Reserve Bank of Australia

Business Resumption Site

Statement of Evidence to the Parliamentary Standing Committee on Public Works

May 2005

TABLE OF CONTENTS

EXECUTIVE SUMMARY

1. A number of the Reserve Bank of Australia's (RBA's) Information Technology and Communications (ITC) systems support operations that are critical to the stable operation of the financial system and to the implementation of monetary policy. These critical systems include those for Australia's real-time interbank settlements system; banking operations carried out on behalf of the Australian Government, including pension payments and the like; and the RBA's market operations, including domestic liquidity management and foreign exchange operations. The RBA's disaster recovery and business continuity arrangements must assure the availability of these critical systems in the event that access to the Bank's HO is denied or services become unavailable.

2. Current business continuity arrangements involve the limited use of three sites: the Coombs Centre Kirribilli for business continuity; leased data centre space for ITC disaster recovery; and the RBA's Canberra Branch for banking operations.

3. Extensive investigations have been completed into alternative ways to achieve the required degree of resilience for the RBA's business continuity arrangements. These investigations have led to the conclusion that a dedicated business recovery site (BRS) owned by the RBA provides the best option for the accommodation of essential staff and critical ITC infrastructure.

4. It is therefore proposed to construct a dedicated BRS on a green fields site in the Norwest Business Park at Baulkham Hills, Sydney.

5. It is expected that the total cost for works will be $38 million.

6. The RBA is required to refer this proposal to the Parliamentary Standing Committee on Public Works (PWC) and obtain approval from Parliament for the project to proceed. From Parliamentary approval, it is anticipated that the project would take approximately 24 months to complete: six months for detailed design and tendering and 18 months for construction and commissioning. This would mean that the facility would be operational from around mid 2007.

THE BANK AND ITS SERVICES

7. The Reserve Bank of Australia (RBA) is Australia's central bank. Its powers are vested in the Reserve Bank Board and the Payments System Board, both of which are chaired by the Governor.

8. The RBA has two broad policy responsibilities - monetary policy and the maintenance of financial system stability, including stability of the payments system. In carrying out its responsibilities, the RBA is an active participant in financial markets and operates the payments system. The RBA is also required to provide banking services to the Australian Government, in terms of the Reserve Bank Act. These responsibilities lead the RBA to conduct certain operations that are pivotal to the stable operation of the financial system and to the implementation of monetary policy. In particular, these critical operations include the ITC functions and essential staff for Australia's real-time high-value interbank settlement system; banking operations carried out on behalf of the Australian Government, including pension payments and the like; and the Bank's market operations, including domestic liquidity management, foreign exchange operations and management of international reserves. These critical operations make intensive use of ITC systems and require a high order of reliability. The widespread expectation is that the Reserve Bank could ensure the continuity of its critical operating systems. Their failure, for all but very short interruptions, would be unacceptable.

9. The RBA is also responsible for printing (through its wholly-owned subsidiary, Note Printing Australia) and issuing Australian currency notes.

10. The Reserve Bank Board is responsible for the RBA's monetary and banking policy and for the RBA's policy on all other matters, except payments system policy, for which the Payments System Board is responsible.

11. The structure of the RBA is based on groupings of related functions, as follows:

    (a) **Economic Group** is responsible for analysis of economic trends, both domestic and overseas, forecasting and research relevant to the framing of monetary policy. It consists of the Economic Analysis and Economic Research departments.

    (b) **Financial Markets Group** is responsible for the RBA's operations in domestic and foreign exchange markets. These operations are conducted in pursuit of the RBA's monetary policy objectives and for the purpose of investing Australia's international reserves. The Group comprises Domestic Markets and International departments.

(c) **Financial System Group** supports the RBA's role in payments system regulation and its broad responsibilities for financial system stability. It consists of Payments Policy and Systems Stability departments.

(d) **Business Services Group** consists of three departments:

Payments' Settlements Department is responsible for the settlement of high-value payments and interbank obligations arising from the conduct of banks' Exchange Settlement Accounts at the RBA and the RBA's own trading activities. It operates the Reserve Bank Information and Transfer System (RITS) which is Australia's real-time gross settlement (RTGS) system for high-value inter-bank settlement. It is also responsible for settlement with the Australian Stock Exchange on a batch basis.

Banking Department provides a specialised range of banking and registry services mainly to the Australian Government and some instrumentalities including Centrelink and the Health Insurance Commission. These services include the making of pension and Medicare payments to individuals. The RBA is banker to Australian Taxation Office and is responsible for receiving tax payments from the banking system.

Note Issue Department is responsible for research into and development of new currency note designs and security features and the supply of sufficient good quality/authentic currency notes to meet the community's demand.

(e) **Corporate Services Group** provides corporate support to the rest of the RBA. It consists of four departments: Facilities Management; Financial Administration; Personnel and Systems & Technology.

(f) **Audit Department** is responsible for conducting audits of the RBA's activities, functions and operations to ensure that an adequate framework of internal controls has been established and is operating effectively.

(g) **Secretary's Department** provides corporate secretarial and legal services and acts generally as a coordinating department. It services the Reserve Bank Board and the Payments System Board.

(h) **Information Department** is responsible for disseminating information to the public and media both via a range of publications and the RBA's website. It is also responsible for the RBA's document management systems.

(i) **Risk Management Unit** is responsible for ensuring a consistent framework for the definition, assessment and monitoring of risks.

12. The RBA's staff numbers are now around 830, of which 780 are located at the Head Office in Sydney with 12 in Canberra, 18 in Regional Offices and the remainder at the offices in New York and London.

13. The RBA's ITC operations involve extensive mainframe, midrange and other platforms necessary for the RBA's operating systems and data processing and communications requirements. They comprise an RBA-operated data centre (production and test and development) and back-up of critical systems and data on a real-time basis at a leased DR site outside the CBD at West Pennant Hills.

14. The Attorney General's (AG's) Critical Infrastructure Directorate has classified three RBA services, RITS, Note Issue and Note Production, in the "Major" category of Australia's National Critical Infrastructure, just below the highest category, "Vital". Separately, another review initiated by AG's, prepared by the Banking & Finance Sector Infrastructure Assurance Advisory group, lists RITS as a critical element of operations in the finance sector. The Allfinance Forum group, representing banks and insurers, has also identified RBA services, particularly RITS, as critical to the banking system.

EXISTING FACILITIES

Sydney Facilities

15. The RBA currently owns the following facilities:

65 Martin Place

The Bank's Head Office, a 23 storey commercial building with a net lettable area of about 30,000m². This building, which includes the Bank's production data centre, was built in the 1960s and has since been extended and refurbished. Following the consolidation of Bank activities in 2003, surplus space has been leased to external tenants.

HC Coombs Centre for Financial Studies

The Coombs Centre at Kirribilli is the Bank's conference and training centre. The Centre is available for Bank conferences and training courses. When not required for Bank use, the Centre is available on commercial terms to external organisations.

The Coombs Centre is also currently the interim location for business resumption accommodation, providing a limited number of emergency work points for up to a few weeks.

16. In addition, the RBA has data-centre capacity at West Pennant Hills as an interim ITC BRS facility.

Other Facilities

17. The RBA owns a small branch building, located in Civic in Canberra, mainly for liaising with Australian Government banking customers. This branch also provides limited accommodation for back-up of banking operations. The Bank owns a facility in the Melbourne CBD which, apart from a representative office and strongrooms, is fully leased to tenants. Small Regional Representative Offices are also located in leased accommodation in Perth, Brisbane and Adelaide.

18. Offices in London and New York conduct operations associated with the management of Australia's foreign exchange reserves.

19. The RBA owns a facility at Craigieburn, in outer Melbourne, occupied by Note Printing Australia, a wholly-owned subsidiary, where research into currency notes is conducted and currency notes are printed for Australia and export.

IDENTIFICATION OF THE NEED

Project Objectives

20. The objective of this project is to provide a resilient and secure secondary site to fully address the RBA's current business resumption and continuity requirements with some flexibility for growth. The business resumption site (BRS) must be sufficient to sustain all the Bank's critical business and ITC operations should access to Head Office be lost. Access to Head Office might be lost for a variety of reasons: malfunction in HO building services or loss of critical infrastructure within the CBD, such as power or water, or a variety of other reasons.

21. The data centre must fully replicate the capabilities of the data centre in Head Office while RITS and the dealing room, and their systems, must match the functionality of those in Head Office. The workplace accommodation needs to be sufficient to meet RBA requirements for a period of up to three months, beyond which the Bank would arrange additional office accommodation to supplement that at the BRS. (The data centre and dealing room would operate as the Bank's primary site for as long as was required to restore these facilities at Head Office.)

22. The proposal provides for some staff to work at the site on a full-time basis, both to support data centre operations and to provide greater certainty that staff involved in time-critical operations are available at the site should RBA Head Office accommodation, functions or staff become unavailable. It is a condition of certain (commercial-in-confidence) contracts for the provision of services by the RBA that suitable business continuity arrangements are in place.

23. The BRS is to be located in the Sydney metropolitan area because virtually all the RBA's critical staff are located at Head Office in Martin Place, where management and decision-making authority is also concentrated; accordingly, it would not be possible to relocate quickly to a site in another city in the event that business continuity arrangements had to be implemented. Experience of organisations overseas is that plans for mass staff relocation to another city, even if achievable, are only partially successful for short-term relocations and impractical if staff are required to remain away from home for weeks or months. In short, the BRS needs to be far enough away from the Sydney CBD to be unaffected by events that affect access to that area, but not so far away as to create difficult logistical problems of their own, such as transporting and accommodating significant numbers of staff.

Background to the Proposal

24. In 1999, the RBA established a limited business resumption capability at the Coombs Centre.

25. As a temporary measure, enhancements to the RBA's ITC resilience were implemented during 2004 through the establishment of disaster recovery (DR) arrangements in leased data-centre space at West Pennant Hills, NSW. In this space, the RBA installed sufficient equipment to enable critical systems and associated information to be replicated on a real-time basis. While this has provided a substantial improvement in ITC resilience, the Bank remains dependent on the performance and availability of third-party vendors. More importantly, this interim site does not address the need for suitable alternate workplace accommodation for critical staff nor for addressing the risk that such staff might be injured, or worse, under some circumstances in which access to HO had been lost.

26. The RBA has further reviewed its business continuity arrangements and options available to it. This review fundamentally reappraised the adequacy of the RBA's disaster recovery arrangements, concluding that improvement would be needed to achieve sound practice, after inspecting existing DR sites in the financial sector in Australia and discussing business recovery arrangements with other central banks. The RBA concluded that financial institutions that were well prepared for business continuity:

    - own separate back-up sites that mirror the critical operations at their principal ITC sites, and which have workplace accommodation for critical staff. These 'mirrored' sites:

        - are secure, robust, resilient against loss of utilities and aim to avoid single points of failure; and

        - have some staff located there on a permanent basis to speed up operations' recovery.

    - test business continuity arrangements regularly; and

    - subject the back-up arrangements to a process of continuous improvement.

The Need for the Work

27. As noted, the RBA, like other financial institutions and major central banks, must ensure the availability of its critical systems. The fact that the RBA assumed direct operation of the Reserve Bank Information and Transfer System (RITS), Australia's real-time gross settlement system, in 2002 also pointed to

the need to strengthen risk management practices, including business continuity arrangements.

28. In particular, the RBA's current business continuity arrangements, involving the Coombs Centre, the leased DR site at West Pennant Hills and facilities at the Canberra branch no longer fully meet the RBA's needs. The current proposal aims to improve these arrangements in the following ways:

    (a) by addressing the risk that critical staff might not be available (in addition to the risk of predominantly technical failure). It does so by providing accommodation at the DR site for some permanent staff capable of operating the critical systems - critical staff are currently all located in the one building in Martin Place;

    (b) by reducing costs and gaining greater control of DR arrangements as the leased ITC DR arrangements at West Pennant Hills are replaced,

        - the proposed arrangements will provide the RBA with certainty about the long-term availability of the back-up data centre and flexibility in using this space. It will also ensure that the facility conforms to the RBA's own business aims, priorities and objectives, rather than those of a landlord or service provider;

        - they will provide the RBA with greater control over the supply of key support services than is the case at West Pennant Hills; and

        - RBA staff relocated at the facility will reduce the risk of delay in cutting-over RBA operations from Head Office;

    (c) the proposed site locates the DR site at a safer distance from the RBA's Head Office and CBD than is the case with the Coombs Centre at Kirribilli. The new facility is designed as a Business Resumption Site, rather than as an adjunct to a training facility. The proposed new facility would accommodate all 220 staff positions needed to support critical operations for three months in an emergency (compared with 88 emergency work points at Coombs) and facilitate operational testing; such testing can be difficult to carry out while the Coombs Centre is being used as a training and conference centre;

    (d) most space in the Canberra branch is leased to tenants. It has limited capacity to accommodate additional RBA staff and its distance from Sydney would preclude it being considered as a viable BRS; and

    (e) the consolidation of ITC systems in a single site will enable RBA ITC staff to provide satisfactory levels of support.

29. The threshold for expectations about the required degree of resilience for significant organizations have been raised substantially in recent years. The Australian Prudential Regulatory Authority (APRA), for example, has released a Prudential Standard on Business Continuity Management applicable to banks, insurers and other financial organisations under its supervision. Amongst a range of specific requirements, the Standard calls for the use of an alternative site for the resumption of critical business functions/ITC operations. The RBA's proposal aims, at a minimum, to comply with this standard. This project would also be consistent with other whole-of-government initiatives in relation to business continuity.

30. After careful consideration, the RBA has come to the view that additional resources should be devoted to business continuity arrangements, including a disaster recovery site, in order to achieve best practice in this area.

Options Considered

31. A range of options was analysed, against three primary criteria:

    (a) Business: accommodation to meet current business and ITC requirements; ability to expand workspace and ITC capabilities; activation within an acceptable period for critical services; and good location and workspace.

    (b) Risk: high assurance of availability over the long term and during local, precinct and systemic emergencies; located outside the area likely to be disrupted by a major event affecting Head Office; away from high risk facilities; secure; robust against severe natural events and deliberate threats; accessible in the event of transport disruptions; able to continue operation during extended loss of power or water; and direct control of maintenance and upgrade plans for the data centre and supporting systems.

    (c) Financial: cost effective over the long term.

32. A range of alternative facility options were available to the RBA to deliver these business continuity and disaster recovery requirements. They can be broadly categorized into two tenure options: freehold or leasehold; and two facility options: all BRS functions located together or the data centre and work areas located separately.

Reasons for Adopting the Proposed Course

33. Following the investigation of various options, including financial evaluation and analysis, it was shown that the option that most assured availability of systems with least cost was a dedicated BRS, with data centre, owned and

controlled by the RBA. The financial evaluation of each option was completed using standard discounted cash flow techniques over a 10-year period.

Description of Proposal

34. The RBA has purchased land for the proposed BRS at Norwest Business Park, within the Baulkham Hills Shire, approximately 25 kilometres from the Sydney CBD. Norwest Business Park is a 377 hectare business park which is highly serviced and rich in infrastructure. It offers facilities and a variety of amenities to attract quality businesses. The site is conveniently accessible via multiple transport routes and types.

35. The RBA is planning to construct a two storey building of approximately 4,850m². The proposal provides permanent office accommodation for 55 staff and emergency work points for a further 165 staff, along with a small number of enclosed offices, meeting rooms and necessary ancillary spaces.

36. The size of the BRS facility is based on the projected number of staff required to support critical RBA operations for up to three months following loss of access to HO. The Bank's contingency planning arrangements are based on business impact analyses (BIAs) for each work area. These list the critical services and the minimum number of staff required for the effective functioning of these services.

37. From the collation of each area's BIA, the total number of positions required at the BRS is 220. Reasonable provision for growth led to the decision to construct a facility capable of accommodating 250.

38. The facility is divided into two occupation areas; one for permanent staff and the other for emergency use and services/plant rooms. Most of the time the emergency area will be in a 'lights out' state.

39. Critical to the facility, and contributing substantially to its cost, is the data centre of 240m² in the core of the ground floor with a 20-seat dealing room nearby. The dealing room is necessary to provide continuity to the RBA's domestic, foreign exchange and international market operations. Dealing facilities are highly ITC intensive.

40. The facility is to have intensive and resilient data communications with other financial institutions, government departments and other RBA sites. To support its role, the facility is to be provided with stand-by power generation, redundant Uninterruptible Power Supply (UPS) on an 'n+n' basis (in which standby capacity equals operating requirements) and other provisions to avoid single points of failure. This approach is consistent with that adopted by many banks and other organisations with time-critical data access requirements.

41. The site accommodates 65 permanent car parking spaces, with 100 additional spaces able to be provided on prepared sections of soft landscaping.

42. Security for the facility is robust without being overt. The site is secured using deep set-backs, vehicular control, discreet fencing within landscaped berms and additional treatment to stiffen facades and glazing. The surrounding landscaping provides occupants with a safe, private and attractive outdoor setting.

43. The budget for the project is approximately $38 million, which includes the cost of construction, fitout, fees, contingencies, escalation and GST payable.

Environmental Impact

44. The proposed development will be carried out generally in accordance with Baulkham Hills Shire Council's planning and development guidelines for the Norwest Business Park. The design concept has received support from the Norwest Planning and Design Review Panel, which includes officers from the Baulkham Hills Council Planning Department.

    The proposal is in keeping with the high-tech industrial and commercial character of the Business Park. The project will make a positive contribution to the region by way of employment opportunities and the establishment of a facility of good architectural quality.

45. A detailed Statement of Environmental Effects has been completed for both statutory and non-statutory planning controls applicable to the site, including detailed heritage and traffic impact assessments. The Statement concludes that the proposal will have no significant environmental impact on the amenity of the surrounding area nor an adverse effect on the heritage significance of the nearby Bella Vista Farm.

Heritage Considerations

46. A formal heritage assessment has been completed and the following elements have been considered in regard to the nearby Bella Vista Farm Park, an important heritage item:

    (a) Indigenous Heritage Potential

    The original processes involved in the formation of the site leaves no significant potential for the presence of *in situ* Aboriginal heritage values or archaeological relics.

(b) Post European Occupancy Heritage Potential

The continuous limited use for grazing and orcharding since its original alienation from Crown Ownership in 1790 and the processes involved in the formation of the site leaves no significant potential for the presence of *in situ* Post European Occupation heritage structures or archaeological relics on the site.

(c) Design in the Vicinity of Bella Vista Farm

The building design is set well below the controls for height and well away from the designated view corridor. Appropriate articulation, scale and use of materials will ensure that there are minimal impacts resulting from the building on the curtilage and visual prominence of the heritage item. This has been established through consultation with the Heritage Officer at Baulkham Hills Shire Council.

(d) Landscaping in the Designated View Corridor

The design of landscaping for the perimeter of the site and the established avenue, including mounding, security fencing and plant species has been designed to integrate the site into the setting of Bella Vista Farm. The design visually shields the security provisions without obscuring the view to the ridge and the long row of Bunya pines that indicate the presence of the heritage site from outside the Norwest Business Park.

Revenue

47. This proposal mitigates the RBA's risks, protecting against catastrophic impacts on revenue streams. Relocation of some staff from Head Office may also contribute to a small amount of additional surplus space becoming available for lease. In addition, savings will accrue from discontinuing the interim DR arrangements at West Pennant Hills.

TECHNICAL INFORMATION

Project Location

48. The BRS is proposed to be located at Lot 6008, Elizabeth Macarthur Drive, Norwest Business Park. This is in the emerging Norbrik Precinct of the Business Park which has no nearby residential sites. The site is in close proximity to the planned Norbrik Plaza retail centre and associated facilities, the Old Windsor Road bus transit-way links to Parramatta and Blacktown railway stations, due to open in 2007, and the M7 Orbital and its link to Norwest Business Park.

49. The site also has views to the Bella Vista Heritage Farm Park to the east and is about 15-20 minutes walk to the established Norwest Business Park retail centres. Existing bus stops located in Norwest Boulevard are about 5-10 minutes walking distance from the site.

Site Selection

50. The following criteria were used in site selection:

    (a) geographical separation from the RBA Head Office, a minimum of 20 kilometres radius from the Sydney CBD;

    (b) within the maximum 40 kilometres end-to-end length of dual-path optical fibre cables for real-time replication of data at the BRS;

    (c) not within a bush fire area, a 1-in-100-year flood zone, or in areas prone to other natural disasters;

    (d) the selected area should provide a rich and robust infrastructure including multiple power grid feeds and communication carriers;

    (e) reasonable separation from high risk facilities;

    (f) easily accessible via multiple routes/transport types without reliance on a single piece of infrastructure, such as a single road bridge;

    (g) safe environment for staff, offering a reasonable amenity within the surrounding area including shops; and

    (h) fully serviced site, including power, water, storm-water drainage and telephone including cellular network.

51. The Bank also surveyed and plotted the spread of staff residential localities to help identify and rank overall area accessibility, both by public transport and by car. This process showed that areas towards the west of the greater metropolitan area would be generally preferable to other available options.

52. The Norwest Business Park site was selected, after an extensive investigation of alternative locations and specific sites, as the site most closely meeting the selection criteria. The RBA also commissioned a professional site assessment report on Norwest and short-listed sites within the Park to support the due diligence process.

Site Description

53. The site is a 1.48 hectare site located on the western side on Norwest Business Park. It is situated on Elizabeth Macarthur Drive, adjacent to Old Windsor Road. The land topography rises gently from Old Windsor Road along Elizabeth Macarthur Drive and has a modest slope.

Project Scope

54. The project involves the design, documentation, construction and fitout of the business resumption facility and associated site works.

55. The facility has significant site set backs, is two storey and consists of one area for permanent staff and a separate area for emergency use.

56. The area for permanent staff includes standard, 'L' shape, 2.4m x 1.8m ergonomic workstations. A number of enclosed offices are also provided, as well as conference and meeting rooms. Workstation and office configuration and fitout are similar to the standard in Head Office.

57. The area for emergency use includes smaller 1.5m x 0.75m ergonomic workstations in rows, consistent with other business resumption sites. Some enclosed offices, meeting and utility rooms are also provided.

58. The facility includes a data centre, to accommodate all ITC and data services, and a dealing room facility.

59. Both full-time and emergency work areas have good access to natural light and attractive outlooks. Staff amenity areas include tea areas, kitchen and interior/exterior seating/breakout facilities, toilet/shower facilities and change rooms and a first aid/carer's room, suitable for continuous operation when HO access is denied.

Planning & Design Concepts

Site layout and building concept

60. The site planning for the BRS has been guided by the desire to create efficient and contemporary work spaces for occupants and the presentation of a suitably corporate facility.

61. The proposed site layout has adopted a layered approach to security to avoid a walled or bunkered appearance whilst maintaining a series of effective security measures to restrict unauthorised vehicular and pedestrian movement into and around the site.

62. The site has a single operational vehicle access point and a separate 'emergency only' access point. Parking and internal traffic circulation has been designed to meet both normal and emergency operational requirements.

63. The main principles adopted for the site layout and building design are as follows:

    (a) site planning takes advantage of the topography by visually screening plant room areas within the landscape and creating a security barrier at the front by terracing the main entry forecourt and car park areas;

    (b) main site entry point is located at the closest point to the emerging Norbrik business park precinct, the future Old Windsor Road vehicular link, transitway and bus stops;

    (c) high security data centre and dealing room areas are contained within a secure 'core' zone;

    (d) two distinct office accommodation wings separately house the work area for permanent staff and the area for staff located in the BRS during an emergency. The emergency area will usually be in a 'lights out' state when not in use, saving energy and adding to the building's ESD attributes;

    (e) office work areas are structured to create an attractive internal work environment for permanent staff, who will all be accommodated together in open-planned work areas;

    (f) office areas for permanent staff are located on the north-east frontage of the site, which enjoys the best aspect;

    (g) office, meeting and amenity areas provide open, column free space and use lightweight partitioning to support maximum flexibility; and

(h) site planning would allow for a future building module, with a footprint of 750m^2, off the Elizabeth Macarthur Drive frontage.

Building structure and envelope

64. The building structure and envelope is designed to meet a 40-year building life.

65. The structure is designed to withstand earthquake, storm and potential blast loadings as well as the usual operational live loads, consistent with the Building Code of Australia Level 4 Importance, "*Buildings or structures that are essential to post-disaster recovery or associated with hazardous facilities"*.

66. Particular emphasis is given to external sun screening treatments to the glazed office work-spaces to create comfortable, energy-efficient and open internal work spaces whilst providing visual layering to the facades.

67. Roof design is simple. Most roof water is collected and piped outside interior areas to minimise the risk of water intrusion and to increase the overall resilience of the building envelope

Materials and finishes

68. Materials and finishes support the 40-year building life expectancy, with the following characteristics:

(a) low maintenance, robust finish;

(b) readily available, with long or extended life warranties and strong local supplier support;

(c) commercial grade;

(d) meets appropriate Australian Standards;

(e) external wall and roof cladding treatments in particular to support earthquake, seismic loadings and storm blast resistance requirements; and

(f) resistant to potential external attack/intrusion.

Fitout

69. Interior office areas provide an efficient and comfortable open plan work environment with layered security. The higher security data centre, technical equipment and plant room areas are located within more secure, centralised and restricted access areas.

70. Specialised areas reflect individual department requirements, the specialist nature of the facility and the need for higher than normal fail-safe building services and security.

71. The proportion of circulation space is higher than normal reflecting the layered security around the data centre, dealing room and plant/technical areas.

72. Internal finishes convey an appropriate corporate appearance whilst providing a functional and efficient internal work environment.

73. The BRS uses a range of internal finishes: simple, hard-wearing and low-maintenance finishes in the data centre, technical work areas, plant and storage areas; commercial grade finishes in office areas and integral finish; and long-life and good quality finishes in the main entry lobby and reception areas.

74. In addition to these requirements, the choice of interior finishes has regard for off-gassing and best practice sustainability principles and use of renewable resources.

Electrical services

75. Electrical services are designed to eliminate single points of failure and provide a secure facility with ample redundancy and diversity.

76. Major items of plant are provided with dual path (n+n) redundancy, including:

    (a) dual high voltage (HV) power supplies;

    (b) 11Kv/415v substations;

    (c) emergency power generators;

    (d) main switchboards and sub-main reticulation;

    (e) UPS systems, distribution systems and power distribution unit connections; and

    (f) mechanical services switchboards/sub-mains to critical areas.

77. Systems are arranged to allow planned repairs and maintenance without disruption to business critical operations and the eventual replacement of equipment without major impact on operations or the building structure.

78. The electrical infrastructure is designed for the maximum calculated load with the exception of the UPS system which is designed so that an additional module can be installed as needed to support the expansion of demand from 'Day 1' requirements.

79. Lighting is zoned to allow perimeter lights to be turned off when natural lighting is sufficient. Lighting in the emergency occupation zones is switched off by the building management system and movement sensors are utilised in areas such as toilets, individual offices, storage/plant room areas and intermittent use areas. The use of low energy lighting, T5 or similar system, keeps lighting power consumption to 12W/m².

Mechanical services

80. Mechanical services are designed to be installed in stages to support the expansion of demand from 'Day 1' towards maximum designed load requirements.

81. Two chillers are installed to provide n+n redundancy for the initial data centre load. If additional heat load is generated within the data centre a third chiller could be installed. Similarly, the data centre is fitted with six air conditioning units to provide n+2 redundancy for the initial load. If additional heat load is generated, a further four units could be installed.

82. Central air cooled chilled water plant serve fan coil cooling units. Dual chilled water supply and return reticulation serve the data centre and other critical areas with the ability to expand and reconfigure without interruption to service. Water distribution systems are installed to meet maximum load requirements.

83. Other areas of the building are served by a separate roof mounted air cooled chiller with the individual office areas served by local fan coil units which close down when the areas served are not occupied. Where possible, a 'free cooling' or outside air cycle is used for the office areas when the margin between inside and outside temperatures is relatively small.

84. A building management system monitors and controls the operation of major plant.

Fire and hydraulic services

85. The data centre is protected by a pre-action sprinkler system and a gas suppression system supported by Very Early Smoke Detection Apparatus (VESDA) and point detection systems.

86. A wet pipe fire sprinkler system protects the office and general areas, supplied by a Grade 1 water supply from the Sydney Water main in Elizabeth Macarthur Drive and a secondary supply from a 25,000-litre storage tank.

87. An Evacuation System, hydrant system, fire hose reels and fire extinguishers are also provided.

88. Domestic water is extended from the Sydney Water main to a 90,000 litre tank then pressurized by a dual pumping system to supply potable water points. This system is supplemented by a stormwater recycling system which collects the roof water and is directed by gravity to a 50,000 litre tank then pressurized by a dual pumping system to serve the landscape watering and flush requirements. Natural gas is provided for the mechanical services boilers and for domestic hot water.

Landscaping

89. The proposed landscaping conforms to the Norwest Business Park landscape principles, establishing a strong vegetative framework that reinforces the dominant visual image of precinct landscaping.

90. Landscaping includes semi-mature trees providing immediate tree cover and substantial areas of shrubs and ground covers. A commercial standard of maintenance will ensure the high landscape standard is maintained, reflecting the longevity objectives of the project.

Zoning and Approvals

91. Norwest Business Park is located within Baulkham Hills Shire and has a system of private development controls administered by the Norwest Master Scheme. The Norwest Master Scheme provides for all owners within the business park to be members of Norwest Association Limited. Norwest Association manages and administers the rules and regulations of the business park and appoints a Design Review Panel which reviews development concepts.

92. The RBA is a member of the Norwest Association Limited and the Bank's proposal has been reviewed by the Design Review Panel on 3 March 2005 and achieved formal approval from the Association on 14 April 2005.

Codes and Standards

93. All relevant Building Codes of Australia and reference Standards are met and in some cases, such as earthquake and storm resistivity, exceeded.

Energy Conservation Measures

94. The design utilises sustainable development principles to minimise greenhouse gas emissions. Discussions have been held with the Australian Greenhouse Office to ensure that the base building design includes appropriate energy efficiency measures. In addition to a 'lights out' zone for the emergency accommodation, effective measures identified and incorporated include: stormwater storage and reuse for toilet flushing and irrigation; skylights to bring

natural light into the core of the building, substantial roof overhangs and solar control 'fins' for shading of the curtain walls; high efficiency lighting systems; outside air economy cycle air-conditioning system; variable speed motor drives, high efficiency chillers, and advanced building management systems with optimised plant operating control strategies. These measures are supported by the specification of landscape with low water requirements.

95. In line with the Bank's procurement guidelines, which call on the Environment Protection and Biodiversity Conservation Act 1999, the sustainability of the environment is an important consideration in the selection of materials. Similarly, an important criterion for selection of office equipment is energy efficiency, both as to overall configuration and particular models/brands. Office equipment is generally purchased under either Commonwealth or State Government contracts which take energy efficiency into account.

Acoustics

96. Noise emission levels for all plant (including emergency power generators) at the property boundaries is within local council limits and ambient noise levels within the facility from traffic intrusion comply with Australian Standard recommendations.

97. Acoustic treatments for mechanical and hydraulic noise within the building are to Australian Standard recommendations and vibration controls are provided for services plant.

98. Acoustic ratings for wall and ceiling construction between critical spaces ensures adequate acoustic privacy where required and the acoustic character of the various spaces is designed to control reverberation.

Provision for People with Disabilities

99. The design meets the accessibility requirements of the Building Code of Australia and referenced Australian Standards. It provides: appropriate access to the building from the adjoining road/public footpath; at least two at-grade outdoor accessible parking spaces with complying access to the main entrance; appropriate internal and vertical access to all areas for people with disabilities; lifts with complying controls and suitable landing areas; braille and tactile signage and tactile ground surface indicators; and complying toilet facilities on each level.

Child Care

100. The availability of childcare facilities is one of the advantages noted in the selection of a Norwest Business Park location.

101. The RBA has investigated the child care facilities currently available, and planned for, within or close to Norwest. Places at reasonable cost are currently readily available. In due course, the RBA will provide staff selected for duties at Norwest with the location of child care facilities and available options.

Fire Protection and Security Measures

102. Fire protection measures for the data centre are industry best practice. Although not a code requirement, office areas are protected by wet sprinklers due to their proximity to the data centre and other time-critical operations.

103. Physical security is based on a layered "defence-in-depth" approach, using the deter, detect and delay principles. The security requirements are based upon a risk assessment supported by external risk management advice. Security is low-key in appearance, but effective, with landscape design aimed at blast mitigation and preventing vehicle intrusion as well as reducing the visual impact of perimeter security fencing.

104. The building and grounds are protected by monitored alarm and CCTV systems as well as external and internal access control facilities.

Occupational Health & Safety Measures

105. The works comply with the requirements of the NSW Workcover Authority and the Occupational Health & Safety (Commonwealth Employment) Act.

106. The RBA's OH&S policy and structure carry over to the BRS operations.

Consultations

107. RBA staff have been kept informed of the objectives of the project and progress. Information articles have appeared in the staff magazine, Currency, and information sessions held with staff.

108. The following parties have also been kept informed of the works:

    (a) adjoining land owners;

    (b) Baulkham Hills Shire Council and Norwest Association;

(c) NSW Fire Brigade;

(d) Commonwealth Attorney General's Department;

(e) T-way Office (NSW Roads and Traffic Authority and Ministry of Transport); and

(f) Finance Sector Union.

PROJECT DELIVERY

Project Costs

109. The cost of the proposal, as estimated by the quantity surveyor engaged for the project, is $38 million inclusive of loose furniture, fittings, office equipment, landscaping, professional fees, contingencies, escalation and GST payable.

110. Base building costs for the proposal are consistent with A Grade commercial office benchmark costs for suburban Sydney.

111. Whilst there are no ready benchmarks for data centre costs, the RBA's quantity surveyor and data centre advisor both confirm the projected costs are consistent with the costs of similar data centres.

Project Delivery System

112. The RBA has engaged a full suite of professional design and engineering advisors to develop the design for this proposal through a competitive tender process. The second stage of their contracts for documentation and construction administration will be taken up upon receipt of Parliamentary approval.

113. It is proposed that the project be delivered via a fixed lump sum contract, awarded to a building contractor following a competitive tender process. This contractual arrangement is regarded as optimal for the delivery of the quality required for a highly technical and specialised facility.

Project Schedule

114. It is anticipated that following Parliamentary approval the project will be completed over a 24-month period. This will include construction documentation, tender, construction over a 12-month period, fitout, testing and commissioning. The facility is expected to be operational around mid 2007.

9 May 2005

ATTACHMENTS

Location Plan

Perspectives