

## Silt Control at Construction Sites CCTV Requirement

The contractor shall provide and operate a CCTV system as follows:

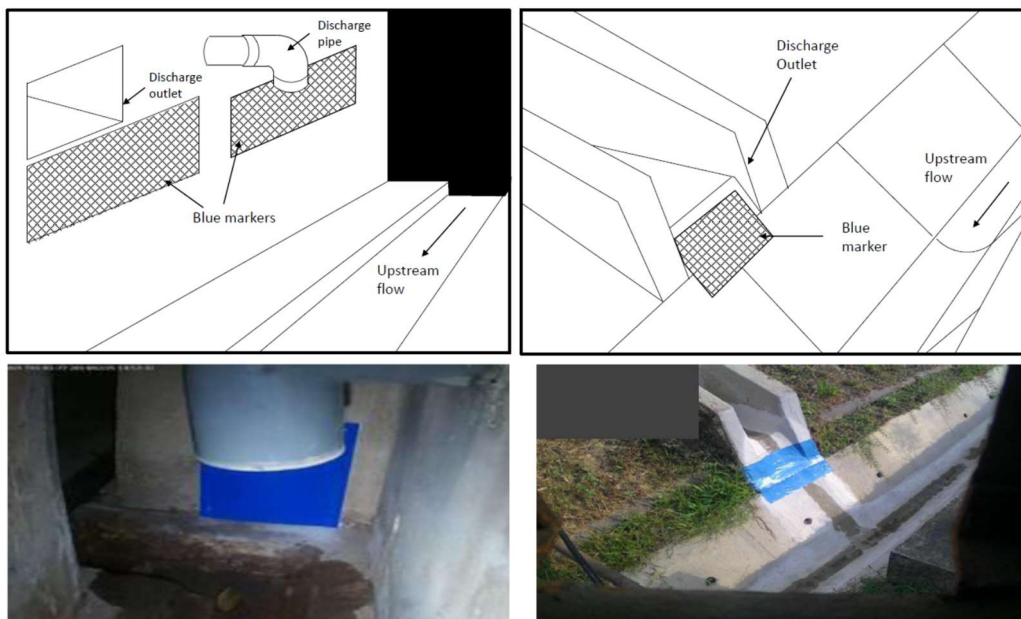
- (1) Provide a CCTV system at the public drain near the discharge outlet(s) of the site to monitor the discharge from the site.

The CCTV shall display the following clearly:

- (i) Site discharge outlet(s) at the public drain
- (ii) Upstream public drain cross-section
- (iii) Colour image that could distinct if the flow/discharge is clear or muddy.
- (iv) Blue-Marker (see item #2) with size of at least 100x100 pixels in the captured image when there is no water discharge.
- (v) White LED Lighting shall be provided such that the Blue-Marker is clearly visible in the CCTV image and can distinct from the image if the flow/discharge is clear or muddy at all time.

- (2) A water proof (plastic board or solvent-based matt sky blue paint) **Blue-Marker** with the painting colour code of RAL 5012 (CMYK 77% 41% 4% 0%, Sky Blue) shall be installed at discharge point in one of the two formats explained below:

- To be placed at a fixed location at the discharge outlet where the discharged water would always flow over the marker in the captured image as shown in Figure 1.



**Figure 1.** Examples of painted Blue-Marker at discharge points.

- Or, to be implemented on the end of the discharge pipe. The pipe shall have an elbow to direct the flow downwards and cut open to expose the inner side where a blue background can be implemented, as shown in Figure 2.



**Figure 2.** Example of Blue-Marker painted on cut-opened discharged pipe.

- (3) The contractor shall operate and monitor the CCTV at all time. The CCTV shall not have more than 4% downtime per month. Alert system such as via sms and/or email, shall be provided to the contractor if the system is not in operation.
- (4) Both CCTV and Blue-Marker shall be well maintained to be free of debris, stain or silt deposit. The marker should be replaced or repainted if the blue colour fades.
- (5) Provide at least the past 15-day, 5-min interval snapshots of the CCTV within 2 days upon request by PUB.
- (6) Provide web access to the CCTV system include the following:
- (i) A colour snapshot of the drain for that 5 min interval at 1280x720 resolution in JPEG image format.
  - (ii) The snapshot shall be imprinted with a short description of the project title and date/time stamp at the top right corner of the image.
  - (iii) Read access for the snapshot image of the CCTV via a URL link with no username/password required.
  - (iv) Example: [http://www.CameraVendorCo.com/SiteName/current\\_image.jpg](http://www.CameraVendorCo.com/SiteName/current_image.jpg)
    - “SiteName” is unique for each CCTV camera and must be in the following format:  
[Catchment Code]–[Road]–[Company]–[Camera no.]

There should be no space in SiteName.

Examples:  
E4-Seletar\_West\_Link-KTC-02  
E4-Seletar\_West\_Link-WohHup-01
  - (v) At least past 15-day archive of snapshots at 5 minute interval or less. Quick function to download the archived snapshots.
  - (vi) Archived images of snapshots must be kept in separate folders for each year, month, and day in format of YYYY/MM/DD. Read access must be provided with no username/password required.
  - (vii) The image name in these archived folder must be in the format of hhmmss.jpg (hh = hours in 24 hours format, mm = minutes, ss = seconds) in the respective DD subfolder and to be accessed via the URL link.
  - (viii) Example:  
<http://www.CameraVendorCo.com/SiteName/yyyy/mm/dd/hhmmss.jpg>

- (ix) The web access shall be of open platform and easily accessible via smart phones and PCs without the need to install any extra/specific version of software.
- (x) Project profile including signboard information and key contact personnel and contact nos.

(7) The contractor shall, with the assistance of the CCTV vendor, complete the CCTV installation checklist and submit the completed copy to [PUB\\_CWSIDS@pub.gov.sg](mailto:PUB_CWSIDS@pub.gov.sg). Any incomplete or misdeclaration of the checklist shall not be accepted.

Note:

- The contractor should take note of the following when installing the CCTV:
  - (a) Type of weather proofing required for closed or open drain and other considerations.
  - (b) Adequate lighting
  - (c) Continuous power supply.
- Please contact Mr Oh Zhi Wei at [oh\\_zhi\\_wei@pub.gov.sg](mailto:oh_zhi_wei@pub.gov.sg) or Mr Yee Kok Heng at [yee\\_kok\\_heng@pub.gov.sg](mailto:yee_kok_heng@pub.gov.sg) for clarifications if need be.

List of CCTV vendors

Name of Company	Person In-charge	Contact No	Email Address
Absolute Instrument Systems Pte Ltd	Ms Irene / Yvonne	6296 8012	Sales@aisys.com.sg irene@aisys.com.sg
EnvPro Tech Pte Ltd	Mr Ng Swee Chow	9627 2500	sweechow_ng@singnet.com.sg
	Mr Daryl Lee	9002 0146	daryl@ept-envprotech.com
Flexi Systems (Sg) Pte Ltd	Mr Yang Yi	8189 1788	sales@flexisystems.com.sg
Hi Con (S) Pte Ltd	James Chen	9688 8218	James.chen@hicon.com.sg
ISJC ScienTech Pte Ltd	Joseph Cruz	8766 5923	Joseph.cruz@isjcscientech.com
Oxen System and Trading	Mr Ang Huai Kee	9617 1383	Ang@oxen.com.sg
Scott Vickers Pte Ltd	Mr Jon Button	6552 2933	sales@scottvickers.com.sg
Shecey (Singapore) Pte Ltd	Mr Chester Suen	9644 8533	chestersuen@shecey.com.sg
	Mr Louis Lye	8288 0455	louislye@shecey.com.sg
Tritech SysEng (S) Pte Ltd	Mr Tan Chuan Chiat	8112 2114	sales@syseng.com.sg
YHH Trade & Technologies Pte Ltd	Mr Gwee Cheng Hong	9643 1893	chenghong@yhh.com.sg

Note:

- (i) Listing of selected vendors is updated as at 18 Feb 2020. For the latest listing of top 5 CCTV vendors in terms of CCTV uptime, please refer to SIDS website at <https://sids.emonitoringsystem.com/login> or via scanning the QR code below. No login is required to access the listing.
- (ii) Listing is not meant to endorse the service quality of any individual CCTV vendor.
- (iii) Listing will be refreshed as and when necessary



## CCTV Installation Checklist

BCA Ref No:			
Project Title:			
Contractor:			
Company Address:			
Contact Person:		Designation:	
Contact Person Hp:			
Contact email:			
Developer:			
CCTV Vendor:			
Number of CCTVs:	_____ of _____	(separate checklist to be provided for each CCTV)	
Image URL:			
Site Latitude:		Site Longitude:	

S/No:	Items	Yes	No
1	The installed CCTV shows the discharge outlet and upstream public drain cross-section (as shown in Photo-1)	<input type="checkbox"/>	<input type="checkbox"/>
2	The discharge outlet is painted <b>water-proof sky blue</b> (as shown in Photo-2)	<input type="checkbox"/>	<input type="checkbox"/>
3	Adequate lighting is provided (as shown in Photo-3)	<input type="checkbox"/>	<input type="checkbox"/>
4	The blue marker and cross-section of public drain are clearly captured in the CCTV image during day and night time (as shown in Photo-4 and Photo-5)	<input type="checkbox"/>	<input type="checkbox"/>
5	The CCTV system is connected to an all-day power supply (as shown in Photo-6)	<input type="checkbox"/>	<input type="checkbox"/>
6	The web-link and its contents including project profile, prepared in according to the CCTV requirements and ready to be accessed by the users (attached Photo-7)	<input type="checkbox"/>	<input type="checkbox"/>
7	The CCTV vendor has access to SIDS portal	<input type="checkbox"/>	<input type="checkbox"/>
8	The CCTV vendor has configured/entered the CCTVs in the SIDS portal (as shown in Photo-8)	<input type="checkbox"/>	<input type="checkbox"/>

I confirm that the above information and the CCTV installation are in order.

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Name of Contractor/ Signature/Date

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Company stamp

## Photos of CCTV Installations

Photo-1	Photo-2
Photo-3	Photo-4
Photo-5	Photo-6
Photo-7	Photo-8 [Region of Interest (ROI) on the blue marker]