

**ENVIRONMENTAL PROTECTION DEPARTMENT
PRACTICE NOTE FOR PROFESSIONAL PERSONS**

**Drainage Plans subject to Comment
by the Environmental Protection Department**

**Building (Standards of Sanitary Fitments, Plumbing,
Drainage Works and Latrines) Regulations 40(1), 40(2), 41(1) and 90**

Drainage plans submitted to the Building Authority are referred to the Environmental Protection Department (EPD) for comment whenever there is a concern for pollution control. The EPD has, based on experience of the common problems found in the drainage submissions, prepared this practice note for reference by Authorised Persons (APs) in preparing drainage plans. Although the guidelines contained in this practice note are not meant to be exhaustive, it is hoped that they would help secure early approval of drainage plans.

2. APs are welcome to approach the EPD for discussion or clarification in case of doubt regarding any specific environmental design or pollution control issue, preferably as early as possible in the planning stage of a project. However, due to limitations in resources, the EPD does not undertake to vet submission documents prior to a formal submission of drainage plans to the Building Authority. Enquiries can be directed to the Drainage Plans and Referrals Section, Liquid Waste Projects Group, EPD, at 28/F Southorn Centre, 130 Hennessy Road, Wanchai (Facsimile No. 838 2155).

Discharge to Storm Drains and Foul Sewers

3. Under Building (Standards of Sanitary Fitments, Plumbing, Drainage Works and Latrines) Regulations 40(1) and 41(1), foul water should be discharged to a foul sewer and surface water should be discharged via rainwater pipes to stormwater drains.

4. Discharge to foul sewers should always be kept to a minimum in order not to unduly overload the foul sewerage while preventing pollution to the stormwater systems. In general, rainwater and uncontaminated cooling water and the like should be discharged to

stormwater drains but seawater used for the cooling of air-conditioning plants should be discharged directly to sea to avoid overloading the stormwater drains. Polluted rainwater should be discharged to stormwater drains after removal of the pollutants by appropriate facilities. Domestic wastewater can be discharged to foul sewers without pretreatment while commercial and industrial wastewater should be pretreated, where necessary, to meet prescribed effluent standards. Proposals to reduce wastewater generation are encouraged, but proposals on effluent reuse should be discussed with the EPD at the early conception stage.

5. The EPD generally sets effluent discharge standards with reference to the Technical Memorandum on Effluent Standards issued under Section 21 of the Water Pollution Control Ordinance except where special circumstances warrant a more stringent standard. The Technical Memorandum lays down comprehensive standards for discharges into all public sewers and drains and all receiving waters, both inland and coastal, and copies of it are obtainable from any office of the EPD. The following recommendations should be noted :

- (i) Drainage outlets provided in open areas and areas subjected to a substantial amount of wind-blown rain, including open carparks, balconies, podiums, yards, etc., should be connected to stormwater drains.
- (ii) Drainage outlets provided in covered areas, including covered podiums and other roofed areas, should be discharged to foul sewers.
- (iii) Drainage outlets of verandahs next to kitchens and utilities rooms where a substantial amount of wind-blown rain is not expected should, as far as possible, be connected to foul sewers because of the concern that dwellers might discharge laundry or dishwasher wastewater through these drainage outlets.
- (iv) Subsoil drains of slopes, road embankments and earth retaining structures, and groundwater collection drains for basements, subways and tunnels, and similar drains, should, under normal circumstances, be connected to stormwater drains. Silt removal facilities should be provided where necessary. A separate drainage system that connects to foul sewers should be provided to collect wastewater from basements, subways and tunnels and similar areas.

- (v) Swimming pool main drain, footbath main drain and swimming pool make-up tank drain should be connected to stormwater drains (except in water gathering grounds where APs are advised to consult Water Supplies Department) while the filtration plant backwash should be discharged to foul sewers. Swimming pool drainage layout, filtration plant room drainage layout and filtration plant schematic line diagrams are required to be included in drainage plans. Drainage for fountains and the like should be designed in a similar manner.
- (vi) Drainage in covered carpark, covered lorry loading and unloading areas and covered transport interchanges should be connected to foul sewers via petrol interceptors. Typical details of these petrol interceptors are attached at Appendix A for reference.
- (vii) Drainage serving open transport interchanges and cargo handling areas should be connected to stormwater drains via a petrol interceptor that would allow stormwater bypass during peak flow periods. Typical details of such a petrol interceptor prepared by the Highways Department are attached at Appendix B for reference.
- (viii) To prevent hazards from sewage overflowing, sewage pump sumps should be provided with a standby pump whose capacity should not be less than any of the duty pumps, and duty pumps should not be required to operate more than 10 on-off cycles per hour. Location of each level switch should be clearly marked on the drainage plans. A minimum distance of 200mm is normally required between each level switch.
- (ix) Surface water drainage should be provided for discharging stormwater off slopes and from open surfaces. Such drainage as normally collected in open surface channels should be led to stormwater drains via silt removal facilities. Runoff in kerb gutters of roads or channels of building platforms should pass through a gully pit with the necessary gratings to prevent objects from entering the stormwater drains.
- (x) Amendments made on alteration and addition and resubmission drawings should be clearly marked or coloured on the drainage plans.

Drainage of Commercial and Industrial Wastewater

6. Under Building (Standards of Sanitary Fittings, Plumbing, Drainage Works and Latrines) Regulations 90, suitable treatment facilities may be required to be provided if trade waste may be discharged into any drain or sewer.

7. Whenever the wastewater flow and characteristics of a commercial or industrial development are known or are predictable, details of an appropriate wastewater treatment facility, where necessary to meet prescribed effluent standards, should be included as part of the drainage submission. Dilution as a means of meeting effluent standards is not allowed. APs are advised to confirm the effluent discharge standards with the EPD on a case by case basis before commencing on the design of a wastewater treatment facility. The following recommendations should be noted :

- (i) Drainage plans for industrial buildings, where the users are known, should include the information listed below.
 - (a) nature of business;
 - (b) raw material and main products;
 - (c) brief description of production processes, indicating areas where water is used and wastewater is generated;
 - (d) quantity, discharge pattern, composition and characteristics of wastewater;
 - (e) proposed wastewater treatment facility and drainage system;
 - (f) where appropriate, proposed methods of disposal of used chemicals and wastewater sludge and similar waste; and
 - (g) other relevant information.

- (ii) Industrial wastewater treatment plant proposals should at least be accompanied by
 - (a) a wastewater characteristics report;
 - (b) a design report with detailed hydraulic and process calculations;
 - (c) process and instrumentation diagrams;
 - (d) drawings of the plant layout, plant room details, pipework and equipment;
 - (e) equipment specifications and where possible equipment catalogues; and
 - (f) an operation/maintenance manual.

For more advanced treatment processes or for less common types of industrial wastewater, a treatability study or pilot test report may be required.

The wastewater characteristics report should adequately address the fluctuations in wastewater flow and characteristics. A sampling point (and an automatic flow measuring device with non-resettable type totalizer for discharges greater than 50m³ per day) should be provided at the discharge outlet of the treatment plant. Safety, process control and operational and maintenance requirements should always be taken into consideration in design. Bypass arrangements are not allowed unless well justified.

- (iii) Standby equipment should be provided to guard against failure of major equipment. Neutralization plants should be equipped with standby dosing pumps, a standby acid/alkali dosing system and a pH sensor with visual alarm and graphical recorder. A standby acid dosing system should also be provided to cater for overdosing of alkali to acidic wastewater and a standby alkali dosing system to cater for overdosing of acid to alkaline wastewater.

- (iv) Wherever practicable, waste minimization should be practised to arrive at an overall optimum production and waste treatment process. Waste heat, metal, oil and chemicals etc. should be recovered wherever practicable.
- (v) Design of drainage for flatted factories, whose users are not known at the time of the drainage plan submission, should follow the recommendation of PNAP : 124 published by the Building Authority.
- (vi) Design of drainage for oil storage installations should follow the recommendations of the 'Code of Practice for Oil Storage Installations' published by the Building Authority. The drainage plan submission should include detailed drawings and design calculations.
- (vii) Drainage serving the open area of a petrol filling station should be connected to the stormwater drains via a petrol interceptor with stormwater bypass (see Appendix B for reference). Car servicing bays, car wash bays and lubrication bays should as far as possible be located within roofed areas. The drainage in these roofed areas and in other covered areas where such activities may be carried out should be connected to foul sewers via a petrol interceptor (see Appendix A for reference).
- (viii) The drainage arrangement and oil interceptor design for a power substation should be such that no leaked or spilled oil could escape from the site even in the event of a serious transformer failure, fire, and similar incidents. Contaminated rainwater and fire-fighting water should also be discharged via an adequately designed oil interceptor. The drainage plan submission should include detailed drawings and design calculations.
- (ix) All wastewater collected from a restaurant kitchen, including that from basins, sinks and floor drains, should be discharged via a grease trap capable of providing at least 20 minutes retention during peak flow. Details of a typical grease trap are given at Appendix C for reference. A separate grease trap should be provided for each restaurant kitchen, but in cases where a building contains more than one restaurant the EPD may consider the alternative of a communal grease trap for restaurants managed by one same company, provided satisfactory arrangements are proposed for the management and

maintenance of the facility. Grease traps are not required for bars and pantries where cooking will not be carried out.

- (x) Disposal of commercial and industrial wastewater by injection into the ground (e.g. by soakaway pits) is normally not allowed.

Sewage Treatment and Disposal

8. Under Building (Standards of Sanitary Fittings, Plumbing, Drainage Works and Latrines) Regulations 0(2), a septic tank, a cesspool or other approved facility should be provided to dispose of foul water where there is no public sewer in the vicinity.

9. A small sewage treatment plant is only acceptable under circumstances where it is demonstrated that there is no viable alternative (including public sewerage, pumping mains to connect to public foul sewers, upgrading of existing sewerage and the use of a septic tank and soakaway system for small rural populations). Design of small sewage treatment plants should in general meet the requirements given in the "Guidelines for the Design of Small Sewage Treatment Plants" published by and available from the EPD plus the addendum to it (attached as Appendix E in this practice note). The following recommendations should be noted :

- (i) A sewage treatment plant submission should include all information required in the "Guidelines for the Design of Small Sewage Treatment Plants". The exact discharge location and effluent discharge standards should be checked with the EPD before commencing on design.
- (ii) Septic tank and soakaway design should meet the minimum requirements given in Appendix D. These detailed design guidelines are currently under review by Government and they are attached for interim reference only. Drainage plan submissions should include percolation test results and detailed design calculations.
- (iii) Design parameters for nitrification, tertiary treatment and nutrient removal should be well supported by relevant information, giving due regard to local influent characteristics and climatic conditions.

- (iv) Where sewage treatment plants are designed to cater for a peak flow of 3 times the daily average flow rate, two duty and one standby pumps should be provided in equalization tanks as far as practicable to limit the flow through the treatment units to within 1.5 times the daily average flow rate during off-peak periods. This is to even out the flow as much as possible.
- (v) Provisions should be made for future connections to public foul sewers when such is available in the vicinity.

(Stuart B. Reed)

Director of Environmental Protection

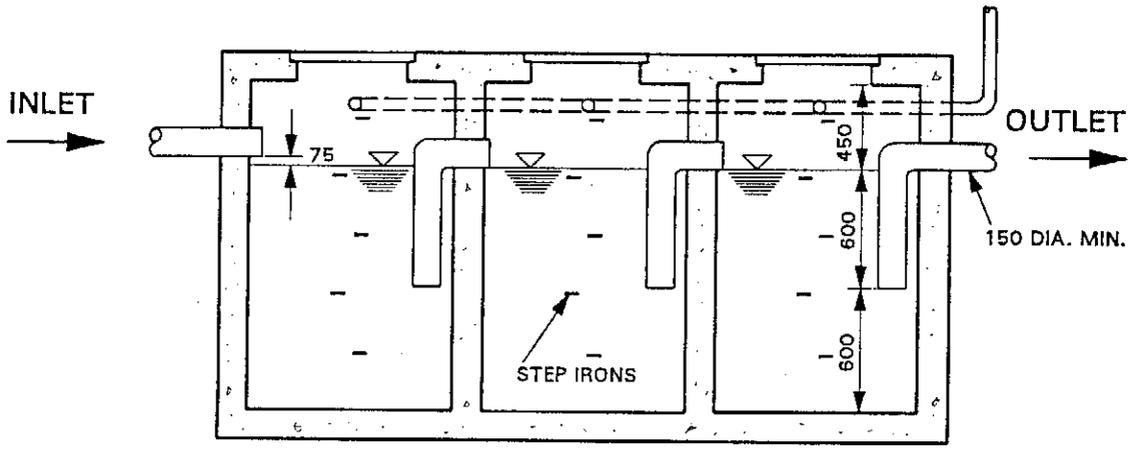
Environmental Protection Department
28/F Southorn Centre
130 Hennessy Road
Wan Chai

Issued September 1993

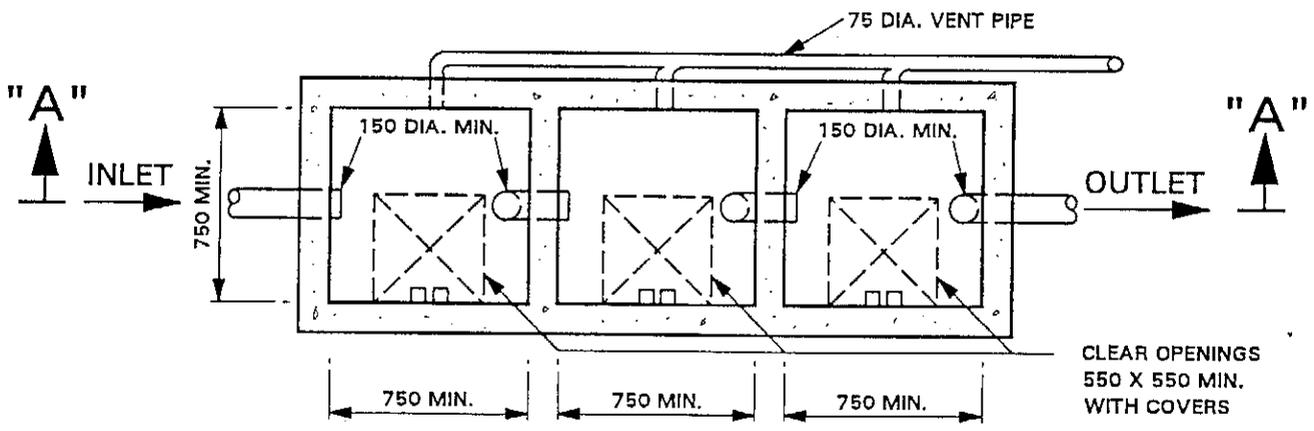
Ref. : EP 50/D1/1

Addendum to the ProPECC Practice Note PN 5/93

Original	Amendments
<p>Para 2, last sentence</p> <p>“Enquiries can be directed to the Drainage Plans and Referrals Section, Liquid Waste Projects Group, EPD, at 28/F Southorn Centre, 130 Hennessy Road, Wanchai (Facsimile No. 838 2155).”</p>	<p>“Enquiries can be directed to the Local Control Offices of the Environmental Protection Department.”</p>



SECTION A - A



PLAN

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES

**TYPICAL DETAILS OF
A PETROL INTERCEPTOR**

drawing no.
EP 50/D1/1/01

group
Liquid Waste Projects

date
5/93

scale
NTS

ENVIRONMENTAL
PROTECTION
DEPARTMENT
HONG KONG



GENERAL NOTES :

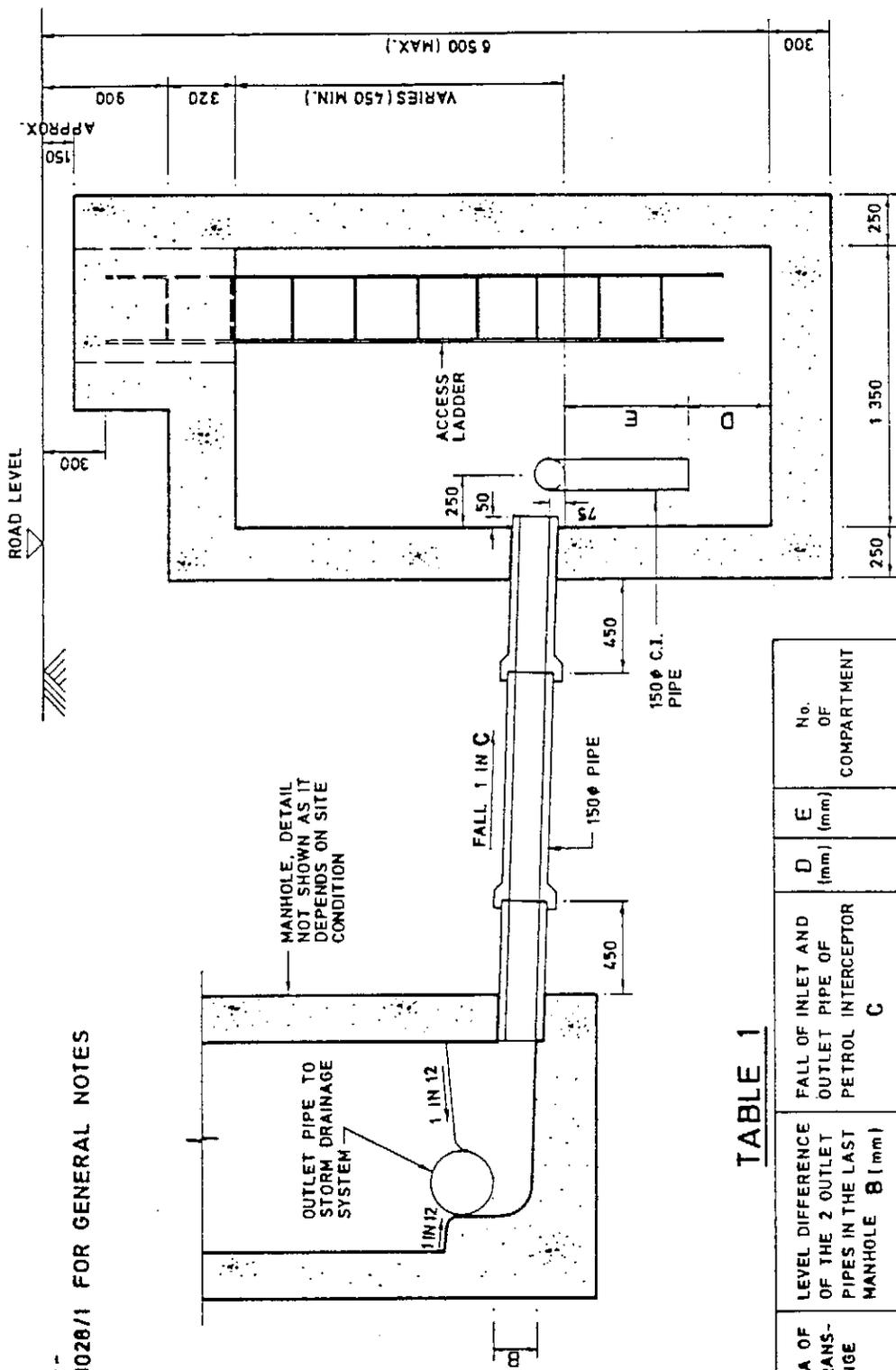
1. THE PETROL INTERCEPTOR IS DESIGNED TO PROVIDE AT LEAST 20 MINUTES RETENTION TO 5-10% OF THE MAXIMUM RUNOFF COLLECTED BY THE TRANSPORT INTERCHANGE IN A 1 IN 2 YEAR RAINSTORM.
2. DETAILS OF PETROL INTERCEPTOR SHOWN IN THESE DRAWING IS FOR OPEN SPACE PUBLIC TRANSPORT INTERCHANGE. FOR PETROL INTERCEPTOR AT COVERED PUBLIC TRANSPORT INTERCHANGE SEE CEO STANDARD DRAWING CE 1041.
3. ALL DIMENSIONS ARE IN MILLIMETRES.
4. CONCRETE TO BE GRADE 30/20.
5. REINFORCEMENT SHALL COMPLY TO BS 4449 AND SHALL BE BENT IN ACCORDANCE WITH BS 4466.
6. COVER TO REINFORCEMENT TO BE 50 mm UNLESS OTHERWISE SPECIFIED.
7. REINFORCEMENT NOTATION :

3 x 3 R12 - 5 - 200 B

No. OF SETS	3	x	3	R12	-	5	-	200	B	
No. OF										SUFFIX
BAR CLASS										SPACING
DIAMETER										BAR MARK
8. MINIMUM LAP LENGTH : 40 DIAMETER OF BAR FOR MILD STEEL PLAIN BAR.
9. STRUCTURAL STEELWORK SHALL BE GRADE 43C COMPLY WITH BS 4360 UNLESS OTHERWISE SPECIFIED.
10. ALL FILLET WELDS TO BE 6 mm UNLESS OTHERWISE SPECIFIED.
11. STAINLESS STEEL ACCESS LADDER TO BE OF MINIMUM GRADE 304 S12 TO BS 970:PT1:1983.
12. FOR RSJ CONNECTIONS, SEE CEO STANDARD DRAWING CE 1020.
13. FOR DETAILS OF TOP TREATMENT TO PETROL INTERCEPTOR, SEE CEO STANDARD DRAWING CE 1021 FOR FLEXIBLE ROAD SURFACE AND HIGHWAY STANDARD DRAWING H 1006 FOR CONCRETE ROAD SLAB.
14. FOR DETAILS OF COVER TO PETROL INTERCEPTOR, SEE CEO STANDARD DRAWING CE 1022.
15. FOR DETAILS OF DESILTING OPENING COVER, SEE CEO STANDARD DRAWING CE 1023.

BAR CLASS - R= GRADE 250 PLAIN ROUND STEEL BAR
 SUFFIX --- T= TOP
 B= BOTTOM
 NF= NEAR FACE
 FF= FAR FACE
 EF= EACH FACE

<p>PETROL INTERCEPTOR FOR OPEN PUBLIC TRANSPORT INTERCHANGE</p>	NEW ISSUE	<i>NL</i>	7/91
	HIGHWAYS DEPARTMENT		
	REFERENCE	DRAWING No.	
	SCALE	H 3028 / 1	



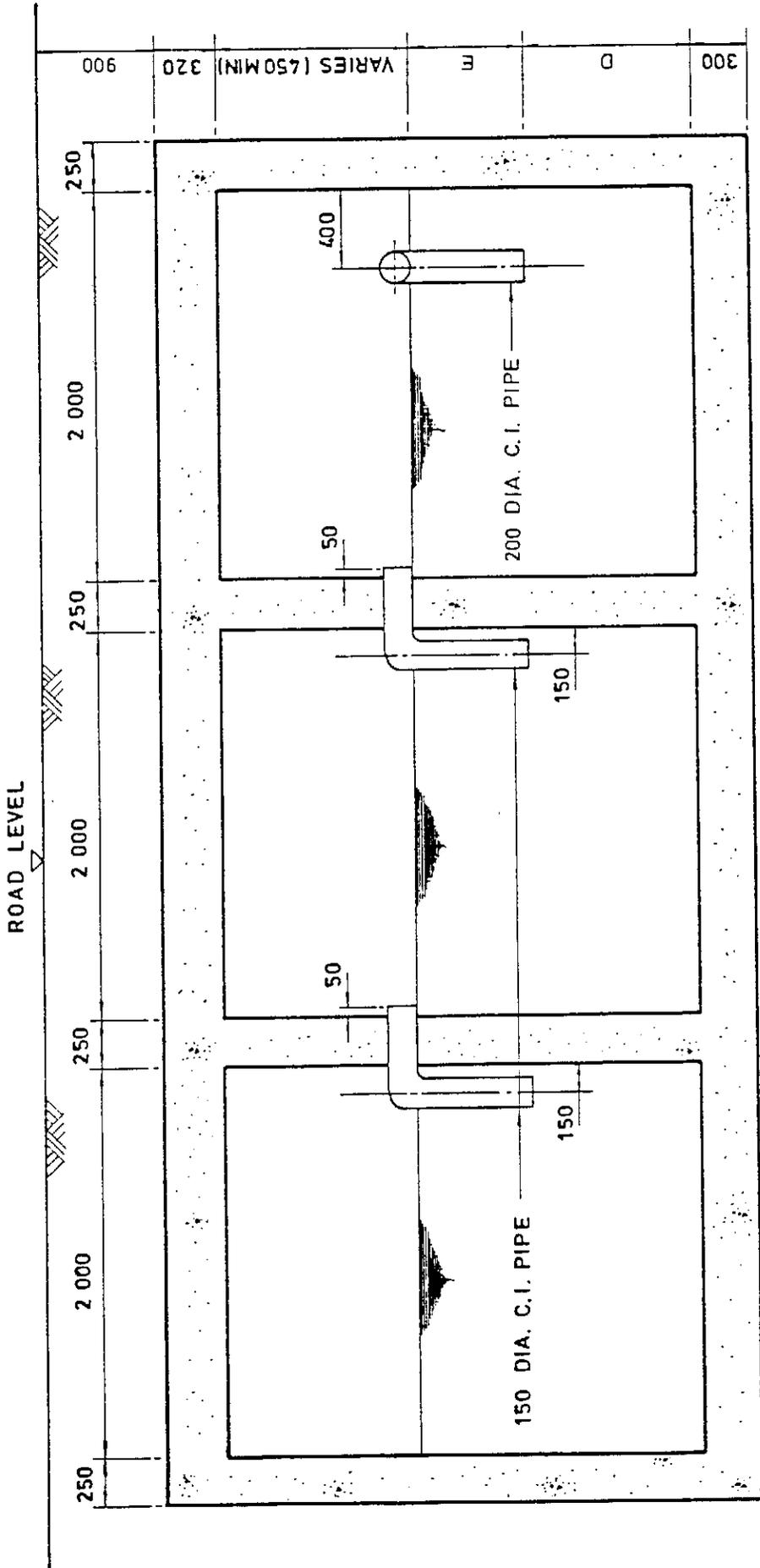
NOTES :-
SEE H3028/1 FOR GENERAL NOTES

TABLE 1

CATCHMENT AREA OF THE PUBLIC TRANS-PORT INTERCHANGE A (m ²)	LEVEL DIFFERENCE OF THE 2 OUTLET PIPES IN THE LAST MANHOLE B (mm)	FALL OF INLET AND OUTLET PIPE OF PETROL INTERCEPTOR C	D (mm)	E (mm)	No. OF COMPARTMENT
A ≤ 1000	60	2 00	500	400	2
1000 < A ≤ 2 000	90	2 00	600	400	3
2000 < A ≤ 3 000	150	2 00	550	600	4
3 000 < A ≤ 4 000	150	1 00	725	600	4

SECTION A-A

NEW ISSUE	M	7/91
REFERENCE	HIGHWAYS DEPARTMENT	
SCALE	DIAGRAMMATIC	
DRAWING No.	H 3028/3	

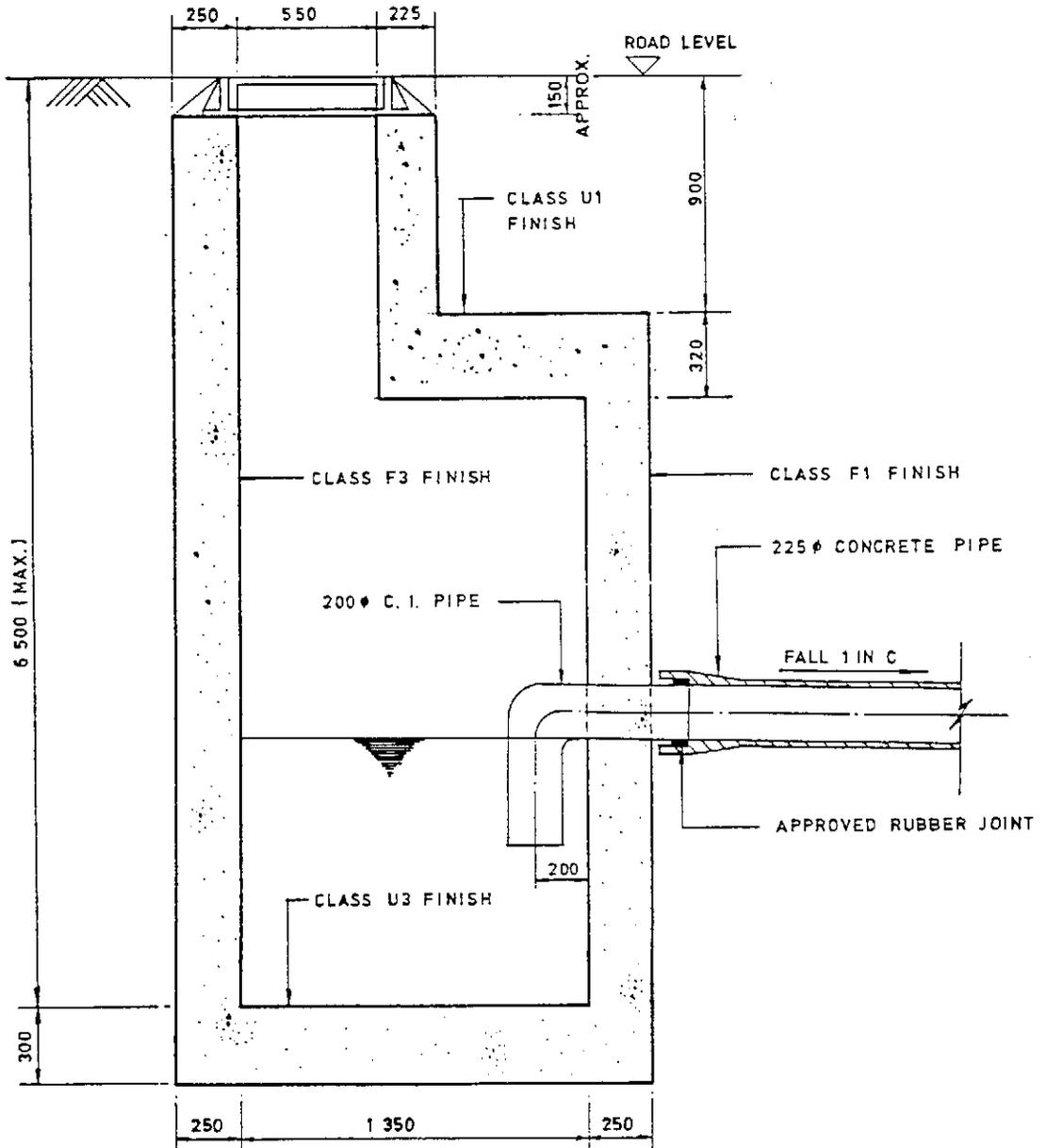


SECTION B-B
(3 COMPARTMENT PETROL INTERCEPTOR SHOWN)

NOTES :-
SEE H3028/1 FOR GENERAL NOTES

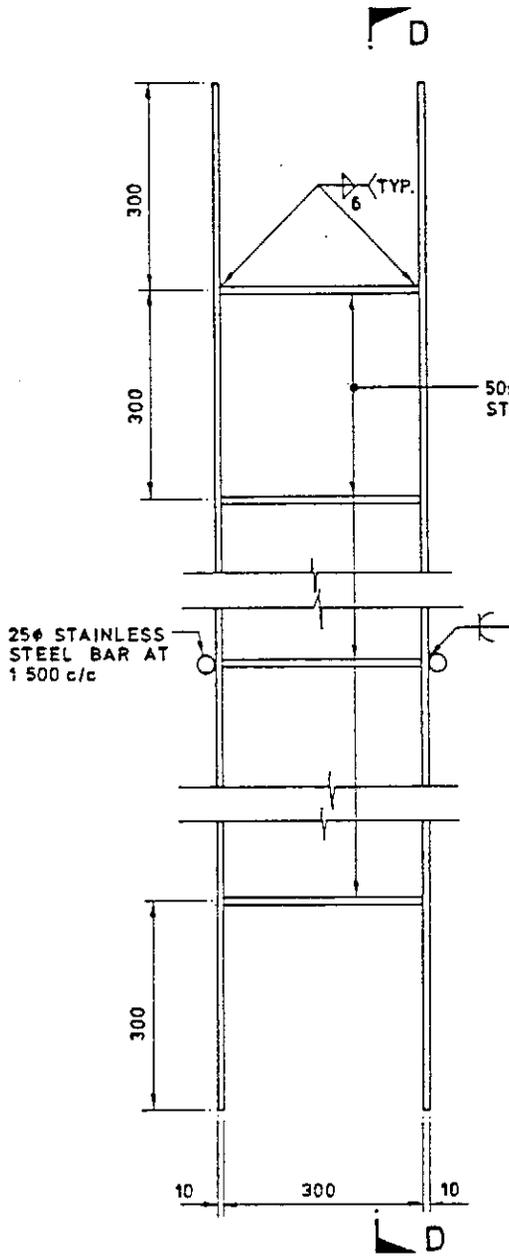
NEW ISSUE	N/L	7/91
HIGHWAYS DEPARTMENT		
REFERENCE	DRAWING No.	
SCALE	H 3028/4	
DIAGRAMMATIC		

NOTES :-
SEE H 3028/1 FOR GENERAL NOTES

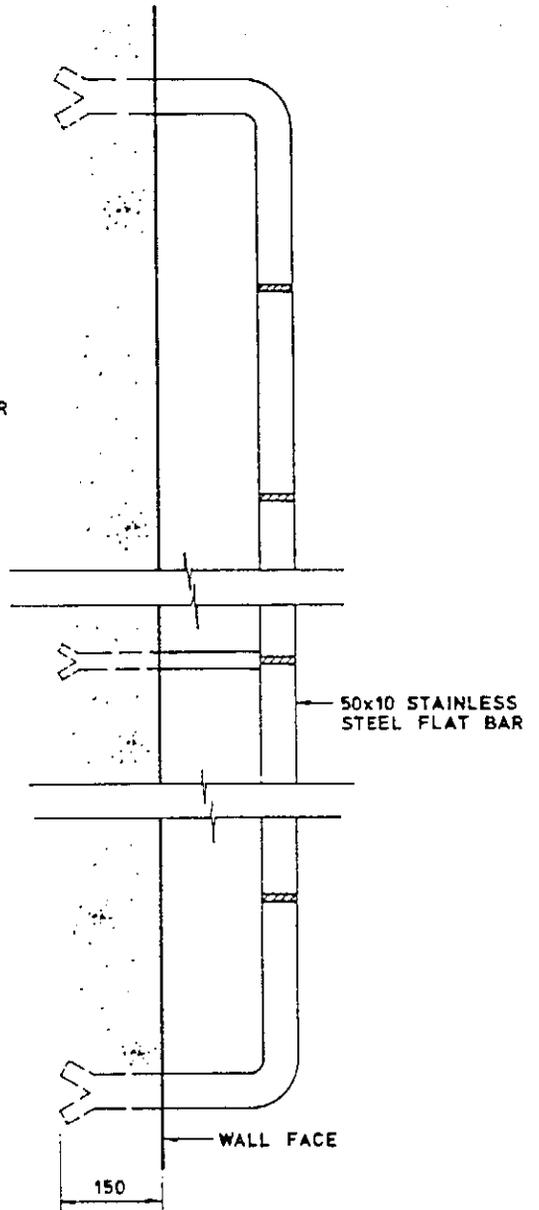


SECTION C-C

NEW ISSUE		NL	7/91
HIGHWAYS DEPARTMENT			
REFERENCE		DRAWING No.	
SCALE		H 3028/5	
1 : 25			

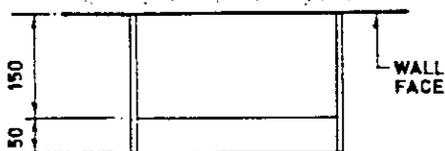


ELEVATION



SECTION D-D

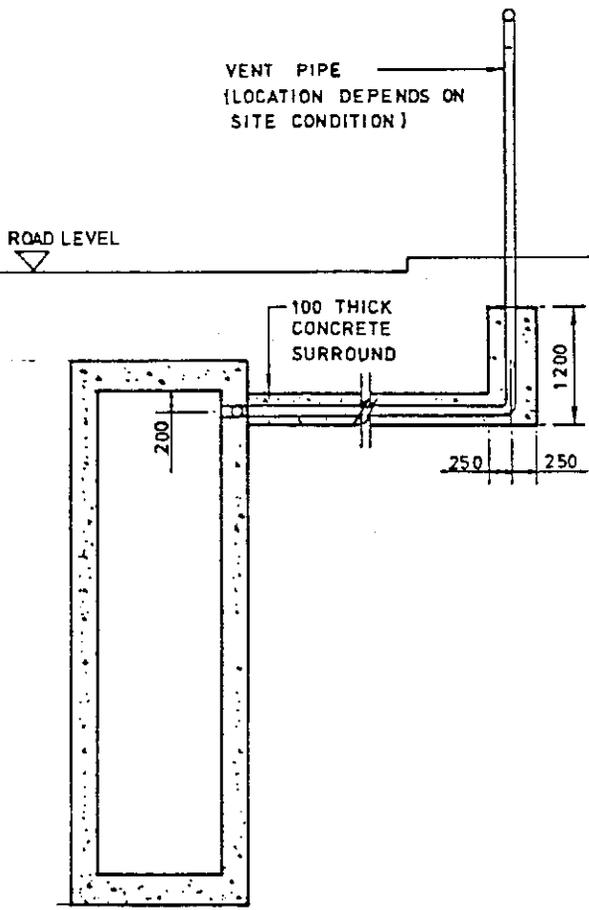
NOTES :-
SEE H 3028/1 FOR GENERAL NOTES



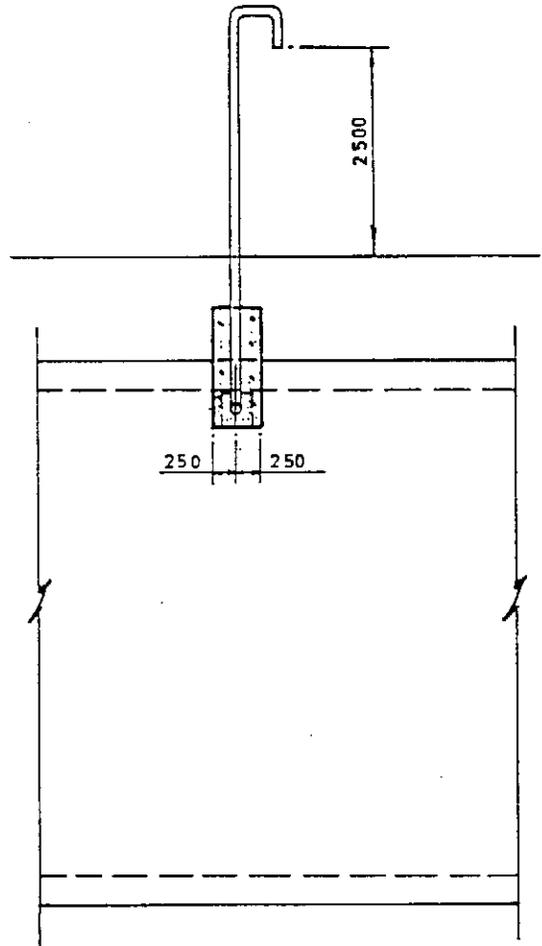
PLAN

ACCESS LADDER

NEW ISSUE		NL	7/91
HIGHWAYS DEPARTMENT			
REFERENCE		DRAWING No.	
SCALE		H 3028/6	
1:10			



SECTION M - M



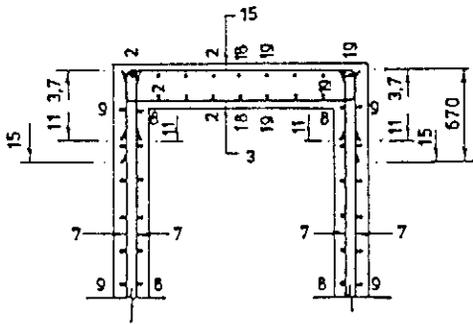
SECTION N - N

NOTES :-

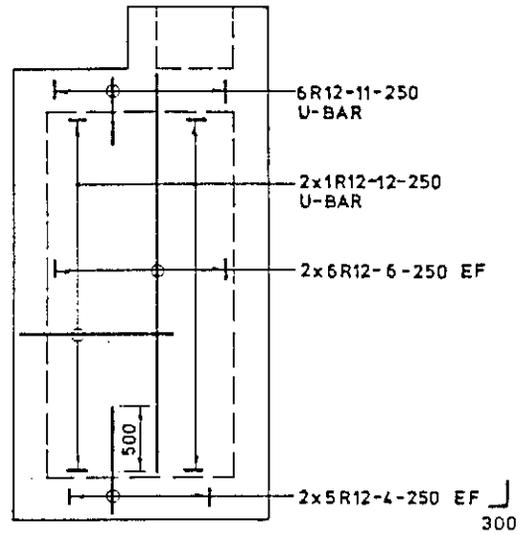
SEE H3028/1 FOR GENERAL NOTES

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REFERENCE		DRAWING No.	
		H 3028/ 7	
SCALE			
DIAGRAMMATIC			

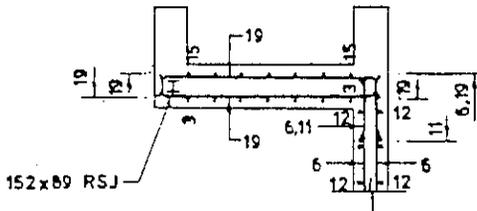
NOTES :-
SEE H3028/1 FOR GENERAL NOTES



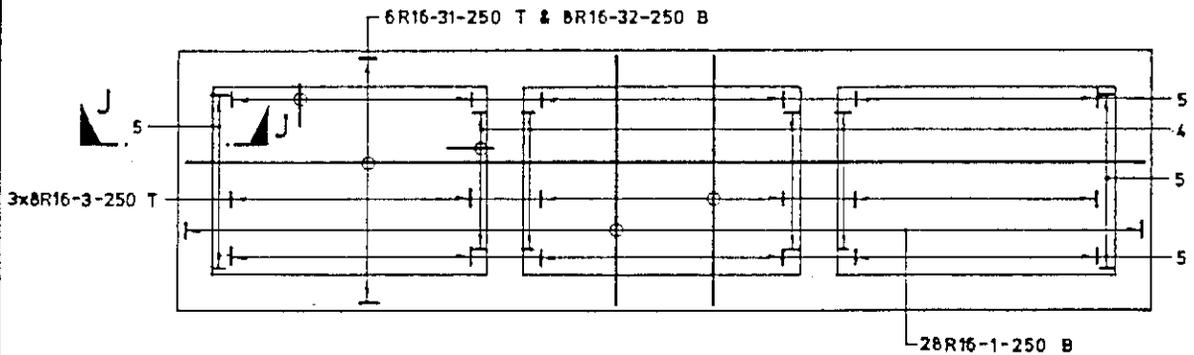
SECTION F-F



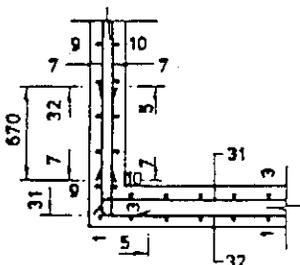
INTERNAL WALL



SECTION G-G



BASE SLAB



SECTION J-J

NEW ISSUE		NL	7/91
HIGHWAYS DEPARTMENT			
REFERENCE		DRAWING No.	
SCALE		H 3028/10	
1:50			

Grease Traps

(see Drawing no. EP 50/L1/1/01A for typical details of a grease trap)

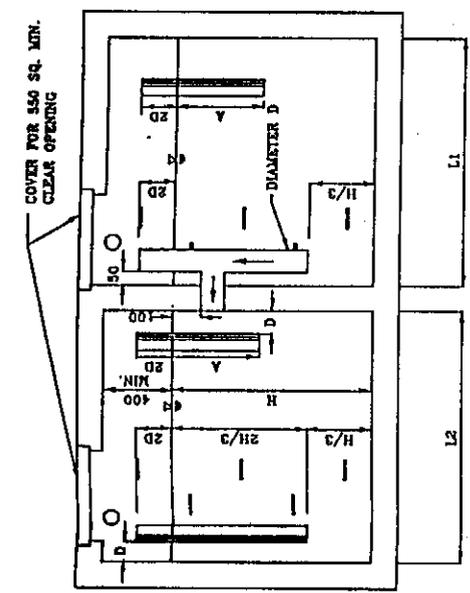
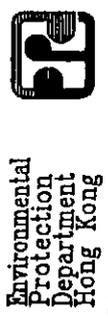
<u>Kitchen Floor Area</u> (m ²)	<u>Peaking Factor</u>	<u>Minimum Required Grease Trap Retention Volume</u> (m ³)
12	5.5	0.7
24	4.3	1.1
50	3.0	1.6
100	2.4	2.5
150		3.3
200	1.85	4.0
250		4.7
300		5.4
350		6.1
400	1.62	6.7
450		7.3
500		7.8
550		8.3
600	1.38	8.7
650		9.1
700		9.4
750		9.7
800	1.15	10.0
850		10.2
900	1.03	10.3
1000	1.0	10.4

- Note
1. The minimum required grease trap retention volume tabulated above is based on an average water consumption of 0.5 m³ per day per m² of kitchen floor area, and an average working day of 16 working hours. A larger grease trap should be provided if a higher water discharge intensity is anticipated.
 2. For kitchen floor areas in between the listed values, the minimum required grease trap retention volume can be calculated pro-rata.
 3. For kitchen floor areas smaller than 12 m², a grease trap with retention volume 0.7 m³ should be provided unless the adequacy of a smaller grease trap can be demonstrated.
 4. Depending on the actual operation of the proposed food premises, additional installations might be required to meet the standards given in the Technical Memorandum issued under section 21 of the Water Pollution Control (Amendment) Ordinance 1990.

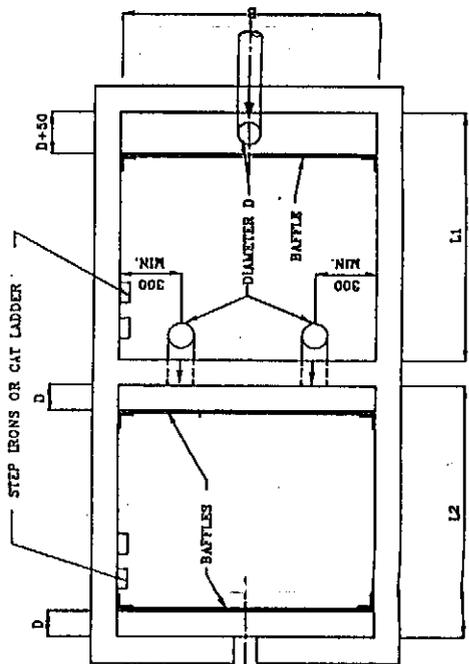
Notes

1. All dimensions are in millimetres unless otherwise stated
2. Volume = $B(L_1 + L_2)H$
3. $750 \leq B \leq L_1 \leq L_2 \leq 1800$
4. $600 \leq H \leq 1200$
For kitchen floor areas $\geq 30 \text{ m}^2$, H should be 900 minimum
5. $L_1 + L_2 = L_3$
 $2.0 \leq L_1/H \leq 3.0$
 $1500 \leq B \times L_1/H \leq 4000$
6. A = H/2 but not greater than 450
7. No. of pipes through the middle partition wall should be such that the velocity inside the pipes is not greater than 0.2 m/s
8. Gradient of inlet pipe > 1 in 10
9. Horizontal pipe between the last drainage fitting and the grease trap should not be longer than 10m. Where this cannot be achieved, the gradient of the pipe should be increased and rodding eyes should also be provided
10. Minimum diameter of inlet pipes 100mm
11. Minimum diameter of vent pipes 75mm
12. Reinforced concrete grease traps should be designed as liquid retaining structure with maximum surface crack widths 0.2mm
13. Grease traps should be easily accessible, allowing covers to be lifted and accumulated materials removed
14. A prominent sign should be erected adjacent to the grease trap to signify the location of the grease trap and should also contain the following information:
 - a) overall depth of the grease trap
 - b) liquid depth of the grease trap
 - c) the grease trap needs cleaning when the top 200mm of liquid depth is occupied by grease
 - d) warning signs and safety barriers should be erected around the manhole openings during cleaning and maintenance of the grease trap

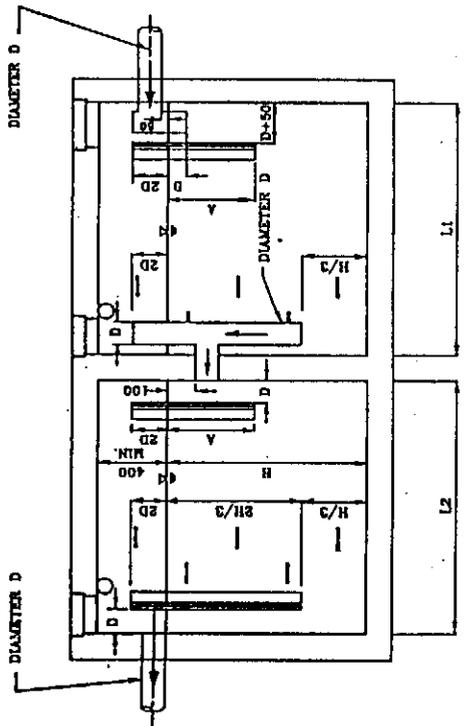
Drawing No.	Scale:
EP50/L1/1/01A	NTS
Group	
LIQUID WASTE PROJECTS	



SECTION X-X



SECTION Y-Y



PLAN

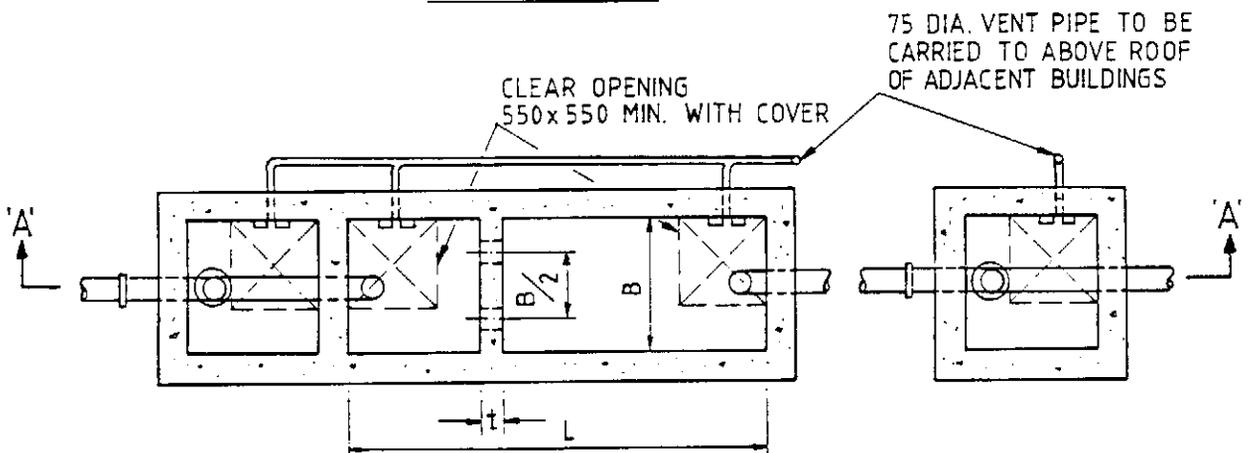
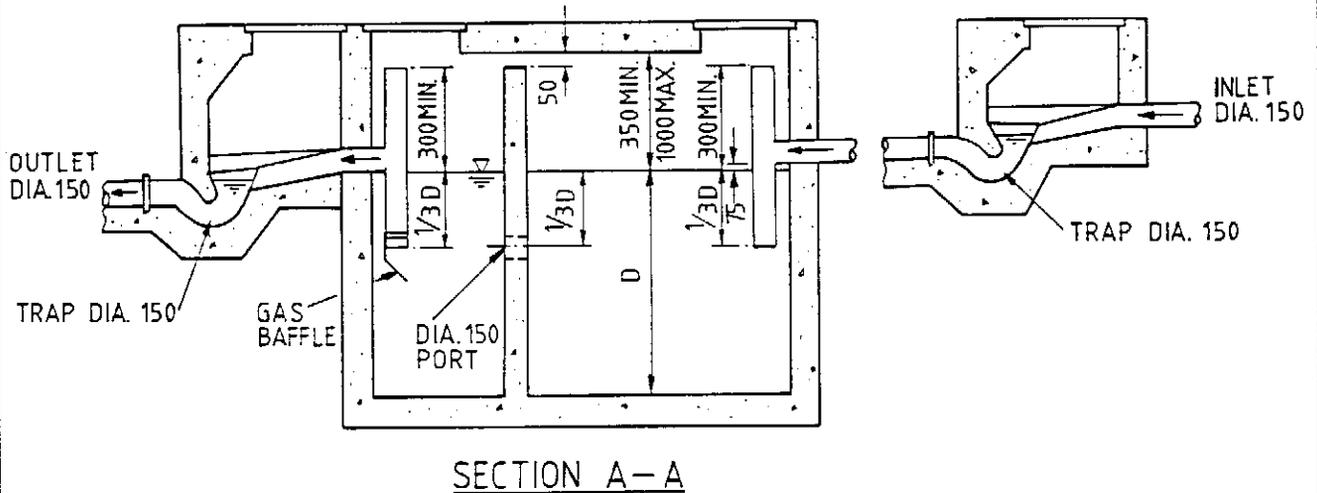
CLEAR OPENING 550 X 550 MIN. WITH COVER

CLEARING HOLE 300 X 300 mm WITH COVER

CLEARING HOLE 200 X 200 mm WITH COVER

SAMPLING HOLE 200 X 200 mm WITH COVER

TYPICAL DETAILS OF A GREASE TRAP



- NOTES:-**
- ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.
 - SIZE
 - $4B \geq L > 3B$
 - $1800 \text{ mm} \geq D > 1200 \text{ mm}$
 - RATIO OF VOLUMES OF FIRST AND SECOND CHAMBERS = 2 : 1
 - CAPACITY (SUBJECT TO NOTE 2)
 - CAPACITY $C = (L - t) \times B \times D$
 - NOT LESS THAN 2.3 m^3 BUT NOT MORE THAN 41 m^3
 - NOT LESS THAN QN WHERE N IS THE NUMBER OF PERSONS SERVED AND Q IS THE ESTIMATED ULTIMATE PER CAPITA DAILY WATER CONSUMPTION
 - SURFACE WATER MUST NOT BE CONNECTED TO THE TANK
 - TANK TO BE DESLUDGED EVERY 6 MONTHS
 - NO OVERFLOW OR BYPASS PIPE IS ALLOWED.
 - PLEASE REFER TO THE BOOKLET "GUIDANCE NOTES ON DISCHARGES FROM VILLAGE HOUSES" PUBLISHED BY EPD FOR FURTHER GUIDELINES ON OPERATION AND MAINTENANCE OF SEPTIC TANK SYSTEM.

SEPTIC TANK

(FOR INTERIM REFERENCE ONLY)

drawing no.
EP 50/D1/5/01

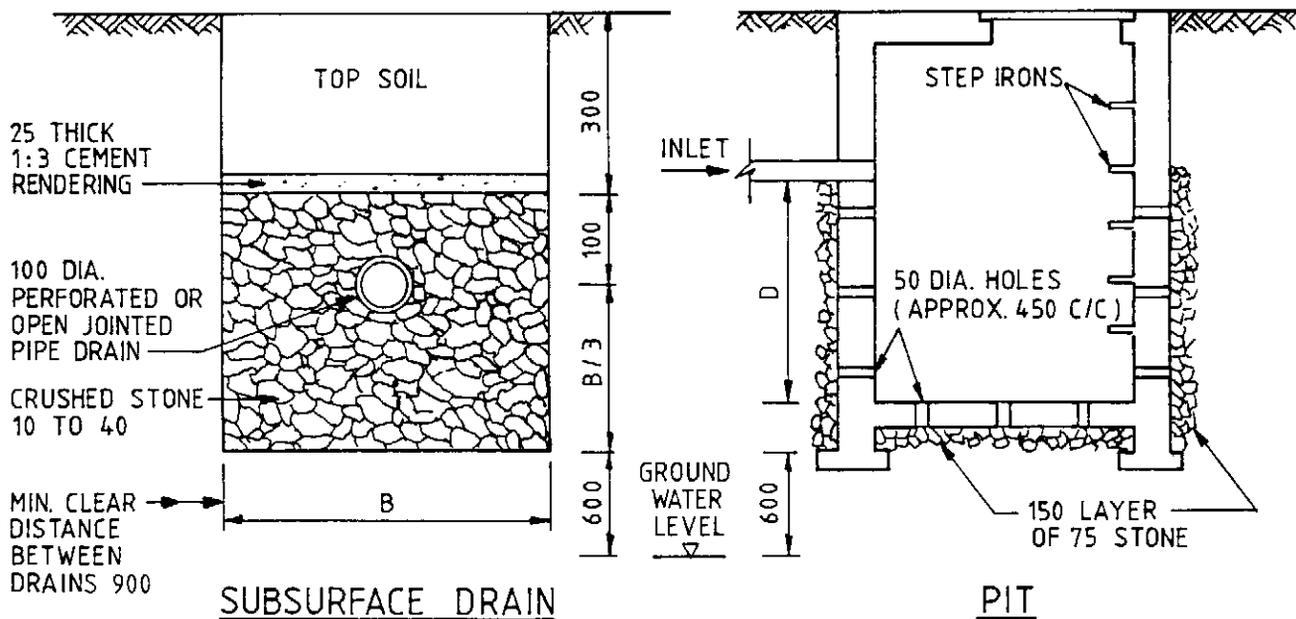
group
Liquid Waste Projects

date
5/93

scale
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ENVIRONMENTAL
PROTECTION
DEPARTMENT
HONG KONG



**NOTES:-**

1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED
2. PERCOLATION TEST FOR DETERMINING ABSORPTION CAPACITY OF SOIL
 - a. EXCAVATE A HOLE 300 mm SQUARE TO THE SAME DEPTH OF THE PIT OR TRENCH.
 - b. FILL THE HOLE WITH APPROXIMATELY 150 mm OF WATER AND ALLOW TO SEEP AWAY COMPLETELY.
 - c. REFILL THE HOLE WITH WATER TO A DEPTH OF 150 mm AND OBSERVE THE TIME, IN MINUTES, FOR WATER TO SEEP COMPLETELY AWAY.
 - d. DIVIDE THE TIME BY 6 TO GIVE TIME TAKEN TO FALL 25 mm FOR USE IN TABLE BELOW.
3. ALLOWABLE LOADING OF SOAKAWAY SYSTEMS

TIME IN MINUTES FOR WATER TO FALL 25 mm IN TEST PIT	ALLOWABLE LOADING IN LITRES PER m ² PER DAY	
	DRAIN TRENCH BOTTOM AREA	PIT PERCOLATION AREA
1 OR LESS	163	216
2	130	175
5	98	130
10	69	94
30	33	45

THE TOTAL ALLOWABLE LOADING PER DAY SHOULD EQUATE WITH THE DAILY INCOMING FLOW

4. MINIMUM CLEARANCE REQUIREMENTS FOR SOAKAWAY SYSTEMS

	DISTANCE FROM SOAKAWAY SYSTEMS (m)	
BUILDING	3	
RETAINING WALLS	6	
WELLS	50	
STREAM WHERE THE BED IS LOWER THAN INVERT OF SOAKAWAY SYSTEM	15 (30)*	* THESE DISTANCES SHOULD BE INCREASED TO DISTANCES SHOWN IN BRACKETS IF THE WATER FROM THE STREAM OR POOL IS USED OR LIKELY TO BE USED FOR DRINKING OR DOMESTIC PURPOSES.
POOLS	7.5 (30)*	
CUTS OR EMBANKMENTS	30	
PATHS	1.5	
BEACHES	100	(FROM BOUNDARIES OF GAZETTED BEACHES OR BATHING BEACH SUBZONES OF WATER CONTROL ZONES)
	30	(FROM H.W.M. AND FROM NEAREST WATERCOURSES FOR OTHER CASES)
GROUND WATER TABLE	0.6	(BELOW INVERT)

SOIL SOAKAWAY SYSTEM (FOR INTERIM REFERENCE ONLY)

drawing no.
EP 50/D1/5/02

group
Liquid Waste Projects

date
5/93

scale
NTS

ENVIRONMENTAL
PROTECTION
DEPARTMENT
HONG KONG



**Addendum to EPD Booklet "Guidelines for the
Design of Small Sewage Treatment Plants"**

- (I) The following amendments are to be made to the "Guidelines for the Design of Small Sewage Treatment Plants" dated March 1990 published by the EPD :-

Para. 3.2

- Replace " ● 0.46m³/h/d (cu.m. per head per day) " by
- 0.30 to 0.46m³/h/d (cu.m. per head per day) depending on types of development.

Para. 3.3

- (i) Replace the following

- " ● 4 DWF for population over 1000
● 6 DWF for population under 1000 "

by

- 6 DWF for population equal to or under 1000
- 4 DWF for population over 1000 but not less than that based on 1000 population.

- (ii) Add the following after the last sentence :-

Air ejectors should be provided to prevent septicity of sewage.

Para. 4.7

Replace this paragraph by

If a tank has to be covered, stainless steel or aluminium alloy open mesh flooring should be used (aluminium should however not be used in chlorination facilities located in confined space). Open mesh flooring should be designed for 5kPA uniformly distributed load.

Para. 4.13

Replace this paragraph by

Coarse screens should be provided to precede pumps. Fine screens should be placed downstream of equalization tanks equipped with air ejectors so as to minimize organic solids content in the screenings.

Para. 4.28

Add the following after the last sentence :-

Dechlorination facility may be required in situations where the residual chlorine poses hazard to fisheries or shellfisheries.

Para. 4.29

Amend this paragraph to read :-

When tertiary treatment is required, disinfection (chlorination, ultra-violet radiation, ozonation, etc.) should be placed after tertiary treatment.

Para. 4.30

Add the following after the last sentence :-

Decanting facilities should be fitted to sludge storage tanks. Supernatant should be returned to the equalization tank.

Para. 4.33

Replace this paragraph by

A sludge dewatering machine capable of attaining 30% w/w dry solids content for landfill disposal and a sludge tank for emergency storage of 14 days sludge volume should be provided. For small STP serving less than 100 population, it may be acceptable to provide only a sludge storage tank for wet disposal provided that :

- *a storage tank capable of holding 60 days sludge volume be provided,*
- *vehicular access is maintained for desludging tankers,*
- *written confirmation is provided from a desludging contractor undertaking to carry out the work and specifying the ultimate disposal site for the wet sludge.*

Para. 5.7

Replace this paragraph by

Powder type fire extinguishers and a first-aid box should be provided in an easily accessible area in the plant. Life-buoys should be placed near deep, open liquid containing tanks.

(II) The following paragraph is to be added to Section 4 :

4.36 *A minimum lighting intensity of 300 lux should be provided in the STP. Lights should be located where they are accessible for maintenance and replacement.*

(III) Appendix 2 is to be deleted.