DEPARTMENT OF THE SENATE
PAPER NO. 1457
DATE PRESENTED 10 APR 1963
Clerk of the Senate

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS

R E P O R T

relating to the proposed extension of the

STOKES HILL WHARF

and the provision of an

ADDITIONAL CARGO SHED

at

DARWIN, NORTHERN TERRITORY.

CONTENTS.

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

ADDITIONAL WHARF FACILITIES AT DARWIN

REPORT.

By resolution on 7th November, 1962, the House of Representatives referred to the Parliamentary Standing Committee on Public Works for investigation and report, the proposal to extend the Stokes Hill Wharf and to provide an additional cargo shed at Darwin, Northern Territory. The Committee have the honour to report as follows:-

GENERAL.

1. The Committee visited Darwin where existing wharf facilities were inspected. Evidence was heard from local citizens and representatives of organisations in Darwin interested in the port facilities, including representatives of Commonwealth Government departments and instrumentalities.

EXISTING WHARF INSTALLATIONS.

2. Wharf installations at Darwin are Stokes Hill Wharf, Fort Hill Wharf and the Boom Wharf. There is little use for the Boom Wharf at present and development of port facilities are planned on the basis of extending Stokes Hill Wharf and ultimately joining it with Fort Hill Wharf.

3. Stokes Hill Wharf. Stokes Hill Wharf provides 603 feet of berthage on the outer face and 400 feet on the inner face. It is 140 feet wide. At low tide there is approximately 32 feet of water at the outer berth and 15 feet at the inner berth.

4. Erected on the wharf is a cargo shed 320 feet long by 60 feet wide. There is a curved approach to the wharf approximately 1000 feet long.

5. Proposals to extend wharf facilities at Darwin were examined by the Committee in 1924, 1927, 1949 and 1955. It was while the Stokes Hill Wharf was being built to 603 feet in 1954 that a further reference was made to the Committee involving the extension of the wharf to 800 feet and the provision of a second cargo shed. The extension of the wharf and the erection of an additional shed were recommended but the work has not been carried out.

6. Fort Hill Wharf. Fort Hill Wharf is 350 feet long and 50 feet wide and at low tide there is 25 feet of water. The wharf, which is being rehabilitated at the present time, is used as a tanker berth; for the

cattle trade; and for the handling of dirty, homogeneous and bulk cargoes where the draft permits.

7. Boom Wharf. The Boom Wharf, which was constructed for defence purposes, has been turned over to the Northern Territory Administration on a permissive occupancy basis. It is 210 feet long and 30 feet wide and has only 5 feet of water at low tide. The depth of water prevents the wharf being used but with dredging it could be put to good use.

THE NEED FOR ADDITIONAL WHARF LENGTH AND CARGO SHED SPACE.

8. During the eight years that the Stokes Hill Wharf has been in use the volume of cargo and the size and frequency of ships visiting Darwin have increased.

9. Vessels Calling at Darwin. The newest ship of the Western Australian State Shipping Service, which maintains a regular service to Darwin, is the "Kangaroo" and this ship is 330 feet long. Other ships which visit Darwin include "Bulwarra", "Koojarra", "Pinebank", "Windarra", "Burnside", "Ping An", "Dorrigo", "Laganbank" and "Thistleroy". "B" Class vessels now trading to Darwin from the eastern coast exceed 400 feet in length. An indication of the likely development of an avenue of tourist trade was given by the visit to Darwin, a few days before our arrival there, of the "Orcades" with some 1100 tourists. Such a development would emphasise the need for additional berthage.

10. The Increase in Cargo. Cargo handled across Stokes Hill Wharf in 1956/57 amounted to 68,000 tons and the quantity increased to 85,000 tons in 1961/62. It is expected to be 108,000 tons in 1962/63 and 135,000 tons by 1966/67.

11. Inadequacy of berthage. With the trend towards the use of larger vessels in and out of Darwin it is becoming increasingly necessary for them to be moored in such a way that they overhang the wharf to a considerable degree. As an example, when "Pinebank" and "Burnside" were berthed together in October, 1962, they overhung the wharf by 150 feet at each end. This results in unsatisfactory, and, under severe conditions, unsafe mooring arrangements.

12. Owners of ships calling at Darwin have been prepared to accept congestion and inconvenience in order to reduce delays to their ships but this is not satisfactory. At times ships have been able to work only two of their hatches and this adds to the delays. The result is that between July 1961 and November 1962 ships have been delayed in the stream for a total of 27 days, 9 hours. At an operating cost ranging between £800 and £1400 per day, losses involved are considerable.

13. Inadequacy of cargo space. It is not only the limited berthage which delays ships at Darwin. Despite every effort to move cargo quickly through the shed, its capacity is insufficient to handle the accumulated cargo not immediately delivered. Ships therefore are unable to discharge cargo at their full capacity and they remain alongside longer than would otherwise be necessary.

14. Reference was made in evidence to the poor facilities which some shippers have to receive their consignments. Although some congestion in the cargo shed results from this, improvement in this direction will not make a significant contribution to the solution of the problem. We were told that some shippers are taking steps to improve their capacity to receive goods.

15. With two ships working there is congestion in the cargo shed and on the wharf deck surrounding it. The result is that cargo must be manoeuvred in confined spaces and the possibility of accident is present.

16. The cargo shed is inadequate for the goods which are handled at the wharf now. With the expected increase in cargo the outcome, unless relief is provided, can only be more congestion and more costly delays in the turn-round of ships.

17. Alternative Berths. Inquiries were made about the possibility of using either Fort Hill or the inner berth at Stokes Hill. Fort Hill offers no solution, for it does not have the storage space for general cargo while the use of the inner berth at Stokes Hill would only add to the congestion which already occurs. In addition the inner berth side of the shed is not designed for the reception of cargo from ship to shore.

18. The Committee are satisfied that there is a need for

additional berthage and for additional shed space to handle the increasing shipping traffic to Darwin.

THE PROPOSED WORK.

19. To provide the additional berthage and cargo space needed, it is proposed to extend the Stokes Hill Wharf and to erect a new cargo shed on it.

20. Wharf Construction and Materials. The Stokes Hill Wharf is now 603 feet long and when the extensions are completed it will provide a berth 700 feet long. Extension of the wharf is to be in a westerly direction.

21. The work proposed therefore, involves the construction of approximately 100 feet of wharf and this will be 160 feet wide. The existing wharf is 140 feet wide so the extension will form a knuckle on the inner face. The purpose of the additional width is to permit a wider cargo shed than the existing one to be erected.

22. The wharf extension will be of reinforced concrete decking supported by a steel superstructure resting on 18 inch diameter steel tubular piles filled with concrete. The superstructure will be rolled steel joists welded to the piles.

23. The piles will be driven, open ended, into the shaly bottom and will be filled with concrete after being pumped out. Pile bents will be braced transversely and longitudinally with steel bracing welded to the piles. All steel used in the wharf and cargo shed will be mild steel.

24. The piles will be cathodically protected to minimise corrosion. Above mid-tide level, where this type of protection is ineffective, steelwork will be protected with high grade tar-pitch enamel.

25. Construction of the extension will differ from the existing wharf only to the extent that the latter has a timber deck which, although less costly, has proved to be unsatisfactory and expensive to maintain. The timber decking will ultimately be replaced but this cannot be undertaken while wharf space is so limited.

26. Fendering. It is proposed to use timber fendering to protect the wharf face, with rubber buffers between the timber fenders and the steel.

27. Under certain weather conditions in Darwin it is necessary to traverse ships along the face of the wharf in getting them into and out of the berth. Coupled with this there is displacement of ships of up to 26 feet due to rise and fall of the tide. There is thus movement of ships against the wharf both vertically and horizontally and not inconsiderable damage can be caused.

28. We believe that the proposed method of fendering should be given further consideration to ensure that this is the best way of protecting the wharf structure. The possibility of the use of spring piling should not be overlooked.

29. Wharf Width. It was suggested in evidence that, as part of this proposal, the additional width of 20 feet of the wharf extension should be carried back over the whole length of the wharf, by adding 20 feet to the inner face of the existing structure. This would add approximately £80,000 to the cost of the work proposed.

30. The knuckle which would be formed by the wider end to the wharf is not expected to present any berthing problems; in fact it was suggested that advantages would result from being able to warp a vessel around the corner fender, which is not now possible.

31. The advantage seen in the additional width along the whole of the inner face was the relief it would afford to the problem of manoeuvring vehicles and handling cargo at the discharge or inner berth side of the shed.

32. The additional cargo shed proposed will ease congestion on the wharf and the inner face offers little attraction as a regular third berth when the outer face is fully occupied. We believe the question whether the existing wharf be widened by 20 feet should be left until the next stage of port development by which time experience will show whether it is necessary.

33. Additional Open Deck Space. The Committee gave consideration to the possibility of decking an area of approximately 8,000 square feet formed by the space between the branch in the access roadway. This area would provide useful stacking space for such items as wharf gear, pallets or rough cargo.

34. The cost of approximately £80,000 to carry out this work prevents its inclusion in the development proposed at this stage. The possibility of decking in the area should be considered when the next stage of development is being planned.

35. Proximity of Fort Hill Wharf. Evidence was given that extension of the Stokes Hill Wharf in a westerly direction should not be made beyond the 700 feet now proposed, owing to the proximity of the Fort Hill Wharf. The distance between Fort Hill Wharf and the proposed extension of Stokes Hill Wharf is 380 feet and any further extension would reduce the distance between the end of it and a ship berthed at Fort Hill below reasonable limits. This would be accentuated in the event of a ship loading iron ore from a fixed gantry at Fort Hill for it might have to move as much as 350 feet along the wharf to load all its holds.

36. Advice given to us was that the strong tidal flow of up to 4 knots makes it impractical to provide additional berthage by development in a southerly direction in the form of fingers from the existing wharf, for this would result in ships berthing across the tidal flow.

37. There is a possibility of further extending the Stokes Hill Wharf in an easterly direction but such an extension would be limited to some extent by depth of water.

38. It was therefore necessary for us to be satisfied that the work proposed will not jeopardize future development of port facilities at Darwin.

39. Advice given to us was that the long range plan is for the Stokes Hill and Fort Hill wharves to be joined and for bulk handling facilities to be developed elsewhere. This will involve consideration of the treatment of the foreshores in the area which will become enclosed by the joining of the two wharves.

40. In the belief that future development, which envisages joining the Stokes Hill and Fort Hill wharves, will not be jeopardized, the Committee agree that the wharf should be extended to 700 feet in a westerly direction.

41. Cargo Shed Construction and Materials. The cargo shed will be 230 feet by 80 feet and will provide sufficient space for stacking some 1,800 tons of general cargo. This is 20 feet wider than the existing shed but it is not as long and the two sheds will have almost the same area.

42. The shed will be of steel frame construction with galvanised iron roof and walls. A heavy timber or precast concrete dado will surround the shed. Offices for the port administration and toilet, shower and amenitites facilities for tally clerks and foremen will be included in a two storey section of the shed.

43. Doorways. A number of suggestions were made to improve the facilities for loading trucks on the discharge side of the shed. At present the sliding doors in every second bay only, limit the number of vehicles that can load at the same time. Provision of a loading ramp outside the shed wall would be at the expense of shed space.

44. High maintenance costs render it inadvisable to use roller doors although they would permit opening, and hence loading, at each bay. The possibility of using "glide-away" or overhead slung doors is being examined and we recommend serious consideration of the use of these as a means to provide more points of access.

45. Canopy. For protection against sun and rain it is proposed to erect a canopy on the inner face side of the cargo shed. As designed, it slopes upward from the shed wall and this is necessary if obstructing downpipes are to be avoided.

46. It does appear however that the canopy could be lowered, widened and set at a smaller angle to the horizontal and we recommend that the plans be reviewed accordingly.

47. Joining of Sheds. It was suggested that the space between the existing and proposed sheds might be roofed over and the upper floor space be used for offices. Because of the fire hazard it is standard practice to keep sheds apart and the Chairman of the Commonwealth Fire Board could not recommend the joining of the sheds.

48. Subject to the minor modifications suggested the Committee recommend construction of the cargo shed as proposed.

49. Estimates of Cost. The estimated cost of the proposed work is £430,000 comprising £76,000 for the cargo shed and £354,000 for the wharf extension.

COLD STORAGE.

50. We heard a considerable amount of evidence from witnesses who stressed the need for the provision of a cold store on the Stokes Hill Wharf.

51. This could only be achieved by reducing the amount of cargo space available or by extension of the Stokes Hill Wharf in an easterly direction. To reach a conclusion about the economies of such a scheme would have involved the Committee in extensive inquiries which, we felt, would have taken us beyond our terms of reference.

52. We realise how important cold store facilities are to people concerned with the possibility of the export of frozen meat but we believe that we would need to have a separate reference if the subject is to have the Committee's attention.

53. As a consequence the Committee have not taken the subject of cold storage into account in their deliberations.

FUTURE DEVELOPMENT OF PORT FACILITIES.

54. Reference has already been made to our concern whether the present proposals would have any detrimental effect on future development of port facilities in Darwin. We were made particularly conscious of this by the opinion expressed that to extend Stokes Hill Wharf in a westerly direction would leave no alternative but to achieve further development by joining Stokes Hill and Fort Hill wharves.

55. This is in accord with the plan for the development of the port. It will give considerable berthage with access from both ends of it.

56. Bulk Handling. The joining of the two wharves would result in Fort Hill Wharf being no longer available for bulk handling. The Committee do not see this as a handicap as the berth is too close to Darwin for use as an ore loading wharf.

57. Good anchorage is available in the East Arm and it is here that bulk handling facilities could be developed if the need arises. It has the advantage of being closer to ore deposits, would do away with the need to take cargo through the town and is so located that prevailing winds would not carry contamination into Darwin. The area would also be suitable for an oil berth either in the form of a dolphin wharf or an installation like an "Immodoc" buoy.

58. Small Ships. With the joining of the two wharves, small trading vessels such as mission ships will be deprived of their existing berth at Stokes Hill. A wing of the Fort Hill Wharf could provide an alternative berth, or the Boom Wharf, could, with dredging, be made suitable.

59. The Committee have had sufficient evidence to be satisfied that the Darwin Harbour offers ample scope for future development.

60. If the development of Darwin continues at the present rate, it will not be long before the improved wharf facilities expected to result from the proposal before us will again become inadequate. Future development should be so timed to avoid repetition of the present congestion.

SUMMARY OF RECOMMENDATIONS AND CONCLUSIONS.

61. The recommendations and conclusions of the Committee, arrived at after studying the evidence submitted, are set out below. The number quoted alongside each conclusion or recommendation refers to the relevant portion of the report.

	Paragraph in Report.
(1) Unless relief is provided at Stokes Hill Wharf more congestion and more costly delays in the turn-round of ships will result.	16
(2) There is a need for additional berthage and additional shed space to handle the increasing shipping traffic to Darwin.	18

		Paragraph in Report.
(3)	Further consideration should be given to the proposed method of fendering.	28
(4)	The question whether the existing wharf length should be widened by 20 feet should be left until the next stage of port development.	32
(5)	The possibility of decking the open area formed by the branch in the access roadway should be considered when the next stage of development is being planned.	34
(6)	The strong tidal flow precludes development of berths in the form of fingers from the existing wharf in a southerly direction.	36
(7)	Stokes Hill Wharf can be extended in an easterly direction, although limited by depth of water.	37
(8)	The long range plan involves the joining of Fort Hill and Stokes Hill wharves and the development of bulk handling facilities elsewhere.	39
(9)	The wharf should be extended to 700 feet in a westerly direction.	40
(10)	To provide more points of access to the discharge side of the cargo shed, the possibility of using overhead slung, rather than sliding doors should be considered.	44
(11)	The canopy proposed for the inner face of the cargo shed should be lowered, widened and set at a smaller angle to the horizontal.	46
(12)	Because of the fire hazard which would result, the existing and proposed sheds should not be joined.	47
(13)	Subject to the minor modifications suggested the Committee recommend construction of the cargo shed as proposed.	48
(14)	The estimated cost of the work proposed is £430,000.	49
(15)	To reach a conclusion about the provision of cold storage on the wharf would have involved enquiries beyond the terms of reference.	51

		Paragraph in Report.
(16)	The important subject of the provision of cold storage would require a separate reference.	52
(17)	Darwin Harbour offers ample scope for future development of harbour facilities.	59
(18)	Future development should be so timed to avoid repetition of the present congestion.	60

R. L. Dean.

(R.L. DEAN)
Chairman

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

18 FEB 1963