

## **CHAPTER 4**

### **Civil Engineering Department**

#### **Penny's Bay Reclamation Stage I Project**

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# PENNY'S BAY RECLAMATION STAGE I PROJECT

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# PENNY'S BAY RECLAMATION STAGE I PROJECT

## Summary

1. In November 1999, the Government announced that an international theme park would be built at Penny's Bay, Lantau. To support the development of this project, the Government had to provide a site there on reclaimed land of about 280 hectares and associated infrastructure. In April 2000, the Civil Engineering Department (CED) awarded a reclamation contract (Contract A) to Contractor A in the sum of \$3,977 million. In August 2001, the Government entered into a supplementary agreement with Contractor A (paras. 1.1, 1.3 and 1.5).

## AUDIT FINDINGS

### Implementation and management of Contract A

2. ***Need to include an Environmental Permit (EP) in the tender documents.*** According to Works Bureau Technical Circular (WBTC) No. 18/98, government projects under the Environmental Impact Assessment Ordinance (EIAO) should follow the statutory Environmental Impact Assessment (EIA) process. There is a clear requirement that a copy of an EP should be included in the tender documents so as to notify tenderers of the EP's conditions. For Contract A, tenders had to be invited in January 2000. At that time the EP had not yet been issued. In the event, a *draft* EP was included in the tender documents. Audit noted that the draft EP did not include any specific restrictions on the dredging and filling operations. However, it was later discovered that the dredging and filling restrictions mandated by the environmental control conditions of the EP **issued by the Environmental Protection Department on 28 April 2000** were different from those of the tender documents. The Government had to enter into a supplemental agreement with Contractor A which included payment for buying back the estimated extension of time (EOT) resulting from the conditions of the EP. Audit considers that the CED should have complied with the requirement of WBTC No. 18/98 that an EP "**should be included in the tender documents**" so that the tenderers were made fully aware of the conditions of the EP (paras. 2.19, 2.21 and 2.22).

3. ***Need to critically assess contract provisions affecting contract completion dates.*** According to WBTC No. 26/98, Heads of works departments may approve the deletion of certain sub-clauses of Clause 50 of



the General Conditions of Contract (GCC Clause 50) for Civil Engineering Works in order not to allow the contractor to lodge a claim for EOT for inclement weather. At the tender preparation stage, the CED had first intended to do so. However, the CED subsequently changed its mind and retained GCC Clause 50 in the tender documents (i.e. the contractor could claim EOT due to inclement weather). In February 2001, in order to meet the target opening date of the theme park, the CED considered that: (a) it was better **not** to allow the contractor to claim EOT due to inclement weather; and (b) there was a need to advance the originally scheduled completion date of the works by 31 days. To achieve this objective, the Government had to enter into a supplementary agreement with Contractor A. Audit considers that, as a firm completion date of Contract A was of paramount importance, the need for the inclusion or deletion of the EOT provisions in the contract should have been critically assessed *at the tender preparation stage*, and not at the works implementation stage (para. 3.11).

4. ***Need to avoid design changes after the award of contract*** After the award of Contract A, changes to the design of a vertical seawall had to be made. These changes arose from the exclusion of a service road (which abutted on a section of the vertical seawall) from the area of land granted to the theme park operator, and the provision of a landing staircase to him. In March 2001, a variation order was issued to extend the length of the vertical seawall after it had been discovered that the usable berthing length of this seawall was too short. In April 2001, another variation order was issued for the construction of a landing staircase. The Government had to make payment to Contractor A for buying back the estimated EOT arising from the variation orders issued. Audit considers that for a time-critical project, design changes which would delay the completion of the works should be avoided (paras. 4.7, 4.8, 4.13 and 4.14).

## AUDIT RECOMMENDATIONS

### General recommendation

5. In future, project proponents in consultation with the relevant works departments should ensure that sufficient time is allowed for the completion of the EIA process before the issuing of tender documents (para. 2.26).

### Specific recommendations

6. The Director of Civil Engineering should:

- (a) for government projects which require the carrying out of environmental impact assessment under the EIAO, ensure compliance with the procedures in Environment, Transport and Works Bureau Technical Circular (Works) No. 13/2003 that an EP should be included in the tender documents (para. 2.25(a));
- (b) where the requirement in Environment, Transport and Works Bureau Technical Circular (Works) No. 13/2003 mentioned in inset (a) above cannot be complied with, take action to critically review the results and assess the implications of the EIA study as soon as it is available, and immediately inform all tenderers of the findings of the EIA study. This would enable the tenderers to take the EIA findings into account before submitting their bids (para. 2.25(b));
- (c) for time-critical projects, critically assess the time required for the completion of the works prior to the invitation of tenders so as to ensure that reasonably sufficient time is allowed for the completion of the works (para. 3.12(a)(i));
- (d) for time-critical projects, critically assess the implications and potential cost of including or deleting those contract provisions (such as provisions for granting extension of time for inclement weather) which could adversely affect the completion date of the works as stated in the contract documents so as to avoid the need for negotiating a supplementary agreement with the contractor (para. 3.12(a)(ii)); and
- (e) obtain the users' explicit agreement to essential design requirements prior to the letting of contracts so as to avoid delays and contractual claims arising from changes in users' requirements (para. 4.15(b)).

### **Response from the Administration**

7. The Administration generally agrees with Audit's observations and recommendations.



## **PART 1: INTRODUCTION**

1.1 On 2 November 1999, the Government announced that an international theme park would be built at Penny's Bay, Lantau. To support the development of the theme park, the Government had to provide:

- (a) a site on reclaimed land, in two phases, with a total area of about 280 hectares;
- (b) associated infrastructure; and
- (c) government, institution and community facilities.

Phase I of the theme park is scheduled for opening in 2005.

1.2 In December 1999, the Finance Committee of the Legislative Council approved the recommendation of the Public Works Subcommittee (PWSC) to upgrade part of a public works programme project to Category A (Note 1) at an estimated cost of \$6,924 million in money-of-the-day prices (Note 2) for the formation of 200 hectares of land, and the design of associated infrastructure and facilities for the Phase I works. The PWSC was informed that:

- (a) according to the agreed implementation programme for the theme park project, the Government was required to invite tenders in January 2000 and to award the reclamation contract by end of April 2000; and
- (b) failure to achieve the above milestone dates would put the timetable of the theme park project at risk and lead to deferment of the economic benefits that would be derived from the operation of the theme park.

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**Note 1:** *Public works projects are classified into several categories under the public works programme. Category A projects are projects which are ready in all aspects for tenders to be invited and for construction works to proceed, and which have approved project estimates.*

**Note 2:** *The money-of-the-day prices show the estimated cost of the project after allowing for forecast increases or decreases in construction prices during the period of construction.*



## Contract for reclamation works at Penny's Bay

1.3 The Civil Engineering Department (CED), assisted by an engineering consultant (hereinafter referred to as Consultant A), was responsible for undertaking the site formation works at Penny's Bay. On 29 April 2000, the CED awarded a re-measurement contract with provision for price fluctuation adjustment (hereinafter referred to as Contract A) to Contractor A in the sum of \$3,977 million. The scope of Contract A included the reclamation of approximately 200 hectares of land, and the construction of approximately 1,800 metres of permanent seawall and 1,200 metres of temporary seawall. Contract A was the first works contract for the theme park project. Consultant A was the Engineer for Contract A (hereinafter referred to as Engineer A). On 8 May 2000, Contractor A commenced the reclamation works. The works were originally scheduled for completion on 7 January 2003.

1.4 In June 2000, shortly after the commencement of the works, Contractor A submitted a claim for extension of time (EOT) and additional cost due to the conditions stated in an Environmental Permit (EP — see para. 2.2 for details). In March 2001, the CED considered that there was a need to buy back the estimated EOT arising from the conditions of the EP and variations of the works, to delete the EOT provision for inclement weather, and to repackage the works in order to secure a firm completion date for the reclamation works. **To meet the Government's target opening date of the theme park, the CED also considered that a firm completion date of Contract A would be needed to enable the timely handover of the site for subsequent infrastructure works.**

1.5 In August 2001, the Secretary for the Treasury (Note 3) gave approval to the CED to enter into a supplementary agreement with Contractor A to cover matters including the following:

- (a) the buying back of the time effects (i.e. estimated EOT) arising from the conditions of the EP;
- (b) the deletion of the EOT provision for inclement weather from Contract A;

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**Note 3:** *With the introduction of the accountability system for principal officials in July 2002, the responsibility of the Secretary for the Treasury is taken up by the Secretary for Financial Services and the Treasury. With effect from 23 October 2002, the approving authority is the Permanent Secretary for Financial Services and the Treasury (Treasury).*

- (c) the advancement of the completion of the works by 31 days, i.e. from the originally scheduled contract completion date of 7 January 2003 to 7 December 2002; and
- (d) the buying back of the time effects (i.e. estimated EOT) arising from the variation orders issued to Contractor A, such as those for the design changes of a vertical seawall.

In mid-August 2001, the Government and Contractor A executed the supplementary agreement in the sum of \$271 million.

1.6 As the CED had taken action to remove the uncertainty of the completion date of Contract A, the reclamation works were substantially completed on 7 December 2002.

### **Audit review**

1.7 Audit has recently carried out a review on the implementation of Contract A and examined the circumstances leading to the supplementary agreement. The review focused on the following areas:

- (a) the circumstances leading to the environmental control conditions in Contract A being different from those of the EP (see PART 2);
- (b) the justifications for the deletion of the contract provision for EOT due to inclement weather and for the advancement of the scheduled contract completion date by 31 days (see PART 3); and
- (c) the design changes of a seawall after the award of Contract A (see PART 4).

1.8 The audit has revealed that there are lessons to be learnt and there is scope for improvement in contract administration and project implementation. Audit has made a number of recommendations to address the issues (see PART 2 to PART 4).

## **PART 2: CONDITIONS OF THE ENVIRONMENTAL PERMIT**

2.1 This PART examines the circumstances leading to the environmental control conditions in Contract A being different from those of the EP for the reclamation works. Contractor A claimed that the EP conditions prevented him from achieving the output as envisaged at the time of tendering. As a result, the Government had to pay a sum to Contractor A for accelerating the reclamation works.

### **Environmental Impact Assessment Process**

2.2 In the 1980s, the Government started to carry out Environmental Impact Assessment (EIA) on its projects to ensure that it would consider the environmental factors during the project planning stage. Such environmental assessments expanded through the 1990s. The Environmental Impact Assessment Ordinance (EIAO — Cap. 499) came into operation in April 1998. The purpose of the EIAO is to avoid, minimise and control the adverse impact on the environment of designated projects through the statutory EIA process (Note 4) and the issuing of EPs. Designated projects are projects that may have an adverse impact on the environment as specified under Schedule 2 or Schedule 3 (Note 5) of the EIAO. The designated projects specified under Schedule 2 (unless exempted) must follow the statutory EIA process and require EPs for their construction and operation or decommissioning. Before an EP for a Schedule 2 designated project can be obtained, a person planning the project is required to apply for an EIA study brief, proceed with the EIA study and then seek approval of the EIA report, unless approval to apply directly for an EP is granted. The reclamation works of Contract A was a designated project specified under Schedule 2 of the EIAO.

2.3 The Director of Environmental Protection enforces the provisions of the EIAO. Under the EIAO, the Advisory Council on Environment (Note 6) and the public may comment, within specified time limits:

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**Note 4:** *The statutory EIA process, which is a structured and systematic approach to the assessment and control of possible environmental impact arising from a project, should be applied at the early project planning stage.*

**Note 5:** *The designated projects specified under Schedule 3 of the EIAO require approved EIA reports but do not require EPs.*

**Note 6:** *The Advisory Council on Environment is the Government's principal advisory body on matters relating to pollution control, environmental protection and nature conservation.*

- (a) on the project profile before the Director of Environmental Protection issues an EIA study brief; and
- (b) on an EIA report (which the Director considers suitable for public inspection) before the Director approves it.

2.4 After taking into consideration the comments from the Advisory Council on Environment and the public, the Director of Environmental Protection is required, within specified time limits:

- (a) to issue the EIA study brief;
- (b) to decide whether the EIA report should be approved; and
- (c) to issue the EP.

During the EIA process, the Director may request further information from the project proponent. Under the EIAO, there is no time limit imposed on the project proponent for the supply of further information. For a designated project, excluding the time required for the completion of the EIA study and that for the supply of further information, the aggregate of the relevant time limits permitted under the EIAO (i.e. from the date of application for an EIA study brief to the date of issue of the EP) is typically 225 days (see Appendix A for the flow chart showing the EIA process and the approval procedures).

2.5 For verification of the effectiveness of mitigation measures, the EP issued under the EIAO may impose conditions for monitoring the environmental impact of the designated project. The EP may also impose conditions on the scope of an environmental audit for evaluating the environmental performance of the project. In determining these conditions, the Director of Environmental Protection has to take into consideration the findings and recommendations of the relevant approved EIA report.

## **EIA procedures for government projects**

2.6 Works Bureau Technical Circular (WBTC) No. 18/98 of October 1998 (Note 7) set out the procedures for assessment of the environmental impact of government projects under the EIAO. According to WBTC No. 18/98:

- (a) all government projects or proposals under the EIAO should follow the statutory procedures when seeking the approval of EIA reports and/or the issuance of the EPs;
- (b) no designated projects listed in Schedule 2 of the EIAO should be constructed, operated or decommissioned without the EPs issued under the EIAO, or contrary to the EP conditions;
- (c) **EIA studies should be carried out and approved *before* the construction works of the project are upgraded to Category A under the public works programme;**
- (d) **to ensure that the contractor has full knowledge of the EP conditions, a copy of the EP issued to the proponent department “should be included in the tender documents” so as to notify the tenderers of the details of the EP and any conditions imposed therein. The EP then becomes part of the contract when it is awarded; and**
- (e) as part of the standard EP conditions, the proponent department is required to give a copy of the EP to the contractor, to display the EP at the site and to notify the contractor of any subsequent changes to the EP.

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**Note 7:** *WBTC No. 18/98 has been replaced by Environment, Transport and Works Bureau Technical Circular (Works) No. 13/2003 of September 2003. The requirements of WBTC No. 18/98 as stated in para. 2.6(a) to 2.6(e) of this Report and those of the new Technical Circular (Works) No. 13/2003 are the same.*

## Environmental control conditions of Contract A

2.7 In December 1999, the theme park project was upgraded to Category A of the public works programme. Concerning the environmental implications of the project, the Tourism Commission (Note 8) and the CED informed the PWSC that:

- (a) the environmental review carried out in July 1999 (Note 9) concluded that, as the extent of reclamation works for the theme park at Penny's Bay was *less* than that previously proposed for a container port development, the environmental impact was also anticipated to be *less* than that identified in the previously endorsed EIA reports for the container port development project (Note 10);
- (b) **for the development of the theme park (Note 11), the Government was carrying out a further EIA study to reconfirm previous (environmental impact) findings and to address any alterations arising from the change in land use; and**
- (c) **EPs had to be obtained from the Environmental Protection Department (EPD) for all designated projects before the commencement of the construction works.**

2.8 In December 1999, the CED requested Consultant A to review the specifications in the tender documents, in order to eliminate the risk that the tenderers' proposed construction method and plant could not comply with the environmental control conditions. In the same month, Consultant A sought confirmation from the CED on the approach to be adopted for preparing the tender documents of Contract A.

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**Note 8:** *The Tourism Commission was the lead department in the negotiations with the relevant parties in the implementation of the theme park project. The Tourism Commission was also responsible for co-ordinating cross-departmental issues arising from the implementation of the theme park project.*

**Note 9:** *In 1999, the CED commissioned Consultant A to conduct an environmental review on the impact of the reclamation works at Penny's Bay. In September 1999, the review report was presented to the Advisory Council on Environment.*

**Note 10:** *In 1995, the Government completed three EIA studies which showed that the environmental impact of the works could be controlled to meet the relevant environmental criteria. The EIA studies examined all environmental issues in relation to the reclamation works and the associated infrastructure for the container port development. This development was later deferred.*

**Note 11:** *The development of the theme park was a Schedule 2 designated project under the EIAO, which required an EIA study.*

As the EIA study on the theme park was still in progress and the EP had not yet been issued, Consultant A opined that the following options were available for specifying the environmental monitoring requirements in the tender documents:

- (a) leaving the environmental monitoring requirements *blank* and issuing a tender addendum later as soon as the EP conditions were available; and
- (b) approaching the EPD for *draft* EP conditions so that tenderers could be aware of the scope of the environmental monitoring requirements and restrictions.

2.9 In reply, in December 1999, the CED said that it did *not* agree to have a blank section for environmental monitoring requirements in the tender documents because:

- (a) the environmental monitoring requirements and restrictions would affect the tenderers' plant utilisation arrangement; and
- (b) without any information, the tenderers would not be able to price the Bills of Quantities.

2.10 In the same reply, the CED noted that Consultant A had already completed the environmental review for the reclamation works and had used the previous EIA reports as a basis for comparison. Moreover, the CED also noted Consultant A's conclusion that the reclamation activities would not induce more severe environmental impact than that previously predicted, and that the previously recommended mitigation measures were adequate. Therefore, the CED informed Consultant A that:

- (a) the EP conditions would be drafted with reference to the previous environmental monitoring and audit manuals for the container port development studies (see Note 10 to para. 2.7(a));
- (b) the recommendations of the previous EIA studies should be included in the tender documents; and
- (c) **addenda to the tender documents should be issued only if the EIA study on the theme park introduced substantial changes after the commencement of the tender process.**

2.11 **The tender documents of Contract A were handed out by the CED on 29 January 2000 when inviting submission of bids.** The tender documents only included a draft EP indicating the general requirements of the environmental monitoring and audit with reference to the 1995 container port development EIA studies. The tender documents specified that:

- (a) “the Contractor shall conform in all respects with the conditions of the Environmental Permit, a copy of which is reproduced in draft in Appendix ... in the form of an environmental monitoring and audit manual”;
- (b) the methods of working should be designed and implemented to minimise the adverse impact of the works and the marine borrow areas on the water quality; and
- (c) **“methods of working shall limit the daily volume of combined dredging and filling rate within the site to 230,000 m<sup>3</sup> ...”.**

However, the tender documents did not specify the total loss rate of fine sediment to suspension due to the dredging and filling works. This, coupled with restriction on the combined daily dredging and filling rate, had led to Contractor A’s claim (see paras. 2.15 and 2.17).

2.12 In February 2000, during the tendering period, tenderers asked Consultant A when the EP for the theme park project would be issued and what changes to the environmental monitoring and audit requirements might be expected from the EP (not yet issued at that time). The tenderers were informed that:

- (a) the EP would be issued before the award of the contract; and
- (b) **subject to the EIA approval procedures, “minimal changes were expected to be made” to the environmental monitoring and audit requirements included in the tender documents.**

2.13 On 26 February 2000, Tender Addendum No. 3 was issued to the tenderers incorporating Consultant A’s thinking (only up to that date) concerning environmental matters under the draft EIA report. On 29 February 2000, the EIA study for the theme park (including the reclamation works) was completed. On 3 March 2000, after reviewing the second draft environmental monitoring and audit manual of the theme



park EIA report, Tender Addendum No. 5 was issued to the tenderers, formally informing them of the changes to the environmental monitoring and audit requirements. **The tender closing date was 10 March 2000.**

### **Environmental control conditions of the EP issued on 28 April 2000**

2.14 In March 2000, the EPD received the theme park EIA study report for review. The CED also made the study report available for public inspection. On 26 April 2000, the Advisory Council on Environment endorsed the EIA report for the theme park. **On 28 April 2000, the EPD approved the EIA report and issued the EP to the CED for the reclamation works.** On the same day, the EP became information available to the public via the EPD's website (Note 12).

2.15 The EP included conditions which had the objectives of minimising the impact of the reclamation works on the water quality. These objectives were to be achieved by imposing restrictions on the dredging and filling operations, as follows:

- (a) weekly total maximum dredging rates by the trailing suction hopper dredgers (TSHDs). Photograph 1 below shows TSHDs carrying out the filling works;
- (b) weekly total maximum dredging rates by the dredgers with an 8.5-cubic-metre grab. Photograph 2 below shows a grab dredger carrying out the dredging works;
- (c) weekly total maximum filling rates by the TSHDs; and
- (d) a total loss rate of fine sediment to suspension due to the dredging and filling works.

**According to the EPD, these restrictions (as stipulated in the EP) were based on those in the EIA report previously submitted by the CED on 29 February 2000.** An extract of the environmental control conditions proposed in the EIA study report is at Appendix B. An extract of the conditions of the EP is at Appendix C.

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**Note 12:** *Excluding the time required for the completion of the EIA study, the EIA process for Contract A took 96 days to complete (see Appendix A for details). This compared favourably with the time limit of 225 days (see para. 2.4).*

**Photograph 1**

**Trailing suction hopper dredgers carrying out filling works**



*Source: CED's records*

**Photograph 2**

**A grab dredger carrying out dredging works**



*Source: CED's records*

## **Delay and additional cost arising from conditions of the EP**

2.16 The reclamation contract had to be awarded by end of April 2000 in accordance with the implementation programme of the theme park project (see para. 1.2(a)). On receipt of the EP from the EPD on 28 April 2000, the CED decided to award Contract A. On 29 April 2000, the CED issued the Letter of Acceptance to Contractor A **without the EP**. Contractor A commenced the works on 8 May 2000. A copy of the EP was provided to Contractor A on 15 May 2000. (This was the date of actual signing of Contract A.)

2.17 In June 2000, about one month after the commencement of the works, Contractor A lodged a claim. He informed Engineer A that there would be delay and additional cost arising from the conditions of the EP, which were different from the specifications included in the contract documents. Contractor A requested an immediate revision and uplifting of the additional conditions imposed by the EP.

2.18 In September 2000, Engineer A completed his assessment of the validity of Contractor A's claim. In October 2000, after taking into account the views of the Legal Advisory Division (LAD) of the Works Bureau (Note 13), the CED considered that there were significant differences between the conditions of the EP (issued by the EPD on 28 April 2000) and the specifications in the contract documents (see Appendix D for details). In February 2001, Contractor A submitted detailed substantiation of his claim to the CED.

2.19 In April 2001, after assessing the delay to Contract A due to the environmental control restrictions of the EP, the CED started negotiations with Contractor A for a supplementary agreement to resolve the claim, and to resolve the other issues mentioned in PART 3 and PART 4. **In August 2001, the Government entered into a supplementary agreement in the sum of \$271 million with Contractor A to resolve a number of matters (see para. 1.5), which included payment for the settlement of the claim to buy back the time effects (i.e. estimated EOT) resulting from the conditions of the EP (Note 14).**

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**Note 13:** *With the implementation of the accountability system for principal officials in July 2002, the responsibility of the Works Bureau is taken up by the Environment, Transport and Works Bureau. The post title of the Secretary for Works is changed to the Secretary for the Environment, Transport and Works.*

**Note 14:** *In the course of this audit, the Director of Civil Engineering raised his concerns over the disclosure of information concerning the details of the claim settlement with Contractor A in the Director of Audit's Report. As the supplementary agreement was a global settlement of claims and other matters, after seeking legal advice from the Department of Justice, Audit has not included CED's internal estimates in the Report.*

## Actual dredging and filling rates

2.20 For the reclamation works of Contract A, about 42 million cubic metres of unwanted mud were dredged from the site and about 70 million cubic metres of sandfill were placed on it. In order to complete the works by the advanced completion date of 7 December 2002 (see PART 3), the CED submitted to the EPD a number of applications which, subject to the EPD's approval, would enable Contractor A to increase the total maximum dredging rates and the total maximum filling rates. In doing so, Contractor A could use different combinations of plant type to achieve the increased production rate. Contractor A also installed silt curtains around the perimeter of the site and formed above-water bunds as additional measures to mitigate environmental damage. The EPD approved such applications as long as it could be demonstrated that the total loss rate of fine sediment did not exceed the limit allowed in the EP (i.e. not greater than 25.3 kilograms per second — see Appendix C). Contractor A completed the dredging works in March 2002, and the filling works in September 2002.

## Audit observations

2.21 According to WBTC No. 18/98, government projects under the EIAO should follow the statutory EIA process and a copy of the EP should be included in the tender documents so as to notify the tenderers of the conditions of the EP. For Contract A, tenders had to be invited in January 2000 (see para. 1.2(a)) but at that time the EP had *not* been issued. In the event, a *draft* EP in the form of an environmental monitoring and audit manual was included in the tender documents. **Audit noted that this manual did not include any specific restrictions on the dredging and filling operations (such as those in Appendix C on the total maximum dredging rates, total maximum filling rates, and total loss rate of fine sediment to suspension).** Despite the issuing of the two tender addenda concerning environmental matters, the restrictions mandated by the environmental control conditions of the EP turned out to be significantly different from those of the contract documents. As a result, the Government had to pay a sum to Contractor A to settle his claim.

2.22 Audit considers that:

- (a) the CED should have followed the requirement of WBTC No. 18/98 that the EP should be included in the tender documents so that the tenderers were fully aware of the conditions of the EP. **This is the preferred course of action; and**

- (b) where the aforesaid requirement of WBTC No. 18/98 could not be complied with, the CED should have taken action to critically review the EIA study as soon as its results were available. The CED should then issue tender addenda covering the total maximum dredging rates, total maximum filling rates, and total loss rate to the tenderers for their consideration before the tender closing date.

2.23 In response to Audit's enquiry on the setting of the implementation programme, in August and September 2003, the Commissioner for Tourism said that:

- (a) in the case of the EIA study (which was carried out between December 1999 and February 2000) for the theme park project, although it proceeded in tandem with the tendering process, the arrangement was adopted having regard to the findings of the EIA studies previously conducted (i.e. the 1999 environmental review and the three EIA studies completed in 1995 — see para. 2.7(a)); and
- (b) for the theme park project, the implementation programme had allowed sufficient time for completion of the EIA process for the project although it proceeded in tandem with the tendering process. If tendering was not allowed to proceed in parallel with the EIA process, the construction works for the theme park project could only have started correspondingly later. This would have an impact on the opening date of the theme park.

2.24 Notwithstanding these remarks of the Commissioner for Tourism, Audit considers that, in setting milestone dates in the implementation programme of major capital works projects, sufficient time must be allowed for the completion of the EIA process prior to the invitation of tenders. A clear guideline had been set out in WBTC No. 18/98 (see para. 2.6). Had this guideline been followed, it would have helped the project proponent (the CED) to ensure that all the EP's environmental control conditions were *included in the tender documents* handed out on 29 January 2000.

### **Audit recommendations**

2.25 **Audit has recommended that, for government projects which require the carrying out of environmental impact assessment under the EIAO, the Director of Civil Engineering should:**

- (a) **ensure compliance with the procedures in Environment, Transport and Works Bureau Technical Circular (Works) No. 13/2003 (see Note 7 to para. 2.6), especially the requirement that “an EP should be included in the tender documents”; and**
  
- (b) **where the requirement in Environment, Transport and Works Bureau Technical Circular (Works) No. 13/2003 mentioned in paragraph 2.25(a) cannot be complied with:**
  - (i) **take action to critically review the results and assess the implications of the EIA study (including the latest environmental control conditions) as soon as it is available; and**
  
  - (ii) **thence, if the tender documents have already been handed out, take action to immediately inform all tenderers of the findings of the EIA study, so that they could take the EIA findings into account *before* submitting their bids.**

2.26 **Audit has *recommended* that in future, project proponents in consultation with the relevant works departments should ensure that sufficient time is allowed for the completion of the EIA process *before* the issuing of the tender documents.**

2.27 **Audit has *recommended* that the Secretary for the Environment, Transport and Works should notify all works departments of the audit recommendations in paragraphs 2.25 and 2.26.**

### **Response from the Administration**

2.28 **The Director of Civil Engineering welcomes the audit recommendations as mentioned in paragraph 2.25 for general application in future CED projects. He has also said that:**

- (a) **in the specific case of the theme park project, the implementation programme had allowed sufficient time for completion of the EIA process for the project, although it proceeded in tandem with the tendering process;**

- (b) if tendering was not allowed to proceed in parallel with the EIA process, the construction works for the theme park project could only have started correspondingly later. This may have an impact on the opening date of the theme park; and
- (c) according to his understanding from the Director of Environmental Protection, the theme park project fully complied with the statutory EIA procedures stipulated in the EIAO.

2.29 **The Commissioner for Tourism accepts the audit recommendation as mentioned in paragraph 2.26 for general application.** She has also said that based on her understanding from the Director of Environmental Protection, the theme park project fully complied with the statutory EIA procedures stipulated in the EIAO.

2.30 The **Secretary for the Environment, Transport and Works** welcomes the audit recommendation as mentioned in paragraph 2.27 and would notify all works departments to take on board the relevant audit recommendations for general application in future public works projects.

## **PART 3: ACCELERATION OF WORKS UNDER CONTRACT A**

3.1 The works under Contract A had to be accelerated because of the deletion of the contract provision for EOT due to inclement weather and the advancement of the scheduled contract completion date by 31 days. This PART examines the justifications for doing so. The audit has revealed that there are lessons to be learnt in the preparation of the contract documents for time-critical projects.

### **Standard provision for EOT for inclement weather in government works contracts**

3.2 For government construction works, the engineer for the contract can grant EOT for delays not resulting from the fault of the contractor. According to Clause 50 (Note 15) of the standard General Conditions of Contract for Civil Engineering Works, 1999 Edition (hereinafter referred to as the GCC), contractors are normally entitled to claim EOT for the completion of the works to offset the adverse effect of inclement weather encountered during the construction period. However, circumstances may arise where it is desirable for a works department to fix a firm contract completion date without giving the contractors the right to claim EOT for inclement weather (Note 16). According to WBTC No. 26/98 on “Deletion of extension of time for inclement weather” of December 1998 (which is still in force):

- (a) under exceptional circumstances, Heads of works departments may approve the deletion of the EOT provision for inclement weather. To do so, the standard Special Conditions of Contract (SCC) for the deletion of the contractor’s right to EOT for inclement weather should be used in conjunction with the GCC; and
- (b) details of the circumstances must be submitted to the Secretary for the Environment, Transport and Works for endorsement and tenders must not be invited until this endorsement has been received.

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**Note 15:** *Clause 50 of the GCC has outlined various circumstances under which the engineer can grant the contractor EOT, including that for inclement weather. For simplicity, where “GCC Clause 50” is mentioned in this Report, Audit specifically refers only to those sub-clauses relating to inclement weather.*

**Note 16:** *For example, under the Airport Core Programme, the EOT provision for inclement weather was deleted from the works contracts for some of the infrastructure projects.*



### **CED's original decision on EOT provision for inclement weather at the tender preparation stage**

3.3 In November 1999, during the preparation of the tender documents (Note 17) of Contract A, the CED requested Consultant A to consider the deletion of the EOT provision for inclement weather from the GCC in accordance with WBTC No. 26/98. In December 1999, Consultant A proposed to implement the CED's request.

3.4 According to a Legislative Council Briefing Paper on "Liquidated damages for construction delays" in connection with the theme park project prepared by the Tourism Commission in November 1999, for EOT granted by the engineer to government works contractor in certain circumstances, including those for inclement weather, the Government would (in turn) be entitled to corresponding EOT and hence adjustment of all subsequent milestone dates – without penalty – for the implementation of the theme park project. In January 2000, while commenting on the draft tender documents of Contract A, the LAD pointed out that the EOT events in the Government's agreement with the theme park operator were *not* identical with the EOT events in the draft tender documents. The LAD asked the CED to consider whether it was necessary to match the two sets of EOT events. After a meeting held on 21 January 2000 attended by the CED, Consultant A and the LAD to discuss the draft tender documents, the CED decided to *retain* GCC Clause 50 in the tender documents, i.e. the contract would give the contractor the right to claim EOT for inclement weather.

3.5 On 29 January 2000, the CED invited tenders for Contract A. On 29 April 2000, the CED awarded the contract to Contractor A. The works were scheduled for completion on 7 January 2003.

### **Uncertainty about the completion date of Contract A**

3.6 In May 2000, Contractor A commenced the reclamation works. In December 2000, after reviewing the government works programme, the CED informed the Steering Committee on implementation of the theme park project (hereinafter referred to as the Steering Committee — Note 18) that certain factors could affect the achievement of the target opening date of the theme park in 2005, as follows:

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**Note 17:** *The tender documents of Contract A were based on the standard GCC for Civil Engineering Works, 1999 Edition. Upon acceptance of the tender by the Government, the tender documents became Contract A's contract documents.*

**Note 18:** *In February 2000, a Steering Committee chaired by the Financial Secretary was set up to oversee the development of the theme park project. Members of the Steering Committee included representatives of relevant bureaux, the Commissioner for Tourism and the Director of Civil Engineering.*

- (a) *if EOT due to inclement weather was allowed, there would be uncertainty in the actual completion date of the works;*
- (b) no float time was allowed in the government works programme; and
- (c) there was delay in the completion of Contract A arising from the conditions of the EP (see PART 2).

**The CED informed the Steering Committee that the most critical factor was item (a), i.e. allowing EOT for inclement weather.**

3.7 In January 2001, the Steering Committee considered that in implementing the government works programme, impossible goals should not be set. The Steering Committee requested the CED to prepare a timetable with all possible delays included, and to propose necessary mitigation measures having regard to the target opening date in 2005.

3.8 In February 2001, the CED informed the Steering Committee that, to enable the opening of the theme park in 2005, the following mitigation measures should be adopted:

- (a) deletion of GCC Clause 50 from Contract A (Note 19); and
- (b) securing from Contractor A firm completion dates for various stages of the reclamation works, and resolution of Contractor A's claim concerning the conditions of the EP.

3.9 The Steering Committee noted that it was entirely up to the Government to decide whether or not to implement the CED's proposed mitigation measures. In March 2001, the Commissioner for Tourism informed the Steering Committee that, for every three-month delay in the opening of the theme park, the estimated economic loss to Hong Kong would be \$1.68 billion. The Steering Committee considered that it was

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**Note 19:** *In order to have better control over the completion date of the government works, the CED also deleted GCC Clause 50 from the tender documents for the subsequent infrastructure contract of the theme park project.*

apparently more sensible and cost-efficient for the Government to enter into a supplementary agreement with Contractor A to implement the CED's proposed mitigation measures.

3.10 In August 2001, the Government entered into a supplementary agreement (see para. 1.5) with Contractor A, which provided for:

- (a) deletion of the EOT provision for inclement weather from Contract A; and
- (b) advancement of the completion of the works from the originally scheduled completion date of 7 January 2003 to 7 December 2002.

### **Audit observations**

3.11 A firm completion date of Contract A was necessary for the timely handover of the site to the theme park operator in order that the theme park would be opened in 2005. In the event, the Government was able to complete the reclamation works on 7 December 2002 (i.e. one month in advance of the originally scheduled completion date of 7 January 2003) by entering into a supplementary agreement with Contractor A. Audit considers that there is room for improvement in the management of Contract A in the following areas:

- (a) according to WBTC No. 26/98, Heads of works departments may under exceptional circumstances approve the deletion of the EOT provision for inclement weather (see para. 3.2(a)). At the tender preparation stage:
  - (i) the CED had first intended to *delete* GCC Clause 50 from the tender documents; and
  - (ii) however, the CED soon decided to *retain* GCC Clause 50.

As it transpired, in February 2001, in order to meet the target opening date of the theme park, the CED entered into a supplementary agreement by which GCC Clause 50 was *deleted* from Contract A. **Audit considers that as a firm completion date of Contract A was of paramount importance,**

**the need for the EOT provision for inclement weather in the contract should have been critically assessed at the tender preparation stage; and**

- (b) **it is almost invariably costly to ask a contractor to accelerate the works after the award of the contract.** The supplementary agreement included a payment to Contractor A for advancing the completion of Contract A by 31 days to 7 December 2002. In a way, the Government has bought back an additional float time of 31 days for the government works programme of the theme park project. **Audit considers that:**
- (i) **in setting the duration of a contract in a time-critical project, the time required for the completion of the works should be critically assessed before the invitation of tenders, having regard to the key milestone dates in the project master plan; and**
  - (ii) **for a time-critical project involving multiple works contracts, it would be prudent to allow sufficient float time between the works contracts as a buffer for contingencies (such as inclement weather and contract variations).**

### **Audit recommendations**

3.12 **Audit has recommended that the Director of Civil Engineering should:**

- (a) **for time-critical projects:**
- (i) **critically assess the time required for the completion of the works prior to the invitation of tenders so as to ensure that reasonably sufficient time is allowed for the completion of the works; and**
  - (ii) **critically assess the implications and potential cost of including or deleting those contract provisions (such as provisions for granting EOT for inclement weather) which could adversely affect the completion date of the works as stated in the contract documents so as to avoid the need for negotiating a supplementary agreement with the contractor; and**

- (b) **for a time-critical project with multiple works contracts, ensure that sufficient float time is allowed between the works contracts so as to minimise the risk of the knock-on effect of delay in one contract on other contracts.**

3.13 **Audit has recommended that the Secretary for the Environment, Transport and Works should notify all works departments of the audit recommendations in paragraph 3.12.**

### **Response from the Administration**

3.14 **The Director of Civil Engineering welcomes the audit recommendations as mentioned in paragraph 3.12 for application in future CED projects.** He has also said that:

- (a) in the specific case of the Penny's Bay Reclamation Stage I Project, Contract A had allowed sufficient time for the completion of the reclamation works by January 2003 as originally scheduled, subject to EOT for inclement weather;
- (b) the supplementary agreement was entered into for good reasons, i.e. among other things, to secure firm completion dates for various stages of the reclamation works and to afford some float time in the government works programme; and
- (c) deleting inclement weather as a ground for EOT has a price. If EOT provision for inclement weather had been deleted from the tender documents at the tender stage, the tender sum could have been higher. However, one may not be sure whether the value of Contract A would have been the same had this been done on day one, rather than about a year later in the supplementary agreement.

3.15 **The Secretary for the Environment, Transport and Works** welcomes the audit recommendation as mentioned in paragraph 3.13 and would notify all works departments to take on board the relevant audit recommendations for general application in future public works projects.

## **PART 4: DESIGN CHANGES OF SEAWALL AFTER AWARD OF CONTRACT A**

4.1 This PART examines the changes made to the design of a vertical seawall after the award of Contract A. The audit has revealed that there are lessons to be learnt concerning the design of key works before the award of the contract.

### **Design of seawalls**

4.2 In November 1999, the CED gave instructions to Consultant A to proceed with the detailed design of the reclamation works, including the design of the seawalls. The design was to be in accordance with the CED's Port Works Manual (1996). The key events were as follows:

- (a) based on discussions with the theme park operator, Consultant A carried out the detailed design of the seawalls;
- (b) in January 2000, Consultant A issued the drawings of the seawalls for tender purpose;
- (c) in February 2000, Consultant A sent the draft design calculations of the seawalls to the theme park operator for comments;
- (d) in March 2000, the CED discussed with the theme park operator his design requirement of the seawalls; and
- (e) in April 2000, Consultant A submitted the final design reports to the CED and advised that the reports had been scrutinised by the theme park operator. The CED considered that the final design was acceptable.

4.3 On 29 April 2000, the CED awarded the contract to Contractor A. The works included the construction of 1,800 metres of permanent seawall, of which a section of about 100 metres would be constructed as a vertical seawall at a designated area at the south-west corner of the reclaimed land. According to the CED, the vertical seawall would be used by the theme park operator as a service pier for loading and

unloading of materials and equipment. The usable berthing length of this vertical seawall was about 51 metres.

### **Extension of the vertical seawall**

4.4 The events leading to the changes in the design of the vertical seawall were as follows:

- (a) in July 2000, the Tourism Commission informed the theme park operator that a certain service road would be excluded from the area of land to be granted to him. In the same month, the Tourism Commission informed the CED that this service road would be delineated outside the theme park operator's lot boundary. In August 2000, the Tourism Commission informed the CED that the theme park operator's agreement had been obtained;
- (b) in September 2000, the Government entered into a private treaty grant (PTG) with the theme park operator (i.e. the grantee) for the theme park site at Penny's Bay. According to the PTG, "the grantee shall have no right of access to the sea from the lot" except in a designated area within the lot boundary at the south-west corner of the reclaimed land. As the service road abutted on a section of the vertical seawall, the exclusion of the service road from the PTG had the effect of reducing the usable berthing length of the vertical seawall, causing inconvenience to the theme park operator;
- (c) in late September 2000, after the finalisation of the PTG and in the course of reviewing the final concept plan of the service pier, the theme park operator raised concerns about the usable berthing length of the vertical seawall;
- (d) during the period from November to December 2000, the CED and Engineer A assessed the options, and considered that the vertical seawall should be extended to increase the usable berthing length to about 58 metres, which was the minimum berthing length of barges; and
- (e) in February 2001, it was agreed that the vertical seawall should be extended by 32.6 metres to the east.

4.5 In March 2001, a variation order was issued to Contractor A to extend the length of the vertical seawall. In addition to increasing the cost of the works, Engineer A estimated that the variation order would also have time effects on the completion of the works. **In the supplementary agreement signed in August 2001 (see para. 1.5), the Government agreed to pay a sum to Contractor A for buying back the time effects arising from this variation order.**

4.6 In June 2003, Audit asked the Tourism Commission about the rationale for delineating the service road outside the lot boundary of the theme park operator. In response, the Commissioner for Tourism said that:

- (a) during the design stage, the service road was included in the preliminary lot boundary based on the CED's input;
- (b) in April 2000, the CED informed the Tourism Commission that the theme park operator wished to include the service road within his lot boundary. (Note: had this been done, other users would require the theme park operator's consent for using this road.) There were discussions on whether the road should be a private or public road and whether the theme park operator should undertake its construction;
- (c) in July 2000, the theme park operator requested the Tourism Commission to exclude the service road from his lot boundary as the construction of the road would be funded by the Government as initially agreed. The Government then informed him that the road would be built as a public road; and
- (d) when the issue was discussed in July 2000, the Tourism Commission was *not* made aware of any impact of the exclusion of the service road on the berthing length of the vertical seawall. As such, the Tourism Commission had no reason to question this decision.

### **Audit observations**

4.7 When Contract A was awarded in April 2000, the service road was *within* the preliminary lot boundary of the area to be granted to the theme park operator. In July 2000, the Government and the theme park operator agreed that the service road



should be constructed by the Government and be *excluded* from the area of land to be granted to him. Such an arrangement was incorporated into the conditions of the PTG of September 2000. After it was discovered that this had the effect of reducing the usable berthing length of the vertical seawall, a variation order was issued. **It is evident that design changes made after the letting of the contract (on this occasion arising from the exclusion of the service road from the land grant) had cost and time implications.**

4.8 Audit noted that the Tourism Commission had informed the CED about the exclusion of the service road in July 2000 (i.e. before the finalisation of the PTG in September 2000). **In Audit's view, in order to enable the Tourism Commission to consider whether there were other more cost-effective arrangements, the CED should have taken prompt action to ascertain:**

- (a) **the implications of the exclusion of the service road on the berthing length of the vertical seawall; and**
- (b) **the time and cost implications of the change in design so as to meet the theme part operator's requirement.**

#### **Audit recommendations**

4.9 **Audit has recommended that:**

- (a) **the Commissioner for Tourism in consultation with the relevant works department (such as the Civil Engineering Department), should resolve issues relating to any condition of a land grant (prepared by the Director of Lands) which could have an effect on the works of a public works contract *before* the letting of the contract; and**
- (b) **the Director of Civil Engineering should, before a land grant is finalised, take prompt action to assess the implications of the conditions of the grant which could have an effect on the works of a public works contract.**

## **Response from the Administration**

4.10 **The Commissioner for Tourism accepts the audit recommendation as mentioned in paragraph 4.9(a) for general application in future.** She has also said that, in the present case, there were contractual provisions for separate timelines for the land grant conditions to be agreed and for Contract A to be let.

4.11 **The Director of Civil Engineering welcomes the audit recommendation as mentioned in paragraph 4.9(b) for general application in future CED projects.** He has also said that if Contract A was only allowed to be let until after the finalisation of the land grant conditions, the construction programme would have been affected. This might cause delay to the opening of the theme park, which could result in considerable economic loss.

## **Provision of landing staircase at the vertical seawall**

4.12 At the design stage of the reclamation works (i.e. between November 1999 and April 2000), the theme park operator did not raise any comment when a cat-ladder (see Photograph 3 below) was proposed (instead of a staircase) at the vertical seawall. In February 2001, after the commencement of the works, the theme park operator requested the CED to modify, at no cost to him, a section of the vertical seawall in order to provide a landing staircase to aid personnel access. In March 2001, the CED noted that the provision of recessed steps (Note 20) at the vertical seawall was indicated on a technical drawing (dated December 1999) agreed between the Government and the theme park operator. The CED informed the theme park operator that a landing staircase would be constructed under Contract A as part of the government works. Photograph 4 below shows the landing staircase as constructed at the vertical seawall.

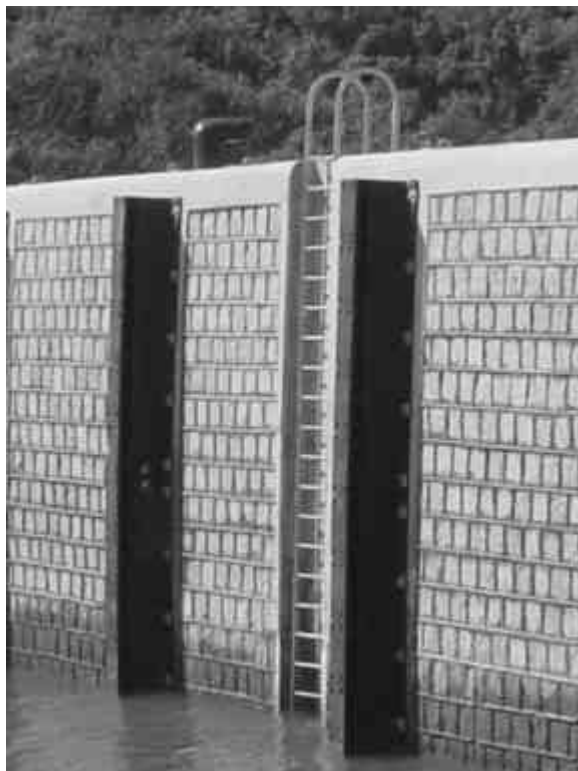
4.13 In April 2001, a variation order was issued to Contractor A for the construction of the landing staircase. In addition to increasing the cost of the works, Engineer A estimated that the variation order would have time effects on the completion of the works. **In the supplementary agreement signed in August 2001 (see para. 1.5), the Government agreed to pay a sum to Contractor A for buying back the time effects arising from this variation order.**

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**Note 20:** *According to the CED, the recessed steps, if provided, would have the effect of a landing staircase.*

**Photograph 3**

**The cat-ladder as constructed at the vertical seawall**



*Source: CED's records*

#### Photograph 4

#### The landing staircase as constructed at the vertical seawall



Source: CED's records

#### Audit observations

4.14 The Government had originally agreed to provide recessed steps at the vertical seawall as indicated on a drawing agreed with the theme park operator. At first, the theme park operator did not raise any comment when a cat-ladder was proposed, instead of a staircase. However, he subsequently requested the construction of a landing staircase. As the technical drawing of December 1999 did not indicate the specific type of recessed steps to be provided and the CED had not obtained the theme park operator's explicit agreement that a cat-ladder was acceptable, the CED acceded to the theme park operator's request for the landing staircase. Because of this variation in the works, the Government had to pay Contractor A a sum to buy back the time effects for the construction of the landing staircase. **Audit considers that for a time-critical project, design changes which would delay the completion of the works should be avoided.**

## **Audit recommendations**

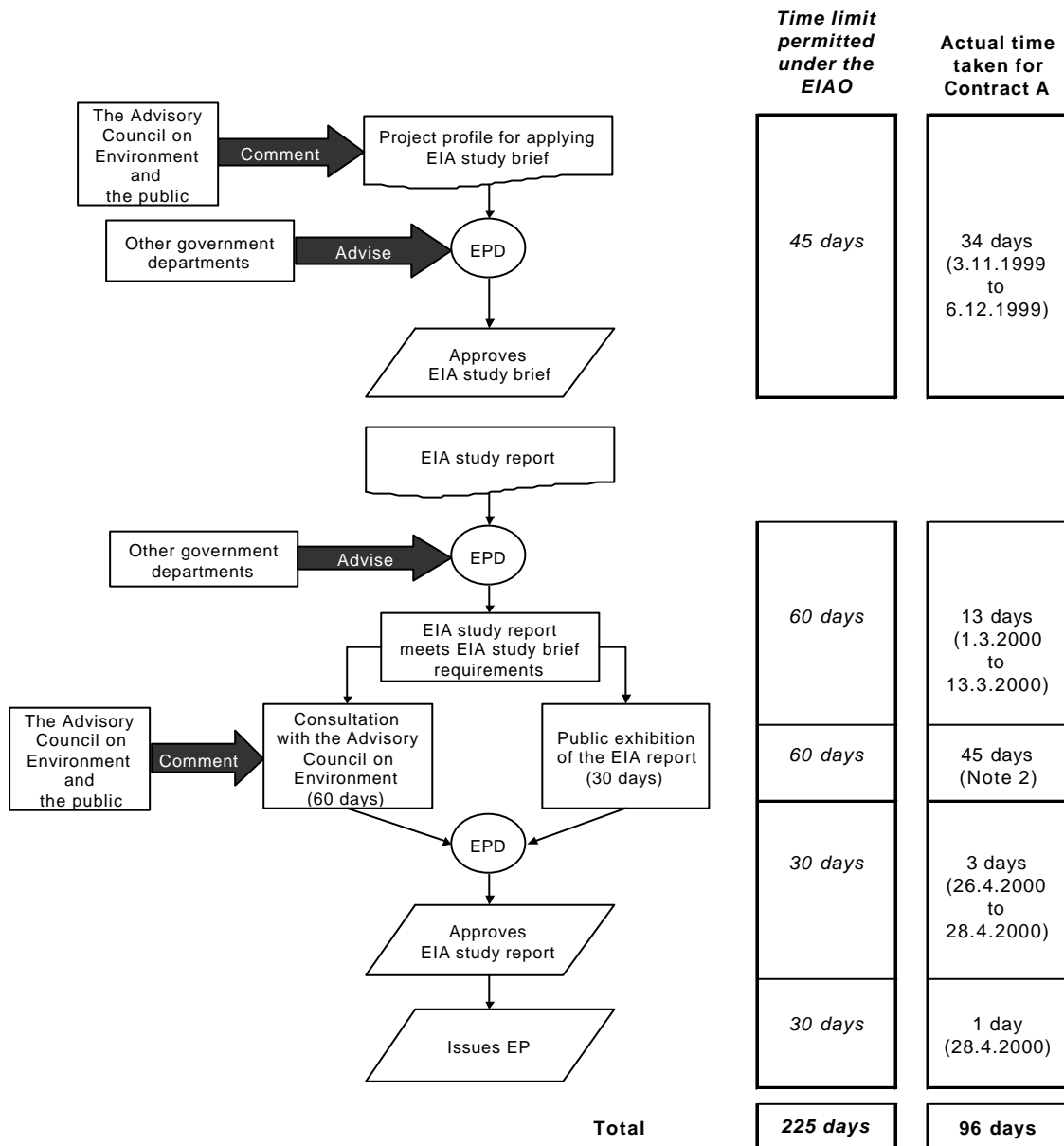
- 4.15 **Audit has recommended that the Director of Civil Engineering should:**
- (a) **for time-critical projects, always require users to finalise their design requirements *before* an agreed cut-off date so as to avoid design changes at a later stage; and**
  - (b) **obtain the users' explicit agreement to essential design requirements prior to the letting of contracts so as to avoid delays and contractual claims arising from changes in users' requirements.**
- 4.16 **Audit has recommended that the Secretary for the Environment, Transport and Works should notify all works departments of the audit recommendations in paragraphs 4.9 and 4.15.**

## **Response from the Administration**

- 4.17 The **Director of Civil Engineering** welcomes the audit recommendations as mentioned in paragraph 4.15 for general application in future CED projects.
- 4.18 The **Secretary for the Environment, Transport and Works** welcomes the audit recommendation as mentioned in paragraph 4.16 and would notify all works departments to take on board the relevant audit recommendations for general application in future public works projects.

**Appendix A**  
(paras. 2.4  
and 2.14 refer)

**Flow chart showing the EIA process and the approval procedures (Note 1)**



Source: EPD's and CED's records

Note 1: Under the EIAO, no time limit is imposed on the project proponent for the supply of further information requested by the EPD during the EIA process (see para. 2.4).

Note 2: The timeframe in which the Advisory Council on Environment and the public provided their comments on the EIA study report for the theme park was as follows:

Comments from	Period	Actual no. of days
The Advisory Council on Environment	13.3.2000 to 26.4.2000	45
The public	13.3.2000 to 11.4.2000	30

Therefore, the actual time taken was 45 days.

**Extract of the relevant environmental control conditions  
proposed in the EIA study report of February 2000  
(submitted by the CED to the EPD in February 2000)**

**A. Dredging and filling rates at maximum dredging**

*“Table 5.6c — Summary of Plant Operating ... of the Construction Programme  
(Maximum Dredging)”*

<b>Plant Type</b>	<b>Cumulative Rate of Working (m<sup>3</sup> per week)</b>
Dredging:	
TSHD 8000	337,200
TSHD 5000	66,800
Grab Full	180,000
Grab Clean	50,000
Filling:	
TSHD 8000	331,600

Notes:

1. TSHD 8000 refers to an 8,000-m<sup>3</sup> capacity trailing suction hopper dredger.
2. TSHD 5000 refers to a 5,000-m<sup>3</sup> capacity trailing suction hopper dredger.
3. Grab Full refers to an 8.5-m<sup>3</sup> grab dredger working at full rate.
4. Grab Clean refers to an 8.5-m<sup>3</sup> grab dredger working at a reduced rate on trimming activities.”

**B. Dredging and filling rates at maximum filling**

*“Table 5.6d — Summary of Plant Operating ... of the Construction Programme  
(Maximum Filling)”*

<b>Plant Type</b>	<b>Cumulative Rate of Working (m<sup>3</sup> per week)</b>
Dredging:	
TSHD 8000	224,800
TSHD 5000	66,800
Grab Full	180,000
Grab Clean	50,000
Filling:	
TSHD 8000	994,800

Notes:

1. TSHD 8000 refers to an 8,000-m<sup>3</sup> capacity trailing suction hopper dredger.
2. TSHD 5000 refers to a 5,000-m<sup>3</sup> capacity trailing suction hopper dredger.
3. Grab Full refers to an 8.5-m<sup>3</sup> grab dredger working at full rate.
4. Grab Clean refers to an 8.5-m<sup>3</sup> grab dredger working at a reduced rate on trimming activities.”

**C. Calculated Loss Rates of Fine Sediment to Suspension**

*“Table 5.6f — Calculated Loss Rates of Fine Sediment to Suspension ... of the Construction Programme (Maximum Filling)”*

<b>Plant Type</b>	<b>Loss Rate (kg per second)</b>
Dredging:	
TSHD 8000	2.6
TSHD 5000	0.8
Grab Full	5.1
Grab Clean	1.4
Filling:	
TSHD 8000	15.4
<b>Total Loss Rate</b>	<b>25.3</b>

Notes:

1. TSHD 8000 refers to an 8,000-m<sup>3</sup> capacity trailing suction hopper dredger.
2. TSHD 5000 refers to a 5,000-m<sup>3</sup> capacity trailing suction hopper dredger.
3. Grab Full refers to an 8.5-m<sup>3</sup> grab dredger working at full rate.
4. Grab Clean refers to an 8.5-m<sup>3</sup> grab dredger working at a reduced rate on trimming activities.”

Source: CED's records



**An extract of the EP conditions on dredging and filling operations  
(issued by the EPD on 28 April 2000)**

**A. EP Condition 2.13 — the total maximum dredging and filling rates:**

“To minimize water quality impacts during dredging and filling, the total maximum rates of dredging and filling shall be as described below:

- (a) Total maximum dredging rate by all trailing suction hopper dredgers shall not exceed 404,000 m<sup>3</sup> per week, the total maximum dredging rate by all 8.5 m<sup>3</sup> grab dredgers shall not exceed 230,000 m<sup>3</sup> per week and total maximum filling rate by all trailing suction hopper dredgers shall not exceed 331,600 m<sup>3</sup> per week;

or

- (b) Total maximum dredging rate by all trailing suction hopper dredgers shall not exceed 291,000 m<sup>3</sup> per week, the total maximum dredging rate by all 8.5 m<sup>3</sup> grab dredgers shall not exceed 230,000 m<sup>3</sup> per week and the total maximum filling rate by all trailing suction hopper dredgers shall not exceed 994,800 m<sup>3</sup> per week.”

**B. EP Condition 2.14 — the total loss rate of fine sediment to suspension:**

“... the total loss rate of fine sediment to suspension due to dredging and filling shall not be greater than 25.3 kg per second. Before the Director (of Environmental Protection’s) approval was obtained, the maximum dredging and filling rates as stated in Condition 2.13 shall be complied with.”

*Source: EPD’s records*

**Appendix D**  
(para. 2.18 refers)

**Significant differences between the conditions of the EP and the specifications of Contract A**

	<b>EP issued by the EPD on 28 April 2000 (Note 1)</b>		<b>Contract A (i.e. the tender documents handed out by the CED on 29 January 2000)</b>
<b>I. Total maximum production rate by plant type</b>	<b>Dredging rate</b> <i>(cubic metres per week)</i>	<b>Filling rate</b> <i>(cubic metres per week)</i>	<b>Combined dredging and filling rate</b> <i>(cubic metres per day)</i>
(a) All trailing suction hopper dredgers	404,000 <i>(Note 2)</i>	331,600 <i>(Note 3)</i>	230,000 (plant type not specified)
All 8.5-cubic-metre grab dredgers	230,000 <i>(Note 4)</i>	Not specified	
<b>OR</b>			
(b) All trailing suction hopper dredgers	291,000 <i>(Note 5)</i>	994,800 <i>(Note 6)</i>	
All 8.5-cubic-metre grab dredgers	230,000 <i>(Note 4)</i>	Not specified	
<b>II. Total loss rate of fine sediment to suspension due to dredging and filling works</b>	Shall not be greater than 25.3 kilograms per second <i>(Note 7)</i>		

Source: CED's records

*Note 1: The total maximum dredging rate and the total maximum filling rate by the trailing suction hopper dredgers (TSHDs) and the 8.5-cubic-metre grab dredgers in the EP of 28 April 2000 were based on those proposed in the EIA study report. According to this EIA study report, the dredging rate, filling rate and loss rate were as stated in Notes 2 to 7 below.*

*Note 2: The total maximum dredging rate by the TSHDs was 404,000 cubic metres per week (i.e. 337,200 cubic metres per week by TSHD 8000 + 66,800 cubic metres per week by TSHD 5000 — see Part A of Appendix B).*

*Note 3: The total maximum filling rate by TSHD 8000 was 331,600 cubic metres per week (see Part A of Appendix B).*

*Note 4: The total maximum dredging rate by the 8.5-cubic-metre grab dredgers was 230,000 cubic metres per week (i.e. 180,000 cubic metres per week by Grab Full + 50,000 cubic metres per week by Grab Clean — see Parts A and B of Appendix B).*

*Note 5: The total maximum dredging rate by the TSHDs was 291,000 cubic metres per week (i.e. 224,800 cubic metres per week by TSHD 8000 + 66,800 cubic metres per week by TSHD 5000 = 291,600 cubic metres per week rounded to 291,000 cubic metres per week — see Part B of Appendix B).*

*Note 6: The total maximum filling rate by TSHD 8000 was 994,800 cubic metres per week (see Part B of Appendix B).*

*Note 7: The total loss rate was 25.3 kilograms per second (see Part C of Appendix B).*

**Chronology of key events**

November 1999	The Government announced that an international theme park would be built at Penny's Bay, Lantau.
December 1999	The PWSC was informed that the Government was required to invite tenders in January 2000 and to award the reclamation contract by end of April 2000.
January 2000	After considering the LAD's comments, the CED decided to retain GCC Clause 50 in the tender documents.
January 2000	The CED invited tenders for Contract A. The tender documents included a draft EP in the form of an environmental monitoring and audit manual.
February 2000	The EIA study was completed.
March 2000	The tenders of Contract A closed on 10 March 2000.
April 2000	The EPD approved the EIA report and issued an EP to the CED for the reclamation works. The EP imposed restrictions on the dredging and filling operations.
May 2000	Contractor A commenced the reclamation works which were scheduled for completion on 7 January 2003.
June 2000	Contractor A lodged a claim for EOT and additional cost because the conditions of the EP were different from the specifications included in the contract documents.
July 2000	The Tourism Commission agreed with the theme park operator that a service road would be excluded from the area of land to be granted to him.
September 2000	The theme park operator raised concerns about the usable berthing length of the vertical seawall.

- February 2001      The CED informed the Steering Committee that mitigation measures should be adopted to enable the opening of the theme park in 2005.
- August 2001      The Government entered into a supplementary agreement with Contractor A in the sum of \$271 million.
- December 2002    The reclamation works were substantially completed, i.e. about one month in advance of the scheduled completion date of 7 January 2003.

**Acronyms and abbreviations**

CED	Civil Engineering Department
EIA	Environmental Impact Assessment
EIAO	Environmental Impact Assessment Ordinance
EOT	Extension of time
EP	Environmental Permit
EPD	Environmental Protection Department
GCC	General Conditions of Contract for Civil Engineering Works
LAD	Legal Advisory Division
PTG	Private treaty grant
PWSC	Public Works Subcommittee
SCC	Special Conditions of Contract
TSHDs	Trailing suction hopper dredgers
WBTC	Works Bureau Technical Circular