

**For discussion
on 2 December 2009**

PWSC(2009-10)73

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 - BUILDINGS

Government Offices – Land development

63KA – Tamar Development Project

Members are invited to recommend to Finance Committee to increase the approved project estimate for **63KA** by \$359.8 million from \$5,168.9 million to \$5,528.7 million in money-of-the-day prices.

PROBLEM

The approved project estimate (APE) of **63KA** is not sufficient to cover the cost of meeting the requirements of the Legislative Council (LegCo) for additional space and facilities in the Tamar Development Project (the Project). Additional costs are also required for incorporating into the Project a number of new items, i.e. additional environmental and energy conservation measures, enhanced barrier free access provisions, artworks and a café in the Tamar Development Project (the Project).

/PROPOSAL

PROPOSAL

2. The Director of Architectural Services, with the support of the Director of Administration, proposes to increase the APE for **63KA** by \$359.8 million from \$5,168.9 million to \$5,528.7 million in money-of-the-day (MOD) prices.

PROJECT SCOPE AND NATURE

3. The approved scope of the Project comprises the design and construction of –

- (a) the Central Government Complex (CGC), with a total construction floor area (CFA) of 124 680 square metres (m²) and consisting of –
 - (i) a low block for accommodating the Chief Executive's Office, the Executive Council and Secretariat, and ancillary facilities; and
 - (ii) office block(s) for accommodating offices with core policy formulation functions, including offices for the Chief Secretary for Administration, the Financial Secretary and other policy bureaux, with other ancillary facilities;
- (b) the LegCo Complex, with a total CFA of 36 230m² and consisting of –
 - (i) a low block for accommodating the LegCo Chamber, and ancillary facilities; and
 - (ii) high block(s) for accommodating Members' offices, staff offices of the LegCo Secretariat, and ancillary facilities;
- (c) an open space with a minimum area of two hectares, which will be landscaped and designed for the leisure of the public;

/(d)

- (d) 500 car parking spaces¹, loading and unloading areas, and other ancillary facilities such as mechanical plant rooms with a total CFA of 41 000m² for the CGC and the LegCo Complex; and
- (e) two covered pedestrian footbridges connecting –
 - (i) the southern part of the Tamar development with Admiralty, close to the transport interchange; and
 - (ii) the eastern part of the Tamar development with the existing footbridge system linking the CITIC Tower.

4. Design and construction of the above works commenced in February 2008. The overall works have been progressing well and are scheduled for completion in mid 2011².

JUSTIFICATION

5. Following a review of the development in the Project, we consider it necessary to make provision for the design and construction of the following items –

New requests from LegCo

- (a) Additional area for LegCo Complex to meet its need for enhanced communal facilities and the Secretariat's office
- (b) Enhanced electronic equipment for LegCo
- (c) Installation of glass partitions at Public Galleries of LegCo Complex

/Other

¹ The 500 car parking spaces include 380 parking spaces for the CGC and 120 car parking spaces for the LegCo Complex.

² While the scheduled completion date of overall works according to the contract period of 39 months is May 2011, projected completion date including projected "Extension of Time" (where contractually provided and approved) is August 2011.

Other new items

- (d) Additional environmental and energy conservation measures in LegCo Complex, CGC, Open Space and Elevated Walkways
- (e) Enhanced provision in LegCo Complex, CGC and Open Space for barrier free access in view of the Building (Planning) (Amendment) Regulation 2008
- (f) Acquisition and installation of artworks in LegCo Complex, CGC and Open Space
- (g) Provision of a café at the fringe area of Open Space for public enjoyment

6. A site plan showing the main building blocks marked with the location of the proposed café, the artist's impression of LegCo Complex with an additional floor, together with the artist's impression of the proposed café are at Enclosures 1 to 3 respectively.

7. Noting that there is a need from a proper project management perspective to complete the project on time and within budget, we are mindful that changing the user requirements, particularly those with cost and time implications, during the course of construction should be avoided as far as possible. On top of the capital cost for the new items to be added, there will be substantial costs for additional design work, implications on construction sequences, and adjustment of programme to meet original contract completion date, corresponding preliminaries and allowance for risks. With these considerations in mind, we have confined the changes to the approved project scope to essential items with reasons set out in paragraphs 8 to 27 below.

/New

New Requests from LegCo***Additional Area for LegCo Complex***

8. A recent review by the LegCo Secretariat has revealed that the floor area of LegCo Complex originally in **63KA** is inadequate to meet the requirements for new facilities and new/enhanced services to be provided. Additional office space for the increase of staff is also required to cope with extra workload for the new services arising from the commissioning of the new LegCo Complex. LegCo Commission (LCC) has therefore made a request for additional area at the LegCo Complex for certain communal facilities and for LegCo Secretariat's office. A summary of the additional area to be provided is as follows –

Item	Use	CFA (m²)
Communal facilities		
(a)	expansion of the existing LegCo Library with a Constitutional Library	220
(b)	establishment of additional LegCo Archives	140
(c)	a studio for use by sign language interpreters for proceedings of LegCo	50
(d)	an extra photographers' room	53
Secretariat office		
(e)	additional office space to cater for increase in staff	2 212
Total		2 675

9. The communal facilities (i.e. items 8(a) to (d) above) in LegCo Low Block will involve additional floors decking over the double volume

/space

space and void space of existing accommodations. For the additional staff office (i.e. item 8(e) above), an additional floor will be constructed on the LegCo High Block. The construction floor area of LegCo Complex according to the latest design layout will be increased by about 2 675 m².

10. Since the Project is already at an advanced stage, certain preparatory works for items 8(a) to (d) (i.e. additional superstructure and pile cap works)³ had to be ordered by the end of May 2009 to avoid any abortive works afterwards. With the in-principle support of the Development Panel, we ordered the preparatory works in May 2009, the estimated cost of which amounts to \$3 million and has been absorbed within the existing project vote. For item 8(e), structural allowances have been included in the original contract⁴ (please see paragraph 32 regarding the potential expansion of LegCo Complex).

Electronic Equipment for LegCo

11. In view of the latest technology advancement and in order to better equip the new LegCo Complex to cater for enhanced services, LCC considers that more funding is required for procuring electronic equipment for LegCo Complex. These enhanced electronic equipment provisions include high-definition (HD) grade equipment for TV production system and press conferencing system which are essential for the live broadcast and webcast of LegCo meetings, HD grade

/projectors

³ The preparatory works involve -
(a) additional strap beams to tie up the pile caps;
(b) additional rebars to columns;
(c) additional starter bars for slab;
(d) strengthening of steel column from 1/F to 1M/F for photographers' room and studio of sign language interpreters; and
(e) additional conduits in columns and slabs.

⁴ The Tender Documents for the Project has specified that the design of the new LegCo Complex should allow for future expansion in four phases, and the total potential expansion should be no more than 9 200 m². According to the contractor's original design, the expansion will be provided through building additional floors above the High Block and above the Podium of the High Block.

projectors for presentation at meetings, and additional electronic voting system for meetings⁵ etc..

Glass Partitions at Public Galleries

12. The LegCo Secretariat has revisited the design of security measures in the LegCo Complex and made reference to the experience of overseas parliaments following the recent incidents occurred at the Public Gallery in the Chamber of the existing LegCo Building. The Crime Prevention Bureau (CPB) of the Hong Kong Police Force has been consulted on the installation of glass panels in the Public/Press Galleries of the new LegCo Complex. Based on the recommendations of CPB, LCC decided that full height glass panels should be installed in the Public Galleries in the Chamber and Conference Rooms A, B and C of the new LegCo Complex which would be an effective deterrent to the throwing of objects into the respective Chamber and Conference Rooms.

Other New Items

Additional Environmental and Energy Conservation Measures

13. To demonstrate the Administration's commitment to protecting the environment, we are committed to making the Project a green and sustainable one. Accordingly, the Project has already incorporated a variety of environmental friendly features, e.g. high energy efficient sea-water cooled chiller plants, green

/roof

⁵ There are two electronic voting systems (EVSs) in the Chamber and Conference Room A of the existing LegCo Building. With the increasing need for voting to be taken at committee meetings, the EVS in the Chamber of the LegCo Building is currently also used by committees. With the commissioning of the new LegCo Complex, most meetings of committees will be held in conference rooms, and one additional set of EVS is required to be installed in conference rooms.

roof, photovoltaic panels, daylight sensors and computerized lighting controls, etc. — Highlights of these energy conservation measures are set out at Enclosure 4. When completed, the Project is expected to achieve the highest rating, i.e. Platinum, under the Hong Kong Building Environment Assessment Method (HK-BEAM).

14. As the technologies of environmental and energy conservation measures are rapidly developing, we have critically reviewed the feasibility of incorporating more new features in the Project so that it remains the paragon of green government building at the time of its commissioning. In considering further environmental features to be included in the Project, it may be necessary to look beyond cost-benefit and consider the intangible long-term benefits that will be brought to the environment.

15. As in the case of other new technologies, certain new environmental technologies are currently only used commercially in a limited scale. Together with the various cost implications factors as mentioned in paragraph 7, they are thus higher in cost and may have a very long payback period.

16. We therefore need to strike a balance between promoting environmental friendliness through the Project and completing the Project on time and within a reasonable range of the budget. Based on this principle, we have examined the possibility of incorporating more new energy conservation measures in this Project, some of which will have a long payback period but which we consider worth adopting to demonstrate our willingness to promote and try out new technology for protecting our environment.

17. We propose to adopt the following additional environmental and energy conservation measures in the Project –

/(a)

- (a) task lighting design for office in CGC⁶;
- (b) LED lighting and occupancy sensor where suitable in common facilities/areas such as conference rooms, meeting rooms, pantries, toilets, lift lobbies, staircases as well as for pelmet lighting; and
- (c) temperature controlled mechanical ventilation in plant rooms.

18. For renewable energy technologies, we will adopt the use of light pipe and photovoltaic external lighting, solar hot water system, and thin film photovoltaic panels.

19. Other features which we propose to adopt include battery charging facilities for electric vehicles and enhanced provision of recycling equipment.

Barrier Free Access in LegCo Complex, CGC and Open Space

20. Government buildings (including this Project) are exempted buildings under the Building Ordinance (Cap. 123). However, it is the Government's practice to follow the relevant regulations. When the contract was awarded in January 2008, the design for the Project was therefore required to comply with the "Design Manual: Barrier Free Access 1997" issued by the Buildings Department.

/21.

⁶ By task lighting, the general illumination in an office area will be reduced from 500 lux to 300 lux. The task area which requires a luminance level for reading purpose will be supplemented with localized lighting (i.e. desk lamps). This in general will use less lighting compared with illuminating the entire office at 500 lux and hence can save energy.

21. In December 2008, the Building (Planning) (Amendment) Regulation (the Regulation) came into effect. It sets out revised requirements based on the “Design Manual: Barrier Free Access 2008” for the provision of facilities in certain categories of buildings to provide for better access to, and use of facilities of such buildings by, persons with disabilities.

22. We propose to take this opportunity to bring the relevant provisions in the Project up to the latest standard to meet the community’s expectations without affecting the overall project programme. Having examined the layout of the LegCo Complex, CGC and Open Space, we propose to incorporate all the **obligatory** items under the Regulation, which include the following major items –

- (a) external staircase – enhanced requirement for the height and width of risers in external staircase;
- (b) entrance door – provision of automatic sliding or swing door in main entrance to a building;
- (c) disabled toilet and urinal – provision of larger disabled toilet and clear space with grab bars in one of the urinals;
- (d) internal door – provision of unobstructed space in doors at public areas and common areas to enhance wheel chair accessibility; and
- (e) other non-layout obligatory design requirements in building service installation, signs, illumination, handrail, drop curb, braille and tactile etc.

23. We consider that the following **enhancement** items on top of the obligatory requirements in paragraph 22 above may be incorporated in the Project where appropriate –

- (a) audio sign system or touch activated audio signs at key locations accessible by the public for people with visual impairment;
- (b) equipment in some designated area/seats in meeting rooms for people with visual impairment, e.g. CCTV magnifiers and Power Braille computer display units;

/(c)

- (c) wireless microphone and earphone in some meeting rooms for wheelchair-bound people;
- (d) automatic doors for areas accessible by the public (including toilets); and
- (e) enlarged toilet cubicles for easy maneuver of elderly people and people with physical disabilities, where appropriate.

Artworks

24. Art is a significant part of a vibrant and dynamic international city like Hong Kong. Both LegCo and the Administration consider it important to install appropriate artworks in LegCo Complex, CGC and Open Space.

25. Possible options to acquire artworks include –

- (a) commissioning of tailor-made pieces through open and/or invited competitions;
- (b) purchasing of finished works;
- (c) loan from the museums of the Leisure and Cultural Services Department or public/private organizations; and/or
- (d) accepting donation.

26. Apart from displaying art pieces, we will also designate a small corner in CGC for displaying background history of the Tamar site. Additional funding is needed for the artworks acquisition and installation; as well as the supporting facilities for the information corner.

Café

27. There are already two hectares of Open Space within the existing scope of the Project for public enjoyment. To better serve visitors to the Open Space, we propose to provide a café at the fringe area of the Open Space. The café will provide light refreshment to Tamar visitors and the public.

/Overall

Overall Review

28. Upon a review of the financial position of the Project, we consider it necessary to increase the APE of **63KA** by \$359.8 million from \$5,168.9 million to \$5,528.7 million in MOD prices in order to cover the additional cost of works listed in paragraph 5 above. A breakdown for the proposed increase of \$359.8 million is as follows –

	Proposed increased amount in MOD prices (\$ million)	% of the total increased amount
(a)	Building works and building services for the enhanced communal facilities and Secretariat's office for LegCo 113.0 ⁷	31.4%
(b)	Associated builder's and building services works for enhanced electronic equipment for LegCo 3.0	0.8%
(c)	Glass partitions at Public Galleries for LegCo 11.1 ⁷	3.1%
(d)	Additional environmental and energy conservation measures 70.9 ⁷	19.7%
(e)	Enhanced barrier free access provisions 13.0 ⁷	3.6%
(f)	Artworks 32.4	9.0%
(g)	A café 7.5 ⁷	2.1%
		(h)

⁷ Including additional design fee, design checkers' fee, design coordination fee, revision to original design to include the additional works and revision of layout in other areas for making better use of the total office space available, implications on construction sequences, adjustment of programme to meet original contract completion date, corresponding preliminaries and allowance for risks.

Factors	Proposed increased amount in MOD prices (\$ million)	% of the total increased amount
(h) Additional furniture and equipment (F&E) ⁸	47.1	13.1%
(i) Additional consultancy fees for	9.5	2.6%
(i) Quantity surveying services	2.5	
(ii) Electrical, IT, telecommunication, and mechanical engineering services	5.0	
(iii) Structural engineering and geotechnical services	1.2	
(iv) Environmental landscape and risk management services	0.8	
(j) Additional contingencies	30.8	8.6%
Sub-total	338.3	94.0%
(k) Additional provisions for price adjustment	21.5	6.0%
Total	359.8	100.0%

/A

⁸ This item covers F&E for the enhanced communal facilities and Secretariat's office for LegCo, enhanced electronic equipment for LegCo, additional environmental and energy conservation measures, enhanced barrier free access provision, as well as F&E for the café.

A comparison of the cost breakdowns of the APE and the revised project estimate in MOD prices, together with reasons leading to the proposed increase in the APE, is at Enclosure 5. A breakdown of cost estimate for items between LegCo Complex and CGC/Open Space and the calculations on the provisions for price adjustment are at Enclosures 6 and 7 respectively.

FINANCIAL IMPLICATIONS

29. Subject to approval, we will revise the phasing of the expenditure as follows –

Year	\$ million (MOD)
Up to 31 March 2009 ⁹	712.3
2009-10	1,200.0
2010-11	2,400.0
2011-12	760.0
2012-13	310.0
2013-14	146.4
	5,528.7

/30.

⁹ This is the actual expenditure up to 31 March 2009.

30. We estimate the additional annual recurrent expenditure arising from the entire Tamar Development Project (including the additional items being proposed in this submission) to be around \$150 million. On the other hand, we estimate that upon completion of the CGC and LegCo Complex, certain out-stationed office space (in both government-owned and leased office premises) would be released consequentially, generating rental savings. Hence, the additional recurrent cost may be partly offset by the potential rental savings from reprovisioning the Government Secretariat and LegCo to Tamar.

PUBLIC CONSULTATION

31. As mentioned in paragraph 10, the LegCo Panel on Development in May 2009 supported the carrying out of the preparatory works for the additional area at the LegCo Complex.

32. On 23 July 2009, a planning application was submitted to the Town Planning Board under section 16 of the Town Planning Ordinance for the LegCo expansion, which comprises the whole potential expansion of LegCo Complex, including the addition of five floors above the LegCo High Block and 11 floors above the Podium of the LegCo High Block; the additional communal facilities; and an eating place (i.e. the café) for public enjoyment. The application was approved on 18 September 2009. The proposed increase in the APE only includes the addition of one floor on the LegCo High Block, the additional communal facilities and the proposed café.

33. We consulted LCC and LegCo Panel on Development on the proposed increase in APE of **63KA** on 9 October 2009 and 27 October 2009 respectively. Members of LCC supported the proposal, and those of the Development Panel did not raise any objection.

/ENVIRONMENTAL

ENVIRONMENTAL IMPLICATIONS

34. The proposed increase in the APE will not cause long term environmental impact. We have included in the project estimates the cost to implement suitable mitigation measures to control short term environmental impacts.

35. We estimate that the proposed increase in the APE will generate in total about 49 tonnes of construction waste. Of these, we will deliver 37 tonnes (75.5%) of inert construction waste to public fill reception facilities for subsequent reuse¹⁰. We will dispose of the remaining 12 tonnes (24.5%) of non-inert construction waste at landfills. The total cost for accommodating construction waste at public fill reception facilities and landfill sites is estimated to be \$2,499.0 for these additional works (based on a unit cost of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne¹¹ at landfills).

ENERGY CONSERVATION MEASURES

36. The Project has already included an extensive number of environmental and energy conservation measures as highlighted in Enclosure 4.

37. The total estimated additional cost for adoption of the new additional energy conservation measures, as set out in paragraphs 17 to 19 above, is around \$84.2 million (including \$68.6 million for energy efficient features). The additional energy efficient features will achieve an additional 3.6% energy

/savings

¹⁰ Public fill reception facilities are specified in Schedule 4 of the Waste Disposal (Charges for Disposal of Construction Waste) Regulation. Disposal of inert construction waste in public fill reception facilities requires a licence issued by the Director of Civil Engineering and Development.

¹¹ This estimate has taken into account the cost for developing, operating and restoring the landfills after they are filled and the aftercare required. It does not include the land opportunity cost for existing landfill sites (which is estimated at \$90 per m³), nor the cost to provide new landfills (which is likely to be more expensive), when the existing ones are filled.

savings in the annual energy consumption and have a payback period of about 44 years. Together with the energy conservation measures already incorporated into the Project, the energy efficient features will achieve 26% energy savings in the annual energy consumption when compared to a normal office barely complying with the Building Energy Code and have a payback period of about eight years.

HERITAGE IMPLICATIONS

38. The proposed increase in the APE will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites/buildings, sites of archaeological interest and Government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

39. The proposed increase in the APE does not require any land acquisition.

BACKGROUND

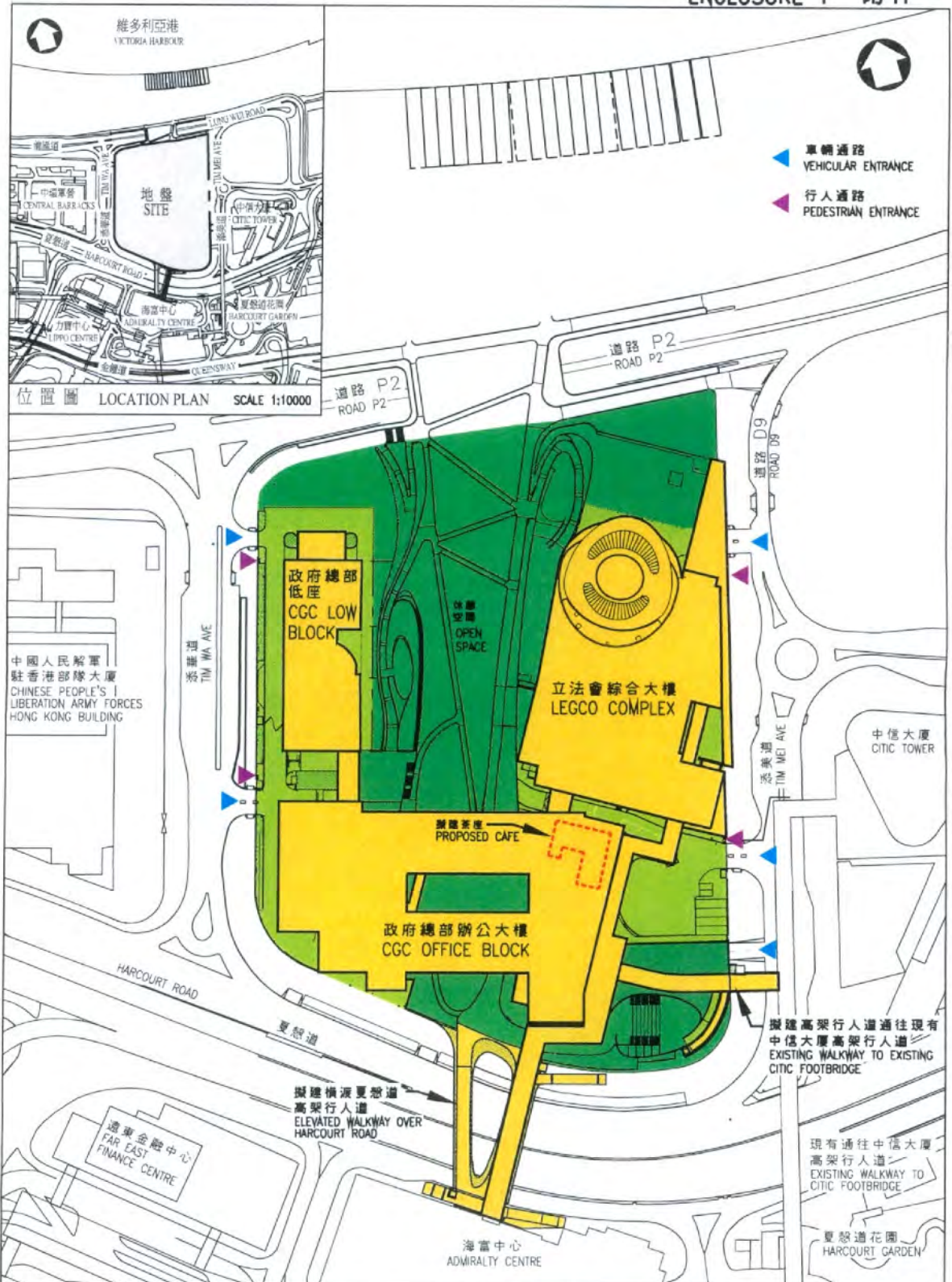
40. In June 2006, Finance Committee approved the upgrading of **63KA** “Tamar Development Project” to Category A at an estimated cost of \$5,168.9 million in MOD prices.

41. In early 2009, LCC noted that the floor area of LegCo Complex is inadequate to meet the requirements for new communal facilities and new/enhanced services to be provided. LCC and the Administration explored various expansion options and agreed that the option of incorporating the additional space for new communal facilities in the current layout and constructing an additional floor on top of the High Block for the Secretariat’s office is the most viable as it will minimize the possible abortive works and disruptions to the operations of LegCo.


42. The proposed increase in the APE will not involve any additional tree removal or planting proposals.

43. We estimate that the works associated with the proposed increase in the APE will create about 300 jobs (270 labourers and another 30 professional/technical staff), providing a total of 4 600 man-months.

Administration Wing, Chief Secretary for Administration's Office
Legislative Council Secretariat
Architectural Services Department
November 2009



位置圖 LOCATION PLAN SCALE 1:10000

添馬艦發展工程 TAMAR DEVELOPMENT PROJECT	drawn by BILLY CHOW	date 10/11/2009	drawing no. AB/6104/SK001B	scale 1:2000
	approved SIMON CHAN	date 10/11/2009	 ARCHITECTURAL SERVICES DEPARTMENT	
	office PROJECT MANAGEMENT BRANCH 1			

預算將來再加建後
(如有的話)的立法
會大樓高座的高度
FUTURE LEVEL OF
LEGCO HIGH
BLOCK AFTER
FURTHER
EXPANSION
(IF ANY)

在今次工程中
加建一層後的
立法會大樓高座
的高度

ROOF LEVEL OF
LEGCO HIGH
BLOCK WITH AN
ADDITIONAL
FLOOR TO BE
INCLUDED IN
THE PROJECT

原設計的立法會
大樓高座高度

ORIGINAL LEVEL
OF LEGCO HIGH
BLOCK



添馬艦發展工程
TAMAR DEVELOPMENT PROJECT

立法會綜合大樓加建一層後的外觀圖
VIEW OF LEGCO COMPLEX WITH AN ADDITIONAL FLOOR



63KA -
添馬艦發展工程
TAMAR DEVELOPMENT PROJECT

擬建的平台茶座外觀構思圖
VIEW OF OUTDOOR DECK OF THE PROPOSED CAFÉ (ARTIST'S IMPRESSION)

63KA – Tamar Development Project

Existing Green Features Allowed in the Employers' Requirements

	Item	Description
A.	General	
1.	Overall Design	<ul style="list-style-type: none"> • To arrange the disposition of the buildings to form a major breezeway from the harbour to the inner city area - The design of the CGC Office Block as an “Open Door” with principal north-south orientation optimizes the harnessing of daylight and inter-block shading against sunlight for indoor spaces. - The north-south layout of the open space (the Green Carpet) enhances visual permeability through the site and maintains good air ventilation in the area even after the buildings are constructed.
B.	Landscape features	
2.	Green roofs and sky gardens	<ul style="list-style-type: none"> • To provide green landscape
3.	Water features	<ul style="list-style-type: none"> • To install lily pond outside LegCo dining hall, reflecting pool and a floating platform adjacent to the CGC Low Block to provide evaporation cooling effect
4.	Vertical planting walls	<ul style="list-style-type: none"> • To incorporate planting in suitable areas (e.g. CGC Low Block and outdoor parapet walls) to improve thermal insulation of the building and street landscape environment
C.	Environmental Friendly and Energy-saving features	
	<i>Building Design</i>	
5.	Overall thermal transfer value (OTTV)	<ul style="list-style-type: none"> • Façade design with low OTTV.
	<i>Building Services - Lighting</i>	
6.	Lower lighting power density	<ul style="list-style-type: none"> • To use high energy efficiency lamp source, including T5 fluorescent lamp, for lowering lighting power density
7.	Computerized Lighting Control System	<ul style="list-style-type: none"> • Timer control function to monitor and control lighting to save energy
8.	Daylight Sensor Control for office lighting	<ul style="list-style-type: none"> • To automatically adjust the lighting level of peripheral offices according to the daylight penetrated to the office so as to save lighting electric energy

	Item	Description
9.	Motion Sensor Control	<ul style="list-style-type: none"> To detect occupancy condition of the office space and automatically switch off office lighting as well as regulating office space temperature of air-conditioning system when there is no occupancy in office to save energy
10.	LED Exit Signs	<ul style="list-style-type: none"> To use LED for exit signs to save energy
<i>Building Services – Electrical installation</i>		
11.	Photovoltaic (PV) panels	<ul style="list-style-type: none"> PV panels on top of CGC Office Block to convert solar energy to electric energy
12.	High efficiency motor	<ul style="list-style-type: none"> The highest energy efficiency class motors to be used
13.	Building Energy Management system	<ul style="list-style-type: none"> Use of Building Energy Management system to facilitate the building management to master monitoring of electricity consumption status for the buildings.
<i>Building Services - Air-conditioning and mechanical ventilation installation</i>		
14.	High energy efficient seawater cooled chiller plant	<ul style="list-style-type: none"> To employ direct seawater for heat rejection, which is a more energy efficient air-conditioning system than the air cooled system and water cooled system using cooling towers
15.	Variable speed drives for the air-conditioning equipment	<ul style="list-style-type: none"> To achieve optimum energy usage by varying speed of drive for the air-conditioning equipment to meet the actual loading demand in the building
16.	Heat wheels	<ul style="list-style-type: none"> To pre-cool the fresh air supply to the buildings by reclaiming the energy from the exhaust air before the latter is discharged out of the buildings in order to save energy
17.	Reuse of condensate water	<ul style="list-style-type: none"> Make use of lower temperature of condensate water from the air-conditioning system to pre-cool fresh air
18.	Free-cooling design in the air-conditioning system	<ul style="list-style-type: none"> To allow reduction of air-conditioning system operation as well as the energy consumption when the outdoor air condition is suitable for cooling the building
19.	Occupancy sensor control	<ul style="list-style-type: none"> To detect occupancy condition of the office space and automatically shut down or regulate the indoor temperature of the air-conditioning system when the office is not in use to save energy
<i>Building Services - Lift and escalator installation</i>		
20.	Service-on-demand escalator	<ul style="list-style-type: none"> To operate only when the presence of passengers is detected to achieve energy saving
<i>Water-saving measures</i>		
21.	Rainwater recycling system	<ul style="list-style-type: none"> To collect and direct rainwater to a holding tank for irrigation of planting areas, thereby reducing the use of potable water

	Item	Description
22.	Dual flushing cistern of 4/6 litres	<ul style="list-style-type: none"> To install two buttons in the flushing system, one for a full flush and one for a half flush
23.	Urinal flushing with infra-red sensor	<ul style="list-style-type: none"> To provide flushing water only after use
24.	Water tap with infra-red sensor	<ul style="list-style-type: none"> To provide tap water only when needed
D.	Waste management	
25.	Automatic Refuse Collection System	<ul style="list-style-type: none"> To maintain a clean working environment and facilitate recycling To collect and transport presorted waste and recyclables (paper) in a fully automated enclosed vacuum system Contact with refuse and containers is minimised, thereby improving safety and hygiene
E.	Building materials	
26.	Double-layer ventilated facade design	<ul style="list-style-type: none"> To generate air movement between the glass facades to provide natural ventilation and cooling effect to the building
27.	Non-reflective, clear and tinted insulated glass unit with low-E (low emissivity) coating and shading device	<ul style="list-style-type: none"> To use this kind of coating and shading device to reduce heat transmission to and from the environment
28.	Modular system	<ul style="list-style-type: none"> To use modular system in, for example, demountable partitions and raised floor, the modular units of which can be reused when layout is altered subsequently to minimise wastage
29.	Reusable formwork (i.e. the “moulds” to form concrete slabs, columns or beams, etc.)	<ul style="list-style-type: none"> To use metal or other reusable materials instead of timber. Metal formwork is durable and hence more reusable. Metal formwork is usually adopted for repetitive structural units such as those for multi-storey office buildings with repetitive typical floor plans
30.	Sustainable materials	<ul style="list-style-type: none"> To use timber products (i.e. timber panel, timber flooring, etc.) from sustainable forest or plantation
31.	Low polluting materials	<ul style="list-style-type: none"> To use wood materials with low emission of formaldehyde (methanol) complying with Class E1 of international standard; non-PVC wall covering and building materials such as paint, carpet adhesive etc. with low VOC (Volatile Organic Compounds)

63KA – Tamar Development Project

A comparison of the APE and the revised project estimate in MOD prices is as follows -

	(A)		(B)	(C)	(C) - (A)
	Approved Estimate		Revised Estimate (based on Contract award)	Latest Estimate	Difference
\$ million (in MOD prices)					
(a) Site works	33.6)				
(b) Piling	229.5)	594.5	431.7	431.7	(162.8)
(c) Basement construction	331.4)				
(d) Building	1,863.7		1,944.0	2,010.2	146.5
(e) Building services	1,091.2		1,526.9	1,573.7	482.5
(f) Drainage	42.6		32.7	32.7	(9.9)
(g) External works	92.4)	191.2	210.6	210.6	19.4
(h) Landscaping works	98.8)				
(i) Pedestrian footbridges	138.2		64.6	64.6	(73.6)
(j) IT infrastructure and cabling	95.0		71.7	71.7	(23.3)
(k) Cooling water supply system for air-conditioning	58.0		149.5	149.5	91.5
(l) Associated builder's and building services works for enhanced Electronic Equipment for LegCo	-		-	3.0	3.0
(m) Glass partitions at Public Galleries for LegCo	-		-	11.1	11.1
(n) Additional environmental and energy conservation measures	-		-	70.9	70.9
(o) Enhanced barrier free access provisions	-		-	13.0	13.0
(p) Artworks	-		-	32.4	32.4
(q) A Café	-		-	7.5	7.5
(r) Furniture and equipment (F&E)	289.6		252.3	299.4	9.8
(s) Consultancy fees for	59.7		57.0	66.5	6.8
(i) Quantity surveying services	13.0		13.0	15.5	
(ii) Electrical, IT, telecommunication, and mechanical engineering services	25.0		25.0	30.0	
(iii) Structural engineering and geotechnical services	9.7		7.0	8.2	
(iv) Environmental landscape and risk management services	12.0		12.0	12.8	
(t) Overseas inspections and factory/laboratory visits	0.3		0.3	0.3	-
(u) Contingencies	413.4		110.7	141.5	(271.9)
Sub-total	4,837.4		4,852.0	5,190.3	352.9
(v) Provisions for price adjustment	331.5		316.9	338.4	6.9
Total	5,168.9		5,168.9	5,528.7	359.8

2. As regards (a) to (c) (**Site works, piling and basement construction**), the total decrease of \$162.8 million is due to lower-than expected rates submitted by the contractor.
3. As regards (d) (**Building**), the total increase of \$146.5 million includes –
 - (i) an increase of \$80.3 million due to higher-than-expected rates submitted by the contractor.
 - (ii) an increase of \$66.2 million due to addition of the LegCo expansion.
4. As regards (e) (**Building services**), the total increase of \$482.5 million includes –
 - (i) an increase of \$435.7 million due to higher-than-expected rates submitted by the contractor.
 - (ii) an increase of \$46.8 million is due to addition of the LegCo expansion.
5. As regards (f) (**Drainage**), the decrease of \$9.9 million is due to lower-than expected rates submitted by the contractor.
6. As regards (g) and (h) (**External works and landscaping works**), the increase of \$19.4 million is due to higher-than-expected rates submitted by the contractor.
7. As regards (i) (**Pedestrian footbridges**), the decrease of \$73.6 million is due to lower-than-expected rates submitted by the contractor.
8. As regards (j) (**IT infrastructure and cabling**), the decrease of \$23.3 million is due to lower-than-expected rates submitted by the contractor.
9. As regards (k) (**Cooling water supply system for air-conditioning**), the increase of \$91.5 million is due to higher-than-expected rates submitted by the contractor.

10. As regards (l) to (q) (**Associated builder's and building services works for enhanced electronic equipment for LegCo, glass partitions at Public Galleries for LegCo, additional environmental and energy conservation measures, enhanced barrier free access provisions, artworks and a café**), the increases are due to additional works with reasons set out in paragraphs 8 to 27 of the Paper.

11. As regards (r) (**Furniture and equipment**), the total net increase of \$9.8 million includes –

- (i) a decrease of \$37.3 million due to lower-than expected rates submitted by the contractor.
- (ii) an increase of \$47.1 million due to addition of the LegCo expansion, enhanced electronic equipment for LegCo, additional environmental and energy conservation measures, enhanced barrier free access provisions and a café.

12. As regards (s) (**Consultancy fees**), the total net increase of \$6.8 million includes –

- (i) a decrease of \$2.7 million due to lower-than expected rates submitted by the structural engineering and geotechnical consultants.
- (ii) an increase of \$9.5 million due to the additional works.

13. As regards (u) (**Contingencies**), the total net decrease of \$271.9 million includes –

- (i) a decrease of \$302.7 million to offset part of the increases in items (a) to (k).
- (ii) an increase of \$30.8 million for all the additional works.

14. As regards (v) (**Provision for price adjustment**), the total net increase of \$6.9 million includes –

- (i) a decrease of \$14.6 million due to an expected lower price fluctuation payment at the time of the returned tender.

- (ii) an increase of \$21.5 million for price adjustment for the additional works. Detailed calculations for the increase in provision for price adjustment is given in Enclosure 7.

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Factors	CGC and Open Space (\$ million)	LegCo Complex (\$ million)	Total (\$ million)
(a) Enhanced communal facilities and Secretariat's office for LegCo		113.0	113.0
(b) Associated builder's and building services works for enhanced electronic equipment for LegCo		3.0	3.0
(c) Glass partition at Public Galleries for LegCo		11.1	11.1
(d) Additional environmental and energy conservation measures	47.0	23.9	70.9
(e) Enhanced barrier free access provisions	8.3	4.7	13.0
(f) Artworks			32.4
(i) Artworks in LegCo		12.4	12.4
(ii) Artworks in CGC and Open Space	18.5		18.5
(iii) Associated builder's and building services works for Artworks (whole Tamar Development Project)	0.9	0.6	1.5
(g) A Café			7.5
(h) Furniture and equipment (F&E) for			47.1
(i) Enhanced communal facilities and Secretariat's office for LegCo		11.0	11.0
(ii) Enhanced electronic equipment for LegCo		20.2	20.2
(iii) Additional environmental and energy conservation measures	12.9	0.4	13.3
(iv) Enhanced barrier free access provisions	0.6	1.2	1.8
(v) A Café			0.8
(i) Additional consultancy fees for			9.5
(i) Quantity surveying services			2.5
(ii) Electrical, IT, telecommunication, and mechanical engineering services			5.0
(iii) Structural engineering and geotechnical services			1.2
(iv) Environmental landscape and risk management services			0.8
(j) Additional contingencies			30.8
<i>Sub-total</i>			338.3
(k) Additional provisions for price adjustment			21.5
<i>Total</i>			359.8

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Estimated Additional Provisions for Price Adjustment for Additional Works

Year	Cashflow of the whole project (in \$ million MOD)	Estimate of additional works subject to MOD Adjustment (in \$ million)	Price adjustment factors	Estimate of additional works including price adjustment (in \$ million MOD)	Estimated additional provisions for price adjustment (in \$ million)
		p	q	$r = p * q$	$s = r - p$
Up to 31/3/2009	712.3	0.0	1.00000	0.0	0.0
2009-10	1200.0	0.0	1.00000	0.0	0.0
2010-11	2400.0	10.0	1.02000	10.2	0.2
2011-12	760.0	80.0	1.04040	83.2	3.2
2012-13	310.0	110.0	1.06121	116.7	6.7
2013-14	146.4	138.3	1.08243	149.7	11.4
Total	5,528.7	338.3		359.8	21.5