

1973

DEPARTMENT OF THE SENATE	
PAPER NO.	2262
DATE	22 NOV 1973
PRESENTED	J.R. Odgers
AUSTRALIA Vice of the Senate	

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA

Parliamentary Standing Committee on Public Works

REPORT

relating to the proposed construction of

DRIPSTONE HIGH SCHOOL

Darwin
Northern Territory

(EIGHTH REPORT OF 1973)

C O N T E N T S

	<u>Paragraph</u>
The Reference	1
The Committee's Investigation	3
Education in the Northern Territory	
Administration	5
High School Curriculum	7
High Schools in Darwin	10
The Need	13
The Proposal	
Outline	16
New Design Concept	17
The Site	20
Accommodation	22
External Facilities	23
Design and Construction	
Design	25
Structure	28
Materials and Finishes	30
Engineering Services	35
Fire Protection	42
Landscaping	43
Environmental Impact	44
Committee's Recommendation	47
Estimate of Cost	48
Programme	49
Recommendations and Conclusions	50

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

DRIPTONE HIGH SCHOOL
DARWIN, NORTHERN TERRITORY

R E P O R T

By resolution on 10 October 1973, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report the proposal to construct Driptone High School, Darwin, Northern Territory.

The Committee have the honour to report as follows:

THE REFERENCE

1. The proposal referred to the Committee is for the construction of a two-storey high school near the centre of the Driptone District on the north-eastern outskirts of Darwin. The school is of a new design providing teaching facilities including science laboratories, library/resource centre, theatre assembly area, a canteen, administrative and other supporting facilities for 1,100 pupils.

2. The estimated cost of the work when referred to the Committee was \$4.37 million.

THE COMMITTEE'S INVESTIGATION

3. The Committee received written submissions and drawings from the Departments of Education and Works and took evidence from representatives of these departments at a public hearing in Canberra on 5 November 1973. We inspected the site of the proposed work when in Darwin earlier in the year.

4. The Committee's proceedings will be printed as Minutes of evidence.

EDUCATION IN THE NORTHERN TERRITORY

5. Administration Up to 1970, by agreement with the Commonwealth, the South Australian Government provided professional education services to the Northern Territory schools. This included provision of teachers, curricula, and advice on siting and design of new schools under the direction of the Director of Northern Territory Schools who in turn was responsible to the Director-General of Education in South Australia. Since 1971, the South Australian Government has been withdrawing its education service activities and this is to be completed over a period of five years.

6. The Australian Department of Education is now responsible for education in the Northern Territory including education in Aboriginal communities. There is thus a single education authority in the Northern Territory.

7. High School Curriculum In a report on the Casuarina and Alice Springs High Schools in February 1970, the Committee described an outline of the high school education programme adopted in the Northern Territory at that time. The present curriculum is based on the same education structure as existed then. The junior secondary course is a general course for the initial three years and senior secondary courses provide for two groups of students at fourth and fifth year level. One senior group caters for those who intend to take matriculation examinations, the other for those who do not. Intending matriculants sit for the examination of the South Australian Public Examination Board and the relative courses are designed to prepare students to a uniform standard. Individual schools are given the responsibility of preparing other courses to meet the needs of their students and student assessment is internal to each school.

8. The Committee were told that there have been several major developments in secondary education in recent years and as a result the school curriculum is being modified. The curriculum had previously been adjusted to suit the education advancement schemes known as "streaming" and more recently "tracking". These schemes were an endeavour to facilitate the early assessment of a student's scholastic capacity and, accordingly were designed to allow him to follow a suitable stream or track which would most efficiently enable him to gain his ultimate education standard. The department's present evaluation of these schemes, having regard to the changes in education demands, is for more consideration to be given to the needs of the individual which are not provided for in the current grouping of classes. The streaming and tracking schemes are therefore being phased out as a faculty based arrangement of student accommodation is introduced.

9. More emphasis is now placed on the provision of facilities which encourage the student to learn how to learn, through whatever media and at whatever pace he may find himself achieving the best results. The faculty based scheme is an endeavour to provide maximum flexibility in the student's individual progress in learning and, conversely maximum flexibility for the staff to provide new learning techniques, including utilisation of various media such as books, strip films, movie films, cassette tapes, maps and pictures. In future learning groups will be divided into various faculty areas where classroom designs are altered to provide a flexible floor area by installing easily demountable partition walls.

HIGH SCHOOLS IN DARWIN

10. There are three schools providing secondary services in the Darwin area. They are the Darwin High School which receives enrolments from Larrakeyah, Stuart Park, Darwin, Parap, Ludmilla and Berrimah Primary Schools;

Nightcliff High School receives enrolments from Nightcliff, Rapid Creek and Millner Primary Schools and Casuarina High School receives students from Alawa, Jingili, Moil and Wagaman Primary Schools. Each high school has a maximum designed capacity for 1,100 students.

11. On completion, the proposed high school at Dripstone will receive enrolments from Nakara, Tiwi and Wanguri Primary Schools which are to be opened in the 1974 and 1975 school years. Students from these schools will be familiar with the teaching methods adopted in open space design primary schools and are expected to adjust readily to similar techniques proposed at Dripstone.

12. Secondary schools initially open with enrolments in junior forms who progress to subsequent years until a full complement of forms one to five is established. Senior students in the locality of a newly opened high school normally attend a nearby established school which has senior forms.

THE NEED

13. High school enrolments in Darwin in the past five years have been:

1969	1,334
1970	1,545
1971	1,802
1972	2,087
1973	2,370

The 1973 figure includes 267 enrolments at Casuarina High School which opened this year.

14. The growth of enrolments in this period averaged around 15 per cent per annum. However, the Committee were told that a study of factors related to the enrolments at high schools in future years indicated that an average growth rate of 12 per cent per annum provided a reasonable basis for planning

requirements. This suggests that likely enrolments will be:

1974	2,650
1975	2,970
1976	3,330
1977	3,730
1978	4,180

These figures convey that by 1977 the capacity of the existing three high schools at 3,300 will be considerably over-taxed and an additional facility would be required at that time.

15. The Committee agree with the basis for future planning and after examining the forecast enrolment figures, concluded there is a need for an additional high school in the Darwin area.

THE PROPOSAL

16. Outline The proposal is to provide an additional high school facility to be located in Dripstone, a new developing area, where there is a rapid rate of population increase. The school, consisting of a two-storey main block with single storey wings, is to a new design concept and ultimately will accommodate 1,100 students. Some extra features of design are incorporated based on the new approach to high school education. Landscaping will be provided to develop the grounds to a park like setting.

17. New Design Concept To implement new flexible education techniques where maximum student involvement and self-learning is encouraged, the education authority requested that the school design be developed on a faculty basis. The quieter faculty areas are grouped around the library/resource centre on the first floor with convenient access to the subject/faculty areas. This also allows each area a degree of flexibility as they may be interconnected by means of a simple partition wall re-arrangement as required. Due to the greater noise expected from their use, the science

laboratories, stores and art/craft areas will be located on the ground floor. The administrative offices also occupy part of the ground floor while the theatre extends from the ground to the first floor.

18. Another new feature is the internal two level street or mall, providing an easily defined form of circulation in both vertical and horizontal links between the functional areas of the school.

19. The Committee were informed that a similar concept in planning high schools has been used recently in South Australia.

20. The Site The site in Dripstone for the high school which has been designated on the Darwin town plan comprises 11.3 hectares of Government owned land approximately 11½ kilometres from the Darwin City Centre. It is bounded by Tiwi Gardens and Willeroo Street on the north, Henbury Avenue and Trower Road on the south, the site for a new Spastic Centre on the east and Delamare Street on the west.

21. The Committee agree the Dripstone site is suitable for the new high school.

22. Accommodation The major elements of accommodation are as follows:

Administrative	Science Department
Library/Resource Centre	Art/Craft Department
Subject Areas	Assembly Area
	Lunch area and Canteen

Some of these areas, namely, the art/craft department, library/resource centre, theatre, assembly area and also the outdoor sports facilities can serve a double purpose by allowing the local community to make use of them outside school hours.

23. External Facilities Access roads and parking facilities for 60 staff/visitors' cars, 50 students' cars and a system of connecting footpaths will be provided.

24. Outside sporting areas will include facilities for tennis, basketball, cricket and athletics. Space is reserved for the possible future inclusion of additional sports areas and a swimming pool.

DESIGN AND CONSTRUCTION

25. Design The school will comprise a two-storey building orientated with the main window walls facing north-south to allow for optimum sunshading. A semi-detached 300 seat theatre block and adjacent covered assembly/sports area will be at one end of the complex and a single floor arts/craft area at the other. Also on the ground floor, nearest the main entrance and theatre block is the administrative area and various associated facilities. Science laboratories and the domestic science area, with associated stores and special rooms, are included on the ground floor in an area between the assembly/sports hall and the arts/craft area.

26. The first floor will house the academic subject areas which are grouped around the library/resource centre. The English, maths, languages, social science and music areas will each be designed to form an open space self-contained suite made up of partially enclosed and closed classroom arrangements. Entry to the theatre is also provided at this level.

27. A feature on both levels is the wide corridor known as a street or mall, where special skylights will provide daylight through to the ground floor level. This mall system will be the main thoroughfare for student transit from one subject area to another and an appropriate student multi-purpose room and exhibition court will be provided off the mall.

28. Structure Generally, the basic structure is a combination of steel and concrete. Steel will be used for roof framing on the complex and also the first floor and roof structure for the area between the assembly/theatre area and the main block. Structural loads will be taken by a grid of reinforced concrete columns and floor slabs. External and internal fixed walls will be non-load bearing concrete masonry panels. Where flexibility in floor area is required, lightweight removeable partitions will be provided.

29. The reinforced concrete waffle floor slab on the first floor provides a structural ceiling to the ground floor areas and is designed as a special modular system to carry engineering services effectively and concealed from view. The mall will be of standard reinforced concrete slab and beam construction.

30. Materials and Finishes Externally, walls will be concrete masonry panels and windows will be aluminium framed with glare resistant tinted glass. Roofing and sunshades will be coloured metal.

31. Internally, flooring to the administrative areas, library/resource centre, subject area classroom suites, theatre auditorium and students' lounge will be carpeted. The theatre stage floor will be of timber construction. The canteen kitchen, servery, all toilets and most changing rooms will have ceramic tile floors, while the arts/craft area floors will be industrial rubber. Plant rooms, engineering services rooms and outside covered areas will have a granolithic type floor. The mall and other corridor areas will have vinyl tiles on cork underlay and all other areas will have vinyl tiles.

32. Walls generally will be concrete masonry panels with paintwork or fair face finish. Demountable walls will be timber framed fibrous plaster with vinyl cladding, while office areas will have typical demountable office partitioning. Laboratories, kitchen, art/craft, toilet and changing areas will have cement render finish and ceramic tiling around appropriate fittings.

33. Ceilings to the administration area and to other areas directly under the roof will have suspended acoustic panels. Elsewhere on the ground floor ceilings will be concrete waffle slab. Timber and fibrous plaster ceilings will be used to a limited extent in some areas and off-form concrete will be the ceiling in the engineering service type areas. Outdoor covered areas will have asbestos cement ceilings.

34. The basic layout of interior areas should effectively control noise to acceptable levels specially in the academic area and extensive carpeting in this area is also of acoustic value. Air conditioning will provide a blanket background noise to suppress intrusive sounds from other areas of the school.

35. Engineering Services Air conditioning will be provided to normally occupied areas. Exhaust ventilation will be installed in toilets, change rooms, some store areas and food preparation areas. Laboratories will have a fume extraction facility as required and the woodwork area will be provided with a sawdust extraction system.

36. Water from the town supply will be reticulated to various areas for domestic requirements, fire fighting facilities and automatic ground watering outlets. Domestic hot water at mains pressure will emanate from hot water units located adjacent to each outlet or group of outlets. Chilled drinking water units will be provided as required.

37. An internal sewerage system will be connected to the trunk sewerage main passing through the site and laboratory wastes will be neutralised prior to discharge. Dry combustible waste will be disposed of by an incinerator in an appropriate location and screened from general view. A sanitary disposal unit will be provided in each female toilet block.

38. Low pressure gas, reticulated from bulk storage, will be provided to each laboratory.

39. Electricity supply will be obtained from the town mains and reticulated from the substation to lighting, power outlets, clocks and audio and visual education aids as required. Internal lighting will generally be fluorescent type to the levels of the relevant Australian Standards code. External lighting to car parks, roads and footpaths, as well as building security illumination will be provided.

40. A PABX telephone system will be installed in the school.

41. Internal roads, car parks, basketball and tennis courts will be bitumen surfaced while footpaths will be of concrete. These areas will be suitably drained.

42. Fire Protection Fire protection will be provided by a thermal detection and alarm system connected to the local fire brigade. An automatic sprinkler system will be installed in the craft block and hydrants, hose reels and portable extinguishers will be provided.

43. Landscaping The car parks have been kept to a smaller size and distributed in several areas which are to be screened from the streets and buildings by tree and shrub planting. Selected areas around the building and surrounding roads will retain suitable indigenous vegetation and be planted with tropical trees and shrubs to provide shade and generally to create

a park like atmosphere. Artificial contouring is proposed to provide further landscaping utilising excess soil from the building excavation works. The sporting fields will be sited to match the landscape and will be graded and grassed. Other areas within the perimeter roads will also be grassed.

44. Environmental Impact Normal building operations will not adversely affect the environment. Construction will utilise conventional techniques and will have no detrimental effect on Darwin's building resources.

45. Wind patterns are not expected to be changed by the relatively low building complex. Waste disposal facilities and engineering services in the locality will not be unduly taxed by the additional load from the proposed school.

46. The Committee were told that the roads bordering the school are expected to cope adequately with the increased traffic likely to develop after the school is opened.

47. Committee's Recommendation The Committee recommend the construction of the work in this reference.

ESTIMATE OF COST

48. The estimated cost of the work when referred to the Committee was \$4.37 million based on costs as at July 1973. However, by the date of the hearing the estimated cost had risen to \$4.8 million because of unexpected substantial increases in labour costs. The revised estimate is made up as follows:

	\$
Building work	3,080,000
Building services	1,378,000
Civil engineering	342,000
	4,800,000

PROGRAMME

49. It is proposed to prepare contract documents on the project to meet a tender target date late in 1974. After a contract is let, construction is expected to take two years and this will enable first enrolments to be made at the start of the 1977 school year.

RECOMMENDATIONS AND CONCLUSIONS

50. The summary of recommendations and conclusions of the Committee is set out below. Alongside each is shown the paragraph in the report to which it refers.

Paragraph

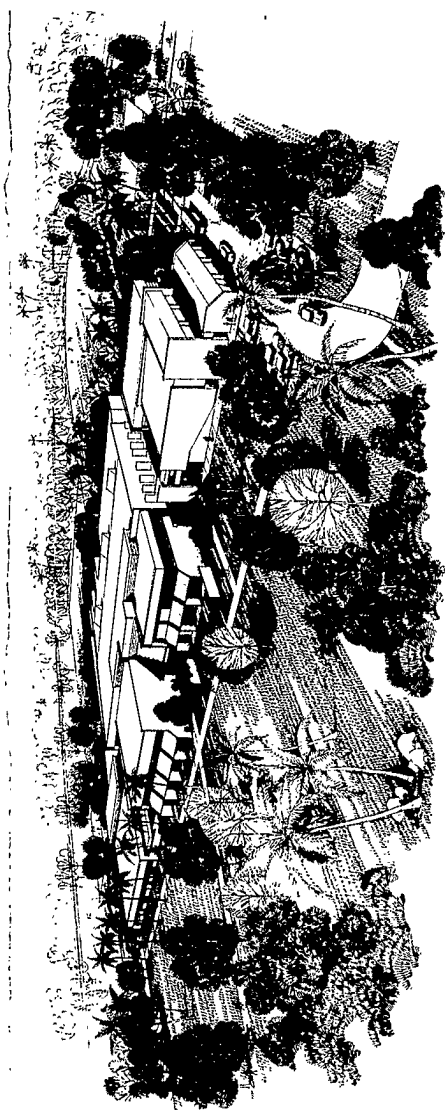
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|----|---|----|
| 1. | THERE IS A NEED FOR AN ADDITIONAL HIGH SCHOOL
IN THE DARWIN AREA. | 15 |
| 2. | THE DRIPSTONE SITE IS SUITABLE. | 21 |
| 3. | THE COMMITTEE RECOMMEND THE CONSTRUCTION OF THE
WORK IN THE REFERENCE. | 47 |
| 4. | THE ESTIMATED COST OF THE WORK IS \$4.8 MILLION. | 48 |



(W.J. FULTON)
Chairman

Parliamentary Standing Committee on Public Works,
Parliament House,
CANBERRA. A.C.T.

15 November 1973.



DRIPSTONE HIGH SCHOOL DARWIN