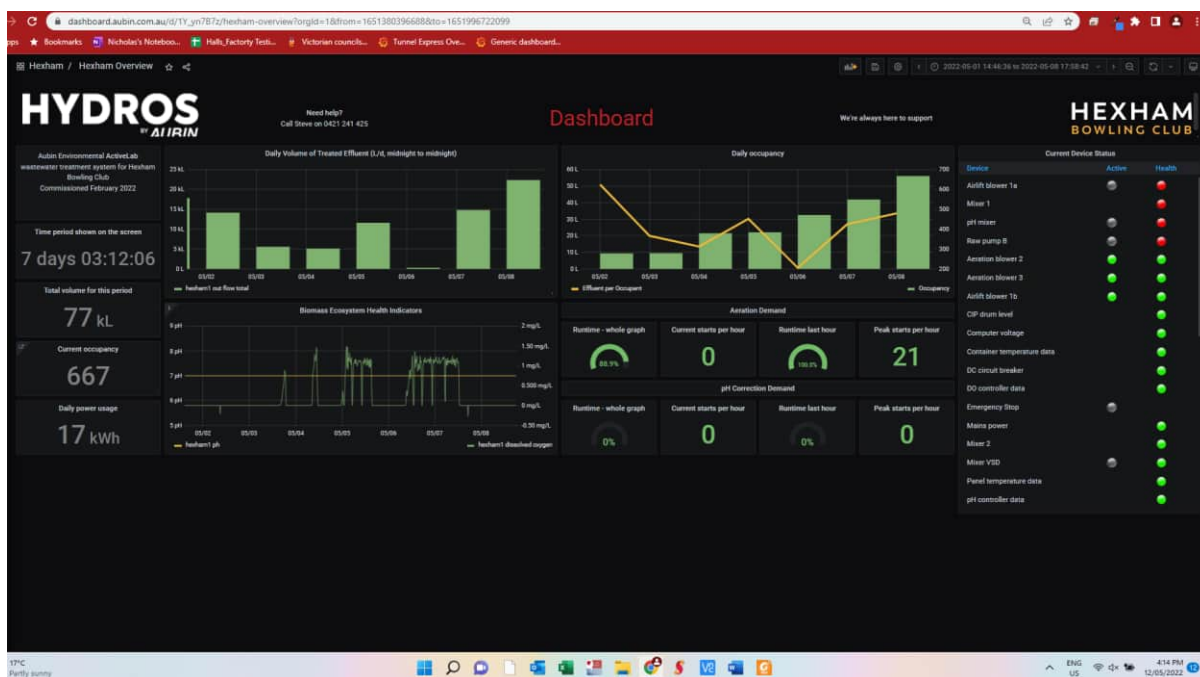
That's why we invented ROBO-Lab. It is a world first fully robotic, chemical engineering water quality test laboratory.

ROBO-Lab is continuously monitoring key performance indicators of biological health, and sends **EARLY WARNING** alerts, when precursors to poor effluent quality are detected.

The extent of insight into plant health goes beyond anything currently available within this budget. It is a world first and AUBIN own a patent held world-wide for this affordable technology.

ROBO-LAB

ROBOTIC FIELD LABORATORY & ONLINE PORTAL



DASHBOARD IS AVAILABLE ON ANY INTERNET BROWSER.



12 MONTH COMMISSIONING – THROUGHOUT ALL SEASONS

AUBIN include 12 months intensive operational support so that we can ensure the plant performs in all variety of annual and seasonal variables.

This is primarily based on remotely monitoring ROBO-Lab and CCTV data but will also include site visits as required.

Truly effective commissioning should occur over a representative period of time because the plant should be observed during all the various conditions that it will be expected to deal with.

AUBIN ARE SPECIALIST PROCESS ENGINEERS

AUBIN is owned and operated by career sewage treatment chemical engineers and scientists.

Every AUBIN project design is completed by the professional team and then subjected to professional peer review. These same individuals remain in the team that then commission the plant and closely monitor performance, adjusting and fine-tuning variables as they go, and are available for technical advice on call forever.

ELIMINATE SPECIALIST MAINTENANCE

AUBIN has deliberately eliminated the use of any system components that require specialist expertise for routine operation and maintenance. With our online technical support all of our plants can be installed, maintained and repaired with 'handyman' standard expertise on site.

LIFETIME TECHNICAL SUPPORT ON CALL

It's critical that every site operator have access to properly qualified water treatment engineers. No technology or robot will ever eliminate the need for some expert support entirely (although we're getting closer!). Note the distinction between sewage plant salesmen / distributors / on-sellers and sewage plant technical specialists. It's not always immediately obviously, but eventually the difference is unmistakable. At AUBIN, our systems are sold by sewage plant engineers and scientists, and our team offer lifetime technical support.



COMPANY PROFILE

AUBIN's customers have the comfort of dealing with a substantial sized company that will be around for a long time into the future.

AUBIN Environmental is a member of The Global Group of companies. The Global Group was started in 1991 by Rob Watson (AUBIN Environmental director) when he started Global Spill Control, a company specialised in development and manufacturing oil spill containment and clean-up equipment.

Global Spill Control are now the market leader in Australia and over the years he has started various other companies with specialists he's met through his travels, and there are now 5 companies in the group. The annual turnover of the group is now in excess of \$25M.

AUBIN was started in 2012 as a special purpose vehicle for the reinvention of technical waste treatment and recycling equipment, focused on waste water and industrial air pollution.

My name is Steve Pereira – scientist, engineering and product development, book keeper, sales, marketing and office cleaner. I am proud of our work at AUBIN because we have built ourselves the capability to reinvent and innovate from the ground up and I get to work with people who challenge and inspire me.

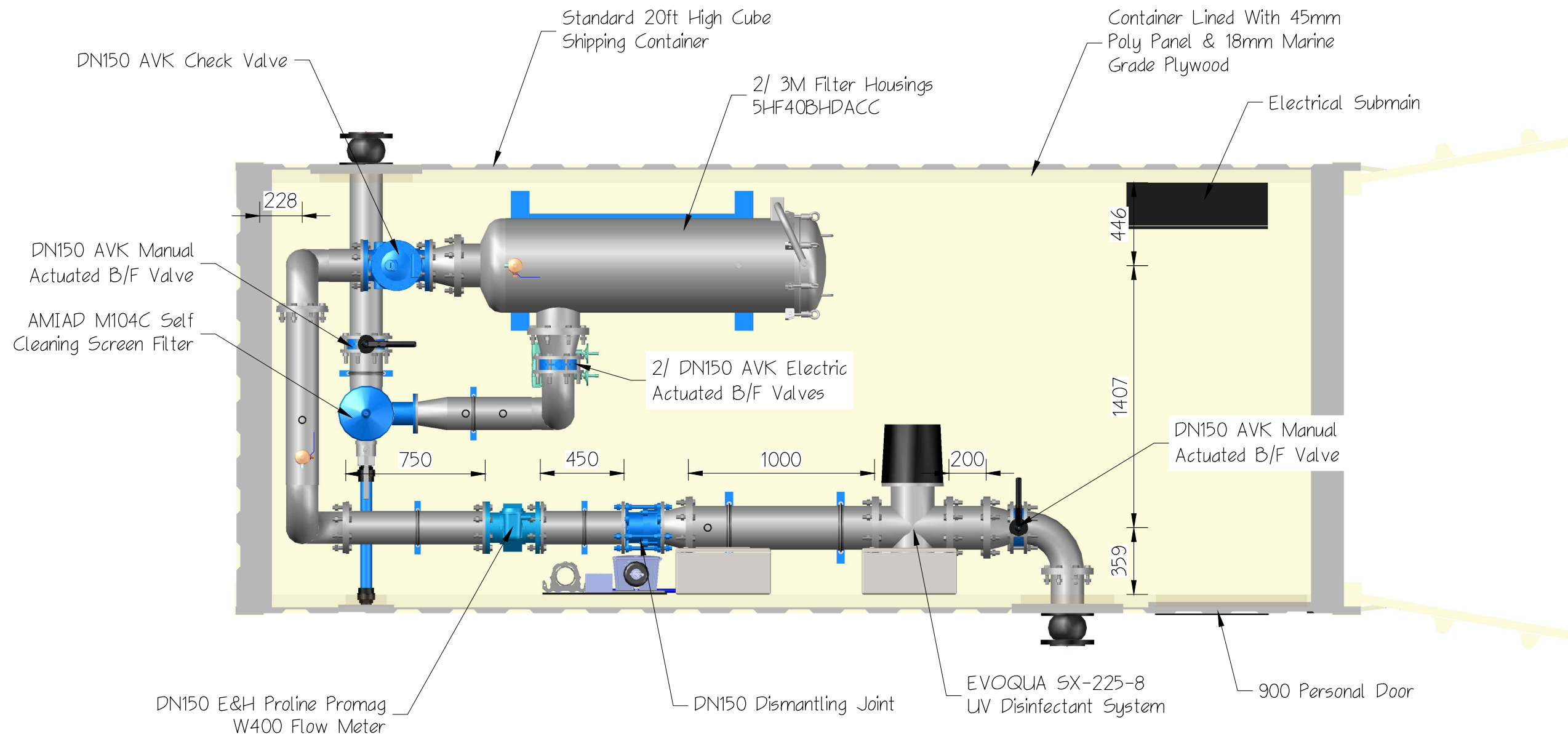
Rob Watson is my business partner. He's been a successful entrepreneur since the 70's. He has a passion for creating new things and supporting others to build good businesses that last.

Tony Truman, chemical engineer, and I have worked together for over 15 years. He brings an irreplaceable wealth of engineering, knowledge and youthful creativity that belies his 80+ age. He has been at the forefront of environmental solutions since the 1980's when environmental engineering first emerged, including working with CSIRO and Seghers (Germany) during the development of sewage treatment package plant technology and contributing high level engineering skills to sewage plants of all shapes and sizes over the past 50 years.

Bradley McClean is also our principle chemical engineer. He was previously head process manager at Melbourne Water's Werribee Sewage Treatment plant. He knows everything about sewage treatment. We are indeed fortunate that he is drawn to our drive to innovate and improve because his knowledge and depth of understanding of the sewage treatment process is unparalleled, and adds immense value to project outcomes.

Our clients - most importantly, our clients become members of our family too. We genuinely enjoy developing these relationships and enthusiastically help all our clients in any way we can. We are often making ourselves useful and can be called upon for advice on everything from EPA applications or audits, process engineering, waste, or any other bizarre issue you come across!

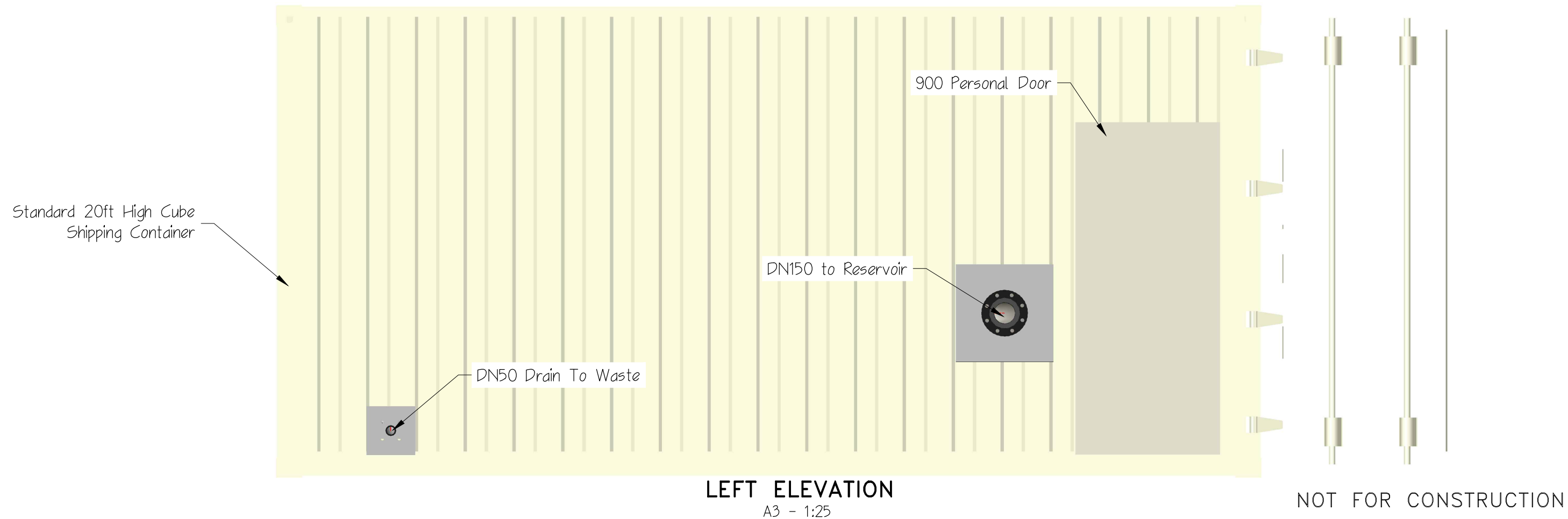
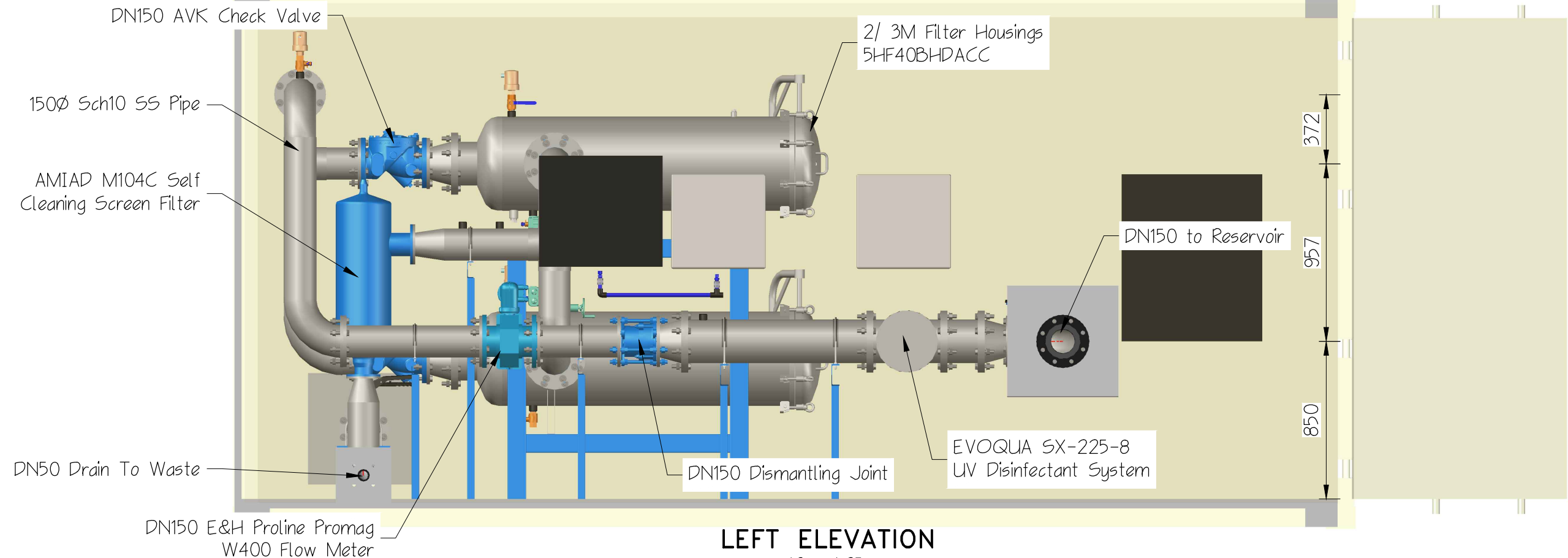
ANNEXURE B - Ranfurly/Pateroa upgrade



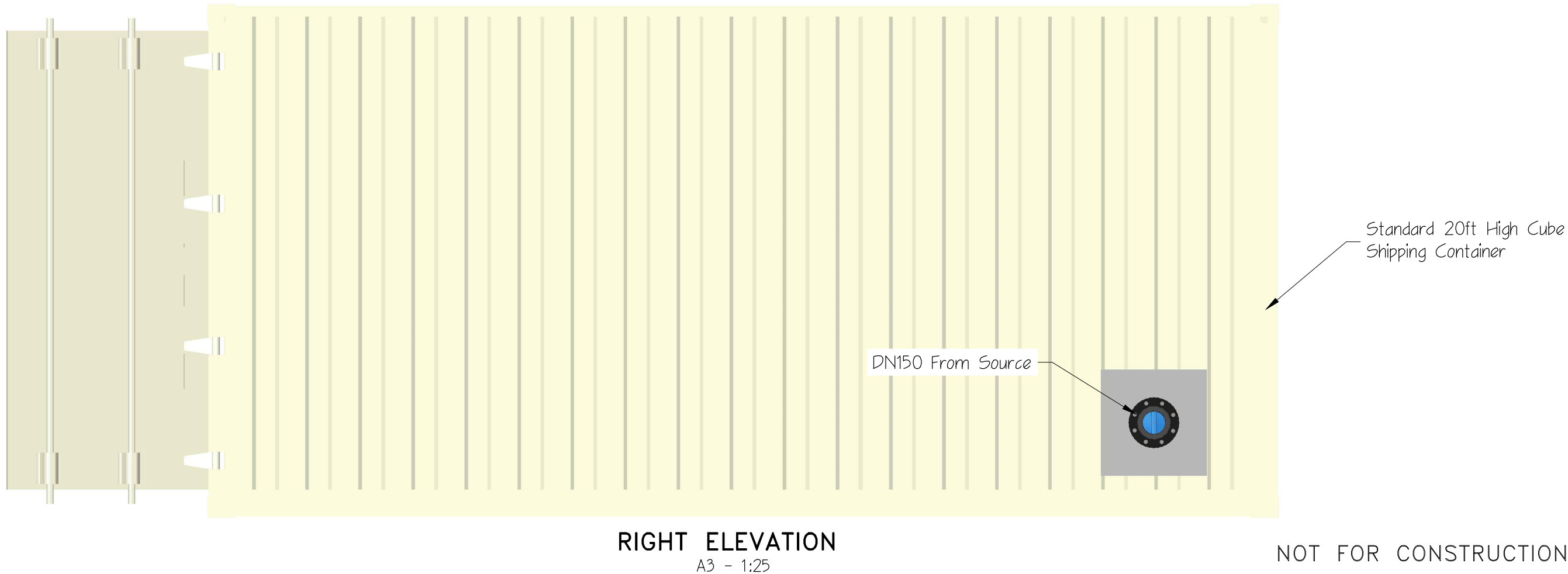
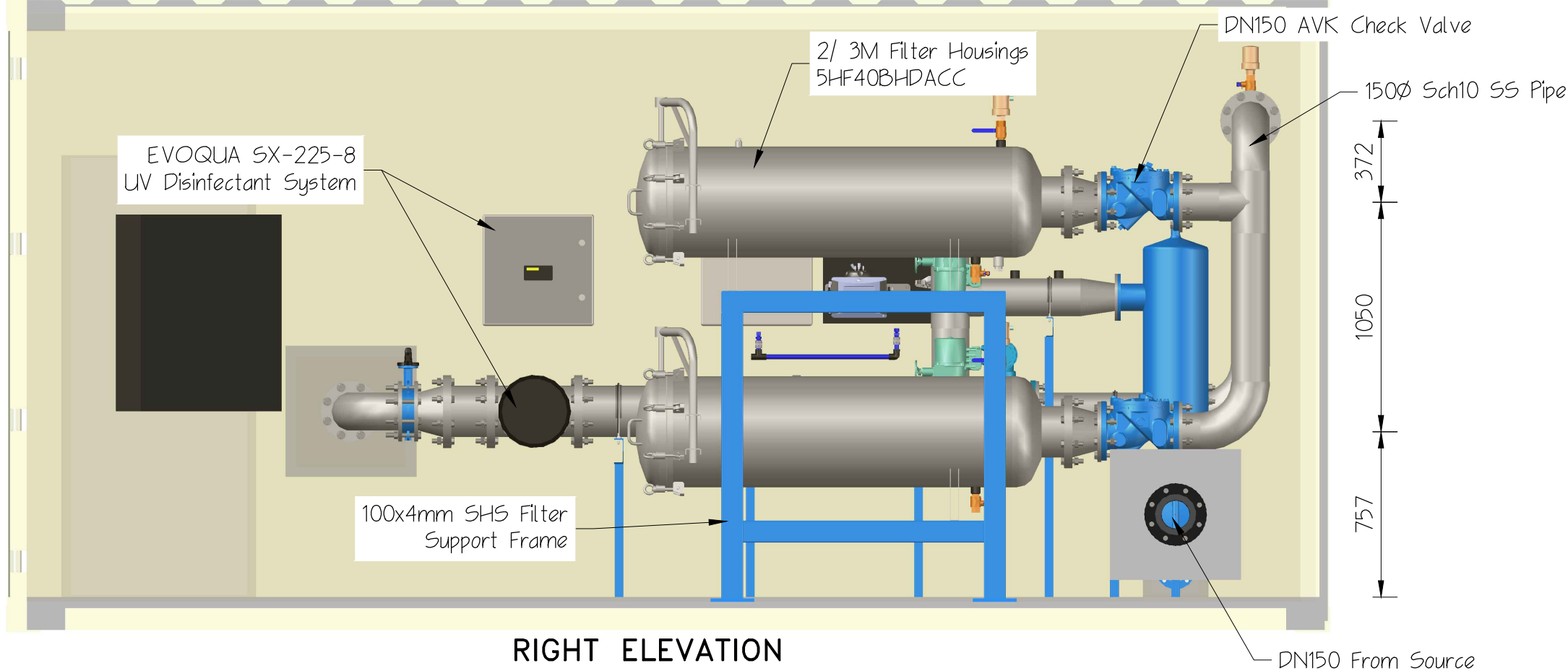
GENERAL ARRANGEMENT
A3 - 1:75

NOT FOR CONSTRUCTION

NOTE: CONTRACTORS MUST VERIFY ALL DIMENSIONS AND DETAILS ONSITE BEFORE COMMENCING WORK, ANY DISCREPANCIES OR AMBIGUITIES MUST BE BROUGHT TO THE ATTENTION OF THE DESIGNER



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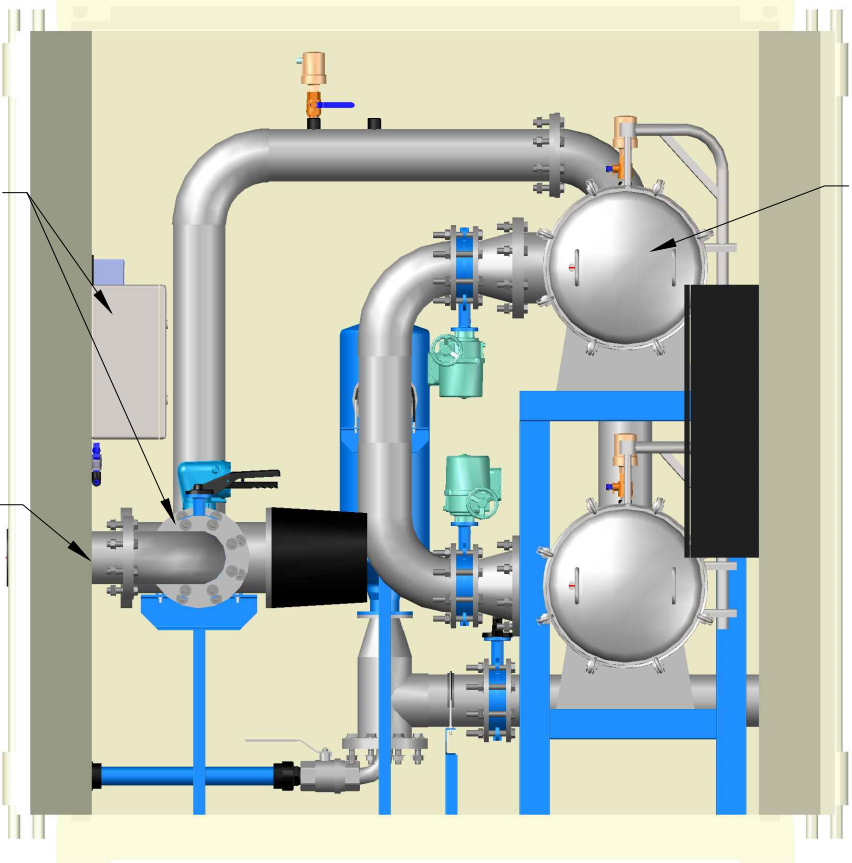
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EVOQUA SX-225-8
UV Disinfectant System

DN150 To Reservoir

2/ 3M Filter Housings
5HF40BHDACC



FRONT ELEVATION
A3 - 1:25

DN150 From Source

100x4mm SHS Filter
Support Frame

150Ø Sch10 SS Pipe

Turbidity Analyser

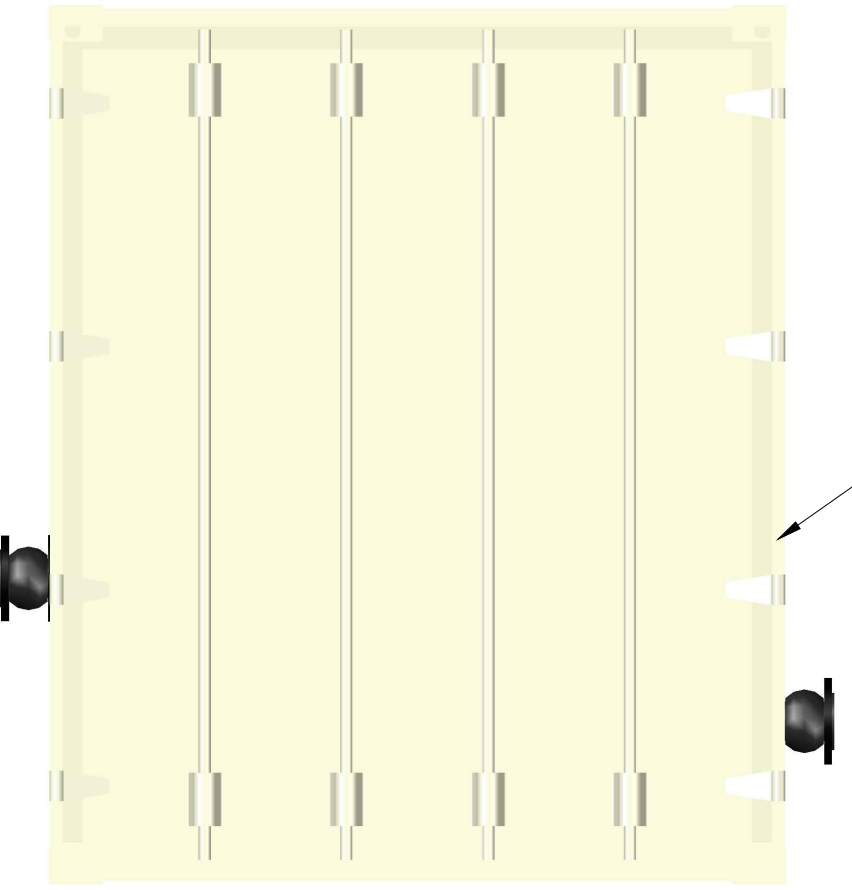
AMIAD M104C Self
Cleaning Screen Filter

DN50 To Waste

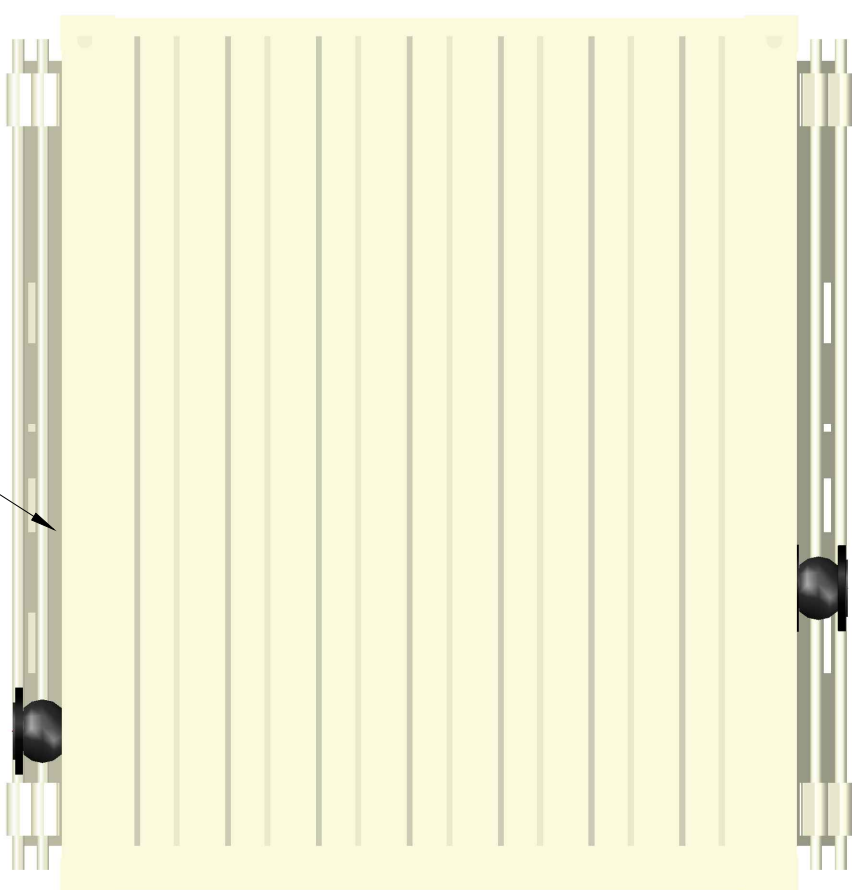


REAR ELEVATION
A3 - 1:25

Standard 20ft High Cube
Shipping Container



FRONT ELEVATION
A3 - 1:25



REAR ELEVATION
A3 - 1:25 NOT FOR CONSTRUCTION



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Zealand. The
Author Asserts its
Moral Rights
Pursuant To The
Copyright Act 1994.

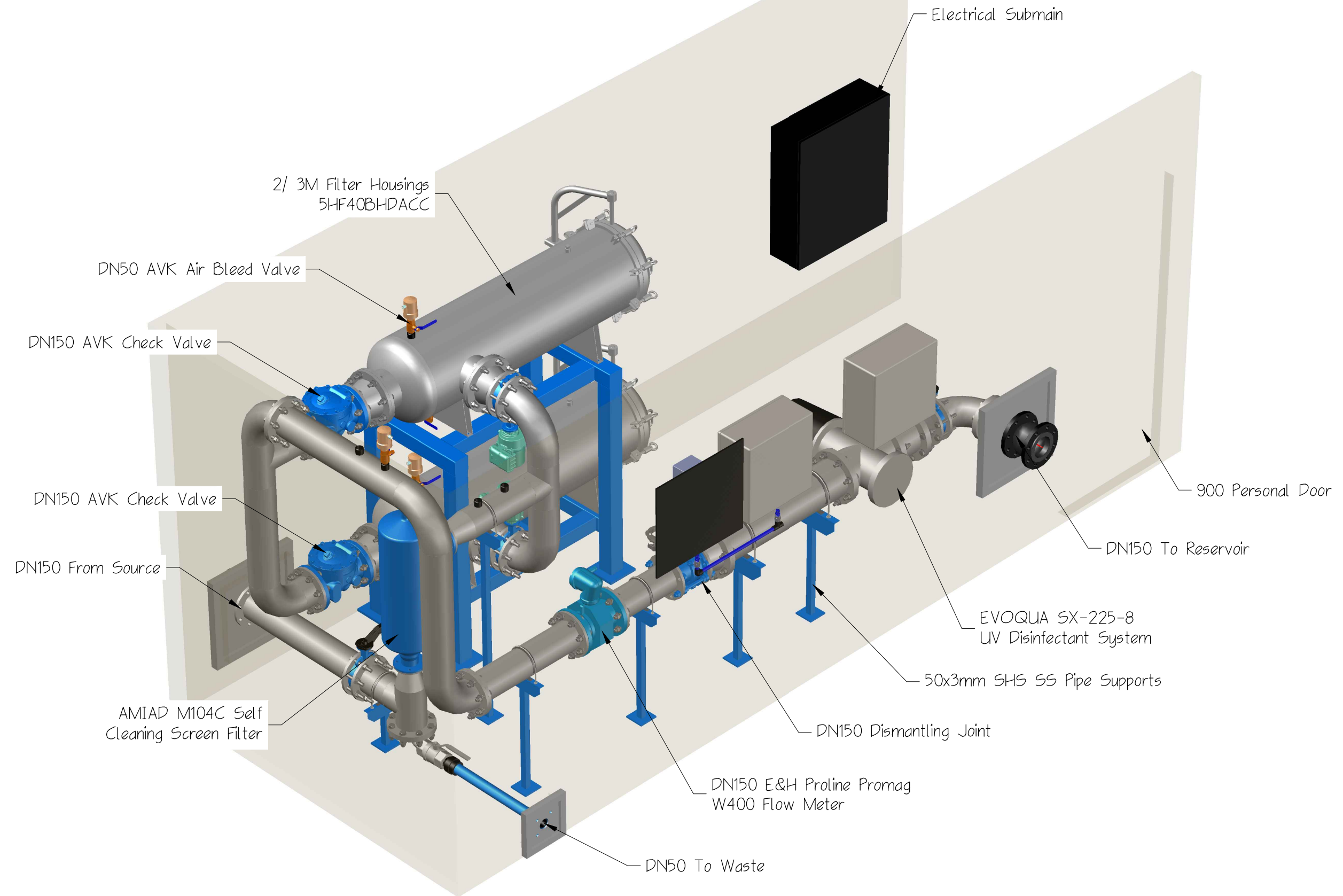
**WATER FILTRATION CONTAINER FOR
CODC – RANFURLY WATER TREATMENT
PLANT – UV & FILTER INSTALL**

Note: *All Pipe Flanges A52129 –
Table E Unless Otherwise Detailed

Rev:	Description & Date:
A	DRAFT For Checking 06/08/24
B	For Checking 07/08/24
C	General Revisions 30/08/24

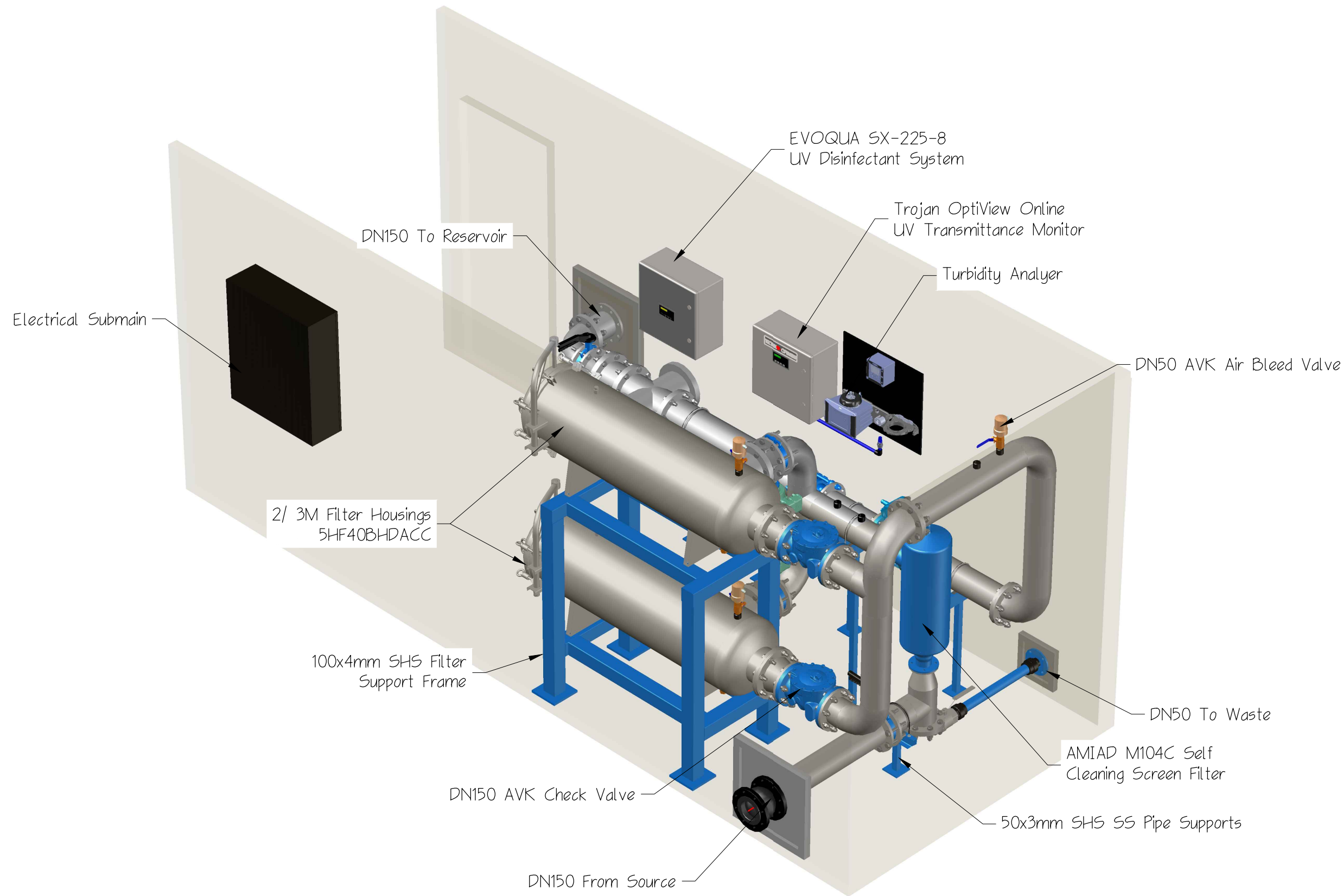
Sheet Title: END ELEVATIONS				
Date: JUL 2024	Approved:		Revision: C	
Job No: 51CA359B	Design: R.N	Checked:		Scales: As Shown
Dwg No: 04	Drawn: D.R	Checked:		

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ISO VIEW
A3 - 1:25

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ISO VIEW
A3 - 1:25

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