



**SUBMISSION TO THE PARLIAMENTARY
STANDING COMMITTEE ON PUBLIC WORKS**

**PROPOSAL FOR A NEW MAIN ENTRANCE
AT THE LUCAS HEIGHTS SCIENCE AND
TECHNOLOGY CENTRE,
LUCAS HEIGHTS
NSW**

**AUSTRALIAN NUCLEAR SCIENCE & TECHNOLOGY
ORGANISATION
LUCAS HEIGHTS, NSW
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PREFACE

The existing main entrance to the Lucas Heights Science and Technology Centre (LHSTC) was not designed to include the necessary level of integrated and coordinated security measures required for the current threat environment.

Temporary security measures, put in place in early 2002 following the terrorist attacks in the United States in 2001, are inefficient. In addition, the implementation of these measures have resulted in safety concerns for motorists on New Illawarra Road, particularly during peak hours, with regard to dangerous traffic back ups at the T intersection to the LHSTC caused by visitors and staff being security processed at the existing entrance.

It is agreed internationally that the threat level will not return to pre September 11th 2001 levels and temporarily increased security levels must now be made permanent.

The proposal is to construct a new main entrance, with appropriate security, supporting technology and facilities. The proposed design includes measures to ensure unauthorised vehicles and personnel cannot enter the site. The new entrance will be some distance from the existing gate in order to alleviate the traffic backlog on New Illawarra Road. The new design will minimise guarding costs and will be able to accommodate any increase in threat level to the LHSTC. It will protect the Commonwealth's investment in the Replacement Research Reactor and the other significant facilities on the site, while helping to assuage any community concerns regarding security at the site.

This proposal has been developed from recommendations resulting from an ASIO Protective Security Risk Review in 2002 and on-going advice by ASIO T4.

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1.0 IDENTIFICATION OF THE NEED

1.1 Historical Background

1. The Lucas Heights Science and Technology Centre (LHSTC) is the site of Australia's only operating research reactor, HIFAR (High Flux Australian Reactor). It is also the site of the Replacement Research Reactor (RRR), currently under construction. Nuclear materials and radioactive materials are produced and used on site.

2. Current security measures were reassessed due to the raised national and international security threat after September 11 2001. ANSTO commissioned an ASIO Protective Security Risk Review in 2002.

3. This review found that the existing main entrance to the LHSTC was not designed to include the necessary level of integrated and coordinated security arrangements and measures required for the current threat environment, and that the new technology available should be employed.

4. ASIO recommended that ANSTO engage an engineering consulting company that specialises in high security facility design. Both ASIO and ANSTO worked closely with this company to ensure the design, as described here, is in accordance with ANSTO's national and international obligations.

1.2 The Need for the Work

5. Issues contributing to the need to upgrade the existing Main Entrance include:

- Security issues arising from the age and design of the buildings and gateway entry, in particular the high on-going cost of the additional guarding required to manage ANSTO's security at the entrance to the facility;
- The need to integrate security functions to ensure that access is granted only to authorised, escorted or supervised persons;
- General public and staff safety issues relating to the current situation of periodic traffic bank-up on New Illawarra Road whilst waiting to gain access to the site, particularly during peak hours;

- Efficiency in processing entry to staff, contractors and visitors (there are about 850 ANSTO staff, 100 students, 100 CSIRO staff and 200 contractors who pass through the gate every working day, as well as regular users of the facilities and visitors to the site).

1.3 Project Objectives

6. The objectives of the new front gate project include:

- To be able to accommodate any increase in threat level to the LHSTC;
- To have an integrated reception facility and gate entry control to allow contractors and visitors to be received, fully inducted and processed as required before passing through the APS guard Officer Station and into the facility;
- To facilitate identity logging of all staff, contractors and visitors as they enter or exit the site;
- To ensure that in-depth security extends through the site (for example, staff member's proximity passes not allowing access to buildings unless the staff member has been correctly logged on entry to the site);
- Relocation of the new entry facility along an upgraded old alignment of New Illawarra Road in an appropriate location to allow traffic to clear the main New Illawarra Road at all times;
- Development of procedures to facilitate efficient staff entry and exit at peak periods without compromising security;
- The inclusion of provision for entry of large vehicles and fast entry of emergency vehicles if required; and
- Consistency in all aspects of the project with the construction and operation of the RRR.

1.4 Description of the Proposal

7. The proposal is to construct a new main entrance for the LHSTC, with appropriate security, supporting technology and facilities. The project is estimated to cost \$10.336 million, and funds were committed in the 2003-04 Budget.

1.5 Reason for Adopting the Proposed Course of Action

8. An alternative to building a new main entrance and associated reception and security infrastructure would be to upgrade the existing entrance gate. The disadvantages of this option include:

- The closeness of the gate to the existing New Illawarra Road intersection would mean that significant roadworks would be required on New Illawarra Road to resolve the traffic problems;
- The distance of the existing gate from the RRR site, which results in the need for additional security as well as producing logistical difficulties;
- The age and inadequate nature of existing facilities and services, together with limited space for upgrading the existing site while meeting the objectives outlined above, such as length of roads and buildings associated with the additional security infrastructure;
- The requirement for additional guarding resources to compensate for existing security arrangements; and
- The problems for site access that would arise during works to upgrade the existing entrance area.

9. As these disadvantages do not support the option of upgrading the existing gate, it was not further considered and comparative costs were not estimated. The option chosen was at the recommendation of ASIO. Other options were explored in terms of siting, design and cost, and are described in Part 2.4 *Details of Site Selection*.

1.6 Environmental and Heritage Considerations

10. The proposed site is a vacant, flat, partly vegetated site with suitable topography for buildings and roads. It lies west of the current gate towards the RRR site. It is partly covered with trees planted by ANSTO, some of which range up to 15m in height.

11. Environmental and heritage considerations relating to the site and surrounds were extensively examined during the EIS process for the RRR. The site contains flora and fauna typical of sandstone plateaus throughout the Sydney region and is considered to have only low conservation significance. It contains no roosting or feeding habitat for threatened

species. Consequently, no threatened fauna species would be affected. Taking into account the low inherent conservation significance of the site, the low scale of impacts likely to result from construction activities, and the abundance of bushland in the buffer zone surrounding the site, no significant effect on the flora and fauna of the buffer zone is predicted.

12. There will be no impacts on Aboriginal or non-Aboriginal cultural heritage as a result of the construction of the new entrance.

13. An upgrade of the old alignment of New Illawarra Road will be required for a distance of approximately 550m, but no clearing will be required. Approximately 250m of new roadway will be built to connect the upgraded section of this road to Rutherford Avenue (these roads run more or less parallel; Rutherford Avenue is the main internal road and runs the length of the site from east to west). Some clearing of trees planted by ANSTO will be required, and replanting of trees will occur to compensate any losses.

14. Therefore we conclude that the proposed works will not produce a significant environmental impact and assessment of the project under the *Environment Protection and Biodiversity Conservation Act 1999* is not required.

1.7 Consultation

15. Due to the nature of the proposal, consultation was with ASIO-T4 Protective Security. A Protective Security Risk Review completed in November 2002 found that the existing main entrance to the LHSTC was not designed to include the necessary scalable level of integrated and coordinated security required for the current level of threat. ASIO recommended that ANSTO engage an engineering consulting company that specialises in high security facility design. Both ASIO and ANSTO worked closely with this company (Cox CCD) to ensure the design, as proposed here, is in accordance with government security requirements.

16. This matter is primarily a construction and security issue. Consultations will take place with the Australian Safeguards and Non-proliferation Office (ASNO) in regard to security matters, and with the Australian Radiation Protection and Nuclear Safety Agency (ARPANSA) in regard to any safety matters.

2.0 TECHNICAL INFORMATION

2.1 Project Location

17. The LHSTC is situated in the local government area of Sutherland Shire, approximately 30 kilometres south-west of Sydney's central business district.

18. The LHSTC is surrounded by a buffer zone of 1.6km radius, centred on the HIFAR reactor. This buffer zone, largely owned by ANSTO, will be maintained around the replacement reactor. Land uses within the LHSTC are directly related to science and technology research and associated services.

19. The locations of the existing entrance and the proposed entrance at the LHSTC are shown in Figure 2.1 below.

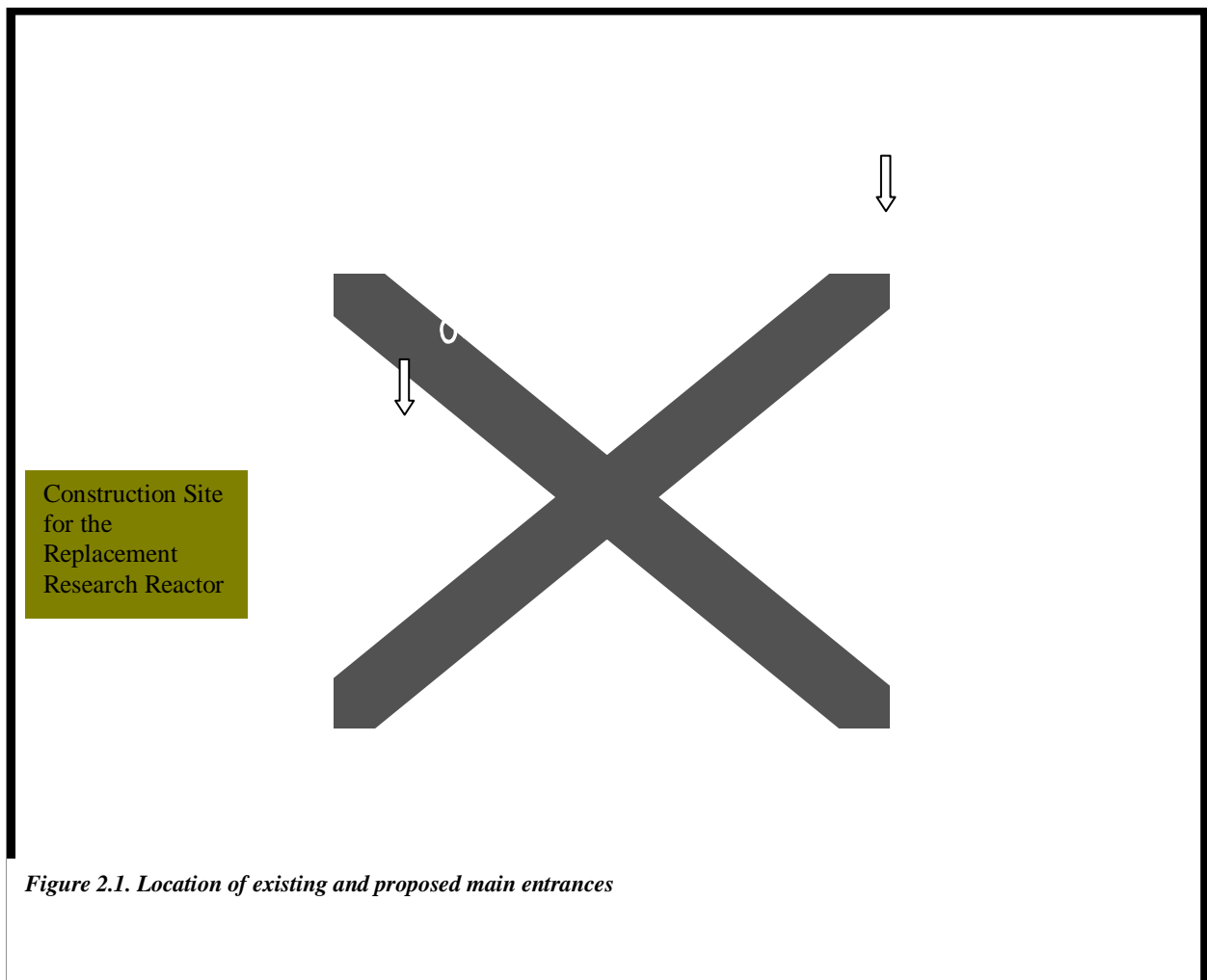


Figure 2.1. Location of existing and proposed main entrances

2.2 Project Scope

2.2.1 Gatehouse Zone

20. This area is the major item of works in the initial planning concept for the New Gate Facility. The New Gate Facility will contain all the APS guards and their support facilities, spaces and services. The APS guards' functions will be to identify, record and control all vehicle and people movement into and out of the LHSTC.

21. Responsibility for the approach roads and boom gates, and for technology related to the observation, identity, recording and control of movement, will fall to the APS.

22. The new Gatehouse Zone includes a reception centre to serve as a first point of contact for all visitors. The centre will issue all visitor and casual contractor passes, provide safety induction and record all necessary data associated with those activities, and check property (cameras, computers and the like) into and out of the facility.

23. The centre will also accommodate the ANSTO Security Group, allowing them to create all necessary staff and contractor ID cards before entry to the site.

24. A visitor carpark is to be provided. All staff cars and other approved vehicles would bypass that carpark and proceed direct to the New Gate Facility, and then on to the entrance gate through the perimeter barrier.

25. The following operational functions require accommodation in the new buildings:

- Gatehouse Security Staff
- ANSTO Security Office
- Reception and Induction/Safety

Their requirements are outlined in the following sections.

26. The total area of buildings proposed is 785m², made up of:

- ANSTO Reception (gross area) 140m²
- APS Control Area - Front (gross area) 145m²
- APS Control Area - Rear (gross area) 150m²

- ANSTO Security (gross area) 180m²
- Common Services and plant room (nominal) 170m²

2.2.2 Entry Zone

27. This area is to be developed to identify the formal entry into the facility. It will be an appropriate “entrance gateway”. The structure will be placed astride an upgraded roadway and will include a substantial grill gate that can be closed when considered appropriate to prevent further vehicle access towards the Gatehouse Zone.

2.2.3 Decommissioning of Existing Entrance

28. The existing Gatehouse will be decommissioned after the new Gatehouse Zone is completed, and the existing gates (East Gateway) locked and appropriately reconfigured to blend into the new arrangement and lose its identity as a gateway. The existing gate should remain functional but secure and manually operable to serve as a site emergency entrance and exit, under the direct management control of APS guards when required.

2.3 Operations and Accommodation Requirements

2.3.1 Gatehouse Facility

Function

29. The function of the Gatehouse facility will be to monitor, record and control access and egress into and out of the LHSTC through the site perimeter.

30. Access would be by vehicle for the majority of staff. As is presently the case, visitors would be met by staff members who would escort the visitors into, around and out of the facility. The processing of vehicles and visitors through the gate area must be efficient and secure, and user friendly.

Accommodation

31. The accommodation requirements for the APS guard force are not currently met by the existing facilities. The requirements (including those to meet OHS standards) are as follows:

- APS Officer Station;
- Sergeant's Office;
- Station Manager/O.I.C Office;
- Photocopy/fax room;
- Administration Office;
- Gun store (armoury);
- Loading and unloading room/store;
- Interview Rooms (safe room or holding room);
- Staff Room/kitchenette;
- Cleaner's Room/Store;
- Staff toilets & showers;
- Men & Women's lockers;
- Archives & stores;
- First aid room.

2.3.2 ANSTO Security Office

Function

32. The ANSTO Security Office is currently located within the perimeter of the facility and interacts with outside contractors, vendors, consultants and others, as well as the staff of the organisation. Amongst other matters, it creates and records and issues the identity passes for all persons authorised to enter the facility, and updates these records regularly. It is also responsible for safety and induction processes.

33. It is proposed that this group be relocated to the New Gate Facility and for public access to be available from the public side of the secure perimeter barrier. The creation and issue of all passes and I.D cards and records would then be located in one centre. The relocation would also allow interaction with the public without the need for persons to be permitted inside the perimeter of the facility before appropriate security checks are performed.

Accommodation

34. Required office accommodation for ANSTO security is as follows:

- Two senior staff offices;
- General office;
- Pass administration and security clearance counter;
- Waiting area;
- Interview room
- Staff area;
- Stores:
- Compactus and storage;
- Amenities.

It is currently proposed to locate this office on the second floor of the Reception Building, with access to the Front Reception via a stairwell. A secure line (or barrier) will run through the front counter area to separate public space from office space. This would be a service counter by day, closed off by secure grille at night.

2.3.3 Vehicle Movement

35. The vehicle movement planning for the New Gate Facility and entry must allow for separate IN and OUT lanes/gates where vehicles/staff are “badged” in and out.

36. The early segregation of visitors’ cars into a separate carpark before reaching the entry gate area is essential.

37. It is also necessary to provide for the deflection of “rejected” vehicles past the APS Officer Station, and their return to the exit road or visitor carpark without approaching the portal in the secure perimeter. Additional security measures for the roadways and gatehouse have been planned.

2.4 Details of Site Selection

38. The old alignment of New Illawarra Road offers several options for the location of the entrance into the facility. Five options were considered, including the potential upgrade of the current main entry as described in part 1.5.

2.4.1 Option 1

39. The existing entrance gate was considered for upgrading, and rejected, as described in part 1.5.

2.4.2 Option 2

40. The roadway leading from Rutherford Avenue to the carpark between Buildings 1 and 4 offers an entry opportunity. The space required to make this option functional, however, would create significant interference with the existing wastewater pump station and holding facility, placing significant cost penalties on this option due to the requirement to re-direct the site's northern buildings' sewer waste elsewhere. In addition, the footprint of the New Gate Facility and associated carparking results in this option being relatively constricted and using most of the Building 1 carpark, which would need to be relocated.

2.4.3 Option 3

41. The area where the present fauna reserve is located offers a clear avenue. However, the existing water storage facility would need to be relocated, and there would be difficulty in locating an appropriate site for the radiation detection equipment and associated operations room. As well, this option would result in the loss of the fauna reserve.

42. These factors, combined with the grade that would be needed for the access road between the old alignment of New Illawarra Road and Rutherford Avenue, result in this option not being preferred.

2.4.4 Option 4

43. This area is occupied by Building 9 and is currently required by the ANSTO RRR project management staff and by contractors' staff and would not become available until completion of that project. The New Main Entrance Facility project needs to be completed prior to this time. In addition, the option 4 site is located adjacent to the main site substation.

2.4.5 Option 5

45. This area is available and offers:

- Good access;
- Suitable distance from the existing entry;

- A large area suitable for the needs of the new works;
- A grove of trees within which the visitor carpark and visitor centre can be located;
- A generally flat site, free from major services;
- A location that allows the proposed Entry Zone to be placed in a position that enables that element to function as proposed; and
- Close access to major functions within the site.

2.4.6 Conclusion

46. Option 5 provides significant benefits over options 2, 3 and 4 from the perspective of site and spatial planning, in that it allows the greatest flexibility to locate the suggested footprint of the New Gate Facility and its associated car parking, roadworks and barriers. It also provides the best site for future expansion and does not compromise the intended westerly expansion of the ANSTO Technology Park.

47. Option 5 is cost effective, with only option 3 being less expensive to construct. However, the relocation costs of other facilities as would be required by option 3 have not been included in the cost estimates, making it less cost effective than Option 5.

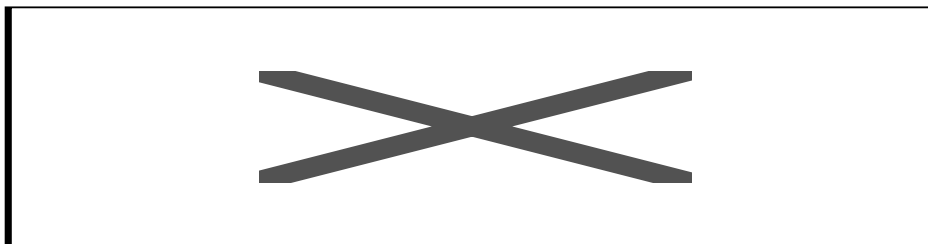


Figure 2.2 View of site option 5 looking north from Rutherford Avenue

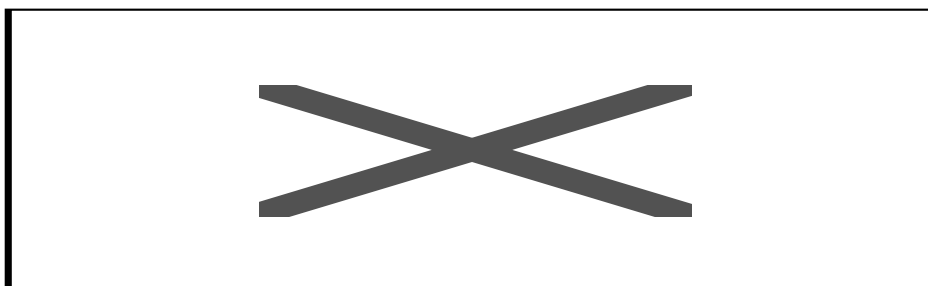


Figure 2.3 View of site option 5 looking south from the old alignment of New Illawarra Road

2.4.7 Cost Comparison

44. Due to the proposed architectural solution being modular, the principal cost variations between options result from differences in the assessment of the site services and infrastructure requirements, and the length of upgrade required to the old alignment of New Illawarra Road.

45. A budget has been prepared, based on the preferred option 5 (see section 3).

46. Indicative cost differences that could be expected for options 2, 3 or 4, in comparison with option 5 are.

- Option 2 - increase of \$140,000;
- Option 3 - saving of \$195,000 (estimate does not take gradient of site or relocation of facilities into account);
- Option 4 - cost neutral.

47. Option 2 includes an increase for the redirection of buildings' sewer waste, the rising main and a new sewer pump station (+\$400,000) and a decrease associated with the saving of approximately 400m of road upgrade (-\$260,000). The cost of replacement carparking for Building 1 has not been assessed, but would be an addition.

48. Option 3 includes a saving associated with approximately 300m of road upgrade (-\$195,000). The effect of the gradient of the site on budget has not been calculated, however this would be an addition, as would be the relocation of the existing water storage facility, the radiation detection equipment and associated operations room site, and the kangaroos.

49. Option 4 includes an increase for demolition and disposal of the existing Buildings 9A and 9B (+\$130,000), which is balanced by the saving of approximately 200m of road upgrade. However, the allowance for disposal of materials from these buildings could be conservative, and the cost could be somewhat higher.

50. The costs above have been based upon the extent of the upgrade works to the old alignment of New Illawarra Road ending at the New Gate Facility and not extending further to the west. The exception to this is option 5, where costs to improve the old alignment of New Illawarra Road include the extension west to its intersection with Mendeleeff Avenue, which runs between the existing buildings at the western end of the site and the RRR.

2.5 Information on Zoning and Approvals

Land Acquisition

51. There is no requirement for acquisition of additional land.

Local Planning

52. The LHSTC lies within the local government area of Sutherland Shire Council. The LHSTC is zoned 5(a) – Special Uses (Research and Technology) under the provisions of Sutherland Local Environmental Plan, 1993 as amended by Sutherland Local Environmental Plan No. 50. The term a ‘Special Uses’ zone is generally applied to land set aside for community and Government uses.

53. Pursuant to Section 7A of the Australian Nuclear Science and Technology Organisation Act 1987, ANSTO is exempt from the application of State or Territory laws where those laws relate, among other things, to the use of land.

2.6 Applicable Codes and Standards

54. The works shall be undertaken in accordance with all relevant Australian Standards and Regulatory Bodies, including:

- AS A185 Solvent-welding cement for use with Rigid PVC Pipes and Fittings
- AS 1023 Low Voltage Switchgear and Control Gear
- AS 1029 Low Voltage Contractor
- AS 1055 Acoustics - Description and measurement of Environment Noise
- AS 1074 Medium and Heavy Steel Tube
- AS 1099 Tests for Electronic Equipment
- AS 1100 Technical Drawings
- AS 1101 Graphical Symbols for General Engineering
- AS 1102 Graphical Symbols for Electrotechnology
- AS 1104 Informative Symbols for use on Electrical and Electronic Equipment

- AS 1167 Allow Filler Rods for Brazing
- AS 1172 Vitreous China Water Closet Pans
- AS 1192 Electroplated Coatings of Nickel and chromium
- AS 1202 A.C. Motor Starters
- AS 1210 Unfired pressure levels
- AS 1218 Flushing cisterns
- AS 1221 Fire Hose Reels
- AS 1260 Unplasticised PVC (UPVC) pipes and fittings for sewerage application
- AS 1324 Air filters for use in air conditioning and general ventilation
- AS 1342 Precast Reinforced Concrete Drainage Pipes
- AS 1345 Rules for Identification of piping, conduits and ducts
- AS 1371 Toilet Seats of Moulded Plastic
- AS 1397 Steel sheet and strip - Hot dipped zinc coated or aluminium/zinc coated
- AS 1415 Unplasticised PVC (UPVC) pipes and fittings for soil, waste and vent (SWV) applications
- AS 1432 Copper Tubes for Water, Gas and Sanitation
- AS 1464 UPVC pipes and fittings for gas reticulation
- AS 1470 Health and safety at work - Principles and practice
- AS 1477 & ASK138 UPVC pressure pipes with solvent cement joints
- AS 1530 Part 3: Tests for early fire hazard properties
- AS 1571 Seamless copper tubes for use in refrigeration
- AS 1572 Seamless copper and copper alloy tubes for General Engineering purposes
- AS 1585 Capillary and Brazing Fittings for Copper and Copper Alloy
- AS 1588 Filler Rods for Welding
- AS 1589 Copper and Copper Based Alloy Fittings for use in Sanitary Plumbing Installations
- AS 1596 LP Gas Storage and Handling
- AS 1628 Copper Alloy Gate Valves and Non Return Valves for use in Water Supply and Hot Water Supply
- AS 1646 Rubber Joint Rings for Water Supply, Sewerage and Drainage Purposes
- AS 1668 SAA Mechanical Ventilation and air conditioning code:
 - Part 1: Fire and smoke control
 - Part 2: Mechanical ventilation for acceptable indoor-air quality
- AS 1684 Timber Framing Code
- AS 1670 Automatic fire detection and alarm systems

- AS 1677 SAA Refrigeration Code
- AS 1720 Timber Structures
- AS 1730 Wash Basins
- AS 1756 Household Sinks
- AS 1768 Lightning Protection
- AS 2005 Low Voltage Fuses
- AS 2032 Code of Practice for Installation of UPVC Pipe Systems
- AS 2052 Metallic Conduits and fittings
- AS 2053 Non-Metallic Conduits and Fittings
- AS 2067 Switchgear Assemblies and ancillary equipment
- AS 2129 Flanges for pipes, valves, and fittings
- AS 2129 Flanges for Pipes, Valves and Fittings
- AS 2201 Intruder Alarm Systems (parts 1, 2 and 3)
- AS 2279 Disturbances in Mains Supply Networks
- AS 2373 Control cables for electricity supply systems
- AS 2417 1980 Parts 1,2 and 3 - The International Acceptance Test Codes
- AS 2419 Fire hydrants
- AS 2441 Installation of Fire Hose Reels
- AS 2528 Bolts, studbolts and nuts for flanges
- AS 2546 Printed Circuit Boards
- AS 2566 Plastic pipe laying design
- AS 2613 Safety Devices for Gas Cylinders
- AS 2638 Cast Iron sluice valves for waterwork purposes
- AS 2758 Aggregates and rocks for engineering purposes - Part 1 Concrete Aggregates.
- AS 3000 SAA Wiring Rules
- AS 3008 Electrical Installations - Selection of cables
- AS 3080 Integrated Telecommunications cabling systems for commercial buildings
- AS 3084 Telecommunications pathways and spaces for commercial buildings
- AS 3086 Integrated Telecommunications cabling systems for small office/home office premises
- AS 3013 Electrical Installations - Wiring systems for specific applications
- AS 3147 Approval and test specification - Electric cables
- AS 3500 National Plumbing and Drainage Code - Suite of standards 1 to 4
- AS 3600 Concrete structures

AS 3610 Formwork for concrete
 AS 3666 Microbial control - Air handling and water systems of buildings
 AS 3700 SAA Masonry Code
 AS 3901 Quality Assurance Standards
 AS 3905.2 Quality Systems Guidelines
 AS 4041 Pressure Piping
 AS 4100 Steel structures
 AS 4254 Ductwork for air-handling systems in buildings
 AS 4600 Cold-formed steel structures
 SMACNA Low pressure duct construction standards
 AS CA33 Code of practice for concrete pipe laying design
 AG 601-1787 - Installation Code for Gas Burning Appliances and Equipment
 AS HB3 Drawing Standards
 AS HB-27 Hand Book for Field Testing of Balanced Cable Installations
 SAA/SNZ MP77 - A Definition of Year 2000 Conformity Requirements
 Building Code of Australia.
 Local supply authority regulation
 Building Code of Australia.
 AUST ROADS Design Codes
 Water Services Association of Australia - Sewage and Water Codes.
 Others if subsequently identified.

2.7 Planning and Design Concepts

Site Services

2.7.1 Public Address (PA)

55. The site has a public address system, to be incorporated as follows:

- Extension/modification of the existing system to incorporate the new facilities;
- PA speakers in all rooms within the proposed facilities;
- Provision of new call points in the APS Officer Station and Forward Entry Location;
- Upgrade of the call point in the ASCC as part of the proposed console upgrade.

2.7.2 Communications Services

56. There are two communications networks distributed throughout the site; these are telephone and computer networks. It is proposed that the cabling infrastructure would be extended to the new facilities.

2.7.3 Sanitary and Sewer

57. It is proposed that the New Gate Facility will be connected to the existing pump station adjacent to the Fauna Reserve pond, and wastes pumped from there to the treatment plant. Sewers will, wherever possible, common trench with other services in corridors to minimise excavations and will be laid on coarse granular bed in virgin soils and compacted sand bed in fill areas.

2.7.4 Water Supply

58. Water supply to the site originates from the Lucas Heights reservoir. The New Gate Facility will be connected to the existing water distribution system at an appropriate location.

2.7.5 Fire Hydrant Supply

59. The site has a combined water and fire hydrant main distribution.

2.7.6 Irrigation

60. Irrigation water will be sourced from the site's main supply and will be restricted to landscaped zones close to the buildings and along the old alignment of New Illawarra Road adjacent to the proposed Forward Entry Location. Outer areas will not be irrigated. The system will be automatically controlled and operated.

2.7.7 Principles

Modularisation

61. Modular systems will be used wherever possible. They offer all the benefits of prefabrication and enable quicker installation, testing and commissioning, much of which can be completed off site. The compact size of most modular systems can also reduce the size of system enclosures.

Standardisation

62. Standard components can make a major contribution to minimise maintenance. The use of customised products can affect quality control, co-ordination, and the certainty of program and ultimate performance. Replacing components for customised products can also cause problems and add to life cycle costs. Notwithstanding the above, the need to maintain security will feature as a high priority when making equipment selection recommendations and so it is likely that customised products will be required in some instances.

Provision for Disabled People

63. The needs of disabled persons will be taken into account in the design of the entrance, for example in designing access to the reception building, bathroom facilities and the like.

2.7.8 Electrical

Building Power Supply

64. Due to the nature of the facilities proposed, it is expected that the facilities will have three incoming low voltage (415V) power supplies:

- Dual normal power supply (i.e. supplies from two substations), and
- Standby power supply from generators.

65. It is proposed that the cables for these supplies will be run underground and within common services trenching where possible. Additions/modifications will be required to the main standby power switchboard and the substation switchboards to accommodate the New Gate Facility sub mains.

Building Distribution Boards

66. In line with current site practices, the new facilities will have two distribution boards: 'Normal Power' and 'Standby Power'. The 'Normal Power Distribution Board' shall be supplied from the normal power supply only. The 'Standby Power Distribution Board' shall be supplied from both the normal and standby power supply, with automatic transfer if power supply is lost from the normal supply and manual bypass.

Critical Systems Battery Back-up / UPS

67. It is expected that an uninterruptible power supply unit will be located in a separate room adjacent to the main security/communications rooms in the proposed facilities, to provide battery back-up to the critical systems. All UPS systems, which are in-line with power supply, shall have a manual bypass which shall allow the unit to be removed for maintenance. Distributed equipment requiring local power will have individual battery back-up. This system will minimise the quantity of cabling required for UPS power. Critical systems include, but are not limited to:

- Security systems, including entry/exit gates etc;
- Data/communications systems;
- Emergency lighting;
- Fire detection systems;
- Other systems determined during subsequent project stages.

The power supplies for critical systems have redundancy to reduce the risk of a single point failure.

Energy/Building Management

68. It is proposed that an energy/building management system be implemented within the new facilities. This system would control the following:

- Control lights;
- Electrical equipment;
- Air conditioning and ventilation systems;
- Monitor energy usage.

Lighting

69. Lighting throughout the New Gate Facility will typically be fluorescent lighting with low loss ballasts. Any external areas will have vandal-resistant diffusers, and office or administration areas will have extra low brightness diffusers. Lighting controls will take into consideration daylight and area usage to minimise energy consumption. Internal lighting will be designed to minimise glare on screen-based systems, e.g. CCTV, computer monitors etc.

2.7.9 Fire Alarm System

70. A fire alarm system to AS 1670 will be provided throughout the New Gate Facility. The system shall include the following:

- Connection to the proposed site FIP or existing security system;
- A sub-indicator panel located, externally, at the entry of the building;
- A mimic panel in APS Officer Station;
- Addressable smoke detectors;
- Addressable thermal detectors (kitchens and dusty areas).

As an alternative to addressable smoke detectors, VEDSA could be considered if specific needs are identified.

2.7.10 Communications

71. The following communications systems will be reticulated to specific areas throughout the New Gate Facility.

Data/Voice Cabling Network

72. New Gate Facility shall have a category 5e (or better) cabling network for data and voice communications to ANSTO standards.

Intercom System

73. An intercom system will be provided as required for communication between nominated locations and the APS Officer Station of the New Gate Facility.

Mobile Radio System

74. The radio system will be extended, if required, for remote communications between APS guards, with a base station in the APS Officer Station of the New Gate Facility.

2.7.11 Security Systems

75. Security systems for detection and surveillance to SCEC endorsed Type 1 Level where applicable will be installed.

3.0 CONCLUSION

This submission illustrates the need for a new main entrance for the LHSTC and offers the proposed solution, as recommended by ANSTO and ASIO, for the approval for the PWC.