

ITEM FOR ESTABLISHMENT SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 39 – DRAINAGE SERVICES DEPARTMENT Subhead 000 Operational expenses

Members are invited to recommend to the Finance Committee the creation of the following supernumerary post in the Drainage Services Department with immediate effect upon approval of the Finance Committee up to 31 March 2026 –

1 Chief Engineer
(D1) (\$150,950 - \$165,200)

PROBLEM

We need additional support at the directorate level in the Drainage Services Department (DSD) for leading a new Cavern Projects Division to mainly implement the “Relocation of Sha Tin Sewage Treatment Works (STSTW) to caverns” and plan cavern projects for relocation/accommodation of other suitable sewage treatment facilities.

PROPOSAL

2. We propose to create one supernumerary Chief Engineer (CE) (D1) post in DSD for a period of five years with immediate effect upon approval of the Finance Committee (FC) up to 31 March 2026.

JUSTIFICATION

Enhancing Land Supply Policy Initiative – Relocation/Accommodation of Suitable Sewage Treatment Facilities into Caverns

3. To support the sustainable development of Hong Kong, it is the established policy of the Government to adopt a multi-pronged approach to enhance land supply. The hilly and hard rock terrain of Hong Kong makes it highly

/suitable

suitable for developing rock caverns, particularly on the urban fringes. The relocation of suitable existing government facilities to caverns can on one hand release above-ground sites for housing and other land uses, and on the other hand can relocate facilities that do not need to be placed on ground and are incompatible with the surrounding environment and land uses nearby. Accordingly, the Government is actively exploring rock cavern development to make full use of land resources and as a viable source of long-term land supply. The Development Bureau (DEVB) has promulgated the policy and measures in relation to cavern development projects¹ in December 2017, including a territory-wide Cavern Master Plan (CMP)² and associated planning and technical guidelines, as well as according priority to study the feasibility of relocating/accommodating suitable sewage treatment facilities into caverns. In December 2018, the Task Force on Land Supply (Task Force) submitted a report to the Government recommending that cavern development is a priority land supply option worthy of study and implementation. The Government agreed and accepted the recommendations of the Task Force.

Need for a Dedicated Cavern Projects Division in DSD

4. Sewage treatment facilities managed by DSD are important infrastructures and distributed over and serving various districts of Hong Kong. According to the guidelines of CMP, some Strategic Cavern Areas (SCVAs) are potential sites for, subject to studies, accommodating sewage treatment facilities. For instance, the cavern STSTW will be accommodated in SCVA No. 20 at A Kung Kok, Sha Tin. Since cavern sewage treatment facility projects involve substantial development scale, complex technologies, multiple engineering disciplines, lengthy implementation duration and long-term commitment, DSD needs to set up a Cavern Projects Division comprising multi-disciplinary professional and technical staff for dedicated planning and implementation of cavern projects to accommodate sewage treatment works. The major duties of this Division are as follows –

- (i) implement the relocation of STSTW to caverns, including oversee and supervise the design and construction of this cavern project;
- (ii) plan and implement other cavern projects to relocate/accommodate sewage treatment facilities; and
- (iii) build up knowledge, technologies and experience of cavern projects to enable their sustainable development.

/Implement

¹ DEVB issued Development Bureau Technical Circular (Works) No. 8/2017 Rock Cavern Development in December 2017, promulgating the long-term policy in relation to cavern development projects.

² Cavern Master Plan delineates SCVAs that are well placed for cavern development and provides planning and technical information and guidelines for reference by project proponents of the public and private sectors to promote development of cavern sites.

Implement the relocation of STSTW to caverns

5. DSD is currently implementing the “Relocation of STSTW to caverns” in full swing. This project is the largest on-going cavern development project in Hong Kong, involving construction of a main caverns complex of about 14 hectares (total volume of 2.3 million cubic metres) for the reprovisioning of the existing STSTW in Nui Po Shan, Sha Tin. The estimated total construction cost is around \$40 to 50 billion. This relocation project includes land development and site formation, construction of access tunnels, main caverns complex, upstream sewerage works, sewage treatment facilities and related building services and fire services engineering works in the caverns complex, environmental protection works and electrical and mechanical works, as well as the demolition of the existing STSTW, etc. These diverse works components have close interfaces and are interlinked, and their implementation has to be phased properly.

6. To expedite the implementation of this relocation project, DSD has packaged the diverse works components, according to their implementation sequences, into three works stages. The site preparation and access tunnel construction under Stage 1 Works commenced in 2019 and are progressing well. FC has approved funding for the Stage 2 Works covering the main caverns construction and upstream sewerage works, and construction is anticipated to commence in mid-2021. At the same time, the detailed design for the cavern sewage treatment facilities is also in progress. We target to first substantially complete the construction of the main caverns complex in 2026, and handover the cavern site for construction of sewage treatment facilities, striving to commission the cavern STSTW in 2029. The demolition of the existing STSTW will be carried out in tandem, with a view to releasing the site concerned by 2031.

7. The “Relocation of STSTW to caverns” involves multiple engineering disciplines and are implemented in phases through various interlinked contracts with close interfaces and overlapping works sites. Delay in any one contract may have knock-on effects and impacts on other interfacing contracts and affect the project completion. Thus, DSD needs to establish a dedicated Cavern Projects Division comprising multi-disciplinary professional and technical staff to continuously and rigorously oversee and supervise the design and construction of this relocation project, so as to ensure construction quality and safety, as well as comply with the design requirements and operational effectiveness.

Plan and implement other cavern projects to relocate/accommodate sewage treatment facilities

8. Among the facilities of DSD, since sewage treatment facilities are occupying larger sites, their relocation could release larger area and have higher potential for housing and other uses beneficial to the people’s livelihood. In

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addition to mainly implement the “Relocation of STSTW to caverns” project to release the site concerned, the Cavern Projects Division is also exploring other suitable sewage treatment facilities for relocating/accommodating into SCVAs so as to continuously take forward cavern sewage treatment facility projects.

Build up associated knowledge, technologies and experience of cavern projects to enable sustainable development

9. Cavern sewage treatment facility projects are mega in scale and cover various engineering disciplines, including complex cavern engineering, civil and structural engineering, geotechnical engineering, sewage treatment engineering, environmental engineering, electrical and mechanical engineering, and cavern-related building services and fire services engineering, etc. Therefore, they are far more complicated than general infrastructure projects and require a lot of cross-professional coordination and project management. Taking the project “Relocation of STSTW to caverns” as an example, it is the largest and most complex cavern construction project in Hong Kong to date, and adopts state-of-the-art sewage treatment technology and design of building services and fire services. The proposed Cavern Projects Division will continue to gather and acquire relevant knowledge, technologies and experience from the ongoing cavern sewage treatment facility projects, and to collaborate with and support relevant departments in the enhancement and formulation of guidelines and standards on cavern development, building services and fire services engineering, sewage treatment technology, mechanical and electrical equipment for application in future cavern projects, thereby enabling sustainable development of this engineering field.

Need to Create One Supernumerary CE (D1) Post in DSD

10. Currently, Chief Engineer/Sewerage Projects (CE/SP), which is a permanent CE (D1) post, of DSD is leading the Sewerage Projects Division and its four project teams to oversee the construction of Shek Wu Hui Effluent Polishing Plant and Yuen Long Effluent Polishing Plant, the planning of Upgrading of Tai Po Sewage Treatment Works and the planning and construction of other sewerage works, etc. These sewerage projects are all substantial in scale and highly complicated, demanding full-time engagement of CE/SP and his project teams.

11. On top of the above duties, CE/SP is also assigned to lead another team of professionals comprising four senior engineers/senior geotechnical engineers, eight engineers/geotechnical engineers/assistant engineers, one senior electrical and mechanical engineer, and three electrical and mechanical engineers to oversee the construction of Stage 1 Works of the project “Relocation of STSTW to caverns”, the tendering of Stage 2 Works and the detailed design for the

/remaining

remaining works of this project, as well as the planning of other suitable cavern sewage treatment facility projects. As the Stage 2 Works of the “Relocation of STSTW to caverns” will commence soon, CE/SP can no longer afford shouldering the responsibilities relating to cavern projects in the long run.

12. As such, there is a need to create one supernumerary CE (D1) post to lead the new dedicated Cavern Projects Division overseeing the smooth delivery of the mega scale and highly complicated “Relocation of STSTW to caverns” project, as well as the planning of other suitable cavern sewage treatment facility projects. The aforementioned existing team of professionals for cavern projects will be deployed to the Cavern Projects Division upon its creation. We have also created a total of ten permanent posts of technical and general grades to support the daily operation of the Cavern Projects Division.

13. The Cavern Projects Division will be a dedicated project division comprising professional and technical staff from various engineering disciplines. It is responsible for planning and implementation of cavern sewage treatment facility projects, which are of mega scale and involve multiple engineering disciplines as mentioned in paragraph 9 above. Given that professionals in the civil engineering sector are usually equipped with broader engineering knowledge and rich project management experience, they are more suitable for leading the engineering team to manage and implement cavern sewage treatment facility projects. Therefore, we propose to create one supernumerary CE (D1) post (to be designated as Chief Engineer/Cavern Projects (CE/CP)), to lead the new dedicated Cavern Projects Division.

14. The duration of the proposed supernumerary CE (D1) post in DSD will be for a period of five years with immediate effect upon approval of FC up to 31 March 2026 to mainly implement the “Relocation of STSTW to caverns” project. The targets are to commence the construction of Stage 2 Works in mid-2021; complete the Stage 1 Works in 2022; complete the detailed design of the cavern sewage treatment facilities and commence the construction works in 2023; thus ultimately achieve the milestone of substantial completion of the main caverns complex in 2026; as well as to plan other suitable cavern sewage treatment facility projects at the same time.

Encl. 1 15. The proposed job descriptions of the supernumerary CE (D1) post (CE/CP) are at Enclosure 1.

Encl. 2 16. The proposed organisation chart of DSD after the creation of the supernumerary CE (D1) post (CE/CP) as detailed above is at Enclosure 2.

17. DSD is implementing substantial infrastructure works including cavern sewage treatment facility projects concurrently. The workload of the various divisions of DSD will be increasing in the coming few years. In this regard, DSD proposes creating a supernumerary CE (D1) post for five years up to 31 March 2026. We will review the continued need of the post beyond March 2026 nearer the time of substantial completion of the main caverns complex of the “Relocation of STSTW to caverns”, taking into account the progress of different projects and tasks of DSD as well as the latest situation and development needs.

NON-DIRECTORATE SUPPORT

18. In addition to the above proposed supernumerary CE (D1) post, there will be 26 non-directorate posts for the Cavern Projects Division, including 24 permanent posts of professional, technical and general grades and two time-limited posts of professional grade to support the daily operation of the Cavern Projects Division.

ALTERNATIVES CONSIDERED

19. We have critically examined the possibility of redeploying other existing directorate officers within DSD to take on the work of the proposed post. Taking into account the on-going projects and studies as well as potential projects, the workload of all existing divisions of DSD will remain high within the next five years and beyond. The other incumbents are already fully engaged in their respective work schedules, including taking forward a large number of on-going and new drainage, sewage treatment and sewerage projects, overseeing the operation, maintenance and minor improvement works of the existing drainage and sewerage systems, as well as coordinating district drainage matters. It is operationally impossible for them to take up the new tasks without adversely affecting their discharge of current duties. It should be emphasised that all these are livelihood-related projects aiming at providing quality drainage and sewage collection, treatment and disposal services to the community. Enclosure 3 shows the schedule of responsibilities of all existing CE posts in DSD.

Encl. 3

20. If the proposed supernumerary CE (D1) post is not created, DSD will not have adequate resources at directorate level to cope with the operational demands for planning, co-ordination and implementation of the cavern projects.

FINANCIAL IMPLICATIONS

21. The proposed creation of one supernumerary CE (D1) post will bring about an additional notional annual salary cost at mid-point of \$1,923,600 as follows –

/Directorate

Directorate Post	Notional annual salary cost at mid-point (\$)	No. of Posts
CE (D1)	1,923,600	1
Total	1,923,600	1

The additional full annual average staff cost, including salaries and staff on-cost, is about \$2,687,000.

22. We have included sufficient provision in the Estimates to meet the cost of this proposal.

PUBLIC CONSULTATION

23. On 27 October 2020, we consulted the Panel on Development on our previous proposal of creating a permanent CE post in DSD dedicated for cavern sewage treatment facility projects. Majority of Members who had spoken on this item did not oppose to the submission of the staffing proposal to the Establishment Subcommittee for consideration. As some Members had concerns on the need for a permanent CE post, we provided the supplementary information about the workloads of different CE posts in DSD to the Panel on Development on 16 March 2021. Having considered the comments of Members and following the Chief Executive's commitment of reviewing staffing proposals as announced in the 2020 Policy Address, we have revised the original proposal of creating a permanent CE post to a supernumerary CE post for five years instead³.

ESTABLISHMENT CHANGES

24. The establishment changes in DSD for the past three years are as follows –

Establishment (Note)	Number of posts			
	Existing (as at 1 Mar 2021)	As at 1 Apr 2020	As at 1 Apr 2019	As at 1 Apr 2018
A	18 [#]	18	18	18
B	437	411	391	369
C	1 593	1 591	1 577	1 553
Total	2 048	2 020	1 986	1 940

/Note:

³ The Government on 27 January 2021 submitted a paper (No. ECI(2020-21)8) to the Establishment Subcommittee of the FC, informing the Subcommittee of the proposed directorate posts to be put forward within the 2020-21 legislative session. Among which, the supernumerary CE post to be created being proposed in this paper is included.

Note:

A – ranks in the directorate pay scale or equivalent

B – non-directorate ranks, the maximum pay point of which is above MPS point 33 or equivalent

C – non-directorate ranks, the maximum pay point of which is at or below MPS point 33 or equivalent

– as at 1 March 2021, there was no unfilled directorate post in DSD

CIVIL SERVICE BUREAU COMMENTS

25. The Civil Service Bureau supports the proposed creation of one supernumerary CE post in DSD for leading a new Cavern Projects Division to mainly implement the “Relocation of STSTW to caverns” and plan cavern projects for relocation/accommodation of other suitable sewage treatment facilities. The grading and ranking of the proposed post are considered appropriate having regard to the level and scope of responsibilities and the professional input required.

ADVICE OF THE STANDING COMMITTEE ON DIRECTORATE SALARIES AND CONDITIONS OF SERVICE

26. As the directorate post proposed to be created is on a supernumerary basis, its creation, if approved, will be reported to the Standing Committee on Directorate Salaries and Conditions of Service in accordance with the agreed procedure.

BACKGROUND

27. About two-thirds of the land in Hong Kong are suitable for rock cavern developments from topographical and geological perspectives, which may be used for relocating suitable public facilities. The 2011-12 Policy Address announced that the Government would adopt a multi-pronged approach, including developing rock caverns to re-provision existing public facilities, for expanding land resources. “Relocation of STSTW to caverns” was identified as a pilot project. To take forward the initiative, DSD commenced a detailed feasibility study on the relocation of the STSTW to caverns in May 2012, which was completed in May 2014. DSD then commenced the investigation and design of the relocation of STSTW to caverns in September 2014. Stage 1 Works of this project for site preparation and access tunnel construction commenced in February 2019. The funding approval for Stage 2 Works of this project for main caverns construction and upstream sewerage works has been obtained from FC and the tendering exercise is in progress.

28. DEVB has promulgated the policy and measures in relation to cavern development projects in December 2017, including a territory-wide CMP and associated planning and technical guidelines, as well as according priority to study the feasibility of relocating/accommodating suitable sewage treatment facilities into caverns.

Development Bureau
March 2021

**Proposed Job Description
Chief Engineer/Cavern Projects**

Rank : Chief Engineer (D1)

Responsible to : Assistant Director/Projects and Development

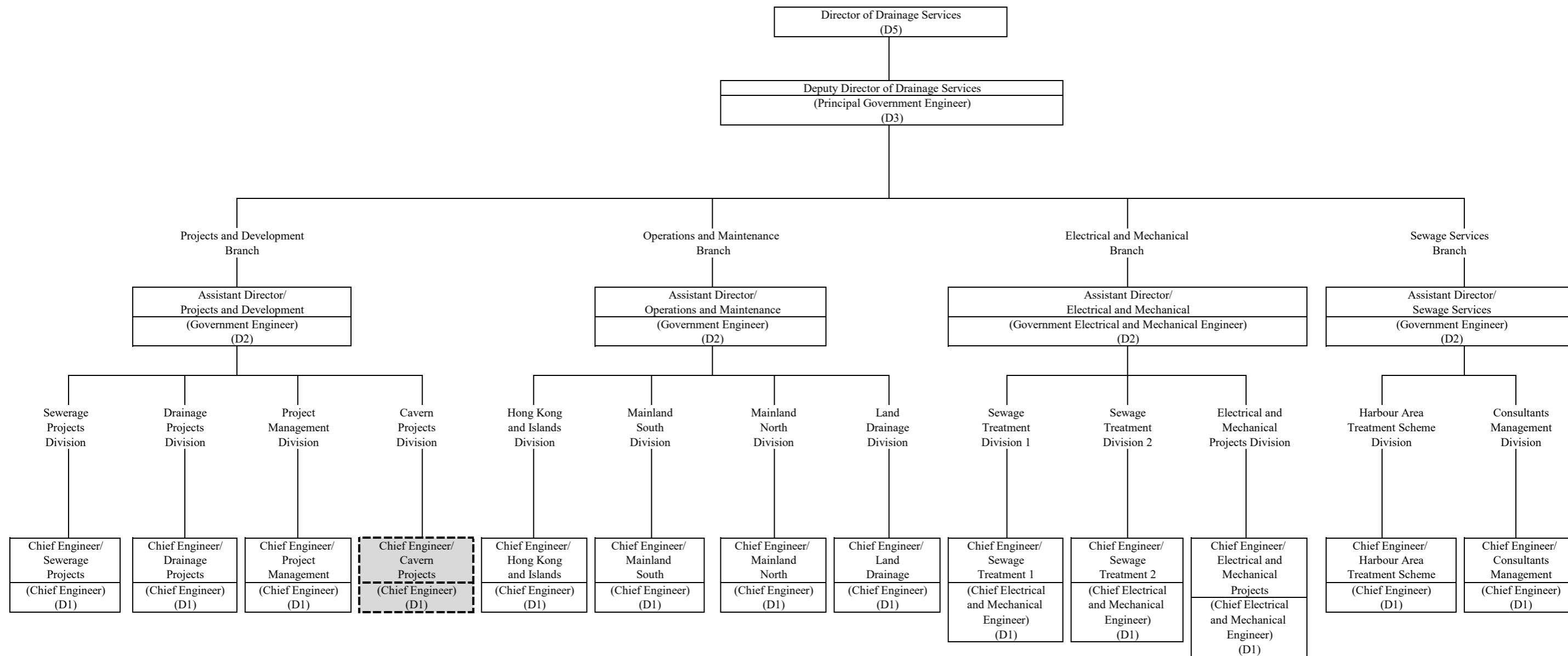
Overall Role and Objectives –

Chief Engineer/Cavern Projects heads a division of the Drainage Services Department (DSD) and is responsible for the overall administration, planning, design and construction supervision of works packages, mainly on the implementation of the “Relocation of Sha Tin Sewage Treatment Works (STSTW) to caverns” and planning other cavern-related development projects in DSD.

Major Duties and Responsibilities –

1. To oversee the administration, management and coordination of project teams of civil, structural, geotechnical, sewage treatment, environmental and electrical & mechanical (E&M) works disciplines in relation to the delivery of “Relocation of STSTW to caverns” and planning of other cavern-related development projects in DSD;
2. To oversee the project liaison with other government departments and resolve specialists’ comments in relation to building services, fire safety and geotechnical design of the cavern-related development projects in DSD;
3. To oversee the programme and progress of the project implementation, and formulate effective contract procurement strategy to meet the compressed project implementation programme;
4. To oversee the extensive public engagement exercises for delivering cavern projects to cater for the continuous increase in public awareness on environmental protection and living environment;
5. To steer and oversee the in-house project teams, including civil and E&M disciplines, for sustaining the professional development in cavern sewage treatment facilities;
6. To build up knowledge, technologies and experience of cavern projects to enable their sustainable development; and
7. To oversee the work of senior engineers under his/her purview.

**PROPOSED ORGANISATION CHART
Drainage Services Department**



Legend :

 - Supernumerary post proposed to be created up to 31 March 2026.

**Areas of Responsibilities of the Existing
Chief Engineers in the
Drainage Services Department (DSD)**

All the existing Chief Engineers in DSD are fully engaged in their respective duties. It is operationally not possible for them to take up the additional tasks without adversely affecting the discharge of their current duties.

Projects and Development Branch

2. **Chief Engineer/Sewerage Projects** is responsible for upgrading of some existing major sewage treatment works including Shek Wu Hui and Yuen Long Effluent Polishing Plants and Tai Po Sewage Treatment Works, to support the long-term development of Hong Kong; and a number of sewerage projects in various districts. He/She is also responsible for leading his/her team to consult Rural Committees, District Councils and local organisations/committees so as to foster close communication with stakeholders and ensure timely delivery of relevant projects. Currently, he/she is also leading a team of professionals to oversee the construction of Stage 1 Works of the project “Relocation of Sha Tin Sewage Treatment Works to caverns”, the tendering of Stage 2 Works and the detailed design for the remaining works of this project, and planning of other suitable cavern sewage treatment facility projects. Upon the creation of the proposed supernumerary Chief Engineer post, these cavern projects will be taken up by the proposed post.

3. **Chief Engineer/Drainage Projects** is responsible for the planning, design and construction of the major drainage improvement works for Tai Po, Sha Tin, Sai Kung, North District, Kwun Tong, Mong Kok, Eastern District, Southern District, and Ngong Ping; the revitalisation works for Tsui Ping River, Tai Wai Nullah, Fo Tan Nullah and Jordan Valley Nullah; the inter-reservoirs transfer scheme; and various minor drainage improvement works.

4. **Chief Engineer/Project Management** is responsible for the planning, design and construction of the drainage improvement works in Tsim Sha Tsui, Kowloon City, Wong Tai Sin and Mui Wo; river improvement and drainage improvement works in Yuen Long rural areas; improvement of Yuen Long Town Nullah and implementation of Yuen Long Barrage Scheme. He/She is also responsible for the strategic planning and implementation of replacement and rehabilitation of drains and sewers over the territory.

/Operations

Operations and Maintenance Branch

5. **Chief Engineer/Hong Kong and Islands** is responsible for overseeing the operation, maintenance and minor improvement works of the drainage and sewerage systems in Hong Kong and Islands region; coordinating district drainage matters in Hong Kong and Islands region such as vetting drainage proposals of town planning applications and building drainage submissions for developments, providing drainage connections and assessing the impact of engineering projects on stormwater drains and sewers; overseeing risk assessment of trees managed by DSD, conducting engineer inspection and upgrading of DSD's slopes; and carrying out maintenance for building and civil engineering structures of sewage treatment and flood control facilities.

6. **Chief Engineer/Mainland South** is responsible for overseeing the operation, maintenance and minor improvement works of the drainage and sewerage systems in Kowloon and New Territories South which include Tsuen Wan, Kwai Tsing, Shatin, Ma On Shan, Sai Kung and Tseung Kwan O; coordinating district drainage matters in Kowloon and New Territories South region; development and operation of information systems for drainage asset management; management of the Specialized Services Team of the DSD Hotline Services; and development of drainage pipe rehabilitation strategy and technology.

7. **Chief Engineer/Mainland North** is responsible for overseeing the operation, maintenance and minor improvement works of the drainage and sewerage systems in New Territories North which include Yuen Long, Tai Po, Tuen Mun and North districts; coordinating district drainage matters in New Territories North region; management and maintenance of the Shenzhen River (Hong Kong side) and 27 Village Flood Pumping Schemes in the territory. He/She is also responsible for managing matters related to the Land Drainage Ordinance (Cap 446).

8. **Chief Engineer/Land Drainage** is responsible for the establishment of flood control strategy and flood protection standard; undertaking of drainage system planning and drainage master plan studies as well as the studies and development of the revitalisation of water bodies strategy; overseeing research and development activities; providing technical advice to government departments on drainage, flood control and sewerage planning; and studying climate change impact on drainage and promoting blue-green infrastructure with a view to building city flood resilience.

/Electrical

Electrical and Mechanical Branch

9. **Chief Engineer/Sewage Treatment 1** is responsible for the overall management and coordination of the operation and maintenance activities of all the sewage collection, treatment and disposal facilities in the New Territories including all sewage pumping stations, treatment, disposal and stormwater facilities.

10. **Chief Engineer/Sewage Treatment 2** is responsible for the overall management and coordination of the operation and maintenance activities of all the sewage collection, treatment and disposal facilities provided under the Harbour Area Treatment Scheme (HATS) including all the sewage pumping stations, treatment, disposal and stormwater facilities in Kowloon, Tseung Kwan O, Kwai Chung, Tsuen Wan, Tsing Yi, Hong Kong Island, Lantau and other outlying islands.

11. **Chief Engineer/Electrical and Mechanical Projects** is responsible for the overall management of the planning, design and construction of electrical and mechanical works for sewage pumping stations, treatment, disposal and stormwater facilities. He/She is also responsible for the research and development of emerging sewage treatment technologies; and planning the utilisation of renewable energy in DSD's facilities.

Sewage Services Branch

12. **Chief Engineer/Harbour Area Treatment Scheme** is responsible for the overall administration, feasibility and engineering studies, planning, design and construction supervision of works projects, mainly involving effect to the water quality of Victoria Harbour, including HATS Stage 2A, Upgrading of San Wai Sewage Treatment Works, Enhancement Works for Kwun Tong Sewage Pumping Station and Kwun Tong Preliminary Treatment Works, Construction and Rehabilitation of Trunk Sewage Rising Mains in Cheung Sha Wan, Construction of dry weather flow interceptor at Cherry Street box culvert and Upgrading of West Kowloon and Tsuen Wan sewerage. In addition to a number of studies relating to the disinfection performance and sewage treatment process in the Stonecutters Island Sewage Treatment Works, he/she is also responsible for liaising with Environmental Protection Department in connection with the development of the HATS Stage 2B scheme.

13. **Chief Engineer/Consultants Management** is responsible for implementing different kinds of sewerage projects including provision of public sewerage systems to unsewered villages and areas as well as upgrading and rehabilitation of existing sewage rising mains, sewage pumping stations and sewage treatment works over the territory. The projects are mainly implemented by engaging consultants to carry out the investigation, planning and design of the proposed works as well as to provide services for contract administration and site supervision for the construction phase.
