

TREATMENT PLANT APPROVAL 14/2021
Plumbing and Drainage Act 2018

Approval

1. The **WWR-Mark IV** (“the system”) described in the Specifications and Drawings in the attached Schedule and manufactured by **Houston Utility Service Pty Ltd** (ABN 44 163 768 652) (“the manufacturer”) has been assessed in accordance with the Queensland Plumbing and Wastewater Code (QPW Code) dated 26 October 2017.
2. Approval is granted for the secondary quality wastewater treatment system, subject to compliance by the manufacturer with the requirements of the *Plumbing and Drainage Regulation 2018*, and the conditions of approval detailed below.
3. This approval, the conditions of approval and the Schedule comprise the entire Treatment Plant Approval document.
4. Any modification by the manufacturer to the design, drawings or specifications scheduled to this approval must be approved by the Chief Executive.

Conditions of approval

5. The manufacture, installation, operation, service and maintenance of the systems must be in conformity with the conditions of this Treatment Plant Approval.
6. The secondary quality wastewater treatment system, which is an example of the approved systems, may only be used on premises that generate per day:
 - (a) a maximum hydraulic loading of 5,000 litres; and
 - (b) a maximum organic loading of 1300g BOD⁵
7. The system must continue to meet the requirements of secondary quality wastewater treatment system, producing the following effluent quality:
 - (a) 90% of the samples taken must have a BOD⁵ less than or equal to 20 g/m³ with no sample greater than 30g/m³.
 - (b) 90% of the samples taken must have total suspended solids less than or equal to 30g/m³ with no sample greater than 45g/m³.
 - (c) 90% of the samples taken must have a thermotolerant coliform count not exceeding 200 organisms per 100 mL with no sample exceeding 1000 organisms per 100 mL.
 - (d) Total chlorine concentration must be between 0.5g/m³ and 2.0 g/m³ in four out of five samples taken.
8. Each system must be serviced in accordance with the details supplied in the owner’s operation and maintenance manual.
9. This approval does not extend, apply to, or include the land application system used in conjunction with an approved system installed on premises.

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10. Each system must be supplied with —

- (a) a copy of this Treatment Plant Approval document;
- (b) details of the system;
- (c) instructions for authorised persons for its installation;
- (d) a copy of the owner's manual to be given to the owner at the time of installation; and
- (e) detailed instructions for authorised service personal for its operation and maintenance.

11. At each anniversary of the Treatment Plant Approval date, the supplier must submit to the Chief Executive a list of all systems installed in Queensland during the previous 12 months. Where the Chief Executive is notified of any system failures the Chief Executive may randomly select a number of installed systems for audit. The Chief Executive will notify the supplier's nominated NATA accredited laboratory which systems are to be audited for BOD⁵ and TSS. The sampling and testing of the selected systems, if required, is to be done at the supplier's expense. The following results must be reported to the Chief Executive;

- a)Address of premises;
- b)Date inspected and sampled;
- c)Sample identification number;
- d)BOD⁵ for influent and effluent; and
- e)TSS for influent and effluent.

12. The Chief Executive may, by written notice, cancel this approval if the manufacturer/supplier fails —

- a)to comply with one or more of the conditions of approval; or
- b)within 30 days, to remedy a breach, for which a written notice been given by the Chief Executive.

13. This approval may only be assigned with the prior written consent of the Chief Executive.

14. This approval expires on 01 January 2024 unless cancelled earlier in accordance with paragraph 12 above.

Stacey McInnes

**A/Director
Plumbing, Drainage and Special Projects
Building Legislation and Policy**

Date approved: 26 March 2021

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TREATMENT PLANT APPROVAL No. 14/2021
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SCHEDULE

Attachment 1

Drawings and Specifications for the

WWR-Mark IV

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WWR MARK IV - CONCEPT AND DESCRIPTION

The WWR-Mark IV (waste water recycle unit) has been designed with remote access in mind. The units are a “plug and play” system for mobile accommodation and remote work sites such as the drilling and service sectors in outback Australia. The WWR-Mark IV is engineered up to “CLASS A” treated water. Although modelled (Biowin Modelling) to recycle up to 10,000 litre at class B per day over a 24 hour period, the units are Identification plated for 20 person accommodation and 50 person work site to manage peak loads.

The Unit is processed by aeration, Chlorination, Micron filters and UV lighting. All unprocessed effluent enters the unit through a 50mm hose into a manifold where a number of buildings can be connected. Waste water from the kitchen and laundry has a different inlet to separate oil and grease through the Grease Trap before entering into the sewage inlet balance chamber where all shower and toilet waste initiates process. The unit has the capability to handle peak load when all personnel are showering at the one time as well as laundry loads.

Through a metered line, the effluent then enters the separation chamber where the sediment is separated and clear water spills into the primary aeration chamber through the clear water pick up line. It is in this chamber where the air pump aerates the effluent to break down the particle through a silicone diffuser. This process is continued through a secondary aeration chamber that has a dissolved oxygen metre probe submerged to monitor the oxygen percentage. This follows into the tertiary aeration chamber.

When the clear water flows into the disinfection, the water is treated with an amount of chlorine based on the flow rate of the unit. The flow rate allows enough time for the chlorine to react with the effluent and then the Pump turns on to push the fluid out through the Filter Housing in through the UV.

The UV light dilutes the chlorine amounts then the waste water flows through hoses to the sprinklers and out into a designated irrigation area, size depends on soil type classifications.



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Viking Grease Trap takes away all the fat from the kitchen before entering the main process



Chlorinator automatically doses chlorine through flow rate to the required amount



PLC—Programmable Logic Controller fully automates the unit for easy operation. Audible alarms are in place to manage malfunctions with troubleshooting backup



Sanisplit macerator for pumping out excess waste water from hoses before moving



Individual Air Pumps operate in each tank, providing regulated air through the Dissolved Oxygen Metre. The Oxygen metre is heat compensated

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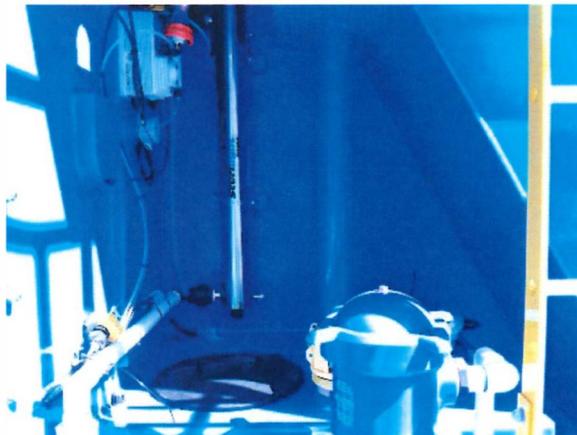




Filter Housing Assembly carries a 50 micron filter bag that is easily changed out when necessary



One of these NOV Mono pumps pressurize final waste through the filter and onto the UV filter before irrigating onto the ground while the other returns sludge back into the system to allow another process step



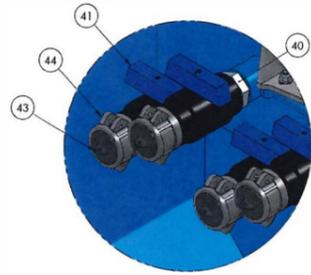
UV light distinguishes chlorine from final output

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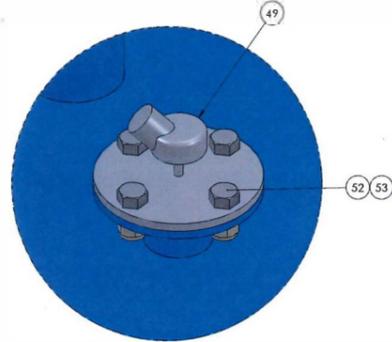
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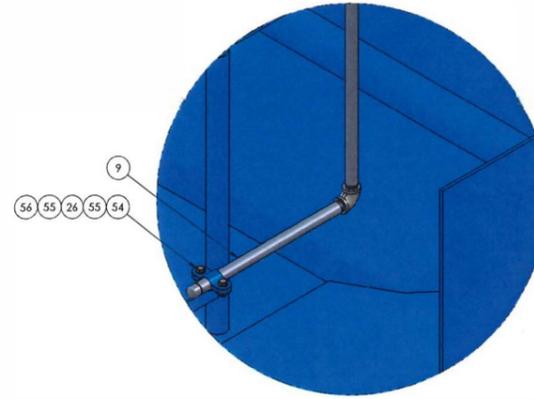
NOTES: FOR HYDRAULIC SCHEMATIC SEE DRAWING # 004910
 FOR ELECTRICAL SCHEMATIC SEE DRAWING # 004911
 FOR SYSTEM FLOW SCHEMATIC SEE DRAWING # 006692



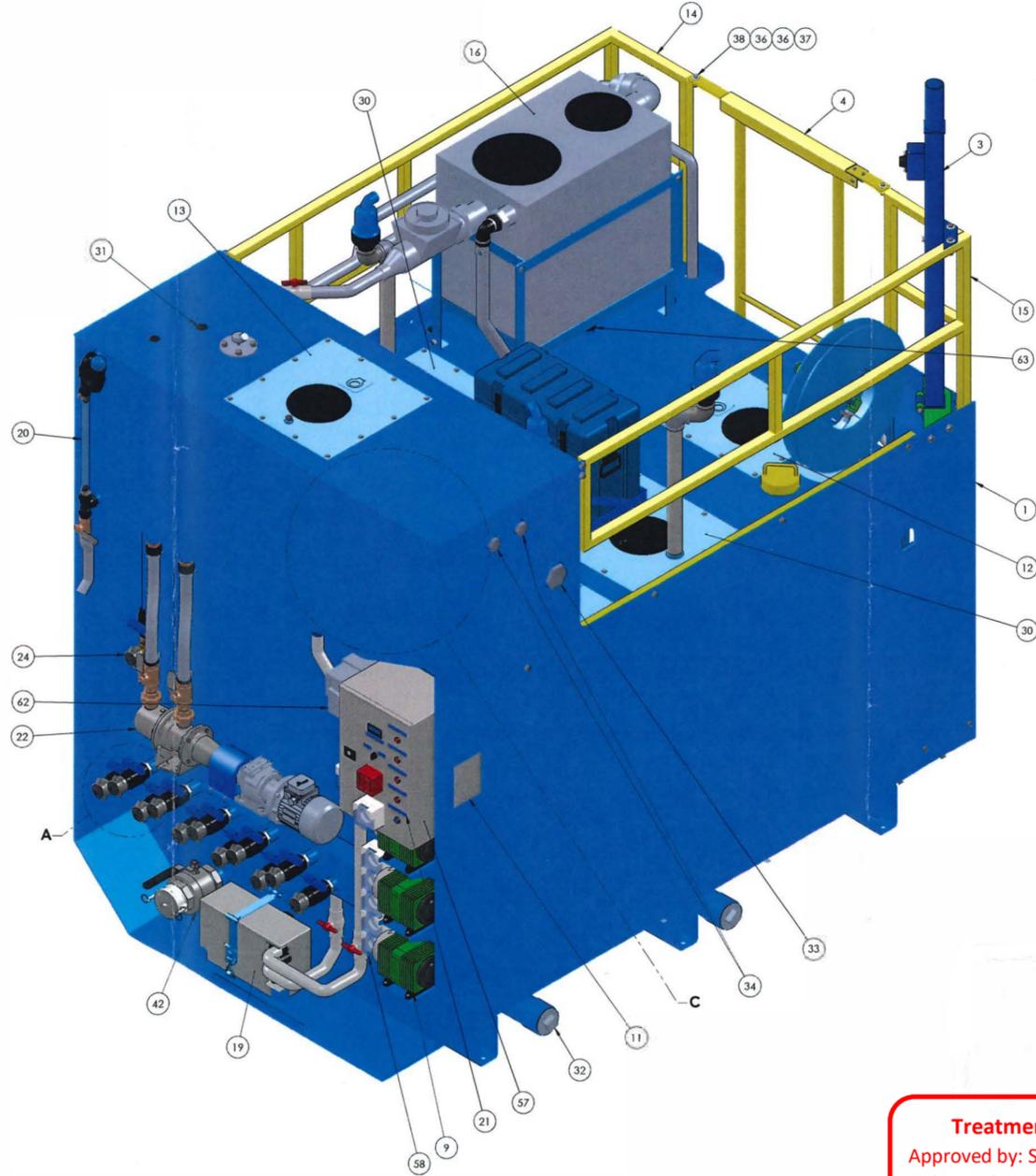
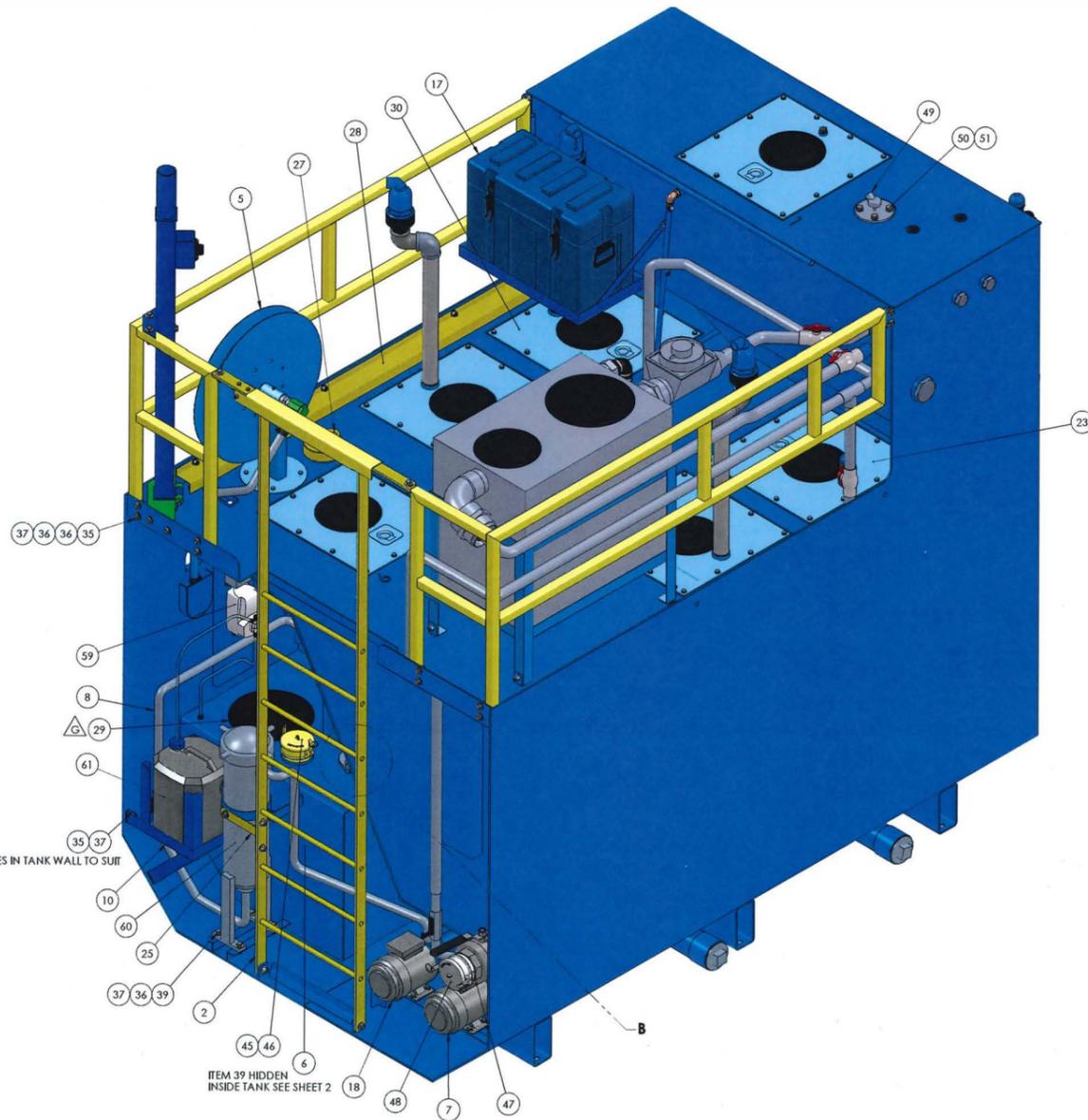
DETAIL A



OBSCURING ITEMS HIDDEN FOR CLARITY
 DETAIL B



DETAIL C
 TANK BODY SHEET HIDDEN TO REVEAL
 INSIDE COMPONENTS



ITEM	PART # / REF.	DESCRIPTION	MATERIAL / GRADE	QTY.
1	004632	SPU LADDER		1
2	001020	SPU AERATION UNIT		1
3	006340	SATELITE MOUNT		1
4	000566	SPU LADDER GATE		1
5	004674	HOSE REEL ASSEMBLY		1
6	004703	CHLORINE DISPENSER		1
7	004678	SLUDGE RETURN LINE ASSEMBLY		1
8	004679	UV TREATMENT LINE		1
9	006399	SPU AERATION UNIT		1
10	006759	CHEMICAL DRUM BRACKET		1
11	005700	SERIAL PLATE		1
12	004378	HATCH COVER		1
13	004684	HATCH COVER/BREATHING ASSEMBLY		1
14	004685	HAND RAIL, RH		1
15	004686	HAND RAIL, LH		1
16	004687	GREASE TRAP ASSEMBLY		1
17	004688	SPACE CASE SUBASSEMBLY		1
18	004691	CUT/IN LINE		1
19	004869	SANIT SPLIN AND PLUMBING ASSEMBLY		1
20	004873	SIGHT GLASS		1
21	005717	SPU LABEL KIT		1
22	005740	MONO PUMP MEIERING ASSY		1
23	006432	HATCH COVER/BREATHING ASSEMBLY		1
24	006408	GREASE TRAP IN CONNECTION		1
25	006441	SPU FILTER SUPPORT		1
26	006426	PIPE CLAMP 3/4" NB		1
27	001024	UV ACCESS CAP		1
28	006443	CABLE COVER ASSEMBLY		1
29	-	SCREWCAP, CLOSED WITH SEAL O-RING (TAN/WORLD)		1
30	006407	HATCH COVER/BREATHING ASSEMBLY		3
31	03661404	PLUG SOCKET 1 1/2" BSP BLK (BLACKWOODS)		5
32	-	PLUG (HOLLOW) 4" BSP - GAL		4
33	-	PLUG HEX 3" BSP - GAL		4
34	-	PLUG HEX 1.5" BSP - GAL		4
35	-	BOLT 1/2" UNC 1.25" LONG ZP	Gr. B	16
36	-	WASHER FLAT 1/2" ZP		36
37	-	NUT NYLOC 1/2" UNC ZP	Gr. B	24
38	-	BOLT 1/2" UNC 1-3/4" LONG ZP	Gr. B	4
39	-	BOLT 1/2" UNC x 1.5" LG ZP	Gr. B	4
40	-	RIPPLE 1.5" BSP - GAL		11
41	-	BALL VALVE 1.5" BSP POLY		11
42	-	BALL VALVE 4" BSP F-F ALUM		2
43	-	CAMLOCK TYPE DP 1 1/2" ALUM		11
44	-	CAMLOCK TYPE B 1 1/2" ALUM		11
45	-	CAMLOCK TYPE F 4" BSP NYGLASS		1
46	-	CAMLOCK TYPE DC 4" NYGLASS		1
47	-	CAMLOCK TYPE F 4" BSP ALUM		2
48	-	CAMLOCK DUST CAP 4" - TYPE DC FEMALE		2
49	L5700	FLOAT SWITCH (GEM)		2
50	-	BOLT 5/8" UNC x 1" LG ZP	Gr. B	4
51	-	WASHER SPRING 5/8" ZP		4
52	-	BOLT 5/8" UNC x 1.5" LG ZP	Gr. B	4
53	-	NUT NYLOC 5/8" UNC ZP	Gr. B	4
54	-	BOLT 3/8" UNC 1.25" LONG SS	316	2
55	-	WASHER FLAT 3/8"	316	4
56	-	NUT NYLOC 3/8" UNC	316	2
57	-	ELECTRICAL CUPBOARD 600x400x300		1
58	-	ELECTRICAL PLUG 15A		8
59	VMSMF	CHLORINE DOSING PUMP (EMEC)		1
60	X1008	BAG FILTER HOUSING AND FILTER (FSI)		1
61	-	CHLORINE DRUM 20L		1
62	-	LENZE AC TECH - FREQUENCY INVERTER		1
63	-	AV-010 AIR AND VACUUM RELEASE VALVE		1

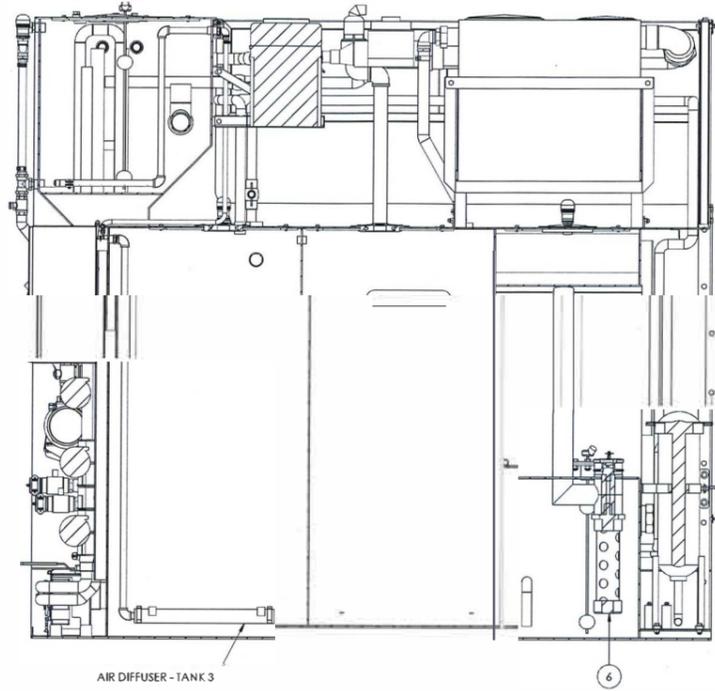
* - OPTIONAL EXTRA

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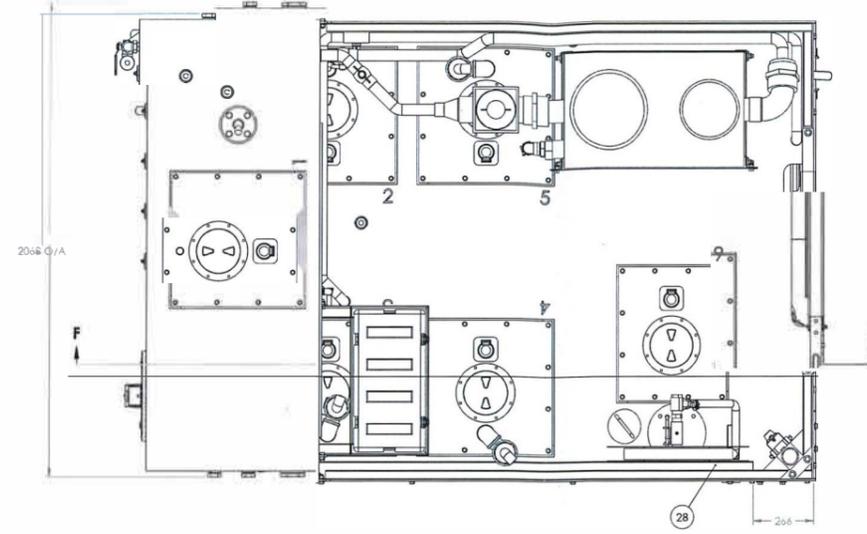


FINISH REQUIRED -	G	PREV. ITEMS 36, 49 REMOVED - ITEM 29 REPLACED	HB	11/06/2013	DESIGNED BY: JC	DATE: 21/11/11	APPROVED BY: WT	DATE: 21/11/11	SCALE: 1:1	PROJECT: SPU ASSEMBLY	DWG NO: 004631	REV: A1
THE FOLLOWING DESIGN STANDARDS SHALL APPLY TO THIS DRAWING STRUCTURAL STEELWORK - AS3990 PRESSURE PIPING - AS4041 PLATFORMS AND STAIRS - AS1657 DERRICK AND MASTS - API 4F LIFTING EQUIPMENT - API 8C		TOLERANCES UNLESS OTHERWISE SPECIFIED FABRICATION DIM. ±1 ANGL. ±0.5° MILLING DIM. ±0.05 ANGL. ±0.05° DRILLING DIM. ±0.10 ANGL. ±0.1° TURNING DIM. ±0.05 ANGL. ±0.1° FINISH: POLISHED OR AS SPECIFIED	UNLESS SPECIFIED REMOVE ALL SHARP EDGES AND DEBUR ALL HOLES ALL DIMENSIONS ARE UNLESS OTHERWISE SPECIFIED STEEL WELDS TO COMPLY WITH AS1554.1 CATEGORY G.P. U.S.A. ALUMINUM WELDS TO COMPLY WITH AS1554.1 CATEGORY G.P. U.S.A. SECTION BENDS TO BE MADE TO THE THROTTLE POINT FROM ALL POINTS UNLESS OTHERWISE SPECIFIED ALL TOP COATS POLYURETHANE UNLESS OTHERWISE SPECIFIED SIZE AND COLOUR TO BE AS SHOWN ON DRAWING		SHEET 1 OF 2		SHEET 1 OF 2		SHEET 1 OF 2			

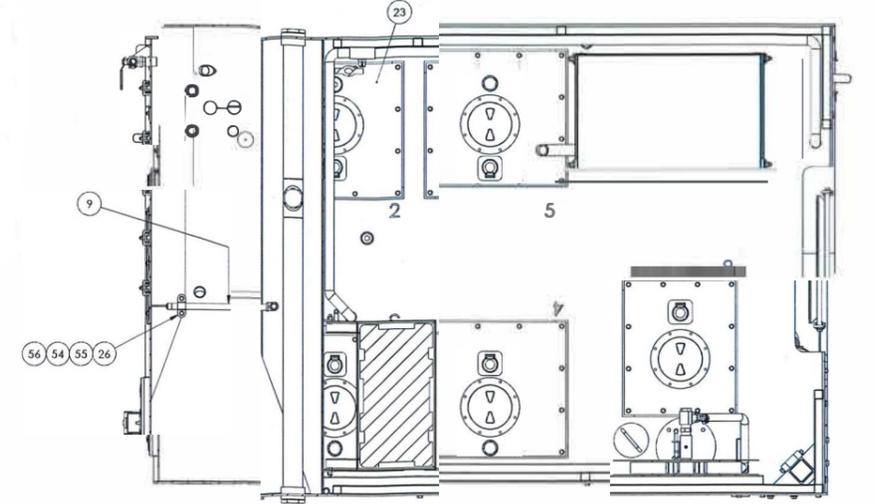
NOTES:



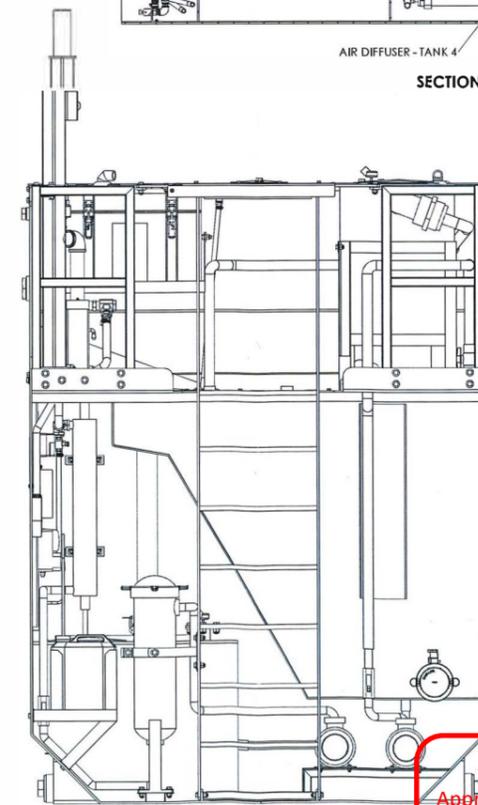
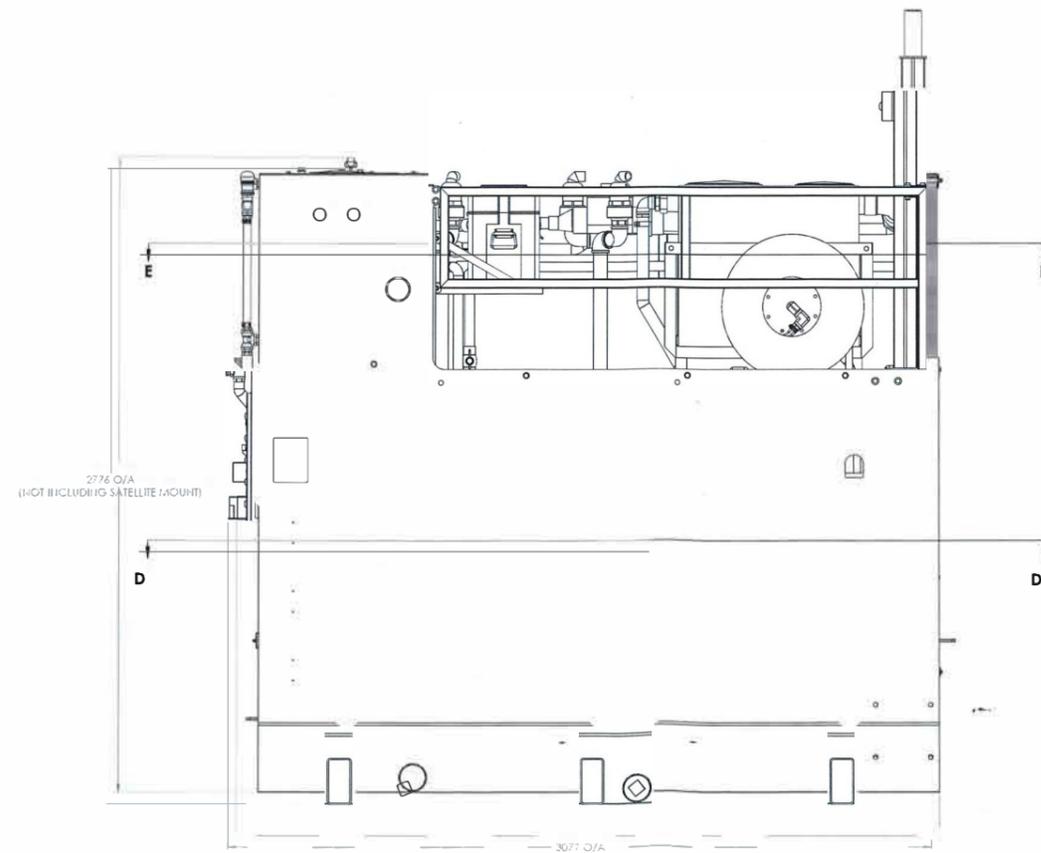
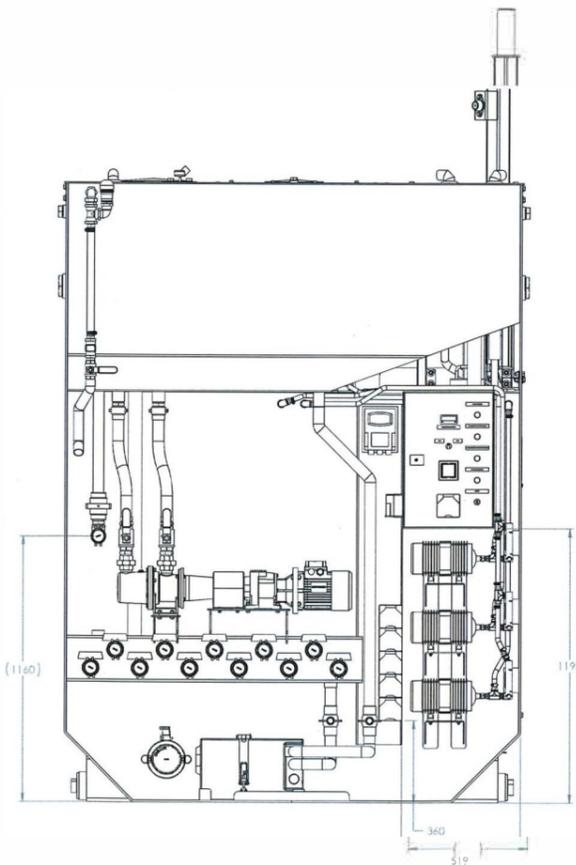
SECTION F-F



SECTION E-E



SECTION D-D



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REV	DESCRIPTION	BY	DATE
G	PREV. ITEMS 36, 49 REMOVED - ITEM 29 REPLACED	HB	11/06/2013

REVISION	DATE	APPROVED BY	TITLE
WT	21/11/11		SPU ASSEMBLY

004631