Common Mistakes in Sewerage and Sanitary Submissions to PUB (BPU)



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PUB SINGAPORE'S NATIONAL WATER AGENCY

Overview

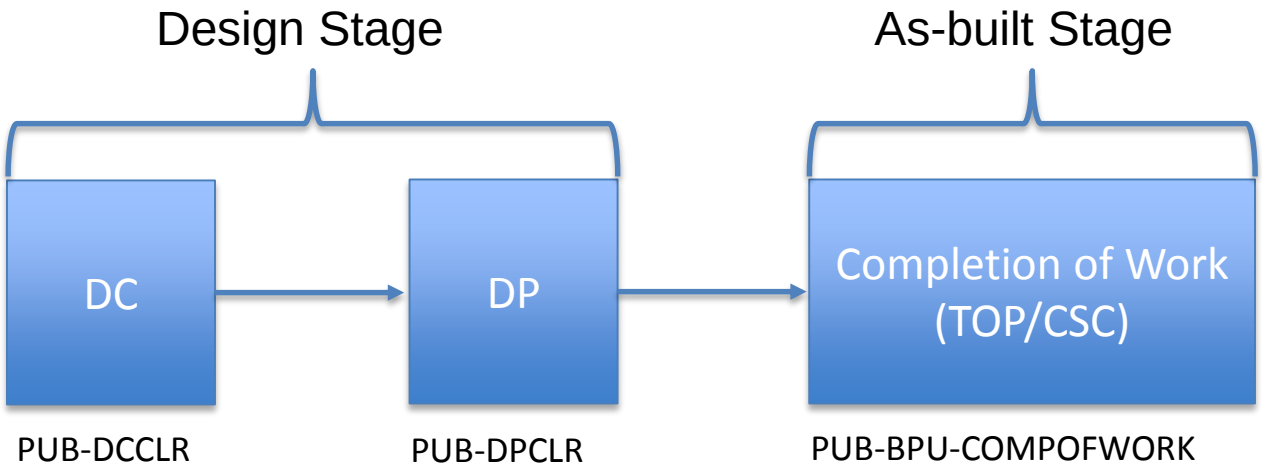
- Objective
- Recap on sewerage submission stages
- Recap on sewerage submission requirements
- Common Mistakes during DC/DP stage
- Common Mistakes during Completion of Work stage
- Guidelines & Requirements

Objective

- To highlight common mistakes to ensure higher quality of submissions

- To ensure submissions are more complete so that approvals can be obtained faster

Recap on sewerage submission stages



Recap on sewerage submission requirements

Development Control (DC)

Please indicate the following items clearly in the DC form and DC plans

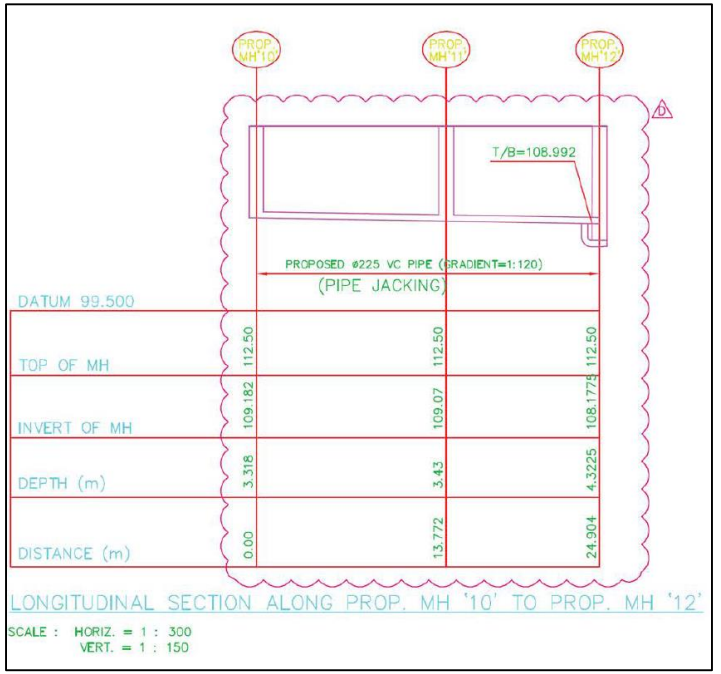
- Existing/proposed point of sewer connection serving the development
- Total used water discharge rate (in L/s) with calculations
- Lateral connections to/from neighbour lot (where applicable)
- Existing/proposed sewers and manholes
- Sewer setback
- Top and invert levels of existing/proposed manholes and inspection chambers (IC)
- Location of RC trench, used water pumping system in all relevant plans (where applicable)
- QP's and Owner's endorsements (where applicable)

Recap on sewerage submission requirements

Detailed Plan (DP) – new sewers and manholes

- Detailed sewer plan indicating the following pipe details:
  - Setback from sewers to buildings/structures
  - Length
  - Diameter
  - Gradient
  - Material
  - Type of bedding and piling (if constructed by open cut)
  - Top and invert levels of manhole(s)

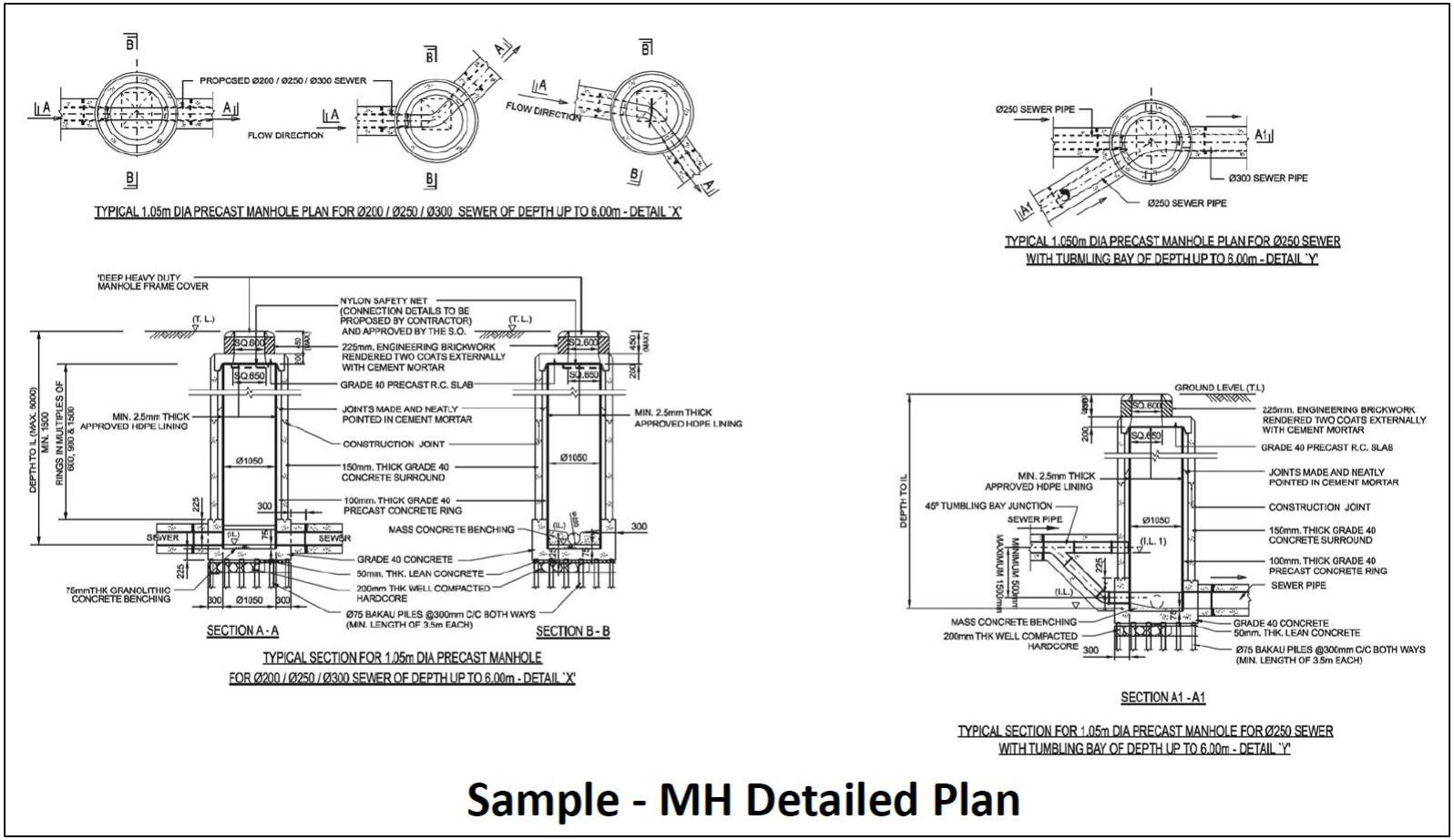
- Longitudinal plan shall indicate the following details:
  - Depth of sewers and manholes
  - Chainage
  - Diameter
  - Gradient
  - Material
  - Type of being and piling if constructed by open cut)



- Detailed plans of manholes showing netting and intermediate platform (if applicable)
- Detailed sewer plan shall be as much as possible in accordance to the approved DC plan
- Any deviation should be highlighted in the cover letter and clearly indicated in the plans
- QP's and Owner's endorsements (where applicable)

Recap on sewerage submission requirements

Detailed Plan (DP) – new sewers and manholes



Sample - MH Detailed Plan

Recap on sewerage submission requirements

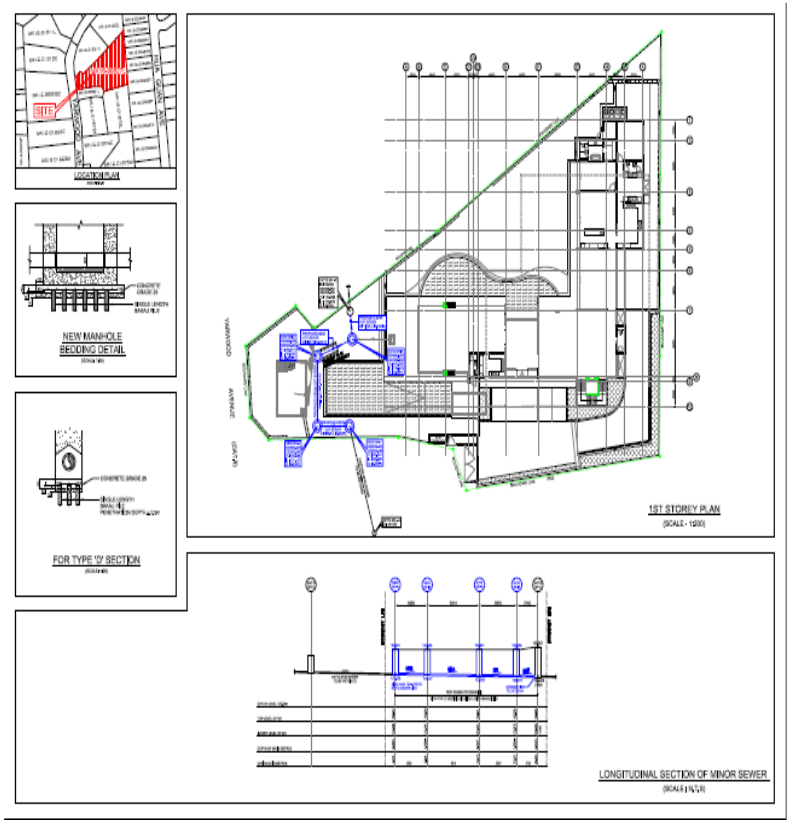
Completion of Sanitary Work

- Cover letter with clear caption (as per BCA's requirement)
- DP clearance certificate for sanitary work
- As-built sanitary drawings (to be endorsed by QP)
- As-built plan shall include:
  - the top and invert levels of existing/proposed manholes and Ics
  - Type, diameter, gradient, material and length of proposed drainlines and sewer connection lines
- Schematic sanitary drawing for high-rise building
- As-built M&E drawings (to be endorsed by PE who obtained the DP clearance certificate for M&E work)
- Hydrostatic test report – water tightness test
- Air test report
- Post-construction CCTV report and video (for reusing of existing sewer connection)

Recap on sewerage submission requirements

Completion of Sewerage Work

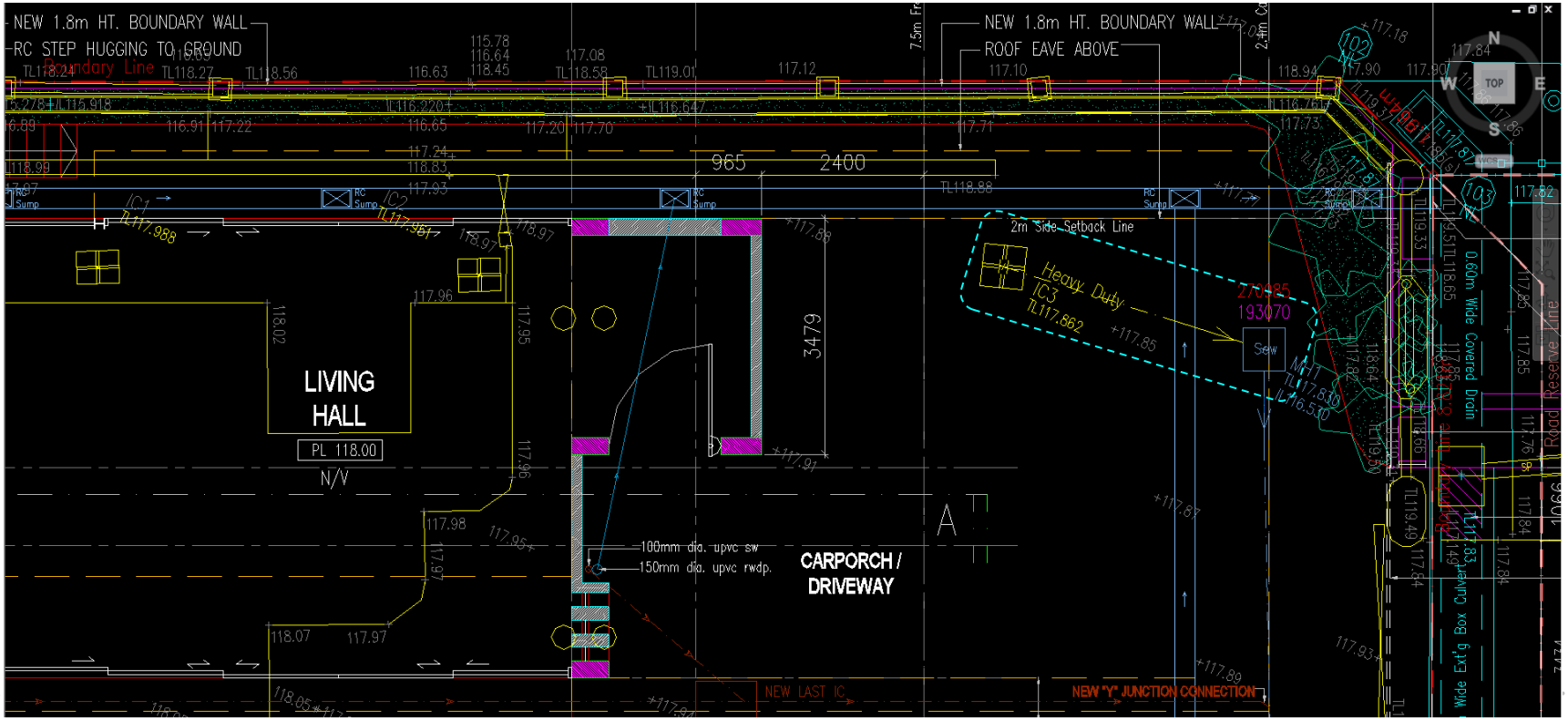
- DP clearance certificate for sewer work
- Location plan, detailed sewer plan & longitudinal plan
- Detailed sewer plan shall include the following details:
  - Pipe diameter, gradient, material
  - Length of proposed sewers
  - Type of bedding and piling (if constructed by open cut)
  - Top and invert levels of manholes
  - Position of manholes shall follow SVY21 coordinate cadastral base established by SLA
- CCTV for newly constructed sewer (for diameter > 600mm)
- Hydrostatic test report (for diameter ≤ 300mm)



Common Mistakes during DC/DP Stage

Did Not Indicate Point of Sewer Connection

- Indicate the existing/proposed point of sewer connection serving the development clearly in drawings
- Indicate details of sewer connection like:
  - Connect directly to manhole or via y-junction
  - Diameter and material of sewer connection pipe



Common Mistakes during DC/DP Stage

Did Not Declare the Used Water Discharge Rate Correctly

- Provide the used water discharge rate (in L/s) in page 2 of the PUB-DCCLR form
- Attach calculations on how the rate is obtained (Refer to Annex 1 of Jun 2017 circular)

PUB SINGAPORE'S NATIONAL WATER AGENCY

Our Ref: WRN/17.2
30 Jun 2017

Developers, Architects, Engineers, Contractors, and Builders

Dear Sir/Madam,

UPDATE FOR 'COMPOFWORK' FORM AND STANDARD VALUES FOR USED WATER FLOWRATE DECLARATION IN DC FORM

PUB has announced that with effect from 1 July 2017, the Sanitary Appliance Fee (SAF) and the Waterborne Fee (WBF) will be restructured into a single volume-based fee. It will therefore no longer be compulsory for QPs to declare the chargeable sanitary appliances in Section 3 and 4 of the Certificate of Completion and Inspection of Sanitary and Sewerage (COMPOFWORK).

2. QPs currently declare used water flowrate from proposed new developments. To help the industry and standardise the values used to declare the flowrates, QPs can use the table format as shown in Annex 1 (Based on BS EN12056-2).

3. The industry is advised to provide the table as part of your submission for new submissions from 1 Oct 17 onwards. If you have any queries concerning this circular, please contact our BPU hotline at 67313512 or email us at PUB_BPU@pub.gov.sg or Mr Christian Budiman at Christian_Budiman@pub.gov.sg.

Sample table format and values to be used to declare used water flowrate in submission

Building/Block No: XXXX

Appliances	DU* (l/s)	QTY	DU x QTY (l/s)
Wash basin	0.5	20	10
Bidet	0.5	0	0
shower w/o plug	0.6	20	12
Urinal with flush valve	0.5	4	2
Bath	0.8	2	1.6
Kitchen sink	0.8	10	8
Dishwasher	0.8	10	8
Washing machine (up to 6Kg)	0.8	10	8
Washing machine (up to 12Kg)	1.5	0	0
WC	1.8	20	36
Floor Trap (DN100)	2	20	40
∑ DU			125.6
Frequency Factor (K)*			0.5
$Qww_1 = K\sqrt{\sum} DU$ (see below)			5.60
Other source of Q			0.00
Q total to sewer(Qww_1 + Other source of Q)			**5.60**

$Qww_1 = K\sqrt{\sum} DU = 0.5$ (sq root (125.6) = 5.60

* All DUs and Frequency Factor based on BS EN12056-2

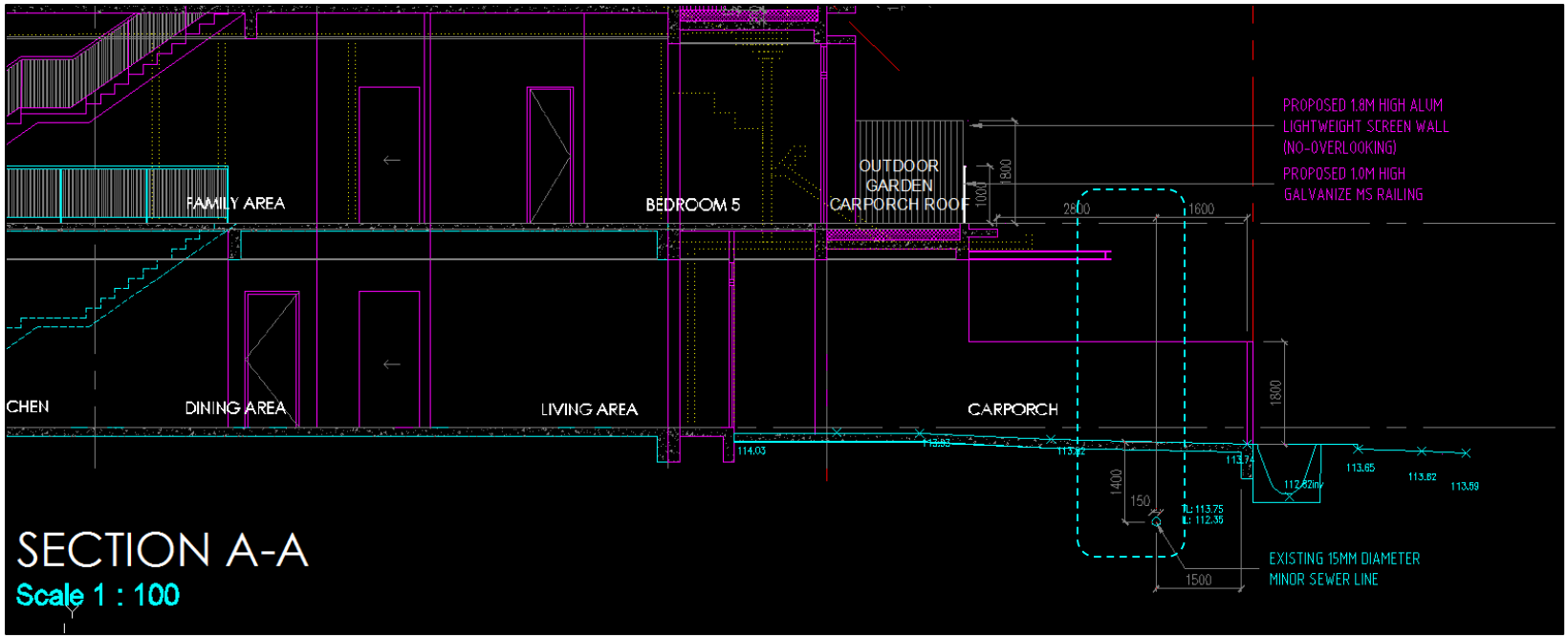
Development Type	K, Frequency Factor
Office, dwelling, guest house	0.5
Hospital, School, Restaurant	0.7
Toilet open to public	1
Special use eg. Lab	1.2

Common Mistakes during DC/DP Stage

Setback measured from 1st Storey wall only

- Setback is not measured from buildings/structures on 1st storey only

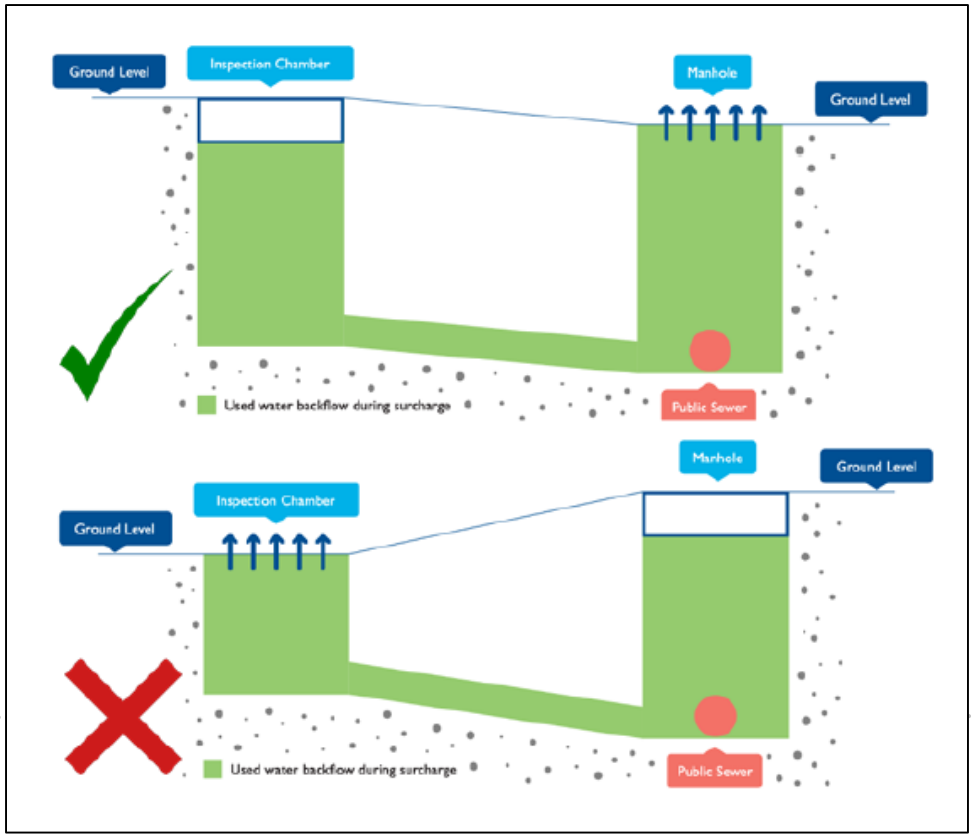
- Setback shall be measured from the outer most edge of the building structure, **<u>including footings and overhangs</u>**, to the centreline of the sewer



Common Mistakes during DC/DP Stage

Finish floor level (FFL) of development lower than top level of IC and MH

- FFL of the development and the levels of the sanitary appliances, floor traps and inspection chambers (usually on the compound) shall be constructed suitably **higher than the top level of the manhole** to which the sanitary drainline is connected
- This is to avoid used water overflow from the inspection chamber, floor traps and other sanitary appliances into the development lot due to sewer blockage



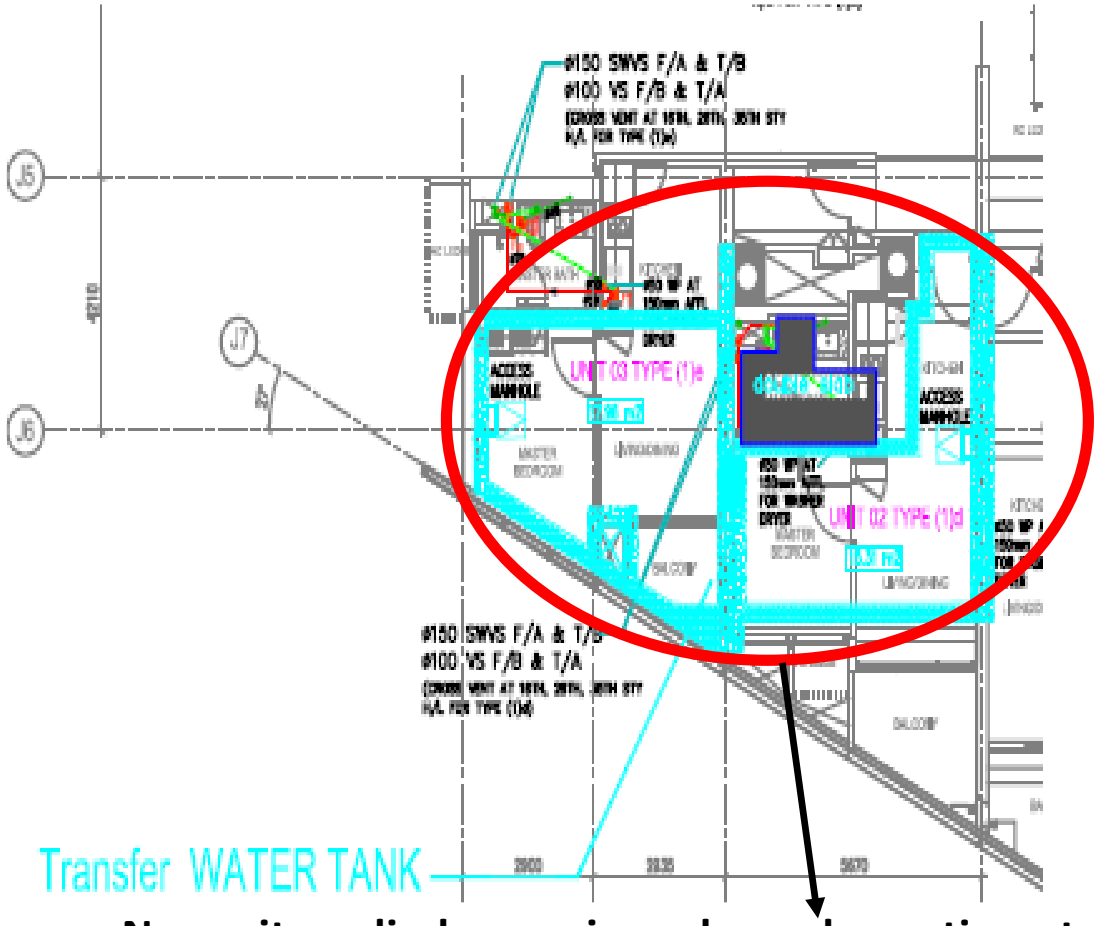
Common Mistakes during Completion of Work Stage

Wet over dry area

- No sanitary discharge pipes above:
  - Domestic water tank/pump room
  - Swimming pool
  - Balancing tank
  - Food and beverage area where food is stored, prepared, cooked and served
  - Kitchen, dining room, bedroom, study room

Common Mistakes during Completion of Work Stage

Wet over dry area



PUBLIC UTILITIES ACT
(CHAPTER 261, SECTION 72)
PUBLIC UTILITIES (WATER SUPPLY) REGULATIONS

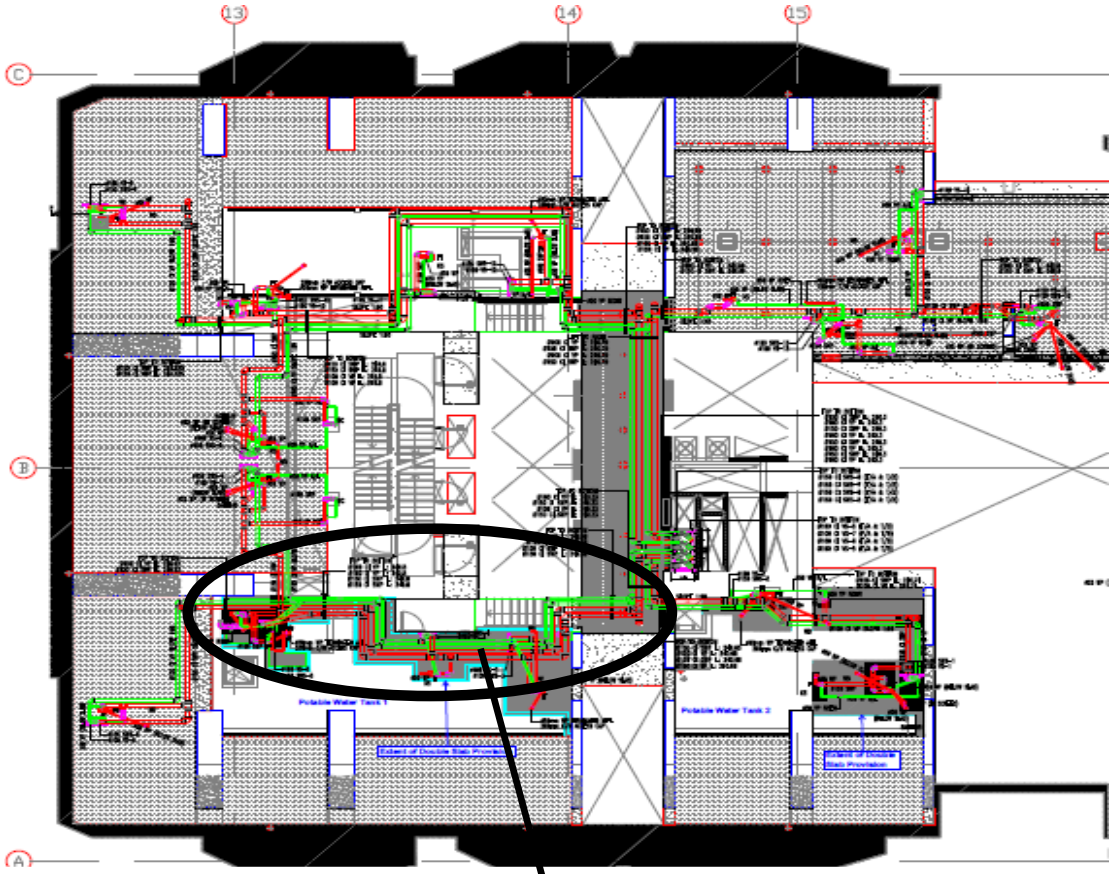
FIRST SCHEDULE
Regulations 4 (1) and (2) and 8 (1)
REQUIREMENTS FOR WATER FITTINGS

16. —(1) No storage tank shall be installed in such a position that —
(a) it is directly below any sanitary pipe, floor trap, sewer pipe, reclaimed water pipe or waste pipe;

No sanitary discharge pipes above domestic water tank/pump room

Common Mistakes during Completion of Work Stage

Wet over dry area



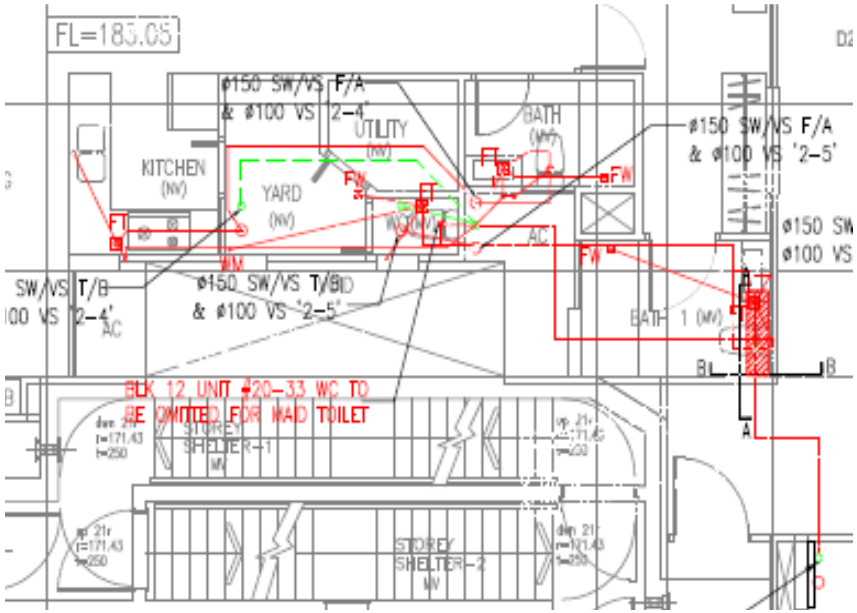
SEWERAGE AND DRAINAGE ACT
(CHAPTER 294, SECTIONS 51 AND 74)
SEWERAGE AND DRAINAGE (SANITARY WORKS) REGULATIONS

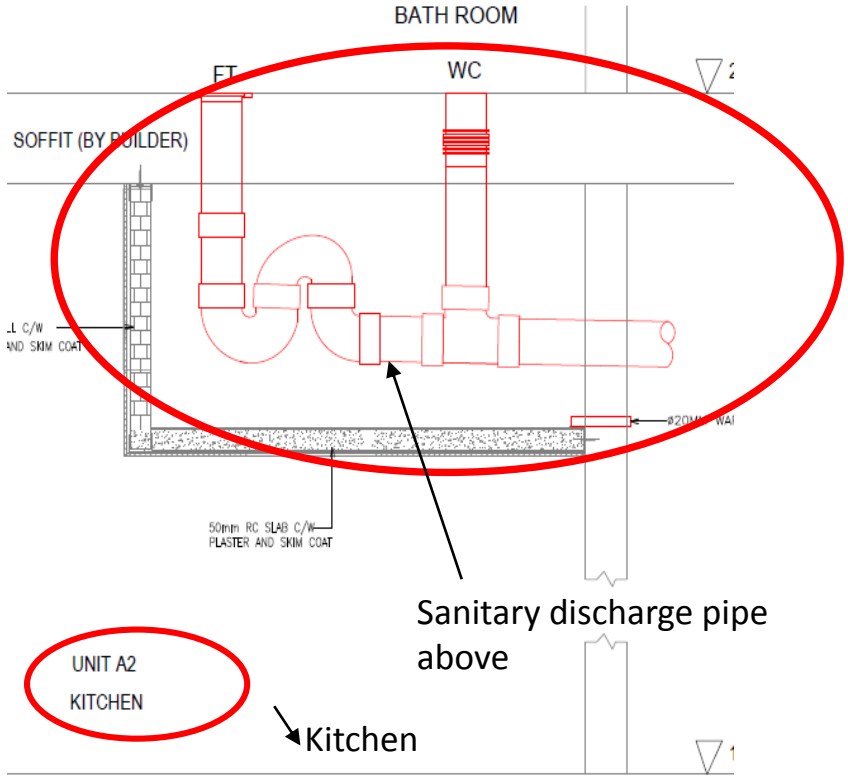
3(1) (*m*) no sanitary plumbing system shall be laid —
(i) over, above or across any potable water storage tank, electrical transformer or switch gear; or

No sanitary discharge pipes above domestic water tank/pump room

Common Mistakes during Completion of Work Stage

Wet over dry area





No sanitary discharge pipes above kitchen, dining room, bedroom, study room

Common Mistakes during Completion of Work Stage

Ventilation stack terminate at roof terrace

- Ventilation stack shall not be terminated in any private premises or private roof area that is designed for use by occupants

- Ventilation stack may be offset or connected to a common pipe of adequate size and extended for termination in the open air at the highest point of building or other suitable location that will not cause smell nuisance or health hazard to the occupants.

Before



Before Photo (Block 44)

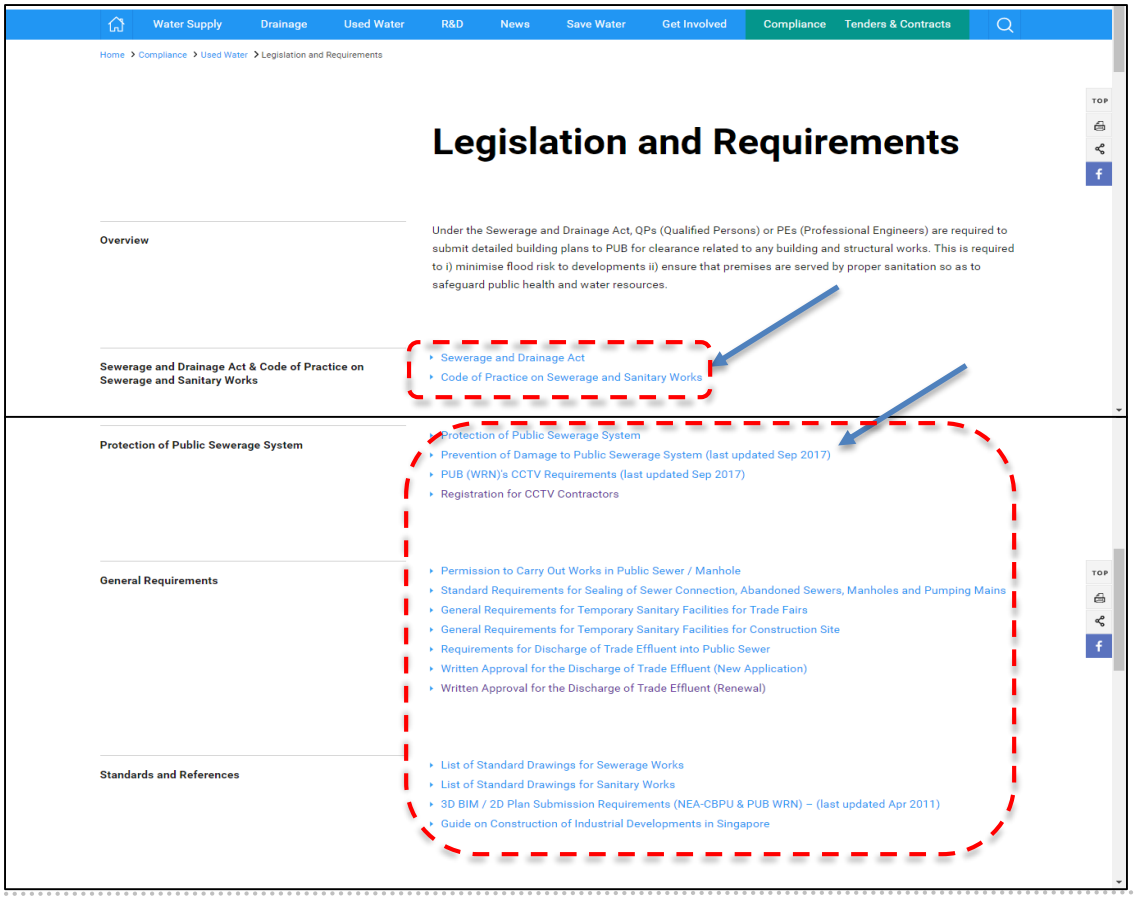
After



After Photo (Block 44)

Guidelines and Requirements

- Submission guidelines and requirements can be obtained from our website at https://www.pub.gov.sg/compliance/usedwater/legislation



THANK YOU