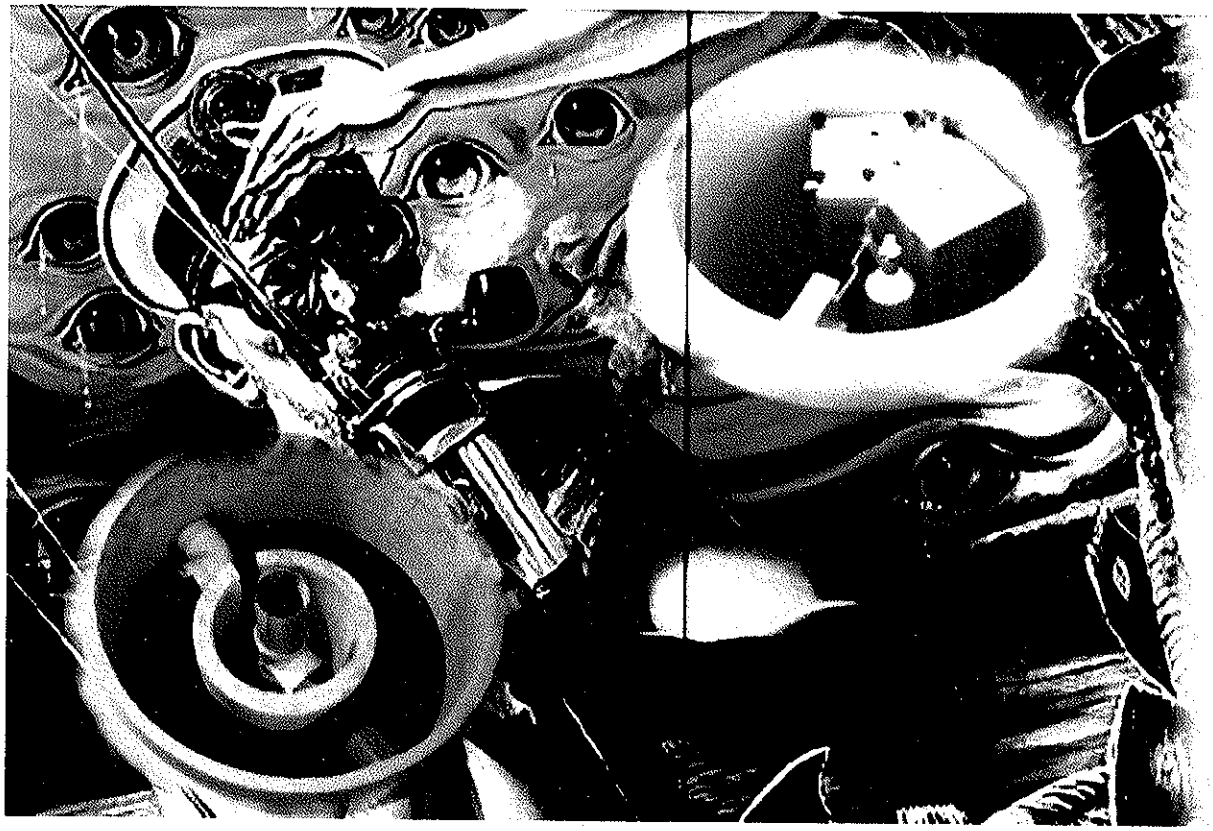
Environmental Seminar for Oil Pollution Control & Rain Water Harvesting/ Treatment Technologies



ECOTECHNIC

TECHNOLOGY THAT SEPERATES

Welcome to the

Environmental Seminar

2nd April 2004

We like to thank:
Oil companies' Managers for Environment, Safety & Health.
Gorvenment's Statutory Boards & Agencies.
Military Organisations.
Environment Specialist.
Developers.
Architacts.
Building & Structure Consultants.
Engineers.

During seminar, guests are free to ask any questions, sharing experiences and expectation of pollution control & rain water harvesting technology of the future.

Agenda of seminar:-

1:00pm Guests Arrival.

1:30pm Seminar 1st Session.

3:00pm Coffee/Tea Break.

3:30pm Seminar 2nd Session.

5:00pm End of Seminar.

Attached documents not available in CDs.

1. Field of applications for oil-water separation equipment.
2. Standrad Drawing: Patrol/Grease interceptor- Cast Iron Type (PUB/SEW/STD/043)
3. Patrol/Grease interceptor- Typical installation.
4. Standrad Drawing: Standard Grease Petrol & Silt interceptor – 3-compartment type.
5. Code of Practice on Pollution Control (App.9)

Field of Applications for oil-water separation equipment.

Buildings:-

1. Car Park floor waste.
2. Power Standby Generator room.
3. Vehicle Washing Area.
4. Power Transformer Room.

Commercial Buildings & Infrastructure:-

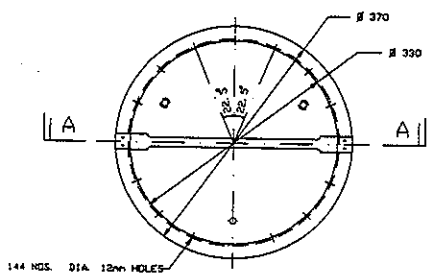
1. Motor Vehicle Work Shop.
2. Bus, Taxis, MRT Depots.
3. Mechanical Work Shops in factories.
4. Air Ports.
5. Road Tunnels – Rainwater drainage. (underground)
6. Electrical Sub-Stations.

Oil Companies:-

1. Oil refineries.
2. Patrol-Diesel Pump Stations

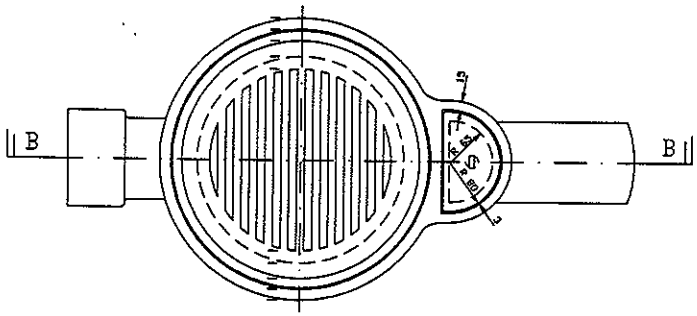
Others:-

1. Ship building companies.
2. Shipping Ports.
3. Transport/logistic companies.

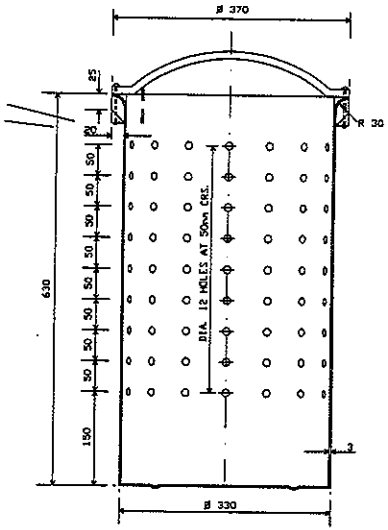


PLAN



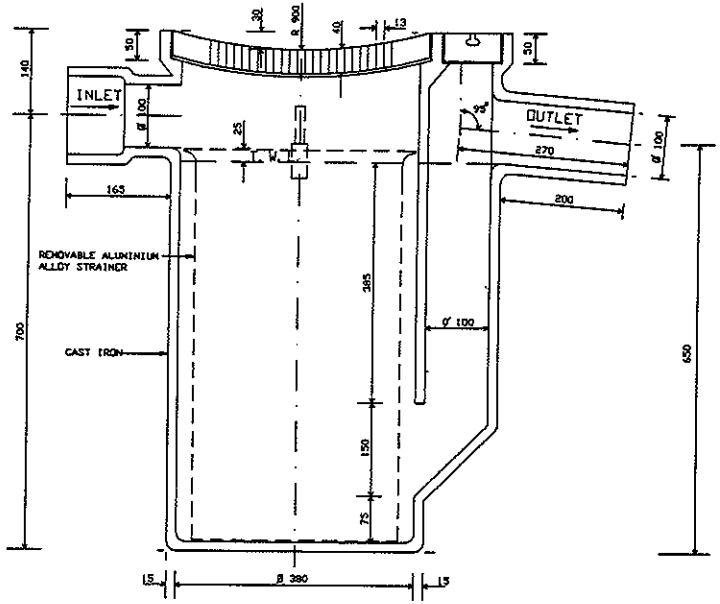


PLAN



SECTION A - A

ALUMINIUM ALLOY STRAINER



SECTION B - B

CAST IRON GREASE INTERCEPTOR

NOTES:

1. THE CAST IRON GULLY SHALL BE CAST FROM A MIXTURE OF CAST IRON SCRAP AND A SUITABLE GRADE OF PIG IRON. THE MIXTURE OF THE RESULTANT METAL SHALL BE SUCH AS TO PROVIDE A STRONG STRUCTURE FREE FROM CHILL.

2. THE CASE IRON GULLY SHALL BE FREE FROM AIRHOLES, SANDHOLES, COLD SHUTS AND CHILLS. THEY SHALL BE NEATLY DRESSED AND CAREFULLY FETTLED. ALL CASTING SHALL BE FREE FROM VOIDS WHETHER DUE TO SHRINKAGE, GAS INCLUSION OR OTHER CAUSES.

3. THE FINISHED PRODUCT SHALL BE SUPPLIED COATED WITH A BLACK BITUMINOUS COMPOSITION.

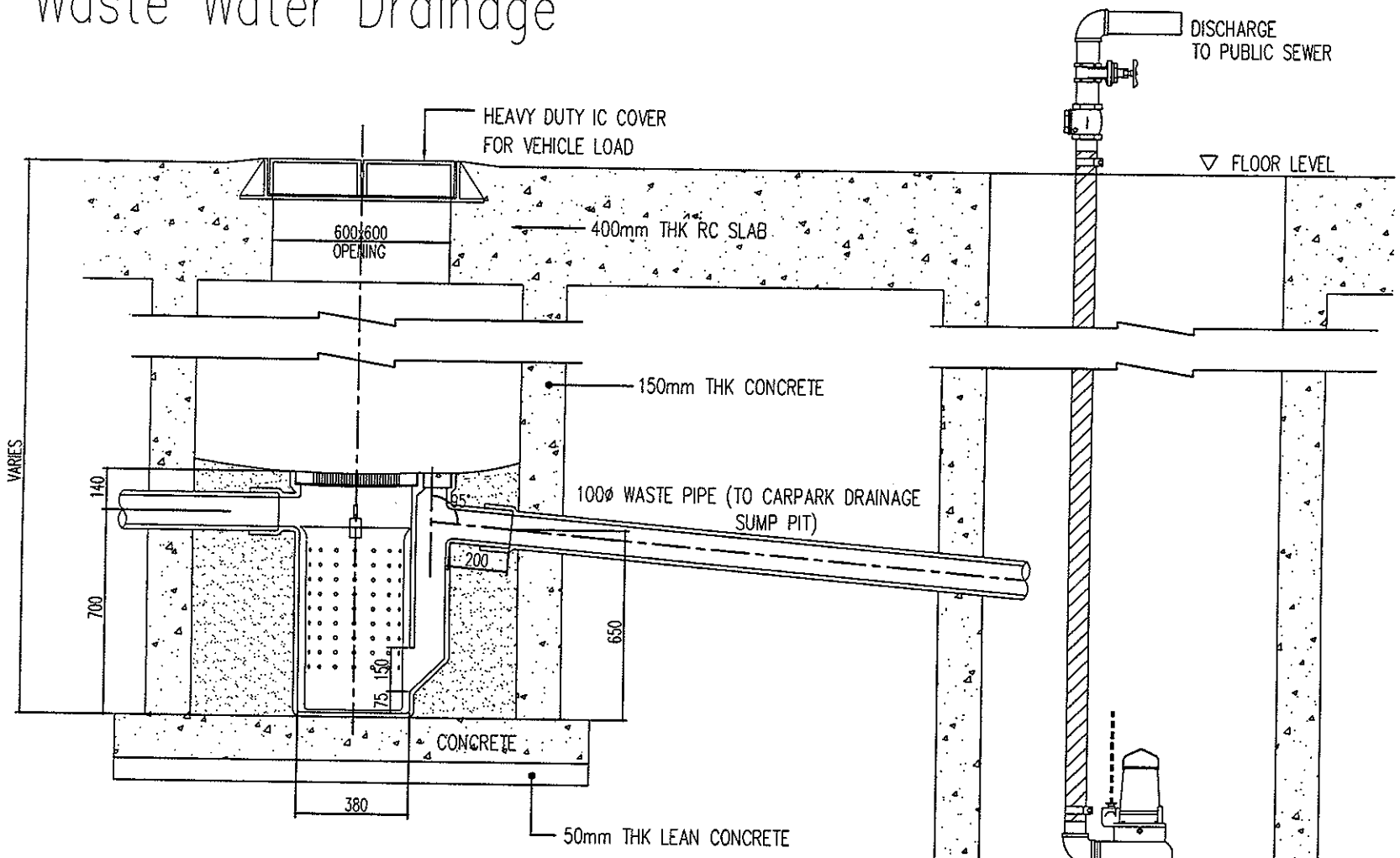
4. THE SPIGOT & SOCKET END OF THE GULLY SHALL COMPLY WITH THE CURRENT B. S. 78.

5. THE ALUMINIUM ALLOY STRAINER IS TO COMPLY WITH B. S. ALLOY H. V. 30 WP OR SIMILAR STANDARD ALLOY.

6. THICKNESS OF THE CAST IRON GREASE INTERCEPTER TO BE MINIMUM 15mm.

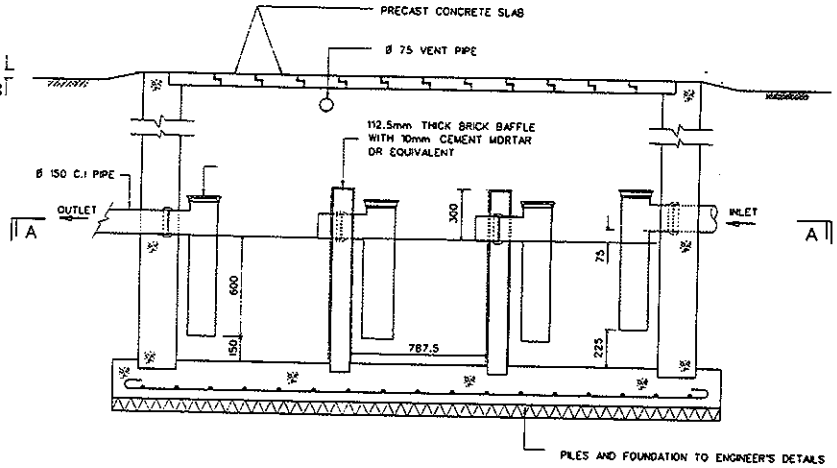
ISSUED BY SEWERAGE DEPARTMENT ON 11 MAY '01	SCALES 1 : 5	CAST IRON GREASE INTERCEPTOR FOR MOTOR WORKSHOPS	PUBLIC UTILITIES BOARD SEWERAGE DEPARTMENT
			DRG. NO. PUB/SEW/STD/043

Esixting Installation for Carpark Waste Water Drainage

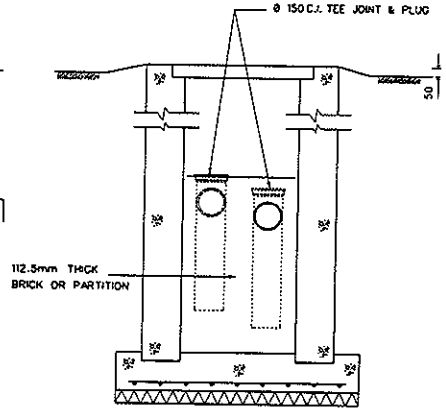


TYPICAL PATROL INTERCEPTOR FOR CAR PARK FLOOR WASTE FOR BUILDING AT BASEMENT CARPARK

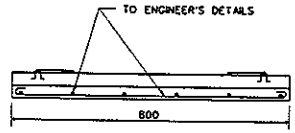
BASEMENT CARPARK DRAINAGE PUMP SUMP
(OR DIRECT TO PUBLIC SEWER – IF PERMITTED BY GRAVITY FLOW)



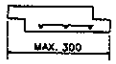
SECTION B-B



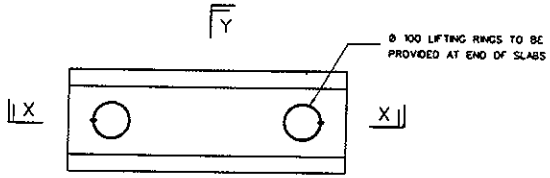
SECTION C-C



SECTION X-X



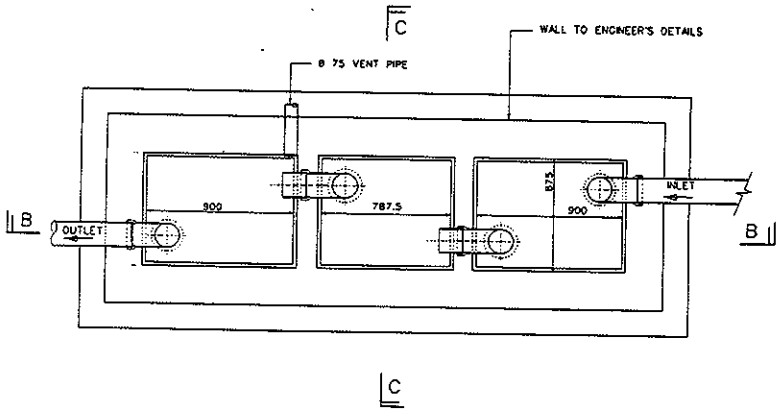
SECTION Y-Y



PLAN

PRECAST CONCRETE SLAB

SCALE :- 1:10



PLAN A-A

NOTES

1. THE ARCHITECT/ENGINEER IS TO CONSULT SEWERAGE DEPARTMENT AS TO THE TYPE OF INTERCEPTOR TO BE USED.
2. WHERE COVER TO THE PIPE IS LESS THAN 1.3 METRES ADEQUATE PROTECTION TO THE PIPE MUST BE GIVEN.
3. THE COVER SLABS TO THE INTERCEPTOR ARE TO BE ADEQUATELY REINFORCED TO TAKE THE IMPOSED LOADING.
4. INFLOW TO THE INTERCEPTOR SHALL BE FROM COVERED AREA i.e. NO RAIN WATER IS TO BE DISCHARGED INTO THE SEWER.
5. IT IS THE RESPONSIBILITY OF THE OWNER / DEVELOPER TO MAINTAIN THE INTERCEPTOR REGULARLY SO AS TO ENSURE THAT NO PETROL, GREASE OR OIL IS DISCHARGED INTO THE SEWER.
6. OIL, SILT ETC. COLLECTED IN THE INTERCEPTOR SHALL BE SKIMMED AND DEPOSITED INTO DRUMS AND DISPOSED OFF IN A MANNER ACCEPTABLE TO THE COMPETENT AUTHORITIES.
7. WHERE WASTE PETROL, KEROSENE, PARAFFIN OR OTHER SIMILAR WASTES ARE DISCHARGED THROUGH THE TRAPS AIR VENTS SHALL BE PROVIDED TO RELEASE THE INFLAMMABLE FUMES INTO THE OPEN AIR.
8. IN THE CASE OF EXISTING INTERCEPTORS, MODIFICATIONS ARE TO BE MADE IN THE FOLLOWING MANNER:-
   1) REMOVAL OF BAFFLE TO THE SILT TRAP.
   2) INCORPORATION OF 2 NEW BAFFLE WALLS AND 2 INTERMEDIATE TEE - ARRANGEMENTS.
9. UNLESS OTHERWISE STATED, ALL CONCRETE SHALL BE GRADE 25 AND ABOVE AND ALL COVER TO STEEL REINFORCEMENT TO BE 40mm.
10. REINFORCED CONCRETE DESIGN TO ENGINEER'S DETAILS.

CAPACITY : UP TO 227000 LITRES PER DAY

ISSUED BY SEWERAGE DEPARTMENT ON 11 MAY '01	SCALES 1 : 20 UNLESS OTHERWISE STATED	STANDARD GREASE PETROL AND SILT INTERCEPTOR - THREE COMPARTMENTS	PUBLIC UTILITIES BOARD SEWERAGE DEPARTMENT
			DRG. NO. PUB/SEW/STD/042

(ORIGINAL BORDER SIZE 573mm X 400mm)

Appendix 9

ALLOWABLE LIMITS FOR TRADE EFFLUENT DISCHARGED INTO A PUBLIC SEWER/WATERCOURSE/CONTROLLED WATERCOURSE

Items Of Analysis		Public Sewer	Watercourse	Controlled Watercourse
		Units in milligram per litre or otherwise stated		
1	Temperature of discharge	45°C	45°C	45°C
2	Colour	-	7 Lovibond Units	7 Lovibond Units
3	pH Value	6 - 9	6 - 9	6 - 9
4	BOD (5 days at 20°C)	400	50	20
5	COD	600	100	60
6	Total Suspended Solids	400	50	30
7	Total Dissolved Solids	3000	2000	1000
8	Chloride (as chloride ion)	1000	600	400
9	Sulphate (as SO_4)	1000	500	200
10	Sulphide (as sulphur)	1	0.2	0.2
11	Cyanide (as CN)	2	0.1	0.1
12	Detergents (linear	30	15	5

	alkylate sulphonate as methylene blue active substances)			
13	Grease and Oil Grease and Oil (Hydrocarbon) Grease and Oil (Non-hydrocarbon)	= 60 100	10 = =	5 = =
14	Arsenic	5	1	0.05
15	Barium	10	5	5
16	Tin	10	10	5
17	Iron (as Fe)	50	20	1
18	Beryllium	5	0.5	0.5
19	Boron	5	5	0.5
20	Manganese	10	5	0.5
21	Phenolic Compounds (expressed as phenol)	0.5	0.2	Nil
22	*Cadmium	1	0.1	0.01
23	*Chromium (trivalent and hexavalent)	5	1	0.05
24	*Copper	5	0.1	0.1
25	*Lead	5	0.1	0.1
26	*Mercury	0.5	0.05	0.001
27	*Nickel	10	1	0.1
28	*Selenium	10	0.5	0.01
29	*Silver	5	0.1	0.1
30	*Zinc	10	1	0.5

31	*Metals in Total	10	1	0.5
32	Chlorine (Free)	-	1	1
33	Phosphate (as PO_4)	-	5	2
34	Calcium (as Ca)	-	200	150
35	Magnesium (as Mg)	-	200	150
36	Nitrate (NO_3)	-	-	20

NOTE: * The concentration of Toxic Metal shall not exceed the limits as shown, individually or in total.

'Controlled Watercourse' means a watercourse from which potable water supplied by PUB under the Public Utilities Act is obtained but does not include a watercourse from which water is pumped into a main of the PUB.

The trade effluent discharged must not include:-

(1) Calcium carbide.

(2) Petroleum spirit or other inflammable solvents.

(3) Materials that may give rise to fire or explosion hazards.

(4) Materials that may be a hazard to human life, a public nuisance, injurious to health or otherwise objectionable.

(5) Refuse, garbage, sawdust, timber, or any solid matter.

(6) Pesticides, fungicides, insecticides, herbicide, rodenticide or fumigants.

(7) Radioactive material.

The trade effluent discharged into a public sewer must not include rainwater, storm water, ground water or other form of street drainage, subsurface drainage, roof drainage or yard drainage.