Parliamentary Standing Committee on Public Works

REPORT

relating to the

REDEVELOPMENT OF BRISBANE INTERNATIONAL AIRPORT—FURTHER DREDGING AND RECLAMATION

Queensland

(Ninth Report of 1981)

THE PARLIAMENT OF THE COMMONWEALTH OF AUSTRALIA 1981

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MEMBERS OF THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS
(Twenty-sixth Committee)

Melville Harold Bungey, Esq., M.P. (Chairman)
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Senate	House of Representatives
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Senator Bernard Francis Kilgariff	Benjamin Charles Humphreys, Esq., M.
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Senator Jean Isabel Melzer [1]	Murray Evan Sainsbury, Esq., M.P.
Senator Harold William Young [2]	

1 Retired 30 June 1981

2 Ceased to be member on election as President of the Senate on 18 August 1981

3 Appointed 25 August 1981

4 Appointed 25 August 1981

5 Appointed Vice-Chairman 27 August 1981

EXTRACT FROM
THE JOURNALS OF THE SENATE
NO. 46 DATED 12 JUNE 1981

15 PUBLIC WORKS - JOINT STATUTORY COMMITTEE - REFERENCE OF WORK - REDEVELOPMENT OF BRISBANE INTERNATIONAL AIRPORT: The Minister for Veterans' Affairs (Senator Messner), pursuant to Notice of Motion not objected to as a Formal Motion, moved - That, in accordance with the provisions of the Public Works Committee Act 1969, the following proposed work be referred to the Parliamentary Standing Committee on Public Works for consideration and report: Redevelopment of Brisbane International Airport - Further dredging and reclamation.

Paper: Senator Messner, pursuant to Statute, presented plans in connection with the proposed work.

Question put and passed.

WITNESSES

Anderson, Captain N.F., Manager, B747 Fleet, Qantas Airways Limited, Main Admin. II, Qantas Jet Base, Mascot, New South Wales

Apelt, Professor C.J., Professor of Civil Engineering, Department of Civil Engineering, University of Queensland, St. Lucia, Queensland

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Rainbow, A.R., Esq., Australian Federation of Air Pilots, 136 Albert Road, South Melbourne, Victoria

Reid, G.K.R., Esq., First Assistant Secretary, Ground Facilities Division, Department of Transport, P.O. Box 367, Canberra City, Australian Capital Territory

Russell, Dr. C.T., Chairman, Queensland Amateur Fishing Council, 9 Aintree Street, Holland Park, Queensland

Sanderson, G.C., Esq., Principal Engineer, Co-ordinator-General's Department, P.O. Box 185, North Quay, Brisbane, Queensland

Spence, G.W., Esq., Director, Economic Policy Section, Air Transport Policy Division, Department of Transport, P.O. Box 367, Canberra City, Australian Capital Territory

Unsworth, I.H., Esq., Director, Forecasting and Statistics, Air Transport Policy Division, Department of Transport, P.O. Box 367, Canberra City, Australian Capital Territory

Wilson, I.A., Esq., Past National President and Representative on Brisbane Airport Users' Committee, General Aviation Association, Airport, Bankstown, New South Wales

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C O N T E N T S

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

REDEVELOPMENT OF BRISBANE INTERNATIONAL AIRPORT
- FURTHER DREDGING AND RECLAMATION

REPORT

By resolution on 12 June 1981, the Senate referred to the Parliamentary Standing Committee on Public Works for investigation and report the proposal for further dredging and reclamation associated with the Redevelopment of Brisbane International Airport.

The Committee has the honour to report as follows:

THE REFERENCE

1. The proposal is for the execution of further site reclamation associated with the Balance of the Phase I Works. The works are required to prepare areas for the construction of a cross runway and associated taxiways and general aviation facilities, and other minor additional sand reclamation.

2. The estimated total cost of the proposed work when referred to the Committee was $16 million at February 1981 prices.

THE COMMITTEE'S INVESTIGATIONS

3. The Committee received submissions and plans from the Department of Transport Australia (DoTA) and the Department of Housing and Construction (DH&C) and took evidence from their representatives at a public hearing in Brisbane on 3 and 4 September and in Canberra on 22 September 1981.

4. The Committee also received written submissions from the Queensland Government; the Brisbane City Council; the Australian Federation of Air Pilots; the Australian International Pilots' Association, the Brisbane Airport Users' Committee; the Civil Air Operations Officers' Association of Australia; QANTAS Airways Limited; the Queensland Amateur Fishing Council; the Queensland Commercial Fishermen's Organisation; and Senator David MacGibbon. Written submissions or letters were also received from Mrs Elaine Darling, M.P., Federal Member for Lilley; Mr John Wood, Canberra College of Advanced Education, the Bureau of Meteorology; Trans Australia Airlines; Ansett Airlines of Australia; and Mr F. Bologna.

5. On 3 September the Committee inspected the proposed sites for reclamation including progress on the existing site works for the Initial Works of Phase I of the Redevelopment of Brisbane International Airport. Previously, on 28 August some members of the Committee attended, at the invitation of the Australian Federation of Air Pilots, a demonstration of the Ansett Flight Simulator at Tullamarine Airport in Melbourne.

6. The Committee's proceedings will be printed as Minutes of Evidence.

BACKGROUND

7. Since 1969, there have been several government reviews and studies into the requirements and impacts of possible airport developments for Brisbane. The history and major conclusions of these reviews and studies were outlined in paragraphs 7 to 76 of the Committee's Tenth Report of 1979 on the Redevelopment of Brisbane International Airport - Initial Works of Phase I (Parliamentary Paper 343/1979), hereafter called the Committee's 1979 Report.

8. The Committee's 1979 Report was on the construction of the initial works associated with the proposed redevelopment of Brisbane Airport to the north-east of the existing airport including site reclamation, sand dredging and filling works to raise the site to levels that would allow adequate drainage, the construction of a new floodway channel and of a 3500 metre runway (on the 02/20 (East) alignment) and associated taxiways. The limit of cost estimate was $98 million in July 1979 prices.

9. The Committee's major findings in its 1979 Report were that:

- the proposed concept for the ultimate redevelopment of Brisbane Airport was satisfactory;

- the site, to the north-east of the existing airport, was considered suitable for the redevelopment of Brisbane Airport;

- the general scope of the Initial Works of Phase 1 was necessary for the ultimate redevelopment of Brisbane Airport;

- based on the range of forecasts for aircraft movements until the 1990s which is well within the capacity of the existing main runway (04/22), a need was not established for the immediate development of the proposed 02/20 runway;

- the then current noise problem was not, of itself, sufficient reason to immediately redevelop the airport;

- the commencement of the works proposed should have been deferred until at least 1986 with other works being undertaken limited to approximately $11 million to include extension of the existing 04/22 runway to enable the existing facilities to meet the requirement until 1992.

10. A dissenting report by Mr Humphreys stated that the proposed concept for the ultimate redevelopment of Brisbane Airport was unsatisfactory, that a re-examination of both the direction and location of the main (02/20) runway should be undertaken, and that consideration should be given to the construction of a cross runway simultaneously with the main runway to ensure the safety of aircraft operations in almost all weather conditions.

11. The proposed works in this reference now before the Committee concern further reclamation and sand dredging which are additional to the Initial Works of Phase 1. The reclamation work is to provide sand fill for a cross wind runway on the 14/32 alignment and associated apron and taxiway systems; a general aviation maintenance area and associated taxiway system; extensions to the taxiway system for the 02/20 (East) runway; and minor site filling for access roads, engineering service corridors, and low lying areas (see Illustrations A and B).

12. The Remainder of Works required to complete Phase 1 by 1986 are expected to be referred to the Committee in the near future and are estimated to cost $122.2 million in February 1981 prices. Extensions to the existing international terminal facilities at a cost of $2.8 million in February 1981 prices to extend the use of the facilities until the early 1990s were approved by the Committee in its Sixth Report of 1981. Together with the works already approved by Parliament, the works referred to in this reference and the

Remainder of Works the total construction cost of Phase 1 will be about $260 million in February 1981 prices.

13. The current Master Plan (see Illustration C) has been developed over the past decade. The layout of the airport and ground facilities in the current Master Plan are considered by DoTA, the Queensland State Government and Brisbane City Council to best maximise the potential of the site given the many constraints operating on its use. The plan provides for:

- Two wide spaced parallel runways on bearing 16 degrees magnetic, called the 02/20 runways, spaced more than 2,000 metres apart, to maximise the capacity of the airport. The 02/20 (East) is under construction, the 02/20 (West) will be required in the mid 1990's.

- A cross wind runway on a bearing of 135 degrees magnetic, called the 14/32 runway, with provision for a length of 2,600 metres.

- Passenger handling facilities and access to be provided in the area between the proposed parallel 02/20 runways with the general aviation apron at the northern end.

- Maintenance activities provided for to the east of the 02/20 (East) runway.

- Aviation freight activities to be based in the existing international terminal area in the early 1990's.

THE NEED

14. The Committee agreed in its 1979 Report that the proposed concept for the ultimate redevelopment of Brisbane Airport was satisfactory and that the scope of the initial works of Phase 1 was appropriate. However, it was considered that a need was not established for the immediate development of the 02/20 runway and that the work should be deferred to at least 1986. The Committee has received no evidence in this reference which would cause it to change its view in relation to the last point.

15. DoTA now consider that a 1640 metre 14/32 runway and associated facilities are needed by 1986:

- because of the planned closure of the existing airport by 1986;
- because of the requirement for the safe operation of lighter aircraft when the main runway is not suitable due to cross wind conditions;
- to provide sufficient runway capacity to meet the forecast movements in 1986 at the same time as minimising congestion costs.

16. The required orientation, length and strength of the cross wind runway are considered by DoTA and the Queensland Government to be best suited to developing the full potential of the total airport site whilst bearing in mind the constraints associated with noise, climatic conditions and land-use planning such as residential land use zones, harbour facilities, oil refineries, and CBD building heights.

17. Forecast Airline Movements Forecasts of total aircraft traffic movements by DoTA for the year 2000 have not

changed significantly since 1979 and their 1981 forecasts for total aircraft traffic movements for Brisbane Airport for the year 2000 are about 6 per cent higher than they were in 1979. There are more significant differences in the mid-1980s and 1990s between the forecasts but these are not considered by DoTA to alter the need for the new airport development currently underway. Similarly the Committee feels that the revised forecasts do nothing to alter the recommendations made in its 1979 Report.

18. TABLE 1 below shows a comparison of the forecasts made by DoTA in 1979 and 1981 for total aircraft traffic movements and TABLE 2 below provides a break-down of the 1981 forecasts into appropriate aircraft categories.

TABLE 1

Total Aircraft Traffic Movements '000

Year	1979 Forecast	1981 Forecast
1985	116.9	132.1
1990	142.2	159.3
1995	173.7	188.2
2000	208.8	220.3

TABLE 2

Year	Scheduled Airline		Commuter	Other	Total
	International	Domestic		Aviation*	
1985	4540	39910	19940	67700	132090
1990	4800	48120	22320	84100	159340
1995	5030	57770	24610	100800	188210
2000	5280	71010	26150	117900	220340

* Note: 'Other Aviation' includes general aviation, military, helicopter and non-scheduled airline movements

19. Runway Capacity The capacity of an airport is dependent on a large number of factors including the hourly and daily demand profiles for different aircraft types; runway and taxiway layout; meteorological influences; and air traffic control regulations. DoTA estimates runway capacities and congestion costs using a fast-time simulation model.

20. The model generates aircraft movements (both arrivals and departures) according to pre-determined rules, applies appropriate air traffic control separation, allocates them to the most suitable runway and then determines individual aircraft delays and delay costs. Total annual delay costs and mean delays are calculated together with a considerable quantity of other data on runway utilisation and runway occupancy times.

21. In evidence to the Committee the Civil Air Operations Officers' Association of Australia (CAOOAA) representing air traffic controllers, stated that it was hourly movements that

were critical to assessing airport capacity and that any overall figure of movements per annum can be misleading. DoTA agreed that hourly movements are important and allowance is made for this factor in the simulation model. DoTA accepts that annual movement figures are only an indicative planning tool.

22. There has been a significant change in DoTA's estimate of the capacity of the new 02/20 runway. In 1979 DoTA estimated the capacity of the 02/20 runway to be approximately 155,000 aircraft movements per annum. In evidence to the Committee in September 1981, DoTA estimated the capacity of the 02/20 runway to be about 130,000 (about 16 per cent less than estimated in 1979). This downward revision was a result of 'fine tuning' the fast-time simulation model of DoTA.

23. The Committee notes that:

- the capacity of the existing airport is 165,000 movements per annum which is sufficient to meet forecast needs until 1991;

- the capacity of the new airport as approved to date (02/20 runway alone) is currently estimated to be 130,000 movements per annum which is sufficient to meet forecast needs until 1985;

- the capacity of the new airport to Phase 1 as now proposed by DoTA (02/20 and 14/32 runways) is 183,000 movements per annum which is sufficient to meet forecast needs until 1994;

- the capacity of the total airport development with parallel 02/20 runways and a 1640 metre 14/32

runway is estimated to be 289,000 movements per annum which is sufficient to meet forecast needs until well into the first half of the next century.

24. *Committee's Conclusion* The Committee concludes that there is a requirement to provide an additional runway to satisfy the demands of forecast traffic.

25. Closure of Existing Airport The Committee was informed by DoTA at the 1979 hearings that it was feasible to allow General Aviation to operate from the existing airport for several years after 1986. Operating the existing airport in conjunction with the new airport was thought to only involve marginal increases in costs and few operational disadvantages. DoTA now consider it necessary to close the existing airport in 1986.

26. The CAOOAA pointed out in their evidence in 1979 that it was absolutely out of the question to make any significant use of the existing main 04/22 runway when the 02/20 runway is operational.

27. During the hearings in September 1981 DoTA informed the Committee that subsequent investigations have shown that there are major operational disadvantages in the simultaneous operation of the existing runways with the new 02/20 runway which would require two control towers, two pilot briefing units, two airport fire stations, radio equipment and an additional 37 operational staff. Consequently, such an arrangement would in effect create two airports and have far greater cost disadvantages than first thought. These costs are estimated to be about $1.2 million capital cost and $1.5 million per annum recurrent expenditure.

28. In particular, the capacity of the existing 13/31 crosswind runway and the new 02/20 runway would be 122,000 movements per annum which is actually less than the 130,000 movements per annum now estimated for the 02/20 runway alone. Similarly, the combined capacity of the 02/20 runway and the existing 13/31 and 04/22 runways would only be 150,000 movements per annum, whilst the combined capacity of the proposed 14/32 and 02/20 would be 183,000 movements per annum. Combining existing and new airport operations creates a complex operational environment because of intersecting flight paths. To maintain adequate safety standards there would need to be a reduction in capacity when operating the existing airport with the new airport.

29. *Committee's Conclusion* The Committee is highly critical of the failure by DoTA during 1979 to perceive the evident major disadvantages in the simultaneous operation of the two airports and it holds serious doubts as to the quality of the planning coordination between the departmental technical divisions involved.

30. General Aviation (GA) Requirements General Aviation operations currently based at Brisbane Airport comprise GA operators providing regular and charter passenger and freight transport services, helicopter passenger transport services, and small jet aircraft operated by corporate owners and operating express air cargo services, a substantial proportion of which are not able to use other airports such as Archerfield. Without a cross wind runway GA would not be able to operate at Brisbane when conditions prevent the use of the new 02/20 runway (this is estimated by DoTA to be for 184 hours per year or 2.1 per cent of total hours per year). The main 02/20 runway is not oriented into the winds normally associated with bad weather conditions and a cross wind runway is therefore needed for use by GA to maintain the normal safety margins for that class of operation. A cross wind

runway would also assist in the efficient movement of all traffic using the new airport by having a capacity to separate GA movements from regular public transport movements.

31. DoTA said that it was not feasible to continue to operate from the existing GA terminal and facilities after closure of the existing runways. Excessive taxiing distances to the proposed new runway system (up to 9 km) make GA operations impracticable. Since the GA operations are closely interwoven with the airline services a new GA terminal and maintenance facilities are needed, preferably close to the proposed 14/32 runway.

32. The Committee notes that the decision to provide a 14/32 cross wind runway suitable for GA operations is influenced by two other factors. First, there would be a reduction in unusability of the new airport for GA operations of from 184 hours per annum to 38 hours per annum. Second, there is no suitable alternative airport in the locality to handle many of the types of aircraft being operated.

33. The Committee examined the possibility of GA making greater use of the Archerfield Airport. This alternative is not satisfactory because:

- Archerfield is currently operating near its capacity;
- expansion of the aerodrome would be extremely difficult;
- considerable expense would be involved in the provision of additional buildings, facilities and navigation aids;

- some of the more sophisticated GA aircraft could not use Archerfield;

- the interchange of passengers and freight between GA and airline services would be disrupted;

- it would add to existing noise problems around Archerfield.

34. There would be an estimated 97.9 per cent usability for GA operations using the parallel 02/20 runways. DoTA stated that there can be no economic justification on these usability figures to provide a cross wind runway. However, DoTA consider that the safety argument and the lack of alternative airports in the locality provide adequate justification for the provision of a 14/32 runway of 1,640 metres.

35. Cross Wind Runway Orientation At the time of the Committee's 1979 hearings the direction of the cross wind runway was still being investigated. A runway on a bearing of 110 degrees magnetic (11/29 alignment) was favoured by DoTA. This alignment conflicted with further port developments planned for the Brisbane River and had noise impacts which were not acceptable to the Brisbane City Council because of their planning proposals for residential development. Consequently, the 14/32 runway alignment was selected and agreed to by the Commonwealth, the Queensland Government and the Brisbane City Council in late 1980.

36. *Committee's Conclusion* There is a need on safety grounds to provide a cross wind runway. The 14/32 alignment appears best to meet the need.

37. Options for Runway Combinations The Committee was concerned at the inconsistences between evidence given in 1979

and 1981 outlined in paragraphs 25 to 28, and at the conflicting technical views between DoTA, AFAP and CAOOAA on the ultimate configuration of Brisbane Airport. The Committee examined a number of options relating to runway orientation, length and strength for the proposed 14/32 cross wind runway, existing airport and 02/20 runway. Whilst examining these options the Committee was concerned to bear in mind the relationship of the proposed 14/32 and 02/20 runways with the Master Plan. The major options are discussed below.

38. Continued Use of Existing Airport The capacity of the existing airport is sufficient to meet needs until about 1991. The Committee examined the possibility of using the existing airport and delaying the opening of the new airport until 1990. This could be done either by holding work in abeyance until 1986 or by restaging works over the whole period. The former course of action would mean meeting the $53 million of commitments and taking advantage of the $9 million saving by completing the $16 million of works in this reference. Further work would not proceed until after 1986. The latter course of action would ensure a smooth progression of works and even out annual cash outflows.

39. DoTA were asked to examine these two alternatives. Their preliminary economic analysis indicates that because of the $53 million already committed there could be significant increases in the overall capitalised cost of the total airport development. These cost changes could, in the longer term, lead to increases in air fares above those which would occur if the new airport were opened in 1986.

40. Combinations of the Existing Airport with the 02/20 Runway Combining the 02/20 runway with either the existing 13/31 or with the 13/31 and the 04/22 runways would result in:

- insufficient capacity to last beyond 1988;

- high congestion costs, and,

- considerable operational difficulty.

This option is not considered practicable nor cost effective.

41. Operation of 02/20 Only The operation of the 02/20 by itself was not considered viable as there would be insufficient capacity to last beyond 1985.

42. Archerfield As discussed in paragraph 33 above the diversion or relocation of GA operations from Brisbane Airport to Archerfield is not considered practicable.

43. Combinations of the 02/20 runway with the 14/32 Runway A number of different length runways is possible for the 14/32. A number of witnesses argued that a 14/32 cross wind runway of sufficient length and strength to take heavy jet aircraft was needed and views put forward by the Australian Federation of Air Pilots (AFAP) were representative of these arguments.

44. The AFAP argued that on safety grounds and because of the possibility of increasing runway usability there was a need to provide a cross wind runway of sufficient strength and length for heavy jet aircraft. They outlined two options to extend the 14/32 runway beyond that required for GA operations:

- to about 2,600 metres to enable heavy jet aircraft to use Brisbane Airport in wet season weather conditions that would otherwise prove hazardous; or

- to 3,000 metres to enable that runway to be used as a general major runway.

Estimated costs for the 14/32 runway at various lengths are as follows:

- 1640 metres, $15.5m.
- 2600 metres, $31m.
- 3000 metres, $37.5m.

45. In evidence to the Committee, the AFAP based its claim on the following contentions:

- the preponderance of higher winds and bad weather conditions from the south-east quadrant;
- wind gust factors;
- AFAP interpretation of meteorological data, and
- an AFAP estimate of airport unusability hours.

46. In evidence given during the recall hearing in Canberra DoTA refuted the AFAP contention that safety was an issue. DoTA contended that in only providing a 1640 metre cross wind runway and not one of sufficient length and strength to take domestic jet aircraft the safety of aircraft operations would not be compromised. Only the regularity of aircraft operations would be affected. It is estimated that there would be little economic penalty to the airlines in holding or diverting aircraft on the few occasions a year that strong cross winds could necessitate this. The economic penalty is not considered by DoTA to be large enough to justify the expenditure involved in providing a 14/32 runway to take heavy domestic jets.

47. Additionally, DoTA stated that their collection and analysis of meteorological data conforms with the practices and conventions of the International Civil Aviation Organisation (ICAO) and with those used by civil aviation authorities world-wide. DoTA stated that the proposed 02/20 main runway at Brisbane Airport satisfies the internationally recognised criteria and conventions regarding runway usability as set down by the ICAO and as set down by the more conservative standards of DoTA.

48. DoTA consider that there is no justification to provide a 14/32 runway sufficient to take domestic jets (ie of at least 2600 metres). The resultant increase in usability of the airport would only be about 24 hours per year (about 0.3 per cent of total yearly hours). Additionally, the absence of a longer 14/32 runway is not considered unsafe as all the relevant representative safety standards are adhered to.

49. *The Committee appreciates fully* that the AFAP would wish most strongly to achieve a runway combination which would eliminate, for all practical cases, any significant cross wind landing operations, and any delays and any diversions. The Committee is satisfied that current safety standards have been taken into account in the planning of the overall airport of which the 1,640 metre 14/32 crosswind runway is an integral part. The Committee makes no comment on whether these standards should be changed as this is an issue that the technical experts (DoTA, AFAP, CAOOAA and the airlines) should pursue through discussion in an appropriate forum.

50. *Committee's Conclusion* There is no need on either safety or economic grounds to provide a 2,600 metre or 3,000 metre cross wind runway at present.

51. Mr Humphreys does not agree with this conclusion.

52. Implications for the Master Plan The Committee canvassed the implications of various 14/32 crosswind runway lengths for the current Master Plan. The possibility of constructing the 14/32 runway to heavy domestic jet standards to a length of 3,000 metres raises questions about the validity of the current Master Plan. Such a runway could end up as the main runway for usability and noise reasons. This would have a severe impact on the proposed terminal location, taxiway layouts, apron design, location of general aviation facilities, the length of the planned parallel 02/20 (West) runway and the current progression of the positioning of the sand fill.

53. A 14/32 runway up to 2,600 metres in the future, capable of handling heavy jet aircraft, would not become the main runway. Consequently, the current Master Plan appears adequate in this regard.

54. The Committee also canvassed the practicability of constructing parallel 14/32 runways, sufficient to take all jet traffic, rather than parallel 02/20 runways. This option was not considered viable because of noise problems, physical site constraints, planning restrictions and cost penalties.

55. *Committee's Conclusion* The Committee concludes that the proposed Master Plan Concept for the ultimate redevelopment of Brisbane Airport is broadly satisfactory.

56. Mr Humphreys does not agree with this conclusion.

57. Other Facilities The works associated with the 14/32 runway, apron and taxiway reclamation and the GA maintenance area and taxiways amount to about 85 per cent of the cost of this proposal. The other 15 per cent of cost is for:

- extension to the 02/20 taxiway system to avoid opposing traffic flows and to assist the orderly flow of traffic. This need has arisen from refinement of the taxiway system taking into account traffic flows to and from the airline maintenance base, the cross runway and domestic terminal apron. Sand fill works now would avoid future hazards to aircraft operation from wind blown sand after 1986;

- miscellaneous reclamation associated with fuel depot facilities in the central terminal area (a need defined by the oil companies); provision of sand platforms for trunk services where site conditions are poor; and earlier provision of a sand base for a road link between the present International Terminal Building, the maintenance areas and the planned main airport access road; and

- drainage works associated with Serpentine Creek.

THE SITE

58. In its of 1979 Report the Committee considered that the site, to the north east of the existing airport was considered suitable for the redevelopment of Brisbane Airport. Alternative sites considered in 1979 have large economic penalties associated with them.

59. The development of the site is constrained by a number of physical and planning factors. The aim of the Master Plan is to maximise the return on investment for the site by ensuring that a main airport can operate from the site well into the first half of the next century. To do this means maximising runway capacities. Wide spaced parallel runways do this.

60. There is a number of constraints around the site which restrict runway alignments, such as, port developments (crane activity, bridges, ship heights), two large oil refineries (stack heights), high ground on the Western side (preventing clear approaches), building heights in the Brisbane CBD, the requirement for a large floodway, and the surrounding suburban land areas. These constraints and climatic conditions leave little flexibility to locate wide spaced parallel runways and a GA cross wind runway.

61. *Committee's Conclusion* The site for the 14/32 crosswind runway and associated works is considered suitable.

THE PROPOSED WORKS

62. The works proposed in this reference involve additional site reclamation works of Phase 1 of the Redevelopment of Brisbane International Airport and are set out below. *Illustrations A and C show the extent of the* proposed works.

63. Urgency of Proposed Work DoTA submit that potential savings would accrue from using the dredging and other equipment currently on the site for the works proposed in this reference. DH&C estimated that up to $9 million could be saved. The equipment on site has enough work to last until mid-1982 but the contractor could become committed to other work and be unavailable for further airport reclamation. The Departments are of the view that the sooner negotiations can proceed with the existing contractor the more likely it is that the estimated cost savings would be achieved. DH&C suggested that after November 1981 it would be less likely that the option to proceed with the 14/32 runway work with the same contractor and for these costs could be exercised.

64. 14/32 Runway It is proposed to carry out site filling for a 1640 metre, 30 metres wide runway on a magnetic bearing of 135 degrees and for an associated apron and a taxiway system. The 14/32 runway is designed for GA operations. These works represent about 70 per cent of the estimated total cost of the proposal.

65. The reclamation work will require the removal of floodway spoil which was deposited during earlier floodway excavations to avoid the then intended 11/29 cross runway. This will cost $0.2 million.

66. General Aviation Facilities It is proposed to carry out site filling for a GA maintenance area and an associated taxiway system. These works represent about 12 per cent of the estimated total cost of the proposal. The work will include clearing, laying the filter fabric, sand fill and sand stabilisation.

67. The provision of GA terminal facilities by the Commonwealth will be limited to common facilities such as the aircraft parking apron, car parks, access roads and engineering services. The general aviation terminal apron will be about 70,000 square metres, will provide parking for 50 aircraft and will meet the demand to about 1990.

68. Maintenance facilities will be provided by the Commonwealth. The area of the filled site will be about 100,000 square metres and will form the filled base for a common user taxiway, aprons, hangars, car parks, access road, reticulated engineering services and drainage. Operators will be responsible for the construction of the facilities required for their own use. The 500 metres of building line frontage will be sufficient to accommodate up to 8 hangars.

69. Additional Taxiways for the 02/20 Runway Further design work since 1979 has defined a requirement for additional taxiways to those presently being constructed. Three stub taxiway connections from the parallel taxiway to the terminal apron were planned initially. Six taxiway connections are now proposed.

70. In addition, to alleviate delays that could occur in the 1990s, it is proposed to construct a section of taxiway parallel to the western taxiway already under construction on the 02/20 runway. This will enable ready access for international traffic to the proposed International Terminal.

71. Carrying out these sand fill works now rather than after 1986 will mean that there will be no hazards to aircraft from blown sand or truck movements. The Committee agrees that there will be construction and operational difficulties in placing sand for the section of the western taxiway after the airport is commissioned. Consequently, work should commence now on placing this sand fill.

72. Miscellaneous Reclamation A number of minor works are proposed:

- the road connection between the existing International Terminal Buildings and maintenance areas to the Main Airport Access road. If the existing airport were to be closed in 1986, it would be logical to put this road in. The site of the road cuts the 04/22 runway;
- the trunk services reserves involving sand fill to provide sand platforms to enable the provision of reticulated engineering services; and
- the Oil Company Depot site requires sand fill to reclaim sites for these facilities.

73. Serpentine Creek Drainage Works Reclamation work for the proposed 14/32 runway will fill part of the anabranch of Serpentine Creek. It will be necessary to connect the remnants of that creek with Jackson's Creek. This will involve some drainage works.

74. Engineering Processes The nature of the site requires that the works need to be raised above the existing floodplain level to prevent flooding of the proposed facilities and runways. The foundations for the construction of buildings and aircraft movement areas require a minimum depth of fill material above existing ground level. Consequently, the reclamation levels have been established to meet the requirements for drainage, storm surge, foundation strength and design loading.

75. The weight of the sand fill causes the existing softer subsurface to settle. To accelerate the settlement process and to reduce the extent of any differential settlement, surcharging in most areas of up to 2 metres of additional sand is required for about a year. After a year the surcharge is moved to the sides. The reclamation levels take full account of the initial and longer term settlement over a 20-year period (that is about a 0.3 metre fall).

76. Reclamation Process The nearest and cheapest fill material which is free of silt and clay and appropriate for the task is sand from Middle Banks in Moreton Bay. The dredged sand is pumped to the site from the rehandling basin located in the Brisbane River some 6 kilometres away and already established as part of the initial works. A further 5 million cubic metres of sand fill is required for the proposed works (about 50 per cent of that already required for the initial works of Phase 1). The sand is placed over the existing base (using woven fabric where there is no vegetation) and stabilised to prevent erosion.

77. *Committee's Conclusions* The works proposed in this reference should proceed in the light of the significant savings that can be made. The Committee believes that a completion date of 1986 rather than 1990 for the full Phase 1 Works has not been clearly justified. Evidence yet to be put before the Committee on the Remainder of Works of Phase 1 must provide such a justification.

ENVIRONMENTAL CONSIDERATIONS

78. The environmental implications of the proposed works have been considered by the Environmental Working Group reporting to the Joint Government Co-ordinating Committee oversighting decisions on the project and discussed with the relevant State and local authorities.

79. Initially a Notice of Intention for the Remainder of Works associated with Phase 1, but excluding the cross runway and general aviation area, was prepared by DoTA and forwarded to The Department of Science and Environment (DS&E) on 19 February 1980. On 31 March 1980 DS&E advised DoTA that an Environmental Impact Statement was not required.

80. Following advice of Government approval in August 1980 of the 14/32 runway alignment and of the inclusion of the cross wind runway and general aviation facilities in the redevelopment project, a Notice of Intention covering the construction of a cross wind runway on a 14/32 alignment, and construction of general aviation facilities, was prepared in DoTA and forwarded to DS&E on 30 September 1980.

81. Advice was received from the Department of Home Affairs and Environment on 18 October 1980 advising that in accordance with the Environment Protection Administrative Procedures preparation of an Environmental Impact Statement was not required.

82. DoTA also undertook a public information program on the airport project from December 1980 through to March 1981 to inform people about the project and to allow people an opportunity to comment.

83. *Committee's Conclusion* The Committee is concerned that the public information program did not provide information on the Master Plan as put before the Committee.

84. Impact Studies A series of studies have been carried out for the dredging and reclamation including identification of the sand source, subsurface drilling, hydrographic surveys and assessment of the effects of dredging on adjacent beaches. These studies have concluded that there will be no effect, either direct or indirect, on the currently unstable Moreton Island beaches resulting from dredging at Middle Banks. DH&C also is monitoring the impact of the works and is looking at dredge runoff water quality and siltation; beach profiles, erosion and accretion; water flows and currents; and construction noise. Water sampling analysis, hydrographic surveys and aerial photography are also carried out. DH&C advised that no significant adverse impacts had been recorded. The Committee notes that the effects of dredging and site works are not likely to be immediately apparent and that close and continuing monitoring is essential. If any adverse impacts become apparent immediate steps should be taken to reduce them.

85. Impact on Fishing Some concern was expressed by the Queensland Amateur Fishing Council and the Queensland Commercial Fishermens' Organisation on the possible destruction of fish and prawn habitats on Middle Banks in Moreton Bay and on and around the site of the rehandling basin in the Brisbane River. Of particular concern is the loss of income that may occur to commercial fishermen as a result of the destruction for the next few years of valuable prawn

trawling areas because of the location of the rehandling basin. The Committee suggests that DH&C's monitoring program should look carefully at the impacts on prawning and fishing.

OTHER OBSERVATIONS

86. Noise The DoTA estimated that aircraft using the proposed 1640 metre 14/32 cross wind runway would not generate any significant noise impact. It would be a significant improvement over the existing 13/31 cross wind runway. The 14/32 runway would not take larger airline aircraft, although there may be occasional operation of aircraft up to the Fokker F28 Fellowship. Whilst Myrtletown will be affected by sideline noise from the 02/20 runway, DoTA estimate that the 14/32 runway will not add to the noise there.

87. The Committee also received information on the noise impact of the current Master Plan runway combinations. It is estimated that in the year 2000 when the second parallel 02/20 (West) runway is operational there will be no significant noise impact on surrounding residential areas. From 40 to 80 dwellings will be within the 25 NEF footprint of the total airport development. This is a considerable improvement over the current situation where 3,500 dwellings lie within the 25 NEF footprint of the existing airport.

88. National Priorities In terms of need for airport development on a national basis, the Committee is concerned that in evidence to the Committee, DoTA stated that if work were not already in progress in Brisbane, clearly Sydney Airport works would have a higher national priority than Brisbane as Sydney is close to capacity. This assumes a Government decision had been taken to develop Sydney Airport. The Committee emphasises its previous recommendation in 1979 not to proceed with Brisbane redevelopment until at least 1986. The Committee also reiterates points made on the

development of National Priorities in its 1979 report. In 1979 the domestic airlines expressed the view that a number of higher priority airport works are needed elsewhere to provide a level of service comparable with that currently available at Brisbane. Again, the Committee emphasises the need for a national airport development strategy rather than a piecemeal approach as is the case at present.

89. Progress on Existing Work Of the $98 million approved by the Government as the Initial Work of Phase I, $53 million has been contracted out with $26 million of this having been spent. The Deep Water Channel has been completed and the rehandling basin has been established in the Brisbane River. Sand fill is now being pumped to the airport site (See Illustration D). The current contract for sand fill works is expected to run until mid-1982.

CONSULTATION WITH AUTHORITIES

90. A broad range of Federal, State and local government agencies is involved in the airport redevelopment. Full consultations between agencies have been occurring through a Joint Government Co-ordinating Committee comprised of representatives of the Commonwealth Departments of Transport, Housing and Construction and Finance, the Queensland Co-ordinator General's Department and the Brisbane City Council.

91. In evidence to the Committee the Queensland Government and Brisbane City Council strongly supported the amendment to the Master Plan to include a cross wind runway of 1640 metres on the 14/32 alignment to a standard capable of taking Fokker F27 aircraft. Similarly they both support the DoTA submission to carry out the work of this proposal as soon as possible. The State has no objection to the noise incidence of aircraft from operations on a 14/32 runway even

at full development (ie 2600 metres) and confirms that this proposal is acceptable to the State for 24 hour operation.

LIMIT OF COST AND PROGRAM

92. The limit of cost of the additional reclamation is $16m at February 1981 prices.

93. The reclamation could proceed before mid-1982 with completion before mid-1983. Sand surcharge would remain in place for at least 12 months from time of placement.

SUMMARY OF MR HUMPHREYS' OBJECTIONS TO THIS REPORT

94. Mr Humphreys is not opposed to the early pumping of sand for the works in this reference. However, Mr Humphreys considers that a 14/32 crosswind runway, capable of handling all domestic jet aircraft, would be preferable on environmental and safety grounds. Mr Humphreys believes that such a runway configuration would ensure the safety of aircraft operations and a curfew free airport with no adverse noise impact.

SUMMARY OF CONCLUSIONS AND RECOMMENDATIONS

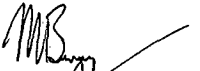
95. The summary of recommendations and conclusions of the Committee and the paragraph in the report to which each refers is set out below.

		Paragraph
1.	THE COMMITTEE CONCLUDES THAT THERE IS A REQUIREMENT TO PROVIDE AN ADDITIONAL RUNWAY TO SATISFY THE DEMANDS OF FORECAST TRAFFIC.	24

2.	THE COMMITTEE IS HIGHLY CRITICAL OF THE FAILURE BY DoTA DURING 1979 TO PERCEIVE THE EVIDENT MAJOR DISADVANTAGES IN THE SIMULTANEOUS OPERATION OF THE TWO AIRPORTS AND IT HOLDS SERIOUS DOUBTS AS TO THE QUALITY OF THE PLANNING COORDINATION BETWEEN THE DEPARTMENTAL TECHNICAL DIVISIONS INVOLVED.	29
3.	THERE IS A NEED ON SAFETY GROUNDS TO PROVIDE A CROSS WIND RUNWAY. THE 14/32 ALIGNMENT APPEARS BEST TO MEET THE NEED.	36
4.	THERE IS NO NEED ON EITHER SAFETY OR ECONOMIC GROUNDS TO PROVIDE A 2,600 METRE OR 3,000 METRE CROSS WIND RUNWAY AT PRESENT.	50
5.	THE COMMITTEE CONCLUDES THAT THE PROPOSED MASTER PLAN CONCEPT FOR THE ULTIMATE REDEVELOPMENT OF BRISBANE AIRPORT IS BROADLY SATISFACTORY.	55
6.	THE SITE FOR THE 14/32 CROSS WIND RUNWAY AND ASSOCIATED WORKS IS CONSIDERED SUITABLE.	61
7.	THE WORKS PROPOSED IN THIS REFERENCE SHOULD PROCEED IN THE LIGHT OF THE SIGNIFICANT SAVINGS THAT CAN BE MADE.	77
8.	THE COMMITTEE BELIEVES THAT A COMPLETION DATE OF 1986 RATHER THAN 1990 FOR THE FULL PHASE 1 WORKS HAS NOT BEEN CLEARLY JUSTIFIED. EVIDENCE YET TO BE PUT BEFORE THE COMMITTEE ON THE REMAINDER OF WORKS OF PHASE 1 MUST PROVIDE SUCH A JUSTIFICATION.	77

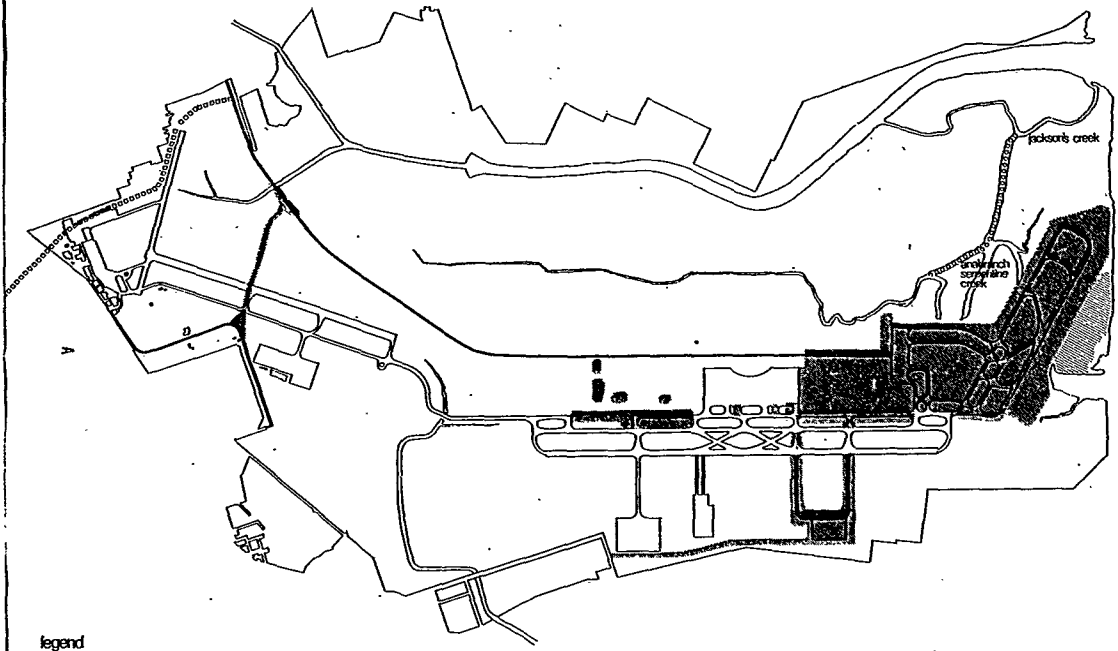
9. THE COMMITTEE IS CONCERNED THAT THE PUBLIC INFORMATION PROGRAM DID NOT PROVIDE INFORMATION ON THE MASTER PLAN AS PUT BEFORE THE COMMITTEE. 83

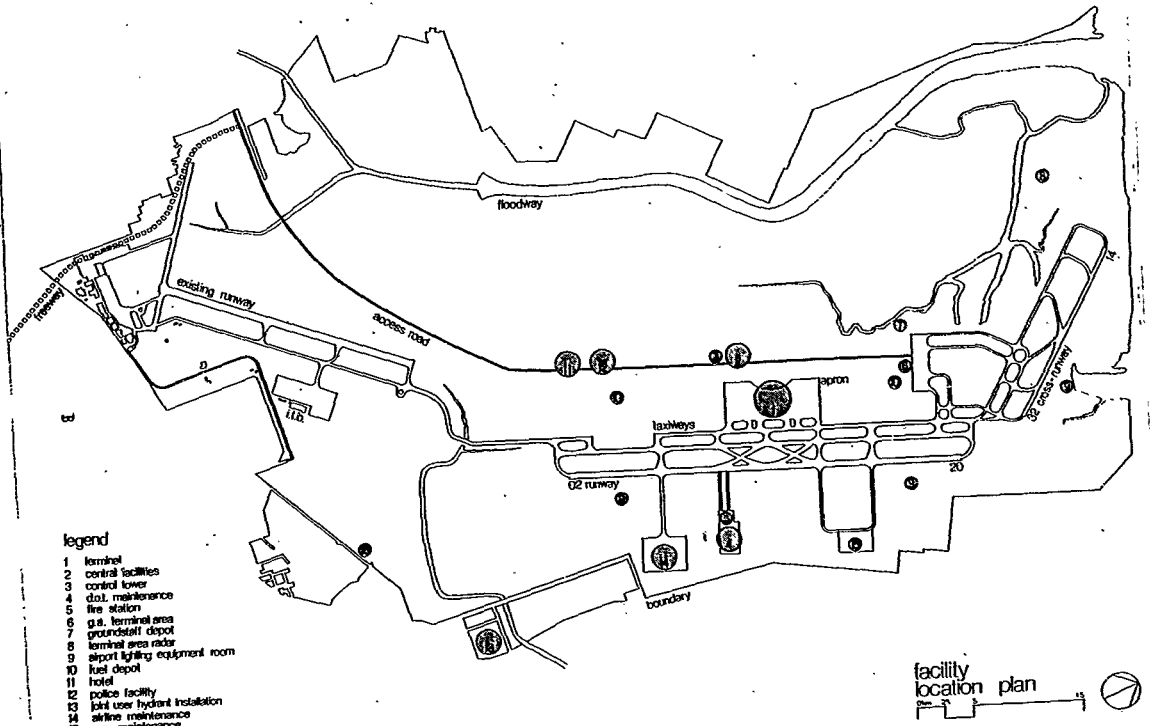
10. THE LIMIT OF COST OF THE PROPOSAL WHEN REFERRED TO THE COMMITTEE WAS $16M AT FEBRUARY 1981 PRICES. 92

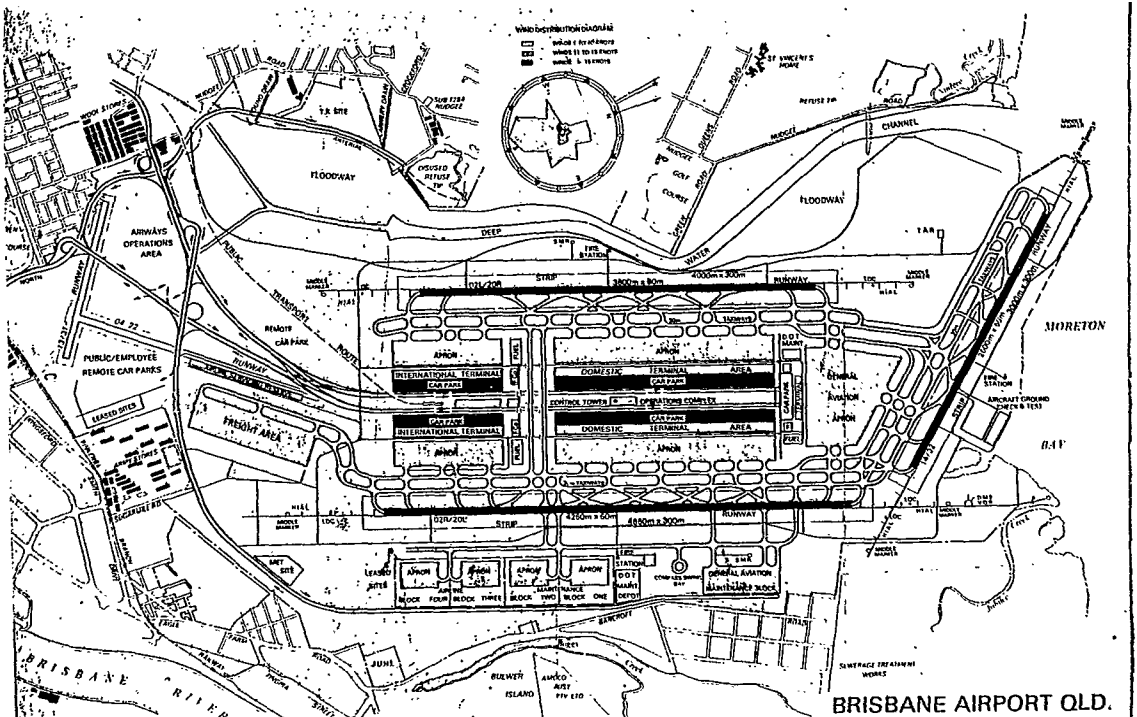


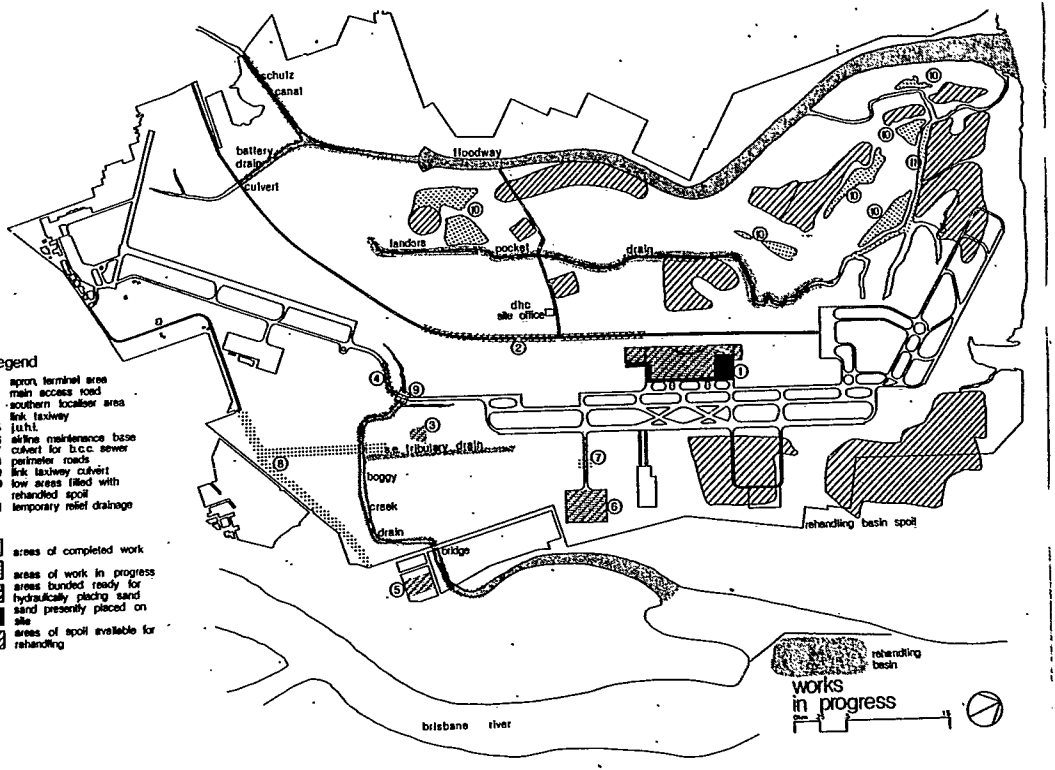
(M.H. BUNGEY)
Chairman

Parliamentary Standing committee on Public Works,
Parliament House,
CANBERRA.
22 October 1981.


jacksons creek
brodribb
somerville
creek
legend
drainage channel
floodway spoil from cross runway site
sand fill
reclamation and
drainage plan


floodway
existing runway
access road
freeway
apron
taxiways
02 runway
02 cross-runway
20
boundary
legend
1 terminal
2 central facilities
3 control tower
4 d.o.t. maintenance
5 fire station
6 g.a. terminal area
7 groundstaff depot
8 terminal area radar
9 airport lighting equipment room
10 fuel depot
11 hotel
12 police facility
13 joint user hydrant installation
14 airline maintenance
15 g.a. maintenance
16 meteorological facility
facility location plan


WIND DISTRIBUTION DIAGRAM
AIRWAYS OPERATIONS AREA
PUBLIC/EMPLOYEE REMOTE CAR PARKS
LEASED SITES
FREIGHT AREA
REMOTE CAR PARK
TRANSFER ROUTE
FLOODWAY
DEEP WATER CHANNEL
TAR
STRIP
3800m x 80m
4000m x 300m
RUNWAY
07L/25R
07R/25L
4250m x 60m
4650m x 300m
APRON
INTERNATIONAL TERMINAL
DOMESTIC TERMINAL AREA
CAR PARK
CONTROL TOWER
OPERATIONS COMPLEX
GENERAL AVIATION
AIRCRAFT GROUND CHECK & TEST
FIRE STATION
SEWERAGE TREATMENT WORKS
BULWER ISLAND
AMOCO
MORETON BAY
BRISBANE RIVER
BRISBANE AIRPORT QLD.
PRELIMINARY MASTER PLAN - CONCEPT Q3
AERODROME LAYOUT
HD 5320 Sheet 1 Issue 1 7.81
DRAWING Nº1


schulz canal
battery drain
culvert
floodway
landora
pocket
drain
dhc site office
s.e. tributary drain
boggy creek
drain
bridge
rehandling basin spoil
rehandling basin
works in progress
brisbane river
legend
1 apron, terminal area
2 main access road
3 southern localiser area
4 link taxiway
5 j.u.h.l.
6 airline maintenance base
7 culvert for b.c.c. sewer
8 perimeter roads
9 link taxiway culvert
10 low areas filled with rehandled spoil
11 temporary relief drainage
areas of completed work
areas of work in progress
areas bunded ready for hydraulically placing sand
sand presently placed on site
areas of spoil available for rehandling