

MANAGEMENT OF THE DEVELOPMENT AT ANDERSON ROAD PROJECT

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1. In 1996, the Government identified a potential site with an area of about 58 hectares between Anderson Road and Sau Mau Ping Road in East Kowloon for boosting land supply for housing. Upon completion of the planning and engineering feasibility study in October 1998 and a review on the findings of the study in January 2007, the feasibility of the planned development (including housing development, government, institution or community facilities, and district open spaces) at the site was confirmed. The development at Anderson Road project (the Project) covered the site formation and associated infrastructure works at the site. The Transport and Housing Bureau was the policy bureau for the Project and the Civil Engineering and Development Department (CEDD) was the works agent responsible for carrying out the works under the Project.

2. A total funding of \$3,543.4 million was approved by the Finance Committee of the Legislative Council between June 1997 and December 2007 for the Project. In August 1997 and May 2006, CEDD awarded two consultancies for the Project (one for the planning and engineering feasibility study and another one for the site investigation, design and construction supervision work) to two consultants (Consultants X and Y respectively). In January 2008 and January 2013, CEDD awarded two works contracts (Contracts A and B) to two contractors (Contractors A and B respectively) for the implementation of the Project. In the event, the Project was substantially completed in December 2016 and the residential sites formed under the Project were used for public housing development. As of October 2021, the Government had incurred \$3,522.1 million (99% of \$3,543.4 million) for the Project.

3. A footbridge system comprising Footbridges A to D was constructed for connecting the planned development (including the public housing development) at the site under the Project with the neighbouring communities of Sau Mau Ping and Shun On. After completion of works, CEDD handed over Footbridges A to D to the relevant government departments (including the Highways Department (HyD) and the Electrical and Mechanical Services Department (EMSD)) between 2016 and 2018 for

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maintenance. The Audit Commission (Audit) has recently conducted a review to examine the implementation of the Project by CEDD and the management of Footbridges A to D.

Design of footbridge system under the Project

4. Contract A mainly involved the formation of about 20 hectares of land platforms and associated geotechnical and slope stabilisation works, and the construction of Footbridges A to C. In January 2008, CEDD awarded Contract A to Contractor A at a contract sum of \$2,063 million. The contract works (excluding landscape softworks and establishment works) were substantially completed in December 2016. As of October 2021, the contract expenditure was \$2,844.3 million. Contract B mainly involved the construction of Footbridge D. In January 2013, CEDD awarded Contract B to Contractor B at a contract sum of \$151.8 million. The contract works were completed in April 2018 and the final contract sum was \$167.9 million. Consultant Y was the Engineer responsible for supervising the works under Contracts A and B (paras. 2.3 to 2.6).

5. *Significant design changes of the footbridge system after award of Contract A.* Audit noted that:

- (a) under the original design, the footbridge system under the Project comprised 3 footbridges (i.e. Footbridges A to C constructed under Contract A). Before tendering of Contract A (between August 2006 and August 2007), CEDD received views from various stakeholders on the design of the footbridge system under the Project, including the addition of a footbridge and the need for the footbridges to be subject to further review after completion of a traffic review study by the Housing Department (HD) (paras. 2.8 and 2.22(a));
- (b) according to CEDD, to meet the then planned population intake programme of the proposed public housing development in 2015, Contract A (involving more time-consuming construction activities on site formation works) was tendered out in September 2007 and awarded in January 2008 (paras. 2.10 and 2.22(a));
- (c) in March 2009, HD's traffic review study was completed and proposed significant design changes of the footbridge system, including the

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significant modifications of the design of Footbridges A to C and the addition of a new Footbridge D. The significant design changes were accepted by the Transport and Housing Bureau (para. 2.22(b));

- (d) in implementing the works arising from the significant design changes of the footbridge system: (i) Consultant Y instructed Contractor A to proceed with the construction of Footbridges A to C in March 2012 and issued 141 variation orders (VOs) (later valued at a total cost of \$186 million) on the revised details of Footbridges A to C and associated works. Upon receipt of the VOs, Contractor A submitted claims for an extension of time and prolongation cost. CEDD entered into a supplemental agreement with Contractor A in February 2014, under which the Government paid \$70.1 million to accelerate the completion of Footbridges B and C, and settle all claims for events related to the construction of Footbridges A to C that occurred before the execution of the supplemental agreement; and (ii) a new Contract B was awarded in January 2013 for the construction of the new Footbridge D and the final contract sum was \$167.9 million (paras. 2.16, 2.17, 2.19 and 2.22(c));
- (e) in granting its approval for CEDD to enter into the supplemental agreement with Contractor A (see (d)(i) above), the Financial Services and the Treasury Bureau said that: (i) it noted that in face of the target completion date of the Project by 2015, CEDD practically had no choice but to tender Contract A in 2007 although the design of the new footbridge system had yet to be finalised; and (ii) that said, CEDD was reminded that it should in future improve the local consultation process and better assess the requirements of local residents and District Councils for infrastructure works to avoid recurrence of similar situations (para. 2.22(d)); and
- (f) there is scope for CEDD to draw lessons from the significant design changes of the footbridge system under the Project. CEDD needs to make every endeavour to consult stakeholders with a view to finalising the design of works before tendering of contracts in future (paras. 2.21 and 2.22(e)).

6. ***Scope for improvement in contract arrangement.*** According to CEDD, as there was a chance of deleting works for Footbridges A to C and a high chance of introducing substantial modifications to the design of them, the construction of these footbridges was included under a section subject to excision (i.e. the excision contract clause) in the tender documents of Contract A. The objective was to allow CEDD to

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reserve the right to instruct Contractor A to commence the construction of Footbridges A to C after completion of the traffic review study by HD. Audit noted that while this contract clause allowed CEDD to decide whether and when to commence the construction of Footbridges A to C, it could not preclude claims (e.g. for extension of time and prolongation cost) from Contractor A arising from the significant design changes of Footbridges A to C after contract award under the contract provisions (see para. 5(d)(i)). In this connection, in October 2006, HD suggested CEDD to implement the site formation and the remaining infrastructure works (including footbridges) in phases through several works contracts. In the event, a single contract (Contract A) was awarded for the construction of Footbridges A to C. There was no documentation on the justifications for adopting this single contract arrangement (paras. 2.9(f) and 2.23(b) to (d)).

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7. *Scope for enhancing the management of slope works.* According to CEDD, in connection with the construction works under Contract A, there were: (a) 1 concrete block falling incident (occurred in May 2009). According to Consultant Y, the causes of this incident included no protective measures taken at the slope edge or at the lower sloping area to prevent any material from rolling down the slope, and low awareness of frontline supervisors and workers in taking proactive measures to guard against falling objects from height. After the incident, a barrier was provided at the sloping area immediately below the working area and training had been provided to frontline supervisors and workers to strengthen their awareness; and (b) 3 landslide incidents (2 occurred in May 2013 and 1 occurred in May 2015) and 2 other events relating to damage of retaining walls under construction (occurred in July and September 2012 respectively). These incidents and other events were resulted from the inadequate capacity of the temporary drainage system during the construction stage. In January 2014, CEDD promulgated guidelines on temporary drainage provisions and precautionary measures against severe rainfall during site formation works and construction of reinforced fill structures, with particular reference to the observations and lessons learnt from the 2 landslide incidents in May 2013. In Audit's view, there is scope for enhancing the management of slope works (paras. 3.2 to 3.4).

8. *Need to ensure the timely completion of defects rectification works.* Under Contract A, Contractor A was required to carry out defects rectification works at its own cost within the 12-month maintenance period. Contract A was substantially

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completed in December 2016 and the maintenance period expired in December 2017. However, Audit noted that: (a) according to Consultant Y, a significant amount of defects rectification works had yet to be completed after the expiry of the maintenance period; and (b) according to CEDD, the defects rectification works (excluding the defects rectification works for landscape softworks and establishment works — see para. 9) were completed in July 2020 (i.e. about 2.6 years after the expiry of the maintenance period in December 2017) (paras. 3.10 and 3.11).

9. ***Long time taken to complete all the landscape softworks and establishment works.*** After the substantial completion of Contract A in December 2016, Contractor A was required to carry out the remaining landscape softworks and establishment works. After completion of establishment works, the established vegetation would be inspected by the maintenance departments and then handed over to them for maintenance. Audit noted that the landscape softworks and establishment works under Contract A were completed in phases between January 2020 and September 2021 (i.e. 3 years to nearly 5 years after the substantial completion of Contract A in December 2016). According to CEDD, the defects rectification works for landscape softworks and establishment works and the inspection and handover procedures with the maintenance department on the established vegetation would be completed in the second quarter of 2022, and the account of Contract A would be finalised in the third quarter of 2022. In Audit's view, CEDD needs to ensure that all such works are completed as scheduled, and finalise the account of Contract A as soon as possible (paras. 3.16 to 3.19).

10. ***Scope for improvement in documentation of assessment of contractor's claims.*** According to Consultant Y's assessment of March 2019 on Contractor B's claim for prolongation cost for carrying out the landscape softworks and establishment works for Footbridge A under a section of works of Contract B (Section A), Contractor B was entitled to prolongation cost of \$4.8 million associated with the delay to Section A. When vetting Consultant Y's assessment of Contractor B's claim in March 2019, CEDD reminded Consultant Y that the prolongation cost entitlement under the claim should be solely related to Section A. Should there be expenses related to other sections of works, adjustment on the cost entitlement should be made. In April 2019, Consultant Y said that it noted CEDD's view. In response to Audit's enquiries, in February and April 2022, CEDD said that: (a) the prolongation cost of \$4.8 million granted to Contractor B was not solely for the landscape softworks and establishment works for Footbridge A under Section A; and (b) in the course of the claim assessment, Consultant Y had taken into account additional expenditures arising from a number of VOs under another section of works of Contract B together with

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the works under Section A. In Audit's view, in implementing works projects in future, CEDD needs to remind its consultants to properly document their assessments of contractors' claims (paras. 3.20 to 3.22).

Management of Footbridges A to D and post-completion review

11. ***Scope for enhancing lift services at Footbridges A to D.*** Regarding the management of Footbridges A to D, HyD is responsible for the maintenance of structures and associated components of the footbridges, and EMSD is the maintenance agent of HyD for the electrical and mechanical works of lifts and lighting works. There are a total of 17 lifts installed at Footbridges A to D under EMSD's maintenance. During the 3-year period from January 2019 to December 2021, Audit noted that: (a) there were a total of 183 cases involving suspension of lift services at Footbridges A to D. The duration of suspension of lift services ranged from 6 minutes to 242 hours (or 10 days), averaging 10 hours. Of the 183 cases: (i) 143 (78%) involved equipment failure and required repair work to resume lift services. Of these 143 cases, 86 (60%) involved major repairs of electrical and mechanical parts; and (ii) 40 (22%) did not involve equipment failure and did not require such repair work; (b) for the lifts at Footbridge A, the average number of cases involving suspension of lift services (i.e. 6 cases per lift per year) was the highest among the lifts at the 4 footbridges; and (c) according to EMSD, enhancement measures had been implemented and would continue to be carried out. In Audit's view, HyD needs to, in collaboration with EMSD, continue to closely monitor the proper functioning of the lifts at Footbridges A to D and take enhancement measures as necessary (paras. 4.2 to 4.6).

12. ***Need to keep under review the usage of Footbridges A to D.*** The Transport Department has the overall responsibility for the planning and provision of pedestrian crossing facilities, including footbridges and subways. Regarding the usage of Footbridges A to D, Audit noted that: (a) according to the traffic surveys conducted at Footbridge A in September 2018 and December 2021, and Footbridge B in June 2020, the pedestrian flows thereat were smooth except that there was room for improvement in the lift services to reduce the lift waiting time; and (b) there would be another housing development at the Anderson Road Quarry site nearby the public housing development at the land platforms formed under the Project. It was planned to connect the housing development at the Anderson Road Quarry site with the neighbouring communities via Footbridges A to D. Upon full population intake in

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around 2026, the Anderson Road Quarry site would accommodate a total population of about 30,000. The additional population would put further pressure on the pedestrian flows and usage of Footbridges A to D, including the lift services at these footbridges. Audit considers that there is a need to keep under review the usage of Footbridges A to D (including the adequacy of pedestrian capacity) and keep monitoring the performance of the lifts at these footbridges to maintain reliable and efficient services (paras. 4.10 and 4.11).

13. ***Need to timely conduct post-completion review.*** According to the Project Administration Handbook for Civil Engineering Works issued by CEDD: (a) a post-completion review is a useful project management tool and should be carried out within a reasonable period, say six months, after the substantial completion of a consultancy agreement or a works contract; and (b) post-completion reviews are generally not warranted for consultancy agreements and works contracts of a project which has a total cost less than \$500 million or of a project which does not involve complicated technical and management issues. Audit noted that the Project involved a significant project expenditure of \$3,522.1 million as of October 2021. While Contracts A and B were substantially completed in December 2016, the post-completion review was not completed until May 2022 (i.e. about 5.4 years thereafter) (paras. 4.18 and 4.19).

Audit recommendations

14. **Audit recommendations are made in the respective sections of this Audit Report. Only the key ones are highlighted in this Executive Summary. Audit has recommended that the Director of Civil Engineering and Development should:**

Design of footbridge system under the Project

- (a) **in implementing site formation and infrastructure works projects in future:**
 - (i) **finalise the design of works before tendering of contracts with a view to avoiding significant design changes after award of contracts and claims from contractors arising therefrom (para. 2.26(a));**

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- (ii) where the details of some works could not be finalised under a time-critical project, critically consider the measures for addressing the matter with a view to mitigating the risks arising from significant design changes after contract award (para. 2.26(b)); and
- (iii) document the justifications for the adoption of contract arrangement (para. 2.26(c));

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- (b) in implementing works projects in future:
 - (i) remind CEDD contractors to take adequate protective measures for working on slopes and provide appropriate training to enhance safety awareness of their staff (para. 3.14(a));
 - (ii) remind CEDD staff and consultants to:
 - follow the guidelines on temporary drainage provisions and precautionary measures against severe rainfall during site formation works and construction of reinforced fill structures (para. 3.14(b)(i)); and
 - closely monitor the defects rectification works of contractors and take necessary measures to ensure the timely completion of such works (para. 3.14(b)(iii)); and
 - (iii) remind CEDD consultants to properly document their assessments of contractors' claims (para. 3.23(c));
- (c) ensure that all the landscape softworks and establishment works under Contract A are completed as scheduled, and finalise the account of Contract A as soon as possible (para. 3.23(a) and (b)); and

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Management of Footbridges A to D and post-completion review

- (d) **remind CEDD staff and consultants to conduct post-completion reviews on major works contracts in a timely manner (para. 4.20).**

15. **Audit has recommended that:**

Management of Footbridges A to D and post-completion review

- (a) **the Director of Highways should, in collaboration with the Director of Electrical and Mechanical Services, continue to closely monitor the proper functioning of the lifts at Footbridges A to D and keep monitoring their performance to maintain reliable and efficient services (paras. 4.12 and 4.14(b)); and**
- (b) **the Commissioner for Transport should, in collaboration with the relevant government departments, keep under review the usage of Footbridges A to D (para. 4.14(a)).**

Response from the Government

16. The Director of Civil Engineering and Development, the Director of Highways, the Director of Electrical and Mechanical Services and the Commissioner for Transport agree with the audit recommendations.