

**ITEM FOR ESTABLISHMENT SUBCOMMITTEE  
OF FINANCE COMMITTEE**

**HEAD 62 – HOUSING DEPARTMENT  
Subhead 003 Recoverable salaries and allowances (General)**

Members are invited to recommend to Finance Committee –

- (a) the creation of the following permanent posts in the Housing Department (HD) with effect from 1 April 2013 –

1 Chief Engineer  
(D1) (\$112,200 - \$122,650)

1 Chief Geotechnical Engineer  
(D1) (\$112,200 - \$122,650)

1 Chief Maintenance Surveyor  
(D1) (\$112,200 - \$122,650)

1 Chief Structural Engineer  
(D1) (\$112,200 - \$122,650); and

- (b) the revision and redistribution of duties and responsibilities among some other directorate posts in HD.

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## PROBLEM

There is a need for additional staffing support in the Development and Construction Division (DCD) and the Independent Checking Unit (ICU) of HD<sup>1</sup> to cope with the substantial increase in workload arising from the implementation of the new Home Ownership Scheme (HOS) and other related housing initiatives, which are necessary as the development programme moves ahead to the build stage in order to ensure timely delivery of the subsidised housing production targets.

## PROPOSAL

2. We propose to create four permanent directorate posts, including one Chief Engineer (CE) (D1) and one Chief Geotechnical Engineer (CGE) (D1) in DCD, as well as one Chief Maintenance Surveyor (CMS) (D1) and one Chief Structural Engineer (CSE) (D1) in ICU, with effect from 1 April 2013 to cope with the substantial increase in workload arising from the implementation of the new HOS and other related housing initiatives.

## JUSTIFICATION

### The New HOS and Other Related Housing Initiatives

3. In the 2011-12 Policy Address, the former Chief Executive announced the resumption of HOS and tasked HA with the responsibility to produce flats under the new HOS. More than 17 000 HOS flats will be provided over four years from 2016-17 to 2019-20, with a target production of 5 000 HOS flats a year on average thereafter. The first batch of flats will be ready for pre-sale in 2014. This policy commitment in effect requires HD to increase its average yearly housing production target from 15 000 to 20 000 units, including both HOS and public rental housing (PRH) units<sup>2</sup>. The implementation of the new HOS has considerable workload implications for all divisions, in particular DCD which is tasked to take up the production of HOS flats, in addition to the construction of PRH units; and ICU which will have to undertake the additional checking work.

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<sup>1</sup> The HD is the executive arm of Housing Authority (HA). HD staff (all being civil servants) are seconded to HA, which also employs its own staff under HA contract terms.

<sup>2</sup> As announced in the 2013 Policy Address, the production target of PRH will be further increased to at least 100 000 units over the five years starting from 2018.

4. With the approval of the Finance Committee (FC)<sup>3</sup>, six directorate posts, including one Assistant Director of Housing (AD of H) (D2), one Chief Architect (CA) (D1), one Chief Building Services Engineer (CBSE) (D1), one Chief Planning Officer (CPO) (D1), one Chief Quantity Surveyor (CQS) (D1) and one CSE (D1) posts, were created in DCD on 13 July 2012 to kick-start the planning and design work relating to the new HOS. As the construction and development programme has progressed into the detailed design and construction stages and given that most of the sites identified for the new HOS are found to be either with very complicated engineering constraints or located in Designated/Scheduled Area<sup>4</sup> or exposed to natural terrain hazards demanding heavier engineering input for the work in detailed design, co-ordination and liaison, we need to further strengthen the directorate support from the engineering disciplines within both DCD and ICU.

5. The proposed additional posts also seek to strengthen the directorate support for other related housing initiatives, including planning and engineering studies for site searches, potential site studies for redevelopment of aged estates, vetting and approval of building works proposals and related building control functions etc., to ensure timely delivery of HOS and PRH production targets. Due to shortage of land supply, extensive site searches have to be conducted in recent years to identify new public housing sites for meeting the annual production target. These sites are often severely constrained and thus comprehensive planning and engineering studies are required before confirming their suitability for HA's development. Besides, to make a better use of the land resources in existing PRH estates with a low plot ratio and to explore the scope for additional flat production through partial or full redevelopment, a "Refined Policy on Redevelopment of Aged Public Rental Housing" was endorsed by HA in November 2011, under which HA will conduct a rolling programme of potential studies to examine the build-back potential of aged estates.

6. Two of the four proposed posts, i.e. one CE and one CGE, will be created in DCD, whereas the other two, i.e. one CMS and one CSE, will be created in ICU. The ensuing paragraphs give details of the needs for these four proposed posts.

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<sup>3</sup> On 13 July 2012, FC approved the creation of the six directorate posts vide EC(2012-13)6.

<sup>4</sup> As defined by the Buildings Ordinance, these are areas with complex geological conditions e.g. cavities or in proximity to railway lines and sewage tunnel, which have significant impacts on the proposed foundation design, geological works and construction programme.

## Need for Additional Chief Professional Posts in DCD

### *Functions and Directorate Set-up of DCD*

7. DCD is responsible for the production of new PRH and new HOS units. The work includes all facets of project management and production from the initial site search and feasibility studies, community engagement, planning, design, contract management, commissioning for occupation, up to the expiry of the initial maintenance period and the settlement of final accounts. DCD is also responsible for establishing operational policies on procurement, design, construction, quality performance assessment, dispute resolution, research and development, safety and environmental management for public housing development in Hong Kong.

8. DCD is headed by a Senior Assistant Director of Housing (D3) designated as the Deputy Director (Development and Construction) (DD(DC)). With the creation of six directorate posts as mentioned in paragraph 4 above, DD(DC) is now underpinned by four ADs of H (D2) and 18 chief professionals<sup>5</sup> (D1). DCD works as a fully integrated multi-disciplinary matrix organisation to deliver the Public Housing Construction Programme (PHCP) as each and every housing development requires input from all professional disciplines. The current organisation chart of DCD is at Enclosure 1.

Encl. 1

9. DCD is working against a severely compressed timetable on both PRH and new HOS developments. In addition, the complexity of sites for both PRH and new HOS developments, and other new housing initiatives as illustrated in paragraphs 4 and 5 above will also induce additional workload for DCD. There is thus an urgent need for additional chief professional posts in DCD in order to enable timely delivery of the housing production targets. Given that each of the professional disciplines has their distinct roles to play, apart from the five chief professional (D1) posts created in 2012-13 as mentioned in paragraph 4 above, we propose to create another two chief professional posts of two other disciplines, including one CE and one CGE posts, in DCD. Besides, one CA and one part-time CSE posts temporarily redeployed to ICU (see paragraphs 17 and 19 below) will be returned to DCD to further strengthen the directorate support in view of its imminent need. We would also take the opportunity to rationalise the distribution of duties and responsibilities among some directorate posts in DCD in order to better suit the operational workflow and to achieve a more even distribution of workload.

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<sup>5</sup> The 18 chief professionals include six CA; two CBSE; one CE; one CGE; two CPO; two CQS and four CSE posts. One CSE post in DCD is currently sharing the workload of ICU on a part-time basis.

*Need for a Chief Engineer Post*

10. Currently, there is only one CE post, designated as Chief Civil Engineer (CCE), responsible for leading and managing the delivery of civil engineering and land surveying professional services for public housing projects in HD. As a result of the amalgamation of the former Housing Bureau (HB) and HD in 2002, two CE posts in the former HB were deleted vide EC(2002-03)7 and their duties on the administration of housing-related infrastructure projects under Capital Works Reserve Fund (CWRF) Head 711 Housing<sup>6</sup> have been taken up by the CE post in HD. One CE post is grossly insufficient to cope with these duties together with the additional workload due to resumption of HOS as well as those arising from other housing initiatives and the increased complexity in public housing planning and development works, such as the redevelopment of aged estates; increasing number of engineering feasibility studies; active participation in public consultations; increasing number of supporting projects under CWRF Head 711; more infrastructure improvement works and contract administration works; increasing number of engineering researches on development and standard to meet new environmental and engineering requirements; and enhancement of land surveying services.

11. In order to deliver the new HOS projects under a fast-track programme<sup>7</sup>, it is necessary for CCE to resolve issues promptly and at high level, including complex traffic and environmental issues frequently encountered in the projects. Moreover, for the engineering feasibility studies on potential sites for both PRH and HOS, CCE has to work out the strategy for the provision of infrastructures with the concerned works departments; provide advice to the planning, design and building dispositions for each site; and assist in formulating public consultation arrangements as the public is very concerned about the impacts of the critical engineering issues including traffic, noise, air quality and potential hazardous installations. As regards the implementation of revitalisation/upgrading of aged estates, CCE has to work out the maintenance strategy and interfacing for the infrastructure works to avoid disruption to the existing tenants. In view of the importance and complexity of the above issues, it is essential to create an additional CE post to provide the appropriate level of leadership on the above project matters.

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<sup>6</sup> CWRF Head 711 projects are for government-funded housing-related facilities.

<sup>7</sup> Normally, it takes about seven years from site identification to building completion and actual delivery timetable will depend on the complexity involved in individual sites. We will however fast-track the first six new HOS projects under an exceptionally compressed timetable with a view to completing the public consultation, planning, design and construction in five years, i.e. with the building completion scheduled for 2016-17.

12. With the creation of a new CE post (to be designated as CCE/2), CCE/1 (the existing CCE) will focus on leading the delivery of civil engineering and land surveying services for PRH projects; formulating standards and carrying out researches relating to civil engineering and land surveying services for both PRH and HOS developments; as well as the administration of housing-related infrastructure projects under CWRP Head 711. CCE/2 will be responsible for resolving key issues at a directorate level relating to civil engineering works, conducting drainage/sewerage/traffic/environmental engineering impact assessments, providing civil engineering proposals and administering housing-related infrastructure projects under the new HOS. CCE/2 will also be responsible for administering planning and engineering studies for potential housing sites and housing-related infrastructure projects in respect of redevelopment or upgrading of aged estates. The job descriptions of the two CE posts are at Enclosures 2 and 3.

Encls.  
2 & 3

#### *Need for a Chief Geotechnical Engineer Post*

13. As many of the sites identified for the new HOS are complex and difficult including sites affected by natural terrain hazards with a very large coverage relative to the small size of sites, located in Scheduled Areas with complex geological conditions, requiring extensive site formation works and basements as part of the development, CGE's input is crucial in safeguarding HA's and future owners' interest by minimising the safety, financial, and other risks arising from the geotechnical engineering works for sites involving maintenance responsibilities of natural terrain under the newly introduced Natural Terrain Clause under the Lease Conditions and sites located at Scheduled Areas with complex geological conditions.

14. At present, there is only one CGE in HD who is responsible for leading and managing the delivery of all geotechnical engineering services for public housing projects. The existing CGE is already over-stretched by more extensive geotechnical investigation, site formation proposals and works arising from the complex geology conditions, coupled with more intensive supervision and other new initiatives including the management of site supervision teams<sup>8</sup> and the Geotechnical Research and Development Programmes<sup>9</sup>. In addition, the existing CGE is required to deal with increasing number of ground-related claims lodged by construction contractors, and participation in public consultations. An additional CGE post under DCD is required to deal with the additional workload arising from the new HOS and other initiatives under the PHCP.

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<sup>8</sup> The site supervision teams comprise professional staff and site supervision staff nominated as Technically Competent Persons under Registered Geotechnical Engineer's Stream in line with the practices as required by the Building Authority.

<sup>9</sup> The programmes target to improve design and construction practice for the benefit of housing developments.

15. With the creation of a new CGE post (to be designated as CGE/2), CGE/1 (the existing CGE) will focus on the design, tender, and site supervision of geotechnical investigations and slope works in construction contracts, preparing geotechnical reports and providing geotechnical services to project teams on foundations, slopes and retaining structures, differential ground settlement and natural terrain hazard mitigation measures; preparing geotechnical submissions to the Geotechnical Engineering Office (GEO) of Civil Engineering Development Department (CEDD) and ICU for the PRH projects; administering ground investigation term contracts; and managing specialised geotechnical consultants. CGE/2 will be responsible for the design, tender, and site supervision of geotechnical investigations and slope works in construction contracts, preparing geotechnical reports and providing geotechnical services to project teams on foundations, slopes and retaining structures, differential ground settlement and natural terrain hazard mitigation measures; preparing geotechnical submissions to the GEO of CEDD and ICU for the new HOS projects; and administering term geotechnical consultancies for natural terrain hazard studies. CGE/2 will also undertake geotechnical assessments in planning and engineering studies for potential housing sites and aged estate upgrading works and redevelopments.

16. Moreover, CGE/2 will take up the duties to provide administrative and technical support to Estate Management Division (EMD) of HD, including provision of immediate input to Geotechnical Engineering Management Units of EMD in emergency situations concerning slope failures within or in the vicinity of the public housing estates. CGE/2 will also work together with CGE/1 to provide geotechnical advice to ICU from both technical and policy perspectives, which are not being provided in ICU. The job descriptions of the two CGE posts are at Enclosures 4 and 5.

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#### *Proposed New Structure for DCD*

17. Since November 2005, we have redeployed, on a temporary basis, one CA post and one part-time CSE post from DCD to ICU (see paragraph 19 below). In view of the heavy workload arising from the new HOS and other housing initiatives, we plan to cease this arrangement and return the two posts to DCD. With the cessation of the temporary redeployment arrangement and the proposed creation of the CE and CGE posts, the duties and responsibilities of some other directorate posts in DCD will be redistributed in order to better suit the operational workflow and to achieve a more even distribution of workload. Under the new structure, the four ADs of H will each oversee and supervise five Sections, with a total of 20 Sections in the matrix organisation delivering the PHCP. The returned CSE post (to be re-designated as CSE/Development and Construction (CSE/D&C)) will perform central support functions, such as standards and

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Encls. 6-9  
Encl. 10

specifications, construction materials testing, piling contractors performance monitoring, product certification of building components and pre-cast concrete structural components supervision in Mainland, while the returned CA post (to be designated at CA/5) will be responsible for handling part of the new HOS development and redevelopment projects, and head the Feasibility Management Unit. The job descriptions of the concerned AD of H, CSE and CA posts are at Enclosures 6 to 9. The proposed organisation chart of DCD is at Enclosure 10.

### **Need for Additional Chief Professional Posts in ICU**

#### *Functions and Directorate Set-up of ICU*

18. Despite the fact that HA's construction projects and buildings are statutorily exempted from the control of the Buildings Ordinance (BO), Cap. 123, the ICU has been established in HD since November 2000 to provide full quality assurance for public housing by exercising third-party regulatory control over HA's new building development projects in line with the requirements of the BO and following the technical standards and practices adopted by the Building Authority (BA) for control of private buildings. The work of the ICU in this area includes, among others, checking building design and construction proposals, granting of approvals and consents to commence work and undertaking subsequent site monitoring works against the endorsed site supervision plans, method statements, etc., as the works progress. ICU also needs to exercise building control function for the sold properties developed by HA including HOS Courts and Tenants Purchase Scheme Estates under the delegated authority from the BA under the BO. In November 2005, the ICU's independent building control functions have been further extended to cover HA's divested retail and carparking facilities including the public housing blocks in the same estate similarly subject to the BO. The independent building control system therefore effectively covers all HA's developments and all completed buildings developed by HA.

19. At present, ICU is headed by an AD of H (D2), designated as Assistant Director (Independent Checking Unit) (AD(ICU)) but there are no D1 directorate posts in ICU. As mentioned in paragraph 17 above, since November 2005, we have redeployed, on a temporary basis, one CA post (designated as CA/ICU) from DCD to ICU<sup>10</sup> to cope with the workload of the independent building control system then. In addition, in line with the Buildings Department (BD)'s long-established practice to ensure adequate cross-checking and the

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<sup>10</sup> The temporary redeployment of the CA post was set out in EC(2006-07)11 which was discussed by the Establishment Subcommittee on 14 June 2006.



consistency and reliability of the checking system, ICU, with the deployed CA post, was able to adopt a three-tier vetting system<sup>11</sup> in the building stream, which requires basic checking of submissions for construction proposals at professional level, review at senior professional level and approval/disapproval at D1 level. This three-tier vetting system is applicable to initial submissions and all subsequent major amendments for construction proposals of both new building developments and alteration to existing buildings. With an additional layer of approval at CA level, ICU could put in place a checking and approval practice on par with BD, hence according equal treatment to both public housing and private housing construction works in the examination of construction proposals. In view of the pressing need to deal with the concerned submissions then and to enable a three-tier vetting system in the structural engineering stream, we have also redeployed a CSE post (designated as CSE/Development and Construction & ICU) on a part-time basis from DCD to ICU to discharge this function since April 2006<sup>12</sup>. The current organisation chart of ICU is at Enclosure 11.

Encl. 11

20. As explained in paragraph 9 above, DCD needs to take back the CA and CSE posts redeployed to ICU since 2005 and 2006 respectively to cope with the workload arising from the new HOS and other related initiatives. On the other hand, with the proven experience in the past seven years, we consider it functionally necessary to create the permanent chief professional posts in ICU to sustain the above-mentioned three-tier checking system in both the building and structural engineering streams, and to cope with the increase in workload since 2005-06 as explained in the following paragraphs.

#### *Need for a Chief Maintenance Surveyor Post*

21. We propose to create one CMS post (to be designated as CMS/ICU) to assist in developing and maintaining an independent building control system and vetting procedures for building works within HD, supervising the processing of submissions for the building addition and alteration works with respect to public housing blocks, supervising the processing of licence application referrals from other departments with respect to commercial, social and educational premises within HA and ex-HA premises, supervising the implementation of the Minor Works Control System (MWCS), Mandatory Building Inspection Scheme (MBIS), Mandatory Window Inspection Scheme (MWIS) and any other new initiatives

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<sup>11</sup> In the past, HD adopted a two-tier system, i.e. a professional officer would vet an application and the vetting result would then be reviewed by a senior professional due to the lack of D1 officers in ICU then.

<sup>12</sup> The redeployment of the CSE post on a part-time basis was set out in EC(2006-07)11 which was discussed by the Establishment Subcommittee on 14 June 2006.

Encl. 12

adopted by BD, as well as supervising the processing of building, site formation, drainage and related submissions of the HA's new projects and projects entrusted to HA and acting as the top layer approval authority in the three-tier vetting system for building submissions. According to BD's advice, the proposed post could either be in the architectural or maintenance surveying stream and we propose to create a CMS post to be underpinned by both architects and maintenance surveyors to deal with submissions on both new developments and existing buildings. The job description of the proposed CMS post is at Enclosure 12.

22. We expect that the workload of the proposed CMS post will be very heavy with the cessation of the redeployment of the CA post in ICU. There has been an upsurge in the number of building submissions<sup>13</sup> to ICU from around 2 000 in 2005-06 to 5 300 in 2011-12, representing an increase of about 160% in six years' time. Coupled with the implementation of the new HOS of about 5 000 flats per year, the redevelopment of aged public housing estates and the implementation of new initiatives for exercising legislative control under MWCS to process over 13 000 submissions annually, and MBIS and MWIS to process over 68 000 reports per annum, we anticipate that the workload will continue to increase substantially in the coming years. The situation would be monitored very closely.

#### *Need for a Chief Structural Engineer Post*

23. Over the years, there has also been a drastic increase in the number of structural submissions<sup>14</sup> from around 2 300 in 2005-06 to nearly 6 000 in 2011-12, representing an increase of about 160%. Apart from the quantitative increase, the submissions have also become technically more complicated due to the highly constrained sites with difficult topography and geology demanding more sophisticated engineering solutions, whilst there is also substantial increase in the site monitoring works in line with the practice of BD to curb risks during construction stage. With the resumption of HOS for about 5 000 flats annually and the needed structural input and support rendered to the implementation of new building control initiatives, including new legislative control concerning MWCS, MBIS and MWIS, there is an imminent need to create a full-time CSE post in ICU after the cessation of the redeployment of a part-time CSE post from DCD to ICU.

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<sup>13</sup> Building submissions refer to building plans and related submissions demonstrating the general building layout design including drainage and site formation to be in compliance with the BO in terms of plot ratio, site coverage, lighting and ventilation, draining provision and other relevant requirements.

<sup>14</sup> Structural submissions refer to structural plans and related submissions demonstrating the structural design including the foundation to be in compliance with the BO in terms of structural calculations, structural detailing, geotechnical assessment and other relevant requirements.

- Encl. 13 24. The proposed CSE post (to be designated as CSE/ICU) will be responsible for enforcing building control concerning structural engineering matters, serving as the final approval authority in the three-tier structural engineering submission vetting system for new developments and alteration and addition works, overseeing site monitoring work and providing structural engineering advices for the implementation of the newly enacted MWCS, MBIS and MWIS. The job description of the proposed CSE post is at Enclosure 13.
- Encl. 14 25. The proposed organisation chart of ICU is at Enclosure 14.

### ALTERNATIVES CONSIDERED

26. We have critically examined whether the additional workload for the four proposed chief professional posts can be handled through internal redistribution of work, redeployment of resources and re-engineering of work processes. Having regard to the reasons in paragraphs 10 to 12 (for CE) and paragraphs 13 to 16 (for CGE) above, it is not feasible for the existing CE and CGE to take up the additional duties.

27. There are now five CSE posts in HD, with four in DCD and one in EMD. The CSE post in EMD (designated as Chief Manager/Management (Support Services 5)) has been fully occupied by the Comprehensive Structural Investigation Programme. He has also taken up new duties such as lift modernisation programme, addition of lift towers and associated footbridges and Estate Improvement Programme. We have also explained in paragraph 17 above the need of a full-time CSE post in DCD to perform central support functions. As regards the other three CSE posts in DCD, namely, CSE/1, CSE/2, CSE/3, their workloads have already reached the limit of their capacity due to the increasing complexity of the housing projects. Hence, it is not possible for them to take up the duties of the proposed CSE post.

28. There are three CMS posts in HD, all in EMD. These post-holders serve as Chief Managers/Management, who are responsible for overseeing the management and maintenance of PRH estates in different management regions. Given that these posts have their specific functions and the post-holders are fully occupied with their schedules, redeployment of these posts to take up the duties of the proposed CMS post is considered not viable.

29. There are also other D1 posts in HD, including six CA, two CBSE, two CPO and two CQS posts in DCD; one Chief Housing Manager (CHM) post in Strategy Division; two CBSE, three CHM and two Chief Estate Surveyor posts in EMD; one CA post temporarily redeployed to ICU; and one Assistant Principal

Training Officer, one CHM, one Chief Systems Manager, one Chief Treasury Accountant and one HA Contract Chief Finance Manager posts in Corporate Services Division. Apart from the fact that they are of different professional disciplines from the proposed chief professional posts, they all have their respective full schedules and are unable to take up the duties of the proposed D1 posts.

Encl. 15 30. The proposed organisation chart of HD is at Enclosure 15.

## FINANCIAL IMPLICATIONS

31. The proposed creation of the four permanent directorate posts will bring about an additional notional annual salary cost at mid-point of \$5,714,400 as follows –

	Notional annual salary cost at mid-point \$	No. of posts
<b>Directorate posts</b>		
CE (D1)	1,428,600	1
CGE (D1)	1,428,600	1
CMS (D1)	1,428,600	1
CSE (D1)	1,428,600	1
<b>Total</b>	<u><b>5,714,400</b></u>	<u><b>4</b></u>

The additional full annual average staff cost, including salaries and staff on-cost is \$8,153,000. Apart from the proposed directorate posts, a total of 129 non-directorate civil service posts<sup>15</sup> will be created in HD for the new HOS as the development programme moves ahead to the build stage and for conducting planning and engineering studies for site searches and potential site studies for redevelopment of aged estates. The notional annual salary cost at mid-point and full annual average staff cost, including salaries and staff on-cost, are \$53,362,830 and \$86,128,000 respectively. The full cost for both directorate and non-directorate posts will be recovered from HA under the established arrangement for HD staff seconded to HA. The redeployment and redistribution of duties of the directorate posts in HD has no financial implications.

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<sup>15</sup> Another 188 new non-directorate civil service posts have been created in HD in 2012-13 to kick-start the production process of the new HOS. We will review all the posts in six years' time (i.e. 2018-19) having regard to the target of delivering 17 000 new HOS units from 2016-17 to 2019-20.

## PUBLIC CONSULTATION

32. On 7 January 2013, we consulted the Legislative Council Panel on Housing on the above staffing proposal. Members supported the creation of four directorate posts in HD to cope with the substantial increase in workload arising from the implementation of new HOS and other related housing initiatives. Panel Members sought supplementary information on the total additional manpower resources required for the new HOS and other related housing initiatives; sites identified for the new HOS and their complexities; and potential sites for production of public housing in the future. The supplementary information was issued to the Panel on 6 February 2013 and a copy is at Enclosure 16.

Encl. 16

## BACKGROUND

33. First introduced in the 1970s, HOS is one of the subsidised housing schemes for assisting lower and middle income groups to buy their own properties at discounted prices. With the announcement of the cessation of HOS by the Government in November 2002, the HA had ceased the production and sale of HOS flats from 2003 onwards, worked out various arrangements for handling the surplus HOS flats, and offered for sale in phases the remaining unsold and returned surplus HOS flats from 2007 onwards. Arising from the cessation of production of HOS flats and other reasons, such as reduction in public housing production and departmental reorganisation, the number of directorate posts in DCD of HD was reduced from 25 to 17, i.e. reduced by eight. As mentioned in paragraph 4 above, with the resumption of HOS, six directorate posts have been created in DCD since 13 July 2012. Currently, the number of directorate posts in DCD is 23.

## ESTABLISHMENT CHANGES

34. The establishment changes in HD for the past two years are as follows –

Establishment (Note)	Number of Posts			
	Existing (as at 1 February 2013)	As at 1 April 2012	As at 1 April 2011	As at 1 April 2010
A	56+(2)#	50+(2)#	50	48+(1)
B	1 282	1 183	1 175	1 169
C	7 701	7 608	7 603	7 606
<b>Total</b>	<b>9 039+(2)</b>	<b>8 841+(2)</b>	<b>8 828</b>	<b>8 823+(1)</b>

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Note:

- A - ranks in the directorate pay scale or equivalent (including equivalent HA contract posts)
- B - non-directorate ranks, the maximum pay point of which is above MPS point 33 or equivalent (including equivalent HA contract posts)
- C - non-directorate ranks, the maximum pay point of which is at or below MPS point 33 or equivalent (including equivalent HA contract posts)
- ( ) - number of supernumerary directorate posts created with the approval of the Establishment Subcommittee/FC
- # - as at 1 February 2013, there was no unfilled directorate post in HA

**CIVIL SERVICE BUREAU COMMENTS**

35. The Civil Service Bureau supports the proposed creation of the four permanent directorate posts, namely one CE, one CGE, one CMS and one CSE in HD to cope with the substantial increase in workload arising from the implementation of the new HOS and other related housing initiatives. The grading and ranking of the posts are considered appropriate having regard to the level and scope of responsibilities required.

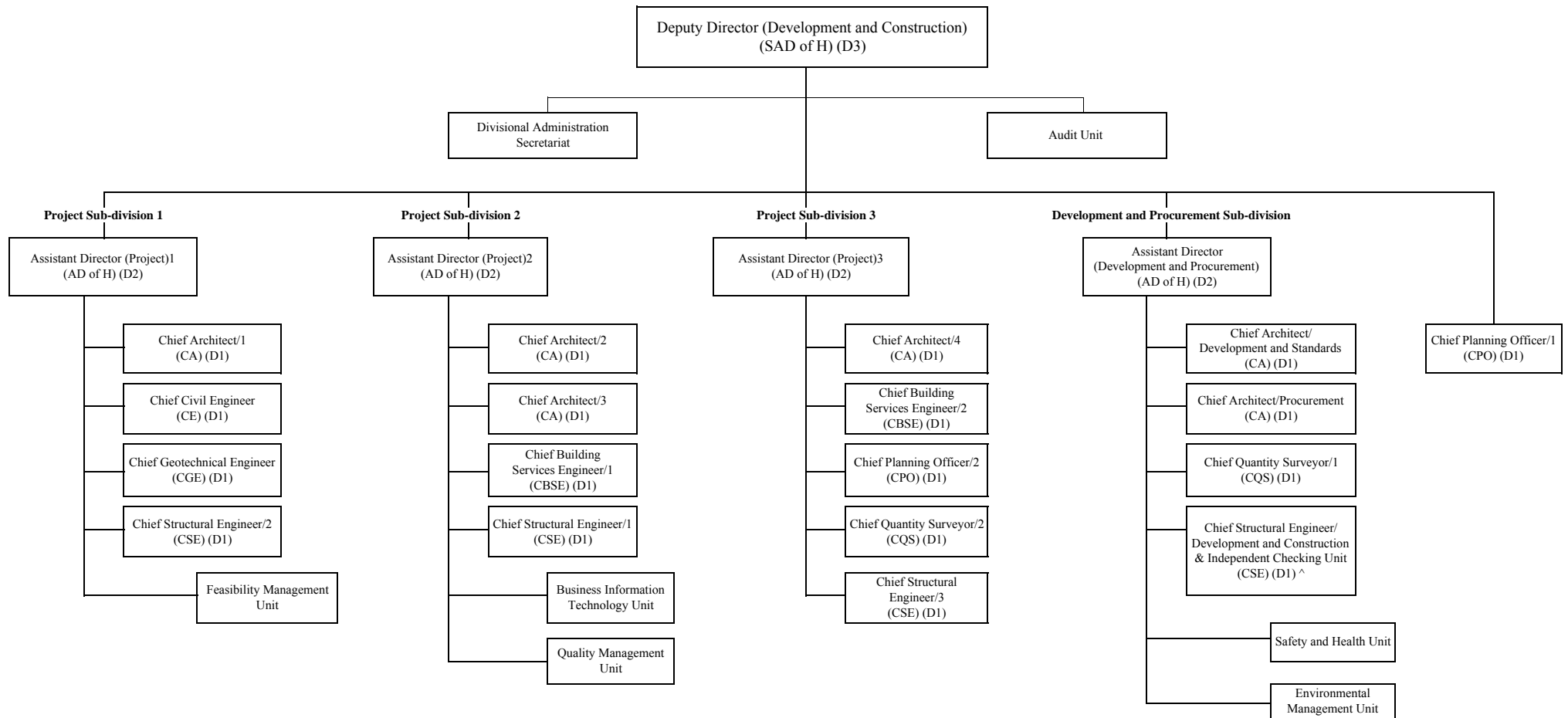
**ADVICE OF THE STANDING COMMITTEE ON DIRECTORATE SALARIES AND CONDITIONS OF SERVICE**

36. The Standing Committee on Directorate Salaries and Conditions of Service has advised that the grading proposed for the posts would be appropriate if the proposal was to be implemented.

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Transport and Housing Bureau  
February 2013

**Existing Directorate Organisation Structure of Development and Construction Division**



**Legends:**

- AD of H - Assistant Director of Housing
- CA - Chief Architect
- CBSE - Chief Building Services Engineer
- CE - Chief Engineer
- CGE - Chief Geotechnical Engineer
- CPO - Chief Planning Officer
- CQS - Chief Quantity Surveyor
- CSE - Chief Structural Engineer
- SAD of H - Senior Assistant Director of Housing

^ - Post deployed to Independent Checking Unit on a part-time basis.

**Job Description**  
**Chief Civil Engineer/1**

**Rank** : Chief Engineer (D1)

**Responsible to** : Assistant Director (Project) 1

**Major Duties and Responsibilities –**

1. To provide civil engineering proposals and resolve key issues relating to civil engineering works including administration of housing-related infrastructure projects and provision of design and contract management of the construction works for public rental housing (PRH) developments.
  2. To procure and administer consultancies for conducting traffic and environmental engineering impact assessments for PRH developments.
  3. To administer the required statutory procedures (e.g. Roads (Works, Use and Compensation) Ordinance, Environmental Impact Assessment Ordinance) and arrange the required public consultations for implementation of the infrastructure projects.
  4. To administer housing-related infrastructure projects under the Capital Works Reserve Fund Head 711 including preparation of Legislative Council (LegCo) submissions and attendance of LegCo meetings.
  5. To monitor the expenditures and timely delivery of the Head 711 projects undertaken by Housing Department (HD) and other Government departments.
  6. To develop new civil engineering designs including liaison with Environmental Protection Department to develop innovative noise mitigation measures to improve the housing development schemes.
  7. To procure term utilities detection contract for mapping of utilities information for design and works execution.
  8. To provide standard contract documents, specifications and drawings for civil engineering works undertaken by HD.
  9. To provide land surveying services to HD on construction projects and land administration matters.
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**Job Description  
Chief Civil Engineer/2**

**Rank** : Chief Engineer (D1)

**Responsible to** : Assistant Director (Project) 3

**Major Duties and Responsibilities –**

1. To provide civil engineering proposals and resolve key issues relating to civil engineering works including administration of housing-related infrastructure projects and provision of design and contract management of the construction works for Home Ownership Scheme (HOS) developments.
2. To procure and administer consultancies for conducting traffic and environmental engineering impact assessments for HOS developments.
3. To conduct site potential studies for potential public housing sites including appraisal of drainage/sewerage/traffic/environmental engineering impacts for the sites.
4. To administer integrated planning/engineering studies and comprehensive engineering feasibility studies for timely provision of public housing sites including procurement and administration of consultants.
5. To formulate and resolve strategic engineering issues and prepare engineering schemes for supporting infrastructures.
6. To co-ordinate the implementation of required infrastructure projects for timely provision of formed public housing sites and housing-related infrastructures.
7. To establish public consultation strategy and arrange public engagements for implementation of the required site formation and infrastructures.
8. To administer the required statutory procedures (e.g. Environmental Impact Assessment Ordinance, Roads (Works, Use and Compensation) Ordinance) for implementation of the infrastructure projects undertaken by Housing Department.
9. To provide civil engineering proposals and prepare engineering schemes to maintain and divert existing infrastructures and transport services during the upgrading of the aged estates including formulating the infrastructural maintenance strategy for the affected estates.

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**Job Description**  
**Chief Geotechnical Engineer/1**

**Rank** : Chief Geotechnical Engineer (D1)

**Responsible to** : Assistant Director (Project) 1

**Major Duties and Responsibilities –**

1. To be responsible for the design, tender, and site supervision of geotechnical investigations and slopeworks in construction contracts for public rental housing (PRH) projects.
2. To prepare geotechnical submissions to the Geotechnical Engineering Office of Civil Engineering Development Department and the Independent Checking Unit (ICU) of Housing Department for PRH projects.
3. To prepare geotechnical reports, slope maintenance manuals and provide geotechnical services to project teams on foundations, slopes and retaining structures, differential ground settlement and natural terrain hazard mitigation measures for PRH projects.
4. To be responsible for the financial control and programming of geotechnical engineering works and services for PRH projects.
5. To conduct site potential studies/screening for potential housing sites.
6. To administer ground investigation term contracts and to oversee the deployment of Technical Competent Person site supervisors of Registered Geotechnical Engineer Stream.
7. To manage specialised geotechnical consultants and provide support to project teams in dealing with matters relating to geotechnical engineering.
8. To act as Chief Professional Advisor for ICU.
9. To act as Chief Professional Advisor and member for departmental panels/committees, e.g. the Dispute Resolution Panel for Engineering Works.

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**Job Description  
Chief Geotechnical Engineer/2**

**Rank** : Chief Geotechnical Engineer (D1)

**Responsible to** : Assistant Director (Project) 3

**Major Duties and Responsibilities –**

1. To be responsible for the design, tender, and site supervision of geotechnical investigations and slopeworks in construction contracts for Home Ownership Scheme (HOS) projects.
2. To prepare geotechnical submissions to the Geotechnical Engineering Office of Civil Engineering Development Department (CEDD) and the Independent Checking Unit (ICU) of Housing Department (HD) for HOS projects.
3. To prepare geotechnical reports, slope maintenance manuals and provide geotechnical services to project teams on foundations, slopes and retaining structures, differential ground settlement and natural terrain hazard mitigation measures for HOS projects.
4. To be responsible for the financial control and programming of geotechnical engineering works and services for HOS projects.
5. To conduct geotechnical assessment in planning and engineering studies for potential housing sites.
6. To administer term geotechnical consultancy for natural terrain hazard studies.
7. To liaise and negotiate with Lands Department and CEDD on issues relating to maintenance responsibilities of the natural terrain and slopes affecting or be affected by the housing developments.
8. To act as Chief Professional Advisor and Coordinator for Geotechnical Management Units in Estate Management Division of HD and Chief Professional Advisor for ICU.
9. To act as Chief Professional Advisor and member for departmental panels/committees, e.g. the Dispute Resolution Panel for Engineering Works.

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**Job Description**  
**Assistant Director (Development and Procurement)**

**Rank** : Assistant Director of Housing (D2)

**Responsible to** : Deputy Director (Development and Construction)

**Major Duties and Responsibilities –**

1. To establish, develop, maintain and review procurement strategies and practices to meet corporate needs. Major tasks include -
  - (a) to review and improve the procurement/tendering systems of the Housing Authority and the Housing Department and to provide specialist support to committees and tender boards on major and strategic issues;
  - (b) to explore new procurement methods, conduct pilot projects and advise other Divisions on execution of the same where appropriate;
  - (c) to oversee and co-ordinate the operation of the procurement and supplies functions, counter-party list management and contractors performance assessment systems for enhanced transparency, objectivity, efficiency and accountability; and
  - (d) to advise on procurement and contract matters.
  
2. To assist Deputy Director (Development and Construction) in the formulation of construction policies and procedures with a view to producing quality public housing. Major tasks include -
  - (a) to co-ordinate functional construction activities relating to architectural, quantity surveying, building services and engineering disciplines;
  - (b) to co-ordinate researches/feedback on public housing design, quality management activities, business process re-engineering, consultant management for outsourced projects, etc.;
  - (c) to develop and manage construction standards, specifications, guidelines and the associated quality management systems; and
  - (d) to supervise capital budget control and contractors performance assessment systems in the construction of public housing developments.

3. To formulate, develop and review initiatives relating to environmental management and site health and safety, including benchmarking with industry standards and establishing co-operation with internal and external stakeholders, and to oversee supporting services such as laboratory and testing services.
4. To collaborate with concerned departments, institutions, professional bodies and the construction industry on issues such as procurement, environmental management, site health and safety.

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**Job Description**  
**Assistant Director (Project)1/2/3**

**Rank** : Assistant Director of Housing (D2)

**Responsible to** : Deputy Director (Development and Construction)

**Major Duties and Responsibilities –**

1. To oversee the design and construction of public housing and new Home Ownership Scheme (HOS) developments, including new construction and redevelopment of existing estates, and to liaise with other departments and relevant parties to ensure that production targets are met. Major tasks include -
  - (a) to oversee the preparation of project budget, overall capital budget and five-year forecast;
  - (b) to monitor the programme and budget of public housing and new HOS developments as Project Director at all stages of the development process to ensure the production targets are met;
  - (c) to ensure construction standards, specifications, guidelines and the associated quality management systems are properly followed;
  - (d) to monitor the performance of contractors and consultants to ensure that they are performing in accordance with agreed programmes, quality requirements, policies and procedures;
  - (e) to supervise the handling of contractual disputes of long outstanding final accounts and consultancy agreements; and
  - (f) to facilitate the implementation of housing-related infrastructure projects, including the control and monitoring of the use of funds allocated for these projects.
2. To assist Deputy Director (Development and Construction) (DD(DC)) in the formulation of construction policies and procedures with a view to producing quality public housing and new HOS. Major tasks include -
  - (a) to co-ordinate functional construction activities relating to architectural, quantity surveying, building services and engineering disciplines;

/(b) .....

- (b) to co-ordinate researches/feedback on public housing design, quality management activities, business process re-engineering, consultant management for outsourced projects, etc.; and
  - (c) to advise on the development and management of construction standards, specifications, guidelines, etc.
3. To assist DD(DC) in overseeing the administration of projects under the Capital Works Reserve Fund Head 711.
  4. To assist DD(DC) in overseeing the site potential studies for public housing and new HOS developments and the implementation of redevelopment projects and related policy matters.
  5. To assist DD(DC) in overseeing the development and operation of the quality management system, information technology systems and tree management system.

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**Job Description**  
**Chief Structural Engineer/Development and Construction**

**Rank** : Chief Structural Engineer (D1)

**Responsible to** : Assistant Director (Development and Procurement)

**Major Duties and Responsibilities –**

1. To provide technical support to structural engineering (SE) project teams, including establishing and updating the standards and specifications for demolition, foundation and structural works, and to provide SE input and advice on the development of standard and non-standard designs and performance of existing standard designs.
2. To supervise and co-ordinate the operation of piling contractors performance assessment systems.
3. To initiate and conduct research and development studies on engineering materials, designs, environmental enhancement and construction techniques, to promote knowledge sharing and management, and to maintain and update the quality systems/procedural/technical manuals.
4. To manage, co-ordinate and monitor the provision of material testing services by term laboratories for public housing construction and maintenance and to keep abreast of the latest developments in the testing standards.
5. To administer the consultants appointed for the supervision of precast concrete structural components manufactured in Mainland.
6. To manage and co-ordinate the quality assurance of building components manufactured off territory through regular surveillance and testing and through product certification.

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**Job Description  
Chief Architect/5**

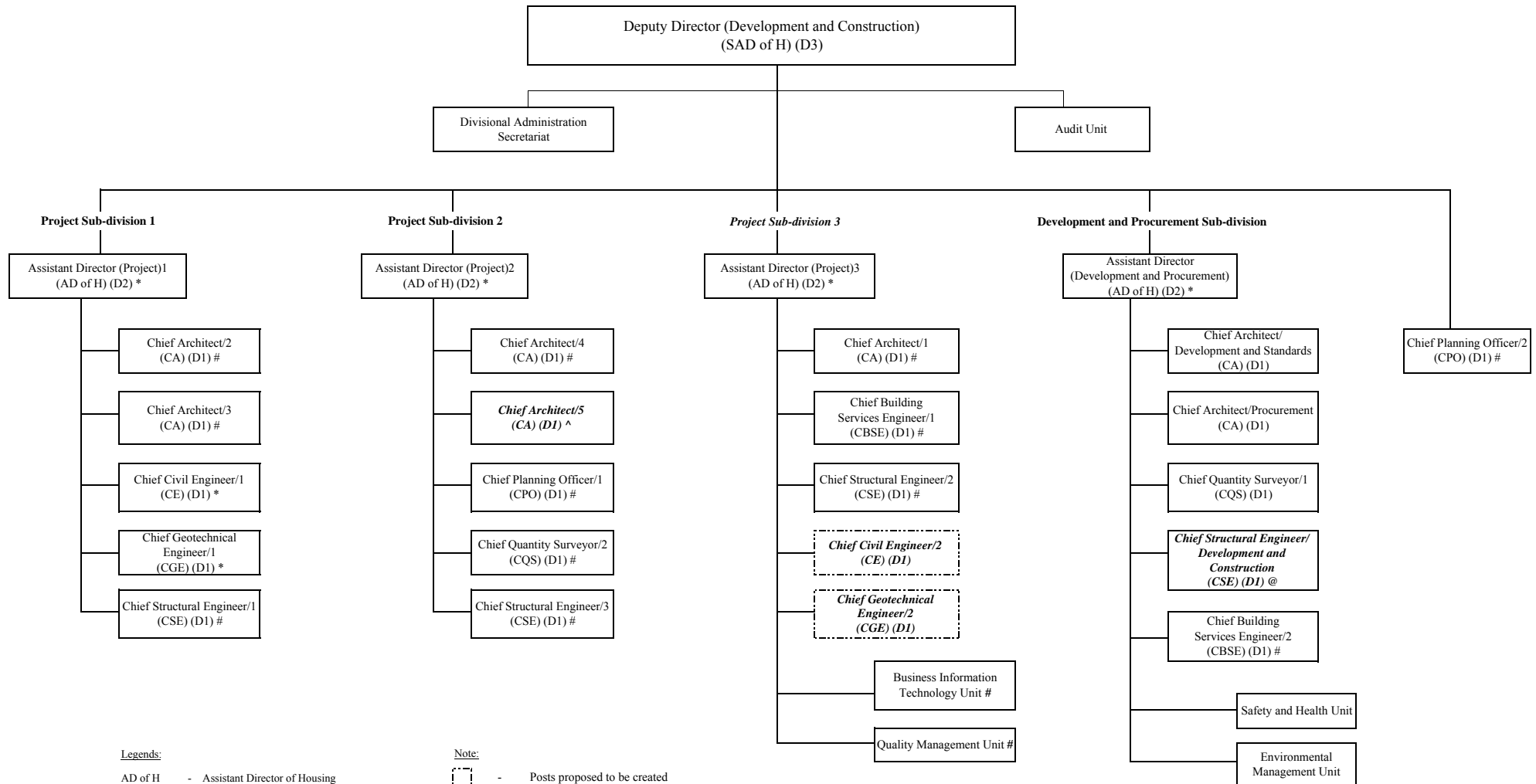
**Rank** : Chief Architect (D1)

**Responsible to** : Assistant Director (Project)2

**Major Duties and Responsibilities –**

1. To prepare, update and monitor the programme and budget of new Home Ownership Scheme (HOS) development assigned at all stages of the development process.
  2. To take up specific responsibilities of new HOS development such as Authorised Person and Contract Manager.
  3. To facilitate the preparation of development parameters and to carry out feasibility studies and to prepare master layout plan and detailed design on sites included in the new HOS development.
  4. To oversee and manage the performance of professional services providers/contractors employed in new HOS development to ensure the standard of service and production meeting the agreed requirements.
  5. To assist in the formulation of departmental policies, and to initiate and contribute to special studies/researches relating to the design and construction of new HOS and ancillary facilities.
  6. To liaise with the concerned departments on the implementation of new HOS development and to monitor the progress of works.
  7. To oversee the conduct of site potential and feasibility studies for the new potential housing sites for both public housing and new HOS developments.
  8. To steer and contribute input towards redevelopment studies, planning and engineering studies and related policy matters.
-

**Proposed Directorate Organisation Structure of Development and Construction Division**



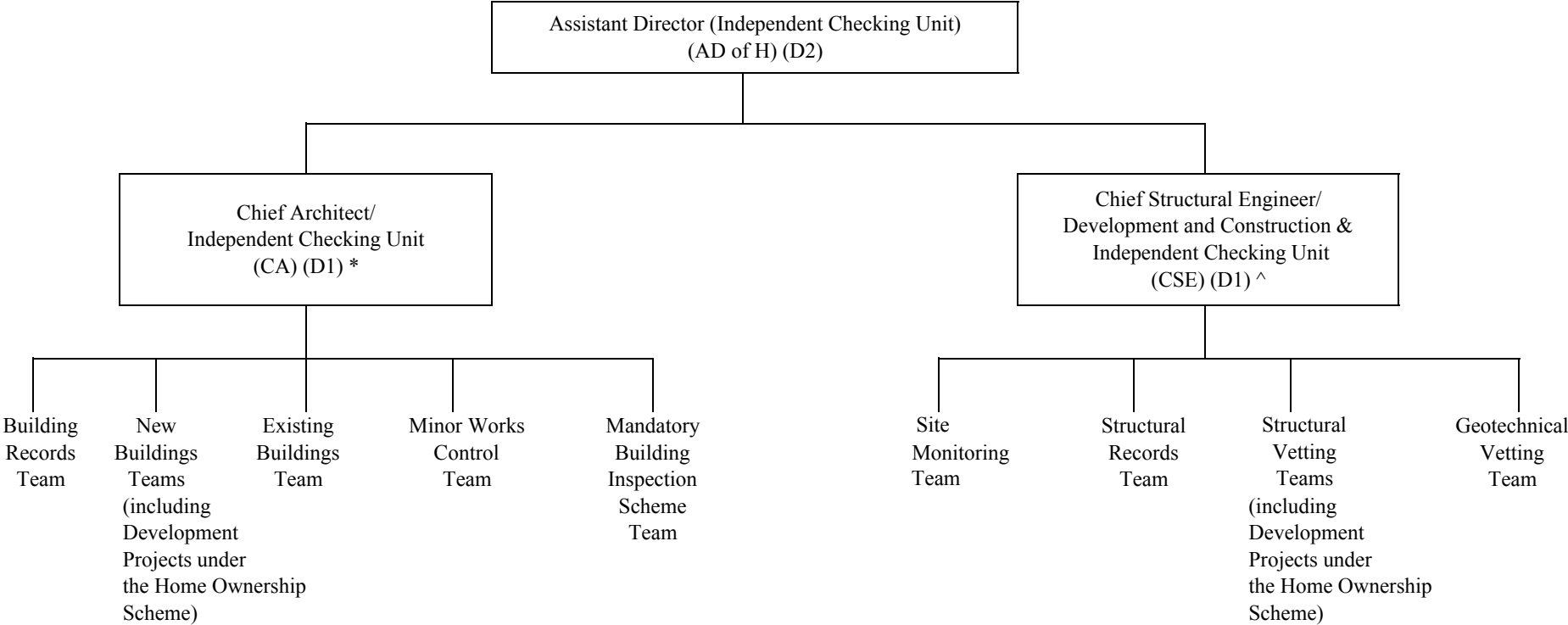
**Legends:**

- AD of H - Assistant Director of Housing
- CA - Chief Architect
- CBSE - Chief Building Services Engineer
- CE - Chief Engineer
- CGE - Chief Geotechnical Engineer
- CPO - Chief Planning Officer
- CQS - Chief Quantity Surveyor
- CSE - Chief Structural Engineer
- SAD of H - Senior Assistant Director of Housing

**Note:**

- Posts proposed to be created
- ^ - Post to be deployed back from Independent Checking Unit to Development and Construction Division
- @ - Post originally deployed to Independent Checking Unit on a part-time basis but to be deployed back to Development and Construction Division
- \* - Posts with duties revised
- # - Posts/units which have been redeployed but with no change in duties

**Existing Directorate Organisation Structure of Independent Checking Unit**



Legends:

AD of H - Assistant Director of Housing  
 CA - Chief Architect  
 CSE - Chief Structural Engineer

\* - Post deployed from Development and Construction Division on a temporary basis.  
 ^ - Post deployed from Development and Construction Division on a part-time basis.

**Job Description**  
**Chief Maintenance Surveyor/Independent Checking Unit**

**Rank** : Chief Maintenance Surveyor (D1)

**Responsible to** : Assistant Director (Independent Checking Unit)

**Major Duties and Responsibilities –**

1. To supervise the processing of addition and alteration submissions with respect to Home Ownership Scheme courts, Tenants Purchase Scheme estates, divested Retail and Carparking properties and public rental blocks in which some divested commercial facilities are located in accordance with the statutory requirements under the Buildings Ordinance (BO) and under a delegated authority from the Director of Buildings.
2. To supervise the processing of licensing referrals from other departments with respect to commercial, social and educational premises within the above-mentioned premises in accordance with the practice of the Buildings Department (BD).
3. To supervise the building control and enforcement works of above-mentioned premises in accordance with the statutory requirements under the BO and under the delegated authorities from the Director of Buildings.
4. To supervise the implementation of any new initiatives adopted by the BD such as Minor Works Control System, Mandatory Building Inspection Scheme and Mandatory Window Inspection Scheme under the delegated authority from the Director of Buildings.
5. To supervise the processing of building plans submissions of the Housing Authority (HA)'s new development projects and projects entrusted to HA in accordance with the technical standards of the BO.
6. To assist in formulating and developing policies and practices, in relation to regulatory compliance of HA projects, consistent with those required by the BO and in consultation with the BD.
7. To assist in liaising with the BD on the appropriate organisation structure, manpower requirements and practices of the Independent Checking Unit.
8. To monitor and report on the implementation of work and expenditure against the performance pledges and budget under Head 62 – Housing Department.
9. To report, advise and seek directives from the Building Committee of the BD on any complex technical issues and whether discretions are to be made in relation to new development projects, alteration and addition projects and other cases under his purview.

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**Job Description  
Chief Structural Engineer/Independent Checking Unit**

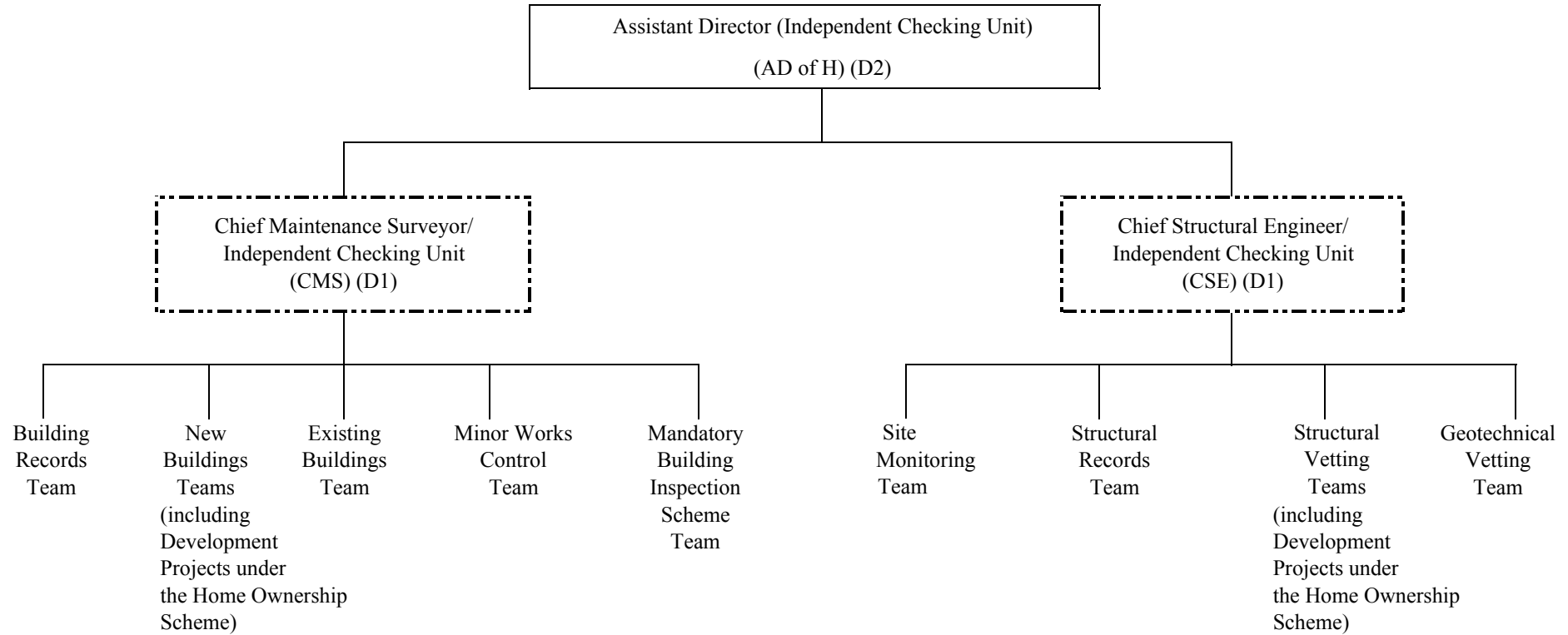
**Rank** : Chief Structural Engineer (D1)

**Responsible to** : Assistant Director (Independent Checking Unit)

**Major Duties and Responsibilities –**

1. To assist Assistant Director (Independent Checking Unit) (AD(ICU)) in formulating and refining building control policies in line with the practice of the Buildings Department (BD).
  2. To develop and maintain an independent building control system and vetting procedures for structural works in line with practice of the BD.
  3. To assist AD(ICU) in formulating views and directions on policy matters, management matters, personnel matters and special assignments.
  4. To consider and to give approval for submissions of structural and foundation plans in relation to new development projects and alteration and addition projects including major revisions.
  5. To vet reports and endorse recommendations on building control submitted by senior professionals and to check against statutory compliance and structural safety under the delegated authority from the Director of Buildings.
  6. To provide advice, instruct and take decisions on individual cases of structural plans submitted for approval and structural works in progress.
  7. To oversee the “site monitoring” work for projects during construction.
  8. To oversee the provision of structural engineering advice on implementation of legislative control on Minor Works Control System, Mandatory Building Inspection Scheme and Mandatory Window Inspection Scheme.
  9. To report, advise and seek directives from the Structural Engineering Committee of the BD on any complex technical issues and whether discretions are to be made in relation to new development projects, alteration and addition projects and other cases under his purview.
-

**Proposed Directorate Organisation Structure of Independent Checking Unit**



Legends:

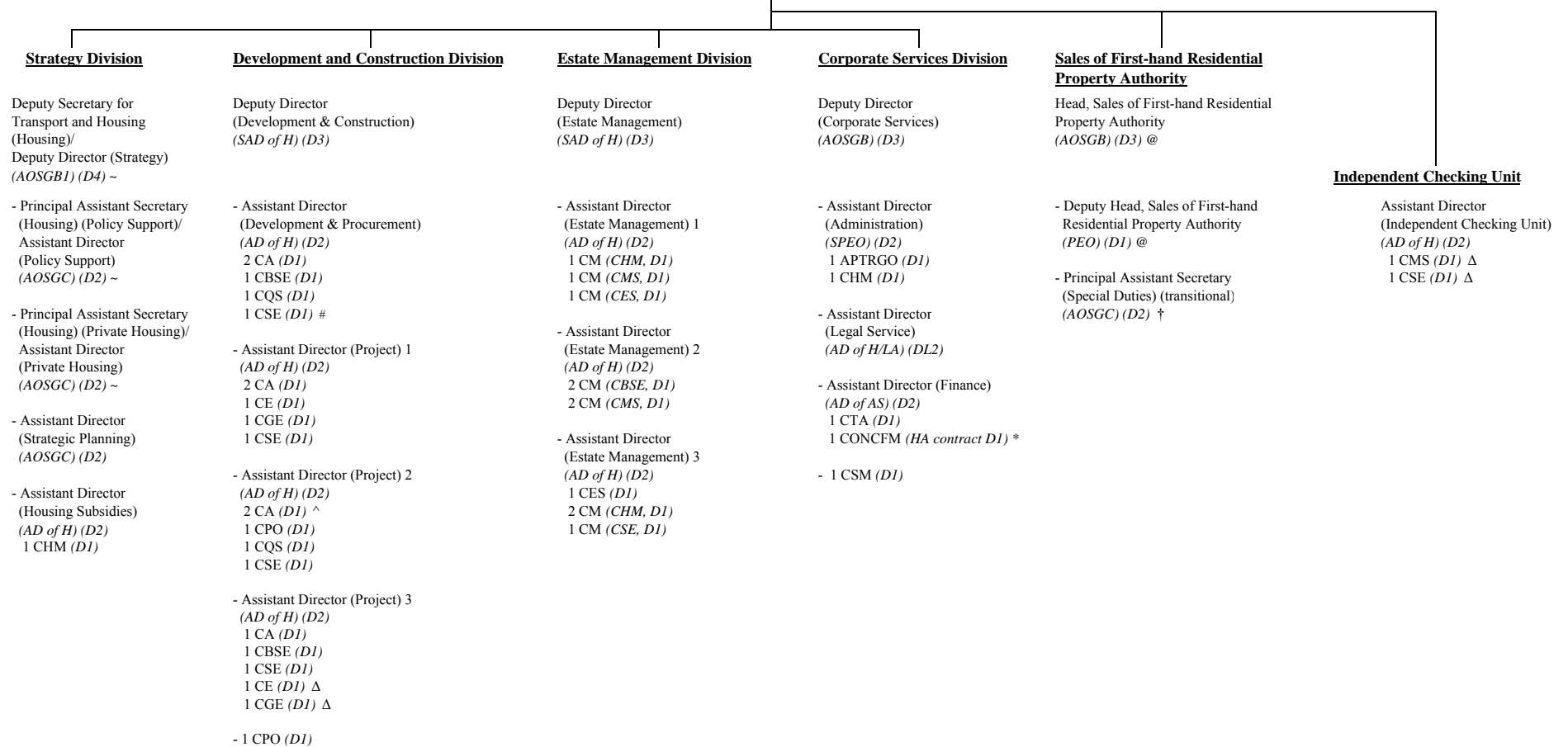
- AD of H - Assistant Director of Housing
- CMS - Chief Maintenance Surveyor
- CSE - Chief Structural Engineer

- Posts proposed to be created

**Proposed Organisation Chart of Housing Department**

Permanent Secretary for Transport and Housing (Housing)/Director of Housing

(AOSGA1) (D8) ~



Legends:

AD of AS - Assistant Director of Accounting Services  
 AD of H - Assistant Director of Housing  
 AOSGA1 - Administrative Officer Staff Grade A1  
 AOSGB1 - Administrative Officer Staff Grade B1  
 AOSGB - Administrative Officer Staff Grade B  
 AOSGC - Administrative Officer Staff Grade C  
 APTRGO - Assistant Principal Training Officer  
 CA - Chief Architect  
 CBSE - Chief Building Services Engineer  
 CE - Chief Engineer  
 CES - Chief Estate Surveyor  
 CGE - Chief Geotechnical Engineer  
 CHM - Chief Housing Manager

CM - Chief Manager  
 CMS - Chief Maintenance Surveyor  
 CONCFM - Contract Chief Finance Manager  
 CPO - Chief Planning Officer  
 CQS - Chief Quantity Surveyor  
 CSE - Chief Structural Engineer  
 CSM - Chief Systems Manager  
 CTA - Chief Treasury Accountant  
 HA - Housing Authority  
 LA - Legal Advice  
 PEO - Principal Executive Officer  
 SAD of H - Senior Assistant Director of Housing  
 SPEO - Senior Principal Executive Officer

~ - These posts are given bureau designations in addition to normal departmental designations to better reflect the nature of their duties which are largely policy-related.  
 # - This CSE post was originally redeployed from Development and Construction Division to Independent Checking Unit on a part-time basis but will cease upon the creation of a CSE post in Independent Checking Unit.  
 ^ - One of the CA posts was originally redeployed from Development and Construction Division to Independent Checking Unit on a temporary basis but will cease upon the creation of a CMS post in Independent Checking Unit.  
 \* - HA contract post  
 @ - Posts proposed for creation for the implementation of the Residential Properties (First-hand Sales) Ordinance with effect from 1 April 2013. The proposal was discussed by the Panel on Housing and the Establishment Subcommittee on 3 December 2012 and 30 January 2013 respectively.  
 † - Supernumerary post which will lapse on 1 July 2013 or one month after the commencement of the operation of the Sales of First-hand Residential Property Authority, whichever is earlier.  
 Δ - Posts proposed for creation for the implementation of the new Home Ownership Scheme and other housing initiatives.

**Proposed Creation of Directorate Posts in the Housing Department for the  
Implementation of the New Home Ownership Scheme (HOS) and  
Other Housing Initiatives**

**Supplementary Information**

**Manpower requirements for the new HOS and other related housing initiatives**

In 2012-13, 194 (including six directorate posts and 188 non-directorate posts) posts have been created in Housing Department (HD) to kick-start the planning and design work relating to the new HOS. As the construction and development programme progresses, another 133 (including four directorate posts and 129 non-directorate posts) posts are planned to be created in HD in 2013-14 for implementation of the new HOS and other related housing initiatives. In other words, at this stage, a total of 327 posts (including ten directorate posts) are required by HD to take forward the public housing initiatives. This does not include the manpower required if any to implement the new target of 20 000 public rental housing units on average per year from 2018.

2. We will continue to closely monitor the manpower requirement to deliver the new housing production targets having regard to the actual progress in the construction and development programme. Further resources will be sought in accordance with the established mechanism as and when necessary. We will also review all the posts created for the new HOS in 2018-19 having regard to the target of delivering 17 000 new HOS units from 2016-17 to 2019-20.

**Public housing sites with complicated civil engineering constraints**

3. Civil engineering constraints include:

(a) Traffic and transport impacts;



- (b) Noise impacts from nearby noise sources including major roads, railway lines and industrial buildings;
- (c) Inadequate district sewage disposal facilities including foul sewers, pumping stations and sewage treatment works;
- (d) Air quality impact due to major roads or chimneys;
- (e) Risk imposed by hazardous installations; and
- (f) Need for site formation and infrastructure improvement works.

### **Traffic and transport impacts**

4. For public housing developments, the public and District Council (DC) members are very concerned with the inadequacy of the existing traffic and transport provisions. We have to carry out traffic impact assessments to assess the district traffic condition. If the existing district traffic condition is poor, it is necessary to carry out road improvement works prior to population intake. In addition, we have to identify the need for additional transport facilities such as public transport interchange and public transport services arising from public housing developments. Chief Civil Engineer (CCE) has to be actively involved in mapping out the implementation strategies and directions in resolving the traffic and transport issues with relevant government departments and to secure support from DC members and locals. The funding arrangement of the road improvement works has to be resolved with senior officers of concerned works departments. Some of the works need to be gazetted under the Roads (Works, Use and Compensation) Ordinance and CCE has to take the lead in resolving objections and make submission to the Executive Council to obtain the approval for works execution.

5. Examples of public housing developments with transport and traffic issues include Ex-Kwai Chung Married Quarters, Hung Shui Kiu Area 13, Kiu Cheong Road East, and Wo Sheung Tun Street (Fo Tan), etc.

## **Noise impacts from nearby noise sources including major roads, railway lines and industrial buildings**

6. As a lot of public housing sites are located in developed areas, they are seriously affected by road traffic noise, railway noise and fixed noise impacts. These noise impacts would impose many constraints to be resolved. In particular, the railway noise and industrial/commercial noise are controlled under Noise Control Ordinance. Environmental assessment studies are required to be carried out to identify the noise impact on the proposed developments. To optimize the development potential, we need to discuss with all relevant departments/parties the possible mitigation measures such as laying of low noise road surfacing materials on public roads, noise barrier along public road/railway tracks, etc. CCE has to negotiate with the Environmental Protection Department (EPD) at policy and strategic level and to take a leading role in exploring innovative mitigation measures like acoustic balcony and acoustic windows. He has to steer the negotiations with private building owners on issues like the implementation of at-source noise mitigation measures.

7. Examples of public housing developments affected by noise impacts include Sha Tsui Road, Tung Chung Area 56, San Po Kong, Sai Chuen Road, Yuen Shun Circuit (Sha Tin 14B), Wo Sheung Tun Street (Fo Tan) and Choi Hing Road (Choi Hung), etc.

## **Inadequate district sewage disposal facilities including foul sewers, pumping stations and sewage treatment works**

8. It is necessary to confirm the adequacy of district sewage disposal and treatment facilities at the early planning stage of public housing developments and this requires sewerage impact assessments. CCE has to resolve with concerned departments (such as Drainage Services Department (DSD) and EPD) regarding major sewage infrastructure inadequacies and work out the best engineering solutions such as upgrading of trunk sewers and provision of temporary sewage pumping stations. For instance, a temporary sewage pumping station has to be provided within the public housing site in Tung Chung Area 56.

He needs to liaise at high level with DSD concerning operational and maintenance responsibilities.

9. Examples of public housing developments encountered sewerage problems include Tung Chung Area 56, So Uk Estate Redevelopment, Shui Chuen O (Shatin Area 52), Chung Nga Road sites (Tai Po), and Wo Sheung Tun Street (Fo Tan), etc.

### **Air quality impact due to major roads or chimneys**

10. Many public housing sites require rezoning and we need to prove the environmental acceptability of the sites from the perspective of the air quality compliance. In particular, the latest air quality requirement (e.g. new Air Quality Objectives) would come into effect soon. Quantitative air quality assessments related to vehicular emission and/or chimney emission need to be carried out at the early planning stage of the developments to confirm suitability of sites for public housing developments. CCE needs to formulate the study methodology with EPD for sites close to major roads and/or buildings with chimneys. In addition, he needs to formulate mitigation proposals for agreement with EPD.

11. Examples of public housing developments affected by major roads or chimneys include Sha Tsui Road, Fanling Area 48, and Chung Nga Road Sites (Tai Po), etc.

### **Risk imposed by hazardous installations**

12. The presence of a Potential Hazardous Installation (PHI) like water treatment works would impose significant constraint on the development potential of public housing sites. The existence of PHI might impose a maximum ceiling on the designed population for a public housing development. For example, in Hin Tin Street housing development, specialized Quantitative Risk Assessment of Shatin Water Treatment Works is required. CCE has to formulate the study methodology for agreement with EPD and secure approval from the

Coordinating Committee on Land-use Planning and Control relating to Potential Hazardous Installations (CCPHI) for the population ceiling.

13. Examples of public housing developments affected by potential hazardous installations include Hin Tin Street (Sha Tin Area 31), and Ngan Kwong Wan Road East and West (formerly known as Mui Wo Lot 734), etc.

### **Need for site formation and infrastructure improvement works**

14. Arising from the technical assessments, there are many site formation and infrastructural works to be carried out. CCE has to take up with the senior management in the works departments for speedy works execution. The scope of works includes construction of district open space, community hall, footbridge, public transport interchange and site formation works. He has to make submissions to Legislative Council Panel on Housing, Public Works Sub-committee and Finance Committee to seek funding approval when the works are to be carried out under the Public Works Programme. In some cases, in order to meet with the development programme of public housing developments, some site formation and infrastructural improvement works identified from the aforesaid technical studies would be carried out under civil engineering contracts managed by CCE.

15. Examples of public housing developments with site formation and/or infrastructure improvement works include Anderson Road Quarry sites, Hung Shui Kiu, Shui Chuen O, Hin Tin Street (Sha Tin Area 31) and Chung Nga Road West (Tai Po), etc.

### **Public housing sites with complicated geotechnical constraints**

16. Geotechnical constraints include:

- (a) public housing sites on sloping ground;
- (b) existing man-made slopes outside public housing site boundary but affecting the public housing development;

- (c) public housing sites affected by natural terrain hazards;
- (d) public housing sites in Scheduled/Designated Areas with complex geology;
- (e) public housing developments on newly reclaimed sites; and
- (f) public housing developments with basement design.

### **Public housing sites on sloping ground**

17. Public housing development on existing sloping sites or sites with terrace platforms and slopes may require substantial site formation works to suit the proposed development layout. The site formation works include excavation and/or filling works, construction of slopes and retaining walls, upgrading of existing slopes by soil nailing, rock slope stabilization, etc. These site formation works will have impacts in terms of time and cost on the public housing development, which depend on the existing topography of the site and the proposed development layout. Moreover, the geotechnical features constructed will require maintenance by the relevant maintenance party. Chief Geotechnical Engineer (CGE)'s geotechnical input with a view to minimizing the extent of the site formation works is crucial in those public housing projects on sloping sites. Public housing projects with optimized geotechnical design will save time and cost during construction stage and save maintenance of those constructed geotechnical features in future.

18. Examples of public housing development with substantial site formation works include Anderson Road, Shui Chuen O (Shatin Area 52), So Uk Estate, Hin Tin Street (Shatin Area 31), Pik Tin Street (Shatin Area 4D), Wo Sheung Tun Street (Fo Tan), Sheung Lok Street, etc.

### **Existing man-made slopes outside public housing site boundary but affecting the public housing development**

19. There are cases that public housing developments are on fairly flat sites which require no site formation works, but being affected by existing adjoining man-made slopes downhill or uphill. As these existing slopes may affect the safety of the adjoining public housing

development, upgrading works on these slopes may be required if they are on government land. However, the maintenance party will usually be required to take up the maintenance responsibility for these upgraded slopes. On the other hand, if these slopes are on private lots, upgrading works on them may not be feasible. In this case, defensive works, e.g. protection barrier, may be a solution to the problem. CGE's advice on these issues will facilitate the project team to identify an economically and technically feasible design.

20. Examples of public housing development affected by surrounding existing man-made slopes include Fanling Area 49, Pik Tin Street (Shatin Area 4D), Wo Sheung Tun Street (Fo Tan), etc.

### **Public housing sites affected by natural terrain hazards**

21. Under the current Government policy, natural terrain requires detailed study and implementation of natural terrain hazard mitigation measures, e.g. debris flow barrier, boulder fence, etc, if a public housing development is affected by the natural terrain hazards, e.g. landslide, mud slide, boulder falls, etc. The development potential of a public housing site may be affected with these mitigation measures in place. Moreover, the introduction of Natural Terrain Clause<sup>Note 1</sup> may require the maintenance party of the public housing estate to take up extensive future responsibility of these adjoining natural terrain. CGE's involvements in liaison with Geotechnical Engineering Office (GEO) of Civil Engineering and Development Department (CEDD) in respect of the natural terrain hazards and future maintenance responsibility are crucial.

22. Examples of public housing sites affected by natural terrain hazards include Fanling Area 49, Lin Shing Road, Hin Tin Street (Shatin Area 31), Pik Tin Street (Shatin Area 4D), Wo Sheung Tun Street (Fo Tan), Ngan Kwong Wan East, etc.

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<sup>Note 1</sup> Natural Terrain Clause (NTC) stipulated in government land grant documents is to protect the Government from being claimed damage to adjacent properties, including public housing developments, due to natural terrain hazards. As such, the NTC requires the property owners to protect themselves against natural terrain hazards by designing, construction and maintenance of the necessary protection works.

## **Public housing sites in Scheduled/Designated Areas with complex geology**

23. Public housing developments on sites in the Scheduled Areas Numbers 2 and 4, and Designated Area in the Northshore Lantau may be affected by the complex geology underlying these areas. Scheduled Area Number 2 (north-western New Territories) covers Tin Shui Wai and Yuen Long areas, whereas Scheduled Area Number 4 covers Ma On Shan area. The geology in the Scheduled Area Numbers 2 and 4 are featured with marble surface karst and marble bedrock with cavities. On the other hand, the geology of the Designated Area in the Northshore Lantau is featured with deep or steeply inclined rockhead in igneous rocks. All these complex geological conditions require extensive ground investigation works, geological appraisal, careful geotechnical input in foundation option study and design. CGE's involvements in geological appraisal and foundation option study will facilitate a cost effective and optimum geotechnical design for the project. Moreover, during the construction works for foundation, site supervision by a Directorate Site Supervisor will likely be imposed by GEO of CEDD or Independent Checking Unit (ICU) of HD, in addition to the Cat. I / Technical Competent Person T5 quality site supervision.

24. Examples of public housing development in the Scheduled Area Number 2 include Ex-Yuen Long Estate, Tung Tau Yuen Long, etc.

## **Public housing developments on newly reclaimed sites**

25. Newly reclaimed sites will impose geotechnical constraints on foundation design, in particular the effect of negative skin friction on pile foundation and excavation subject to high water table. Moreover, the land of a newly reclaimed site will have a problem of long-term ground residual settlement which will adversely affect external area of the public housing development and the underground utilities. The effect of this residual ground settlement will usually take a very long time to stabilize. These long-term ground settlement problems have always been a sensitive issue in the previous public housing projects. In light of such

experience, CGE's advice on the ground settlement and associated precautionary measures in foundation and external works design for any potential public housing development on newly reclaimed sites are important.

26. Examples of public housing developments on newly reclaimed sites include Tung Chung Area 54 and Tseung Kwan O Area 65C2, etc.

### **Public housing developments with basement design**

27. In order to achieve Gross Floor Area exemption and hence to fully utilize the development potential of a public housing site, provision of basement for car park or other use may be required. The basement construction deeper than 4.5m or affecting the adjacent properties or utilities will be considered as building works with significant geotechnical content. Under the ICU's control, Excavation and Lateral Support (ELS) Plan and Supervision Plan (SP) are required to be submitted. CGE's involvement in geotechnical assessment of the effect of ELS works on the adjacent ground movement and ground water table are necessary to ensure the stability of the excavation, and adjacent road, buildings and structures, and the safety of workmen and public.

28. Examples of public housing development with basement design include Po Heung Street, Ex-Tai Wo Hau Factory Estate, etc.

### **Potential sites for the production of public housing**

29. Since the public housing projects beyond the next five years (i.e. beyond 2017-18) are still at an early planning and design stage, it is premature to make any announcement on relevant sites at the moment.