Drainage Plans subject to Comment
by the Environmental Protection Department

Building (Standards of Sanitary Fitments, Plumbing,
Drainage Works and Latrines) Regulations 40(1), 40(匀), 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 carparks, 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 Fitments, 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 50m$^3$ 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 Fitments, 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

<table>
<thead>
<tr>
<th>Original</th>
<th>Amendments</th>
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<tr>
<td>Para 2, last sentence</td>
<td>“Enquiries can be directed to the Local Control Offices of the Environmental Protection Department.”</td>
</tr>
<tr>
<td>“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).”</td>
<td>“Enquiries can be directed to the Local Control Offices of the Environmental Protection Department.”</td>
</tr>
</tbody>
</table>
SECTION A - A

PLAN

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES

TYPICAL DETAILS OF A PETROL INTERCEPTOR

ProPECC  PN 5/93
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:

   No. of sets 3 x 3 R12 - 5 - 200 B
   No. off
   Bar class  7
   Diameter 2
   Suffix
   Spacing
   Bar mark
   Bar class - R= Grade 250 plain round steel bar
   Suffix --- T= top
               B= bottom
               NF= near face
               FF= far face
               EF= each face

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.
NOTES: -
1. SEE H3028/1 FOR GENERAL NOTES.
2. SEE H3028/3 FOR SECTION A - A, H3028/4 FOR SECTION B - B, H3028/5 FOR SECTION C - C, H3028/7 FOR SECTION M - M & N - N.
3. FOR DIMENSION 'B', 'D', & 'E', SEE H3028/3 TABLE 1.
SECTION C-C
ACCESS LADDER

ELEVATION

SECTION D-D

NOTES:
SEE H 3028/1 FOR GENERAL NOTES

NEW ISSUE

H 3028/6

REFERENCE

SCALE 1:10

HIGHWAYS DEPARTMENT

DRAWING No.

NL 7/91
VENT PIPE
{LOCATION DEPENDS ON
SITE CONDITION}

ROAD LEVEL

100 THICK
CONCRETE
SURROUND

SECTION M-M

SECTION N-N

NOTES:-
SEE H3028/1 FOR GENERAL NOTES

NEW ISSUE

HIGHWAYS DEPARTMENT

REFERENCE

DRAWING No.

SCALE

DIAGRAMMATIC

H 3028/7
REFERENCES:
SEE H3028/1 FOR GENERAL NOTES

SECTION E-E
(VIEW D SIMILAR BUT OPP. HANDED)

VIEW C

SECTION L-L
(NOTE: WALL BARS NOT SHOWN FOR CLARITY)

VIEW A
PETROL INTERCEPTOR
R.C. DETAIL

VIEW B

VIEW D

NEW ISSUE
N/L 7/91

HIGHPWAYS DEPARTMENT
REFERENCE DRAWING No.
SCALE
H 3028/ 8 1:50
NOTES:-
SEE H3028/1 FOR GENERAL NOTES

VIEW A
(VIEW B SIMILAR
BUT OPP. HANDED)

SECTION H-H

SECTION K-K
(NOTE: WALL BARS NOT SHOWN FOR CLARITY)

<table>
<thead>
<tr>
<th>NEW ISSUE</th>
<th>NL</th>
<th>7/91</th>
</tr>
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<td>REFERENCE</td>
<td>DRAWING No.</td>
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<td>H 3028/ 9</td>
</tr>
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<td>SCALE</td>
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</tbody>
</table>
Grease Traps

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

<table>
<thead>
<tr>
<th>Kitchen Floor Area (m²)</th>
<th>Peaking Factor</th>
<th>Minimum Required Grease Trap Retention Volume (m³)</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>5.5</td>
<td>0.7</td>
</tr>
<tr>
<td>24</td>
<td>4.3</td>
<td>1.1</td>
</tr>
<tr>
<td>50</td>
<td>3.0</td>
<td>1.6</td>
</tr>
<tr>
<td>100</td>
<td>2.4</td>
<td>2.5</td>
</tr>
<tr>
<td>150</td>
<td></td>
<td>3.3</td>
</tr>
<tr>
<td>200</td>
<td>1.85</td>
<td>4.0</td>
</tr>
<tr>
<td>250</td>
<td></td>
<td>4.7</td>
</tr>
<tr>
<td>300</td>
<td></td>
<td>5.4</td>
</tr>
<tr>
<td>350</td>
<td></td>
<td>6.1</td>
</tr>
<tr>
<td>400</td>
<td>1.62</td>
<td>6.7</td>
</tr>
<tr>
<td>450</td>
<td></td>
<td>7.3</td>
</tr>
<tr>
<td>500</td>
<td></td>
<td>7.8</td>
</tr>
<tr>
<td>550</td>
<td></td>
<td>8.3</td>
</tr>
<tr>
<td>600</td>
<td>1.38</td>
<td>8.7</td>
</tr>
<tr>
<td>650</td>
<td></td>
<td>9.1</td>
</tr>
<tr>
<td>700</td>
<td></td>
<td>9.4</td>
</tr>
<tr>
<td>750</td>
<td></td>
<td>9.7</td>
</tr>
<tr>
<td>800</td>
<td>1.15</td>
<td>10.0</td>
</tr>
<tr>
<td>850</td>
<td></td>
<td>10.2</td>
</tr>
<tr>
<td>900</td>
<td>1.03</td>
<td>10.3</td>
</tr>
<tr>
<td>1000</td>
<td>1.0</td>
<td>10.4</td>
</tr>
</tbody>
</table>

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.
SECTION X-X

SECTION Y-Y

PLAN

SECTIONAL PLAN

TYPICAL DETAILS OF A GREASE TRAP

Notes:
1. All dimensions are in millimetres unless otherwise stated.
2. \[ \text{Volume} = B (L_1 + L_2) H \]
3. \[ 750 \leq B \leq L_1 \leq L_2 \leq 1800 \]
4. \[ 600 \leq H \leq 1200 \]
   For kitchen floor areas
   \[ \geq 50 \text{ m}^2, H \text{ should be 900 mm} \]
5. \[ L_1 + L_2 = L_d \]
   \[ 2.0 \leq L_d/H \leq 3.0 \]
   \[ 1200 \leq B \leq 2.0L_d/H \leq 4000 \]
6. \[ A = 1/2 \text{ but not greater than } 450 \]
7. No. of pipes through the middle partition
   wall should be such that the velocity inside
   the pipes is not greater than 0.3 m/s
8. Gradient of inlet pipe
   \[ > 1 \text{ in } 10 \]
9. Horizontal pipe between the last drainage
   filament and the grease trap should not
   be longer than 10m. Where this cannot be
   achieved, the gradient of the pipe should
   be increased and roosting 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 structures
    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
NOTES:
1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED.

2. SIZE
   a. 48 > L > 38
   b. 1800 mm ≥ D > 1200 mm
   c. RATIO OF VOLUMES OF FIRST AND SECOND CHAMBERS = 2 : 1

3. CAPACITY (SUBJECT TO NOTE 2)
   a. CAPACITY C = (L − t) × B × D
   b. NOT LESS THAN 2.3 m³ BUT NOT MORE THAN 41 m³
   c. NOT LESS THAN WHERE N IS THE NUMBER OF PERSONS SERVED AND Q IS THE ESTIMATED ULTIMATE PER CAPITA DAILY WATER CONSUMPTION
   d. SURFACE WATER MUST NOT BE CONNECTED TO THE TANK
   e. TANK TO BE DESLUDGED EVERY 8 MONTHS

4. NO OVERFLOW OR BYPASS PIPE IS ALLOWED.

5. 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 NTS

ENVIRONMENTAL PROTECTION DEPARTMENT HONG KONG

ProPECC PN 5/93
NOTES:
1. ALL DIMENSIONS IN MILLIMETRES UNLESS OTHERWISE STATED
2. PERCLOSATION 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

<table>
<thead>
<tr>
<th>TIME IN MINUTES FOR WATER TO FALL 25 mm IN TEST PIT</th>
<th>ALLOWABLE LOADING IN LITRES PER m² PER DAY</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 OR LESS</td>
<td>DRAIN TRENCH BOTTOM AREA</td>
</tr>
<tr>
<td>2</td>
<td>100</td>
</tr>
<tr>
<td>5</td>
<td>98</td>
</tr>
<tr>
<td>10</td>
<td>69</td>
</tr>
<tr>
<td>30</td>
<td>33</td>
</tr>
</tbody>
</table>

THE TOTAL ALLOWABLE LOADING PER DAY SHOULD EQUATE WITH THE DAILY INCOMING FLOW
4. MINIMUM CLEARANCE REQUIREMENTS FOR SOAKAWAY SYSTEMS

<table>
<thead>
<tr>
<th>DISTANCE FROM SOAKAWAY SYSTEMS (m)</th>
<th>BUILDING</th>
<th>RETAINING WALLS</th>
<th>WELLS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>3</td>
<td>6</td>
<td>60</td>
</tr>
<tr>
<td>STREAM WHERE THE BED IS LOWER THAN INVERT OF SOAKAWAY SYSTEM</td>
<td>15 (30)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>POOLS</td>
<td>7.5 (30)*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CUTS OR EMBANKMENTS</td>
<td>30</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PATHS</td>
<td>1.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BEACHES</td>
<td>100</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GROUND WATER TABLE</td>
<td>0.6</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 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.

FROM BOUNDARIES OF GAZETTED BEACHES OR BATHING BEACH SUBZONES OF WATER CONTROL ZONES

FROM N.W.M. AND FROM NEAREST WATERCOURSES FOR OTHER CASES

(BELOW INVERT)
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.