

Technical Solution Sheet 3.07

3: Drainage (below ground sewer)

Low Risk Trade Waste Appliances

AIM

The aim of this technical solution is to inform practitioners about the basic installation requirements for low risk trade waste appliances.

PLUMBING REGULATIONS 2008

The *Plumbing Regulations 2008* state that, “the internal design, construction, installation, replacement, repair, alteration, maintenance, testing or commissioning of any integral part of an on-site liquid trade waste management system device” is not plumbing work to which Part 12A of the *Building Act 1993* applies. The *Plumbing Regulations 2008* does specify the basic installation requirements for low risk on-site liquid trade waste management appliances; the details of which are included in this technical solution.

INTRODUCTION

Low risk liquid trade wastes can be described as those water-borne discharges other than sewage that are classified by the water authority, as being of low risk from causing harm to the environment and water authority sewerage systems. These discharges need to be trapped and partially treated before being permitted to enter the sewerage system. Examples of low risk liquid trade wastes are:

- Discharges from food preparation in take-away shops, restaurants, hotels, motels and the like.
- Discharges from laboratories in education institutions such as schools and universities.
- Discharges from service stations, vehicle detailing and washing.

It is the role of the water authority to classify whether the trade waste discharge is high risk or low risk.

BASIC INSTALLATION REQUIREMENTS

The basic installation requirements of The *Plumbing Regulations 2008* are:

Location

Low risk trade waste appliances must be located as close as is practicable to the fixtures and floor waste gullies served whether installed internally or externally and may be above or below ground. Portable appliances may only be installed above ground.

Covers

Appliances must be fitted with cover/s which can withstand vehicular or pedestrian traffic or other loads likely to be imposed on them and be readily removable by one person.

Materials

Appliances must be constructed of materials suitable for the nature of the liquid wastes likely to be discharged through the appliance.

Ventilation

Where airtight covers are fitted, the appliance must be vented with either a DN32, DN50 or DN80 Vent (refer to relevant drawing).

Outlet ventilation is to be provided by either a:

- DN100 riser from a disconnector gully outside a building, (refer Clause 4.6.2 [AS/NZS 3500.2: Plumbing and drainage Part 2: Sanitary plumbing and drainage](#)).

Technical Solution Sheet 3.07

- DN50 vent from a disconnector gully at the outlet of a non-portable appliance inside a building, (refer Clause 4.6.5 [AS/NZS 3500.2](#)).
- DN50 vent from a DN80 trap riser at the outlet of a portable appliance, inside a building, (refer Clause 4.6.5 [AS/NZS 3500.2](#)).

Trade waste appliance vents and outlet vents, may be combined inside a building, (refer Clause 6.8.3 of [AS/ NZS 3500.2](#)).

Connections

Unless otherwise specified by the water authority, the plumbing and drainage installation upstream of the low risk trade waste appliance must comply with [AS/NZS 3500.2](#) and be compatible to the nature of the waste.

A trap must be fitted to the outlet pipe of every appliance and sized as follows:

- DN50 minimum for a portable appliance with hydraulic loading up to 5 fixture units.
- DN80 minimum for a portable appliance with hydraulic loading greater than 5 fixture units.
- DN100 minimum for all other appliances.

INSTALLATION EXAMPLES

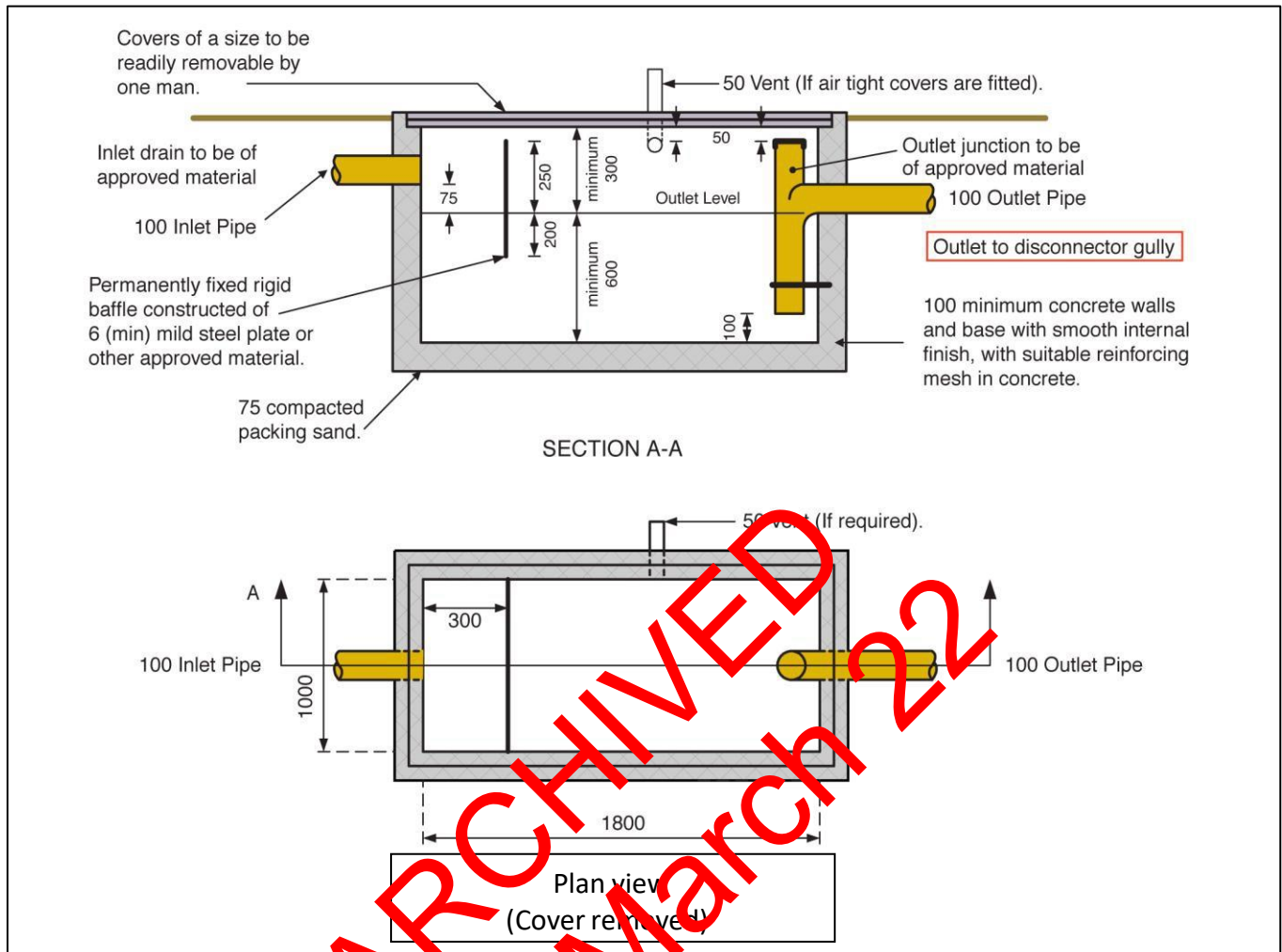
The following notes and diagrams (Figures 1 - 10) are typical of low risk trade waste appliances where all discharges classified as a low risk trade waste by the relevant water authority are to pass through an appliance of a type nominated by the water authority.

Note:

These diagrams are “typical” you should refer to the Water Authority’s diagrams for their specific requirements. In addition, these diagrams do not take away the Water Authority’s right to specify any special Conditions of Connection or other proprietary trade waste treatment appliances.

Technical Solution Sheet 3.07

FIGURE 1 - TYPICAL GREASE INTERCEPTOR APPLIANCE (FOR ABOVE OR BELOW GROUND INSTALLATION)



Notes for Figure 1:

1. The capacity of the interceptor below the outlet shall be as specified by the water authority. The capacity of the interceptor shown is 1080 litres.
2. Where not specified, the capacity below the outlet must be equivalent to the maximum hourly discharge provided that the minimum capacity below the outlet is not less than 250 litres

Note:

Water Authorities may require a minimum of 600 litres).

3. As the contents of the unit may become slightly acidic, it is recommended that the internal concrete surfaces below outlet level be provided with an acidic resistant lining.
4. If installed above ground the grease interceptor appliance may be constructed using other approved materials subject to adequate structural support for the grease interceptor appliance being provided.
5. The interceptor is to be located in a position so as to provide ready access for maintenance and inspection purposes.

Technical Solution Sheet 3.07

6 Where a grease interceptor is installed outside a building, consideration should be given to fitting airtight covers, venting the chamber and providing a screwed

cap and DN50 vent to the disconnect gully.

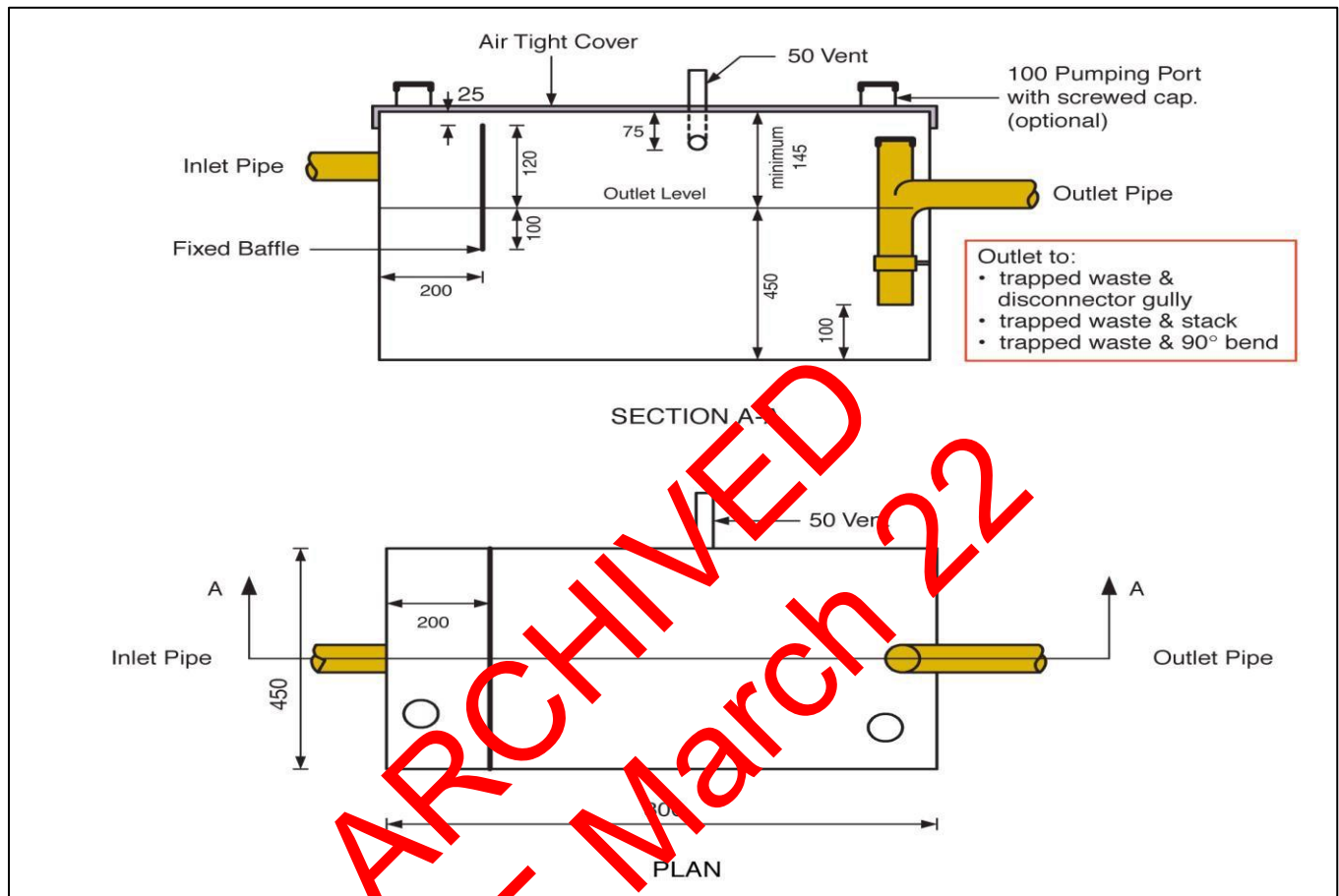
7 All dimensions are in millimetres.

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25 March 22

Technical Solution Sheet 3.07

3: Drainage (below ground sewer)

FIGURE 2 - TYPICAL GREASE INTERCEPTOR APPLIANCE — PORTABLE TYPE (FOR ABOVE GROUND INSTALLATION)



Notes for Figure 2:

1. The capacity of the interceptor below the outlet shall be as specified by the water authority. The capacity of the interceptor shown is 162 litres.
2. Where not specified the capacity below the outlet must be equivalent to the maximum hourly discharge provided that the minimum capacity below the outlet is not less than 100 litres

Note:

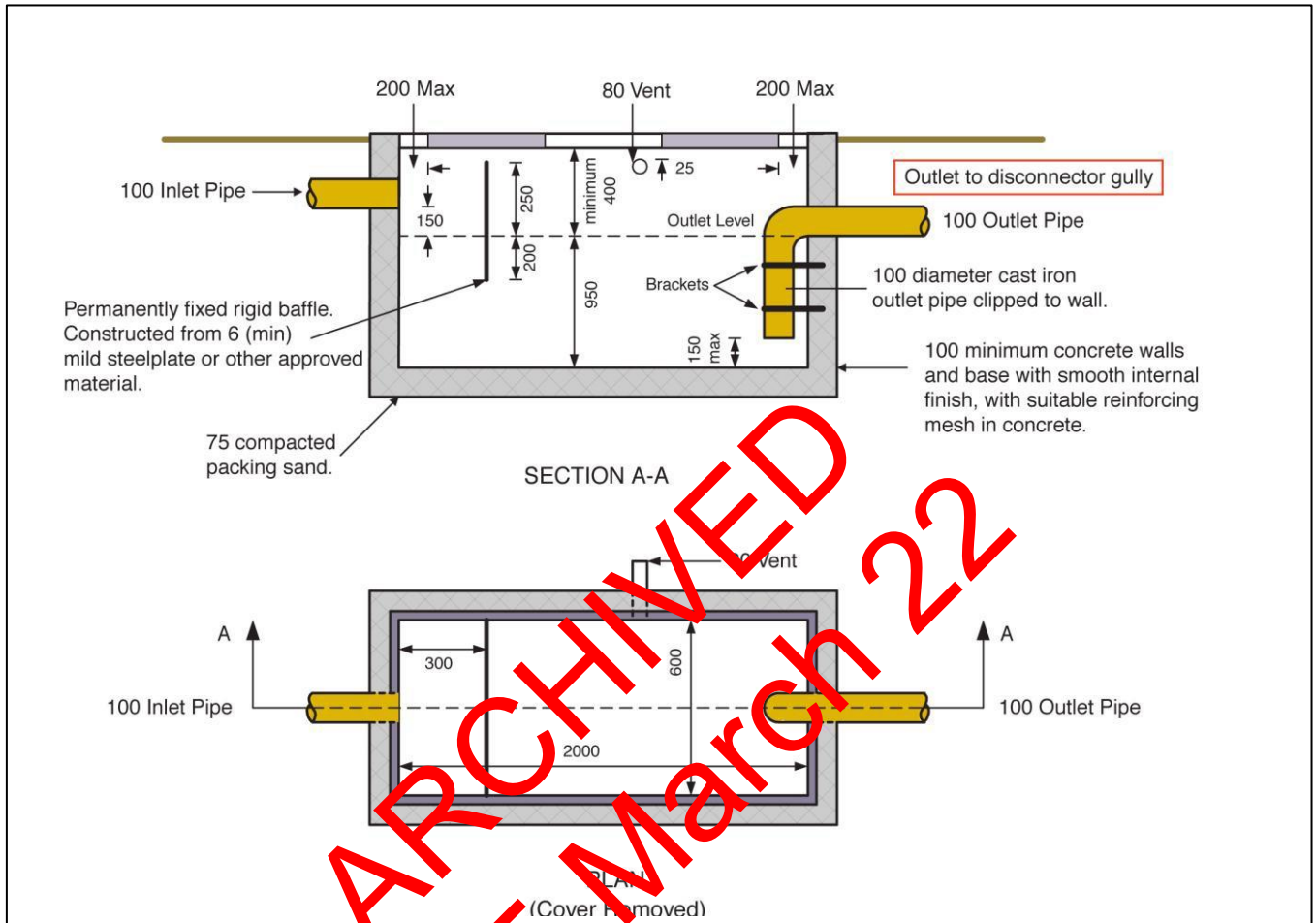
Water Authorities may require a minimum of 600 litres).

3. The interceptor and baffle shall be constructed of 6mm polyvinyl chloride sheet (PVC-U), 0.79mm (min.) galvanised sheet iron, 0.63mm (min.) sheet copper or stainless steel, all welded construction, or other approved material.
4. Airtight cover (using lever type clips) to be provided to interceptor and vent to be extended to open air in accordance with clause 6.8.3 of [AS/NZS 3500.2](#).
5. The interceptor is to be located in a position so as to provide ready access for maintenance and inspection purposes.
6. If installed externally the interceptor must be protected from direct sunlight.
7. All dimensions are in millimetres.

Technical Solution Sheet 3.07

3: Drainage (below ground sewer)

FIGURE 3 - TYPICAL PETROL & OIL INTERCEPTOR

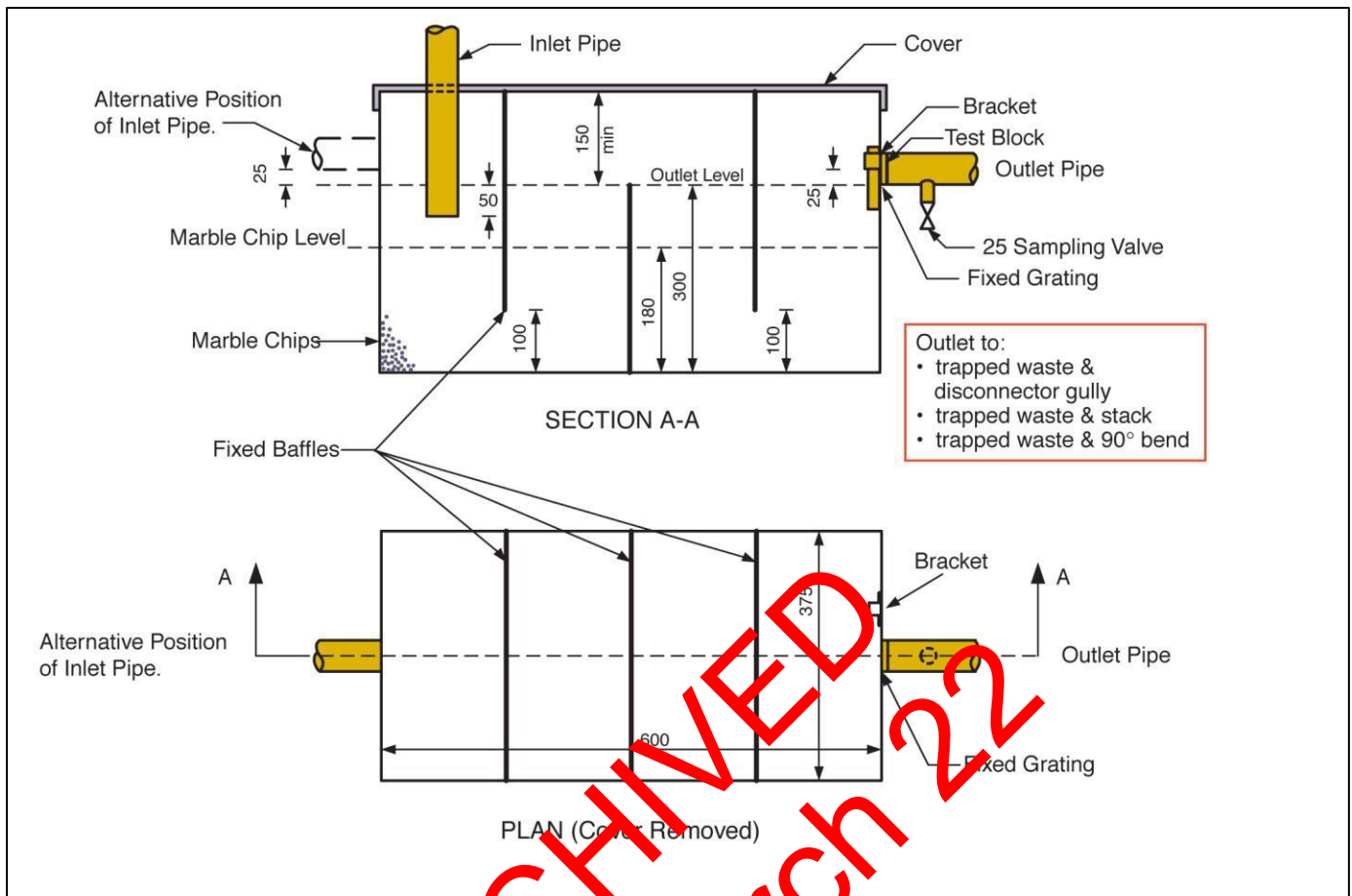


Notes for Figure 3:

1. The capacity of the interceptor below the outlet shall be as specified by the water Authority. The capacity of the interceptor shown is 1140 litres.
2. Where not specified the capacity below the outlet must be not less than 1140 litres.
3. Airtight covers are compulsory and of a suitable size to be readily removable by one person. A 600mm x 600mm or 600mm diameter cover is required over the inlet and outlet of the pit.
4. Where subject to traffic loadings, suitable covers capable of withstanding such loads must be provided.
5. The vent is to be extended to open air in accordance with 6.8.3 of [AS/NZS 3500.2](#).
6. The DN100 cast iron pipe outlet fitting is to be manufactured in one piece.
7. PVC-U shall not be used for the construction, connecting or venting of this unit.
8. This interceptor may accumulate quantities of explosive and/or flammable materials and therefore care must be exercised in the maintenance and general use of the unit.
9. The interceptor is to be located in a position so as to provide ready access for maintenance and inspection purposes.
10. All dimensions are in millimetres.

Technical Solution Sheet 3.07

FIGURE 4 - TYPICAL ACID NEUTRALISING TANK



Notes for Figure 4:

1. The capacity of the tank below the invert level of the outlet pipe shall be as specified by the water authority. The capacity of the tank shown above is the minimum requirement of 27 litres between marble chip level and outlet level.
2. The tank and baffles shall be constructed of 6mm (min.) PVC-U sheet; 0.63mm (min.) acid resistant stainless steel all welded construction, or other approved acid and alkali resistant material and construction methods.
3. The diameter of the outlet pipe shall be at least one size larger than the inlet pipe (i.e. DN65 inlet - DN80 outlet). Where the diameter of the inlet pipe is DN100, the diameter of the outlet pipe may also be DN100.
4. The three baffles must be equally spaced through the tank length.
5. The 32 x 32 x 25mm deep PVC-U test block bracket must be fitted as close as practicable to the outlet.
6. The 150 x 25 x 25mm cement mortar test block is to be supplied and fitted by the water authority's authorised officer. The size of the marble chips shall be within the 40mm and 60mm range.
7. The size of the marble chips shall be within the 40mm and 60mm range.
8. The tank is to be located in a position so as to provide ready access for fitting the cement mortar test block, obtaining samples from the sampling valve, replacement of the marble chips and for maintenance purposes.
9. Where the unit is to be located below ground level:
 - a. The unit shall be surrounded with 100mm (min.) thick concrete walls and base.

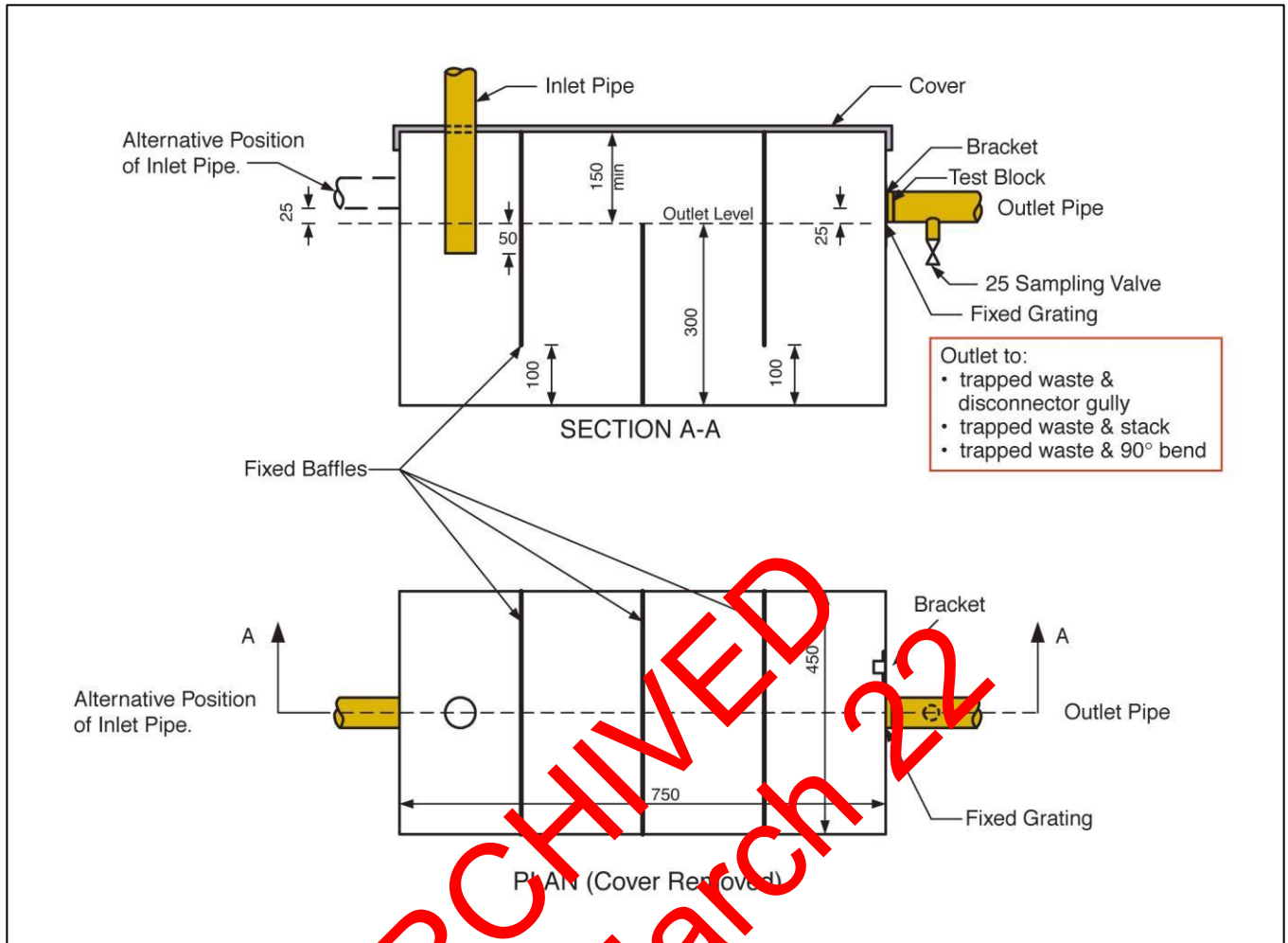
Technical Solution Sheet 3.07

- b. The DN25 sampling valve shall be omitted.
 - c. The outlet level shall not be greater than 600mm below surface level.
 - d. The outlet pipe diameter shall not be less than DN100.
 - e. The outlet must be connected to a disconnector gully fitted with a loose fitting grate or screwed cap.
10. All dimensions are in millimetres.

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25 March 22

Technical Solution Sheet 3.07

FIGURE 5 – TYPICAL MIXING TANK



Notes for Figure 5:

1. The capacity of the tank below the invert level of the outlet pipe shall be as specified by the water authority. The capacity of the tank shown above is the minimum requirement of 27 litres between marble chip level and outlet level.
2. The tank and baffles shall be constructed of 6mm (min.) PVC-U sheet; 0.63mm (min.) acid resistant stainless steel all welded construction, or other approved acid and alkali resistant material and construction methods.
3. The diameter of the outlet pipe shall be at least one size larger than the inlet pipe (i.e. DN65 inlet - DN80 outlet). Where the diameter of the inlet pipe is DN100, the diameter of the outlet pipe may also be DN100.
4. The three baffles must be equally spaced through the tank length.
5. The 32 x 32 x 25mm deep PVC-U test block bracket must be fitted as close as practicable to the outlet.
6. The 150 x 25 x 25mm cement mortar test block is to be supplied and fitted by the water authority's authorised officer. The size of the marble chips shall be within the 40mm and 60mm range.
7. The size of the marble chips shall be within the 40mm and 60mm range.
8. The tank is to be located in a position so as to provide ready access for fitting the cement mortar test block, obtaining samples from the sampling valve, replacement of the marble chips and for maintenance purposes.
9. Where the unit is to be located below ground level:

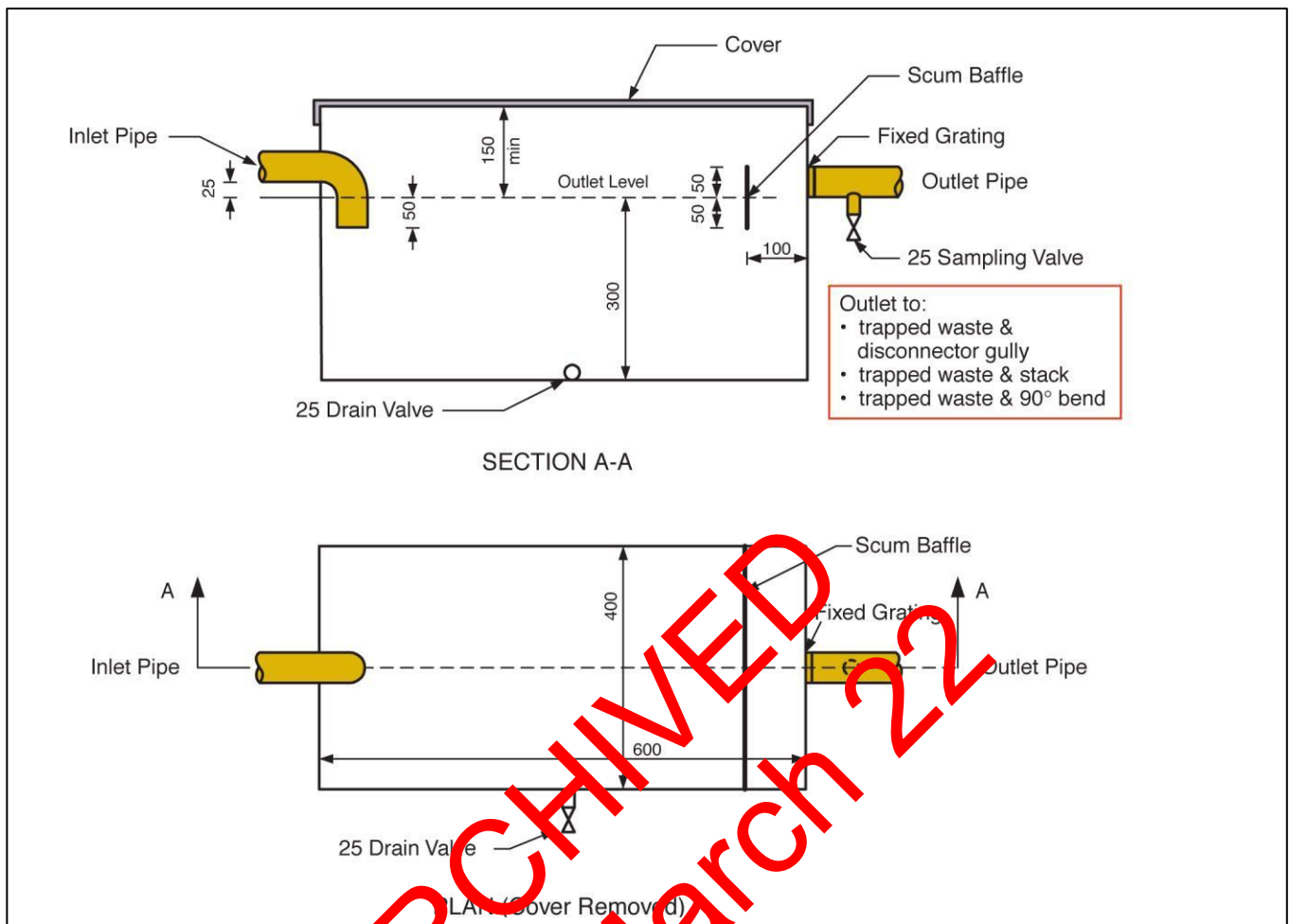
Technical Solution Sheet 3.07

- a. The unit shall be surrounded with 100mm (min.) thick concrete walls and base.
 - b. The DN25 sampling valve shall be omitted.
 - c. The outlet level shall not be greater than 600mm below surface level.
 - d. The outlet shall not be greater than 600mm below surface.
 - e. The outlet pipe diameter shall not be less than DN100.
 - f. The outlet must be connected to a disconnector
10. All dimensions are in millimetres

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25 March 22

Technical Solution Sheet 3.07

FIGURE 6 – TYPICAL SETTLING TANK

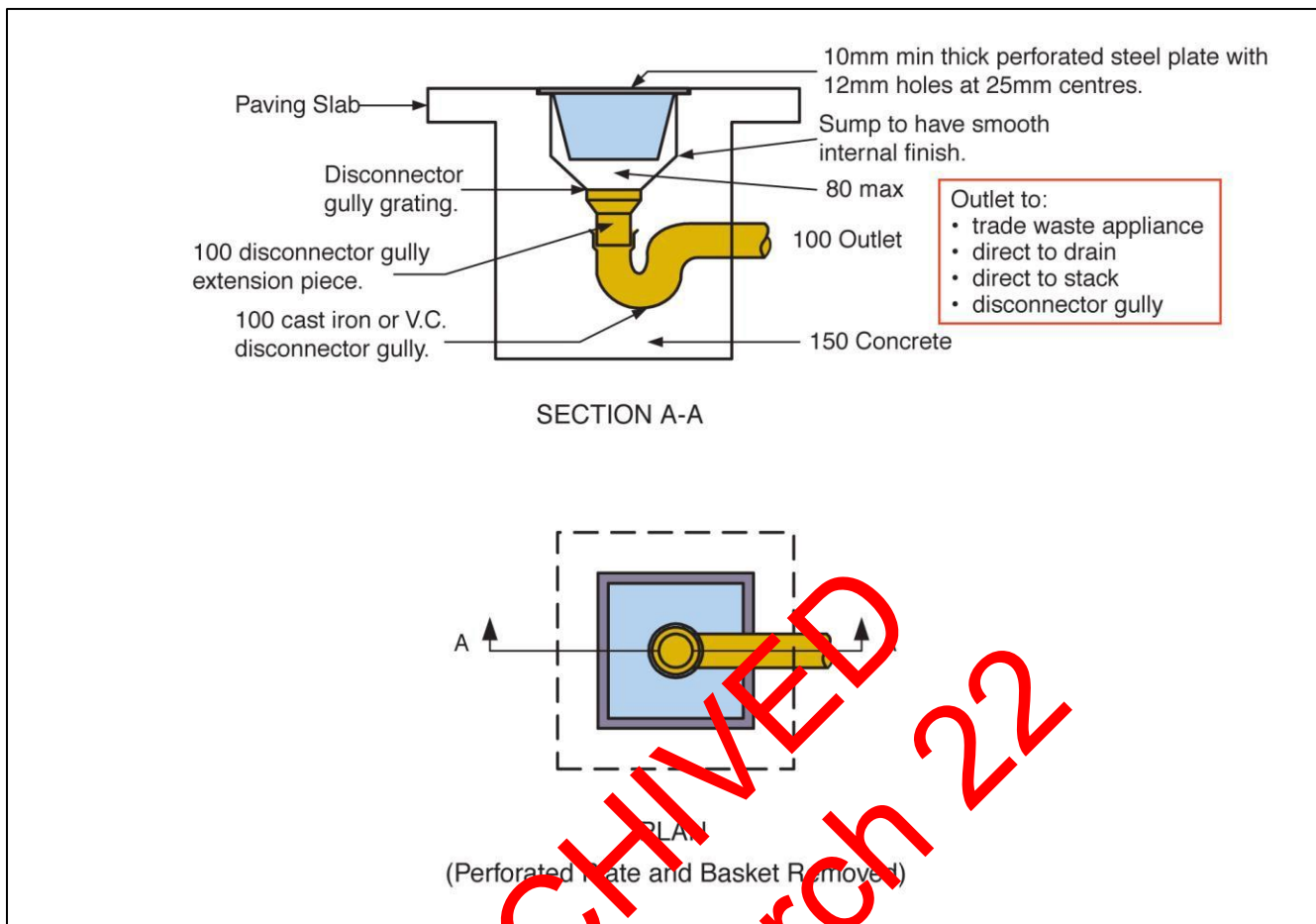


Notes for Figure 6:

1. The capacity of the tank below the invert level of the outlet pipe shall be as specified by the water authority. The capacity of the tank shall be as specified by the water authority.
2. The settling tank and baffle shall be constructed of 6mm (min.) PVC-U sheet; 0.79mm (min.) galvanised iron sheet; 0.63mm (min.) sheet copper or stainless steel all welded construction, or other approved material and construction methods.
3. The diameter of the outlet pipe shall be at least one size larger than the inlet pipe (i.e. DN65 inlet - DN80 outlet). Where the diameter of the inlet pipe is DN100, the diameter of the outlet pipe may also be DN100.
4. The tank is to be located in a position so as to provide ready access for obtaining samples from the sampling valve and for maintenance purposes.
5. Where the unit is to be located below ground level:
 - a. The unit shall be surrounded with 100mm (min.) thick concrete walls and base.
 - b. The DN25 sampling valve and the DN25 drain valve shall be omitted.
 - c. The outlet level shall not be greater than 600mm below surface level.
 - d. The outlet pipe diameter shall not be less than DN100.
 - e. The outlet must be connected to a disconnector gully fitted with a loose fitting grate or screwed cap.
6. All dimensions are in millimetres.

Technical Solution Sheet 3.07

FIGURE 7 - TYPICAL STRAINING TRAP

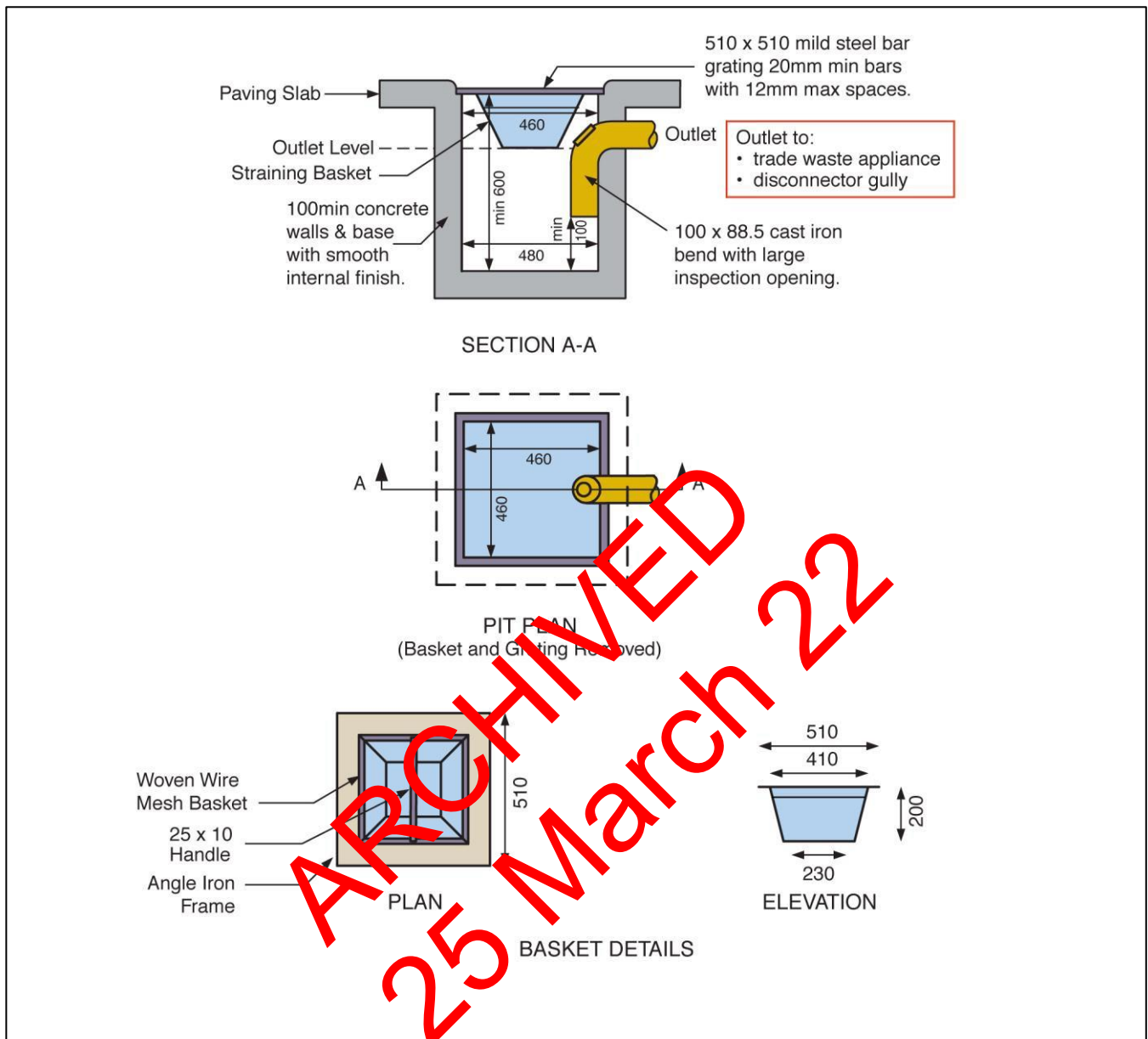


Notes for Figure 7:

1. Straining trap to be connected as specified by the water authority.
2. Basket to be constructed of 2.5mm min. dia. mild steel wire woven to give 7mm aperture widths on a 32 x 32 x 5mm angle iron frame with mitred corners. Top to be welded to angle iron frame. Basket to be galvanised after manufacture.
Alternatively the basket may be constructed from 3mm minimum thick mild steel plate with 6mm dia. holes at 12mm centres over the entire area of the basket. The basket is to be galvanised after manufacture.
3. All dimensions are in millimetres.

Technical Solution Sheet 3.07

FIGURE 8 - TYPICAL STRAINING PIT

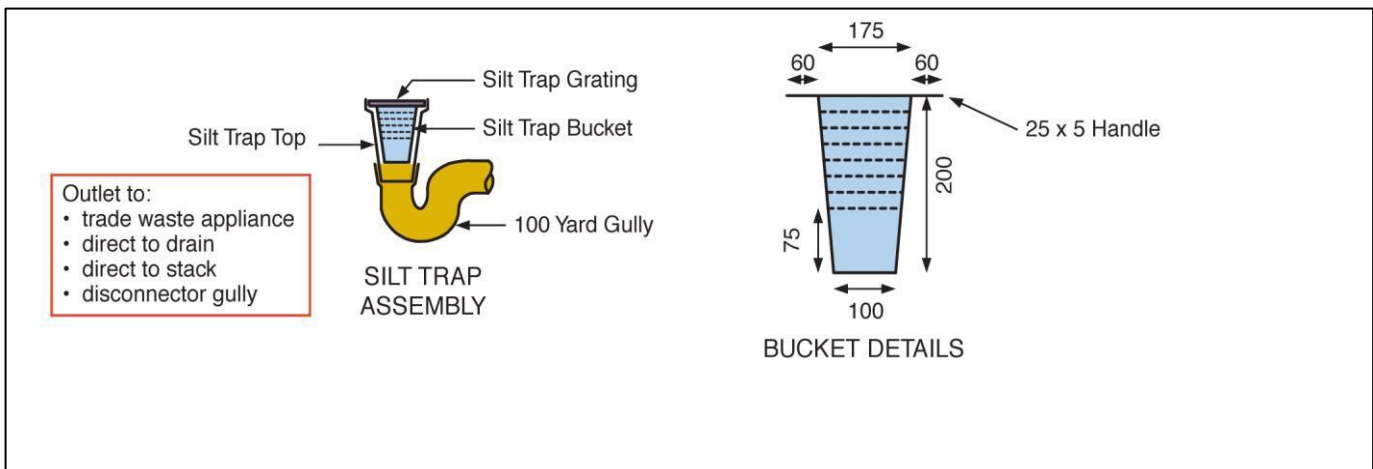


Notes for Figure 8:

1. Straining pit to be connected as specified by the water authority.
2. Basket to be constructed of 2.5mm min. dia. mild steel wire woven to give 7mm aperture widths on a 32 x 32 x 3mm angle iron frame with mitred corners. Top to be welded to angle iron frame and galvanised after manufacture. Alternatively the basket may be constructed from 3mm min. thick mild steel plate with 6mm dia. holes at 12mm centres over the entire area of the basket and galvanised after manufacture.
3. All dimensions are in millimetres.

Technical Solution Sheet 3.07

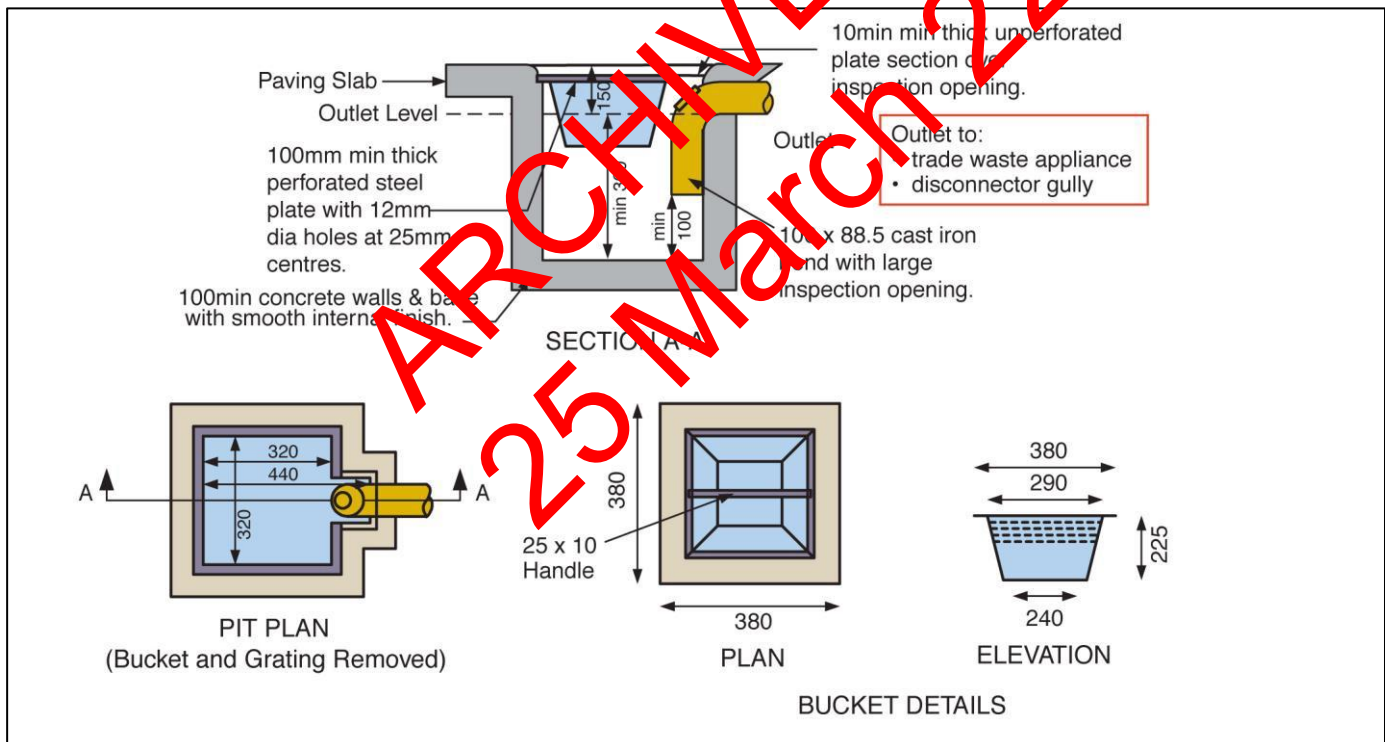
FIGURE 9 - TYPICAL SILT TRAP



Notes for Figure 9:

1. Silt trap to be connected as specified by the water authority.
2. Bucket to be constructed of 3mm min. thick mild steel plate with 5 rows of 10mm diameter holes at 25mm centres and galvanised after fabrication.
3. All dimensions are in millimetres

FIGURE 10 - TYPICAL SILT PIT



Notes for Figure 10:

1. Silt pit to be connected as specified by water authority
2. Bucket to be constructed of 3mm min. thick mild steel plate with 4 rows of 10mm diameter holes at 25mm centres and galvanised after fabrication.
3. Sizes shown are minimum permissible dimensions
4. All dimensions are in millimetres