TWAD Board - Norms / Guidelines for Underground Sewerage Schemes

Sl. No.	Description	Norms	Reference
1	Design period for the Projection		
	U	5 Years from the concept year, comprising of (i) 2 years for formulation & sanction of proposals (ii) 2 1/2 years implementation (iii) 6 months for effecting House Service Connection and commissioning of the scheme	As per CPHEEO manual
	Intermediate year	15 years form base Year	As per CPHEEO manual
	Ultimate year	30 years form base Year	As per CPHEEO manual
2	Population	Population Projection is being computed by the following methods Arithmetical increase, Incremental increase, Geometrical increase, Decadal growth rate, line of best fit, Graphical method etc.,	As per CPHEEO manual
3	Water Supply	135 lpcd - Corporation, Municipality & town panchayats	As per CPHEEO manual
4	Sewerage flow (Qty)	80% of water supply + Infiltration (can be restricted to 110 -115 lpcd including infiltration)	
5	Design period for components		
i	Collection System	30 years	CPHEEO manual
ii	Pumping Station	30 years	
iii	Pumping Machinery	15 years	
iv	Sewerage Treatment Plant (STP)	15 years	

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Sl. No.	Description	Norms	Reference
v	Effuluent disposal from STPs	The following standards are precribed for discharge of effluent into water bodies PH - 5.5 - 9.0 Bio-Chemical Oxygen Demand (BOD), mg/l - 10 Total Suspended Solids (TSS),mg/l - 20 Chemical Oxygen Demand (COD, mg/l - 50 Nitrogen -Total, mg/l - 10 Phosphorus Total (for discharge into ponds, lakes), mg/l - 1.0 Fecal coliform (FC) (most probable number per 100 milli litre, MPN/100ml - Desirable -100 Permissible - 230	Hon'ble NGT order dated 30.04.2019
a.	Pumping	High Density Poly Ethylene **(HDPE)** pipe (PE 100) as per latest IS 14333	As per guideline for selection of pipes and materials of TWAD Board vide B.P.Ms.No.100, TWAD (RDT &PMC), dated: 28.10.2022.
b.	Gravity	Reinforced Cement Concrete **(RCC)** pipe with Sulphate Resistant Cement (SRC) as per latest IS 458 with inner high alumina cement mortor lining of min. 12mm thickness (in non-corrosive soil areas)/ High Density Poly Ethylene **(HDPE)** pipe (PE 100) as per latest IS 14333 as per site condition	
6	Collection System		
a.	Up to 300mm ID and upto 3m depth	Double wall Corrugated (DWC) pipe (SN8) as per latest IS 16098 : Part 2 and with required bedding	As per guideline for selection of pipes and materials of TWAD Board vide B.P.Ms.No.100, TWAD
		Un-Plasticized Polyvinyl Cholride (U-PVC) pipe with required stiffness as per latest IS 15328 and with required bedding	

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b.	Above 300mm ID and upto 600mm DI and all depth, in noncorrosive soil areas	Reinforced Cement Concrete (RCC pipe) with Sulphate Resistant Cement (SRC) as per latest IS 458 with inner high alumina cement mortor lining of min. 12mm thickness and with required bedding	vide B.P.Ms.No.100, TWAD (RDT &PMC), dated: 28.10.2022. For selection of pipes, the general conditions given in the guideline for selection of pipes and materials of TWAD Board to be followed.
c.	Upto 1500mm OD & all depth	High Density Poly Ethylene (HDPE) pipe (PE 100) as per latest IS 14333 with required stiffness & bedding	
d.	Any diameter and all depth	Cast Iron (CI) pipe as per latest IS 1536 with required bedding	
e.	D/d ratio	0.80	As per CPHEEO manual
f.	Peak Factor	Zonewise contributory population basis may be adopted	
g.	Minimum velocity present / ultimate peak flow	0.60 m/sec for present peak flow 0.80 m/sec for ultimate peak flow	
h	Bedding	As per CPHEEO Norms	
i	House service connection		As per guideline for selection of pipes and materials of TWAD Board vide B.P.Ms.No.100, TWAD (RDT &PMC), dated: 28.10.2022.
	i. For domestic use	110mm OD Un-Plasticized Polyvinyl Cholride (U-PVC) pipe (SN 8 -SDR34) as per latest IS15328	
	ii. For commercial use	160mm OD Un-Plasticized Polyvinyl Cholride (U-PVC) pipe (SN 8 -SDR34) as per latest IS15328	
7	Machine holes		
a.	Pre-cast monlithic Reinforced Cement Concrete (RCC) machine hole without top coping, irrespective of depth considering the minimum time for execution and minimum disturbance to the public		

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Sl. No.	Description	Norms	Reference
b.	Pre-cast monlithic Reinforced Cement Concrete (RCC) rings of 0.5 m/1m depth with interlocking arrangements & grouted joints without top coping, if it is not possible to erect pre-cast monolithic Reinforced Cement Concrete (RCC) machine holes		As per guideline for selection of pipes and materials of TWAD Board vide B.P.Ms.No.100, TWAD (RDT &PMC), dated: 28.10.2022.
c.	Cast-in-situ masonry (Rectangular upto 2.50m dpeth & Circular above 2.50m depth)/ cast-in-situ Reinforced Cement Concrete (RCC) machine holes, to be adopted if above tow option are not feasible as per site conditions		
8	Pumping Station		
a	Components of pumping station	Detention time Screen well - 1 minute Grit well - 1 minute Wet well (Suction Well) - 5 minutes	
b	Type of pumpsets	Non clog Submersible sewage pumpset	
c	Capacity of pumpsets	Pumping stations-1 DWF - 3 Nos (2+1) Lift stations 1DWF - 2 Nos (1+1)	
9	Pumping Main		
a	Upto 1500mm OD	High Density Poly Ethylene (HDPE) pipe (PE 100) as per latest IS 14333	As per guideline for selection of pipes and materials of TWAD Board vide B.P.Ms.No.100, TWAD (RDT &PMC), dated: 28.10.2022.
b	Any diameter	Cast Iron (CI) pipe as per latest IS 1536	

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Sl. No.	Description	Norms	Reference
c	Velocity	0.60 m/sec for present peak flow 1.20 m/sec for Intermediate peak flow 2.20 m/sec for ultimate peak flow	As per CPHEEO manual