

ITEM FOR PUBLIC WORKS SUBCOMMITTEE OF FINANCE COMMITTEE

HEAD 703 – BUILDINGS

Environmental Hygiene – Burial grounds, columbaria and crematoria

19NB – Provision of Columbarium and Garden of Remembrance at Tsang Tsui, Tuen Mun

Members are invited to recommend to the Finance Committee the upgrading of **19NB** to Category A at an estimated cost of \$2,874.3 million in money-of-the-day prices for the provision of a columbarium and garden of remembrance at Tsang Tsui, Tuen Mun.

PROBLEM

We need to provide additional columbaria to increase the supply of public niches for meeting the demand.

PROPOSAL

2. The Director of Architectural Services, with the support of the Secretary for Food and Health, proposes to upgrade **19NB** to Category A at an estimated cost of \$2,874.3 million in money-of-the-day (MOD) prices for the provision of a new columbarium and garden of remembrance (GoR) at Tsang Tsui, Tuen Mun.

/PROJECT

PROJECT SCOPE AND NATURE

3. The scope of the project comprises the decommissioning of the pulverised fuel ash (PFA) storage area in the project site of about 30 041 square metres (m²), which was originally part of an ash lagoon¹, and the development of a columbarium and GoR on the project site, which includes –

- (a) construction of a 8-storey columbarium building to provide about 160 000 niches. They will consist of about 99% standard niches (for holding two urns each) and 1% large niches (for holding four urns each)²;
- (b) construction of a GoR of about 4 800 m² with greenery and designated walls for the mounting of about 10 000 plaques in memory of the deceased;
- (c) provision of a pick-up and drop-off Area (PDA) inside the columbarium boundary. The PDA would serve taxis and a fleet of about 150 double-decker buses providing about 99 bus trips during peak hour in grave sweeping period;
- (d) construction of a 2-way 2-lane standard access road of about 730 metres (m) to connect Nim Wan Road with the columbarium site;
- (e) ancillary facilities including office, storerooms, public toilets, hand-washing troughs, communal incense holders for individual floor at designated locations other than floor(s) set aside for incense free niches, and fixed benches at suitable locations on each floor;

/(f)

¹ The site is located next to the Castle Peak Power Company Limited (CAPCO) Black Point Power Station and is part of the ash lagoon previously owned and managed by CAPCO. CAPCO surrendered the site to the Government in February 2015. PFA is a by-product arising from the combustion process of coal for generating electricity at the power station.

² The internal dimensions of each standard niche will measure 200 millimetres (mm) in width, 210 mm in height and 410 mm in depth whereas those of each large niche will measure 410 mm in width, 210 mm in height and 410 mm in depth.

- (f) provision and connection of fresh water supply, sewerage system, electricity supply, joss paper burners with exhaust air treatment facilities and passenger lifts;
- (g) provision of a refuse collection point and water points at suitable locations;
- (h) provision of suitable landscaping (with benches and tables) and greening (including vertical greening) to beautify the environment and minimise visual impacts;
- (i) barrier-free provisions for persons with disabilities; and
- (j) anti-burglary devices, public address systems and closed-circuit television systems with cameras at strategic locations and control panels in Control Room.

4. Location plans of different scales and a site plan of the proposed columbarium and GoR are at Enclosures 1 to 3. Floor plans, a section plan, a barrier-free access plan and an artist's impression of the proposed columbarium and GoR are at Enclosures 4 to 11. Subject to funding approval of the Finance Committee, we plan to commence construction of the proposed project in the first quarter of 2016. The columbarium building is scheduled for completion by early 2019 and the GoR by mid-2019.

JUSTIFICATION

5. With a growing and aging population in Hong Kong, the number of deaths and cremations has been rising gradually year on year. The annual average number of deaths and cremations in the next 20 years (i.e. from 2015 to 2034) is estimated to be about 55 000 and 52 000 respectively. The corresponding figures in the past four decades are tabulated below –

	Annual average number of deaths	Annual average number of cremations
1995 to 2014	38 000	31 000
1975 to 1994	26 000	14 000

6. Whilst the Government is making continual efforts to promote green burials (including scattering ashes at sea or in GoRs), it takes time to bring about the necessary mindset change. Meanwhile, keeping ashes in niches will remain the mainstream mode for some years to come.

7. To meet the demand for public niches, the Government announced in July 2010 the district-based columbarium developments where the 18 districts would collectively share the responsibility of developing columbarium facilities. The Government also announced a total of 24 potential sites in the 18 districts through three batches in July 2010, December 2010 and April 2011 for columbarium development. The Government stressed that whether the sites could eventually be used for developing columbarium facilities would depend on the results of traffic impact assessment (TIA) and technical feasibility studies (TFS). Upon completion of the initial studies, we would consult the District Councils (DCs) concerned before developing the sites for columbarium use.

8. Subject to the outcome of the initial studies, as well as support of DCs and the Legislative Council (LegCo), and taking into account the supply of niches provided by the Chinese Permanent Cemeteries, we estimate that the supply of new niches will cumulatively increase to hundreds of thousands by 2031. There is practically little supply of new niches by the Food and Environmental Hygiene Department (FEHD) between now and 2018.

9. The project site was originally an ash lagoon. It is therefore necessary to properly decommission the PFA storage area before construction of the columbarium. Furthermore, there is no proper vehicular access to the site. An access road of about 730 m is required to be built for connecting the existing Nim Wan Road to the site.

FINANCIAL IMPLICATIONS

10. We estimate the capital cost of the project to be \$2,874.3 million in MOD prices (please see paragraph 12 below), broken down as follows –

/(a)

	\$ million	
(a) Site works	10.9	
(b) Site formation (including the decommissioning of the PFA)	46.4	
(c) Piling	190.1	
(d) Building	1,205.9	
(e) Building services	134.3	
(f) Drainage	20.1	
(g) External works	151.9	
(h) Additional energy conservation, green and recycled features	33.1	
(i) Access road and other works	188.2	
(j) Furniture and equipment ³	0.9	
(k) Consultants' fees	35.3	
(i) contract administration	33.6	
(ii) management of resident site staff	1.7	
(l) Remuneration of RSS	18.1	
(m) Contingencies	<u>203.5</u>	
Sub-total	2,238.7	(in September 2014 prices)
(n) Provision for price adjustment	<u>635.6</u>	
Total	<u>2,874.3</u>	(in MOD prices)

/11.

³ The estimated cost is based on an indicative list of furniture and equipment.

11. We propose to engage consultants to undertake contract administration and site supervision for the project. A detailed breakdown of the estimate for consultants' fees and resident site staff costs by man-months is at Enclosure 12. The construction floor area (CFA) of the columbarium is 53 048 m². The estimated construction unit cost, represented by building and building services costs, is \$25,264 per m² of CFA in September 2014 prices.

12. Subject to funding approval, we will phase the expenditure as follows –

Year	\$ million (Sept 2014)	Price adjustment factor	\$ million (MOD)
2015 – 16	3.0	1.05725	3.2
2016 – 17	240.0	1.12069	269.0
2017 – 18	430.0	1.18793	510.8
2018 – 19	600.0	1.25920	755.5
2019 – 20	530.0	1.33475	707.4
2020 – 21	280.0	1.40483	393.4
2021 – 22	100.0	1.47507	147.5
2022 – 23	40.0	1.54882	62.0
2023 – 24	15.7	1.62626	25.5
	2,238.7		2,874.3

13. We have derived the MOD estimates on the basis of the Government's latest set of assumptions on the trend rate of change in the prices of public sector building and construction output for the period 2015 to 2024. Subject to funding approval, we will deliver the construction works through a lump sum contract because we can clearly define the scope of works in advance. The contract will provide for price adjustment.

14. We estimate the annual recurrent expenditure arising from this project to be about \$40.7 million.

15. Government charges a uniform set of fees and charges for columbarium services, irrespective of the location of the columbarium and niches. When setting and reviewing the level of fees and charges for columbarium services, Government would take into account, among other factors, the construction cost of the columbarium buildings and related costs, as well as the recurrent costs arising from the allocation, operation and maintenance of the niches.

16. Subject to funding approval, new supply of public niches at Tsang Tsui would be available for allocation from 2019 onwards. Nearer the time, the Government shall brief the LegCo Panel on Food Safety and Environmental Hygiene on the level of the fee payable for the allocation of a new public niche after taking into account the relevant costs of several new columbarium projects for that period.

PUBLIC CONSULTATION

17. We consulted the Tuen Mun District Council (TMDC) on the initial concept of the columbarium project on 8 May 2012 and presented the findings and recommendations of the TIA study based on a capacity of 110 000 niches. Members of TMDC did not raise any in-principle objections.

18. We consulted the TMDC again on 6 November 2012 on the conceptual design of the project on the basis of a design of 110 000 niches. TMDC supported the project in-principle with some suggestions for the provision of more niches to optimise the use of the site. On 4 November 2014, we reverted to TMDC on a revised conceptual design under which the number of niches has been increased from 110 000 to 160 000. At the same time, we presented the findings of the TIA study about the traffic implications of such an enlarged columbarium. Whilst the TMDC lent in-principle support to the project, some members expressed concern on the capacity of the associated road network in Tuen Mun West as a result of the cumulative increase in traffic flow induced by the project and other planned developments nearby.

19. To address the concerns of TMDC members on traffic, we consulted the Working Group on Development and Planning of Tuen Mun District (with all TMDC members invited to attend) on 19 January 2015 at which the relevant Bureaux briefed the Working Group on transport related projects that are either in the pipeline or under study. Members had no objection to the proposed columbarium project. Nonetheless, they requested the Government to consider the need to improve traffic infrastructure serving the region in the long run. The Government will update and seek the views of TMDC on the relevant developments at appropriate junctures.

20. We consulted the LegCo Panel on Food Safety and Environmental Hygiene on the proposed project on 14 April 2015. The Panel supported the proposal. The information requested by the Panel on determination of fees and charges for columbarium services is set out in paragraphs 15 and 16, the environmental impact assessment (EIA) (including effect on ecologically sensitive birds) in paragraph 22, the TIA in paragraph 34, and the drawing showing the memorial walls in the GoR in Enclosure 4.

ENVIRONMENTAL IMPLICATIONS

21. The decommissioning of the PFA lagoon is a designated project under Schedule 2 of the EIA Ordinance (Cap. 499) and requires an Environmental Permit (EP). The Director of Environmental Protection (DEP) approved the EIA report for the “Decommissioning of the West Portion of the Middle Lagoon at Tsang Tsui, Tuen Mun” on 28 January 2015 and issued an EP to FEHD on 25 March 2015. The EIA concluded that the decommissioning works would not result in adverse environmental impact with implementation of recommended mitigation measures and environmental monitoring and audit (EM&A) programme.

22. We shall implement the mitigation measures and the EM&A programme as recommended in the approved EIA report, in particular, covering the site with at least one metre thick fill materials, providing hoarding along the site boundary and rescheduling those works which would affect ecologically sensitive birds in their breeding season. We have included the cost of \$50.8 million in September 2014 prices for implementation of the EIA recommended mitigation measures and EM&A programme in the project estimate.

23. The development of the columbarium and GoR is not a designated project under the EIA Ordinance. In April 2015, we completed a Preliminary Environmental Review (PER) for the aforesaid development and agreed its findings with the DEP. The PER concluded that the construction and operation of the columbarium and GoR would not have adverse environmental impacts with implementation of mitigation measures and monitoring and audit.

24. We shall implement the mitigation measures and the monitoring and audit as recommended in the PER including electrostatic precipitators to remove particles from exhaust gas of the joss paper burners, separation distance between the columbarium buildings and the boundaries (both sides facing the proposed West New Territories Landfill Extension project), and preventive landfill gas control measures and monitoring system, etc. We have included the cost of \$29.3 million in September 2014 prices for implementation of the PER recommended mitigation measures and monitoring and audit in the project estimate.

25. At the planning and design stages, we have considered measures to reduce the generation of construction waste where possible (e.g. using metal site hoardings and signboards so that these materials can be recycled or reused in other projects). In addition, we will require the contractor to reuse inert construction waste (e.g. use of excavated materials for filling within the site) on site or in other suitable construction sites as far as possible, in order to minimise the disposal of inert construction waste at public fill reception facilities⁴. We will encourage the contractor to maximise the use of recycled or recyclable inert construction waste, and the use of non-timber formwork to further reduce the generation of construction waste.

26. At the construction stage, we will require the contractor to submit for approval a plan setting out the waste management measures, which will include appropriate mitigation means to avoid, reduce, reuse and recycle inert construction waste. We will ensure that the day-to-day operations on site comply with the approved plan. We will require the contractor to separate the inert portion from non-inert construction waste on site for disposal at appropriate facilities. We will control the disposal of inert and non-inert construction waste at public fill reception facilities and landfills respectively through a trip-ticket system.

/27.

⁴ 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.

27. We estimate that the project will generate in total about 43 250 tonnes of construction waste. Of these, we will reuse about 28 800 tonnes (66.6%) of inert construction waste on site and deliver 3 600 tonnes (8.3%) of inert construction waste to public fill reception facilities for subsequent reuse. We will dispose of the remaining 10 850 tonnes (25.1%) 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 \$1.5 million for this project (based on a unit charge rate of \$27 per tonne for disposal at public fill reception facilities and \$125 per tonne at landfills as stipulated in the Waste Disposal (Charges for Disposal of Construction Waste) Regulation).

HERITAGE IMPLICATIONS

28. This project will not affect any heritage site, i.e. all declared monuments, proposed monuments, graded historic sites or buildings, sites of archaeological interest and government historic sites identified by the Antiquities and Monuments Office.

LAND ACQUISITION

29. The project does not require any land acquisition.

ENERGY CONSERVATION, GREEN AND RECYCLED FEATURES

30. This project will adopt various forms of energy efficient features and renewable energy technologies, in particular –

- (a) lift power regeneration; and
- (b) solar powered light fittings.

31. For greening features, we will provide greening (including vertical greening) on rooftop and facades of the columbarium building, as well as other landscape features in appropriate areas of the site for environmental and amenity benefits.

32. For recycled features, we will adopt rainwater recycling system for landscape irrigation.

33. The total estimated additional cost for adoption of the above features is around \$33.1 million (including \$1.2 million for energy efficient features), which has been included in the cost estimate of the project. The energy efficient features will achieve 7.9% energy savings in the annual energy consumption with a payback period of about 6.9 years.

TRAFFIC IMPLICATIONS

34. A TIA study was conducted to assess the traffic impact of the proposed project. The study included the estimated traffic flow induced by the project, the traffic conditions of the new access road and the adjacent road network on peak grave sweeping days and other days. It concluded that the additional vehicular traffic arising from the proposed project would not adversely affect the performance of the key roads in the vicinity of the project site with the implementation of the suggested traffic improvement measures, and special transport, traffic and crowd control arrangements during peak periods⁵. FEHD will work closely with the Police and other relevant departments in the implementation of effective traffic and crowd control measures during the grave sweeping periods after commissioning the proposed project.

BACKGROUND INFORMATION

35. We upgraded **19NB** to Category B in September 2011. In the first quarter of 2012, we engaged consultants to render design services and carry out site investigation, topographical and utilities survey. The total cost of these works and services of \$29.8 million was funded under block allocation **Subhead 3100GX** "Project feasibility studies, minor investigations and consultants' fees for items in Category D of the Public Works Programme". All these works and services have been completed.

/36.

⁵ The recommended measures include carrying out improvement works to the road junction of Lung Mun Road and River Trade Terminal Gate No. 2, implementing temporary traffic management schemes at the road junction of Nim Wan Road and the proposed new access road to the columbarium, taking forward temporary traffic and crowd control management plan during the grave sweeping period, as well as operating special bus services to meet the demands of columbarium visitors during the grave sweeping period.

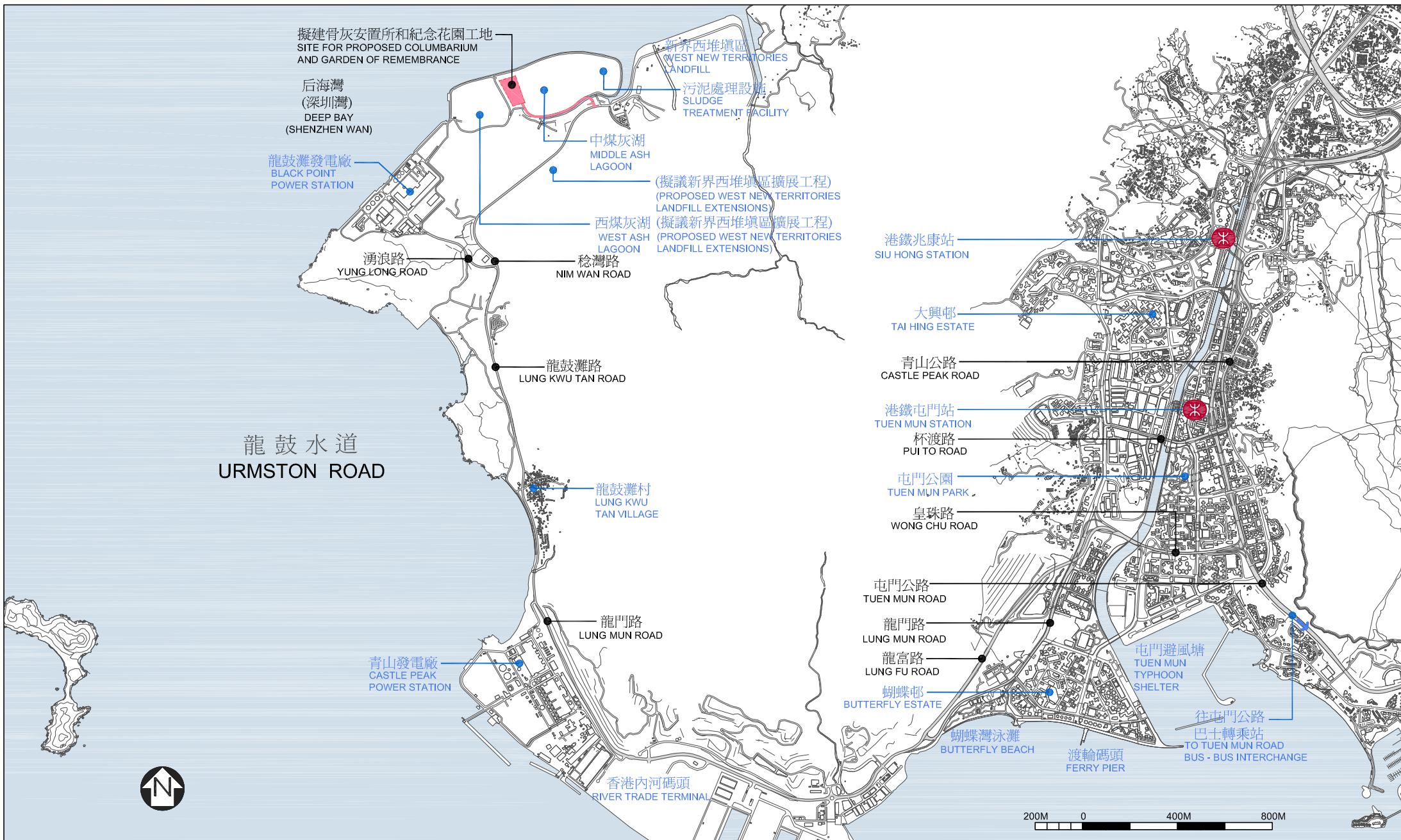
36. There are 572 existing trees within the project boundary including both sides of the access road. The proposed project will involve the removal of 572 trees. 564 of them will be felled and eight of them will be transplanted off-site. All trees to be removed are not important trees⁶. We will incorporate planting proposals within site boundary as part of the project, including the planting of 628 trees, 24 000 shrubs and 90 000 groundcovers, and 1 100 m² of grassed area.

37. We estimate that the proposed works will create about 790 jobs (710 for labourers and 80 for professional or technical staff) providing a total employment of 24 100 man-months.

Food and Health Bureau
June 2015

⁶ “Important trees” refer to trees in the Register of Old and Valuable trees, or any trees that meet one or more of the following criteria—

- (a) trees of 100 years old or above;
- (b) trees of cultural, historical or memorable significance, e.g. Fung Shui tree, tree as landmark of monastery or heritage monument, and trees in memory of an important person or event;
- (c) trees of precious or rare species;
- (d) trees of outstanding form (taking account of overall tree sizes, shape and any special features) e.g. trees with curtail like aerial roots, trees growing in unusual habitat; or
- (e) trees with trunk diameter equal or exceeding 1.0 m (measured at 1.3 m above ground level), or with height or canopy spread equal or exceeding 25 m.



位置圖 1
LOCATION PLAN 1

Project Title 項目名稱

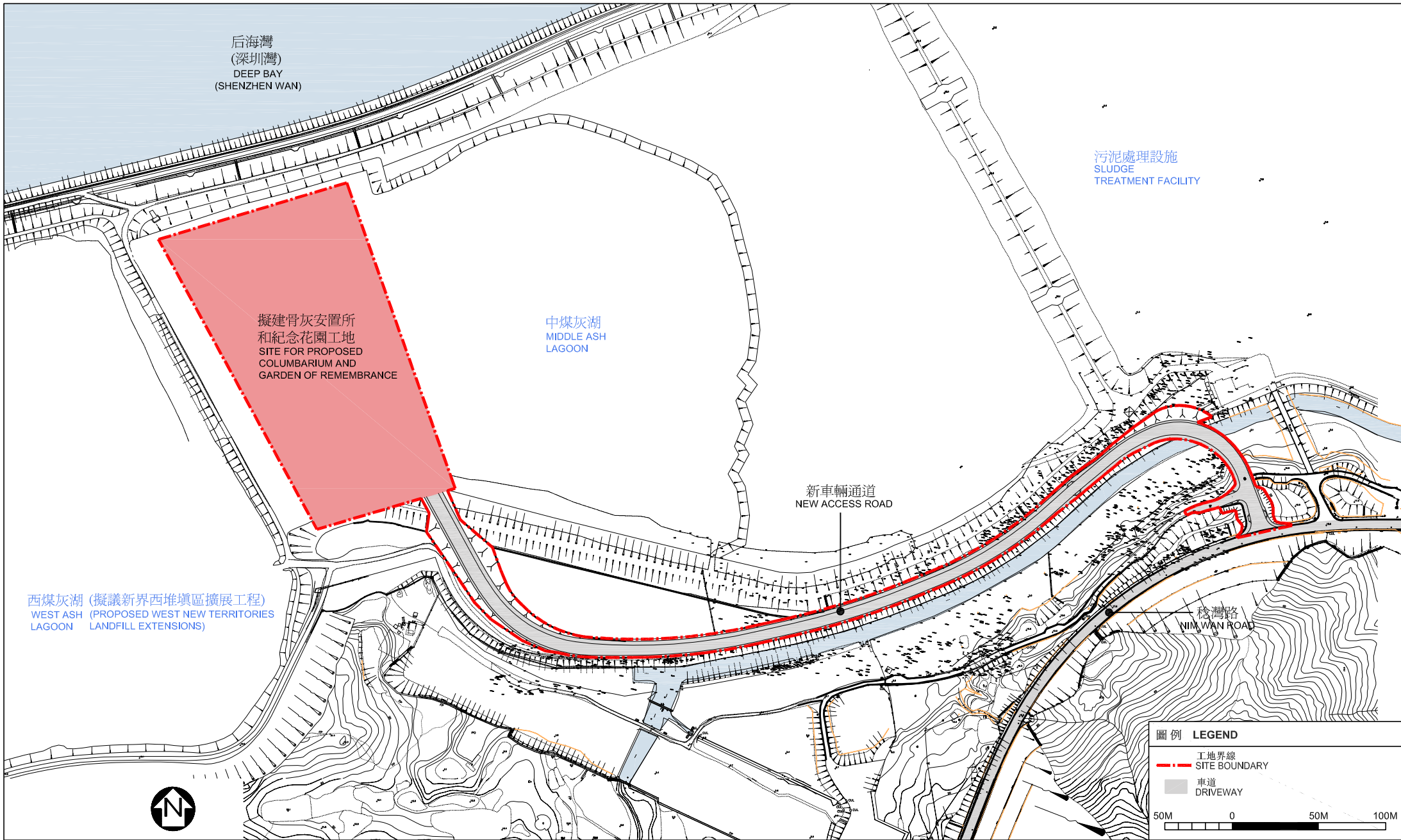
19NB

PROVISION OF COLUMBARIUM AND GARDEN OF REMEMBRANCE AT TSANG TSUI, TUEN MUN

在屯門曾咀建造骨灰安置所和紀念花園



ARCHITECTURAL
SERVICES
DEPARTMENT 建築署



位置圖 2
LOCATION PLAN 2

Project Title 項目名稱
19NB
PROVISION OF COLUMBARIUM AND GARDEN OF REMEMBRANCE AT TSANG TSUI, TUEN MUN
在屯門曾咀建造骨灰安置所和紀念花園



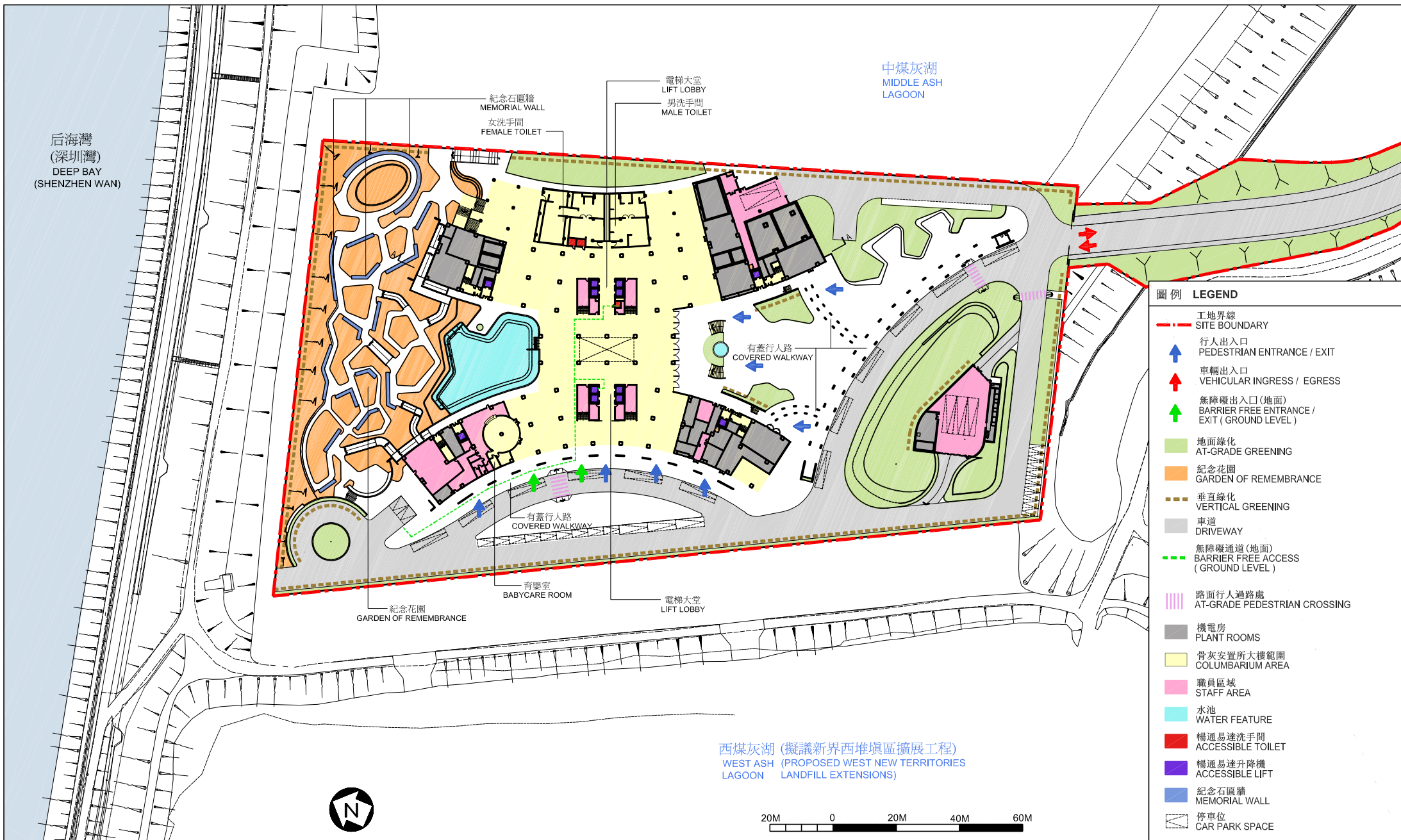
圖例	LEGEND
	工地界線 SITE BOUNDARY
	行人出入口 PEDESTRIAN ENTRANCE / EXIT
	車輛出入口 VEHICULAR INGRESS / EGRESS
	無障礙出入口(地面) BARRIER FREE ENTRANCE / EXIT (GROUND LEVEL)
	地面綠化 AT-GRADE GREENING
	屋頂綠化 LANDSCAPED ROOF
	垂直綠化 VERTICAL GREENING
	車道 DRIVEWAY
	路面行人過路處 AT-GRADE PEDESTRIAN CROSSING
	水池 WATER FEATURE
	紀念花園 GARDEN OF REMEMBRANCE
	紀念石區牆 MEMORIAL WALL



工地平面圖
SITE PLAN

Project Title 項目名稱
19NB
PROVISION OF COLUMBARIUM AND GARDEN OF REMEMBRANCE AT TSANG TSUI, TUEN MUN
在屯門曾咀建造骨灰安置所和紀念花園

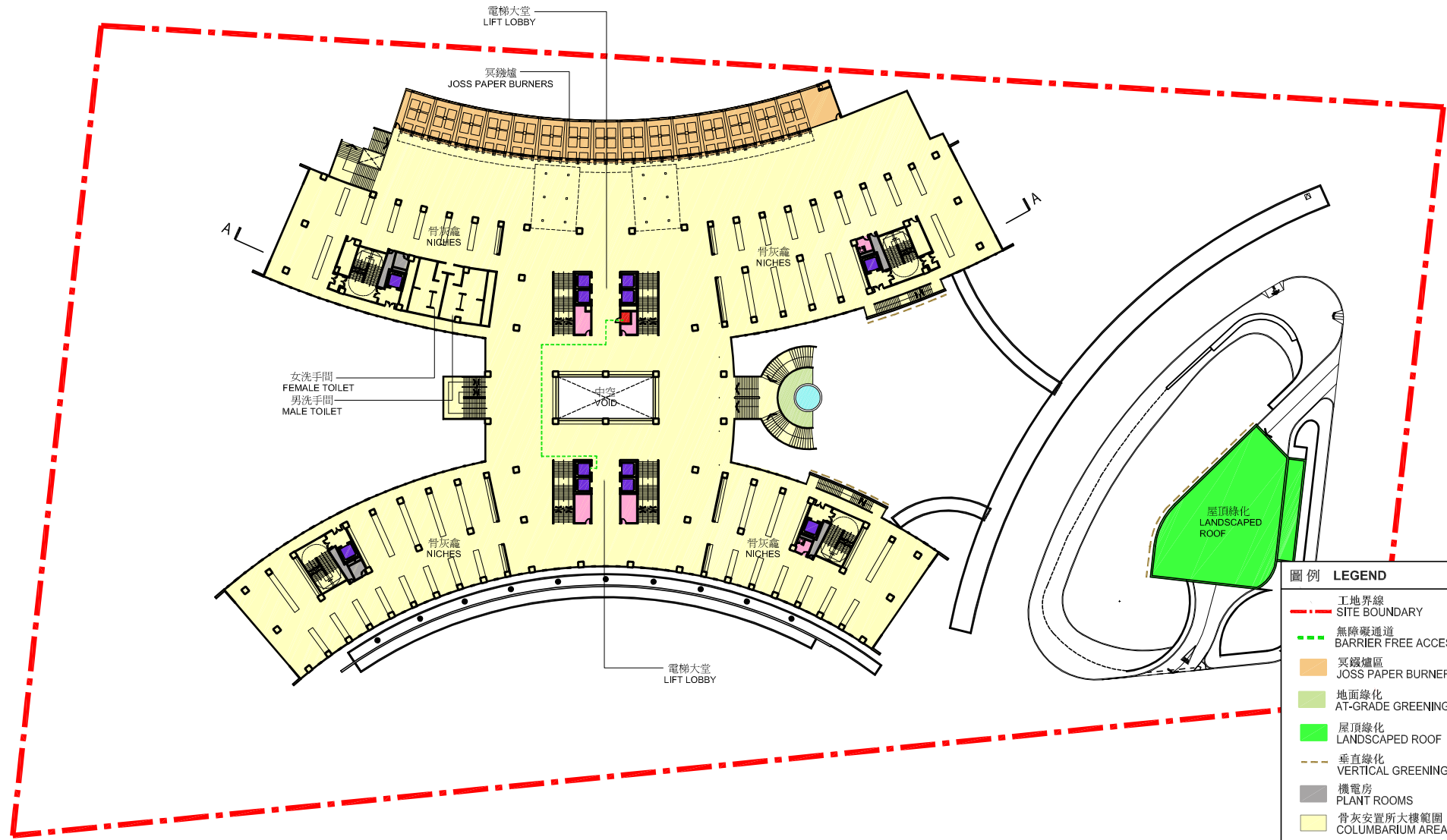




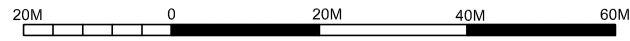
地下平面圖
GROUND FLOOR PLAN

Project Title 項目名稱

19NB
PROVISION OF COLUMBARIUM AND GARDEN OF REMEMBRANCE AT TSANG TSUI, TUEN MUN
在屯門曾咀建造骨灰安置所和紀念花園



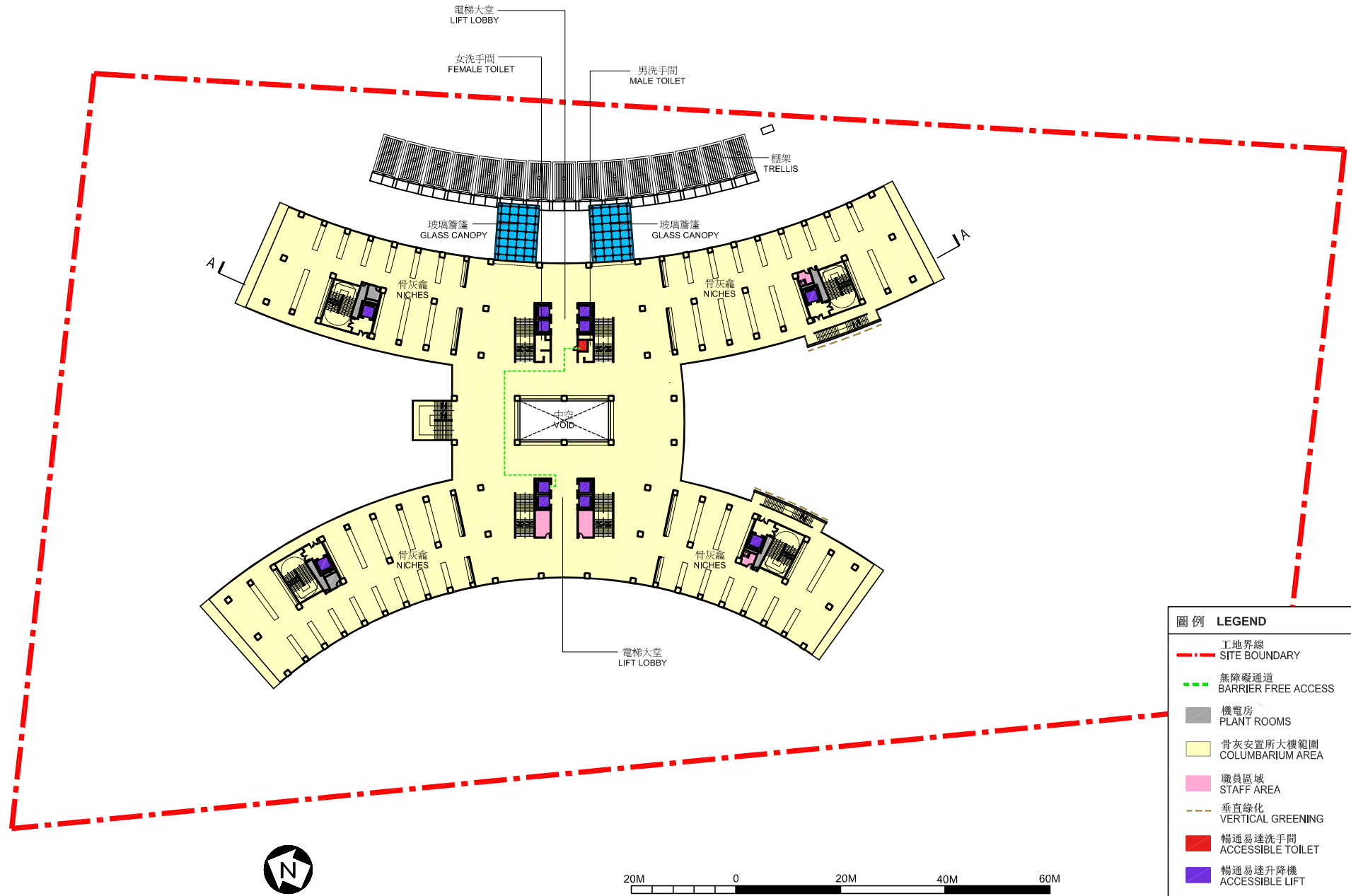
- 圖例 LEGEND**
- - - 工地界線
SITE BOUNDARY
 - - - 無障礙通道
BARRIER FREE ACCESS
 - 冥鐵爐區
JOSS PAPER BURNER AREA
 - 地面綠化
AT-GRADE GREENING
 - 屋頂綠化
LANDSCAPED ROOF
 - - - 垂直綠化
VERTICAL GREENING
 - 機電房
PLANT ROOMS
 - 骨灰安置所大樓範圍
COLUMBARIUM AREA
 - 職員區域
STAFF AREA
 - 水池
WATER FEATURE
 - 暢通易達洗手間
ACCESSIBLE TOILET
 - 暢通易達升降機
ACCESSIBLE LIFT



一層平面圖
FIRST FLOOR PLAN

Project Title 項目名稱
19NB
PROVISION OF COLUMBARIUM AND GARDEN OF REMEMBRANCE AT TSANG TSUI, TUEN MUN
在屯門曾咀建造骨灰安置所和紀念花園

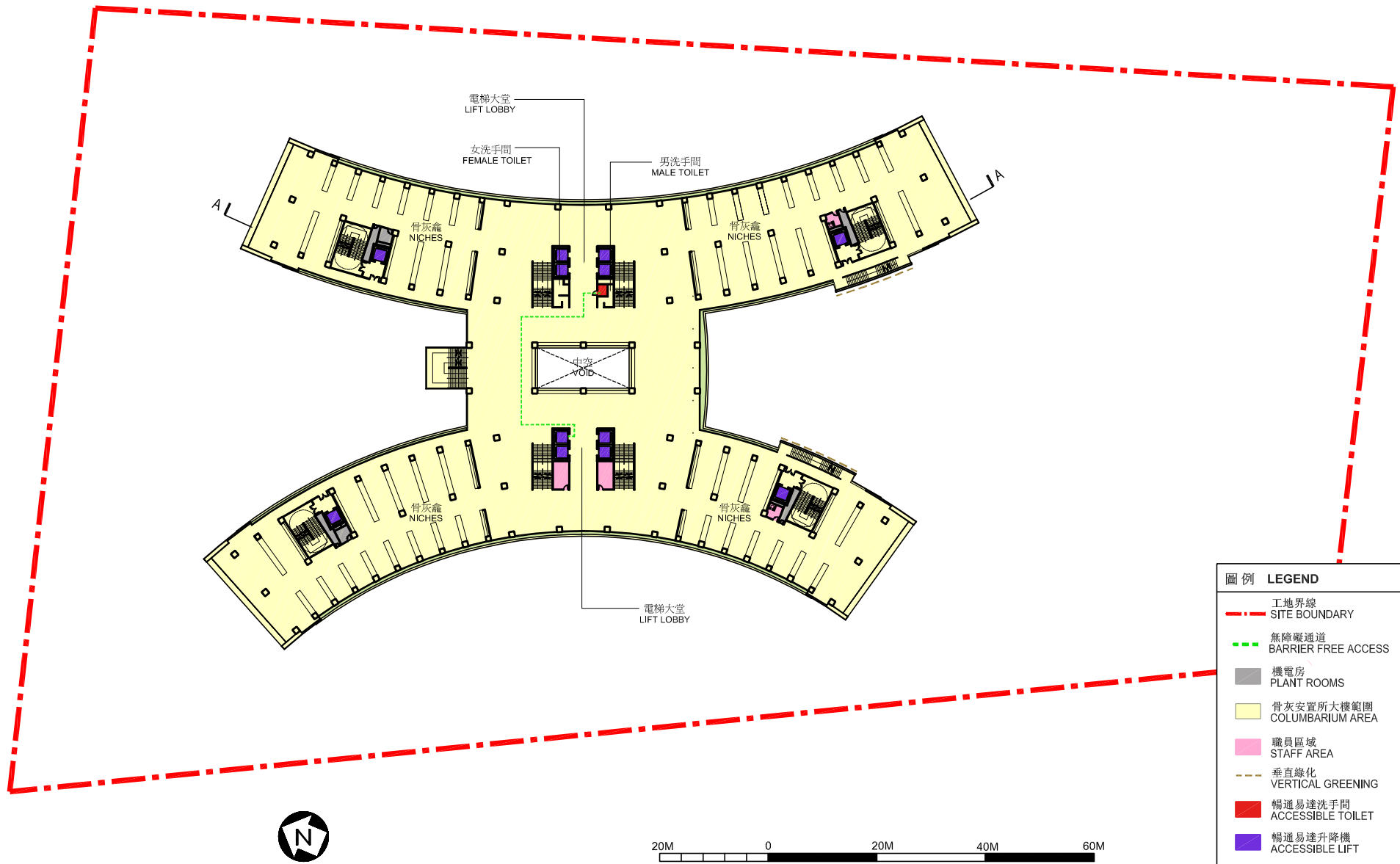




圖例 LEGEND	
	工地界線 SITE BOUNDARY
	無障礙通道 BARRIER FREE ACCESS
	機電房 PLANT ROOMS
	骨灰安置所大樓範圍 COLUMBARIUM AREA
	職員區域 STAFF AREA
	垂直綠化 VERTICAL GREENING
	暢通易達洗手間 ACCESSIBLE TOILET
	暢通易達升降機 ACCESSIBLE LIFT

二層平面圖
SECOND FLOOR PLAN

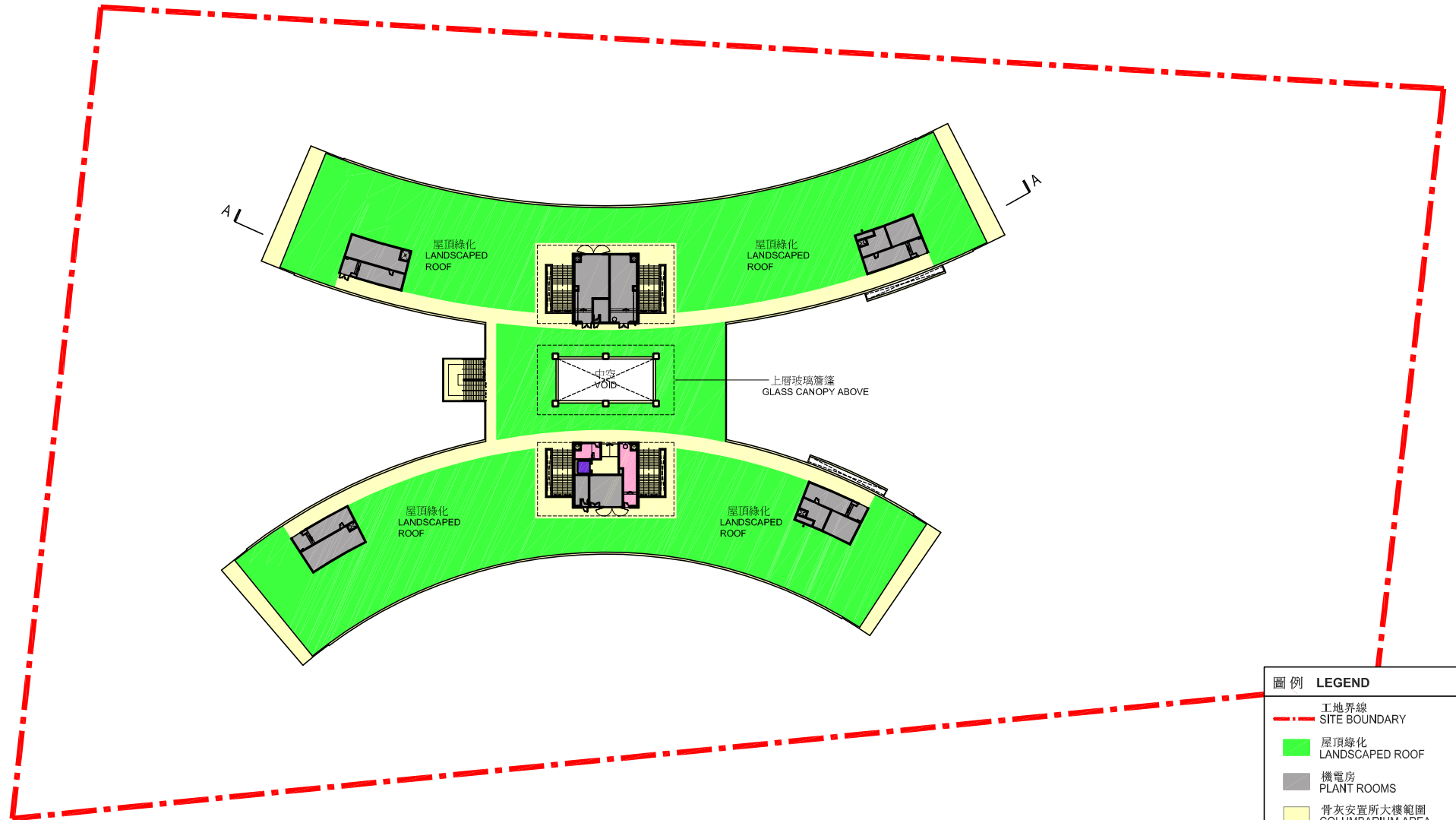
Project Title 項目名稱
19NB
PROVISION OF COLUMBARIUM AND GARDEN OF REMEMBRANCE AT TSANG TSUI, TUEN MUN
在屯門曾咀建造骨灰安置所和紀念花園



標準層平面圖 (三至七層)
TYPICAL FLOOR PLAN (3-7/F)

Project Title 項目名稱

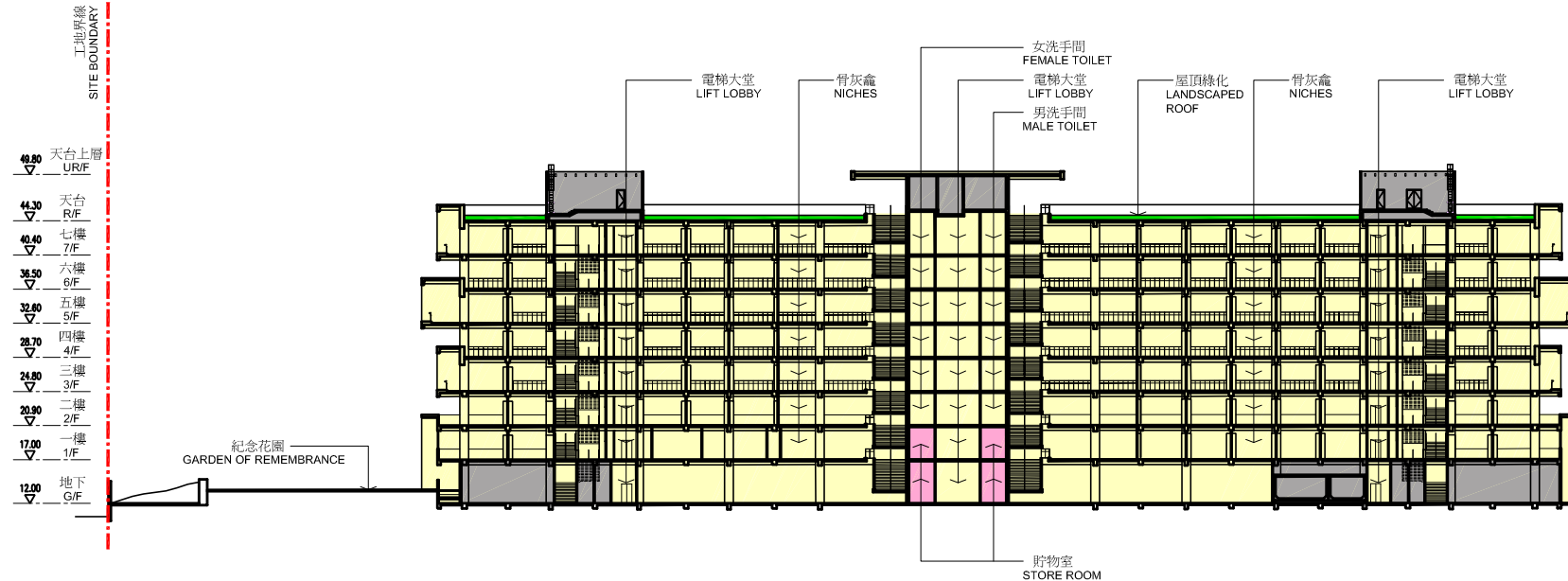
19NB
PROVISION OF COLUMBARIUM AND GARDEN OF REMEMBRANCE AT TSANG TSUI, TUEN MUN
在屯門曾咀建造骨灰安置所和紀念花園



圖例 LEGEND	
	工地界線 SITE BOUNDARY
	屋頂綠化 LANDSCAPED ROOF
	機電房 PLANT ROOMS
	骨灰安置所大樓範圍 COLUMBARIUM AREA
	職員區域 STAFF AREA
	暢通易達升降機 ACCESSIBLE LIFT

天台平面圖
ROOF FLOOR PLAN

Project Title 項目名稱
19NB
PROVISION OF COLUMBARIUM AND GARDEN OF REMEMBRANCE AT TSANG TSUI, TUEN MUN
在屯門曾咀建造骨灰安置所和紀念花園



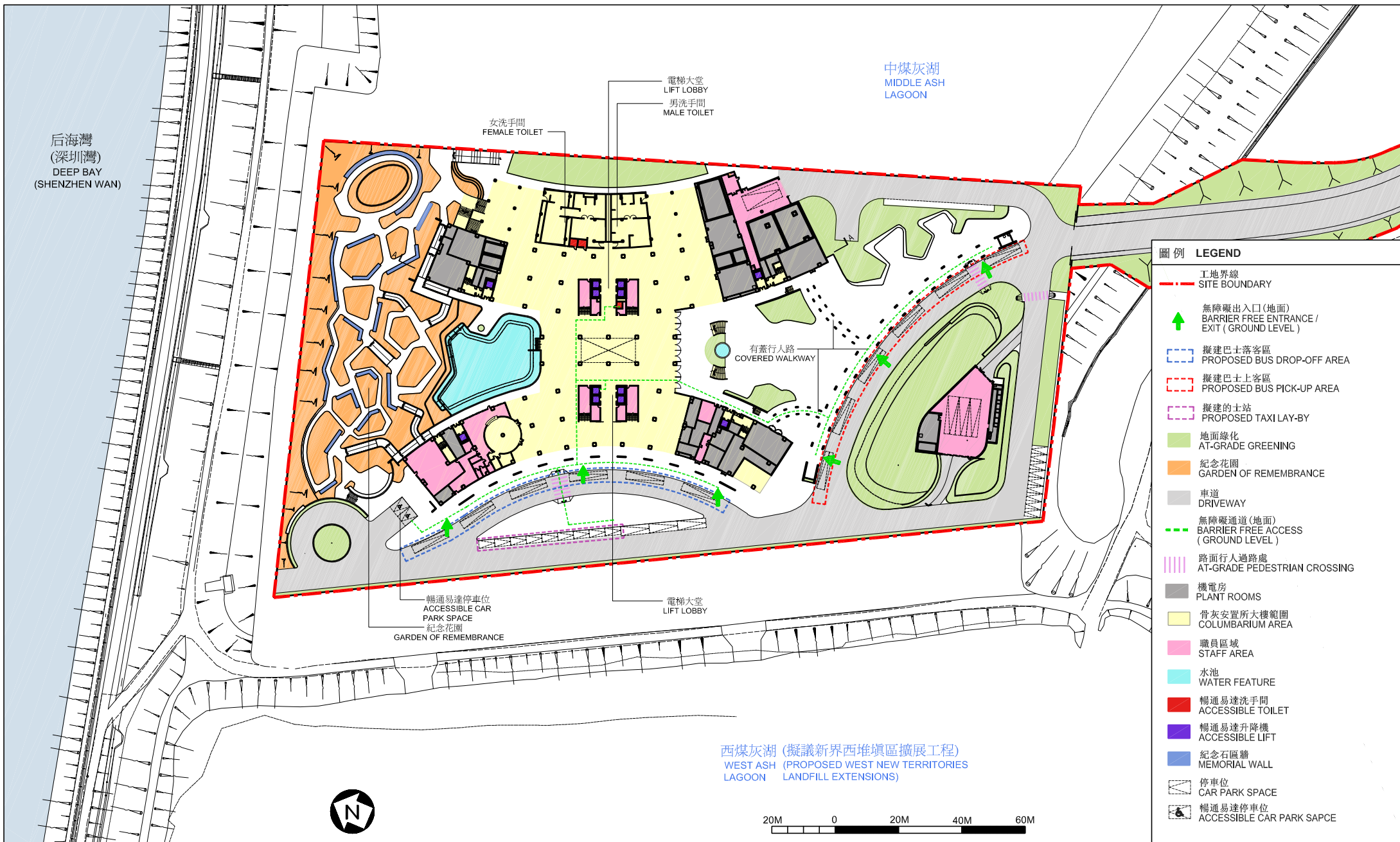
圖例 LEGEND

- 工地界線 SITE BOUNDARY
- 屋頂綠化 LANDSCAPED ROOF
- 機電房 PLANT ROOMS
- 公眾區域 PUBLIC AREA
- 職員區域 STAFF AREA

5M 0 10M 25M

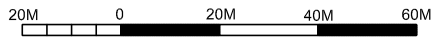
A-A剖面圖
SECTION A-A

Project Title 項目名稱
19NB
PROVISION OF COLUMBARIUM AND GARDEN OF REMEMBRANCE AT TSANG TSUI, TUEN MUN
在屯門曾咀建造骨灰安置所和紀念花園



無障礙通道平面圖
PLAN OF BARRIER-FREE ACCESS

Project Title 項目名稱
19NB
PROVISION OF COLUMBARIUM AND GARDEN OF REMEMBRANCE AT TSANG TSUI, TUEN MUN
在屯門曾咀建造骨灰安置所和紀念花園





從南面望向大樓的構思圖
 PERSPECTIVE VIEW FROM SOUTHERN DIRECTION (ARTIST'S IMPRESSION)

構思圖
 ARTIST'S IMPRESSION

Project Title 項目名稱
 19NB
 PROVISION OF COLUMBARIUM AND GARDEN OF REMEMBRANCE AT TSANG TSUI, TUEN MUN
 在屯門曾咀建造骨灰安置所和紀念花園

 ARCHITECTURAL
 SERVICES
 DEPARTMENT 建築署

Enclosure 12 to PWSC(2015-16)19

19NB – Provision of Columbarium and Garden of Remembrance at Tsang Tsui, Tuen Mun

Breakdown of the estimates for consultants' fees and resident site staff costs (in September 2014 prices)

		Estimated man- months	Average MPS [*] salary point	Multiplier <small>(Note 1)</small>	Estimated fee (\$ million)
(a)	Consultants' fees for contract administration <small>(Note 2)</small>				
	Professional	–	–	–	28.4
	Technical	–	–	–	5.2
				Sub-total	33.6
(b)	Resident site staff (RSS) costs <small>(Note 3)</small>				
	Professional	36	38	1.6	4.1
	Technical	402	14	1.6	15.7
				Sub-total	19.8
Comprising -					
(i)	Consultants' fees for management of RSS			1.7	
(ii)	Remuneration of RSS			18.1	
				Total	53.4

* MPS = Master Pay Scale

Notes

1. A multiplier of 1.6 is applied to the average MPS salary point to estimate the cost of RSS supplied by the consultants (as at now, MPS salary point 38 = \$71,385 per month and MPS salary point 14 = \$24,380 per month).
2. The consultants' fees for contract administration are calculated in accordance with the existing consultancy agreement for the design and construction of **19NB**. The construction phase of the assignment will only be executed subject to Finance Committee's funding approval to upgrade **19NB** to Category A.
3. The actual man-months and actual costs will only be known after completion of the construction works.