Clearmake Pty Ld

Product Appraisal Report TWA 0803

WATER SERVICES ASSOCIATION OF AUSTRALIA

Separator Systems for Light Liquids

CB1.0 SS 720L/hr

CL1.5 SS 720L/hr

CL1.5 SSD 1440L/hr

CL3.0 SS 1600L/hr

CL3.0 SSD 1140L/hr

Published - February 10

Overview of WSAA

The Water Services Association of Australia (WSAA) is the peak body of the Australian urban water industry. Its 30 members and 31 associate members provide water and wastewater services to approximately 16 million Australians and to many of our largest industrial and commercial enterprises. WSAA membership also includes two members and one associate member from New Zealand.

Urban water service providers have a critical role in ensuring that Australians have access to adequate and high quality water services. As Australia's population continues to grow, with most of this growth occurring in cities, that role becomes increasingly important.

WSAA's vision is for Australian urban water utilities to be valued as leaders in the innovative, sustainable and cost effective delivery of water services. WSAA strives to achieve this vision by promoting knowledge sharing, networking and cooperation amongst members. WSAA identifies emerging issues and develops industry-wide responses. WSAA is the national voice of the urban water industry, speaking to government, the broader water sector and the Australian community.

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Table of Contents

1. Executive Summary

Clearmake is an Australian-owned company that designs equipment from small, single-component systems such as GPT's and oil/water separators through to custom-engineered specialty systems that may incorporate rain water harvesting**,** storm water management**,** spill control**,** water treatment**,** water recycling and sludge dewatering. Products and systems comply with Local Council requirements, EPA, AQIS and OH&S regulations, and meet Australian Standards for manufacturing.

The scope of this appraisal covers separator Systems for Light Liquids manufactured from stainless steel in Model Numbers CB1.0 SS, CL1.5 SS, CL1.5 SSD, CL3.0 SS, and CL3.0SSD with vertical-tube coalescing packs constructed from Oleophilic Polypropylene.

The product range is applicable to the following applications

a. Mechanical repair workshops
b. Panel beating workshops
c. Vehicle detailing
d. Motor wreckers
e. Motor vehicle dealerships
f. Hire Companies

This Appraisal Report has been compared against the requirements of the WSAA Specification WSA PS – 810 Separator Systems for Light Liquids (See appendix A).

Examination of all of the submitted documented material provides an expectation that the products described here in sourced and distributed by Clearmake Pty Ld are 'fit for purpose' in the applications described in this report subject to future works items.

It is recommended that WSAA Members and Associates, subject to any specific requirements of the Member or Associate, accept or authorise the Clearmake product range as detailed in this report for use in sewer networks provided design, installation, acceptance testing and commissioning are in accordance with relevant WSAA Codes, WSAA Member Integrated Codes, and the manufacturer's requirements.

2. Company Overview

Clearmake is an Australian-owned company that designs equipment from small, single-component systems such as GPT's and oil/water separators through to custom-engineered specialty systems that may incorporate rain water harvesting**,** storm water management**,** spill control**,** water treatment**,** water recycling and sludge dewatering. Products and systems comply with Local Council requirements, EPA, AQIS and OH&S regulations, and meet Australian Standards for manufacturing.

All design and manufacturing is centralised in SE Queensland for greater quality control and pre-install testing. This strong focus on design innovation and quality has seen Clearmake selected for The Australian Technology Showcase, a State and Federal Government initiative to promote Australian Innovation globally.

3. Scope of this Appraisal

The scope of this appraisal covers separator Systems for Light Liquids manufactured from stainless steel in Model Numbers CB1.0 SS, CL1.5 SS, CL1.5 SSD, CL3.0 SS, and CL3.0SSD with vertical-tube coalescing packs constructed from Oleophilic Polypropylene. The Models designated SS have a Mono Helical low shear pump. The SSD Models have a diaphragm pump fitted. Both pumps are designed to transfer waste water without emulsifying the waste water stream and inhibiting separation efficiency. All other design characteristics are similar.

	CB 1.0SS	CL1.5 SS	CL1.5 SSD	CL 3.0 SS	CL3.0 SSD
Material of Construction	304 Stainless Steel – 1.6mm Thick	304 Stainless Steel – 1.6mm Thick	304 Stainless Steel – 1.6mm Thick	304 Stainless Steel – 1.6mm Thick	304 Stainless Steel – 1.6mm Thick
Max. Flow Rate	.28 L/s	0.42 L/s	0.31 L/s	0.83 L/s	0.31 L/s
Actual Flow Rate	.20 L/s	0.20 L/s	0.31 L/s	0.42 L/s	0.31 L/s
Separation Process	Enhanced Gravity	Enhanced Gravity	Enhanced Gravity	Enhanced Gravity	Enhanced Gravity
Coalescing Medium	Vertical tube Packs x 1	Vertical tube Packs x 1	Vertical tube Packs x 1	Vertical tube Packs x 2	Vertical tube Packs x 2
Dimensions – Tube Pack					
Width	290 mm	370 mm	370 mm	370 mm	370 mm
Length	775 mm	620 mm	620 mm	620 mm	620 mm
Height	275 mm	350 mm	350 mm	350 mm	350 mm
Weight – Dry	49 kg	62 kg	56 kg	80 kg	80 kg
Weight - Unfitted	41 kg	50 kg	50	78 kg	78
Weight – Full	205 kg	225 kg	225 kg	322 kg	322 kg
Volume	156 L	169 L	169 L	242 L	242 L
Inlet diameter	40 mm BSPF	40 mm BSPF	40 mm BSPF	40 mm BSPF	40 mm BSPF
Outlet diameter	50 mm BSPF	50 mm BSPF	50 mm BSPF	50 mm BSPF	50 mm BSPF
Oil skimmer Outlet diameter	40 mm BSPF	40 mm BSPF	40 mm BSPF	40 mm BSPF	40 mm BSPF
Stand Construction	25mm SHS 304 Stainless Steel	25mm SHS 304 Stainless Steel	25mm SHS 304 Stainless Steel	25mm SHS 304 Stainless Steel	25mm SHS 304 Stainless Steel
Pump Model	Mono CP11RJ	Mono CP11RJ	Clearmake CM 1000	Mono CP25RJ	Clearmake CM 1000
Dimensions:					
Width	360 mm	445 mm	445 mm	445 mm	445 mm

Length	1260 mm	1210 mm	1210 mm	1945 mm	1945 mm
Height	1230 mm	1240 mm	1240 mm	1240 mm	1240 mm

4. Appraisal Criteria

This Appraisal Report has been compared against the requirements of the WSAA Specification WSA PS – 810 Separator Systems for Light Liquids (See appendix A).

5. Quality Assurance Requirements

The WSAA product appraisal network accepts system (ISO 9001) and product certification by a Certification Body at the manufacturing site of strategic products to appropriate Australian or internationally recognised standards. The Certification Body shall have relevant accreditation by the Joint Accreditation System of Australia and New Zealand (JAS-ANZ) or by an equivalent international accreditation system recognised by JAS-ANZ.

The manufacturer Clearmake is not ISO9001:2000 certified at this time.

6. Compliance to the Appraisal Criteria

6.1. Materials of Construction

6.1.1. Separation Tank and Stand

The Separation tank is manufactured from 304 Stainless Steel and is supported by a specifically engineered and constructed 304 Stainless Steel frame.

(316 Stainless Steel Tanks are available as an option for installations in harsh or corrosive environments)

6.1.2. Vertical-Tube Coalescing Pack

The Vertical-Tube Coalescing Pack is constructed from Oleophilic Polypropylene, which provides increased efficiency and performance via its enhanced flow, phase separation characteristics and longevity.

6.2. Access Covers and Lids

The lids that are used for the Clearmake product range are manufactured from 304 stainless steel and attached to the main body of the unit using stainless steel clips.

6.3. Internal Surface Coating

The internal surface coating of the product range is not specially coated.

7. Performance Requirements

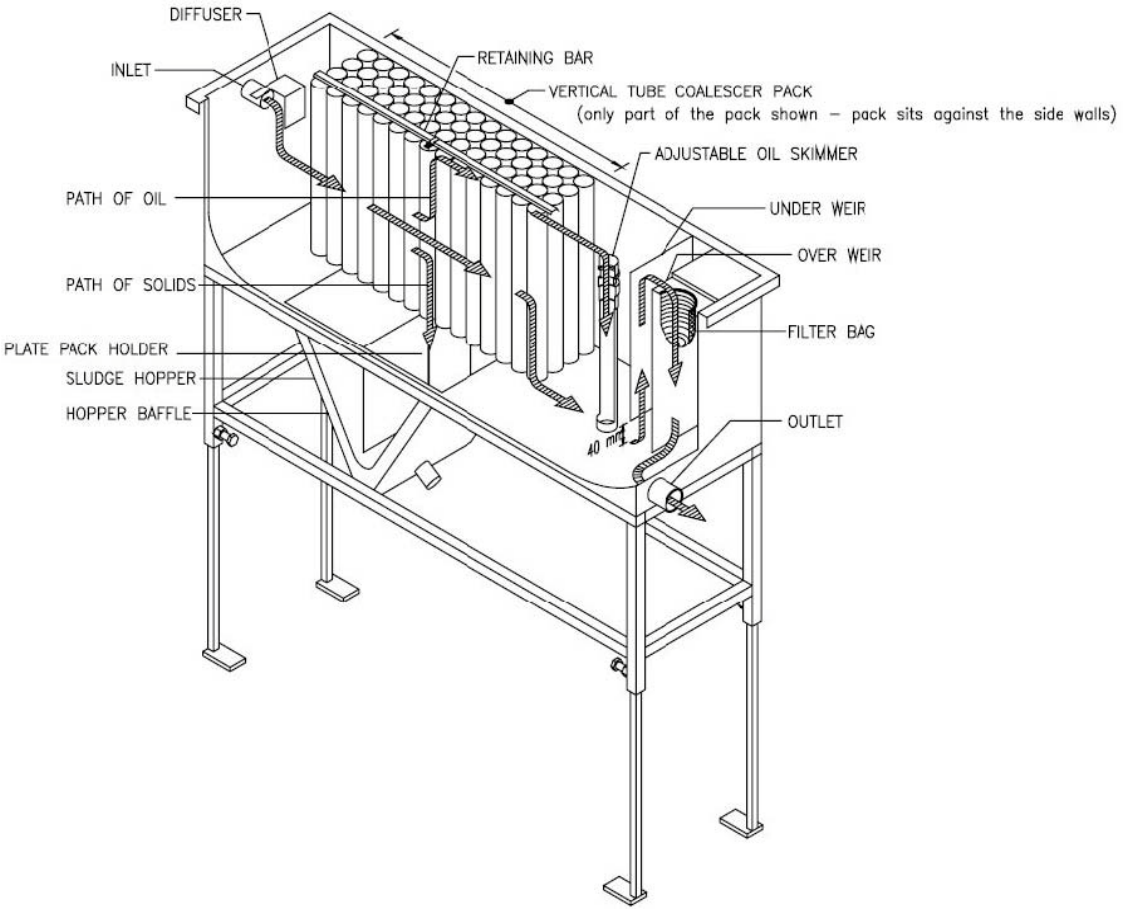
7.1. Process Description

Clearmake separators are designed to reduce effluent oil content to less than 30 ppm. They use a Vertical-Tube Coalescing (VTC) pack, which utilises a block of vertically oriented 40 mm tubes that consist of bonded strands of spaced-apart polyethylene in a helical pattern. The waste stream enters the chamber and is forced through the open structure of the tubes. The solids are induced by gravity to the sludge hopper below and the waste stream continues a circuitous passage through the tube pack. Oil droplets coalesce on the surface of the tubes and then rise to the surface. The resultant build-up of oil on the surface is automatically skimmed off to the waste oil tank. The cleansed wastewater then flows under the underweir and over a final weir into a chamber

containing a filter bag before exiting through the outlet port.

Design flow rate for systems fitted with a Mono CP11 pump is 0.2 L/s @ 0.4 metres suction head. Design Flow rate for systems fitted with a diaphragm pump is 0.31 litres per second @ 4.5 metres head.

It is a requirement that appropriate Quick Break detergents & degreasers are being used. All other cleaners will cause the oily waste to emulsify and resist separation. Please refer to Clearmake for details on the appropriate products to be used



7.2. Effluent quality

Clearmake has conducted sampling and testing in accordance with Sydney water requirements in 2003 at a Wash down Bay at Canterbury Timber One of the test reports have been made available and is included in Appendix B. The report is incomplete its inclusion in this Appraisal is noted as information only. A full trial is subject to a future works item (Part 16).

8. Applicability

The product range is applicable to the following applications

a. Mechanical repair workshops
b. Panel beating workshops
c. Vehicle detailing
d. Motor wreckers
e. Motor vehicle dealerships
f. Hire Companies

g. Marinas
h. Carwashes
i. Lawnmower repairs
j. Small engine repair shops

9. Specifications and Drawings

The product specifications and drawings are included in Appendix C.

10. Warranty

Clearmake Pty Ltd makes the following warranties of its products:

10.1. PUMPS

Manufacturer's warranty of 12 months from date of sale.

The Mono pump operation and longevity is enhanced by the addition of a gooseneck in the pipework on the suction side of the pump to conserve a full reservoir of water within the pump cavity at all times. This arrangement is shown in the "Mono Helical Rotor pump" detail in the "Typical Installation Layout" drawing on page 13.

The standard pump is not self-priming and requires a foot valve to be fitted to the base of the suction line to prevent it from losing prime when not running, if debris obstructs the foot valve or jams it open the pump will not prime itself. Care should therefore be taken during installation and maintenance procedures that the foot valve is placed and preserved accordingly

10.2. SEPARATOR TANK, STAND & VERTICAL TUBE COALESCING

3 year warranty from date of sale.

Note: The warranty on the separator tank is limited to "normal" applications where no corrosive elements are present. The tank is constructed of 304 stainless steel but is still susceptible to corrosion if exposed to certain substances. Check with Clearmake if in doubt as to your particular usage.

10.3. FLOAT SWITCH

1 Year manufacturer's warranty from date of sale.

10.4. OTHER COMPONENTS

1 Year manufacturer's warranty from date of sale.

11. Installation Requirements

11.1. Installation Instructions

a) Please consult your local trade waste/plumbing inspector before installing this separator to ensure that these instructions meet local requirements.

b) **ALWAYS USE LICENSED ELECTRICAL AND PLUMBING CONTRACTORS**

c) Place the separator into position and bolt the stand down. (ensure before you commence work that the concrete base you're installing this equipment on is suitable to hold the weight of the equipment.) Level the separator unit using the adjustable legs on the stand. **Make sure the unit is level in both planes. NOTE: Read all instructions provided for this equipment and refer to all diagrams in this manual for assistance with installation.**

d) Connect the outlet pipe to sewer as per the Specification Drawing.

e) Plumb the suction line to the pump using the correct diameter pipe as per the model specifications. Note: It is a requirement in some areas to provide sampling taps on the inlet and outlet pipes of the separator.

f) The suction line must be terminated approx. 200 mm from the bottom of the holding tank and have a foot valve fitted (not supplied). Provide a barrel union in the suction line to permit the suction line to be withdrawn and serviced/inspected.

g) Install a waste oil pipe from the oil skimmer outlet on the bottom of the tank to a 25 litre waste oil drum (available from Clearmake as an option).

h) Fit the supplied gate valve (1) to the sludge hopper. Make sure it is closed before filling the separator.

i) Fasten the pump to the concrete slab as shown in the installation drawing**.** Plumb the pump to the separator using barrel unions in the pipes either side of the pump to aid in servicing, and plug the pump into the electrical controller (available from Clearmake as an option). **Note: Ensure that the water level in the holding tank never drops below the level of the suction line inlet causing the pump to lose prime.**

j) Install the float switch to deactivate the pump approx. 25 mm from the suction line inlet level. Fasten the float switch lead to the suction line with plastic cable ties with care taken to ensure that the float travel is not impeded in any way. Set the pumping range at approximately 600-700 mm (this dimension may be increased or decreased to suit specific site applications and tank size). When nearly vertical the float switch will activate the pump. Ensure a minimum working volume of 500 litres in the pit as per Sydney Water guide lines.

k) The electrical controller has a gland provided at its base to introduce the float lead inside the controller housing where low voltage terminals are provided to attach the float lead wires per the wiring instructions enclosed. Fill the separator tank with clean water and fill the pump priming chamber which is capped with a blue plug on the top of the black plastic stator housing. The controller typically has three settings “Off”, “Manual” and “Auto” and the pump can be started by switching to “Manual” and must be reset to “Auto” once the pump has been started and checked for proper operation. **Note: Do not start the pump without enough water in the holding tank to cover the suction pipe inlet.**

l) Once the pump is running and the water level in the tank has stabilized, adjust the oil skimmer per instructions in the “Oil Skimmer Details” on the “Typical Installation Layout” drawing. Typically the top of the skimmer will be set at 3 mm above the level of the water with the pump running.

Note:

a) The oil skimmer may require adjustment again after a film of oil has built up on the surface.

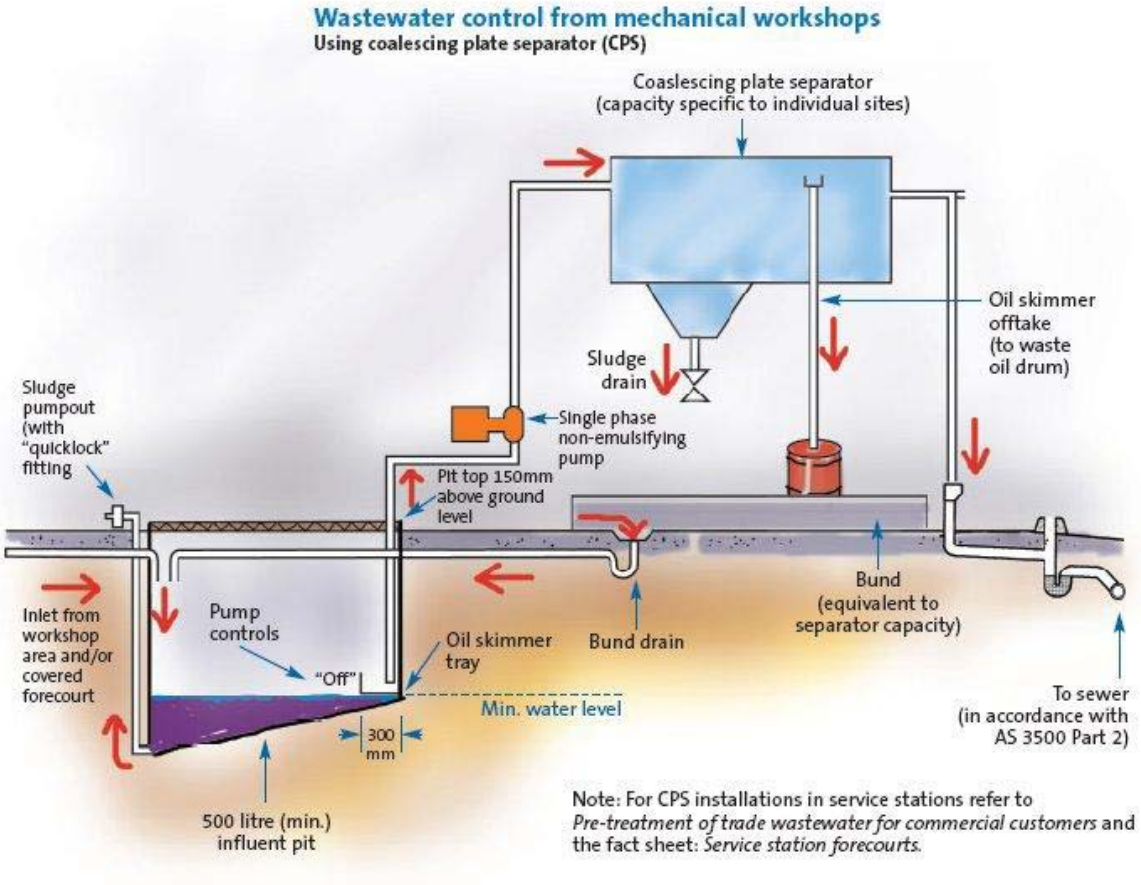
b) A tap protected by a High Hazard Backflow Prevention Device (BFPD) is required within 5 metres of the apparatus.

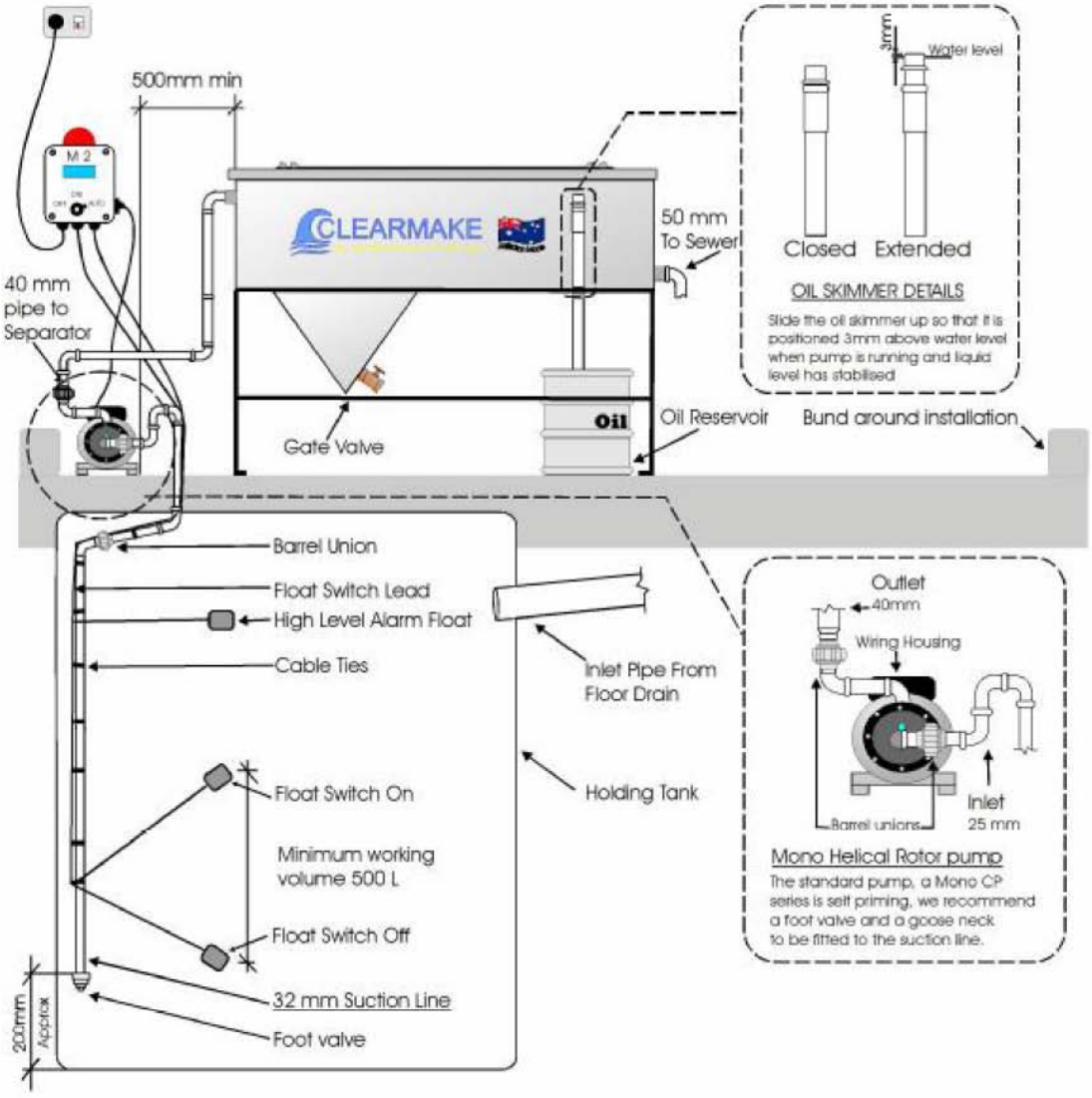
c) Refer local Authority for BFPD installation, testing and Agreement guidelines

d) Any installation must be bunded and should have a minimum capacity of the system plus the storage drum

11.2. Typical Schematic Installation

The following schematic diagrams show the typical installation requirements for the product range described in this product appraisal report.





12. Operation and Maintenance

12.1. Operation

Once installed all models required no specific operational procedures. It is required however that the maintenance described in 12.2 must be routinely conducted.

12.2. Maintenance

Maintenance intervals may need to be shortened depending on the amount of use and qualities of the influent.

Clearmake recommends that Clearmake Separators be fully serviced at a minimal three monthly intervals by accredited service personnel.

a) DAILY/WEEKLY MAINTENANCE

i) Clean all collection pits and silt traps.

ii) Check waste oil tank level and arrange disposal of oil if necessary.

iii) Visually inspect separator and remove any floating solids that may block tubes.

iv) Check the filter bag to see if it is dirty or clogged. If it requires cleaning remove it by sliding it out of the track. Wash thoroughly and slide it back into place. Replace the bag if it is worn. Dispose of any waste water in accordance with Trade Waste policies

v) Visually inspect discharge effluent and check that it appears to be clean.

vi) Check the pump for normal operation and flow.

vii) Check the holding tank sludge level and ensure the float switch is operating correctly.

viii) Visually inspect all equipment for damage and correct operation.

b) MONTHLY/QUARTERLY MAINTENANCE

i) Perform those tasks listed in Daily/Weekly Maintenance.

ii) Lower the oil skimmer below the water level to remove all oil from the water surface.

iii) Drain the sludge hopper and dispose of correctly. (Usually to the holding tank)

iv) Remove the Vertical-Tube Coalescing pack and clean thoroughly – a pressure washer may be used.

v) Clean out the separator thoroughly – best achieved with a pressure washer.

vi) Reinstall the Vertical-Tube Coalescing pack.

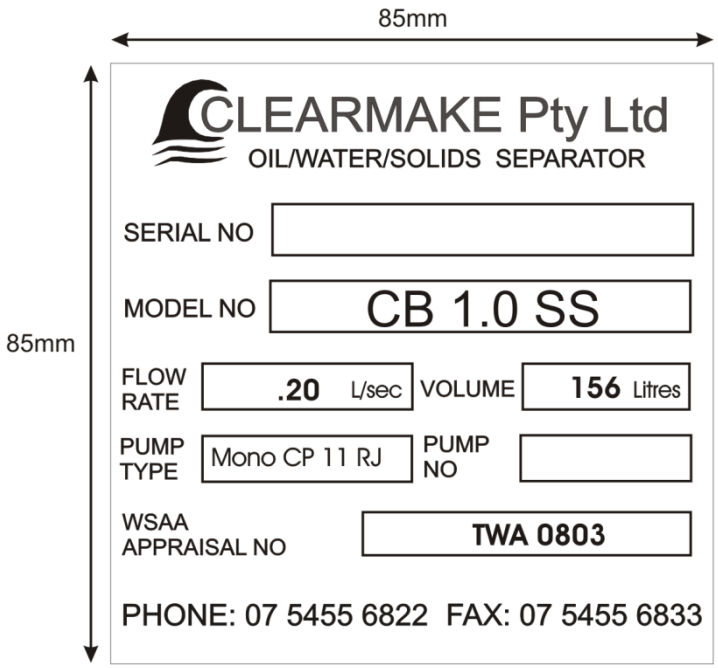
vii) Fill the system with clean water.

viii) Turn the power back on and check that the pump is primed and operating.

13. Identification

Clearmake product authenticity is readily identified via reference to the compliance plate bearing the “Clearmake” proprietary information, and which is attached to the separator at the inlet end below the top rim.

Sample Compliance Plate



14. Outcomes of WSAA Network Review

14.1. Page 12 of the appraisal report - daily/weekly maintenance, item (iv) and monthly/quarterly maintenance, items, (iv) and (v) - It is important to provide advice to the reader on how the wastewater arising from those cleaning activities needs to be managed.

An amendment has been made to the instructions to include the disposal of waste water from cleaning processes.

14.2. Pumping from a wet well (pump pit) not a silt sump should be a recommendation to the installer.

14.3. Oil water separators should be installed in a bunded area and connected back to the pump pit.

14.4. PVC not to be used in connection with the installation of an oil water separator

14.5. Oil water separators to be connected to sewer through a typical industrial waste sample point.

14.6.

15. WSAA Member and Field Reports

At the time of publication a WSAA member field report was not available and this item has been referred as a future works and referenced in part 16 Future Works.

16. Future Works

16.1. It is a requirement that within 2 years of the publication of this report that a report be provided for inclusion in this appraisal detailing the outcomes of effluent quality testing in accordance with WSA PS 810 (attached as an appendix)

16.2. It is a requirement that within 12 months of the publication of this report that a WSAA member field report is provided for inclusion in this report .

17. Discussion

Examination of all of the submitted documented material provides an expectation that the products described here in sourced and distributed by Clearmake Pty Ld are 'fit for purpose' in the applications described in this report subject to future works items.

18. Report Recommendation

It is recommended that WSAA Members and Associates, subject to any specific requirements of the Member or Associate, accept or authorise the Clearmake product range as detailed in this report for use in sewer networks provided design, installation, acceptance testing and commissioning and maintenance are in accordance with relevant WSAA Codes, WSAA Member Integrated Codes, and the manufacturer's requirements.

19. Disclaimer

This Appraisal Report is issued by the Water Services Association of Australia Ld. on the understanding that :

a) This appraisal applies to the product(s) as submitted. Any changes to the product(s) either minor or major shall void this appraisal.

b) To maintain the recommendations of this appraisal any such changes shall be detailed and notified to the Product Appraisal Manager for consideration and review of the appraisal report and appropriate action. Appraisals and their recommendations will be the subject of continuous review dependent upon the satisfactory performance of products.

c) WSAA reserves the right to undertake random audits of product manufacture and installation. Where products fail to maintain appraised performance requirements the appraisal and its recommendations may be modified and reissued. Appraisal reports will be reviewed and reissued at regular intervals not exceeding five (5) years.

d) The following information explains a number of very important limits on your ability to rely on the information in this Product Appraisal Report. Please read it carefully and take it into account when considering the contents of this Product Appraisal Report

e) Any inquiries regarding this report should be directed to the Appraisal Project Manager, Grant Leslie, Phone: 02 9290 3655 - E-mail grant.leslie@wsaa.asn.au

19.1. Issue of Report

This Product Appraisal Report (Report) has been published and/or prepared by the Water Services Association of Australia, Inc and nominated Project Manager and peer group of technical specialists (the Publishers).

The Report has been prepared for use within Australia only by technical specialists that have expertise in the function of products such as those appraised in the Report (the Recipients).

By accepting this Report, the Recipient acknowledges and represents to the Publisher[s] and each person involved in the preparation of the Report that the Recipient has understood and accepted the terms of this Disclaimer.

19.2. Limits on Reliance on Information and Recommendations

19.2.1. Disclaimer of liability

Neither the Publisher[s] nor any person involved in the preparation of the Report accept[s] any liability for any loss or damage suffered by any person however caused (including negligence or the omission by any person to do any thing) relating in any way to the Report or the product appraisal criteria underlying it. This includes (without limitation) any liability for any recommendation or information in the Report or any errors or omissions.

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The information and any recommendation contained (expressly or by implication) in this Report are provided in good faith. However, you should treat the information as indicative only. You should not rely on that information or any such recommendation except to the extent that you reach an agreement to the contrary with the Publisher[s].

This Report does not contain all information that a person might require for the purposes of assessing any product discussed or appraised within it (Product). The product appraisal criteria used in preparing this Report may not address all relevant aspects of the Product.

Recipients should seek independent evidence of any matter which is material to their decisions in connection with an assessment of the Product and consuL their own advisers for any technical information required. Any decision to use the Product should take into account the reliability of that independent evidence obtained by the Recipient regarding the Product.

Recipients should also independently verify and assess the appropriateness of any recommendation in the Report, especially given that any recommendation will not take into account a Recipient's particular needs or circumstances.

WSAA has not evaluated the extent of the product liability and professional indemnity insurance that the provider of the product maintains. Recipients should ensure that they evaluate the allocation of liability for product defects and any professional advice obtained in relation to the product or its specification including the requirements for product liability and professional indemnity insurance.

19.3. No updating

Neither the Publisher[s] nor any person involved in the preparation of this Report [has][have] any obligation to notify you of any change in the information contained in this Report or of any new information concerning the Publisher[s] or the Product or any other matter.

19.4. No warranty

The Publisher[s] do[es] not, in any way, warrant that steps have been taken to verify or audit the accuracy or completeness of the information in this Report, or the accuracy, completeness or reasonableness of any recommendation in this Report.

Appendix A Product Specifications

WATER SERVICES ASSOCIATION of Australia

PRODUCT SPECIFICATION

WSA PS 810
Separator Systems for Light Liquids

810.1 SCOPE

This specification covers Separator Systems for Light Liquids.

810.2 DESIGN REQUIREMENTS

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a) The system must comply with AS3500:2003 National Plumbing and Drainage Code where appropriate
b) The system must comply with AS/NZ 4494:1998 Discharge of commercial and industrial liquid waste to sewer – General performance requirements.
c) As a minimum the separator system must consist of a vented pit that has a minimum working volume of 500L and a separation device (such as a Coalescing Plate Interceptor (CPI), Hydro cyclone Separation System (HSS) or Vertical Gravity Separator (VGS)), a waste collection tank and a non emulsifying pump.
d) Separator systems are required to have adequate cross flow ventilation to prevent the growth of mould and fungus and to prevent the build up of gases.
e) A stilling zone before or after the inlet, or some other means of preventing turbulence in the tank containing the media
f) flow must be prevented from channelling around, over or under the contact media (plate pack, tube pack etc)
g) the hopper sludge value and a handle of the separator system to be made of metal
h) Concrete separator systems must comply with AS3735:2001 Concrete structures for retaining liquids. Written conformation from a suitably qualified engineer must accompany the application.
i) Separator systems designs of other materials of manufacture must be certified in writing by a suitably qualified structural engineer.
j) Lids and covers must comply with AS 3996:2006 Access covers and grates, Class A Covers
k) Detailed drawings must be supplied with the application
l) Interior surfaces of concrete and concrete fibre grease separator systems are to be coated so that the separator system is protected from corrosion/erosion by the waste contents and mechanical damage during cleaning. The coating must have a minimum 5 year warranty.

810.3 PERFORMANCE REQUIREMENTS

a) Treated waste water from the separator system must meet the following discharge standards

a.	Total Grease	50 mg/L
b.	Petroleum Hydrocarbons (flammable)	10 mg/L (includes BTEX)
c.	Benzene	0.1mg/L
d.	Suspended Solids	200 mg/L
e.	Flammability	<5% LEL (hexane) at 25°C
f.	pH	7 – 10

b) Testing of the separator system must be verified by a WSAA member and conducted by an independent third party as follows;
   a. the applicant is to submit details of the proposed sites and sampling program to the appropriate WSAA member prior to the commencement of the test
   b. testing must be conducted at a minimum of three sites
   c. seven separate full production days are to be spread over a six-week period and tested
   d. composite sampling must be conducted at two points, the separator inlet and separator outlet.
   e. Samples are to be analysed for total grease, petroleum hydrocarbons (including BTEX) suspended solids and pH using analytical methods as specified by the WSAA member supervising the test.

810.4 SUPPORTING INFORMATION

Your application should address the following in accordance with the appraisal application guideline.

a) Specification Drawings including all of the following
   a.1. Detailed scale drawings of every component in the product in sufficient detail to permit accurate determination of all relevant volumes, internal/external diameters and air spaces. This is also to include a size and type of pipe connection.
   a.2. All dimensions are to be in millimetres.
b) Provide full details of the separator venting arrangements.
c) Full details of the excavation and backfill and requirements.

Full specifications of access covers and lids must be provided. The minimum requirement is as follows:

   a. Material of construction
   b. Dimension
   c. Weight. Each access cover must have the weight of the cover displayed. The information must be permanently attached such that each number is no smaller than 100mm in height
   d. Compliance with the requirements of AS 3996:2006 Access covers and grates, Class A (provide evidence)
   e. In-ground access covers are to include installation instructions in the manual supplied to the installer/purchaser.
   f. Access covers shall not allow the ingress of storm water or the escape of gases. On the air or is in this exuberant as
   g. Chequer plate lids are only to be used when the arrestor is installed in non trafficable areas.

d) Full details of the grease arrestor cleaning procedure, such that all liquid can be pumped out and the solids scraped to remove accumulated material.
e) Provide an example of the compliance plate that will be fitted to each unit.
   The compliance plate must be robust and durable and fitted to each unit produced. It must be placed in a location where it will remain visible after installation, and legible for the life of the unit.

The compliance plate must be fitted to the grease arrestor before leaving the factory. The compliance plate must contain the following information:

a. Brand
b. contact phone number of manufacturer
c. generic title
d. model number
e. volume in litres
f. serial number
g. WSAA, product appraisal number.

Documentary evidence of all aspects of this technical specification will be required to be provided for consideration by the WSAA product appraisal committee. The product appraisal committee is made up of technical experts drawn from WSAA members.

Appendix B Product Testing

amdel

This Laboratory is accredited by the National Association of Testing Authorities, Australia. The test(s) reported herein have been performed in accordance with its terms of accreditation. This document shall not be reproduced except in full.

NATA Accredited Laboratory Number: 1464

INDUSTRIAL SERVICES DIVISION

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CERTIFICATE OF ANALYSIS

Contents :
1. Cover Pages (2)
2. Analysis Report Pages
3. QA/QC Appendix
4. Additional Reports - External (if applicable)
5. Chain of Custody (if applicable)

Report No.	:	3E1821
Attention	:	JOHN CASEY
Client	:	Clearmake Enviromental & Wastewater 21 Project Av Noosaville QLD 4566
Samples	:	4
Reference/Order	:	--
Project	:	CANTERBURY TIMBER WASHDOWN BAY
Received Samples	:	01/05/03
Instructions	:	01/05/03
Date Reported	:	26/05/03

PLEASE SEE FOLLOWING PAGE FOR METHOD LISTING

RESULTS

All samples were analysed as received. This report relates specifically to the samples as received. Results relate to the source material only to the extent that the samples as supplied are truly representative of the sample source. This report replaces any preliminary results issued. Note that for methods indicated with "*", NATA accreditation does not cover the performance of this service. Three significant figures (or 2 for < 10PQL) are reported for statistical purposes only. Where "Total" concentrations are reported for organic suites of compounds this is the summation of the individual compounds and the PQL is noted for reporting purposes only. This report has been auto-authorized by NATA signatories for PDF format. Refer to the method descriptions for further information.

PLEASE SEE ATTACHED PAGES FOR RESULTS

R. Mooney B.Sc.(Hons)Dip. FDA
Technical Services Manager Sydney

amdel

Report No. : 3E1821

Please note: Where samples are collected/submitted over several days, the date on which the last samples were analysed or extracted is reported.
Unless Ferrous Iron is determined on site, the possibility of a ferrous-ferric ratio change may occur.

Method	Description	Extracted	Analysed	Authorised
E2600	pH	02/05/03	05/05/03	NSA 101
E0230	TPH C6-C9 by purge & trap	05/05/03	05/05/03	DUM 094
E0221	TPH (C10-C36)	02/05/03	02/05/03	DUM 094
E2670	Suspended Solids	02/05/03	05/05/03	NSA 101
E2521	Grease & Oil (Soxhlet extn with CHCl3)	06/05/03	07/05/03	NSA 101

amdel

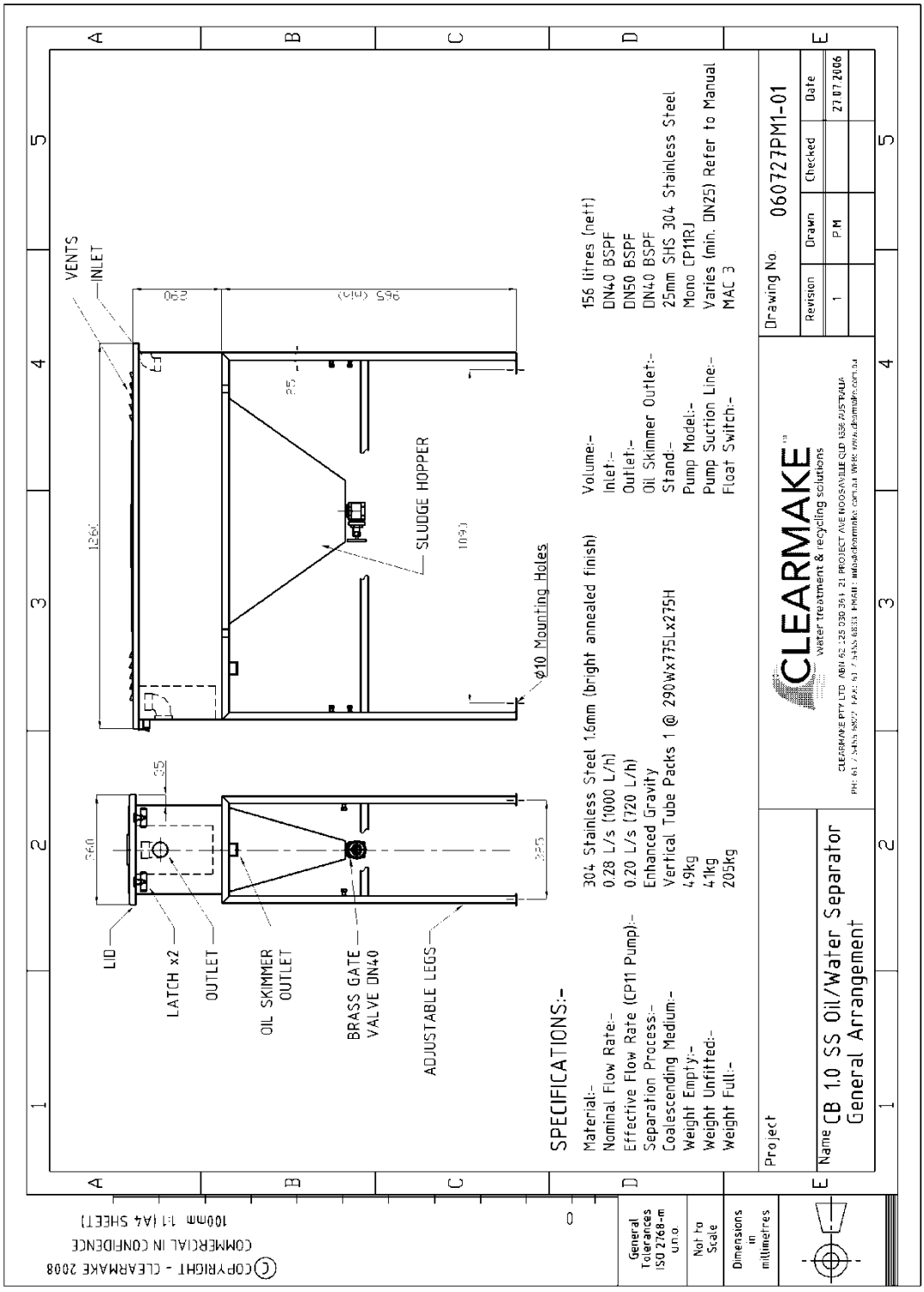
Job Number : 3E1821
Client : Clearmake Enviromental & Wastewater
Reference : --
Project : CANTERBURY TIMBER WASHDOWN BAY

Analyte	Lab No	E42882	E42883	E42993	E42994
		CTW	CTW	CTW 9am	CTW 3pm
	Sample Id	9am IN	3pm IN	OUT	OUT
	PQL				
*E0220 TPH in Water (%)					
TPH C6-C36 Fraction	1	60%	67%	--	--
E0230 TPH in Water by P&T/GC-MS (ug/L)					
C6-C9 Fraction	20	--	--	180	140
E0221 TPH in Water (ug/L)					
C10-C14 Fraction	20	--	--	2200	9300
C15-C28 Fraction	100	--	--	6780	57200
C29-C36 Fraction	100	--	--	2020	26900

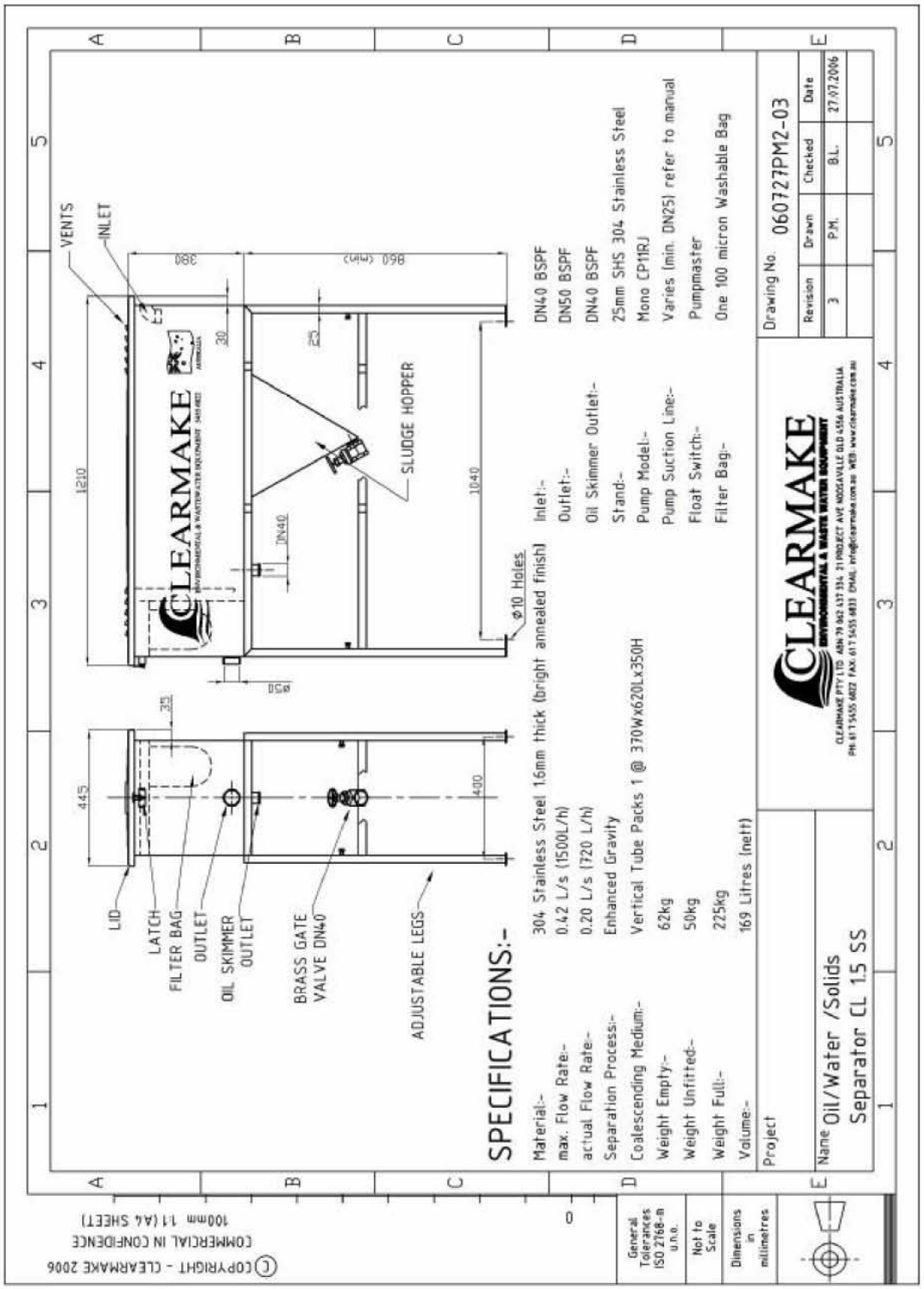
PQL = Practical Quantitation Limit
LNR = Samples Listed not Received
nd = < PQL
-- = Not Applicable
Refer to Amdel standard laboratory qualifier codes for comments.

Soils : mg/kg (ppm) dry weight unless otherwise specified
Waters : mg/L (ppm) unless otherwise specified in Method Header
Leachates : mg/L (ppm) in leachate unless otherwise specified in Method Header

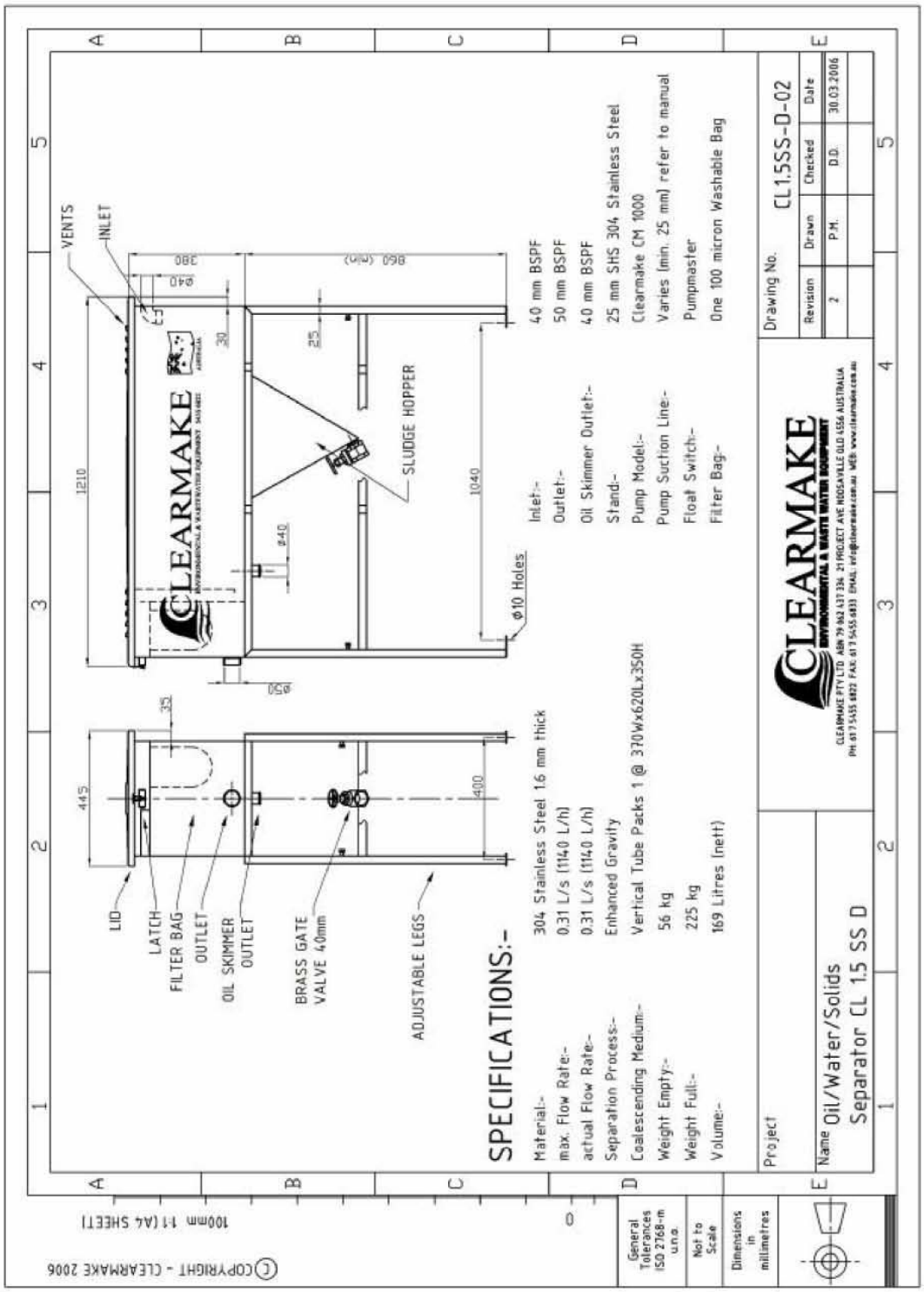
Clearmake CB 1.0SS Drawing



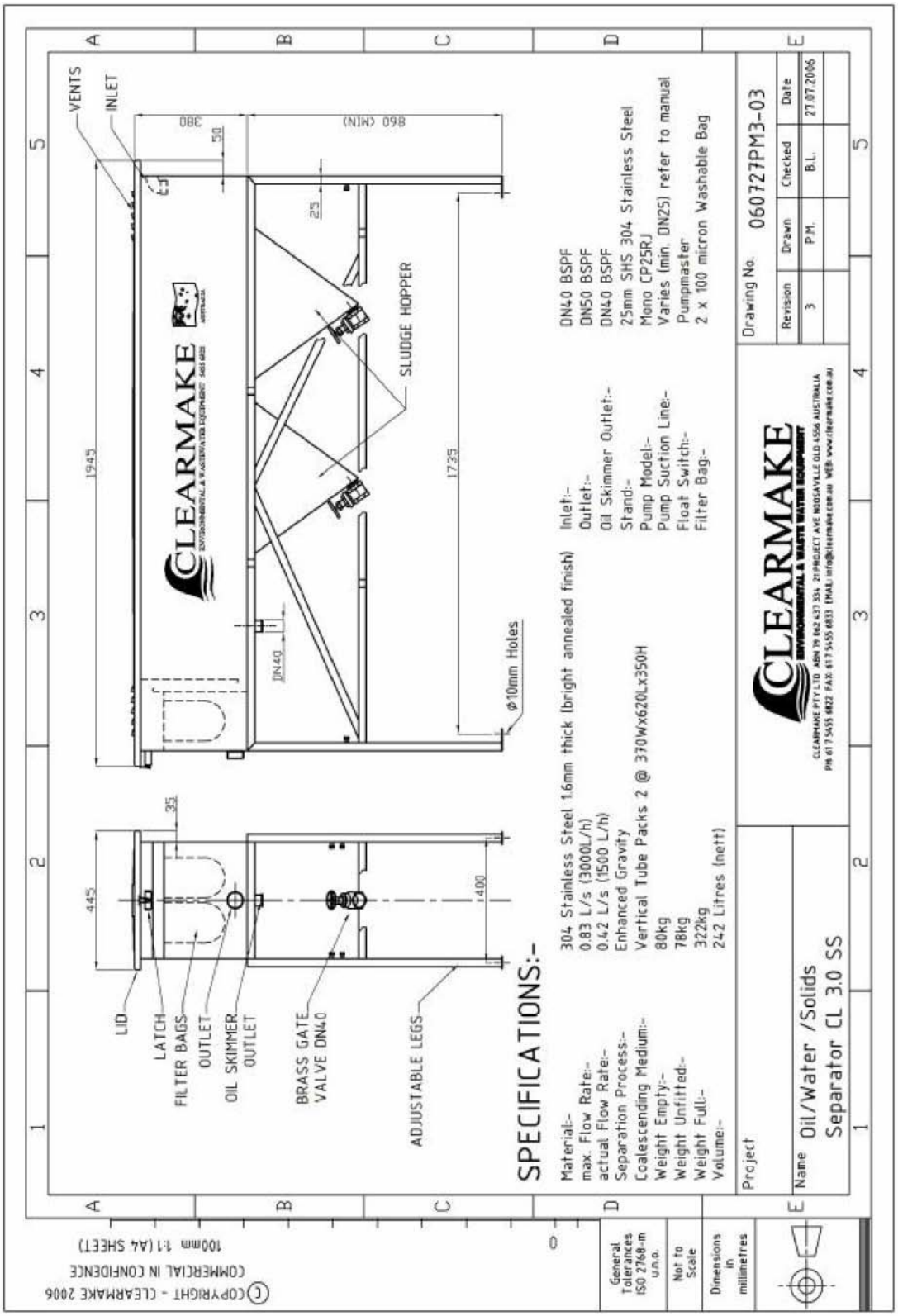
3 CLEARMAKE CL 1.5 SS DRAWING



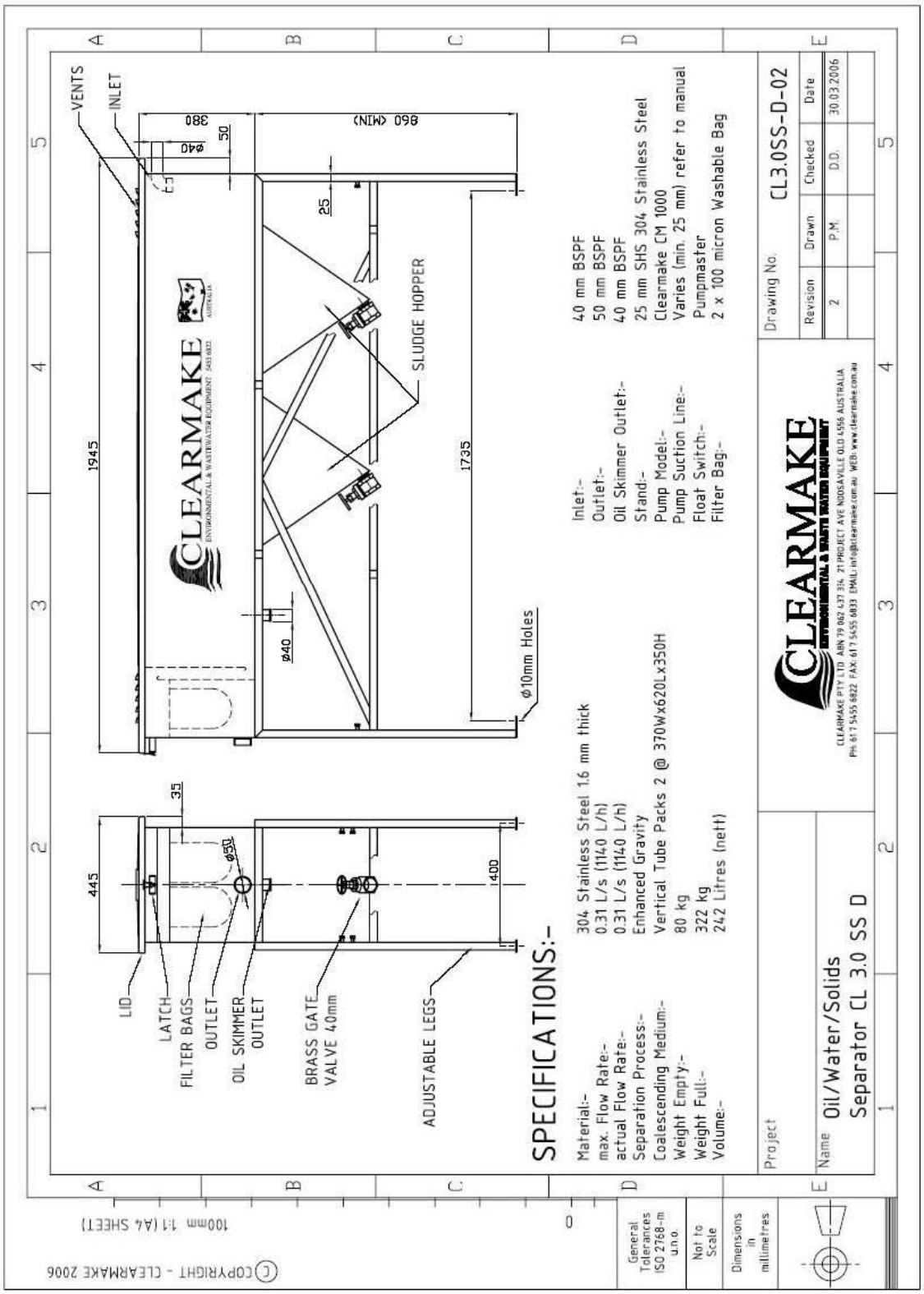
3 CLEARMAKE CL 1.5 SS D DRAWING



Clearmake CL 3.0 SS DRAWING



Clearmake CL 3.0 SSD DRAWING



Appendix D Supplier Contacts

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