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Development Bureau
Technical Circular (Works) No. 1/2026

Co-supervision Platform for Smart Construction Management

Scope

This Circular sets out the policy and requirements on the adoption of the Co-supervision Platform for smart construction management in capital works contracts under the Capital Works Programme, with the aim of enhancing the efficiency and effectiveness of site supervision.

Effective Date

2. This Circular takes immediate effect.

Effect on Existing Circular and Circular Memoranda

3. This Circular shall be read in conjunction with DEVB TC(W) No. 8/2025.

Background

4. With the concerted efforts of the Development Bureau (DEVB) and works departments, more advanced technologies have been adopted in public works sites in recent years, such as Digital Works Supervision System (DWSS), Smart Site Safety System (SSSS), small unmanned aircrafts (SUAs) and smart sensing devices. The wider application of advanced technologies in public works sites not only enhances our safety performance and site supervision efficiency but also helps address the demand for manpower resources, along with other measures.

5. Under the above initiative, DEVB updated the requirements for Quality Site Supervision Plan via its memo reference DEVB(PS)106/43 dated 2 December 2022 to further encourage the broader application of new technologies and requested project offices and their consultants to proactively identify suitable solutions for elevating the performance of site supervision and site safety management.

6. To further enhance the efficiency and effectiveness of site supervision, it is beneficial to obtain precise spatial information for dimensional and positional checks, thereby broadening the applicability of smart solutions, particularly for remote supervision of construction activities involving built quality checks and site measurements. In the light of this consideration, DEVB has developed in-house a new digital solution called "**SmartEye**", which incorporates the latest technologies, including four-dimensional Light Detection and Ranging (4D LiDAR), 5G Fusion Bonding, Generative Artificial Intelligence (AI) and Large Language Model (LLM), to establish the first-of-its-kind Co-supervision Platform for smart construction management (hereinafter referred to as "CSP").

7. The CSP is a tailor-made intelligent solution for real-time, round-the-clock remote supervision of construction projects. It features an innovative "Video of Point Cloud" capability by leveraging the 4D LiDAR technology and Generative AI to capture spatial data of construction sites over time. This enables off-site checks of workmanship and productivity of construction activities as well as positions and dimensions of built structures (whether permanent or temporary) through a one-stop centralised platform. The system is designed for joint use by works departments, consultants and contractors, allowing co-supervision of construction projects by these parties and facilitating

"early detection, early follow-up and early resolution" of on-site issues. It helps augment the effectiveness and efficiency of site supervision by assisting users in identifying and prioritising areas for detailed site inspection. The concept of co-supervision aligns well with the collaborative approach adopted in managing NEC contracts. Overall, the adoption of the CSP aims to elevate the standards of construction management and contract administration through digital means by using advanced technologies.

8. The CSP serves as a smart site solution that opens up further applications, including quality checks of built structures, site measurements and construction monitoring. With a wide variety of construction data captured and the advantage of providing a centralised platform, the CSP, in conjunction with SSSS and other smart site solutions, connects with the Smart Construction Management hub [1] of DWSS for data consolidation to facilitate holistic monitoring of site performance. Such integration will unlock the potential for more smart solutions for site supervision and contract administration, particularly through the use of AI, robotics and other latest advanced technologies.

9. At its meeting in March 2025, the Works Policies Coordination Committee supported the plan to mandate the application of the CSP for all large construction contracts as set out in paragraph 10. A variety of pilot projects have been selected to implement this new system, covering site formation, deep excavation, building works (including MiC), sewage treatment facilities, water infrastructure, and landslip prevention and mitigation works, all of which have shown promising results.

Policy

10. Capital works contracts with pre-tender estimate exceeding $400 million and to be tendered on or after 1 April 2026, shall adopt the CSP for smart construction management. Other new or ongoing capital works contracts[2] are also encouraged to adopt the CSP as far as practicable.

[1] According to DEVB TC(W) no. 8/2025, the Smart Construction Management hub of DWSS is built for centralised monitoring of different aspects on site including safety, progress, deformation, material, machinery, environment, etc.

[2] Including those with pre-tender estimate not exceeding $400 million or tendered before 1 April 2026, as well as capital subventions contracts under Head 708.

11. For the avoidance of doubt, the above requirement applies to traditional Design-Bid-Build and Design-Build or Design-Build-Operate contracts. Bureaux/Departments (B/Ds) may adopt the CSP in maintenance and term contracts, where applicable, with a view to strengthening the efficiency and effectiveness of site supervision.

Key Features of CSP

12. The CSP offers a suite of new functions, as outlined in **Annex A**. Apart from the capability of construction sites scanning using 4D LiDAR and other sensors, the CSP provides applications with actionable intelligence through AI-driven dashboard. It is designed to support interoperability with DWSS, SSSS and external systems adopted by works departments (e.g. LIMS e-Portal of the Public Works Laboratories, Contract Payment e-Check system) as well as facilitating data connection with the Smart Construction Management hub of DWSS. It offers accessibility through secure networks and can be operated on desktop or laptop computers as well as mobile devices.

13. DEVB will keep pace of rapid technological developments, including AI, robotics and other advanced technologies, and continue to introduce suitable new applications in the CSP to enhance supervision efficiency and effectiveness for safeguarding the quality of public works projects.

Adoption of the CSP

14. A set of sample specifications detailing procurement requirements for the hardware and software of the system (including supply, installation and acceptance testing) is available on the Works Branch Intranet for reference by B/Ds. During tender preparation, project offices may consult the Works Policies 4 Section of DEVB to define the scope of functions to be included in the CSP that suits the types of works to be supervised in their projects. Based on the selected scope, project offices shall incorporate the related requirements for procuring the requisite hardware and software in their contracts to facilitate the implementation of the CSP during construction. Where there is a need to devise a new smart solution or system related to site supervision or contract administration within a contract, project offices shall specify the requirement to enable interoperability with the CSP.

15. To ensure project offices understand the functionality of the CSP and formulate appropriate tender requirements during the initial stage of implementing this policy, project offices shall submit the proposed scope of the CSP, along with the associated draft tender provisions, to the Works Policies 4 Section of DEVB for vetting. This arrangement will be effective from the date of this Circular until March 2028 or a date as announced by DEVB.

16. For the sake of clarity, the requirements in relation to the use of DWSS, including (a) acceptance of the system during construction stage, (b) hand-over of the system upon completion of contract, (c) technical audit, and (d) interface with the Integrated Capital Works Platform, as spelt out in paragraphs 13 to 17 of DEVB TC(W) No. 8/2025 shall apply to the adoption of the CSP.

Exemption

17. On exceptional grounds, such as short construction period, changing site locations or projects with minimal works content, the adoption of the CSP as required under this Circular may be exempted, provided that policy consent from the Works Policies 4 Section of DEVB is obtained.

Enquiries

18. Enquiries on this Circular shall be addressed to Chief Assistant Secretary (Works) 7.

(Ricky C K LAU)
Permanent Secretary for Development (Works)

Key Features and Functions of "SmartEye" - Co-supervision Platform for Smart Construction Management

1. "**SmartEye**", developed in-house by the Development Bureau (DEVB), aims to provide a digital Co-supervision Platform for smart construction management. It serves as an innovative smart site solution equipped with the 4D LiDAR technology and an AI-driven dashboard, which has been launched for pilot implementation in selected public work projects since late 2024. Empowered by its patented innovation, this system offers a tailor-made intelligent solution for real-time, round-the-clock remote supervision of construction projects (hereinafter referred to as "CSP").

2. The CSP features a number of groundbreaking technologies, including:

   (i) **4D LiDAR** – a novel technology devised by DEVB, combining the advantages of video (time-series imaging) and LiDAR-generated point cloud data. It provides dimensional and positioning information, offering a reasonable level of accuracy for common site usage. The "Video of Point Cloud" can be produced using **fixed-point** approach by mounting LiDAR devices on fixed poles, tower cranes or non-movable objects, or via **fixed-route** approach utilising small unmanned aircrafts (SUAs) or robots, designed to minimise blind spots and provide continuous spatial data.

   (ii) **Edge computing** – adopted to optimise the size of point cloud images from various locations and enhance them with colour and geo-referencing features. It also provides zero-lux vision, enabling real-time, round-the-clock site monitoring.

   (iii) **5G fusion bonding** – a technique combining data bandwidth from multiple mobile operators to create a large data channel for transmission that can increase uplink data bandwidth up to about three times.

   (iv) **Generative AI and advanced Large Language Model** – deployed

to transform site data into actionable intelligence, operated by an AI-driven Interactive Dashboard equipped with versatile functions including a "4D Point Cloud Video" viewer for assessing built quality and performing site measurements, instant safety alerts, a network of real-time AI cameras and sensing devices for construction monitoring, automated site report generation and AI Chatbot.

3. Apart from 4D LiDAR data, the CSP is capable of retrieving and analysing data from other on-site devices such as cameras and sensors:

Type	Examples*
Cameras	AI cameras, body-worn cameras, etc.
Sensing Equipment	IoT sensors for measurements of temperature, humidity, vibration, other environmental parameters, etc.
Other Devices for Works-specific Applications	Thermal sensors, fibre optic sensors, handheld laser scanners, etc.

* Examples provided are not exhaustive. The CSP may be fine-tuned to capture the data from other sensing devices for presenting in its AI dashboard, where applicable.

4. Similar to other smart site solutions, the data captured by the CSP will be automatically synchronized across all devices and servers to support an efficient flow of information, including site records among contractor, site supervisory staff and employer/client in a contract. This enables timely reporting and alert of works progress and performance. The CSP should also support data connection with the Smart Construction Management hub through Application Programming Interface (API) or other means.

5. The CSP is capable of transforming site data into actionable intelligence for versatile applications, broadly encompassing quality checks of built structures, site measurements, construction monitoring and contract administration. The following functions have been developed to facilitate supervision of different types of construction activities:

(i) Time series point cloud viewer for 4D LiDAR videos;
(ii) Dimension/volume measurement;
(iii) Slope angles/ground profile measurement;
(iv) Check on reinforcement bars fixing;

(v) Productivity check for MiC installation;
(vi) Efficiency check for tower crane operation;
(vii) Alerts system;
(viii) Site report generation; and
(ix) AI Chabot.

New functions (e.g. NEC contract administration modules) are currently under development and will be introduced to the CSP in stages. Information on the latest available modules of the CSP can be found on the Works Branch Intranet.