CHAPTER 4 PROJECT DESIGN AND ESTIMATES

PARAGRAPh 1 ABBREVIATION

(a) Para. I.02 Add the following abbreviation and term:
MTR The Mass Transit Railway

PARAGRAPh 1 GENERAL CONSIDERATIONS FOR DESIGN

(b) Para. 1.6 Add the following paragraphs after “economic design and construction.”:

A ground investigation should therefore be planned by a suitably qualified and experienced person who is thoroughly familiar with the project requirements, and it should not be delegated to junior or inexperienced members of staff.

At least four months lead time should be planned for major ground investigations. Otherwise, it may not be possible to complete the field work and laboratory testing according to the required schedule.

1.6.1 Relevant Guidelines, Standards and Sources of Information

Chapter 7 of the latest Geoguide 2: Guide to Site Investigation gives guidance on the planning of a ground investigation, and Chapter 15 of the latest Geoguide 2 advises on suitable personnel on this.

DEVB TCW No. 1/2019 gives procedures to be followed for ground investigation in the vicinity of the MTR.

Replace “GEO Technical Guidance Note No. 24” with “the latest Geoguide 2: Guide to Site Investigation” in the third paragraph.
Delete the following paragraphs:

WBTC No. 13/90 describes the responsibilities for, and the procurement of, ground investigation and related laboratory testing.

In addition to the guidelines and requirements given in WBTC No. 13/90 and CEDD GEO Ground Investigation Note No. 1/2017 (available on CEDD website), the following should be noted:

(a) Ground investigation (GI), geophysical survey, and chemical and biological testing term/service contracts are managed by the Geotechnical Projects Division of GEO, and the Engineer for the Contract is Chief Geotechnical Engineer/ Geotechnical Projects (CGE/GP). Requests for land-GI, marine-GI, geophysical survey, chemical and biological testing of marine sediment and contaminated soil should be addressed to CGE/GP (Attn: SGE/GI1&2).

(b) Soil and rock tests are managed by the Standards and Testing Division of GEO, and the Government Representative for these Contracts is CGE/Standards & Testing. Requests for soil and rock testing may either be included in the requests for GI or be addressed to CGE/S&T (Attn: SGE/Lab) with submission of a detailed laboratory testing schedule.

(c) Funding for the procured services, in the form of Allocation Warrant or Works Expenditure Authorisation, should be directed to CGE/GP, or to CGE/S&T, for separate requests on laboratory testing.

(d) To obtain a preliminary estimate of the cost of ground investigation works and the associated laboratory testing, and to determine the need or otherwise for an individual contract, an initial request for work, including all details of the planned land or marine investigation and the types of tests required, may be forwarded to CGE/GP or CGE/S&T of GEO, as appropriate. CGE/GP or CGE/S&T can also give advice on the method of procurement to be adopted and the
programming aspect.

(e) All untested soil and rock samples (i.e. not delivered for laboratory testing) obtained from the GI works shall be returned to the initiating department/office/division for storage or disposed of according to their instruction. If no instruction on either storage or disposal of the untested samples is received by GEO within two months after completion of the GI Works Orders, it will be taken as that they can be disposed of by the term contractor. As for the soil and rock samples that are selected for testing, the tested samples and unused parts shall be returned to the initiating department/office/division for storage if instructed (within two weeks following the issue of the Final Laboratory Testing Report) or disposed of at the discretion of the testing laboratory if no instruction is received.

(f) If a separate GI contract is to be let for the project, requirements for the provision of adequate qualified personnel for the supervision of the GI works on site should be written into consultancy agreements, or such provision should be provided by the works department if consultants are not involved.

(g) Ground investigation information is available for reference in the Geotechnical Information Unit (GIU), which is housed in the Civil Engineering Library (DEVB TC(W) No. 4/2016)

Add the following paragraphs after “ecologically sensitive areas are given in Appendix 4.20.”:

The Geotechnical Information Units (GIU) of the Civil Engineering Library, Civil Engineering and Development Department should be consulted in all cases during the planning of a ground investigation. This contains numerous records of ground investigation throughout Hong Kong, as well as laboratory test results on soil and rock samples. The operations of the GIU are described in DEVB TC(W) No. 4/2016.
1.6.2 **Procurement of Ground Investigation**

The methods available to Government departments for procuring ground investigation and laboratory testing are as follows:

(a) Ground investigation fieldwork – This shall be carried out under GEO’s term contracts or under individual ground investigation contracts let by the client department or its consultants. Requests to GEO for investigations estimated to cost in excess of the financial limits stated in CEDD Ground Investigation Note No. 1/2017 or its latest version will in general be considered for execution through individual contracts, depending on the nature and scope of the investigation and the current commitments of the GEO term contractors.

(b) Laboratory testing – This shall normally be carried out at the Public Works Central Laboratories or under a soil and rock testing service contract administered by GEO. However, where an individual contract is let for the ground investigation field work, the laboratory testing should normally be included in the contract.

The Geotechnical Projects Division of GEO provides a service to other departments with the Government by letting and administering term contracts for land and marine ground investigations including geophysical survey. Chief Geotechnical Engineer/Geotechnical Projects (CGE/GP) is the Engineer/Service Manager of the term contracts. Requests of land-GI, marine-GI and geophysical survey should be addressed to CGE/GP (Attn: SGE/GI1 or SGE/GI2).

Soil and rock testing service contracts are managed by the Standards and Testing Division of GEO, and the Government Representative for these contracts is Chief Geotechnical Engineer/Standards & Testing (CGE/S&T). Requests for soil and rock testing should be addressed to CGE/S&T (Attn.: SGE/Lab) with submission of a detailed laboratory testing schedule.
Add the following paragraphs after “(c) For LPMit works, from the LPM Block Allocation.):

1.6.3 Procurement through Individual GI Contracts or Included in Works Contracts

Where provisions for ground investigations are included in contract documents for works contracts, Government departments shall ensure that these documents stipulate that only contractors on DEVB’s List of Approved Suppliers of Materials and Specialist Contractors for Public Works, Category of Ground Investigation Field Work and for Category of Soil and Rock Testing shall be employed for such works, and the Geotechnical Projects Division shall be advised of the works.

Before a client department or its consultants calls tenders for a ground investigation contract, a copy of the proposed tender documents shall be submitted to CGE/GP and CGE/S&T in order that they may advise on the technical aspects of the tender documents. This advice shall be obtained prior to sending documents to contractors on DEVB’s List of Approved Specialist Contractors for Ground Investigation Field Work.

Where a client department or its consultants administers a ground investigation contract, soft copies of the priced contract documents shall be submitted to CGE/GP and CGE/S&T. Meanwhile, all quarterly reports on the performance of the contractor shall be sent to the Geotechnical Projects Division.

For ground investigation works included in capital works contracts, there is no need to submit the proposed tender documents to the CGE/GP or CGE/S&T for advice on technical aspects. Nor is there a need to submit quarterly reports on the performance of the contractor to the Geotechnical Projects Division.

1.6.4 Procurement through GEO’s Term Contracts

CEDD Ground Investigation Note No. 1/2017 or its latest version (available on CEDD website) describes the arrangements in which ground investigation, including laboratory testing, is to be procured through the term contracts/service contracts administered by the Geotechnical Projects Division and Standards and Testing Division of GEO. It also details the responsibilities of the parties involved. The client departments should follow the guidelines given in CEDD Ground Investigation Note No.
1/2017 or its latest version in order for them to obtain a satisfactory ground investigation service through the Geotechnical Projects Division.

Funding for the procured services, in the form of separate Allocation Warrants or Works Expenditure Authorisations, should be directed to CGE/GP and to CGE/S&T for ground investigation field work and laboratory testing, respectively.

To obtain a preliminary estimate of the cost of ground investigation works and the associated laboratory testing, and to determine the need or otherwise for an individual contract, an initial request for work, including all details of the planned land or marine investigation and the types of tests required, may be forwarded to CGE/GP or CGE/S&T of GEO, as appropriate. CGE/GP or CGE/S&T can also give advice on the method of procurement to be adopted and the programming aspect.

The client department of its consultants is responsible for liaising with all parties concerned before and during the ground investigation period, including resolving all matters arising from the ground investigation field work such as complaints, concerns and enquiries.

The GEO’s ground investigation term contractors will not undertake excavation works that are for the purpose of locating public utilities. Ground investigation in close proximity to known underground utilities should not be carried out in order not to damage such utilities. However, inspection pits will be sunk by a term contractor prior to the commencement of drilling and probing works to avoid any unknown underground utilities being damaged.

All untested soil and rock samples (i.e. not delivered for laboratory testing) obtained from the GI works shall be returned to the initiating department/office/division for storage or disposed of according to their instruction. If no instruction on either storage or disposal of the untested samples is received by GEO within one month after completion of the GI Works/Task Orders, it will be taken as that they can be disposed of by the term contractor. As for the soil and rock samples that are selected for testing, the tested and untested samples shall be returned to the client department for storage if instructed (within two weeks following the issue of the final laboratory testing report) or disposed of at the discretion of the testing laboratory if no instruction is received.
1.6.5 Supervision

The Geotechnical Projects Division and Standards and Testing Division of GEO are only responsible for the administration of the term contracts/service contracts, and the level of technical supervision appropriate to the investigation must be provided by the client department or its consultants. This is essential if a cost effective investigation of adequate quality is to be carried out. Where a consultant is to be responsible for the investigation, the client department should ensure that the costs of site supervision are allowed when obtaining funds for the project.

Guidance on appropriate levels of supervision of ground investigation can be obtained from Chapter 15 of the latest Geoguide 2 and Section 4.3 in Chapter 7 of the Project Administration Handbook, and further guidance may be obtained from the Geotechnical Projects Division.

Details of the site supervision proposed for a ground investigation and/or laboratory testing should be provided to CGE/GP and CGE/S&T respectively prior to the commencement of the investigation and laboratory testing. The client department will be advised if the proposed level of supervision is considered to be inadequate and any changes needed to increase the effectiveness of the investigation will be recommended.

Requirements for the provision of adequate qualified personnel for the supervision of the GI works on site and of the laboratory testing should be written into consultancy agreements, or such provision should be provided by the Works Department if consultants are not involved.

Where an individual contract is let and administered by either the client department or its consultants, the contract documents shall include requirements for the provision by the contractor of sufficient properly experienced technical staff to ensure that the works are carried out according to specification.

Client departments should also provide an appropriate level of supervision for laboratory testing. The involvement of a professional at the laboratory is essential at an early stage of the programme of laboratory testing if the maximum benefits are to be gained from the programme. The personnel responsible for specifying laboratory testing and interpreting the results should be experienced in this aspects of ground investigation.
They should make periodic visits to the laboratory during routing testing, and the more complex tests should be supervised full-time.

1.6.6 Specialist Advice

It may be necessary for the client department to seek the advice of a specialist on particular aspects of a ground investigation. Guidance on this is given in Chapter 15 of the latest Geoguide 2. In certain cases, it may be advisable to involve the specialist at the planning stage of the ground investigation. For example, geological information to assist the planning of ground investigations can be sought from the Hong Kong Geological Survey, Planning Division of GEO.

PARAGRAPH 6 REFERENCES

Delete the following references:

WBTC No. Mass Transit Railway Protection 19/2002

ETWB TCW No. West Rail Protection 33/2003

ETWB TCW No. Capital Works or Maintenance Works (including Tree Planting) Within or Adjacent to the Kowloon-Canton Railway (Hong Kong) Section, Tsim Sha Tsui Extension and Ma on Shan Rail 2/2005

Add the following reference:

DEVB TCW No. Railway Protection 1/2019

Quality Management & Standards Unit
Civil Engineering and Development Department
20 September 2019