Stormwater

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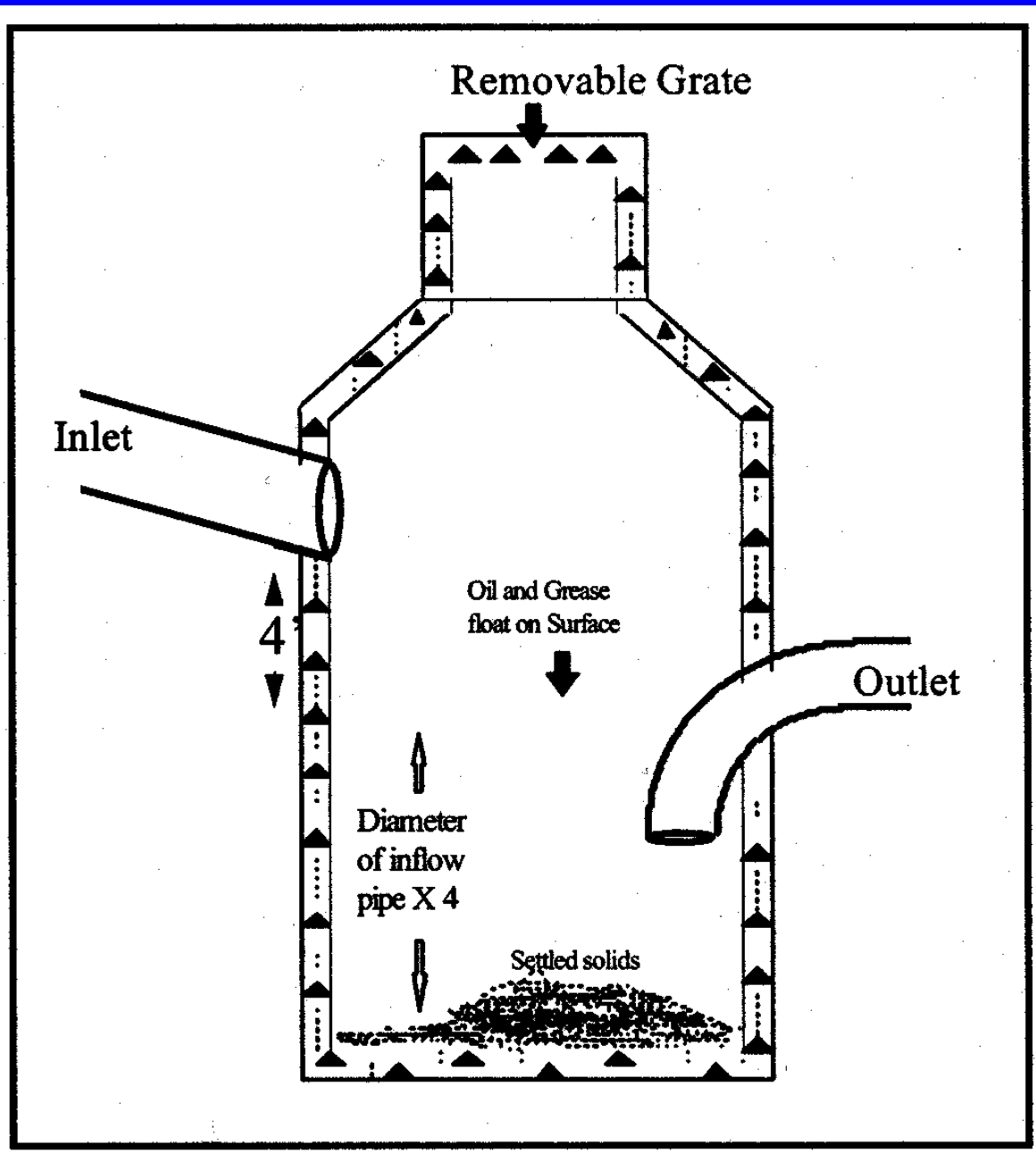
Table 1.2: Stormwater Pollutants, Sources, and Related Impacts

Stormwater Pollutant	Sources	Related Impacts
Nutrients: Nitrogen, Phosphorous	Urban runoff, Animal waste, Fertilizers, Failing septic systems	Algal growth; reduced clarity; lower dissolved oxygen; release of other pollutants
Solids: Sediment (clean and contaminated)	Construction sites, Other disturbed and/or non-vegetated lands, Eroding banks, Road sanding, Urban runoff	Increased turbidity; reduced clarity; lower dissolved oxygen; deposition of sediments; smother aquatic habitat including spawning sites; sediment and benthic toxicity
Pathogens: Bacteria, Viruses	Animal waste, Urban runoff, Failing septic systems	Human health risks via drinking water supplies; contaminated shellfish growing areas and swimming beaches
Metals: Lead, Copper, Cadmium, Zinc, Mercury, Chromium, Aluminum, others	Industrial processes, Normal wear of automobile brakelines and tires, Automobile emissions, Automobile fluid leaks, Metal roofs	Toxicity of water column and sediment; bioaccumulation in aquatic species and through food chain
Hydrocarbons: Oil and Grease, PAHs (Naphthalenes, Pyrenes)	Industrial processes, Automobile wear, Automobile emissions, Automobile fluid leaks, Waste oil	Toxicity of water column and sediment; bioaccumulation in aquatic species and through food chain
Organics: Pesticides, PCBs, Synthetic chemicals	Pesticides (herbicides, insecticides, fungicides, rodenticides, etc.), Industrial processes	Toxicity of water column and sediment; bioaccumulation in aquatic species and through food chain
Salt: Sodium, Chlorides	Road salting and uncovered salt storage	Toxicity of water column and sediment

Straits Pond Stormater Outfalls

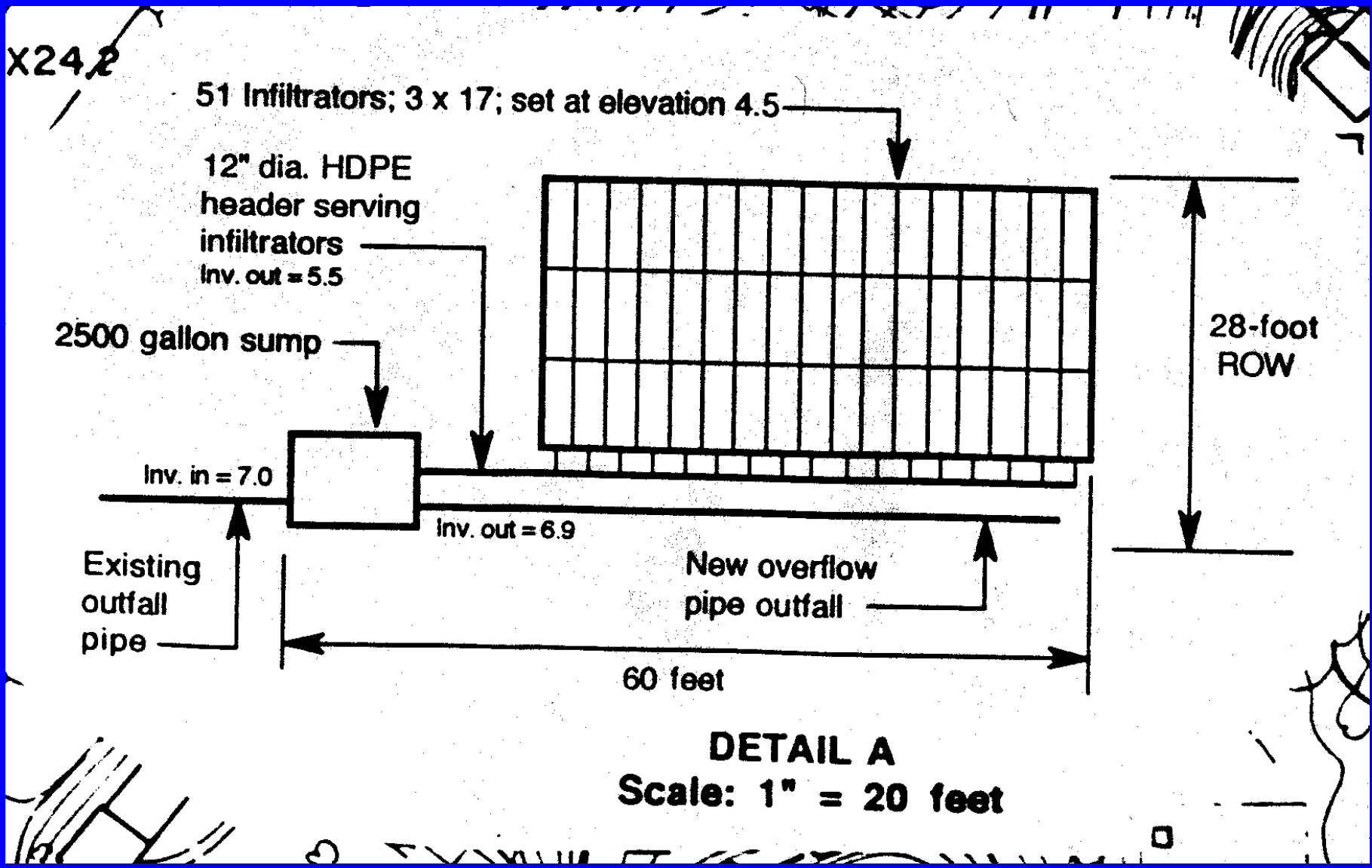

Removable Grate
Inlet
4
Oil and Grease
float on Surface
Outlet
Diameter
of inflow
pipe X 4
Settled solids

TSS Removal Rates (adapted from Schueler, 1996 & EPA, 1993)

BMP List	Design Rate	Range of Average TSS Removal Rates	Brief Design Requirements
Extended Detention Pond	70%	60-80%	Sediment forebay.
Wet Pond (a)	70%	60-80%	Sediment forebay.
Constructed Wetland (b)	80%	65-80%	Designed to infiltrate or retain.
Water Quality Swale	70%	60-80%	Designed to infiltrate or retain.
Infiltration Trench	80%	75-80%	Pretreatment critical.
Infiltration Basin	80%	75-80% (predicted)	Pretreatment critical.
Dry Well	80%	80% (predicted)	Rooftop runoff (uncontaminated only.
Sand Filter (c)	80%	80%	Pretreatment.
Organic Filter (d)	80%	80%+	Pretreatment.
Water Quality Inlet	25%	15-35% w/cleanout	Off-line only; 0.1" minimum Water Quality Volume (WQV) storage.
Sediment Trap (Forebay)	25%	25% w/cleanout	Storm flows for 2 year event must not cause erosion; 0.1" minimum WQV storage.
Drainage Channel	25%	25%	Check dams; non-erosive for 2 yr.
Deep Sump and Hooded Catch Basin	25%	25% w/cleanout	Deep sump general rule = 4 x pipe diameter or 4.0' for pipes 18" or less.
Street Sweeping	10%	10%	Discretionary non-structural credit, must be part of approved plan.

Improve Stormwater Structures

- Current basins do not provide adequate separation of sediment
- Outflow of pipes are undersized
- Basins need to be replaced and upgraded
- Improved structures such as retention /detention systems or infiltration are necessary
- Diligent maintenance of structures is imperative regardless of type


X24
51 Infiltrators; 3 x 17; set at elevation 4.5
12" dia. HDPE
header serving
infiltrators
Inv. out = 5.5
2500 gallon sump
28-foot
ROW
Inv. in = 7.0
Inv. out = 6.9
Existing
outfall
pipe
New overflow
pipe outfall
60 feet
DETAIL A
Scale: 1" = 20 feet