PUB SINGAPORE'S NATIONAL WATER AGENCY

Date: 1 Mar 2025

Industry Professionals

Dear Sir/Madam,

CODE OF PRACTICE ON SEWERAGE AND SANITARY WORKS (THIRD EDITION – MAR 2025)

PUB is releasing the third edition of the Code of Practice on Sewerage and Sanitary Works (COPSSW). Besides new requirements, changes made and informed to the industry subsequent to the 2019 COPSSW are also included in this revision. The COPSSW (Third Edition – Mar 2025), complete with Standard Drawings, can be downloaded from PUB's website at https://www.pub.gov.sg/Professionals/Resources/Code-of-Practices.

2 To allow the industry time to plan for the new requirements, only new Development Control (DC) submissions made from 1 Sep 2025 onwards must comply with the new requirements. In the meantime, the current edition of the COPSSW and conditions imposed in DC/DP clearance, will continue to be effective for on-going projects.

3 Notwithstanding that the COPSSW (Third Edition – Mar 2025) is to be complied with for DC submissions made only from 1 Sep 2025 onwards, we would encourage all industry professionals to adopt the new design requirements where possible for their current projects. If you have any further queries regarding the revised COPSSW (Third Edition – Mar 2025), you may contact Mr Muhd Razis at muhd_razis_rahim@pub.gov.sg or Mr Steven Candra at steven_candra_setiokusumo@pub.gov.sg.

Yours faithfully

Herman Ching
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Annex A: Highlight of Amendments to COPSSW

New/Revised Terminology

TERM	EXISTING	REVISED
Food shop	-	Food shops are essentially stand-alone F&B premises where there is retail sale of food and/or beverage. Food shop can be categorised as sit-in establishments like café or restaurants.
Food processing establishments	-	Food processing establishment refers to establishments where food is manufactured, processed, prepared or packed for the purpose of distribution to wholesalers and retailers. Some examples include bakery and flour confectionery factories, dairy processing plants, noodles and pasta manufacturers, surimi-based product factories, etc.
Grease trap	-	means any interceptor, arrestor, tank or pit situated above or under the ground which allows culinary wastewater to cool and the grease therein to be separated from the wastewater
Waste pipe	means a pipe which connects any wash basins, baths/showers or sinks to a floor trap or any urinals to a urinal trap	means a pipe which connects any wash basins, sinks, bathtubs or floor waste to a floor trap or any urinals to a urinal trap
Sewerage system	means a system of sewers, pumping mains, pumping stations, sewage treatment plants and sewage treatment works and water reclamation facilities for one or both of the following purposes: a) the collection, treatment and disposal of sewage; and b) the recovery and treatment of water, which is supplied to the board or by Board, and includes any main or pipe carrying reclaimed water or sewage, outfall pipe, sanitary pipe, drain line, grease trap, cesspit,	means a system of pipes, pumping system, sumps, tanks, flow control system, sensors, odour control and ventilating system, chambers, manholes, sewage treatment systems or water reclamation facilities, or other appurtenances, for use in connection with one or both of the following purposes: (a) the collection, treatment and disposal of sewage; (b) the recovery and treatment of water which is supplied to the Board or by the Board, and includes any pipes and tanks for the temporary collection of sewage that do not connect downstream to or empty into any sewer

	holding tank for the temporary holding of sewage, septic tank, privy, and any part thereof;	
	means a qualified person appointed under the Building Control Act (Cap. 29) whose qualification is appropriate to the nature of those works;	means a person who is registered as — (a) an architect under the Architects Act 1991 and has in force a practising certificate issued under that Act; or (b) a professional engineer under the Professional Engineers Act 1991 and has in force a practising certificate issued under that Act.

New/Revised Requirements Chapter 1 – Planning for Development Works

[Note: A new clause may take on the same numbering as an existing clause in the current COP. Unless the existing clause is mentioned to be deleted, it shall be taken that the existing clause will be renumbered or repositioned in the revised COP]

CLAUSE	EXISTING	REVISED	REMARKS
1.2.1.b	Top levels of Inspection Chambers (IC) shall be at the same level or higher than the top level of the manhole to which the development connects.	If the sanitary drainage system connects to a public sewer by gravity, the inlet and access points to the sanitary system (e.g. floor traps, ICs, etc.) shall be constructed higher than the top level of the manhole to which the development connects, or in a case of Y-junction connection, the top level of the downstream and upstream manholes.	New requirement *(effective from 1 Sep 25)*
1.2.3.d	For condominiums, apartments, mixed residential/commercial developments, worker dormitories, commercial buildings and major industrial developments, the drain-line connection to the public sewer shall be made via a manhole.	Connection via Manhole and Junction i. For condominiums, apartments, mixed developments, worker dormitories, commercial buildings, major industrial developments and institutions, the drain-line connection to the public sewer shall be made via a manhole. ii. Drain-line connection via 'Y'-junction connection is allowed only for shophouses and landed houses.	i. Revised clause based on existing practice ii. New requirement *(effective from 1 Sep 25)*

1.2.3.f	The drain-line connection must have adequate capacity and in good condition.	g. For a redevelopment project that proposes to reuse an existing drain-line connection going into neighbouring premises due to a lack of availability or infeasibility to connect to a public sewer in the public area, a CCTV inspection shall be carried out on the drain-line connection prior to submission for Development Control (DC) clearance. The QP shall indicate in their DC submissions whether the connection shall be repaired or replaced based on the assessment of the drain-line condition found from the CCTV inspection survey. h. For continued use of existing drain-line connection, the QP shall ensure that it has adequate capacity and is in good condition to serve the development. Sufficient time for rectification work to the drain-line connection if required should be planned for by the QP. A CCTV inspection report and video shall be submitted to PUB to show that the drain-line connection is in good condition before it can be commissioned for use.	g. Revised clause to incorporate requirements reflected in PUB Circular dated 1 Dec 2023 h. Revised clause based on existing practice
1.2.4 c		**Requirement for Drainage Structures Overcrossing Sewers** Drains of max 2m width may over-cross sewer at minimum 1m vertical clearance (measured from the bottom of the drainage structure to the crown of sewer pipe) but shall not be laid parallel to and over the sewer.	New requirement *(effective from 1 Sep 25)*
1.2.7		**Additional Sewer(s)** If crossings of infrastructure (e.g. such as viaducts, road/rail tunnels, link-bridge, underpasses, permanent earth retaining structures supporting the infrastructures) and public sewers are unavoidable,	New clause based on existing practice.

		diversion of public sewers shall first be explored. Where diversion cannot be carried out, PUB shall be consulted on the need and size for additional sewer(s). The additional sewer(s) shall be provided at least 5m away from the outer edge of the affected sewer and parallel to the affected sewer, unless otherwise accepted by PUB.	

New/Revised Requirements Chapter 2 – Sewer Protection

CLAUSE	EXISTING	REVISED	REMARKS
2.2.1.a	ii. Layout plan showing the proposed building/structures (including retaining and boundary walls, footings drains, etc.) or engineering works. The plan shall indicate the minimum setback distance for the existing sewer to the structures;	ii. Layout and sectional plans showing the proposed building/structures, whether temporary or permanent, (including retaining and boundary walls, footings, drains, foundation system, ERSS, etc.), the proposed engineering works/activities and the sewers in the vicinity. The horizontal and vertical clearances of the proposed structures and/or works/activities from the sewers shall be clearly indicated in these plans.	Clause 2.2.1 on details to be submitted for POWS application will be presented in a single table ii. Revised clause for clarity.
	iii. Survey plan endorsed by Registered Surveyor (RS) showing the alignment of all the affected public sewers/manholes and the public sewer corridors;	iii. Survey plan endorsed by Registered Surveyor (RS) showing the alignment of all the affected public sewers/manholes and the public sewer corridors. If the pipe is an outfall pipe that is located in/under a water body, the survey plan shall be endorsed by a	iii. New requirement *(effective from 1 Sep 25)*.

		Registered Hydrographic Surveyor showing the alignment of the pipe;	
2.2.1.b	iv. Details of installation of web-based IP surveillance cameras if the specified activities are carried out within sewer setback.	ix. For piling activities, summary table comprising of pile IDs, coordinates (X and Y), toe level, vertical clearance from pile toe level to sewers/DTSS and horizontal clearance to sewer/DTSS. xii. For works within sewer setback, details of installation of web-based IP surveillance camera to be installed onsite and linked to PUB's Monitoring system. The CCTVs shall be configured to enable wireless transmission of live video to PUB system.	ix. New clause based on existing practice. xii. Revised clause to incorporate requirements reflected, in PUB circular dated 11 Jul 2023.
2.2.1		Unless otherwise informed by PUB, these minor works are not required to submit item (x), (xi) and (xii) in the POWS application: • soil investigation works • pre-probing works • instrumentation & monitoring installation works • trial trenching works • utilities laying works that are carried out by open excavation.	New clause based on existing practice.
2.2.2.b	For small-scale redevelopments/A&A works for a single landed property (terrace, semi-detached and detached house), only post-construction CCTV inspection is required.	For small-scale redevelopments/A&A works for a single landed property (terrace, semi-detached and detached house), only post-construction CCTV inspection of sewer located inside the lot is required.	Revised requirement
2.2.2 c		Unless otherwise informed by PUB, pre- and post-construction CCTV inspection of the sewer are not required for the following works:	New clause based on existing practice.

		i. soil investigation works ii. pre-probing works iii. instrumentation & monitoring installation works iv. trial trenching works v. utilities laying works that are carried out by open excavation.	
2.2.5 c		For piling and boring works within setback of sewers, verticality limit of the machineries shall be accounted for to ensure that the works will not cause any impact or damage to the sewers or DTSS tunnels.	New clause based on existing practice.
2.2.5 f		For piling, boring and soil investigation works, a GPS-enabled device (with accuracy specified by PUB) is to be installed on the rigs(s) before starting works. The GPS-enabled device shall connect to PUB's monitoring system throughout the period of carrying out piling/boring/soil investigation works.	New clause to incorporate requirements reflected in PUB circular dated 1 Dec 2022

New/Revised Requirements Chapter 3 – Sewerage System Design

<table>
<tr><th>CLAUSE</th><th>EXISTING</th><th>REVISED</th><th>REMARKS</th></tr>
<tr><td>3.2.1.a</td><td>Design Flow for Residential Development
The design flow shall be based on the average daily per capita flow as tabulated.
Table 4- per Capita Flow
<table><tr><td></td><td>Average Domestic Daily Flow</td><td>Peak Factor</td></tr></table></td><td>Design Flow for Residential Development
The design flow shall be based on the average daily per capita flow as tabulated.
Table 4- per Capita Flow
<table><tr><td></td><td>Average Domestic Daily Flow</td><td>Peak Factor</td></tr></table></td><td>New requirement
(effective from 1 Sep 25)</td></tr>
</table>

	<table><tr><td></td><td>(litres per capita per day)</td><td></td></tr><tr><td>Public housing</td><td>230</td><td rowspan="2">3</td></tr><tr><td>Private housing</td><td>345</td></tr></table> For design purpose, a single dwelling unit shall be taken to comprise 4 persons.	<table><tr><td></td><td>(litres per capita per day)</td><td></td></tr><tr><td>Public housing</td><td>230</td><td rowspan="2">3</td></tr><tr><td>Private housing</td><td>250</td></tr></table> For design purpose, a single dwelling unit shall be taken to comprise 3.5 persons.	
3.2.1.g		Bending Radius of sewers within Manhole Sewers shall be designed to achieve bending radius of 1.5 times the incoming pipe diameter for pipes up to 1.0m diameter. Any change in direction of the sewers shall be accommodated inside a manhole.	New requirement *(effective from 1 Sep 25)*
3.2.3.a		The design of the vortex drop with incoming pipe size larger than 450mm shall be validated via Computational Fluid Dynamics (CFD) modelling. PUB shall be consulted on the requirements before commencement of the CFD modelling and vortex drop design.	New clause based on existing practice.
3.2.3.b		PUB may require airtight manhole covers to be provided in locations where the vortex drop is constructed near residential estates or places with high footfall.	New requirement *(effective from 1 Sep 25)*
3.3.4 a	The minimum size of pumping main shall be 100mm diameter unless the flow cannot meet the minimum velocity permissible	The minimum size of pumping main shall be 150mm diameter unless the flow cannot meet the minimum velocity permissible.	New requirement *(effective from 1 Sep 25)* *Note: No change to pumping main requirement used in*

			private sewerage system. Pls see new clause 4.4 e
3.4.1 c	All RC pipes to comply with the latest SS183 or BS EN 1916.	All RC pipes to comply with the latest SS183.	New requirement *(effective from 1 Sep 25)*
3.4.1 d	Polymer Concrete (PC) All PC pipes to comply with the latest BS EN 14636.	All PC pipes to comply with the latest SS183.	New requirement *(effective from 1 Sep 25)*

New/Revised Requirements Chapter 4 – Sanitary System Design

CLAUSE	EXISTING	REVISED	REMARKS
4.2.1 c	i. Discharge pipe shall be connected to the drain-line in the direction of flow within the IC/waste sump (see Sanitary Standard Drawing No. 3-1d).	i. Discharge pipe shall be connected to the drain-line in the direction of flow within the IC/waste sump (see Sanitary Standard Drawing No. 3-1d). This requirement is not mandatory for waste sump in basement carpark.	Revised requirement
4.2.2 c	The following types of grease traps can be used: i Standard circular grease traps in accordance with the PUB's Standard Drawings No. PUB/WRN/STD/040 and PUB/WRN/STD/041. ii ii. Non-standard grease traps and portable grease interceptors complying with BS-EN1825 or ASME A112.14.3.	The following types of grease traps can be used: i. Standard circular grease traps in accordance with the PUB's Standard Drawings No. PUB/WRN/STD/040C and PUB/WRN/STD/041C. ii. Non-standard grease traps complying with BS-EN1825 or ASME A112.14.3.	
4.2.2 e	The grease traps shall be sited at a location where it is accessible for servicing and		

<table>
<tr><td></td><td>maintenance and will not give rise to nuisances or pose a safety hazard.</td><td>All standard and non-standard grease traps shall be sited at a location where they are accessible for cleaning by NEA’s licensed general waste collector.

iii. Portable grease interceptors complying with BS EN 1825 or ASME A112.14.3 that are installed within food shops are only allowed:
• for premises that have received approval from Urban Redevelopment Authority (URA) for a change in land use, and
• where it is not feasible for the premises to discharge into standard or non-standard grease traps.

Portable grease interceptors shall be installed at a location accessible for cleaning.</td><td>iii. New requirement (effective from 1 Sep 25)</td></tr>
<tr><td>4.2.2.e</td><td></td><td>Grease trap should be maintained based on PUB's recommended cleaning procedures. The recommended cleaning steps are provided in Annex J and K</td><td>New clause to incorporate requirements reflected in PUB’s advisory letter dated 1 Sep 2024</td></tr>
<tr><td>4.3.1.a</td><td>ii. “Single Stack System” for buildings up to 6 storey. (See Sanitary Standard Drawing No. 3-17c and Annex F for design requirements.)</td><td>ii. “Single Stack System” for landed housing or non-residential buildings up to 6 storey.

To protect dwelling units at the lower storey from risk of sewage water overflow due to choke in the stack, single stack system, cannot be applied in multi-storey residential buildings.</td><td>New requirement (effective from 1 Sep 25)</td></tr>
<tr><td>4.3.10

Table 8 - WC</td><td></td><td><table><tr><th>Appliances</th><th>Specific Installation Details</th></tr></table></td><td>New clause based on existing practice</td></tr>
</table>

		WC	iii. Only rigid bend connector (or rigid adjustable bend connector) is allowed for use. Flexible corrugated bend connector is not allowed. iv. All WC plastic bend connector shall comply with the functional test requirements as prescribed in BS 5627.	
4.4	a. Small bore macerator pump or ejectors may be used in a small pumped sanitary system. Where pump sump systems are proposed, PUB should be consulted on the specific requirements (see 3.3). b. When pumped sanitary system are used the outlet shall be connected to an IC. Direct connection of the outlet to a gravity discharge pipe/stack is not allowed. c. Ejector systems shall be provided with a ventilating pipe. The enclosure or pit where the ejector is placed shall be provided with a sump pump connected to the ejector's discharge pipe.	a. See clauses 3.3.2 and 3.3.3 for the mechanical and electrical requirements. b. Macerator pumps with free passage diameter less than 64mm may be used to serve sanitary appliances. c. When pumped sanitary system are used the outlet shall be connected to an IC. Direct connection of the outlet to a gravity discharge pipe/stack is not allowed. d. Ejector systems shall be provided with a ventilating pipe. The enclosure or pit where the ejector is placed shall be provided with a sump pump connected to the ejector's discharge pipe. e. Minimum size of the pumping main shall be 100mm diameter. However, if the flow velocity is not able to meet the permissible range of between 1.0 to 2.4m/s, the pumping main can be of a pipe size smaller than 100mm but larger than the free passage of the pump.	a. Revised clause for clarity b. Revised requirement e. Revised clause for clarity

4.6.3.c	Discharge from isolation wards (including toilets in the isolated ward) for infectious diseases patients shall be conveyed via separate sanitary pipes to disinfection plant for disinfection before discharging to public sewer. The trade effluent and disinfectant in disinfection plant shall be thoroughly mixed and have sufficient contact time. Its disinfected effluent discharge to the public sewer shall contain at least 0.5ppm of residual chlorine.	i. Discharge from isolation wards (including toilets in the isolated ward) for infectious diseases patients shall be conveyed via separate sanitary pipes to disinfection plant for disinfection before discharging to public sewer. The trade effluent and disinfectant in disinfection plant shall be thoroughly mixed and have sufficient contact time. Its disinfected effluent discharge to the public sewer should contain at least 3ppm of free chlorine which is in accordance with the National Infection Prevention & Control (Guidelines for Acute Healthcare Facilities) 2017 guide by MOH. ii. Disinfection plant shall be placed in a location with leak/overflow containment measures designed by the QP.	i. New requirement *(effective from 1 Sep 25)* ii. New requirement *(effective from 1 Sep 25)*
4.6.4.c	Sullage water from motor garage or lubrication bay and car washing bay of petrol station shall be discharged into the sewerage system via an oil interceptor (see Standard Drawing No. PUB/WRN/STD/042A).	Sullage water from motor workshop or lubrication bay or car washing bays where the business involves the use of oil shall be discharged into the sewerage system via an oil interceptor (see Standard Drawing No. PUB/WRN/STD/042C).	New requirement *(effective from 1 Sep 25)*
4.8	a. Pipes and fittings used in sanitary drainage shall comply with the following standards: . . iv. Reinforced Concrete (RC) SS 183/BS EN 1916 (Internal liner complying with **Annex C** shall be provided) . vii. Manhole/IC frames and covers SS 30 & PUB Standard Drawings	a. Pipes and fittings used in sanitary drainage shall comply with the following standards: . . iv. Reinforced Concrete (RC) SS 183 (Internal liner complying with Annex C shall be provided) . vii. Manhole/IC frames and covers SS EN 124 & PUB Standard Drawings	iv. New requirement *(effective from 1 Sep 25)* vii. New requirement *(effective from 1 Sep 25)*

New/Revised Requirements Chapter 5 – Requirements of Trade Effluent Discharge into Public Sewer

CLAUSE	EXISTING	REVISED	REMARKS
5.3.1	d. Details of the layout of all the machinery, plant and equipment used in the premises;	d. Details of the layout of all the machinery, plant and equipment, including wastewater treatment facilities, used in the premises;	d. Revised clause for clarity
	g. Any other information required by PUB.	g. Details of the sanitary system layout; h. Lab test results of the trade effluent discharge from a representative discharge point; and i. Any other information required by PUB.	g. New clause based on existing practice h. New clause based on existing practice

New/Revised Requirements Annex C – Technical Requirements for Sewer Pipe

CLAUSE	EXISTING	REVISED	REMARKS
1. a	The CAC lining shall be minimum 8mm over the normal RC reinforcement cover. The CAC composition shall comply with EN 14647.	The CAC lining shall be minimum 10mm over the normal RC reinforcement cover. The CAC composition shall comply with EN 14647.	New requirement *(effective from 1 Sep 25)*
1. b		i. The physical properties of HDPE lining shall comply with SS183 Table 2. . . vi. Spark test shall be carried out to all manholes and sewers > 900mm diameter with HDPE welded joints according to ASTM D 4787. a. All spark test equipment shall be calibrated no longer than 12 months before test date. b. No pin hole shall be detected by spark testing.	i. New requirement *(effective from 1 Sep 25)* vi. New clause based on existing practice.

New/Revised Requirements Annex G – Other Sewer Protection Requirements

CLAUSE	EXISTING	REVISED	REMARKS
2.g	The submissions of the instrumentation monitoring reports to PUB are only for PUB's record. The QP or PE shall be fully responsible for the analysis and interpretation of all the readings and measurements.	Readings shall be uploaded into PUB's monitoring system within the next working day after the readings are collected as per the approved Instrumentation monitoring plan.	New clause to incorporate existing requirements reflected in PUB circular dated 11 Jul 2023
3.c	The contractor shall provide PUB with the Internet website address for centralized live viewing or viewing of the still picture and the recorded video.	The contractor shall connect the web-based surveillance camera to PUB's monitoring system throughout the period of carrying out the works inside the setback.	New clause to incorporate existing requirements reflected in PUB circular dated 11 Jul 2023

New/Revised Requirements Annex G – Guidelines on Autosampler

CLAUSE	EXISTING	REVISED	REMARKS
1	The autosampler shall be provided with a sampling pump suitable for collecting waste water sample containing toxic and industrial pollutants. The autosampler shall be capable of collecting discrete as well as composite samples.	1. The autosampler shall be installed at the last inspection chamber (IC) of trade premises before the used water/trade effluent discharge enters the public sewerage system. 2. The autosampler shall be provided with a sampling pump suitable for collecting used water sample containing toxic and industrial pollutants. The autosampler shall be capable of collecting discrete as well as composite samples.	Revised clause based on existing practice
5	The autosampler shall be housed in an instrument panel, which shall be located	The autosampler shall be housed in an instrument panel, which shall be located near or within the	

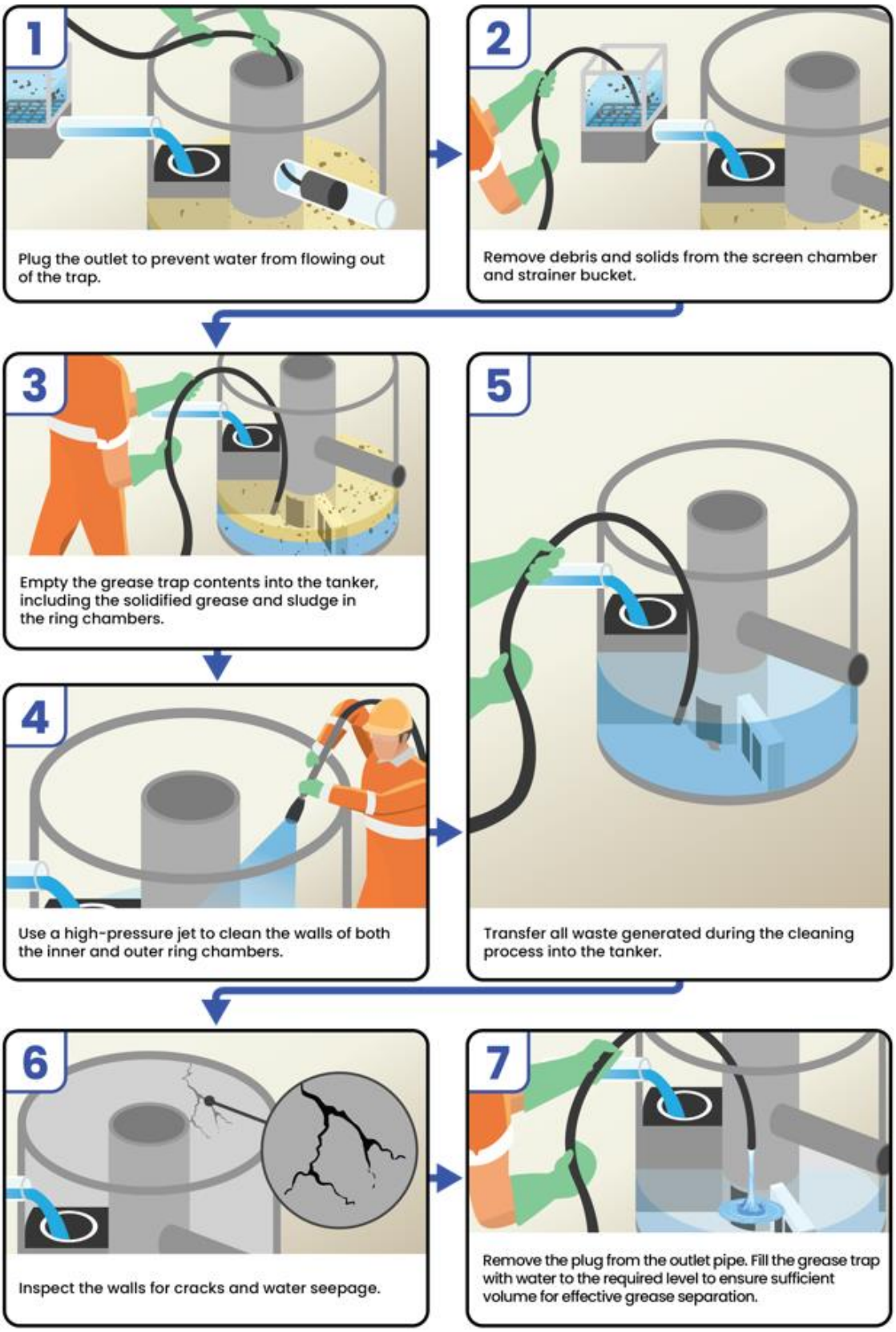
	near or within the guardhouse of premises. Door of the instrument panel shall be provided with a glass or plastic window for viewing the local display.	guardhouse of premises. Door of the instrument panel shall be provided with a glass or plastic window for viewing the local display. The instrument panel shall be designed to be tamperproof and provided with means for PUB to seal.	
6	The sampling tube of autosampler shall be fitted with a suitable strainer to prevent solids from being pumped into the sampling bottle. The sampling tube shall also be easily lifted out of the last IC and repositioned back without the need to go inside the chamber. The sampling tube shall be laid in a heavy duty PVC conduit. The mountings for sampling tube inside the last IC shall be of corrosion resistant materials.	The sampling tube shall be a single tube between the autosampler and the suction point in the last IC without any connections. The sampling tube of autosampler shall be fitted with a suitable strainer to prevent solids from being pumped into the sampling bottle when the sampling pump is activated. The sampling tube shall also be easily lifted out of the last IC and repositioned back without the need to go inside the chamber. The sampling tube shall be laid in a heavy-duty PVC conduit entirely concealed underground between the instrument panel and last IC. The mountings for sampling tube inside the last IC shall be of corrosion resistant materials.	
8	The operator shall be responsible for the proper maintenance of autosampler and its other auxiliary equipment.	The trade premises shall be responsible for the proper maintenance of autosampler and its other auxiliary equipment. For routine or ad-hoc maintenance, the trade premises shall submit a copy of the maintenance report, in an approved format, to PUB.	

New/Revised Requirements Annex H – Guidelines on VOC Monitoring System

CLAUSE	EXISTING	REVISED	REMARKS
1	The monitoring system shall consist of: a….	The monitoring system shall consist of: a…. f. AC/DC converter	Revised clause based on existing practice.
3	The door of the instrument panel shall be provided with a glass or plastic window for viewing the recorder chart.	The door of the instrument panel shall be provided with a glass or plastic window for viewing the local display. The instrument panel shall be designed to be tamperproof and provided with means for PUB to seal.	Revised clause based on existing practice.
5	A recorder chart (range of 0 - 1,000ppm) shall be provided to record the surrogate VOC values (as output) from the meter. The recorder chart shall be capable of recording the VOC values continuously for a month.	A recorder chart or data logger (range of 0 - 1,000ppm) shall be provided to record the surrogate VOC values (as output) from the meter. The recorder chart shall be capable of recording the VOC values continuously with minimum storage capacity of 6 months data. The data should also be able to be remotely transmitted to the Board's centralised system if required.	New requirement *(effective from 1 Sep 25)*
7	A chemical resistant sampling tube shall be laid in the last IC. The sampling tube shall be fitted with a suitable strainer to prevent solids from entering the sampling bottle when the pump is activated. The tube shall be laid in a heavy duty PVC conduit. The mountings for the sampling tube inside the last IC shall be of corrosion resistant materials.	A chemical resistant sampling tube shall be laid in the last IC. The sampling tube shall be a single tube between the water sampling kit and the suction point in the last IC without any connections. The sampling tube shall be fitted with a suitable strainer to prevent solids from entering the sampling bottle when the sampling pump is activated. The tube shall be laid in a heavy-duty PVC conduit entirely concealed underground between the instrument panel and last IC. The mountings for the sampling tube inside the last IC shall be of corrosion resistant materials.	Revised clause based on existing practice.

New Clause

Annex J – PUB's Recommended Cleaning Procedures for Standard Circular Grease Trap

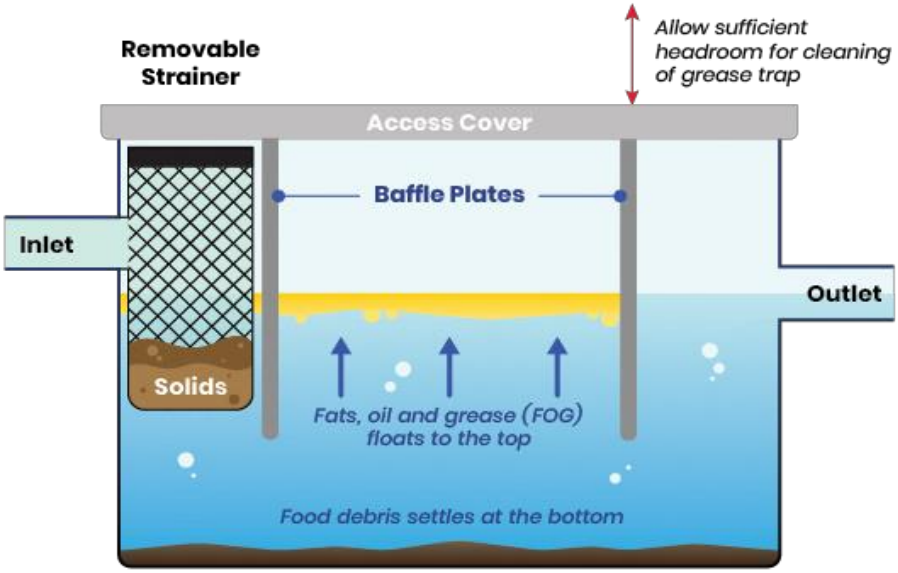


New Clause

Annex K – PUB's Recommended Cleaning Procedures for Non-Standard Grease Trap or Portable Grease Interceptors complying with BS-EN1825 or ASME A112.14.3

1 Your grease interceptor is specifically sized to handle the volume of sullage water produced by your culinary activities. If your culinary activity has increased, you may need to increase the capacity of your grease interceptor. Always consult a Qualified Person to ensure your grease interceptor is properly sized to meet your needs. As grease interceptors vary by the different manufacturers, consult your Qualified Person for the maintenance requirements for your particular type of grease interceptor.

2 You can implement the following recommended inspection and maintenance regime to properly maintain your grease interceptor, if there are no recommended procedures by the manufacturer:



a. Ensure no culinary water is discharged and no running water is used during maintenance of the grease interceptor.
b. Inspect the strainer bucket in the grease interceptor and clear any debris build-up.
c. Remove the floating FOG from the water surface and debris from the bottom of the interceptor using a shovel or heavy-duty scooper. Dispose of these in a trash bag.
d. Drain the water from the grease interceptor using a bucket or small pump.
e. Scrape residues from all surfaces of the grease interceptor, including sides, baffles, lid and bottom. Rinse the strainer. Use an absorbent pad to clean the surfaces of interceptor and the strainer, disposing of soiled pads in the trash bag.
f. Securely tie the trash bag to prevent leakage and dispose of it appropriately in a designated receptacle.

Annex B – Changes to Sewerage Standard Drawings (changes marked in red (in attached drawings)

DRAWING NO	DESCRIPTION	REMARKS
PUB/WRN/STD/001C	Standard Details of Main Sewers and Manholes <6m Deep	Added details and notes revised
PUB/WRN/STD/003B	Standard Details of Precast Concrete Manhole Parts	Standardised drawing name format
PUB/WRN/STD/004C	Rectangular Manhole Details for Sewers 1000mm dia and above, Manholes <6m Deep	Increased the manhole neck minimum width from 750mm to 1050mm for maintenance access Added details and notes revised
PUB/WRN/STD/005B	Standard Manhole for Sewer 1000mm Dia. and Above	This drawing will be removed as the details have been combined with STD 004C
PUB/WRN/STD/006C	Standard Details of Precast Concrete Manhole >6m Deep	Intermediate platform is not required for sewers < 1000mm dia and manholes ≤ 6m deep. Requirement of bending radius of 1.5D for sewers increased up to 1000mm dia Handrail and safety chain material of intermediate platform updated Added details and notes revised
PUB/WRN/STD/007C	Standard Details of Drain-line Connections to Public Sewers	Changed drawing title Reflected drawing details on saddle connection Added details and notes
PUB/WRN/STD/008A	Standard Details of Multistrand Poly-Propylene Nylon Rope Netting	Standardised drawing name format Reflected the 50mm height manhole protrusion above turf level
PUB/WRN/STD/009B	Vortex Drop	Amended location of Intermediate Platform Amended standard vortex scroll design Added details and notes revised
PUB/WRN/STD/010B	Standard Details of Ground Markers along the Routes of Deep Tunnels and Curved Sewers	Changed placement of markers on manhole covers to cement mortar New details on signboard markers at undeveloped areas

PUB/WRN/STD/011B 	Standard Details of Manhole on Slope	Standardised drawing name format Added new sign “Do Not Lean” Added details and notes revised
PUB/WRN/STD/015B 	Standard Heavy-Duty Manhole Fame & Cover	Changed design requirement to comply with SS EN 124
PUB/WRN/STD/016B 	Standard Medium Duty Manhole Frame & Cover	
PUB/WRN/STD/017B 	Standard Inspection Chamber Frame & Cover	
PUB/WRN/STD/018B 	Recessed Type Light Duty Inspection Chamber Frame & Cover	
PUB/WRN/STD/040C 	Standard Circular Grease Trap for Canteens, Restaurants & Eating Stalls	Updated notes to refer to latest Trade Effluent Regulations limit
PUB/WRN/STD/041C 	Standard Grease Trap for Small Eating Stalls	
PUB/WRN/STD/042C 	Standard Grease, Petrol & Oil Interceptor-Three Compartments	Updated compliance standard to SS EN 124
PUB/WRN/STD/043C 	Cast Iron Gully Trap for Covered Carpark & Car Washing Area	Widened strainer bucket diameter to narrow the gap between strainer and gully internal wall Introduced stainless steel material in addition to aluminium alloy for strainer bucket
PUB/WRN/STD/044C 	Cast Iron Gully Trap for Bin Centre/Refuse Centre	
PUB/WRN/STD/045C 	Cast Iron Gully Trap for Markets	
PUB/WRN/STD/102C 	Standard Details of Handrail and Safety Chain/Rope	Standardised drawing name format Details of safety chain updated.

Annex C - Changes to Sanitary Standard Drawings (changes marked in red in attached drawings)

DRAWING NO.	DESCRIPTION	REMARKS
3-1d:	Layout of Sanitary Drainage System	Changes to align text with main text in COP
3-2c:	Discharge Pipe & Floor Waste Connection on Ground Level	Updated footing extension to support floor trap
3-3c:	Discharge Stack Connection with Backdrop to Inspection Chamber	Aligned of pipe length to dwg 3-22b
3-4c:	Backdrop and Tumbling Bay Details	Clarification of text
3-6c:	Ground Level Floor Trap with or without a Sump (For Connection to Inspection Chamber)	Updated compliance standard to SS EN 124
3-7d:	Inspection Chamber and Break Joint for Drain-line	
3-8c:	Wash Area	Updated floor trap drawing
3-9e:	Sanitary Drainage System for Hawker Centre/Food Court	Updated reference to PUB/WRN/STD/040C & 041C
3-10d:	Waste Sump at Ground Level (For Sullage Water Drainage)	Updated compliance standard to SS EN 124 Updated waste sump cover handle design that can cause stagnant water
3-11d:	Sanitary Drainage System for Typical Bin Centre	Updated reference to PUB/WRN/STD/044C
3-14c:	Sanitary Drainage system for Toilet at Beach Site/Construction Site	Updated squatting WC to pedestal WC to deter washing of muddy boots through WC
3-15d:	Fully Ventilated System (without Secondary Discharge Stack) for Landed Housing	Updated to include shower area
3-16d:	Fully Ventilated System (with Secondary Discharge Stack) for All Buildings	
3-18e:	Ventilated Stack System for All Building	
3-17e:	Single Stack System for Landed Housing or Non-residential Buildings up to 6 Storeys	Align with main COP text requirement to only allow this system for use in non-residential buildings
3-23c:	Jointing of Outlet of Pedestal Water closet Pan to Discharge Pipe	Added additional configuration drawing using bend connectors with purpose made rubber seal
3-24c:	Vent Pipe Arrangements for 3 or More Waste Basins Connected in Series and Common Waste Pipe Size for Sanitary Appliances Connected in Series	Removed false ceiling Updated ventilating pipe size to 50mm dia to current industry practice
3-28b:	Connection to Common Discharge Pipe	Clarification of dimensions between stacks and updated ventilating requirement for first storey sanitary facilities connected to common discharge pipe