



COMMONWEALTH OF AUSTRALIA

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

R E P O R T

Relating to the Proposed

Extension of

WHARF FACILITIES

at

DARWIN, NORTHERN TERRITORY.

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DARWIN WHARF.

R E P O R T .

The Parliamentary Standing Committee on Public Works, to which His Excellency the Governor-General in Council referred, for investigation and Report thereon to the House of Representatives, the question of the adequacy or otherwise of wharf facilities being now provided at Darwin, Northern Territory, has the honour to Report as follows:-

S E C T I O N I.

I N T R O D U C T O R Y.

EARLY HISTORY.

Original Wharfage Facilities.

1. The original jetty constructed by the South Australian Government at Darwin in 1887 was of timber, and it occupied a position at the foot of Stokes Hill. It was built on a curve so that a railway locomotive could bring trucks alongside ships using the jetty. After a few years it became badly eaten by teredo and had to be demolished.
2. In 1894 a proposal was made that a stone wall should be built along the line of the edge of the mud bank between Fort Hill and Stokes Hill. However, this scheme, which involved a wall of some 60 feet in height, was condemned by the Engineer-in-charge of Railways, South Australia. Subsequently in 1904, a new jetty was built at the foot of Stokes Hill with construction of cast iron piers filled with concrete, and with steel bracings and timber deck. Some of these piers are still in good order today.
3. In 1923 one of the narrow gauge railway tracks on the approach jetty was removed and a cattle-race substituted to facilitate the loading of live cattle which at that time were becoming an important item of export. The approach, with the jetty, formed the shape of a letter L, and had a turn-table at the corner, worked by a steam engine, capable of handling two trucks at a time, in order to convey trucks to and from the ships at berth.
4. The jetty was partly destroyed in 1942 by Japanese bombing, and was subsequently repaired by the erection of steel spans across the damaged portion.

Additional provisions.

5. During the war a timber jetty, situated on the opposite side of the bay to the town jetty, was built as an emergency wharf to handle large ships. The timber piles were not treated, and became damaged by teredo in course of time. It was repaired after the war, with the hope of prolonging its life until a new wharf was completed at Stokes Hill.

The Early Investigations.

6. Public Works Committee's Reports. - Reports in connection with wharfage facilities at Darwin have been made by the Parliamentary Standing Committee on Public Works in 1924, 1927, 1949, and a great deal of information regarding past inquiries and experience is available in the evidence taken during those investigations.

7. Sir William Clarkson's Proposal. - In July, 1923, investigation was made of a proposal submitted by Engineer Vice-Admiral Sir William Clarkson for the construction of a new wharf for Darwin. It was to be a solid wharf running south-westerly from the point of Stokes Hill, a few feet shorewards of the mud bank between Stokes Hill and Fort Hill. The Committee recommended that the proposal be not approved.

8. Mr. J. F. Ramsbotham's Proposal. - In 1924 it was decided to obtain a report on harbour improvements from the Director, Commonwealth Lighthouse Service, and a proposal on the lines of his recommendations was referred to the Committee for investigation. The scheme was designed to give improved facilities to meet all shipping needs of Darwin, and it aimed at systematic development in successive stages of the whole of the bay between Fort Hill and Stokes Hill. Construction was to be of reinforced concrete caissons with a concrete wall on top, and it was to provide two docks comprising seven quays, with a total quayage of 6,190 feet. The Committee did not consider that the existing or immediately prospective trade of the port warranted any additional wharfage construction at that time.

9. Sir George Buchanan's Suggestions. - During the progress the Committee's investigation of the proposals by Mr. Ramsbotham, the Government took advantage of the visit to Australia of a prominent British Engineer, Sir George Buchanan, to seek additional advice in regard to the

provision of modern port facilities for Darwin. He expressed some criticism of certain parts of Mr. Ramsbotham's proposals, and suggested two alternatives, in which construction was designed to be of steel cylinders filled with mass concrete, and steel superstructure of substantial construction, the decking being of steel troughing filled with mass concrete. These proposals were rejected because the Committee considered that the cost was much higher than was warranted at that time.

10. The Port Equipment and Development Committee. - During the 1949 inquiry the Committee was informed of the activities of the Port Equipment and Development Committee, set up during the war to assist in war-time problems and port difficulties. Amongst other matters, it produced a report on the Post-War Development of the Port of Darwin. The report dealt at length with all the possible needs of Darwin as a port, and was based on an estimated population of 25,000. The design recommended was for a tapering, solid filled pier, to be constructed in three stages, of hollow reinforced concrete caissons filled with sand for the faces providing the berths suggested, the filling to consist of material excavated from the bay by a suitable dredge. The suggestions made for this proposal were put forward as being dependent upon certain conditions indicated in the report, and it was subsequently submitted to the Public Works Committee that some of the assumptions were made on wrong premises, with the result that the 1949 cost of the caisson type of wharf would be approximately three times the estimate submitted for it. In consideration of this and a number of other important factors, it was agreed that the caisson type of wharf was not suitable for Darwin at that time.

11. The 1949 Inquiry.- After a very full inquiry the Committee recommended the erection of the first two stages of a three-stage proposal for a wharf 650 ft. long, constructed of steel piles supporting structural steel girders and timber decking. The wharf was to have a curved approach from Stokes Hill, and the site was selected with a view to future additions into deeper water if it became necessary at any future time.

SECTION II.

THE PRESENT PROPOSAL.

Extensions to New Wharf.

12. Owing to the rapid development of the Northern Territory, following the discovery of uranium and the resultant activity in various kinds of mining ventures, as well as important progress in some of the agricultural expansion undertaken in recent years, the question of the adequacy of wharfage facilities in Darwin has become urgent, and the matter was referred to the Public Works Committee for inquiry. As a result of the Committee's 1949 reference a new wharf is being built at Darwin, with a length of 603 ft., and one transit shed for handling of cargoes on the wharf. In order to provide for more efficient handling of the volume of shipping now using the port, and for expansion which might be expected under the present conditions, a proposal has been submitted to immediately increase the length of the wharf under construction to a total of 800 feet, and to erect a second transit shed on the wharf. The proposal also envisaged further development of the port in the future, while suggestions for complete development at a later date were also included in the evidence.

Cost.

13. The extension of Stokes Hill wharf to a total length of 800 feet and 140 feet wide, with another cargo shed of equal capacity to the first one, was stated to be £350,000 for the wharf, and £40,000 for the shed, a total of £390,000.

SECTION III.

THE COMMITTEE'S INVESTIGATIONS.

General

14. The Committee took evidence from officials of the Department of Works submitting the proposal, studied the plans and diagrams relating to the work, and considered the large volume of information existing in connection with previous inquiries regarding the provision of wharfage facilities in Darwin. A visit to Darwin, in connection with this and other references, gave the Committee an opportunity to secure local knowledge of the matter, and to inspect the site as well as the construction now being undertaken

on the new wharf. The Committee made every effort to obtain first hand information regarding the development taking place in Darwin and the Northern Territory generally, and to form opinions regarding the possible requirements of the Port as a consequence.

The Existing situation.

15. The immediate situation is extremely difficult, owing to the fact that construction which is proceeding on the new wharf makes it necessary for all ships to use the Fort Hill Wharf, which has no cargo shed, and goods have to be taken round to the shed at Stokes Hill. When the Committee was in Darwin one ship with substantial amounts of cargo had to anchor for several weeks while another ship was taking on cargo at the wharf. In the some commodities in Darwin became very scarce, and, in addition, meantime, it was stated that the costs being incurred all the time would amount to over £300 per day, consequently increasing the cost of goods in the town. It was realized, however, that there were exceptional conditions which would not exist when the new wharf is completed.

16. Wharves available. - During the Committee's visit, inspections were made of all the wharves and harbour facilities at present existing in the harbour. In addition to the new wharf under construction, to take the place of the old Town Jetty, there is the Fort Hill wharf, formerly called the Timber Jetty erected during the war, and this has to bear the whole burden of cargo discharged from the larger ships at the present time. When the new wharf is completed, about the end of this year, or early next year, the Fort Hill Wharf will be available to provide a berth for oil ships, an extra berth when required, and also will be of increasing use for the Navy.

17. The Navy also has the Boom Jetty, a small concrete structure built to handle boom equipment, but it is occasionally used by some of the smaller cargo ships during the present difficult times. Owing to the shallow water the ships can only make use of it by discharging some of their cargo at the Fort Hill Wharf, and then transferring to the Boom Jetty, allowing the Fort Hill Wharf then to be used by another ship.

18. There also exists what is known as the Refitting Jetty, but this has reached a stage when it is no longer safe to use it, and the Navy is making plans for replacing it. In the meantime, the Navy has to use the Fort Hill Wharf, if it is available, or keep the ships anchored in the Harbour.

The Wharf under Construction.

19. The new Stokes Hill wharf now in an advanced stage of construction is to provide an outer berthing face 603 feet long. The 1949 Committee's recommendation for a wharf 650 feet long was reduced to 500 feet, after consideration by a conference of shipping representatives and departmental officers, convened by the Minister for Shipping and Transport. This conference considered that 500 feet would provide a berth for one overseas ship, and, by the use of a dolphin at the western end, allow two interstate ships to tie up simultaneously. Work on the new wharf was started in January, 1953, and it was to be 500 feet long, comprising 400 ft. of 140 ft. width, giving an inner berth of that length, and the remaining 100ft. to be 40 ft. wide. The work was authorised at an estimated cost of £650,000.

20. Following strong representations by the Harbour Master late in 1954, the Department of Territories decided to extend the front apron of the wharf to a length of 600 ft. instead of 500 ft. This would use the space between the wharf and the dolphin, and make it possible to discharge cargo from both holds when two interstate ships were berthed at the wharf, instead of discharging one hold at a time.

Completed facilities.

21. On completion of the Stokes Hill Wharf contract, the port of Darwin will have the following facilities:-

Stokes Hill Wharf, 603 ft. on front face with depth of water of 32 to 38 feet; 400 ft. long on rear, width 140 feet, and depth of water 17 to 20 feet. Railway connection with two tracks on wharf apron. Road connection with width sufficient for two vehicles to pass. Cargo sorting shed 320 ft. x 59ft with doors 20 ft. wide by 18ft. 6ins. high, front and rear. Loading platform at rear of shed, 3 ft. high. Provision is made for installation of travelling portal cranes on the wharf apron if required later. Amenities comprising dining room, locker room, showers, and lavatories are included in the cargo shed. Three Navy oil lines and 5 fuelling points are provided on the wharf.

22 Fort Hill Wharf. - Berthage of 345 feet on front face with depth of 26 to 30 feet of water. Buoys are provided fore and aft for head and

stern lines. Rear of the wharf is suitable only for small craft. Road traffic only is provided on this wharf, as rail access is impracticable. No cargo shed is provided on the wharf, and cargo has to be hauled to the sorting shed in the railway yard at Stokes Hill. Portable loading platforms and mobile cranes are sometimes used. All discharge of cargo is by ships' derricks. A rather inadequate amenities shed is built on the wharf. Navy oil lines and Shell Co. line for white spirit are provided on the wharf.

23. The Boom Wharf. (Naval). - Berthage 210ft. with 10 to 13ft depth of water. Dolphin for stern lines. Only road transport can be used for civil purposes. Cargo must be hauled to the Stokes Hill railway shed for sorting. Mobile cranes only are used, and only primitive amenities exist at the rear of the wharf.

24. The Refitting Jetty (Naval). - This is not fit for further use and no definite information is available regarding its early replacement.

Future Needs.

25. Cargo handled. - A great deal of information was collated in connection with the amount of cargo being imported and exported over the Darwin wharves, and various figures are available in respect of differing periods of time. An idea of recent activity at the port may be gained by quoting figures supplied in respect of 1953-54 for tonnages landed in Darwin:-

ex Eastern States	19,260 tons
ex Western Australia	13,283 "
ex Overseas	<u>42,900 "</u> (including 30,000 tons of oil)
	<u>75,443 "</u>

26. The average total tonnage inwards since 1949 has been 62,000 per annum, including oil, having increased from 29,000 tons in 1938-39. Cargo handled over the Darwin wharves is almost wholly inwards, but a certain amount of export cargo will develop in connection with the expanding mining activities, though the amounts of uranium oxide to be sent away are expected to be comparatively small. The Committee received information in great detail of the extent of the mining operations, but it was stated that, in general, the greater part of the mineral production leaves the Northern Territory through Alice Springs. It is mainly comprised of copper, gold and wolfram. The exports through Darwin consist of uranium oxide and

copper concentrates from Rum Jungle, with tin ore and concentrates from Naranboy. An estimate of the concentrates likely to pass through Darwin places the amount at approximately 2,000 tons per month, a ship load being in the vicinity of 2,800 tons. The possibility of some of this going by air was also raised.

27. The possibility of considerable increase in rice growing could affect the outward freights, but that would be an advantage in a port where most of the cargoes are imports. The prospects appear bright for rice growing, but it will be some time before actual results will be available to prove the optimistic forecasts put forward.

28. Total shipping. - The Committee obtained figures from various witnesses concerning the number of ships arriving in Darwin and expected during the year. In 1950-51 there were 21 ships, and the number increased each year to 45 in 1953-54, while there were 53 arrivals in the first 11 months of 1954-55.

29. A dissection of the figures shows that, during the last full year, 1953-54, there were 30 cargo ships from the West coast, 7 from the Eastern States, three from overseas, and 5 oil tankers. They spent a total time in port of 384 days, and, as only a single berth was available owing to construction work on the new wharf, the vessels were able to be alongside the wharf for a total of 327 days only, leaving 57 days during which vessels waited in the stream for berthage.

30. Essential provisions. - It would appear from the above details that with berthage for two West coast ships and one overseas ship or oil tanker available (which will be the case when the new wharf is completed according to the present plan), adequate berthage is provided to meet the present and immediate future requirements. On closer investigation, however, it is found that this berthage would only be adequate under certain conditions when up to three vessels were in port at once. Only if all of the following three sets of conditions applied could the port work satisfactorily:-

(1) The vessels in port would have to be -

(a) two small West coast vessels - (average length approximately 290ft.), and one oil tanker (up to 8500 tons), or one overseas or Eastern States vessel of approximately the same tonnage;

(b) one oil tanker and one overseas vessel or Eastern State ship;

(c) one overseas vessel and one Eastern State ship;

(2) A time table of arrivals could be worked out and maintained

and (3) Cargo could be cleared as fast as it is discharged.

31. It is not practicable to arrange the business of the port under the above conditions, and delays therefore occur in berthing, with the result that, not infrequently, ships have to wait for long periods, or leave Darwin without completing the discharge of Darwin cargo.

32. Owing to the possibility of congestion in the port, overseas vessels are not prepared to make Darwin a port of call, and bulk importations have to be off-loaded at Fremantle or Eastern States for shipment on smaller vessels to Darwin.

33. It is accordingly shown that adequate provision has not been made for all of the present inward cargo to Darwin. There also seems little doubt that, with the promise of considerable expansion in various activities in the Northern Territory, there must be additional tonnages to swell the total of imports, and to increase the number of occasions when congestion will be experienced on the wharves. The proposal has therefore been made that it is immediately necessary to complete the whole of the new Stokes Hill Wharf and to extend it by 200 feet in a South Westerly direction, to provide two major berths at this wharf; and that this extension be 140 ft. wide, with a second sorting shed erected upon it.

Additional Factors.

34. It appears plain to the Committee that, to eliminate delays and ensure the quickest turn-around of ships and discharge of cargoes, it would be necessary to provide the extra 200 feet of wharf and second sorting shed. There are other factors, however, which have to be weighed before a balanced judgment can be arrived at in this matter.

35. Peak periods. - While it is desirable to provide for the most efficient discharge of cargoes possible, it would be very costly and uneconomical to erect wharves to cope completely with peak periods to be inevitably followed by considerable spells of disuse for some sections of the facilities in normal and slack times.

36. Wharf Labour. - This is closely tied to the efficient and satisfactory use of wharf labour. The present port quota of 133 men would have to be increased if an additional berth were to be provided, and the simultaneous unloading of three ships were to be allowed for. An addition to the port quota would be desirable from all points of view if all the berths were constantly occupied, but, if substantial periods occur when the wharves are not fully used, a large number of men will be receiving attendance money. This would result in uneconomical use of the wharves, high unloading costs, and smaller aggregate annual wages for the men.

37. The employment position at present in Darwin is favourable and there has been no difficulty in recruiting additional workers recently. This is probably largely due to the fact that aggregate wages are sufficiently high to attract men to the work on the wharves. The Committee was informed that the average income for the year ended 30th June, 1955, was £28.11.6, and the average hours worked were 38.9 per week. If additional gangs were to be employed to work all the ships in port at once, the average wage would be seriously reduced, unless the overall total imports increased sufficiently to balance the additional labour.

38. The Committee's problem. - As a consequence of the factors in involved, it is realised that there must consequently be a reasonable balance between the capital cost, the total cargoes to be handled, and the labour force available, so that ^{the} problem facing the Committee was to decide if the present time is therefore appropriate for an extension of the wharf, or whether the addition of an extra berth at this juncture would be premature, and even result in a different set of difficulties, almost as serious as the existing ones.

39. The Committee studied the matter earnestly, weighed the present position and difficulties in relation to the circumstances likely to operate when the wharf under construction is completed, and also strove to arrive at a balanced judgment of the future requirements likely to be essential when current promises of development become stabilised.

40. In the opinion of the Committee there is no doubt that the completed new wharf will not provide adequately for all the facilities required for Darwin, even though it is pointed out in evidence that the new jetty, having a shed on it will be more efficient and will reduce costs by about 25 per cent. The Committee is also convinced that, with improved facilities additional shipping and larger tonnages of cargo will be offering immediately.

41. The evidence points to the fact that supervision on the wharves at present is not sufficiently effective to ensure the best of results, and, with an improvement in supervision, together with reasonable increases in the labour quota as required, it should be possible to work the port satisfactorily with an extension to the wharf as proposed.

42. The indications of permanent expansion of Darwin are sufficiently impressive to warrant the forecast that increasing tonnages will be realised for some time, and the aggregate to pass over the wharves will grow quickly enough to ensure adequate use of an additional berth. The increasing needs of the Navy for wharfage facilities are becoming critical and are also an important argument in favour of immediate extensions to the wharf.

43. Construction of an additional section to the wharf now nearing completion will be less costly and much more convenient if approved while the contractors have the necessary equipment on the job. It is also considered that the expenditure of the capital sum involved will be economically justified by encouragement of additional shipping, both from Australian ports and from overseas countries. The Committee therefore recommends that the wharf under construction be increased to a length of 800 ft, with a width of 140ft, and that the work should proceed as soon as possible.

44. The second Cargo Shed. - The Committee is satisfied that a second cargo shed is imperative if full use is to be made of the additional length of wharf to be provided, and recommends that the additional cargo shed proposed be included in the project at the estimated cost of £350,000 for the wharf and £40,000 for the shed.

45. Amenities. - The amenities for port workers which will exist when the present construction of the Stokes Hill Wharf is completed will include dining room, locker room, showers, and lavatories in the cargo shed. The

Committee was informed that the facilities are to be included before the contract is completed, and all the amenities will be in accordance with accepted standards. During the evidence, it was represented that work with cement, grain, and other similar cargoes make it necessary for the men to have hot showers on the wharf. The Committee recommends that extra facilities, to cope with the enlarged port quota required for the additional wharf, should be provided in a suitable position, and that the details of the amenities, in conformity with A.S.I.B. standards and N.T. Health Regulations, should be decided upon after consultation with the representatives of the men concerned.

The Fort Hill Wharf.

46. When the wharf under construction at Stokes Hill is completed, it is anticipated that it will still be necessary to use the Fort Hill Wharf frequently until the proposed additions to Stokes Hill Wharf are constructed. The question arose as to whether the Fort Hill Wharf should subsequently be reserved for oil tankers and dangerous cargoes. The Committee recommends that, as the evidence shows that the Navy will require additional use of this wharf, now that its Refitting Jetty is useless, and other ships are also likely to need it from time to time, the use of it should not be restricted during the expected life of that wharf - approximately 15 years.

Port Development.

47. Additional Berths. - While submitting the proposal for extension of the Stokes Hill Wharf to 800 ft., the Department of Works also put forward a plan for future development of the Port. Plan No. HC3713 shows the wharf of 800 ft, providing berths Nos. 1 and 2 now proposed, and it also indicates a possible further extension by 460 ft for a No. 3 berth. This length would extend the wharf to a position where the end of it could be connected to the present approach to the Fort Hill Wharf when that wharf is no longer fit for use. It was pointed out that the reconstructed approach to the Fort Hill Wharf is a permanent structure, though the head of the wharf is of temporary timber construction. The object of the No. 3 Berth in this position is to enable railway connection to be made to Fort Hill in the ultimate plans. Construction of this No. 3 Berth would make it necessary to erect another berth for oil tankers, and the plan envisages a separate oil wharf with berth of 380 ft, connected to Fort Hill, and 200 ft to South West of the

suggested No.3 Berth.

48. This ultimate development of the Port would enable rail traffic to approach the wharf from Stokes Hill and leave via Fort Hill. On the other hand this arrangement would entirely close the Bay, and there would be no possibility of using the inner face of the wharf. An alternative for No.3 Berth was suggested at the approach end of the Stokes Hill Wharf, just south of the present position of the "Neptuna" wreck.

49. The Committee considered the desirability of planning the future development of the Port, and accepts the departmental suggestions as a satisfactory basis for further study of the question. The Committee is of opinion, however, that provision of Berths Nos.1 and 2, with use of Fort Hill Wharf in addition for a number of years to come, will be a sufficient commitment under present circumstances. It is recommended, therefore, that ultimate development of the Port be deferred until progress of the Northern Territory is sufficient to require further major additions to the port facilities.

50. In any case a great deal of special study will have to be given to the matter before a decision is made upon action to completely close off access to the inner face of the two major berths now proposed, and further investigation of tidal flow will possibly demand a variation in the proposed position of the additional oil berth. As the volume of shipping grows it may become desirable in Darwin to employ a permanent tug, by use of which the difficulty, experienced by single screw interstate ships in manouevring to the inner berths, would be largely obviated so that the inner face of the wharf could be used extensively. Experience along these lines will enable a more exact examination of the position to be made in the years to come.

51. A Concrete Wall Wharf. - Further attention was given by this Committee to the proposal, studied by former Committees during the past years, of building a wall of stone or concrete caissons across the Bay from Stokes Hill to Fort Hill, and filling in the remainder of the Bay behind the wall. This has always been regarded as a most desirable method of providing wharfs for Darwin, and most people interested in the development of the Port favour such a scheme. However, there are many obstacles, and each time

it is thoroughly studied the balance of all the factors involved results in discarding the idea in favour of the piled wharves. On this occasion the Committee was impressed with the new possibility of making use of the heavy earth-moving equipment, at present doing spectacular work at Rum Jungle, to fill in the Bay with the material comprising Fort Hill. It was thought that modern equipment might offer a quick and economical method which could turn the scales in favour of this type of wharf. After considering the matter carefully the Committee came to the conclusion that it is more desirable to proceed with extensions to the almost completed Stokes Hill Wharf than to replace it with a concrete wall at this stage. The evidence shows that it will still be possible to construct a concrete wall wharf if required in years to come.

52. Access Road. - It is apparent that the existing road on to the approach of Stokes Hill is inadequate, even at the present time, and will become increasingly congested as the traffic grows on the new wharf. At present it is stated that the only access for both road and rail traffic, for a distance of about a quarter of a mile from the wharf approach, is an 18 foot bitumen road. It is therefore recommended that financial provision be made for the construction of satisfactory approach roads to be constructed when the wharf is being extended.

53. Bulk Storage and Cattle Yards. - It is also necessary that early plans be made for the provision of a Bulk Storage yard in which heavy and bulky cargoes may be stacked and held, pending distribution to consignees. When the Stokes Hill Wharf is completed, and the sorting shed is constructed on the wharf, the present railway sorting shed at Stokes Hill will revert to the Railways, who are in urgent need of it. It will then become more essential still to provide storage space for bulk cargoes, if delays to clearing of cargoes are to be kept to a minimum. The evidence shows that there is a possibility of greatly increased export of live cattle from Darwin, and it will be essential to provide a holding yard near the wharf to facilitate handling and shipment. It will also be necessary to make provision to facilitate the loading of cattle when this trade develops.

54. As there is no land available to widen the access roads, or upon which to construct the necessary storage yards, the Committee sought evidence on the possibility of filling portion of the Bay with material contained in Fort Hill, in order to create some vitally necessary space at this bottle-neck. Although it was decided that it was not advisable to recommend filling in the Bay at this stage on a major wharf construction programme, it was later suggested that Fort Hill might be removed quickly and economically with advantage, to reclaim sufficient of the Bay to provide a useful area. This question was investigated, as it was realised that the removal of Fort Hill would also provide a useful flat space for naval purposes in the Boom yard. As an access road is essential, and a bulk storage area and cattle yard are urgently required, the Committee recommends that action be taken to reclaim an appropriate area of land with the material in Fort Hill as soon as possible at the approximate cost of £110,000. The evidence indicates that there is a possibility of several mines being in some collapsed tunnels, and care will have to be taken to extract the mines before removal of Fort Hill is commenced.

55. Small Ships Berth.- The plan submitted to the Committee indicated the position for a small ships berth projected for construction at a later date. Strong representations were made from the Navy point of view that some provision of this kind should be constructed without delay. Owing to the great variation in tides the wharves are frequently high out of the water, and small ships cannot use the wharves under present conditions, except for some old steps remaining from the original Town Jetty. It was explained that, when aircraft carriers or other large ships have to land personnel, there is no suitable landing place for them, and it is necessary to have a ramp or steps for this purpose.

56. The Committee does not suggest that the Small Ships Berth should be constructed, as shown on the plan, at this stage, but it is recommended that a suitable stairway be added to the present facilities now being provided, in an appropriate position, so that landings may be made to the wharf from small craft, both Naval and civil,

57. Car Parking.- Considerable congestion is apparent near the approach to Stokes Hill Wharf, and there is inadequate space for parking cars and other vehicles near the wharf. The possibility of a pick-up area in this locality was also suggested, and the Committee recommends that immediate consideration should be given to the demolition of the Department of Civil

Aviation building at Stokes Hill, with a view to making a convenient space for car parking, and to relieve the congestion in that locality.

The "Neptuna"

58. The unsightly wreck of the "Neptuna", which becomes most conspicuous at very low tide, was the object of a good deal of comment during the Committee's visit to Darwin, and evidence was taken in connection with the possible effect of it on the wharf and shipping. In past inquiries the desire to have the wreck removed has been over-ruled by the fact that the suggested cost of removal has always been presumed at a figure far too high to be worth accepting. It has been submitted in the past, moreover, that the wreck is in a position which is not likely to affect shipping on the new wharf to any considerable extent. During the present inquiry, however, evidence of a more serious nature was tendered by the Administrator, who had soundings taken to obtain direct indications of suspected developments caused by the presence of the wreck. The opinion is firmly held now, that the "Neptuna" is responsible for a sand bank which has arisen between the Fort Hill Wharf and the inside of the new wharf. There seems very little concrete evidence available regarding this matter, and there seems to have been no actual survey of the wreck to ascertain whether any of the cargo in her holds might have survived the bombings. The ship received a direct hit during the war, and although it was carrying depth charges, there is a strong opinion that they were all exploded when the ship was hit, as all the after end was blown off.

59. It is established that siltation is building up in the lee of the "Neptuna", though there are also other theories which might possibly account for it. The Committee is of opinion that definite steps should be taken without delay to obtain reliable data on the silting, which is taking place; whether there is any dangerous cargo still left in the wreck; and the cost of demolishing this obstacle.

The Estimated Cost.

60. The extension of Stokes Hill wharf, now under construction, to a total length of 800ft. with a width of 140 ft. was estimated to cost £350,000, while an additional cargo shed 320 ft by 59ft. would cost about £40,000. The Committee had these figures in mind when studying the proposal in order

to gauge the economic value of the suggested additions in relation to the projected early development of trade in the port. As a result of its inquiries the Committee recommends that the additions be made to the structure for the estimated total of £390,000. It also recommends the additional expenditure of approximately £110,000 to provide the necessary storage areas referred to in this Report.

Port Authority.

61. References made by several of the witnesses indicated that there are many factors which contribute to the slow turn-around of ships in Darwin, resulting in uneconomical handling of cargoes and a general reluctance on the part of overseas shipping firms to allow their vessels to call at Darwin. It was stated that there is no properly constituted port authority controlling the Darwin Harbour, other than the Northern Territory Administration, which is regarded as the authority at the present time. It is considered that the establishment of a legally constituted Port Authority would bring the port in line with other Australian ports, and help to achieve a degree of co-ordination which is lacking under present conditions. The Committee recommends that consideration should be given to the establishment of a suitable Port Authority for Darwin, with the object of increasing the efficiency of the port, and enhancing the economic use of the expensive facilities being provided.

SECTION IV.

THE COMMITTEE'S CONCLUSIONS.

Summary of Recommendations.

62. The following is a list of the Committee's conclusions, in summary form only, arrived at after study of the plans, evidence, and the questions involved. The full recommendations are contained in the paragraphs referred to herein:-

1. The wharf under construction, when completed, will not provide adequately for all the requirements of Darwin. (Paragraph 40.)
2. With improved facilities, additional shipping and larger tonnages of cargo will be offering immediately. (Paragraph 41.)
3. Supervision on the wharves at present is not sufficiently effective to ensure the best results. (Paragraph 41.)
4. Indications of expansion warrant the forecast that aggregate cargoes to pass over the wharves will grow sufficiently to require an additional berth. The Navy is also in urgent need of further facilities. (Paragraph 42.)
5. Additions will be less costly if proceeded with before the present construction equipment is removed. (Paragraph 43.)
6. The wharf under construction should be increased to 800 ft. in length with a width of 140 ft. at an estimated cost of £350,000 as soon as possible. (Paragraph 43 and 57.)
7. A second cargo shed, at an estimated cost of £40,000, is imperative if full use is to be made of the extended wharf. (Paragraphs 44 and 57.)
8. Adequate additional amenities for an enlarged port quota, in conformity with A.S.I.B. standards and N.T. Health regulations, should be provided after consultation with representatives of the men involved. (Paragraph 45.)
9. The use of Fort Hill Wharf should not be restricted to oil tankers at the present stage of port development. (Paragraph 46.)
10. The departmental suggestions for full development are accepted as a basis for further study, but the ultimate development of the Port should be deferred until progress of the Northern Territory demands major additions to the port facilities. (Paragraph 49.)
11. It is more desirable to extend the Stokes Hill Wharf than to replace it with a concrete wall at this stage. (Paragraph 51.)
12. Financial provision should be made for construction of access roads by the time the wharf is extended. (Paragraph 52.)
13. An appropriate area of the Bay should be reclaimed with material from Fort Hill at an approximate cost of £110,000 to provide space for the access roads, a bulk storage yard, and a cattle holding yard. (Paragraph 54.)
14. A landing stair should be provided at the appropriate position for the use of small craft. (Paragraph 56.)

15. Definite steps should be taken to obtain reliable information as to whether the presence of the "Neptuna" wreck is causing silting; whether there is any dangerous cargo still in the wreck; and the cost of removing the "Neptuna". (Paragraph 58.)
16. Parking space should be provided at the approach to the wharf. (Paragraph 57.)
17. Consideration should be given to establishing an appropriate Port Authority. (Paragraph 61.)

J. O. Gramer.
Chairman.

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