Government of **Western Australia**
Department of **Health**

DEPARTMENT OF HEALTH
APPROVED
21 Jul 2023
CHO
OF WA

HEALTH (TREATMENT OF SEWAGE AND DISPOSAL OF EFFLUENT AND LIQUID WASTE) REGULATIONS 1974

HOLDING TANKS APPROVAL

This is to certify that the **Formit Services Waste Tank**

Model Designation	POTF20 – 2000 Litre Tank POTF40 – 4000 Litre Tank POTF60 – 6000 Litre Tank
Manufactured by:	Formit Services, 4/1 Co-Wyn Close Fountaindale, NSW 2258
DoH Approval Number:	F-AA-222585

is approved by the Chief Health Officer under the *Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974* for use within Western Australia in accordance with the conditions of this approval.

Date of Issue: 15 May 2023

This approval is valid for a period of five (5) years from the date of this approval or until withdrawn by the Chief Health Officer.

Richard Theobald
delegate of
CHIEF HEALTH OFFICER

Environmental Health Directorate | Public and Aboriginal Health Division
PO Box 8172 Perth Business Centre Western Australia 6849
Level 3, A Block, 189 Royal Street, EAST PERTH WA 6004
Telephone (08) 9222 2000
ABN 28 684 750 332
www.health.wa.gov.au

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21 Jul 2023
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OF WA

SCHEDULE 1: GENERAL DESCRIPTION

Specification Summary

Tank Model	Capacity (L)
POTF20	2000
POTF40	4000
POTF60	6000

SCHEDULE 2: CONDITIONS OF APPROVAL

1. General

1.1 Approval is granted in accordance with the drawings submitted and stamped by the Department of Health WA.

1.2 No alteration to the design or specification of the sewage holding tanks shall occur without prior approval of the Chief Health Officer.

1.3 Any changes to the design or the construction of the sewage holding tanks shall be submitted for assessment and approval to the Department of Health before being made commercially available in Western Australia.

1.4 Conditions of approval may be varied or withdrawn at the discretion of the Chief Health Officer.

1.5 sewage holding tanks shall be permanently and legibly marked on a non-corrosive metal plaque or equivalent, attached on the top external face of the tank adjacent to the inlet fitting with the following information:

- Brand name of the system
- Manufacturer name or registered trademark
- Distributor name
- Month and year of manufacture
- Capacity in litres
- Top load limitations
- Weight of tank

All marking shall be permanent, legible, and clearly visible.

1.6 The serviceable life of the sewage holding tanks and associated fittings shall be a minimum of 10 years provided it is installed in accordance with recommendations.

1.7 The use of the sewage holding tanks shall not cause health risk or odour nuisance as a result of sewage overflow, backflow or spillage.

2 Installation and Commissioning

2.1 For each installation, an application for approval to install shall be in the form of an application to install an apparatus as required under the *Health (Treatment of Sewage and Disposal of Effluent and Liquid Waste) Regulations 1974.* Each application for installation shall be made to the Local Government and include full plans and specifications, a completed *Application to Construct or Install an Apparatus for the Treatment of Sewage* form, and pay all fees as prescribed

2.2 The installation of sewage holding tanks shall be installed in accordance with the installation instructions specified by the manufacturer and shall comply with minimum clearances from buildings and property boundaries as per Local Government requirements.

2.3 The Local Government should require that on completion of the installation of the sewage holding tanks, the system is inspected and checked by the installer.

2.4 The sewage holding tanks shall be supplied, constructed and installed in accordance with the design as certified by Structural engineer documents.

2.5 Contents of the sewage holding tanks must be pumped, transported and disposed of in a manner approved by the local government. No sewage from the holding tank is allowed to be spilt onto the ground surface, into ground water or surface waters.

2.6 Sewage from the sewage holding tanks must be removed and disposed by a licensed operator and onto an approved disposal site.

2.7 The sewage holding tanks shall be fitted with appropriate connections/ plumbing fixtures to prevent spillage during pump outs.

2.8 The sewage holding tanks shall be equipped with audio visual alarms to prevent overflows and spillage.

2.9 sewage holding tanks must be supplied with an owner's manual, which sets out the care, operation, and maintenance and on-going management requirements of the system.

3 Permitted uses

3.1 The sewage holding tanks is approved only for commercial and temporary use up to a maximum of 12 months.

3.2 The sewage holding tanks is approved only for installation with the temporary toilet blocks.

Richard Theobald
delegate of
CHIEF HEALTH OFFICER

21 July 2023

DEPARTMENT OF HEALTH
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21 Jul 2023
CHO
OF WA

Formit Services Pty Ltd

STRUCTURAL CERTIFICATION OF 2000 EFFLUENT TANK SKID FRAME

8 February 2022

Rev No. 0

J7620-C01

Revision	Issue Date	Revision Details
0	08/02/2022	Original Certification

Author:	Benjamin Landers BEng(Civil) GradMIEAust Graduate Structural / Civil Engineer	Signed:	
Reviewed By:	Zane Rendell BEng(Civil)(Hons) MIEAust Senior Structural / Civil Engineer	Signed:	

TABLE OF CONTENTS

1. INTRODUCTION

In accordance with Formit Services' request to provide certification of the 2000L effluent tank frame supporting an amenities building structure, we submit the following information.

2. ENGINEER

Benjamin Landers
Bachelor of Engineering (Civil)(Hons)
University of Newcastle

3. SUPERVISING ENGINEER

Zane Rendell
Bachelor of Engineering (Civil)(Hons)
University of Newcastle
Member of the Institution of Engineers Australia (Reg No.4204684)

4. GENERAL

This document should be read in conjunction with drawings listed below in Table 1, provided by Formit Services, located in Appendix A.

Table 1: Engineering Drawings

Drawing Number	Revision	Title
WT-1209-125	2	FORMIT WASTE TANK 2000 Lt FRAME – LOWER FRAME (ORIGINAL) WITH TINE POCKETS – ASSEMBLY
WT-1208-122	1	FORMIT WASTE TANK 2000 Lt FRAME – (FLAT PACK) UPPER FRAME – DETAIL
WT-1208-126	2	FORMIT WASTE TANK 2000 Lt FRAME – (FLAT PACK) LOWER FRAME WITH TINE POCKETS – DETAIL
WT-1208-127	2	FORMIT WASTE TANK 2000 Lt FRAME – (FLAT PACK) LOWER FRAME WITH TINE POCKETS – COMPONENT

5. DESIGN BASIS

Our office was engaged to provide a design certification for the 2000L effluent tank skid frame which can be lifted by a forklift or a crane, and dragged on ground. The tanks are to be completely emptied before being lifted or dragged. The loads are to be evenly distributed on the 2 forklift tines which are to penetrate at least halfway into the tine tubes, or evenly distributed on the 4 end-rod drag loops for lifting, and 2 end-rod drag loops for dragging.

This certification covers four situations for the fully assembled frame:
1) Skid frame located on the ground and supporting the effluent tanks and amenities block
2) Skid frame and tank (empty) being lifted by forklift
3) Skid frame and tank (empty) being lifted by crane with slings evenly arranged between the four end-rod drag loops
4) Skid frame and tank (empty) being dragged with slings evenly arranged between two end-rod drag loops.

All design loads are as determined by Australian Standards.

All design work was carried out in accordance with the following standards:
- AS/NZS 1170.0 General principles
- AS/NZS 1170.1 Permanent, imposed and other actions
- AS/NZS 1170.2 Wind loads

- AS 4100 Steel structures
- AS 1418.1 Cranes, hoists, and winches

For wind loading the structure is to be located in an environment equivalent to a (at worst) wind region A and terrain category 2 in accordance with AS1170.2. If the location of the structure is such that it will be subject to greater loads then an engineer must be consulted.

We have not assessed the suitability of the forklift or lifting devices. We believe this is to be the responsibility of others.

Tie downs and fixing of the of the amenities structures to the frame is considered responsibility of others.

6. DEFINED CRITERIA

Rational engineering judgment has been used to decide which components require checking with design certification calculations. A finite element analysis model was used to determine to distribution of loads and capacity of members.

7. DESIGN LOADINGS

The tank frame was certified to support an amenities structure with a uniform mass of 1500kg plus a maximum of 6 people uniformly distributed inside, in addition to other loading criteria as required by the Australian Standards.

One plastic effluent 2000L tank sits along the 2.4m frame. This weight is uniformly distributed along the square hollow sections of the bottom frame. The amenities building structure with a mass of 1500kg and considering 6 occupants, is supported as described above.

The tanks contents are mostly water. The sections used were 300 grade steel members and 350 grade galvanized steel members. The amenities structure is supported on rails 0.3m from the edge of the frame and is required to be fixed to the skid frame.

The maximum combined mass of the skid frame and empty waste tank to be lifted either by crane or forklift is 360kg.

Ultimate limit states design factors used in the design are as follows:

- Dead load (only) factor of 1.35
- Dead load factor of 1.2
- Live load factor of 1.5
- Dynamic factor of 1.8

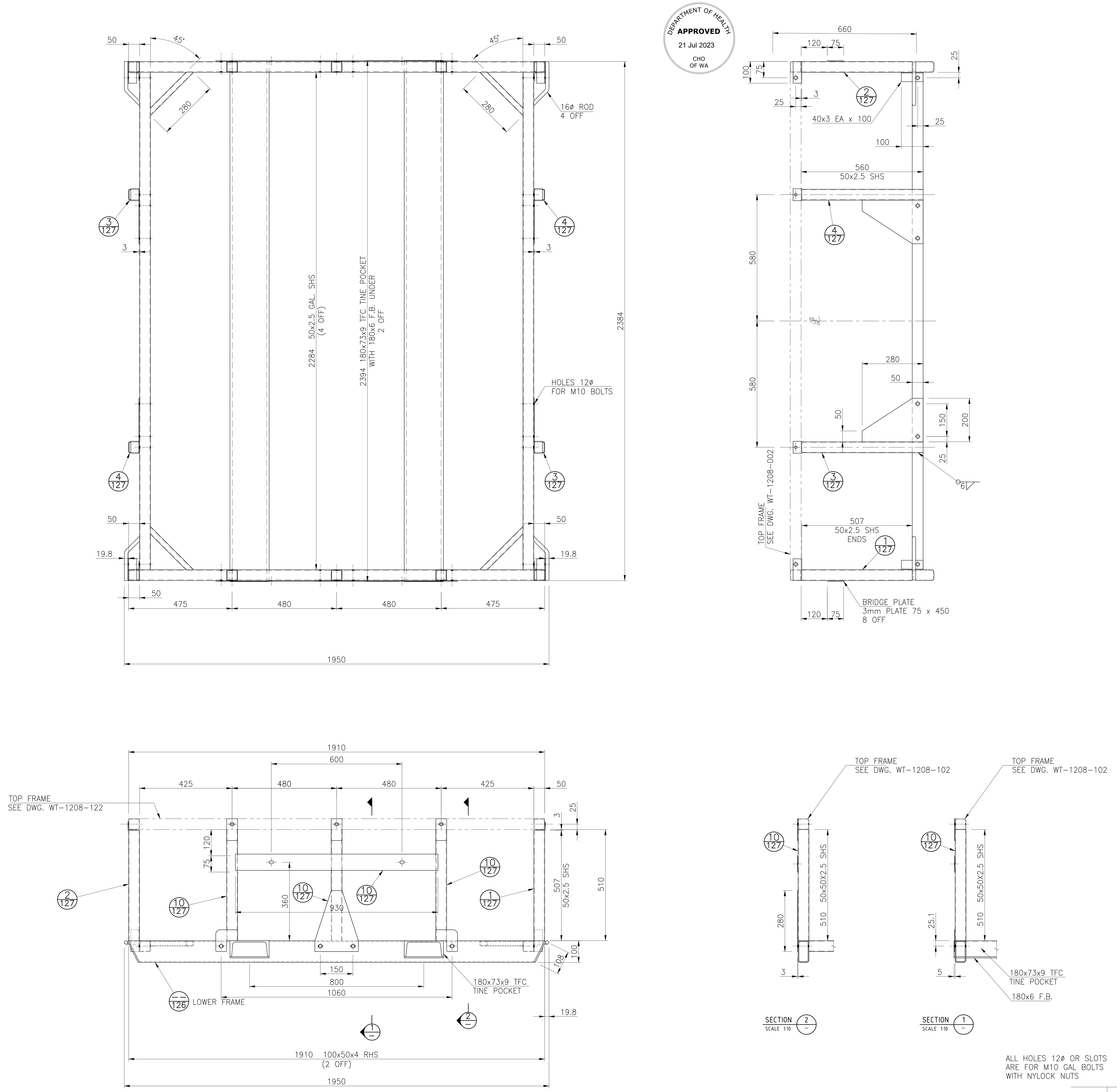
8. STATEMENTS & DISCLAIMERS

We confirm that the 2000L effluent tank skid frame with tine tubes as detailed in the drawings noted in Table 1 (above) and shown in Appendix A, is structurally satisfactory for the Load Limits noted in Section 7 above, provided the following are adhered to;

- The structure is inspected every 12 months (maximum), or as otherwise required to ensure no structural damage is evident.
- The certificate is applicable only if the structures are not affected by heat, adverse chemicals, excessive vibrations, or other external factors unknown and not noted to the certifying engineer.
- All items constructed are in accordance with the drawings & specifications as referenced by this certificate.
- All construction and materials is to be in accordance with Australian Standards, particularly AS4100 Clause 2.2.
- All welding is a minimum of 3mm GP continuous fillet welds all around, UNO.
- No modifications shall be made from the drawings attached in Appendix A, which would significantly increase the mass, alter the stability, or affect the design strength of the structure.

- The amenities structure is removed before moving the skid frame.
- The forklift tines penetrate at least halfway into the tine tubes.
- The effluent tanks are pumped out such that they are empty before moving the skid frame.
- The allowable bearing capacity of the ground is to be at least 100kPa.
- The structure is located in no worse than wind region A and terrain category 2 as per AS 1170.2.

APPENDIX A DRAWINGS

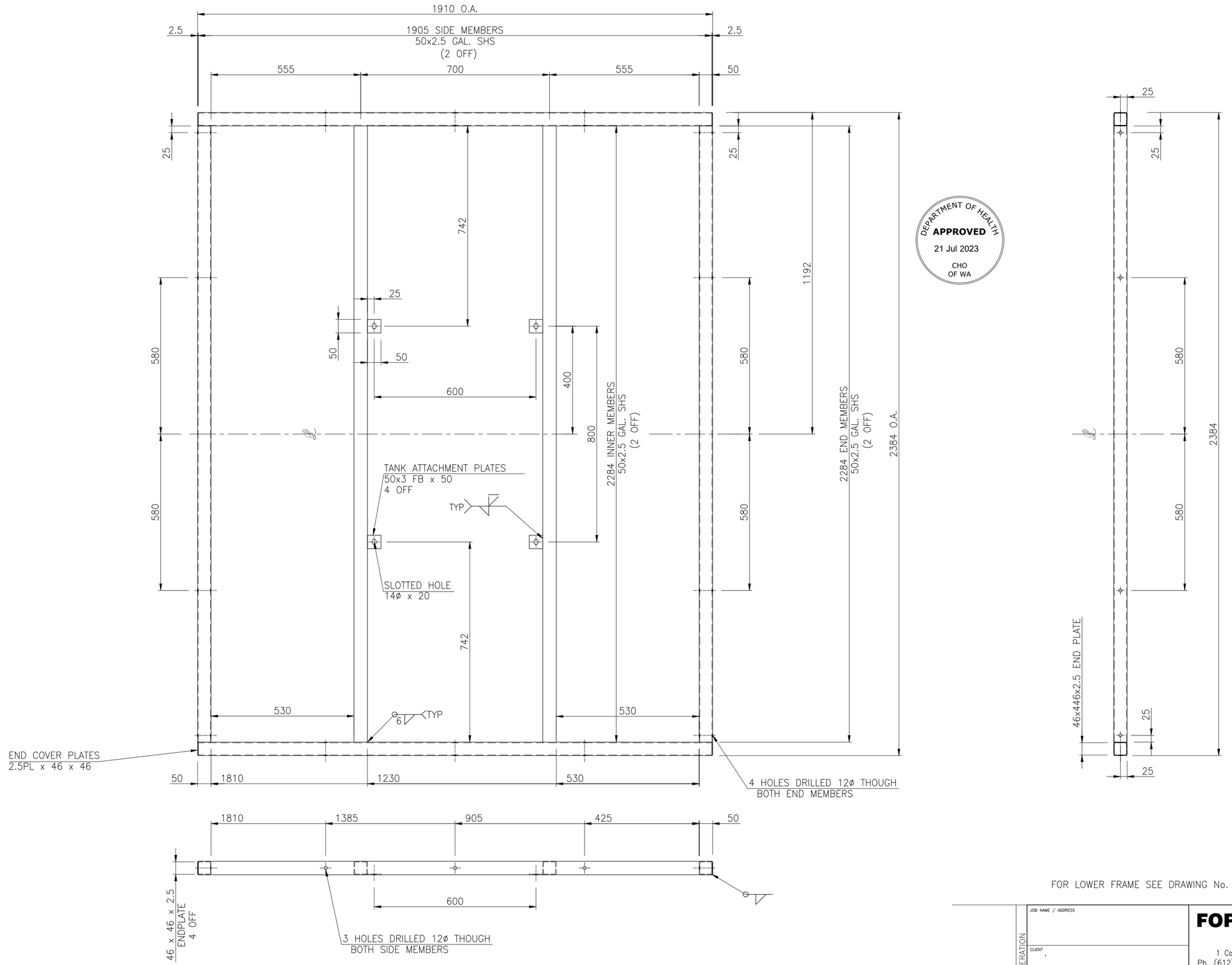


ALL HOLES 12ø OR SLOTS
ARE FOR M10 GAL BOLTS
WITH NYLOCK NUTS

FORMIT SERVICES PTY. LTD.
1 Co-Wyn Close, Fountaindale, NSW 2258
Ph. (612) 4336 1000 Fax. (612) 4389 1300

DRAWING DESCRIPTION
FORMIT WASTE TANK
2000 Lt FRAME
LOWER FRAME (ORIGINAL)
WITH TINE POCKETS – ASSEMBLY

SCALE 1:10
DATE 16/04/2012
SHEET SIZE A1
WT-1208-125
ISSUE 2



DEPARTMENT OF HEALTH
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21 Jul 2023
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OF WA

FOR LOWER FRAME SEE DRAWING No. WT-1208-121

ALTERATION
ISSUE

JOB NAME / ADDRESS

CLIENT
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.

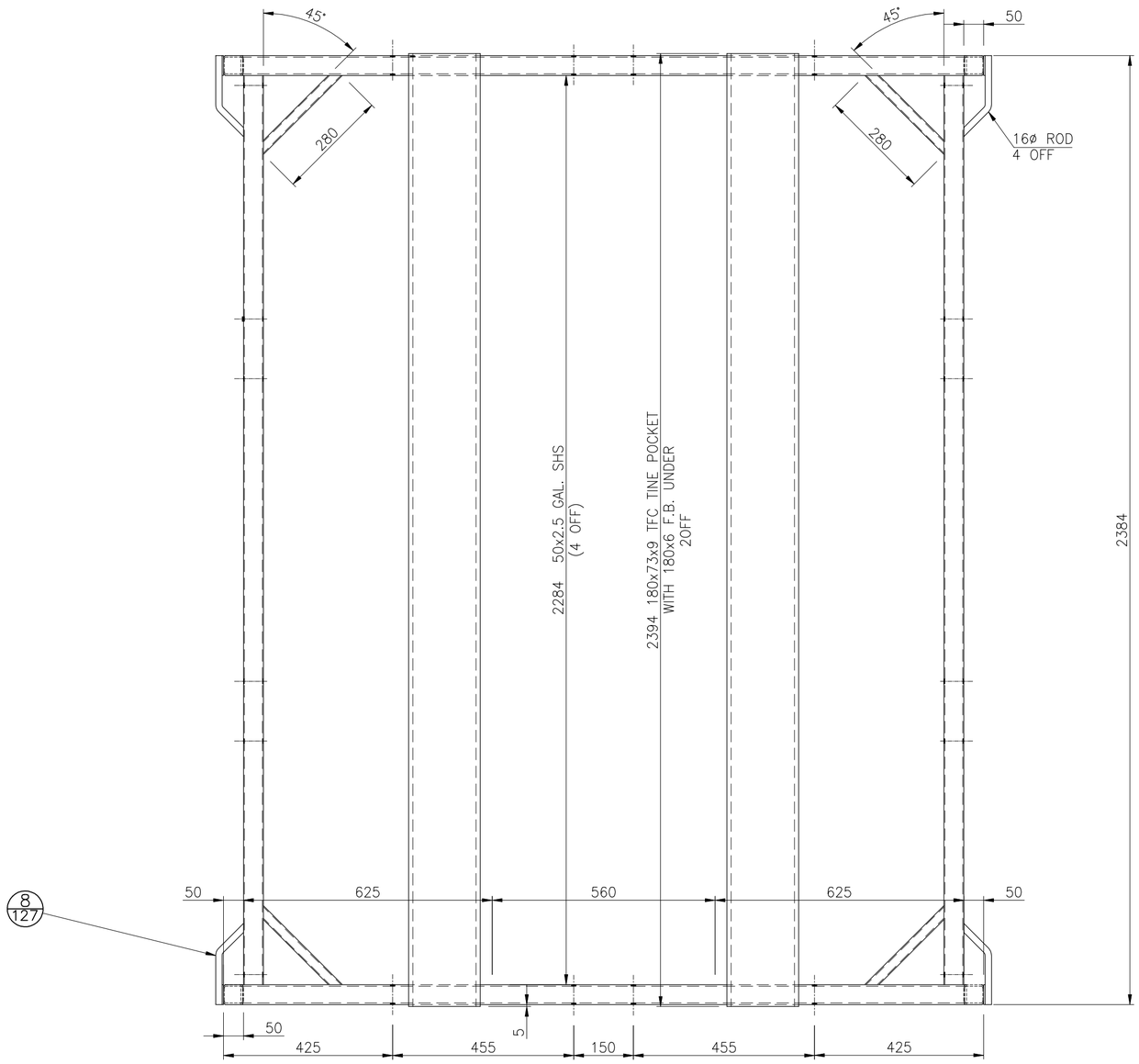
DRAWING DESCRIPTION
FORMIT WASTE TANK
2000 Lt FRAME (FLAT PACK)
UPPER FRAME
DETAIL

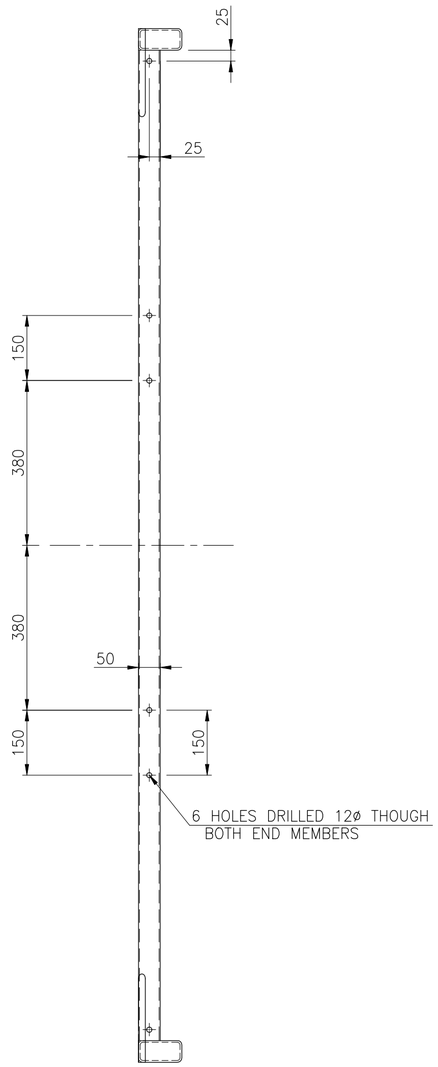
FORMIT SERVICES
PTY. LTD.
1 Co-Wyn Close, Fountaindale, NSW 2258
Ph. (612) 4336 1000 Fax. (612) 4389 1300

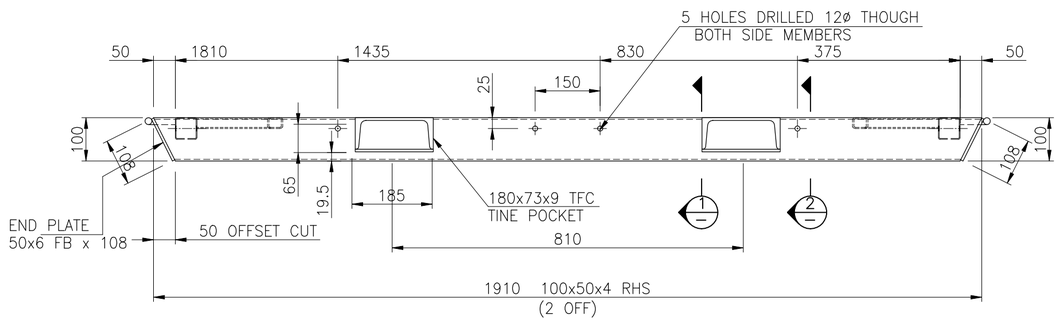
SCALE	1:10
DATE	13/03/2012
DRAWN	YarraTech
TS REF	TS00601
CHECKED	
PASSED	

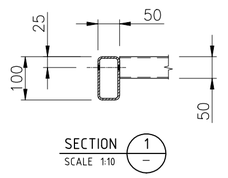
STANDARD NUMBER
WT-1208-122
JOB No DRAWING No.

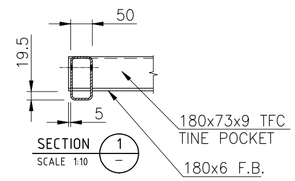
SHEET SIZE
A2
ISSUE

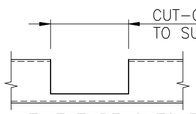












TINE TUBE CUTOUT.

NOTE; TINE TUBE CHANNEL IS TO FINISH FLUSH WITH TOP OF BASE RHS CHANNEL & FLAT BAR ARE TO BE FULLY WELDED FOR 300 AT EACH ENS THEN WITH 50 LONG WELDS WITH 200 SPACES.
WELDING BETWEEN TINE TUBE AND MAIN RHS TO BE FULL PENETRATION AND CONTINUOUS ON BOTH SIDES OF THE RHS.

DEPARTMENT OF HEALTH
APPROVED
21 Jul 2023
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OF WA

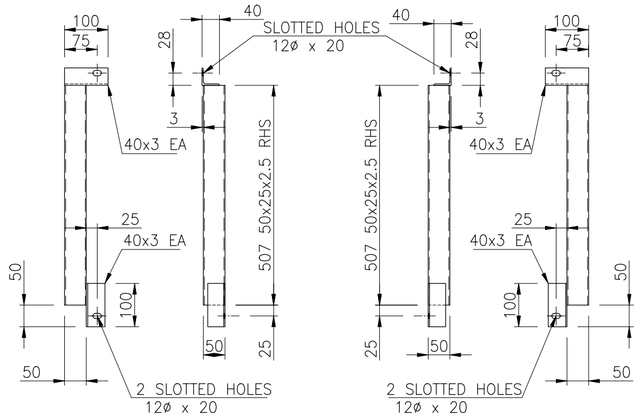
ISSUE	ALTERATION	JOB NAME / ADDRESS
2	TINE & CROSS TUBE REARRANGED 27/7/2012	CLIENT . .

FORMIT SERVICES PTY. LTD.
1 Co-Wyn Close, Fountaindale, NSW 2258
Ph. (612) 4336 1000 Fax. (612) 4389 1300

DRAWING DESCRIPTION: FORMIT WASTE TANK 2000 Lt FRAME (FLAT PACK) LOWER FRAME WITH TINE POCKETS – DETAIL

SCALE	1:10
DATE	16/04/2012
DRAWN	YarraTeck
TS REF	TS00601
CHECKED	
PASSED	

STANDARD NUMBER: WT-1208-126 (JOB No / DRAWING No.) SHEET SIZE: A2 ISSUE: 2

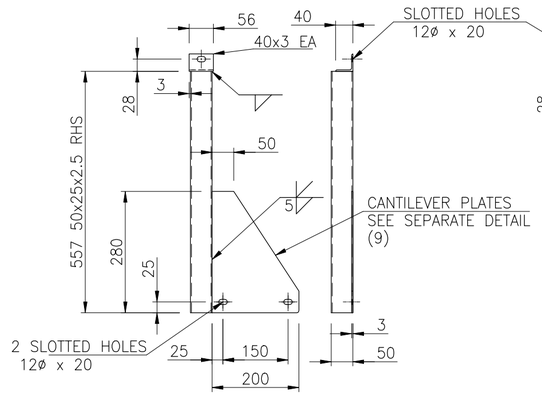


(1) CORNER POST L.H.

2 OFF PER ASSEMBLY

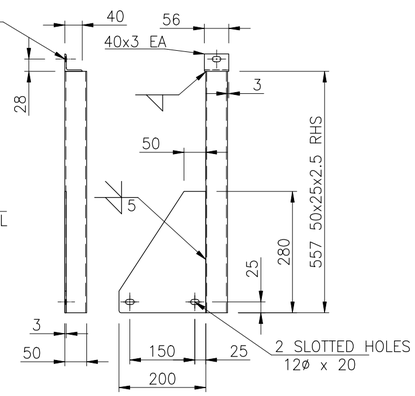
(2) CORNER POST R.H.

2 OFF PER ASSEMBLY



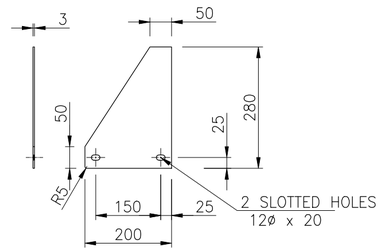
(3) END MID POST L.H.

2 OFF PER ASSEMBLY



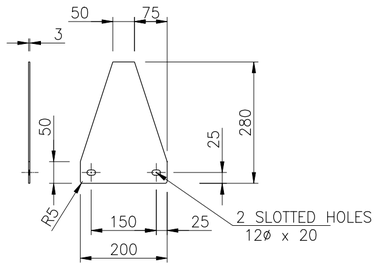
(4) END MID POST R.H.

2 OFF PER ASSEMBLY



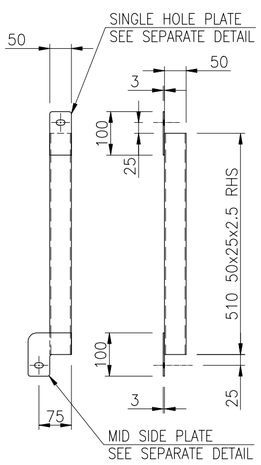
(10) END GUSSET PLATE

MATERIAL: 3mm G350 PLATE
4 OFF PER ASSEMBLY



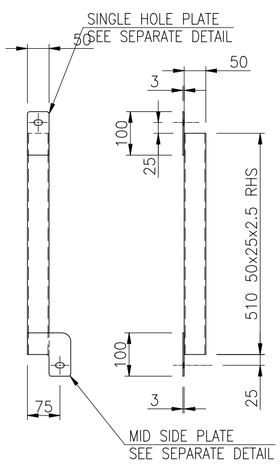
(11) SIDE GUSSET PLATE

MATERIAL: 3mm G350 PLATE
2 OFF PER ASSEMBLY



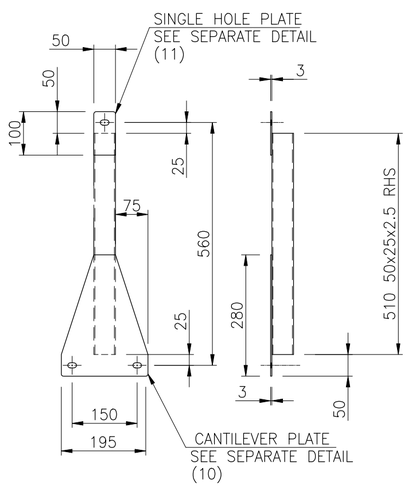
(5) SIDE POST A

2 OFF PER ASSEMBLY



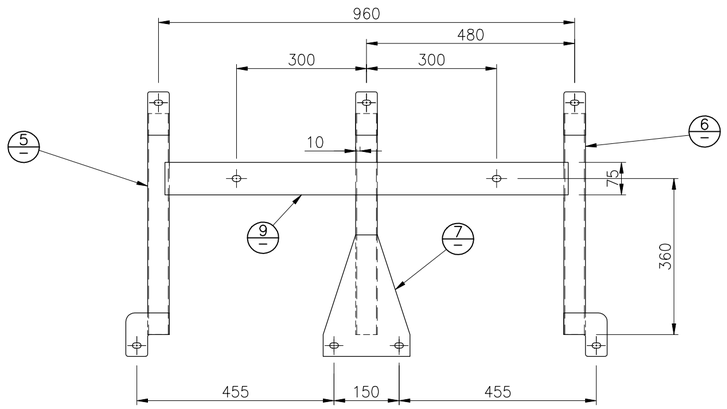
(6) SIDE POST B

2 OFF PER ASSEMBLY



(7) SIDE MID POST

2 OFF PER ASSEMBLY



(10) SIDE POST FRAME

2 OFF

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21 Jul 2023
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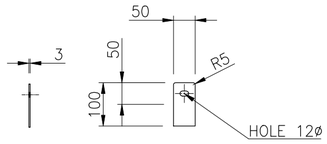
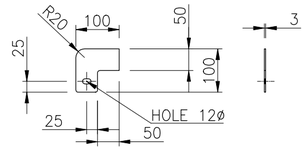
OF WA



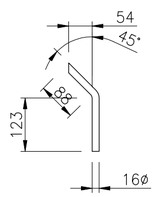
(12) SINGLE HOLE PLATE

MATERIAL: 3mm G350 PLATE
6 OFF PER ASSEMBLY



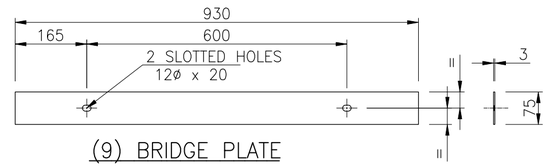
(13) MID SIDE PLATE

MATERIAL: 3mm G350 PLATE
4 OFF PER ASSEMBLY



(8) END ROD

MATERIAL: 16ø G300 ROD x 225
4 REQUIRED PER ASSEMBLY



(9) BRIDGE PLATE

MATERIAL 3mm G350 GAL STEEL
2 OFF PER ASSEMBLY

ISSUE	ALTERATION
2	SIDE, FRAME ASSEMBLIES ADDED AND BRACE PLATES COMBINED ALL 12ø CHANGED TO SLOTTED HOLES 27/7/12

JOB NAME / ADDRESS

CLIENT
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DRAWING DESCRIPTION
FORMIT WASTE TANK
2000 Lt FRAME
LOWER FRAME – FLAT PACK
WITH TINE POCKETS – COMPONENT

FORMIT SERVICES PTY. LTD.
1 Co-Wyn Close, Fountaindale, NSW 2258
Ph. (612) 4336 1000 Fax. (612) 4389 1300

SCALE	1:10
DATE	13/03/2012
DRAWN	YarraTalk
TS REF	TS000601
CHECKED	
PASSED	

STANDARD NUMBER

WT-1208-127 (JOB No / DRAWING No.)

SHEET SIZE: A2

ISSUE: 2

Formit Services Pty Ltd

STRUCTURAL CERTIFICATION OF 4000L EFFLUENT TANK SKID FRAME

8 February 2022

Rev No. 3

IZZAT CONSULTING ENGINEERS PTY LTD
Suite 4, 56 Hudson St Hamilton NSW | PO Box 988 Hamilton NSW 2303 | phone +61 2 4940 0090
fax +61 2 4940 0091 | email mail@izzat.com.au | www.izzat.com.au | abn 60 110 255 582

Revision	Issue Date	Revision Details
3	08/02/2022	Dragging added
2	02/12/2011	Frame altered
1	27/07/2010	Increased building load
0	07/11/2005	Original Certificate

Author:	Benjamin Landers BEng(Civil) GradMIEAust Graduate Structural / Civil Engineer	Signed:	
Reviewed By:	Zane Rendell BEng(Civil)(Hons) MIEAust Senior Structural / Civil Engineer	Signed:	

TABLE OF CONTENTS

1. INTRODUCTION

In accordance with Formit Service's request to provide updated certification of 4000L effluent tank frame supporting an amenities building structure, we submit the following information.

2. ENGINEER

Benjamin Landers
Bachelor of Engineering (Civil)(Hons)
University of Newcastle

DEPARTMENT OF HEALTH
APPROVED
21 Jul 2023
CHO
OF WA

3. SUPERVISING ENGINEER

Zane Rendell
Bachelor of Engineering (Civil)(Hons)
University of Newcastle
Member of the Institution of Engineers Australia (Reg No.4204684)

4. GENERAL

This document should be read in conjunction with drawings listed below in Table 1, provided by Formit Services, located in Appendix A.

Table 1: Engineering Drawings

Drawing Number	Revision	Title
WT-1141-002	1	Formit Waste Tank - 4000L Frame Upper Frame Detail
WT-1141-001	2	Formit Waste Tank - 4000L Frame Lower Frame Detail

5. DESIGN BASIS

Our office was engaged to provide a design certification for the 4000L effluent tank skid frame which can be lifted by a forklift, or a crane, and dragged on ground. The tanks are to be completely emptied before being lifted or dragged. The loads are to be evenly distributed on the 2 forklift tines which are to penetrate at least halfway into the tine tubes, or evenly distributed on the 4 lifting lugs for lifting, and 2 end-rod drag loops for dragging.

This certification covers four situations for the fully assembled frame;
1) Skid frame located on the ground and supporting the effluent tanks and amenities block
2) Skid frame and tank (empty) being lifted by forklift
3) Skid frame and tank (empty) being lifted by crane with slings evenly arranged between the 4 lifting points.
4) Skid frame and tank (empty) being dragged with slings evenly arranged between two end-rod drag loops.

All design loads are as determined by Australian Standards.

All design work was carried out in accordance with the following standards;
- AS/NZS 1170.0 General principles
- AS/NZS 1170.1 Permanent, imposed and other actions
- AS/NZS 1170.2 Wind loads
- AS 4100 Steel structures
- AS 1418.1 Cranes, hoists, and winches

For wind loading the structure is to be located in an environment equivalent to a (at worst) wind region A and terrain category 2 in accordance with AS1170.2. If the location of the structure is such that it will be subject to greater loads then an engineer must be consulted.

We have not assessed the suitability of the forklift or lifting devices. We believe this is to be the responsibility of others.

Tie downs and fixing of the of the amenities structures to the frame is considered responsibility of others.

6. DEFINED CRITERIA

Rational engineering judgment has been used to decide which components require checking with design certification calculations. A finite element analysis model was used to determine to distribution of loads and capacity of members.

7. DESIGN LOADINGS

The tank frame was certified to support an amenities structure with a uniform mass of 5000kg plus a maximum of 8 people uniformly distributed inside.

Two plastic effluent 2000L tanks sit along the 3.8m frame. This weight is uniformly distributed along the square hollow sections of the bottom frame. The amenities building structure, with a mass of 5000kg and considering 8 occupants, is supported as detailed above and in Appendix A.

The tank contents are mostly water. The sections used were 300 grade steel members and 450 grade Duragal members. The amenities structure is supported on rails 0.3m from the edge of the frame.

Ultimate limit states design factors used in the design are as follows:

- Dead load (only) factor of 1.35
- Dead load factor of 1.2
- Live load factor of 1.5
- Dynamic factor of 1.2

8. STATEMENTS & DISCLAIMERS

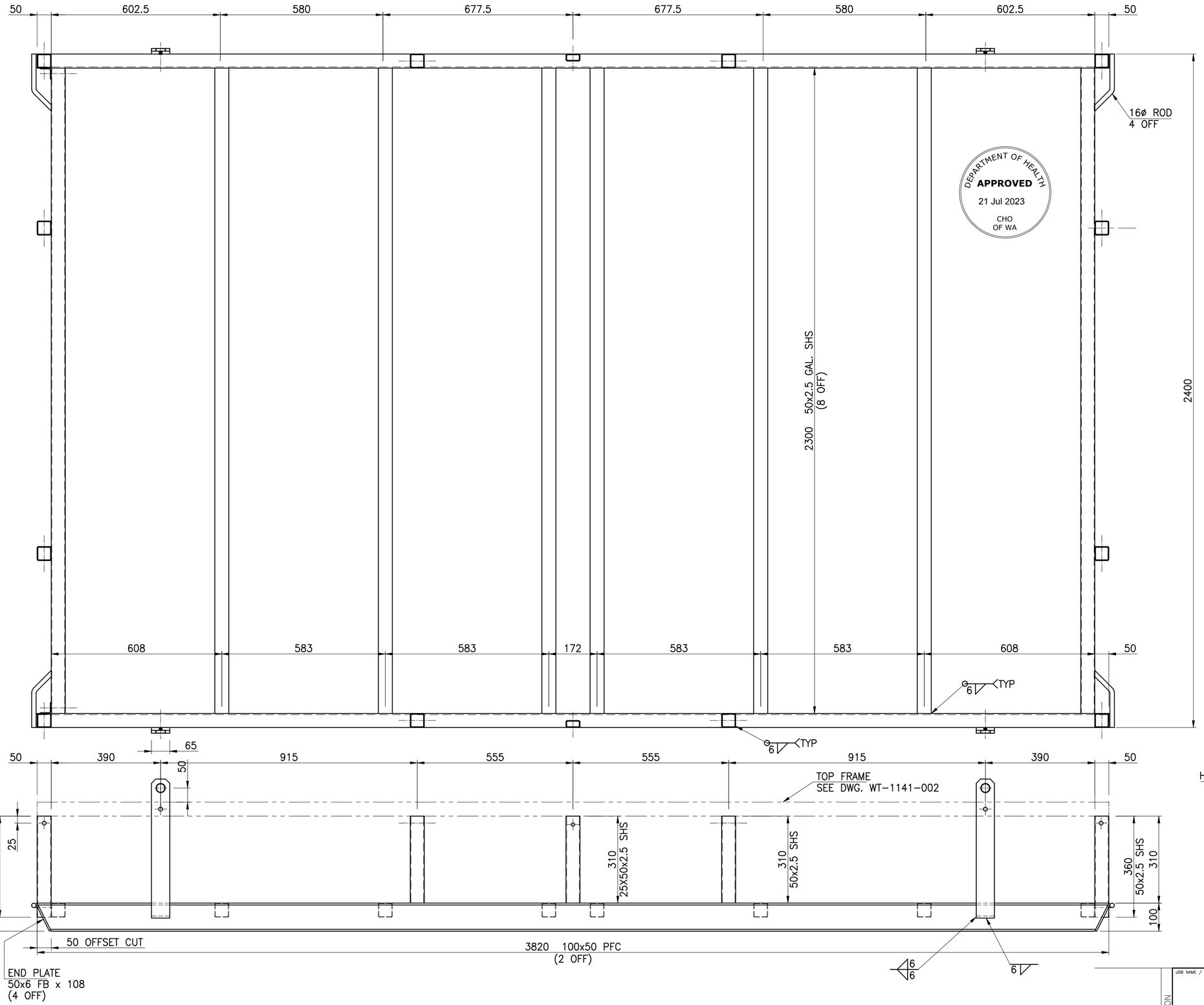
We confirm that the 4000L effluent tank skid frame with tine tubes as detailed in the drawings noted in Table 1 (above), is structurally satisfactory for the Load Limits noted in Section 7 above, provided the following are adhered to;

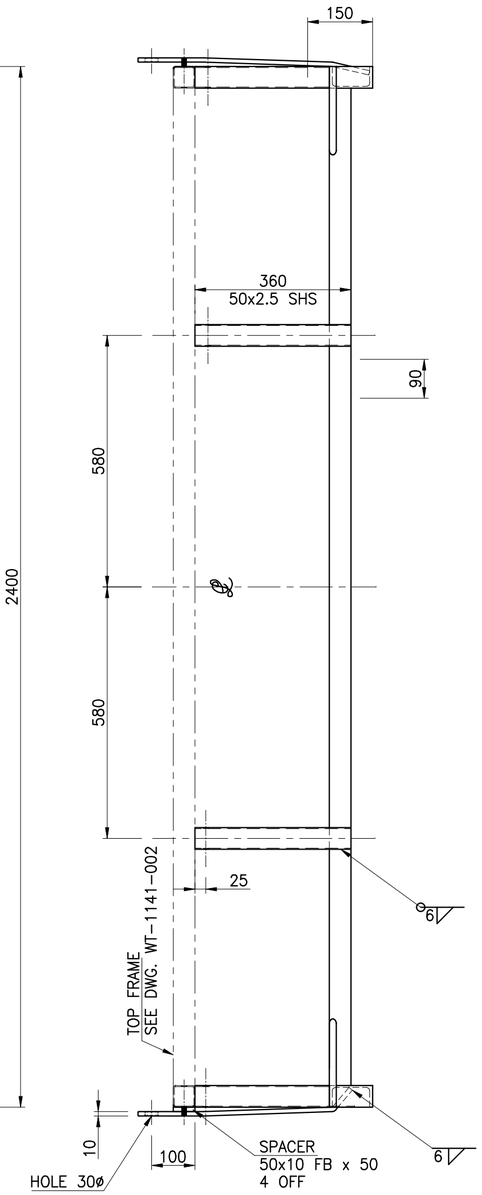
- The structure is inspected every 12 months (maximum), or as otherwise required to ensure no structural damage is evident.
- The above certificate is applicable only if the frame is not affected by heat, adverse chemicals, excessive vibrations or other external factors unknown and not noted to the certifying engineer.
- The design certification is provided on the basis that materials used meet Australian Standards, Construction practices are in accordance with industry standards.
- No modifications shall be made from the drawings attached in Appendix A, and the frame is fully assembled.
- The amenities structure is removed before moving the skid frame.
- The forklift tines penetrate at least halfway into the tine tubes.
- The effluent tanks are pumped out such that they are empty before moving the skid frame.
- The allowable bearing capacity of the ground is to be at least 100kPa
- The structure is located in no worse than wind region A and terrain category 2 as per AS1170.2

Depending on the ground type, the base frame may compress into the ground such that the 50 SHS members will be touching the ground. John Aitken at Formit Services has accepted this possibility.

The increased load, as detailed in Section 8, induces a maximum deflection of 25mm in the members of the top frame. As such it should be ensured there is adequate free space between the effluent tank and the members of the top frame to cater for this deflection.

APPENDIX A DRAWINGS





DEPARTMENT OF HEALTH
APPROVED
21 Jul 2023
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OF WA

JOB NAME / ADDRESS

CLIENT
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ALTERATION

ISSUE

DRAWING DESCRIPTION
FORMIT WAIST TANK
4000 Lt FRAME
LOWER FRAME
DETAIL

SCALE	1:10
DATE	10/10/2011
DRAWN	M.A.V. Yarra Tek
TS REF	TS00...
CHECKED	
PASSED	

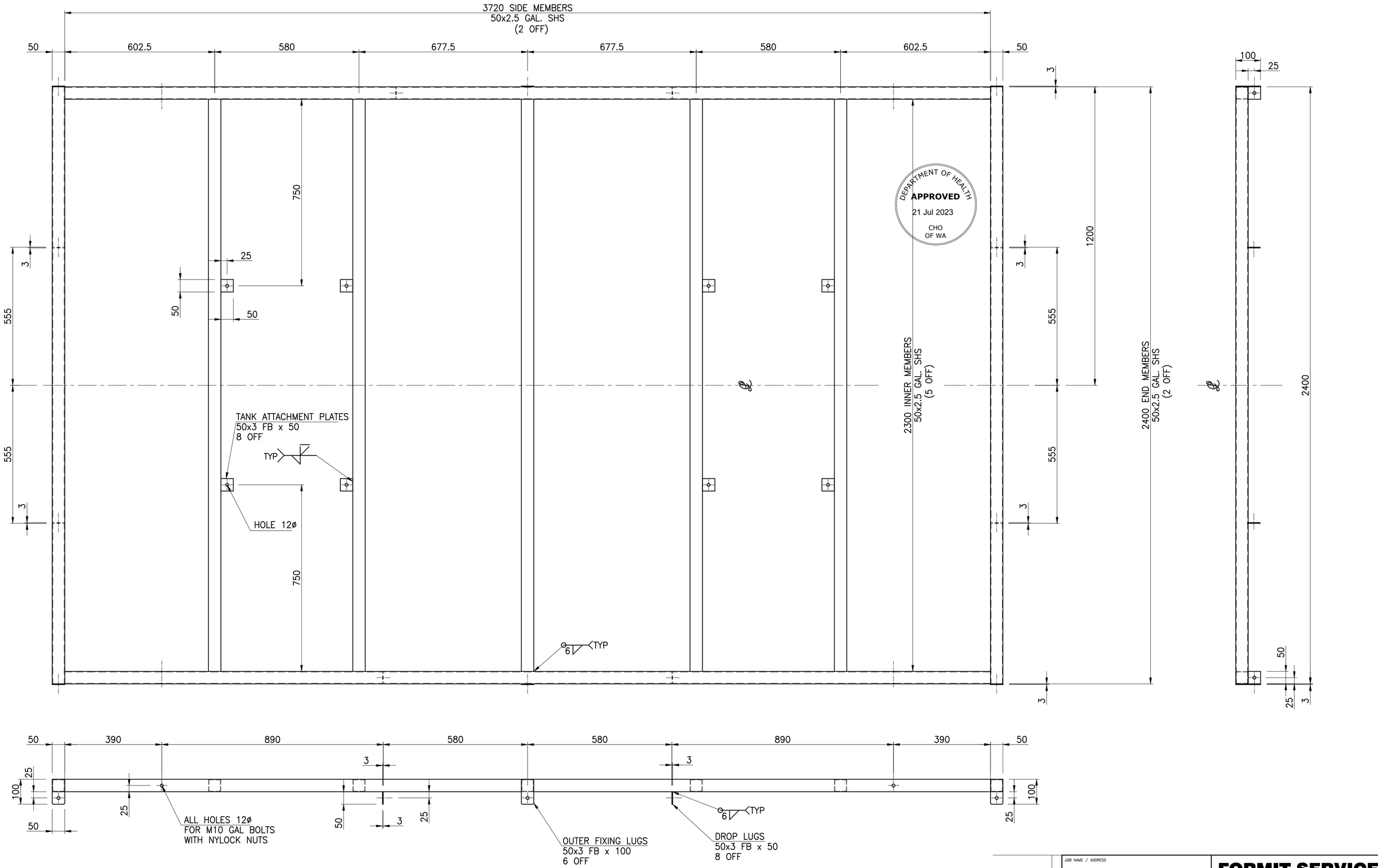
STANDARD NUMBER

WT-1141-001

JOB No | DRAWING No. | ISSUE

SHEET SIZE
A2

FORMIT SERVICES PTY. LTD.
1 Co-wyn Close Fountaidale NSW 2258
Ph. (612) 4336 1000 Fax. (612) 4389 1300



ALTERATION

ISSUE

JOB NAME / ADDRESS

CLIENT
.
.

DRAWING DESCRIPTION
FORMIT WAIST TANK
4000 Lt FRAME
UPPER FRAME
DETAIL

FORMIT SERVICES PTY. LTD.
1 Co-wyn Close Fountaidale NSW 2258
Ph. (612) 4336 1000 Fax. (612) 4389 1300

SCALE	1:1
DATE	10/10/2011
DRAWN	M.A.V. YarraTekX
TS REF	TS00...
CHECKED	
PASSED	

STANDARD NUMBER

WT-1141-002

JOB No DRAWING No.

SHEET SIZE A2

ISSUE


DEPARTMENT OF HEALTH
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21 Jul 20
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IZZAT
CONSULTING ENGINEERS
A DOCKRILL FAMILY COMPANY

Different thinking.
Smarter solutions.

Formit Services Pty Ltd

STRUCTURAL CERTIFICATION OF 6000L EFFLUENT TANK SKID FRAME

7 October 2022

Rev No. 5

IZZAT CONSULTING ENGINEERS PTY LTD
Suite 4, 56 Hudson St Hamilton NSW | PO Box 988 Hamilton NSW 2303 | phone +61 2 4940 0090
fax +61 2 4940 0091 | email mail@izzat.com.au | www.izzat.com.au | abn 60 110 255 582

Revision	Issue Date	Revision Details
5	07/10/2022	Revised Wording
4	08/02/2022	Dragging Added
3	23/08/2013	Tine Tubes Added – Lifting By Forklift
2	30/07/2010	Increased Building Load
1	11/11/2008	Lifting Added
0	27/03/2008	Original Certificate

Author:	Benjamin Landers BEng(Civil) GradMIEAust Graduate Structural / Civil Engineer	Signed:	
Reviewed By:	Zane Rendell BEng(Civil)(Hons) MIEAust Senior Structural / Civil Engineer	Signed:	

TABLE OF CONTENTS

1. INTRODUCTION

In accordance with Formit Service's request to provide updated certification of 6000L effluent tank frame supporting an amenities building structure, we submit the following information.

2. ENGINEER

Benjamin Landers
Bachelor of Engineering (Civil)(Hons)
University of Newcastle

3. SUPERVISING ENGINEER

Zane Rendell
Bachelor of Engineering (Civil)(Hons)
University of Newcastle
Member of the Institution of Engineers Australia (Reg No.4204684)

4. GENERAL

This document should be read in conjunction with drawings listed below in Table 1, provided by Formit Services, located in Appendix A.

Table 1: Engineering Drawings

Drawing Number	Revision	Title
WT-1208-112	3	FORMIT WASTE TANK 6000 Lt FRAME– FLAT PACK UPPER FRAME DETAIL
WT-1208-115	4	FORMIT WASTE TANK 6000 Lt FRAME LOWER FRAME – FLAT PACK WITH TINE TUBES - ASSEMBLY
WT-1208-116	2	FORMIT WASTE TANK 6000 Lt FRAME LOWER FRAME – FLAT PACK WITH TINE - DETAIL
WT-1208-117	3	FORMIT WASTE TANK 6000 Lt FRAME LOWER FRAME – FLAT PACK WITH TINE – COMPONENT DETAIL
WT-1208-118	3	FORMIT WASTE TANK 6000 Lt FRAME LOWER FRAME – SIDE FRAME ASSEMLIES

5. DESIGN BASIS

Our office was engaged to provide a design certification for the 6000L effluent tank skid frame which can be lifted by a forklift, or a crane, and dragged on ground. The tanks are to be completely emptied before being lifted or dragged. The loads are to be evenly distributed on the 2 forklift tines which are to penetrate at least halfway into the tine tubes, or evenly distributed on the 4 lifting lugs for lifting, and 2 end-rod drag loops for dragging.

This certification covers four situations for the fully assembled frame;
1) Skid frame located on the ground and supporting the effluent tanks and amenities block
2) Skid frame and tank (empty) being lifted by forklift
3) Skid frame and tank (empty) being lifted by crane with slings evenly arranged between the 4 lifting points.
4) Skid frame and tank (empty) being dragged with slings evenly arranged between two end-rod drag loops.

All design loads are as determined by Australian Standards.

All design work was carried out in accordance with the following standards;
- AS/NZS 1170.0 General principles
- AS/NZS 1170.1 Permanent, imposed and other actions

- AS/NZS 1170.2 Wind loads
- AS 4100 Steel structures
- AS 1418.1 Cranes, hoists, and winches

For wind loading the structure is to be located in an environment equivalent to a (at worst) wind region A and terrain category 2 in accordance with AS1170.2. If the location of the structure is such that it will be subject to greater loads then an engineer must be consulted.

We have not assessed the suitability of the forklift or lifting devices. We believe this is to be the responsibility of others.

Tie downs and fixing of the of the amenities structures to the frame is considered responsibility of others.

6. DEFINED CRITERIA

Rational engineering judgment has been used to decide which components require checking with design certification calculations. A finite element analysis model was used to determine to distribution of loads and capacity of members.

7. DESIGN LOADINGS

The tank frame was certified to support an amenities structure with a uniform mass of 7000kg plus a maximum of 12 people uniformly distributed inside.

Three plastic effluent 2000L tanks sit along the 5.86m frame. This weight is uniformly distributed along the square hollow sections of the bottom frame. The amenities building structure, with a mass of 7000kg and considering 12 occupants, is supported as described above.

The tanks contents are mostly water. The sections used were 300 grade steel members and 350 grade galvanized steel members. The amenities structure is supported on rails 0.3m from the edge of the frame and is required to be fixed to the skid frame.

The maximum combined mass of the skid frame and empty waste tank to be lifted by either crane or forklift is 1000kg.

Ultimate limit states design factors used in the design are as follows:

- Dead load (only) factor of 1.35
- Dead load factor of 1.2
- Live load factor of 1.5
- Dynamic factor of 1.2

8. STATEMENTS & DISCLAIMERS

We confirm that the 6000L effluent tank skid frame with tine tubes as detailed in the drawings noted in Table 1 (above), is structurally satisfactory for the Load Limits noted in Section 7 above, provided the following are adhered to;

- The structure is inspected every 12 months (maximum), or as otherwise required to ensure no structural damage is evident.
- The above certificate is applicable only if the frame is not affected by heat, adverse chemicals, excessive vibrations or other external factors unknown and not noted to the certifying engineer.
- The design certification is provided on the basis that materials used meet Australian Standards, Construction practices are in accordance with industry standards.
- No modifications shall be made from the drawings attached in Appendix A, and the frame is fully assembled.
- The amenities structure is removed before moving the skid frame.
- The forklift tines penetrate at least halfway into the tine tubes.
- The effluent tanks are pumped out such that they are empty before moving the skid frame.

- The allowable bearing capacity of the ground is to be at least 100kPa
- The structure is located in no worse than wind region A and terrain category 2 as per AS1170.2

Depending on the ground type, the base frame may compress into the ground such that the 50 SHS members will be touching the ground. John Aitken at Formit Services has accepted this possibility.

The increased load, as detailed in Section 8, induces a maximum deflection of 25mm in the members of the top frame. As such it should be ensured there is adequate free space between the effluent tank and the members of the top frame to cater for this deflection.

APPENDIX A DRAWINGS

2395 180x73x9 TFC TINE POCKET WITH 180x6 F.B. UNDER
2285 50x2.5 GAL. SHS (10 OFF)
16ø ROD 4 OFF
HOLES 12ø FOR M10 BOLTS
25x25x2.5 SHS BRACE 4 OFF
2385 O.A.
65x10 FB
40x3 EA x 100
50x2.5 SHS
50x2.5 SHS ENDS
TOP FRAME SEE DWG. WT-1208-002
BRIDGE PLATE 3mm PLATE 75 x 450 8 OFF
HOLE 30ø
DEPARTMENT OF HEALTH APPROVED 21 Jul 2023 CHO OF WA
LOCATION POINT FOR LIFTING FRAME
TOP FRAME SEE DWG. WT-1208-112
BRIDGE PLATE 3mm PLATE 75 x 930 6 OFF
50x25x2.5 RHS
50x50x2.5 SHS 18 OFF
510 HALF POST 50x25x2.5 RHS 4 OFF
END PLATE 50x6 FB x 108 (4 OFF)
50 OFFSET CUT
180x73x9 TFC TINE TUBE WITH 180x6 F.B.
LOWER FRAME
5860 100x50x4 RHS (2 OFF)
50x5 EA
180x73x9 TFC TINE TUBE
SECTION 1 SCALE 1:10
SECTION 2 SCALE 1:10
SECTION 3 SCALE 1:10
SECTION 4 SCALE 1:10
L.H.S. END SIDE POST FRAME SEE DWG. WT-1208-118 (2)
MID SIDE POST FRAME SEE DWG. WT-1208-118 (1)
R.H. END SIDE POST FRAME SEE DWG. WT-1208-118 (3)
5899.6

FOR UPPER FRAME SEE DRAWING No. WT-1208-112

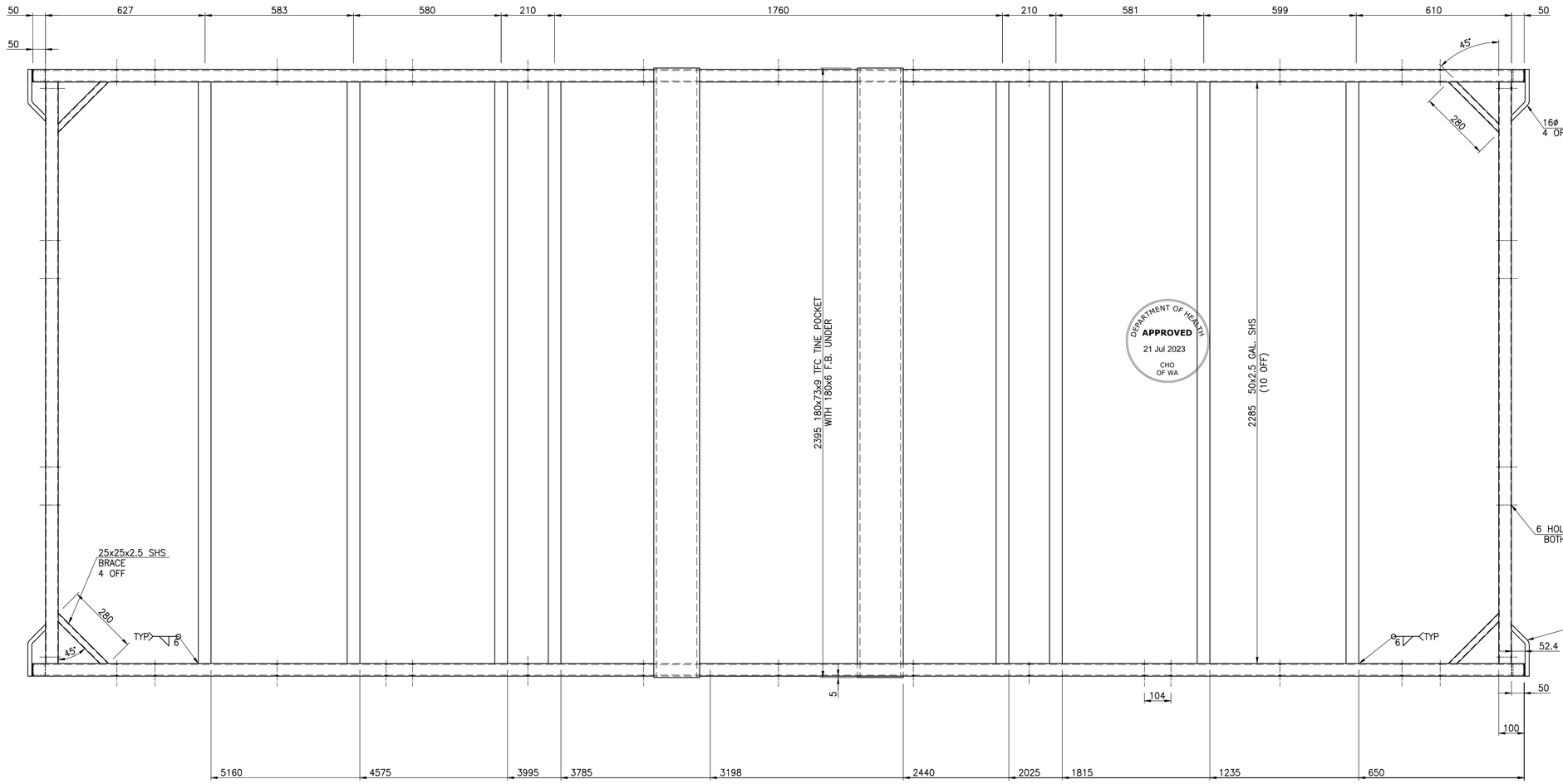
FORMIT SERVICES PTY. LTD.

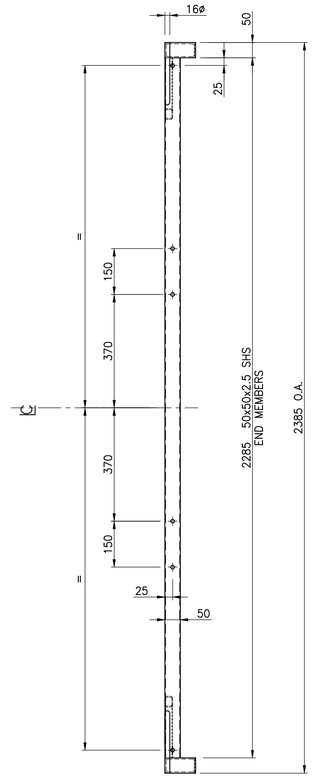
1 Co-Wyn Close, Fountaindale, NSW 2258
Ph. (612) 4336 1000 Fax. (612) 4389 1300

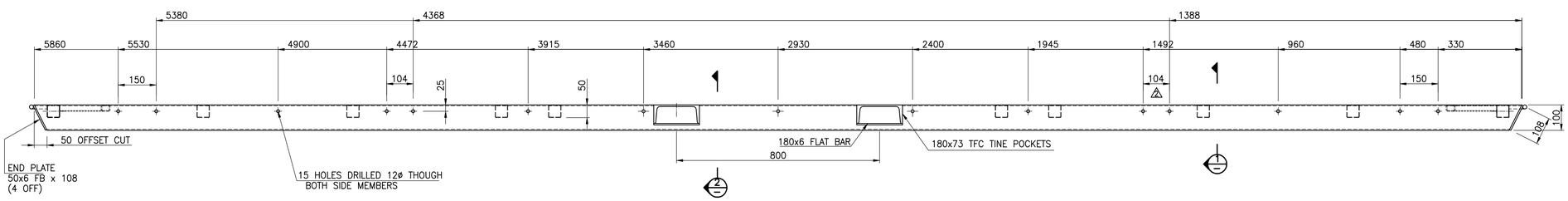
DRAWING DESCRIPTION: FORMIT WASTE TANK 6000 Lt FRAME LOWER FRAME – FLAT PACK WITH TINE TUBES – ASSEMBLY

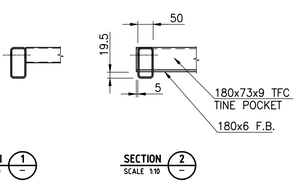
SCALE 1:10 · DATE 11/04/2012 · SHEET SIZE A1

WT-1208-115 · ISSUE 4



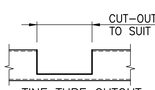






SECTION 1 SCALE 1:10

SECTION 2 SCALE 1:10



TINE TUBE CUTOUT.

NOTE; TINE TUBE CHANNEL IS TO FINISH FLUSH WITH TOP OF BASE RHS CHANNEL & FLAT BAR ARE TO BE FULLY WELDED FOR 300 AT EACH ENS THEN WITH 50 LONG WELDS WITH 200 SPACES.
WELDING BETWEEN TINE TUBE AND MAIN RHS TO BE FULL PENETRATION AND CONTINUOUS ON BOTH SIDES OF THE RHS.

FOR UPPER FRAME SEE DRAWING No. WT-1208-112

ISSUE	ALTERATION
2	ADDED FOR ANGLED MOVED TYPE FRAME

JOB NAME / ADDRESS

CLIENT
-
-

FORMIT SERVICES PTY. LTD.
1 Co-Wyn Close, Fountaindale, NSW 2258
Ph. (612) 4336 1000 Fax. (612) 4389 1300

DRAWING DESCRIPTION
FORMIT WASTE TANK
6000 Lt FRAME
LOWER FRAME – FLAT PACK
WITH TINE – DETAIL

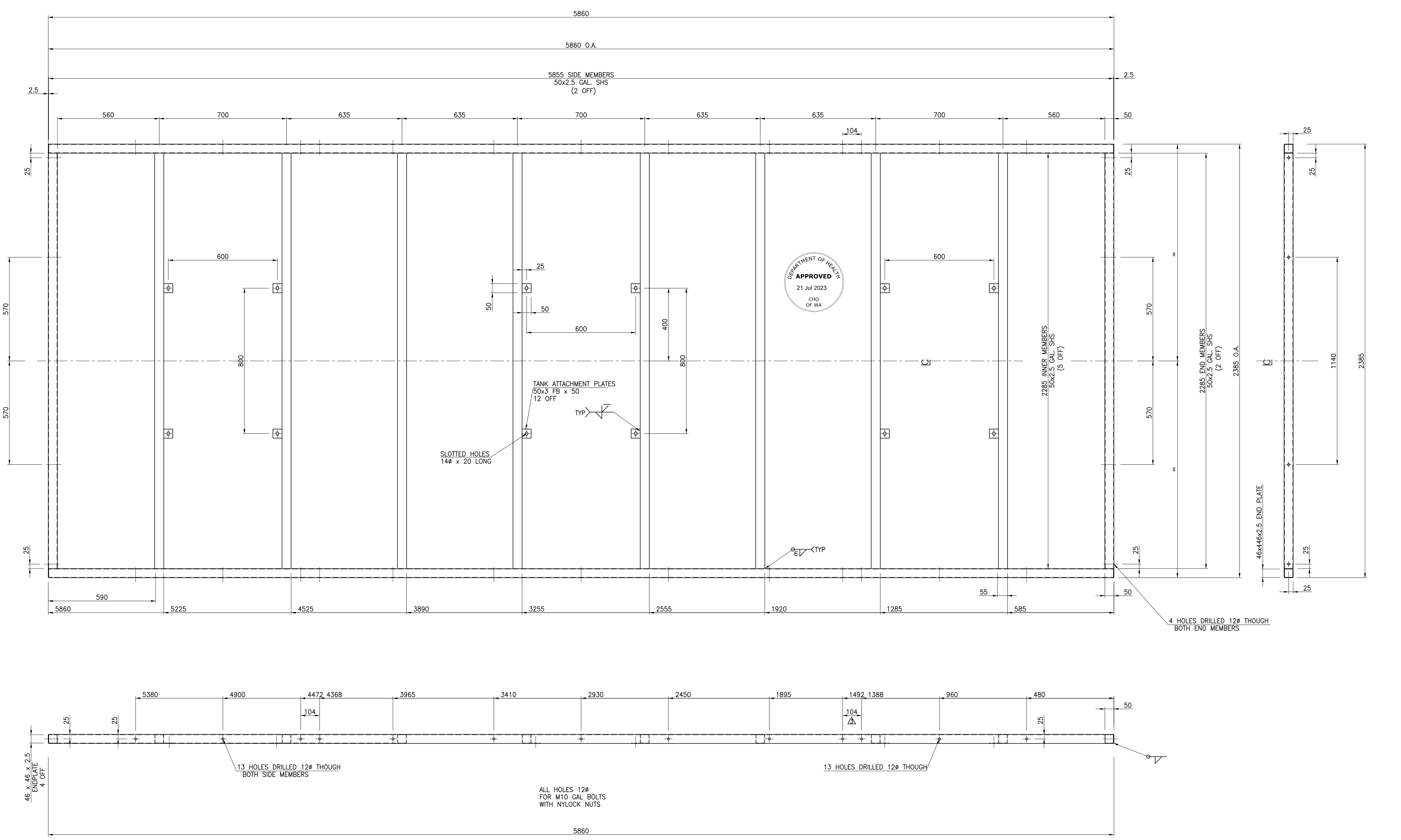
SCALE	1:10
DATE	11/04/2012
DRAWN	M.A.Y.
TS REF	TS00607
CHECKED	
PASSED	

STANDARD NUMBER

SHEET SIZE A1

JOB No. WT-1208-116 DRAWING No.

ISSUE 2



FOR LOWER FRAME SEE DRAWING No. WT–1208–111

ISSUE	ALTERATION
3	HOLES FOR ANLGED MOVED 27/11/2012
2	TANK TOP FIXING HOLES RELOCATED 30/7/2012

JOB NAME / ADDRESS

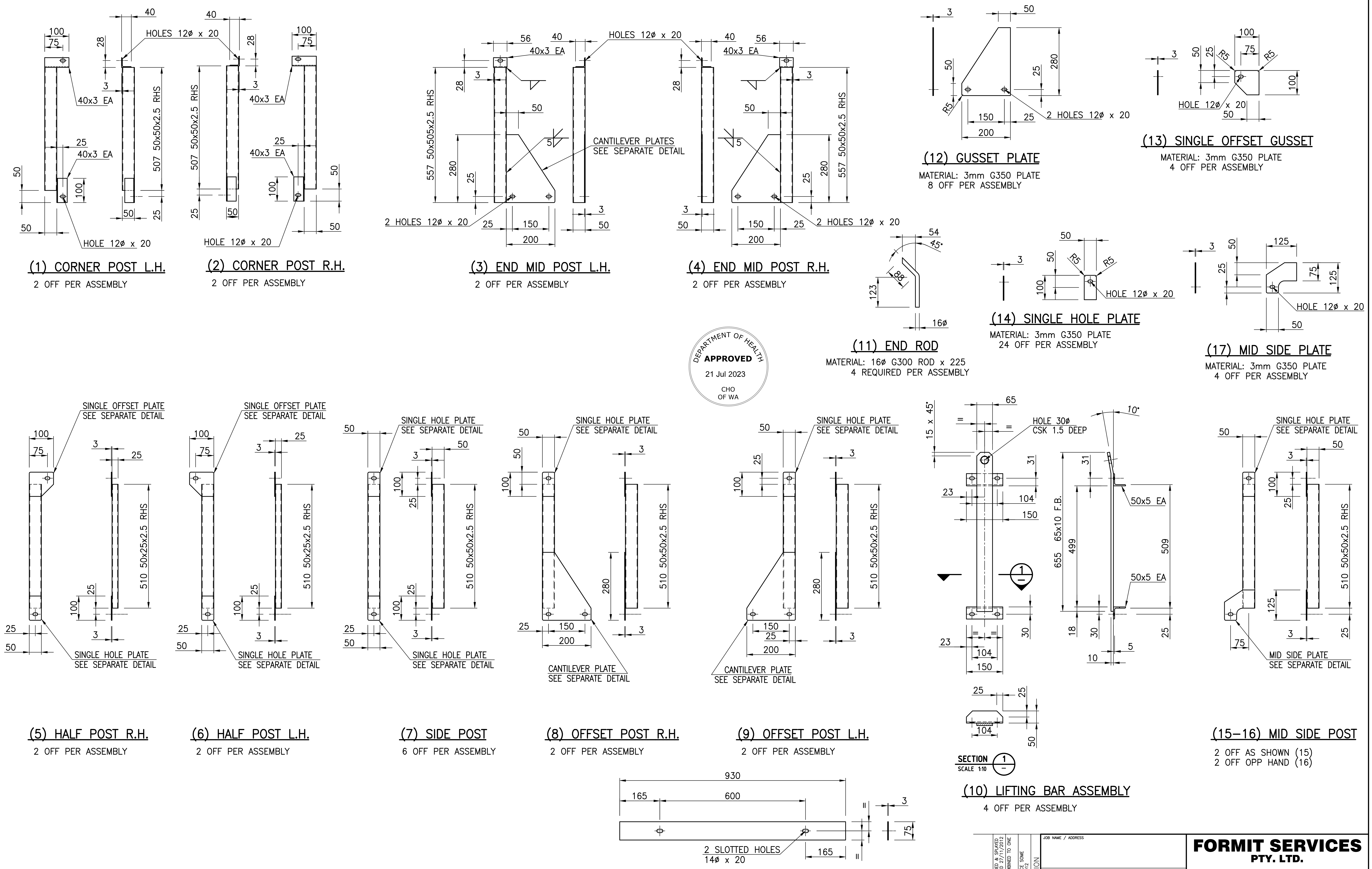
CLIENT

FORMIT SERVICES PTY. LTD.
1 Co–Wyn Close, Fountaindale, NSW 2258
Ph. (612) 4336 1000 Fax. (612) 4389 1300

DRAWING DESCRIPTION
FORMIT WASTE TANK
6000 Lt FRAME – FLAT PACK
UPPER FRAME
DETAIL

SCALE	1:10
DATE	24/02/2012
DRAWN	M.A.Y. YarraTecK
TS REF	TS00601
CHECKED	
PASSED	

STANDARD NUMBER
SHEET SIZE A1
JOB No DRAWING No. WT-1208-112
ISSUE 3



ISSUE	ALTERATION
3	ANGLE PIECES SHORTENED & SPLAYED DIM. NOTES CORRECTED 27/11/2012
3	2 BRIDGE PLATES COMBINED TO ONE PIECE 15/6/2012
2	12ø×20 HOLES REPLACE SOME 12ø HOLES 2/5/2012

JOB NAME / ADDRESS

CLIENT

FORMIT SERVICES PTY. LTD.

1 Co-Wyn Close, Fountaindale, NSW 2258
Ph. (612) 4336 1000 Fax. (612) 4389 1300

DRAWING DESCRIPTION
FORMIT WASTE TANK
6000 Lt FRAME
LOWER FRAME – FLAT PACK
WITH TINE – COMPONENT DETAILS

SCALE	1:10
DATE	11/04/2012
DRAWN	M.A.Y. YarraTeck
TS REF	TS00601
CHECKED	
PASSED	

STANDARD NUMBER | SHEET SIZE A2
WT-1208-117 | ISSUE 3
JOB No DRAWING No.

DEPARTMENT OF HEALTH
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21 Jul 2023
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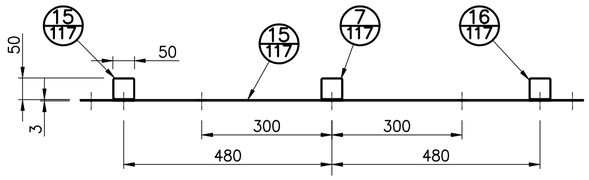
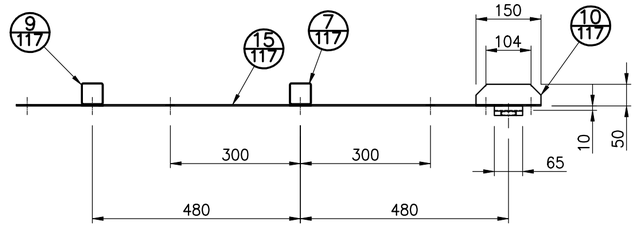
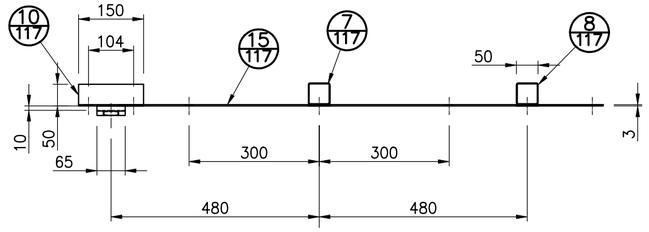
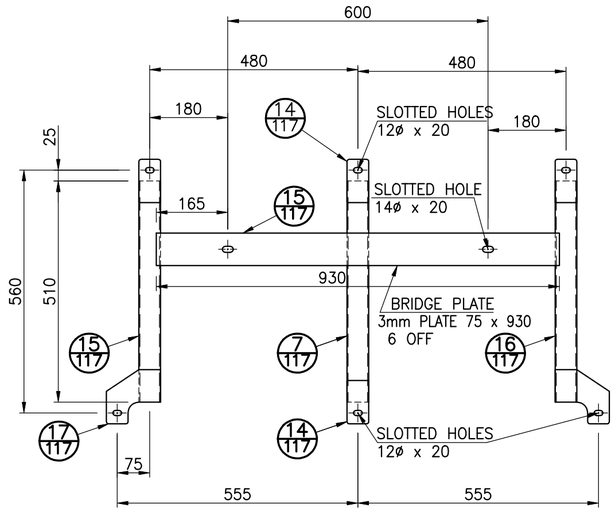
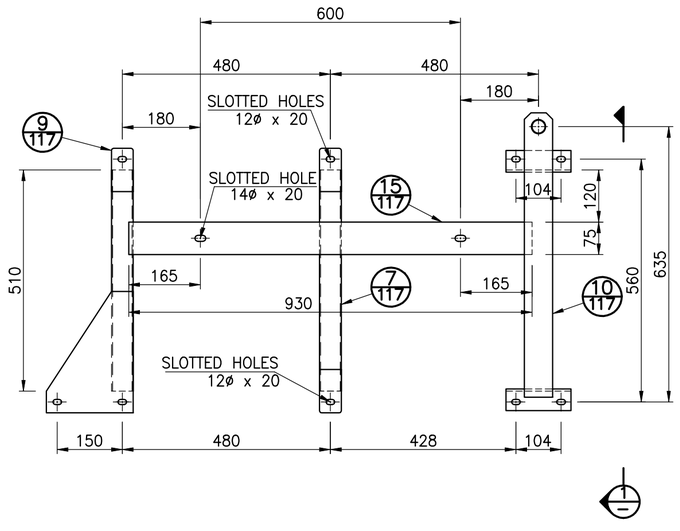




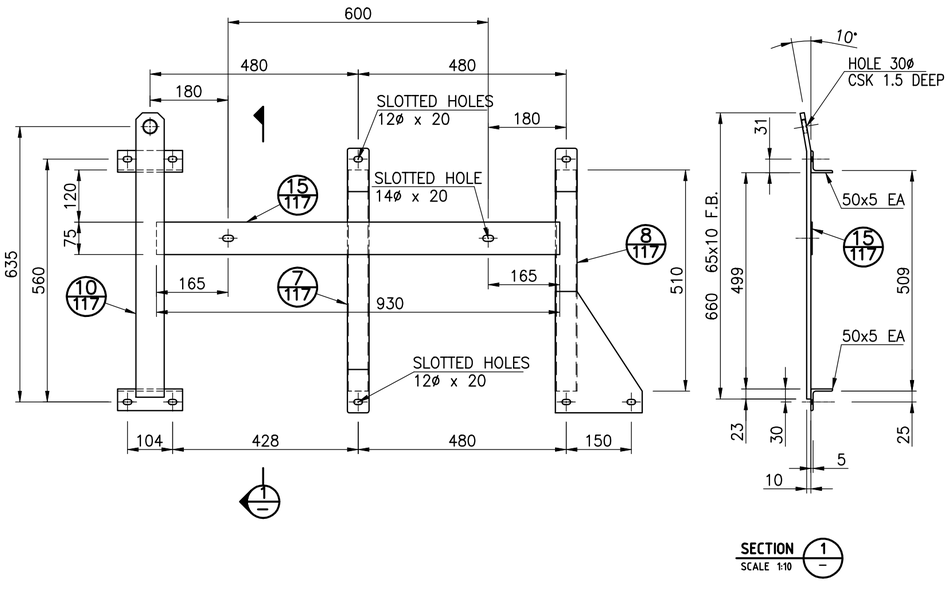




MID SIDE POST FRAME (1)
2 OFF AS SHOWN



L.H. END SIDE POST FRAME (3)
2 OFF



SECTION 1/–
SCALE 1:10

R.H. END SIDE POST FRAME
2 OFF

ISSUE	ALTERATION
3	ANGLE PIECES SHORTENED & SPLAYED PLAN VIEWS ADDED 27/11/2012
2	2 BRIDGE PLATES COMBINED TO ONE PIECE 15/6/2012

JOB NAME / ADDRESS

CLIENT
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DRAWING DESCRIPTION
FORMIT WASTE TANK
6000 Lt FRAME
LOWER FRAME – SIDE FRAME
ASSEMBLIES

FORMIT SERVICES PTY. LTD.
1 Co-Wyn Close, Fountaindale, NSW 2258
Ph. (612) 4336 1000 Fax. (612) 4389 1300

SCALE	1:10
DATE	2/6/2012
DRAWN	M.A.Y. YarraTecK
TS REF	TS00601
CHECKED	
PASSED	

STANDARD NUMBER
WT-1208-118
JOB No DRAWING No.

SHEET SIZE A3
3 ISSUE


DEPARTMENT OF HEALTH
APPROVED
21 Jul 2023
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APPLICATION FOR PRODUCT APPROVAL
SEPTIC TANKS

Please attach this application form to your submission and post to:

The Manager
Water Unit
Environmental Health Directorate
Department of Health
PO Box 8172
Perth Business Centre WA 6849

APPLICATION DETAILS

NAME OF SEPTIC TANK SYSTEM FOR APPROVAL:

Formit Services Waste Tank – POTF20 – 2000 Litre Storage Tank

Formit Services Waste Tank – POTF40 – 4000 Litre Storage Tank

Formit Services Waste Tank – POTF60 – 6000 Litre Storage Tank

MODEL OF SEPTIC TANK SYSTEM FOR APPROVAL:

Formit Services Waste Tank – POTF20 – 2000 Litre Storage Tank

Formit Services Waste Tank – POTF40 – 4000 Litre Storage Tank

Formit Services Waste Tank – POTF60 – 6000 Litre Storage Tank

NOMINATED BRAND TO BE PLACED ON TANKS:

Formit Services

BRIEF DESCRIPTION OF SEPTIC TANK SYSTEM:

<u>Suitability of Formit Services Waste Storage Tanks for temporary storage of sewage.</u>

Formit Services Pty Ltd supplies various Waste Storage Tanks ranging in capacity from 2000 litre to 6000 litre. These tanks are designed for temporary storage of sewage and do not perform any treatment processes.

Structural steel frames are constructed around the tanks to support the buildings. These tanks are not designed to be buried, that is they remain above ground.

Periodically the waste tanks are emptied out by mobile waste tankers for offsite disposal. The waste tanks are intended to be removed from the site once the hire period or usage is concluded and is not intended to be transported whilst full.

Formit Waster Storage tanks are designed for temporary storage of sewage as follows

1. The tanks are manufactured from rotomoulded polyethylene (linear low density polyethylene - LLDPE). This material has a high level of chemical resistance to many chemicals including for example

    a. Ammonia to 0.88 Specific Gravity
    b. Concentrated Hydrochloric acid

    These two chemicals cover the full pH range indicating high level of resistance to concentrated chemicals. Source Vanglobe Group Pty Ltd.

2. Performance of polyethylene for sewage is not specifically available. Formit Services and an earlier company Merlin Australia Pty Ltd have been supplying rotomoulded polyethylene portable toilets to the hire and construction industry for more than 10 years and have not experienced any issues due to incompatibility of sewage and polyethylene. Similar products are in use in USA for longer periods.

3. Formit has various health department approvals for use of polyethylene in portable toilets. Refer to Department of Health Western Australia Certification of Temporary Toilet Fresh- Water model: Ultra 2001 number DOH 017 (23/10/2003).

4. South Australia Health Commission Code - Standard for the Construction , Installation and Operation of Septic Tank Systems in South Australia refers to the use of rotational moulded polyethylene in the construction of septic tanks. (Section 6 Septic Tank Construction).

5. Formit has obtained structural certification for the waste tanks. The support frames were deemed adequate for the following parameters
    a. 4000 litre waste tank supports 5000 kg plus 8 occupants
    b. 6000 litre waste tank supports 7000 kg plus 12 occupants

Engineering Certification accompanies the renewal documentation.

Gareth Walsh
Managing Director
Formit Services

APPLICANT DETAILS

Applicant Name: Formit Services

Contact: Gareth Walsh

Address: 4/1 Co-Wyn Close Fountaindale, NSW 2258

Phone: 02 4336 1000

Fax: N/A

Email: Gareth@formit.com.au

Mob No.: 0438 627 162

MANUFACTURER'S DETAILS

(if different from the applicant)

Applicant Name: Formit Services

Contact: Gareth Walsh

Address: 4/1 Co-Wyn Close Fountaindale, NSW 2258

Phone: 02 4336 1000

Fax: N/A

Email: Gareth@formit.com.au

Mob No.: 0438 627 162

DISTRIBUTOR'S DETAILS

(if different from the applicant and/or manufacturer)

Applicant Name: _____Contact: _____

Address: _____

_____

Phone: _____ Fax: _____

Email: _____ Mob No.: _____

APPLICATION REQUIREMENTS

IMPORTANT: PLEASE ATTACH THE FOLLOWING INFORMATION:

1. Concept report explaining operation of Septic Tank and its major components, including:
   - A schematic diagram of the treatment process.
   - Calculations used to size system components.
   - Effluent quality.
   - How the treated effluent from the system will be managed.
   - An assessment of potential risks associated with the system and how they will be managed.

2. Drawings of the septic tank, including:
    - Scaled A4 engineering drawings of the septic tank showing all dimensions and details such as internal diameter, effective depth, wall thickness, location of reinforcing mesh, separation between inlet and outlet, air space, location of inspection openings, rebates, etc.
    - An A4 installation plan for the septic tank, suitable for attachment to an application for a council septic tank permit.
    - An A4 schematic diagram for inclusion on the public domain DOH certificate of approval, including the manufacturer's name and model number. As electronic copy (pdf format) is sufficient.
    -

3. Verification of the Performance of the System and Quality Control including:
    - Attach a report from an independent certification agency describing the septic tanks' compliance with the design, installation, performance and management criteria in the following document:
        i. Australian Standard AS 1546:1 2008 Onsite domestic wastewater treatment units – Septic Tanks
    - Attach documentation demonstrating that the independent certification agency has been accredited under the Joint Accreditation System of Australia and New Zealand or an equivalent independent quality certification process.
    - Provide copies of relevant laboratory analytical reports endorsed by the National Association of Testing Authorities (NATA).
    - Attach evidence that the system has obtained Product Approval under the StandardsMark Quality Assurance Program or equivalent. If manufacture of the system has not commenced, the applicant must provide evidence that the system has been submitted for assessment under a quality assurance scheme.

4. Details of the Operation and Maintenance of the System including copies of the following:
    - Installation Manual
    - Householder Operating Manual
    - Warranty and System Service Life
    -

Please fill in the following declaration after reading the "Application Requirements" section above.

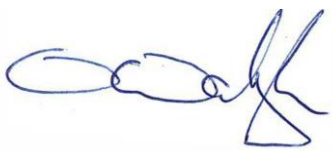
DECLARATION BY APPLICANT / MANUFACTURER

I understand that the DOH may require further details if necessary, and that failure to supply all the details referred to in this application form and any additional information requested by the DOH concerning my application above may result in delays in processing the application.

NAME: Gareth Walsh

COMPANY: Formit Services

ADDRESS: 4/1 Co-Wyn Close Fountaindale NSW 2250



SIGNATURE: DATE: 18/07/2023

More Information:

Water Unit
Environmental Health Directorate
Department of Health
PO Box 8172
PERTH BUSINESS CENTRE WA 6849

Telephone: 08 9222 2000
WWapps@health.wa.gov.au

Printed on: 18 July 2023

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Produced by Environmental Health Directorate

FEATURES & SPECIFICATIONS

FORMIT **WASTE TANK**
- 2000L (2,000 LITRE)

FEATURES

- Heavy duty steel frame
- Special gusset reinforcing
- All tanks are engineer certified
- Certified to withstand up to 7000kg + 12 People
- 3 sizes to suit all applications
- Long-life polyethylene tanks will not rust
- Special locator tab/lift points
- Steel tow hook on all sizes
- Tank top connects to frame to avoid sagging
- Special double clamped triple wall connector hose on multi-tank models
- Special pump out port available

FORMIT **WASTE TANK**
- 4000L (4,000 LITRE)

2000L TANK

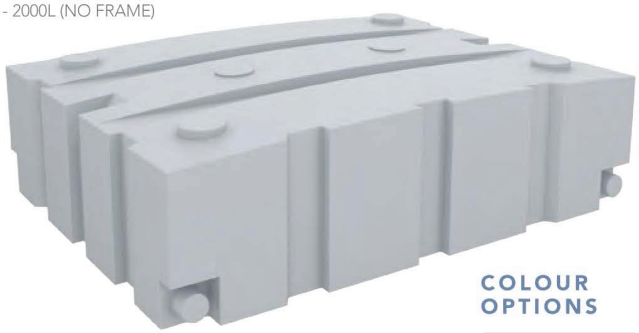
WASTE TANK: 2000 LITRES
APPROX. WEIGHT: 227KG
DIMENSIONS: 1950MM LENGTH X 2384MM WIDTH X 660MM HEIGHT
CARRYING CAPACITY: 1500KG + 6 PEOPLE

FORMIT **WASTE TANK**
- 6000L (6,000 LITRE)

4000L TANK

WASTE TANK: 4000 LITRES
APPROX. WEIGHT: 453KG
DIMENSIONS: 3860MM LENGTH X 2384MM WIDTH X 660MM HEIGHT
CARRYING CAPACITY: 5000KG + 8 PEOPLE

FORMIT **WASTE TANK**
- 2000L (NO FRAME)



6000L TANK

WASTE TANK: 6000 LITRES
APPROX. WEIGHT: 776KG
DIMENSIONS: 5860MM LENGTH X 2384MM WIDTH X 660MM HEIGHT
CARRYING CAPACITY: 7000KG + 12 PEOPLE

COLOUR OPTIONS

GREY

ALL MEASUREMENTS ARE APPROXIMATIONS ONLY AND ARE SUBJECT TO VARIATION.

formit TANKS

Got a question? Call us on **02 4336 1000**
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