

Protection of Public Sewerage System

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Introduction

Public sewers, pumping mains, link sewers and DTSS within the development lot or adjacent to any works shall be properly protected.

Construction activities such as soil investigation/trial trench works, earthworks, site formation works, excavation/digging works, foundation/piling/boring works, tunnel works etc could directly or indirectly damage the sewers.

It is important that, in all building, development and engineering works near sewers or DTSS tunnel, the QP/PE/contractor comply with the requirements and procedures for safeguarding the sewers or DTSS tunnel right from the planning through construction stages of project.

QP shall follow the following requirements.

1. Obtain the relevant Sewer Information Plan (SIP) and carry out trial trenches to physically determine the exact location, alignments and levels of any sewers on site. They must also physically mark out the locations of the sewerage system at site prominently and plot the information in the proposal drawings.
2. Find out the sewer setback clearances (Annex 1) and the RC trench requirements specified in the Code of Practice on Sewerage and sanitary Works.
3. Ensure that a written approval from PUB for carrying out the works has been obtained if **such works are within the public sewer protection zone as defined below**; and
4. Comply with such requirements as specified by PUB to protect the sewerage system in the vicinity of such works.

The QP is advised to read about the common violations at construction sites in “Safe Guarding Sewerage Infrastructure at Construction Sites”. Please refer to brochures under “Publications – Used Water” in the website.

Please note that violations at construction sites may disrupt flow in the sewerage system resulting in pollution to the waterways and catchments and public health hazards.

Who should apply to PUB for approval for works affecting the public sewer?

- a. **QP to apply:** For works which require the approval of plan by the Building Control Authority under the Building Control Act, the QP who has submitted and obtained the Building Control Authority’s approval must apply to PUB and prepare all plans of works.
- b. **PE to apply:** For works which do not require the approval of plan from the Building Control Authority under the Building Control Act, an appropriate PE

must apply to PUB unless PUB has determined that approval is not necessary for his proposed works.

The responsible QP for the works/activity shall submit the relevant detailed technical/engineering plans to PUB (Water Reclamation Network Department) to obtain a written approval before commencing such works/activity.

Failure to obtain an approval from PUB before carrying out any works over, across or adjacent to any public sewer is a violation of Section 14 of the Sewerage and Drainage Act. Offenders are liable for enforcement actions.

CCTV Sewer Inspection of the Public sewer

Where the public sewers/manholes are within or adjacent to the development lot, the builder/QP will be required to engage a PUB registered CCTV contractor to carry out pre-construction* & post- construction inspections of the public sewers/manholes.

*For small redevelopment/A&A works of single landed property (terrace, semi-detached and detached house), the submission of pre-construction CCTV survey report is **waived** and QP is only required to submit the post-construction CCTV survey report.

The pre-construction CCTV sewer inspection reports & DVD Discs on the conditions of all these existing sewers/manholes, SIP and other supporting documents as specified in the application form shall be submitted to PUB to obtain a written approval from the Director, PUB (WRN) before commencing any temporary works/piling works/building works at the site. More details of these requirements are provided in the "PUB (WRN) Advisory Note -Prevention of Damage to Sewerage System". Please go to the Compliance Webpage for more information.

Upon completion of the whole development or building works, a similar CCTV sewer inspection of the same sewers/manholes shall be carried out. The Post-construction CCTV sewer inspection reports shall be submitted to PUB when the QP applies for the Sewerage Clearance for Compliance Certificate (TOP/CSC clearance). QPs/contractors are to take note of all requirements stipulated under the PUB (WRN) CCTV Inspection Requirements for Sewers and Manhole to ensure that the standardised CCTV sewer Inspection Report format submissions are supported with high quality videos and photographs.

Announcement

From 1 Jan 2013, PUB only accepts inspection and reports from PUB registered CCTV contractors.

Registration of CCTV contractors (From 1 June 2012)

PUB has begun registration for sewer pipelines' CCTV contractors since June 2012. From 1 Jan 2013, only registered contractors are permitted to conduct CCTV

inspection works. This effort aims to ensure the safety of inspection and cut down on malpractices.

Members of the public are advised to hire only registered CCTV contractors as reports submitted by unregistered contractors will be rejected.

Please refer to details in circular (Dec 2012) and here (Jun 2012).

For registration related matters, please contact Ms Nellyana Huang (Tel: 65172215 or email at nellyana_huang@pub.gov.sg) or Mr Liao Kang Keong (Tel: 65172202 or email at liau_kang_keong@pub.gov.sg) of the Water Reclamation (Network) Department, PUB.

Consultation can be made at the following address: Director Water Reclamation (Network) Department, PUB #14-00 Environment Building 40 Scotts Road Singapore 228231

For enquiries, please call 6731 3256, 6731 3245 or 6731 3264.

Locating Existing Sewers

If there is problem locating at site existing manholes/ chambers/sewers/pumping mains, etc which are indicated on the SIP, consult PUB's Network Management Branch (NMB) (@82, TOH GUAN ROAD EAST #C2-13 / 14 WATERHUB TOH TUCK COMPLEX SINGAPORE 608575, Tel: 62824336).

QP/contractor should submit a Notification to our Network Management Branch (NMB) at least 7 days before commencement of any excavation works near any sewers or sewerage system.

What to do when a sewer is damaged?

- Stop all work activities in the vicinity of the sewer.
- Inform PUB Call Centre at our 24-hr toll-free number 1800-284 6600 or call our Network Management Branch (NMB) at 62824336
- Inform your QPs/PEs
- Remain on site to assist PUB officers on their arrival

Good Practices

Due care and diligence during piling works and structural works can protect the underground public sewers, link sewers and deep sewerage tunnels and prevent them from being damaged. QPs, PEs & Contractors play the most important role in ensuring preventive measures are in place.

Please note the "Dos and Don't" (Annex 3) on the prevention of damage to the public sewerage system.

Annex 1

Sewer Protection Zone

The horizontal distance of 25m from the outermost edge of any part of the public sewers (including pumping mains) or 36m from the outermost edge of any part of the DTSS tunnel & facilities within which no works either permanent or temporary should be carried out unless the Director, Water Reclamation (Network) Department has given the written permission to do so.

Sewer Set Back

(a) Sewers, Link sewers & Deep Tunnels (DTSS)

	Sewer Pipe Diameter (mm)	Nett Clearance Required
1	150 to 600 (depth ≤ 3m)	1.0m from outer edge of any structure to centreline of sewer pipe
2	150 to 600 (depth >3m to 5m)	1.5m from outer edge of any structure to centreline of sewer pipe
3	150 to 600 (depth > 5m)	2.0m from outer edge of any structure to centreline of sewer pipe
4	> 600 to 1500	2.5m from outer edge of any structure to outer edge of sewer bedding
5	>1500 to 2500	3.0m from outer edge of any structure to outer edge of sewer bedding
6	>2500	4.0m from outer edge of any structure to outer edge of sewer bedding
7	DTSS Tunnel & Facilities	6.0m from outer edge of any structure to outer edge of tunnel structure

(b) Pumping Main

	Pipe Diameter (mm)	Nett Clearance Required
1	100 to 600 (depth = 3m)	1.0m from outer edge of any structure to centreline of the pipe
2	100 to 600 (depth>3m to 5m)	1.5m from outer edge of any structure to centreline of the pipe

3	100 to 600 (depth > 5m)	2.0m from outer edge of any structure to centreline of the pipe
4	> 600 to 1500	2.5m from outer edge of any structure to outer edge of the pipe
5	Exceeding 1500	3.0m from outer edge of any structure to outer edge of the pipe

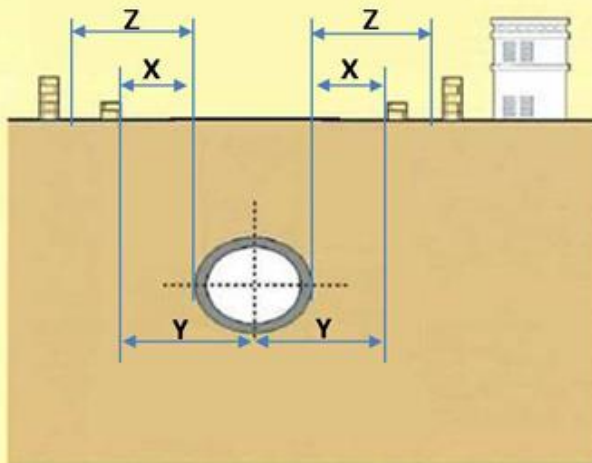
Vertical Clearance

No utilities services (cable, gas pipe, water pipes, etc) either permanent or temporary shall over-cross / under-cross within one metre (1m) from any sewers or pumping mains.

For those utilities services that over-cross / under-cross with a vertical clearance of less than one metre to any sewer, you are required to obtain a written clearance from the Director, PUB (WRN) before carrying out any works at the site.

In addition pre and post-construction CCTV reports of the affected sewer(s) and manholes shall be carried out by certified CCTV specialist (Annex 2) and submitted to PUB (WRN) Department. CCTV reports together with the CCTV video shall be in accordance with PUB (WRN)'s CCTV requirements.

Figure 1 – Sewer Protection Zone and Sewer Set Back



X = Sewer Set Back (for sewer diameter > 600mm)
Y = Sewer Set Back (for sewer diameter ≤ 600mm)
Z = Sewer Protection Zone (25m for sewers and 36m for DTSS)

Please refer to PUB website for dimension on Sewer Setback

"Sewer Protection Zone"- the horizontal distance of 25m from the outermost edge of any part of the public sewers (including pumping mains) or 36m from the outermost edge of any part of the DTSS tunnel & facilities within which no works, either permanent or temporary, should be carried out unless the Director, Water Reclamation (Network) Department has given the written permission to do so."

"Sewer Set Back" - minimum horizontal distance measured from the outer edge of any structure to either the centerline of the public sewer or to the outer edge of the public sewer as defined by X and Y demarcations highlighted in schematic shown above

Annex 2

List of PUB Registered CCTV Contractors – Updated as of 26 April 2016

S/N	Company Name	Company Address	Office Number	E-mail
1	Arkah Engeneering Pte. Ltd.	45 Defu Lane 9, Singapore 539285	6383 2236	ramasamy@akrah.com.sg
2	Ban Tiong Soon Contractor Pte. Ltd.	287 Kaki Bukit Ave 1, Shun Li Industrial Park, Singapore 416078	6749 5720	wan@tbseng.com
3	CA Engineering Consultancy Pte. Ltd.	Blk 1 Yishun Street 23, #02-47 YS-ONE, Singapore 768441	6755 1324	caec.enquiry@gmail.com
4	CHC Construction Pte. Ltd.	52, Ubi Avenue 3 #01-38, Frontier, Singapore 408867	6752 0886	richardliau@chcgroup.com.sg
5	Chin Kuan Engineering and Contractors Pte Ltd	4 Sungei Kadut Street 2, Singapore 729226	6757 0900	tohsk@leychoon.com
6	Clear Link Pte. Ltd.	22 Sin Ming Lane, #08-83 Midview City, Singapore 573969	6659 1128	mosespoh@clearlink.com.sg
7	Easi Porta Services Pte. Ltd.	32 Old Toh Tuck Road, #03-15 I - Biz Centre, Singapore 597658	6745 8254	edward@easiporta.com.sg
8	Insight Vision (S) Pte Ltd	No. 12 Tuas Avenue 16 Bilcon, Singapore 638935	6862 6539	ivs@bilcon.com.sg
9	Insitu Envirotech (S.E. Asia) Pte. Ltd.	6 Clementi Loop, #03-04 Hoe Leong Building, Singapore 129814	6542 0771	equ@insituform.com
10	Interprime Contractors Pte Ltd	55 Sungai Kadut Loop, Singapore 729498	6364 1293	interpri@singnet.com.sg
11	Jet-Vacs Service Pte. Ltd.	Blk 3005 Ubi Avenue 3 #03-52,	6842 0828	jet.vacs.leo@gmail.com

		Singapore 408861		
12	Johnson Pacific Pte Ltd.	45 Defu Lane 9, Singapore 539285	6268 1177	john@johnson.com.sg
13	Ka-Tech Asia Pte. Ltd.	18 Boon Lay Way, #08-127 Tradehub 21, Singapore 609966	6793 2186	info@ka- techasia.com
14	L.C.H. Construction & Trading Pte Ltd	6 Ubi Road 1, #07-07 Wintech Centre, Singapore 408726	6747 7241	lchconst@singnet.com.sg
15	Ley Choon Constructions and Engineering Pte Ltd	4 Sungei Kadut Street 2, Singapore 729226	6757 0900	teckwei@leychoon.com
16	Lian Shing Construction Co Pte Ltd	216 Tagore Lane, Singapore 787598	6481 5810	michelle@lianshing.com.sg
17	NCH Singapore Pte. Ltd.	12 Tannery Road HB Centre 1 #01- 03/04, Singapore 347722	6743 9122	jaya.seelan@nch.com
18	O Liner Technology Pte Ltd	Blk 26 Kaki Bukit Place #02-01, Singapore 416204	6742 8138	oliner@singnet.com.sg
19	Omniview Pte. Ltd.	1 Yishun Industrial St 1, #07-23 A'Posh Bizhub, Singapore 768160	97428660	enquiries@omniview pl.com
20	Pipe Rehabilitation Pte. Ltd.	Blk 3014 Ubi Road 1, #01-292 Kampong Ubi Industrial Estate, Singapore 408702	6842 6616	cctvsurveyor@gmail.com
21	Pipeline Assessment and	196 Tagore lane, Singapore 787588	9018 0945	cheelin.koh@pasco- sg.com

	Services Co Pte. Ltd.			
22	Pipeline Services Pte. Ltd.	20 Kian Teck Drive, Singapore 628837	6262 6253	info@pipelineservices.com.sg
23	PMPS Liner Technology (Singapore) Pte. Ltd.	140 Tagore Lane, Singapore 787560	6465 3008	alvin@pmpsliner.com
24	Promptech (M & E) Pte Ltd	Blk 1 Yishun Street 23, #02-29 YS-ONE, Singapore 768441	6755 1324	promptech.cctv@gmail.com
25	Quek & Quek Civil Engineering Pte Ltd	215 Kranji Road, Singapore 739486	6368 8123	qqcepl@singnet.com.sg
26	Rentokil Initial Singapore Private Ltd	16 & 18 Jalan Mesin, Singapore 368815	6347 8138	teddy.koh@rentokil-initial.com
27	Sam Lain Equipment Services Pte Ltd	No. 25 Woodlands Industrial Park E2, Singapore 757459	6567 7601	samlain@singnet.com.sg
28	Sewer and CCTV Engineering Pte. Ltd	424 Giffard Mansion, Balestier Road #02-09, Singapore 329810	9171 9382	lua.engchin@yahoo.com.sg
29	Smitech Engineering Pte Ltd	30 Ubi Crescent, #01-02 Ubi Techpark, Singapore 408566	6742 5055	roz@smitech.com.sg
30	Tactic Engineering Pte Ltd	69 Ubi Crescent, #03-01 CES Building, Singapore 408561	6745 7977	fong@tactic.com.sg
31	Teacly (S) Pte. Ltd.	No. 4 Sungai Gadut Street 2,	6757 0900	franciskoh@leychoon.com

		Singapore 729226		
32	TMC Waste Management Pte.Ltd.	150 Changi Road, #03-05 Guthrie Building , Singapore 419973	6344 3922	khloke@tmcltd.com.sg
33	Toh Ban Seng Contractor Pte Ltd	287 Kaki Bukit Ave 1, Shun Li Industrial Park, Singapore 416078	6749 5720	sera_wan@tbseng.com
34	Total Jet Services Pte Ltd	301 Kaki Bukit Avenue 1, Shun Li Industrial Park, Singapore 416085	6748 1291	admin@totaljet301.com.sg
35	Transit-Mixed Concrete Ltd	150 Changi Road, #03-05 Guthrie Building , Singapore 419973	6344 3922	loke.kaihoong@gmail.com
36	UIA Technology Pte. Ltd.	280 Woodlands Industrial Park E5, #09-50 Harvest @ Woodlands, Singapore 757322	6214 1254	ian@uia-tech.com.sg
37	Wan Sheng Hao Construction Pte Ltd	7030, Ang Mo Kio Avenue 5, #08-85 Northstar@AMK, Singapore 569880	6570 9929	tangcb@wshc.com.sg
38	Yong Hoe Enterprise Pte Ltd	No.20 Bukit Batok Crescent, #09-15 Enterprise Centre, Singapore 658080	6266 3627	yhepl@singnet.com.sg

Annex 3

DOs AND DON'Ts ON THE PREVENTION OF DAMAGE TO THE SEWERAGE SYSTEM

[Reminder: Under the Sewerage and Drainage Act, the penalty for erecting any building or structure over, across or adjacent to any sewerage system without prior approval from PUB is a fine of up to \$20,000. The penalty for causing any damage to sewer is a fine of up to \$40,000 or to imprisonment for a term up to 3 months or to both.]

DOs

1. Do purchase a **Sewerage Interpretation Plan (SIP)** from **CBPU (NEA)**.
2. Do obtain approval from PUB, Water Reclamation (Network) Department before you carry out any works including piling works within the Sewer Protection Zone.
3. Do trial holes to identify the exact location of existing sewers/pumping mains/sanitary drainlines/sewer connection lines before any excavation or piling work. Use only manual excavation near the pipes.
4. Do peg/barricade the route along the sewers/pumping mains to forewarn sub-contractors of the presence of sewers/pumping mains, etc.
5. Do consult **PUB, Water Reclamation (Network) Department** when you are unable to locate existing manholes/chambers/ sewers/pumping mains, etc.
6. Do have proper protection for our existing sewers/pumping mains during excavation. Prior approval must be obtained from Water Reclamation (Network) Department for protection/ diversion works.
7. Do submit a Notification to our **Network Management Branch (NMB) (@WaterHub Toh Tuck Complex, 80 Toh Guan Road East #C2-13/14, Singapore 608575)** at least 7 days before commencement of any excavation works near any sewers or sewerage system.
8. Do report to our **Network Management Branch (NMB)** at Tel: 62824336 should any of our services be damaged, exposed or any sealing work is required for immediate attention.

DON'TS

1. Don't excavate, pile or construct any structures