



DISCUSSION PAPER:
MEETING:
DATE:

FISHERMAN'S JETTY
STRATEGIC WORKSHOP
9 June 2021

Port Pirie
 Regional Council

DEPARTMENT:
OFFICER:

INFRASTRUCTURE
Jodie Christensen, Property Officer

DISCUSSION

Fisherman's Jetty (Jetty) is a Council owned boat mooring facility contained in Deposited Plan 49206 on the Port Pirie River. It is located to the rear of the seafood processing and retail business, SD Caputo and Sons on Main Road, Solomontown.

The Jetty forms part of Port Pirie's marine network, in the recreational and commercial fishing hub. The Jetty provides an important visual aspect to the area, and is considered by many locals as a symbolic structure of Ports Pirie's proud fishing history.

The configuration of the Jetty supports 40 potential boat moorings, including temporary positions. Larger boats moor directly adjacent to the Jetty, while smaller boats use the mooring piles, which are approximately 6m apart. There are currently 26 boat mooring permits in place, which include local residents, as well as residents of Port Augusta, Whyalla, Peterborough, Laura, Burra, Nuriootpa, Lochiel and Mount Barker. A layout plan for the boat moorings is attached.

Council invoice the annual fee in July each year, in accordance with the Council Fees and Charges Register. In 2020/21 the fee was \$346. Based on the current number of permits, the Jetty generates an annual income of \$8,996.

Maximum Mooring Capacity

Due to the condition of the Jetty, Council limits access to boats that are 6m (approx. 19ft) or less. Asset Engineering determined the acceptable mooring capacity when the Jetty was assessed in 2018. Given the poor condition of the structure, and the potential additional stress applied by larger boats, the recommendation was to discourage boats that exceed 6m. While the maximum capacity of 6m is enforced as part of the application process, special permission can be granted, subject to the assessment and approval of the Director Infrastructure.

Jetty Access

The Jetty is gated and accessible by a master key. Permit holders pay a \$50 bond for the key when the mooring is approved. When a mooring is cancelled, the bond is refunded on return of the key. Over the years many keys have been lost, or simply not returned when a mooring is cancelled.

Council's Property Officer has submitted a Business Improvement suggestion to install a fob access system to replace the existing key entry access. This would provide Council with the ability to cancel a lost fob to avoid unauthorised access, as well the option to cancel a fob for non-payment of fees, or any breach to the conditions of use. The cost to upgrade access to the Jetty with a fob system is approximately \$5,000.

Boat Mooring Permits versus Licence Agreements

Historically, Council have administered boat mooring arrangements through an annual permit process. An application is issued to permit holders each year, to be completed and returned to Council with payment of the annual fee.

The permit application is a two-page document that sets out the basic terms and conditions of use, and verifies the permit holders contact information. Council's Property Officer has investigated other marine facilities in South Australia to consider how our boat mooring facility could be better managed. Licence agreements are commonly used for long-term moorings, while permits are generally limited to short-term mooring arrangements.

To streamline the administrative process, and to address various issues associated with existing boat mooring arrangements, Council's Property Officer would like to transfer long-term moorings to a Licence Agreement. This form of agreement will apply more adequate terms and conditions to boat moorings, to protect Council from liability, such as the cost of retrieving a sunken boat. Boat owners will be required to produce evidence of boat registration and insurance to allow mooring access. A licence term of 2-5 years would also reduce administrative requirements associated with the existing permits.

Moorings Concerns and Nuisance Activities

Council have encountered a number of concerns, and nuisance behaviors associated with boat moorings at the Jetty. These include unregistered and uninsured boats, mooring for residential purposes and illegal dumping. There have also been incidents of unauthorised moorings and suspected illegal activities. The Port Pirie Police have been informed of all reported alleged illegal activities.

There are a number of boats at the Jetty in very poor condition. Over the years, there have been several incidents of boats sinking, the most recent occurring in January 2021. In this case, the boat owner has not taken action to salvage the boat. There is also an abandoned boat, where Council have been unable to trace the owner. The recovery and disposal of sunken and abandoned boats is a very costly exercise. Despite permit terms stipulating that it is the boat owners responsibility to salvage the boat, Council can be burdened with the responsibility for the recovery and disposal if the owner does not take action. The recovery of costs from the owner in the case of the abandoned boat is very unlikely, and the cost recovery for a sunken boat is a costly legal avenue to pursue.

Jetty Structure Assessments

Council engaged MACE Engineering in 2015 to undertake an assessment of the Jetty to identify the scope of works required to upgrade the structure. A copy of the report is attached. The recommended program of works required a commitment of approximately \$500,000 staged over ten years. The MACE Engineering assessment recommended that an underwater assessment of all timber piles along the jetty be carried out, and as such was carried out by Lawrie Commercial Diving. A copy of the report is attached.

A valuation report of marine assets, conducted by Asset Engineering in 2018, estimates the replacement value of the Jetty to be approximately \$2.2 million. This value includes the Jetty structure, piles, decking, balustrade, lighting and mooring piles.

There is an expectation that the Jetty is maintained to a functional standard to ensure Council are providing a facility that is safe and compliant, to avoid Council liability. The current condition of the Jetty is questionable, in terms of being fit for purpose. Council have received numerous complaints from past and present permit holders concerning the state of the Jetty.

The Jetty has received minimal maintenance for a number of years, and there is a significant amount of work required to upgrade the structure if Council wish to retain the Jetty for public mooring access. Council have an annual budget to undertake Jetty maintenance, which exceeds the financial return from boat mooring fees. In 2021, Council have the additional expense of boat recoveries.

Future Consideration

The MACE Engineering assessment recommends that Council consider the future of Fisherman's Jetty, prior to committing significant ongoing funding into the structure.

The options are to repair the structure and continue to maintain with relatively high annual costs, demolish the structure and replace with a low maintenance floating pontoon structure or demolish the structure and not replace.

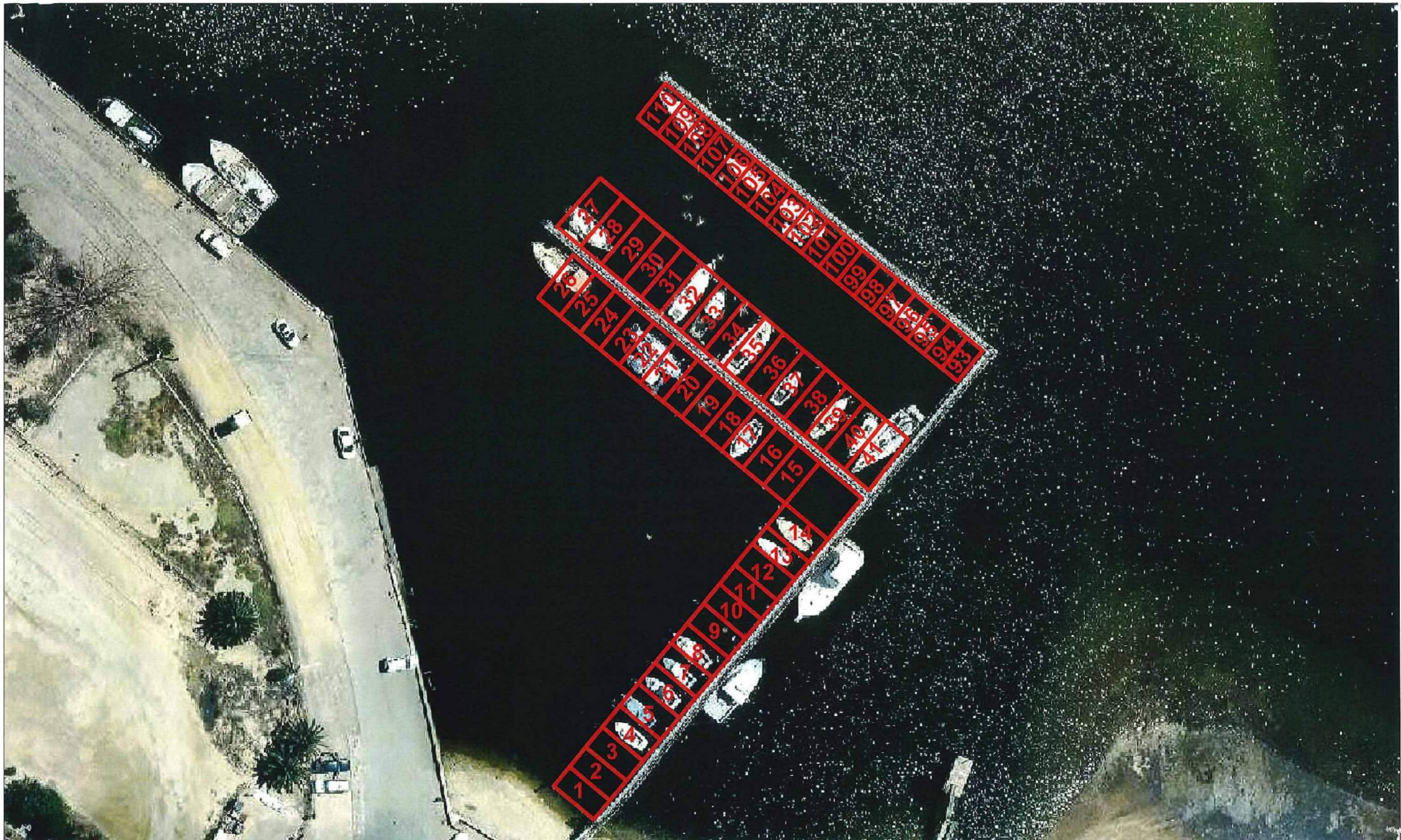
Back in 2013, Magryn Engineering Consultants were engaged to provide a concept and costing to replace Fisherman's Jetty with a floating pontoon and pile system and dredging. This concept needs to be reviewed for currency and potential staging.

Requests are received for boats of a size larger than currently permitted to berth. Any future upgrades would need to consider the demand for larger berth sizes and whether the current berth holders could satisfy the requirements of registration, insurance and the potential of a fee increase.

The Draft Master Plan for the Riverbank Precinct has identified this part of the foreshore as a potential site for increased development to improve access to the water and views of the Southern Flinders Ranges. The replacement of Fisherman's Jetty could be funded from round 4 of the Local Roads and Community Infrastructure Program expected in 2022/23 with the time between now and then used for concept development, design and approvals and public consultation.

ANNEXURE A
Fisherman's Jetty – Locality Plan and Images





— Permit Allotments

Project: Wharf Plan

Port Pirie Regional Council

Date: 22/02/2018

Contract:



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ASSESSMENT, WORKS PROGRAM & COSTINGS
FISHERMAN'S JETTY, PORT PIRIE
FOR
PORT PIRIE REGIONAL COUNCIL

1. INTRODUCTION

Mace Engineering Services Pty Ltd has been requested by Port Pirie Regional Council to undertake the following report on Fisherman's Jetty at Port Pirie:-

- A structural assessment
- Prepare a capital works program covering immediate issues, 2-5 years repairs and 5-10 year upgrades, with approximate costings.
- Cover the compliance issues with railing, access, ladders and lighting.
- Detail any risk issues.

This report will be in a similar format to those prepared by the Marine Facilities Section of Department of Planning, Transport and Infrastructure (DPTI). The assessment will be based on the requirements of AS4997 (Guidelines for the design of maritime structures) and AS1657 (Fixed platforms, walkways, stairways, and ladders – design, construction and installation).



Photo 1 – Fisherman’s Jetty at Port Pirie

2. CONDITION OF STRUCTURE

The approach to Fisherman’s Jetty is via non standard concrete stairs with steel handrails. These stairs would be difficult for disabled people accessing the jetty and for people wanting to load stores and fuel onto moored craft. Consideration should be made to providing ramp access to the jetty.



Photo 2 – Jetty approach with non standard concrete stairs



Photo 3 – Concrete stairs with room for ramp access to be provided

3. JETTY ABUTMENT

The underside of the jetty abutment area should be inspected as part of the regular jetty inspection program, to ensure that structural members are adequately supported.

The two girders at the jetty abutment are supported on a timber corbel and appear to be in fair condition. The larger vertical timbers at the end of the handrail also are connected to the girders and these appear in reasonably sound condition with minimal movement.

The underside of the abutment should also be inspected for any evidence of termite activity. Termite damage to abutments is a common problem for jetties.



Photo 4 – Jetty abutment with large vertical timbers at the end of the handrail

4. **JETTY DECK**

The jetty deck comprises of two timber girders supporting timber planks with a fine steel grated walking surface. On each side of the walking surface there are timber kickboards with timber railing posts and railing on the outside.



Photo 5 – Typical decking, kickboards and railing with security gate at start of jetty

Some of the deck planks are quite weathered and loose resulting in the connections to the grating becoming loose. If these connections cannot be tightened, the planks should be replaced with sound timber planks.



Photo 6 – Weathered and loose timber planks

The steel grating is connected to the timber planks over most of the jetty length with raised steel brackets. These brackets are generally located on both sides and centrally on the grating. Many of the brackets are loose and these should be tightened with the central brackets removed and replaced by edge brackets.



Photo 7 – Typical connections of steel grating to timber planks

Along the jetty the width of the walkway between the kickboards varies between 560 mm and 580 mm. This width is just adequate with Clause 5.1.3. (b) of AS1657 stating “*Where guardrails are installed on both sides of a walkway, the clear width between any elements of the guardrailing shall not be less than 550mm*”.

There are sections of the kickboard that are badly deteriorated and cracked. Some of these sections can be repaired whilst others require replacement.



Photo 8 – Section of badly cracked kickboard

5. HANDRAILS

The handrails on both sides of the jetty deck comprise timber posts at 1100 mm to 1300 mm spacing with a timber top rail. The height to the top of the handrail varies from 850 mm to 900 mm. There are sections of the handrails that have loose posts and the overall alignment is quite poor.



Photo 9 – Handrails both sides with poor shape and alignment

A further concern with the stability of the handrails is that adjacent to most moorings, where there is an access ladder up to the jetty deck, a section of the handrail has been cut, hinges installed and a gate created. These gateways improve the safety for people using the access ladders but the adjacent posts should have the connections strengthened.



Photo 10 – Section of handrailing cut and hinged to form gateway for ladder access

In Clause 3.4.4 of the AS4997 it states that for a jetty such as Fisherman’s Jetty (*where a person is likely to fall more than 1.5 metres to strike a hard surface or the seabed*) a guardrail (*handrail*) in accordance with AS1657 should be provided.

In Clause 6.2.1.2 it states for posts and rail construction that the space between rails should not exceed 450 mm. An intermediate rail should therefore be installed to meet this requirement.

A further concern with the handrailing is the deterioration of some sections of the top rail. Some of these will require replacement, whilst others will be able to be patched and painted.



Photo 11 – Section of rotted top rail and rusted steel strap



Photo 12 – Section of cracked and rotted top rail with rusted steel strap

6. LADDERS

Over the years, most moorings along the jetty have had ladders installed. These ladders range from reasonable standard installations to quite basic. None of the ladders have been signed as safety ladders.

AS4997, Clause 3.4.5 requires that safety ladders should be provided at a maximum of 60 metre intervals around a jetty. A decision needs to be made on whether all the ladders on the jetty or just some specific ladders should meet the requirements of Clause 3.4.5.

Clause 3.4.5 requires for safety ladders *“the bottom rung should be 300 mm below L.A.T. (Lowest Astronomical Tide) and where safety ladders are used to provide access to craft, suitable buffer rails at least 250 mm proud of the ladder, should be provided each side to prevent vessels crushing persons on the ladder”*.

The inspection occurred during a relatively low tide and all of the ladders bottom rung were above water level. In addition none of the ladders had buffer rails provided. Of further concern was that many of the ladders terminated at jetty deck level making access on and off the jetty a relatively dangerous manoeuvre.



Photo 13 – Access ladders above water level at low tide



Photo 14 - Access ladder terminating at jetty deck level

7. LIGHTING

Fisherman's Jetty has a total of eight lights comprising of seven singles and a double. The lights are a sealed fluorescent tube type. As the inspection was undertaken during daylight hours, the effectiveness of this lighting is not known.

AS4997 does not address lighting or what standard should be provided on jetties.

As the standard of the electrical installation is not known, it is recommended that an electrician inspects the electrical installation to ensure that it is complying to Australian Standards. Then due to the aggressive environment, regular inspections should be undertaken of support brackets, conduits, cables and fittings to ensure they remain in good condition.



Photo 15 – Typical light pole and single light



Photo 16 – Typical light pole installation

8. TIMBER GIRDERS AND CROSSHEADS

Most of the girders and crossheads are in a state of deterioration but remain serviceable. They are generally cracked along part of their length with splits in the ends.

The connection bolts are heavily corroded and some were loose. All bolts should be checked and loose bolts tightened.

As part of Council's inspection procedure an inspection of the timber girders and crossheads should be undertaken as a minimum on a yearly basis.

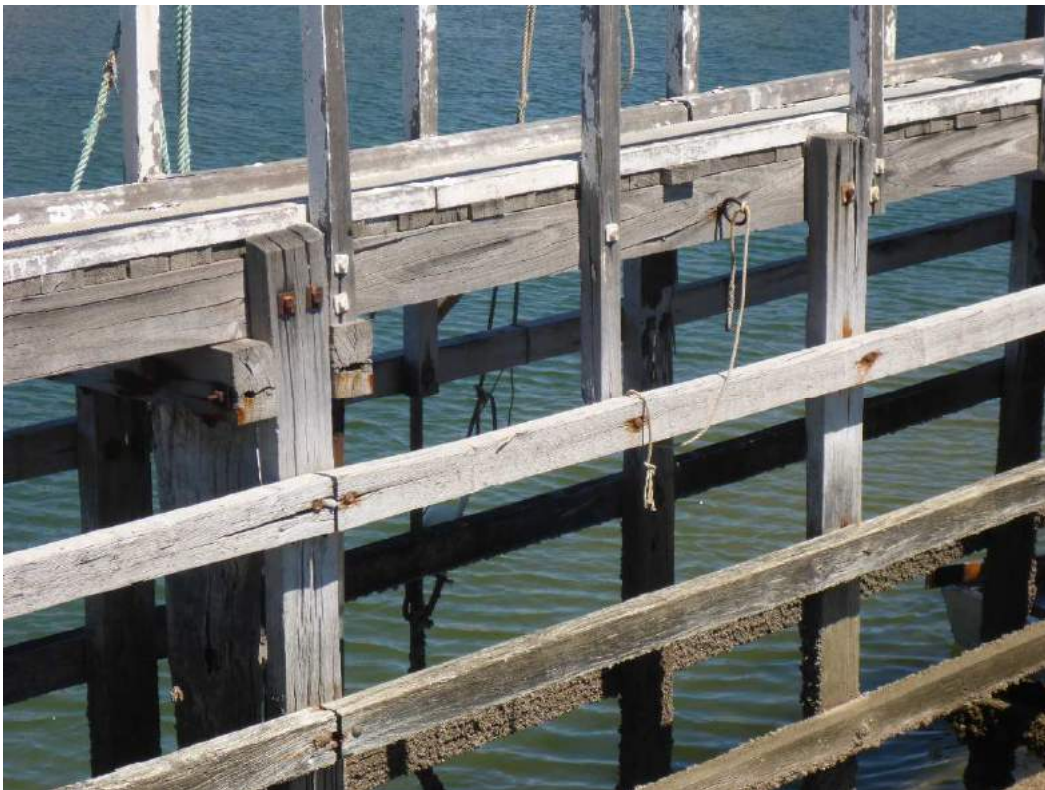


Photo 17 – Timber girders with minor longitudinal cracking and crossheads with split ends

9. TIMBER BRACING

There are timber braces along the majority of the length of the structure. The braces range in condition from serviceable condition to badly deteriorated to missing with only the bolts remaining. Whilst it is not critical to have all bracing in place along the structure, sufficient bracing should be present to minimise movement of the jetty. On this basis, there will be a need to replace many of the missing and deteriorated timber braces.



Photo 18 – Badly deteriorated timber bracing

10. TIMBER PILES

The timber piles comprise of a main set of piles (or bents) at approximately 5.0 metre spacing with intermediate sets of piles at approximately mid span. The main set of piles comprises of a central circular pile varying in diameter from 300 mm to 500 mm. On each side of the circular pile is a rectangular pile 230 mm x 105 mm. Crossheads and girders are then bolted to the main set of piles.



Photo 19 – Typical main set of pile layout with a central circular pile and two rectangular piles

The intermediate sets of piles comprises of two 230 mm x 105 mm rectangular piles bolted to the timber girders.



Photo 20 – Main set of piles with intermediate sets mid span between them

Low tide conditions during the inspection revealed that a number of the old, stand alone timber piles along the jetty are badly deteriorated and in need of replacement.

There are also two square steel piles 200 mm x 200 mm that have been installed several years ago at the end of the main walkway and the inner and outer walkways. There are also some intermediate steel piles along the outer walkway.

These steel piles range from fair condition to quite heavily corroded and require cleaning and protective coating being applied. All of the steel piles appear to be providing adequate stability to the jetty structure.



Photo 21 – Two steel piles at the end of the main walkway showing some corrosion



Photo 22 – Two steel piles at the end of the outer walkway with quite heavy corrosion

A minimum of three circular piles and six rectangular piles should be replaced as soon as possible. The condition of several other piles is also a concern.

During the inspection a visual assessment from above water level was made and an estimate of the cross sectional area remaining determined. These are recorded in Appendix A. Photographs of pile locations and condition for the main walkway, outer walkway and inner walkway are included as Appendix B.

Due to the importance of accurately assessing the reduction in pile size and condition, an underwater assessment of all timber piles along the jetty should be carried out as soon as possible.



Photo 23 – Badly deteriorated pile but difficult to determine extent of deterioration without underwater assessment

11. CONDITION SUMMARY

Overall the Fisherman's Jetty at Port Pirie is considered to be in fair to poor condition. Although the basic structure is considered to be structurally sound except in the areas of badly deteriorated piles and bracing, there is significant maintenance work required in virtually every component of the structure.

Prior to committing significant ongoing funding into the structure, Council needs to make a decision on the future of Fisherman's Jetty.

12. CAPITAL WORKS PROGRAM

12.1 General

The following capital works program with estimated costs has been prepared to cover immediate issues, 2-5 years repairs and 5-10 year upgrades. All estimated costs are in 2015 dollars.

These works programs have been prepared on the basis of the jetty being retained for the long term.

12.2 Program of Immediate Issues

The following program totals \$57,000 and has been prepared to cover the key issues that should be addressed in the 2014/15 financial year on Fisherman's Jetty at Port Pirie:-

- Underwater survey of the structure with report on condition of piles \$10,000
- Refixing of any loose deck planks, replacing any rotted deck planks, tightening of loose brackets on deck grating, removing and relocating brackets from centre to edge of grating \$14,000
- Tighten kickboard connections to deck, replace cracked and deteriorated Kickboards \$8,000
- Tighten handrail post connections to deck, strengthening connection to posts at gateways, upgrade hinges and latches at gateways \$15,000
- Straighten top rail alignment and replace badly cracked and deteriorated sections of top rail, upgrade steel straps \$10,000

12.3 Program of Works in Years 2-5

The following program for years 2-5 totals \$262,000 and has been prepared to cover the works that have been highlighted and should be undertaken on Fisherman's Jetty:-

- | | |
|---|----------|
| • Replacement of missing piles and piles with less than 30% cross sectional area remaining, detailed in underwater survey, using 200 mm x 200 mm steel piles driven 3 metres into channel base (important to be year 2) | \$88,000 |
| • Replacement of missing bracing and bracing with less than 30% cross sectional area remaining with equivalent sized timber members (important to be year 2) | \$41,000 |
| • Replace heavily corroded bolts and tighten bolts that can be tightened in connections to timber girders and crossheads | \$21,000 |
| • Replacing stairs with a complying ramp access and railing to the jetty | \$28,000 |
| • Installation of additional rail on handrails | \$8,000 |
| • Preparation and painting of kickboards, posts and rails | \$24,000 |
| • Install four safety ladders complying to AS4997 and upgrade existing access ladders with better connections and extensions | \$24,000 |
| • Check existing lighting and make any necessary upgrades to bring up to standard | \$12,000 |
| • Undertake annual inspections and reports (\$4,000/yr) | \$16,000 |

12.4 Program of Works in Years 5-10

The following program totals \$157,000 for years 5-10 and has been prepared to cover repeat work on the same elements repaired in the first five years on Fisherman's Jetty:-

- | | |
|---|----------|
| • Replacement of piles that have deteriorated since the steel piling undertaken in year 2 | \$60,000 |
|---|----------|

- Replacement of bracing that has deteriorated since the bracing works in year 2 \$19,000
- Replace heavily corroded bolts and tighten bolts that can be tightened in connections on timber girders and crossheads \$6,000
- Refixing of any loose deck planks, replacing any rotted deck planks, tightening of loose brackets on deck grating \$8,000
- Tighten kickboard connections to deck, replace cracked and deteriorated Kickboards \$4,000
- Tighten handrail post connections to deck, strengthen connections to posts at gateways, upgrade hinges and latches at gateways as required \$5,000
- Replace badly cracked and deteriorated sections of top rail, upgrade steel straps as required \$4,000
- Preparation and painting of kickboards, posts and rails \$16,000
- Maintenance of safety and access ladders \$5,000
- Maintenance of lighting \$8,000
- Undertake annual inspections and reports (\$4,000/yr) \$20,000

13. **CONCLUSIONS**

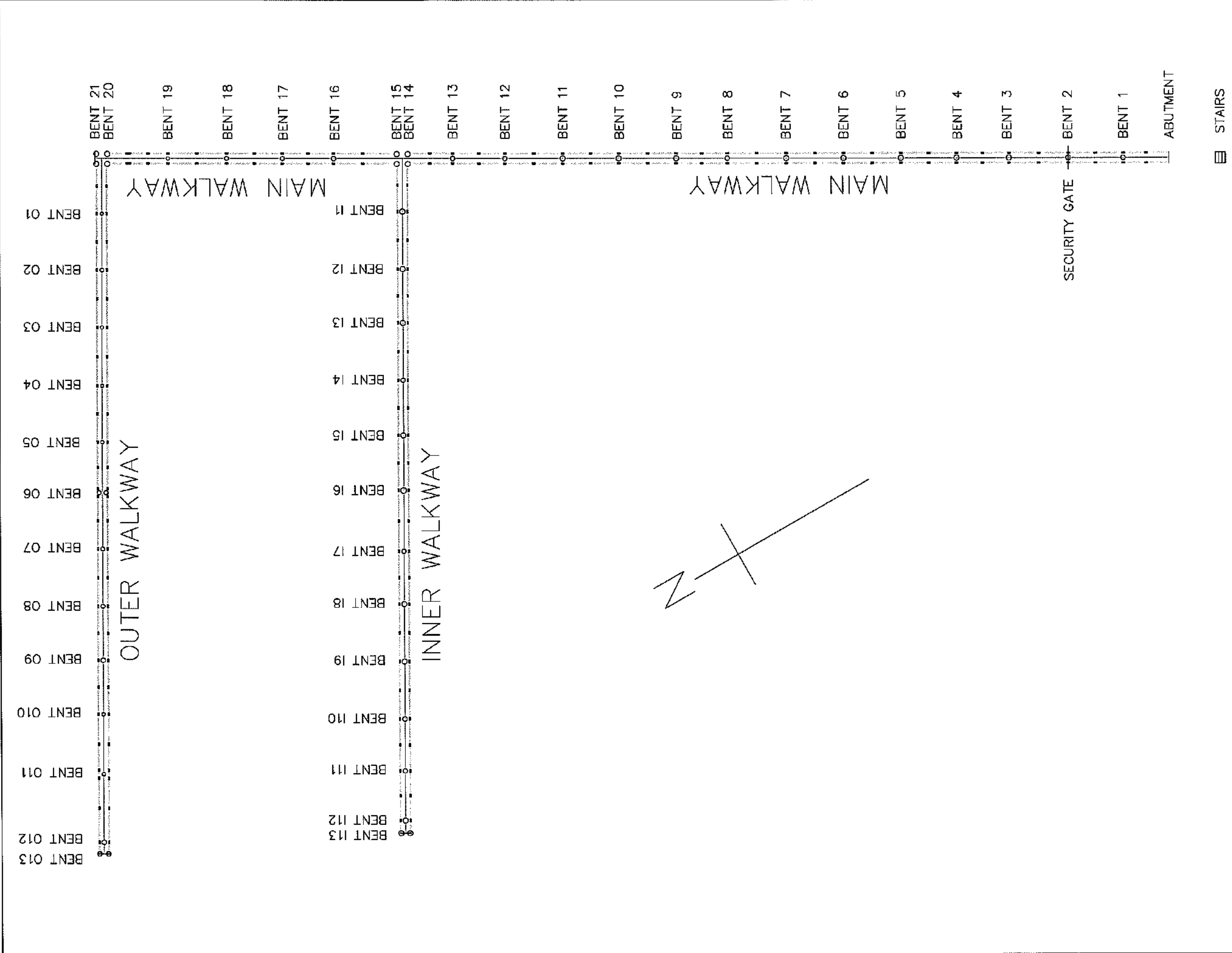
Fisherman's Jetty has had minimal maintenance effort over the last few years and there is significant maintenance work required particularly in the first and second years. Years 3 & 5 will then cover the remaining outstanding maintenance work. Due to the age and condition of the structure combined with the harsh environment, years 5 to 10 will be a repeat of the same maintenance efforts and tasks but to a slightly less extent.

Prior to committing significant ongoing funding into the structure, Council needs to make a decision on the future of Fisherman's Jetty. The options are to repair the structure and continue to maintain with relatively high annual costs, demolish the structure and replace with a low maintenance floating pontoon structure or demolish the structure and not replace.



Trevor K Mace
DIRECTOR
13/03/15

MIEAust, CPEng



MACE ENGINEERING SERVICES PTY LTD 6 LENNON STREET CLARE 5458 A.B.N. 38 073 733 874 TEL. (08) 88 421242 FAX. (08) 88 421222	TITLE: FISHERMANS JETTY LAYOUT	DATE: MARCH 2015
	SITE: FISHERMANS JETTY PORT PIRIE	SCALE: 1:300
	CLIENT: PORT PIRIE REGIONAL COUNCIL	DWG No.: 8755 - 01

APPENDIX A

SUMMARY OF PILE
CONDITION



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FISHERMANS JETTY, PORT PIRIE

MAIN WALKWAY PILES

BENT NO.	CHAINAGE	COMMENTS, SIZE & PERCENTAGE REMAINING
Abutment	00	Start of Main Walkway
A1		2 x 230 x 105 100%
1	4.0	400 diameter 100%, 2 x 230 x 105 60%
1A		2 x 230 x 105 80%
2	8.8	400 diameter 70%, 2 x 230 x 105 70%
2A		Left only 230 x 105 80%
3	14.0	450 diameter 80%, 2 x 230 x 105 80%
3A		Left only 230 x 105 80%
4	18.6	450 diameter 70%, 2 x 230 x 105 80%
4A		Both sides 2 x 230 x 105 80%
5	23.5	450 diameter 80 %, 2 x 230 x 105 80%
5A		Both sides 2 x 230 x 105 70%
6	28.5	450 diameter 70%, 2 x 230 x 105 80%
6A		Both sides 2 x 230 x 105 80 %
7	33.5	450 diameter 80%, 2 x 230 x 105 80%
7A		Both sides 2 x 230 x 105 80%
8	38.7	400 diameter 70%, 2 x 230 x 105 80%
8A		Both sides 2 x 230 x 105 80%
9	43.2	450 diameter 70 %, 2 x 230 x 105 80%
9A		Both sides 2 x 230 x 105 80%
10	48.2	450 diameter 80%, 2 x 230 x 105 80%
10A		Both sides 2 x 230 x 105 80%
11	53.1	450 diameter 80%, 2 x 230 x 105 80%
11A		Both sides 2 x 230 x 105 80%
12	58.2	400 diameter 70%, 2 x 230 x 105 80%
12A		Both sides 2 x 230 x 105 80%
13	62.8	400 diameter 80%, 2 x 230 x 105 80%
13A		Both sides 2 x 230 x 105 70%
14	66.8	Double piles 2 x 450 diameter 70% deteriorated cross members 2 x 230 x 105 70%
	67.2	Centre of walkway
15	68.1	Double piles 2 x 450 diameter 70%, 3 x 230 x 105 70%
15A		Both sides 2 x 230 x 105 60%
16	73.2	400 diameter 80%, 2 x 230 x 105 80%

16A		Both sides 2 x 230 x 105 80%
17	77.7	350 diameter 60%, 2 x 230 x 105 60%
17A		Both sides 2 x 230 x 105 70%
18	82.6	350 diameter 80%, 2 x 230 x 105 80%
18A		Both sides 2 x 230 x 105 80%
19	87.8	300 diameter broken off at water level, steel pile 200 x 200
19A		Both sides 2 x 230 x 105 80%
19B		Both sides 4 x 230 x 105 70%
20	92.9	Both sides large RHS broken at water level, replaced with steel 200 x 200 LHS broken at water level – no support
	93.5	Centre walkway
21	94.1	End piles 2 x piles broken at water level – replaced with steel piles 200 x 200 Cross supports deteriorated badly



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FISHERMANS JETTY, PORT PIRIE

OUTER WALKWAY PILES

BENT NO.	CHAINAGE	COMMENTS, SIZE & PERCENTAGE REMAINING
O	00	Centre of Main Walkway
OA		Both sides 2 x 230 x 105 70%
O1	4.8	300 diameter 20%, 2 x 230 x 105 60%
O1A		Both sides 2 x 230 x 105 70%
O2	9.7	350 diameter broken at water level, 200 x 200 steel pile, 2 x 230 x 105 70%
O2A		Both sides 2 x 230 x 105 70%
O3	14.7	300 diameter 20%, poor condition, 2 x 230 x 105 70%
O3A		Both sides 2 x 230 x 105 70%
O4	19.8	300 diameter 40%, 2 x 230 x 105 60%
O4A		Both sides 2 x 230 x 105 70%
O5	24.7	300 diameter broken off at water level, 200 x 200 steel pile, 2 x 230 x 105 70%
O5A		Both sides 2 x 230 x 105 70%
O6	29.1	2 x 350 diameter 70%, 4 x 230 x 105 60%
O6A		Both sides 2 x 230 x 105 70%
O7	34.0	350 diameter 40%, 2 x 230 x 105 50%
O7A		Both sides 2 x 230 x 105 60%
O8	39.0	350 diameter 10%, 2 x 230 x 105 70%
O8A		Both sides 2 x 230 x 105 70%
O9	43.7	400 diameter 70%, 2 x 230 x 105 40% and 60%
O9A		Both sides 2 x 230 x 105 70%, 200 x 200 30%
O10	48.4	300 diameter 50%, 2 x 230 x 105 0% & 60% cross members missing
O10A		Both sides 5 x 230 x 105 2 x 0% & 3 x 60%
O11	53.6	300 diameter 70%, 4 x 230 x 105 0% & 50% & 2 x 60%
O11A		Both sides 4 x 230 x 105 60%
O12	59.5	End, double & steel piles 400 diameter 0% replaced with 200 x 200 steel pile 2 x 230 x 105 10 & 60%
O13		2 x 400 diameter 0%, replaced with 200 x 200 steel columns, heavily corroded, cross members badly deteriorated



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FISHERMANS JETTY, PORT PIRIE

INNER WALKWAY PILES

BENT NO.	CHAINAGE	COMMENTS, SIZE & PERCENTAGE REMAINING
I0	00	Centre of Main Walkway
I0A		Both sides 2 x 230 x 105 70 %
I1	4.6	450 diameter 70%, 2 x 230 x 105 70%, broken rail between 1 & 2
I1A		Both sides 2 x 230 x 105 60%
I2	9.6	450 diameter 70%, 2 x 230 x 105 60%
I2A		Both sides 2 x 230 x 105 70%
I3	14.3	450 diameter 80%, 2 x 230 x 105 80%
I3A		Both sides 2 x 230 x 105 70%
I4	19.3	400 diameter 80%, 2 x 230 x 105 70%
I4A		Both sides 2 x 230 x 105 70%
I5	24.1	450 diameter 80%, 2 x 230 x 105 60% cross members deteriorated
I5A		Both sides 2 x 230 x 105 0% & 50%
I6	28.9	500 diameter 70%, no bracing, 2 x 230 x 105 10% & 60%
I6A		Both sides, 2 x 230 x 105 60%
I7	34.2	400 diameter 60 %, no cross bracing, 2 x 230 x 105 40% & 50%
I7A		Both sides 2 x 230 x 105 70%
I8	38.8	450 diameter 70%, 2 x 230 x 105 70%
I8A		Both sides 2 x 230 x 105 40% & 60%
I9	43.8	450 diameter 70%, 2 x 230 x 105 0% & 60%
I9A		Both sides 2 x 230 x 105 40% & 70%
I10	48.8	400 diameter 70%, no bracing, 2 x 230 x 105 60%
I10A		Both sides 2 x 230 x 105 70%
I11	53.3	400 diameter 0%, 200 x 200 steel piles, 2 x 230 x 105 50%
I11A		Both sides 2 x 230 x 105 70%
I12	57.6	Both sides 450 diameter 70%, 2 x 230 x 105 0% & 50%
I13	58.7	End, 2 x 450 diameter 70%, 1 x 230 x 105 70% bracing badly deteriorated

APPENDIX B

PHOTOGRAPHS

MAIN WALKWAY



Photo 1 - Abutment



Photo 2 - Bent 1



Photo 3 - Bent 2



Photo 4 - Bent 3 with only one rectangular pile

MAIN WALKWAY



Photo 5 - Bent 4



Photo 6 - Bent 5



Photo 7 - Bent 6



Photo 8 - Bent 7

MAIN WALKWAY



Photo 9 - Bent 8



Photo 10 - Bent 9



Photo 11 - Bent 10



Photo 12 - Bent 11

MAIN WALKWAY



Photo 13 - Bent 12



Photo 14 – Bent 13



Photo 15 – Bent 14



Photo 16 – Bent 15

MAIN WALKWAY



Photo 17 - Bent 16



Photo 18 - Bent 17



Photo 19 - Bent 18



Photo 20 - Bent 19

MAIN WALKWAY



Photo 21 - Bent 19 deteriorated timber pile replaced with steel pile



Photo 22 – Bent 21, end of main walkway replaced with 2 steel piles

OUTER WALKWAY



Photo 23 – Bent 21, steel replacement piles



Photo 24 – Start of outer walkway, Bent O1

OUTER WALKWAY



Photo 25 - Bent O2



Photo 26 - Bent O3



Photo 27 - Bent O4



Photo 28 - Bent O5

OUTER WALKWAY



Photo 29 - Bent O6



Photo 30 - Bent O7



Photo 31 - Bent O8



Photo 32 - Bent O9

OUTER WALKWAY



Photo 33 - Bent O9



Photo 34 - Bent O10



Photo 35 - Bent O11



Photo 36 - Bent O12 (End)

OUTER WALKWAY



Photo 37 - Bent O12 (End)



Photo 38 – Bent O12 (End)

INNER WALKWAY



Photo 39 – Start of inner walkway, Bent I1



Photo 40 – Bent I2

INNER WALKWAY



Photo 41 - Bent I3



Photo 42 - Bent I4



Photo 43 - Bent I5



Photo 44 - Bent I6

INNER WALKWAY



Photo 45 - Bent I7



Photo 46 - Bent I8



Photo 47 - Bent I9



Photo 48 - Bent I10

INNER WALKWAY



Photo 49 - Bent I11



Photo 50 – Bent I12 (End)



Photo 51 – Bent I12 (End)

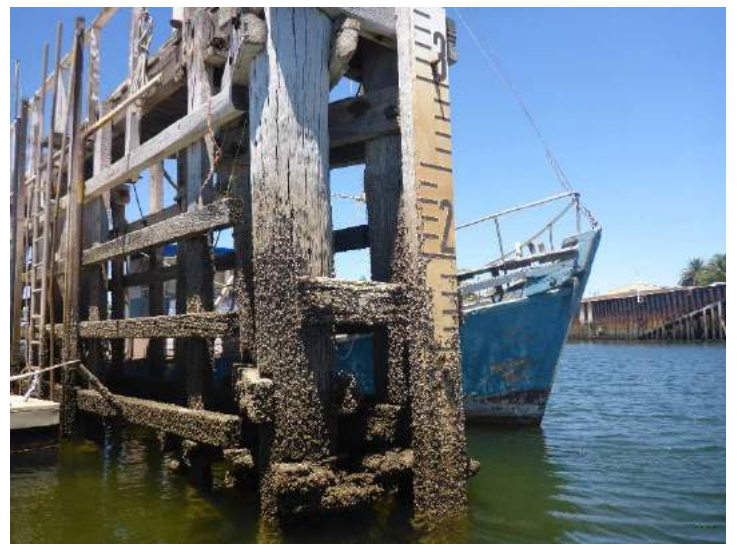


Photo 52 – Bent I12 (End)

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Sunday, June 14, 2015

Report Re: Fisherman's Jetty Underwater Inspection, Port Pirie
11/6/15



Reference photo of the Fisherman's Jetty

On 11/6/15 an underwater visual inspection of the Fisherman's Jetty was carried out using divers.

General Details

Item	Description
Sea Condition	calm
Underwater Visibility	Approximately 2 metres
Diver	Marcus Dunn
Time	1030 - 1430 Hrs 11/6/15
Depth of water	1 - 4 Metres

Inspection Methodology

The inspection consisted of a general 'swim though' visually inspecting the underwater condition of each pile & noting any obvious defects & estimating pile deterioration. Cleaning the piles of marine growth was not carried out. The full length of the underwater section (below low tide) of each pile was visually inspected & the area of pile which appeared to the diver as the most deteriorated was specifically examined.

At this location the pile diameter was measured with large calipers & noted. The original pile diameter was then estimated by the diver to gain an estimated cross section percentage of deterioration.

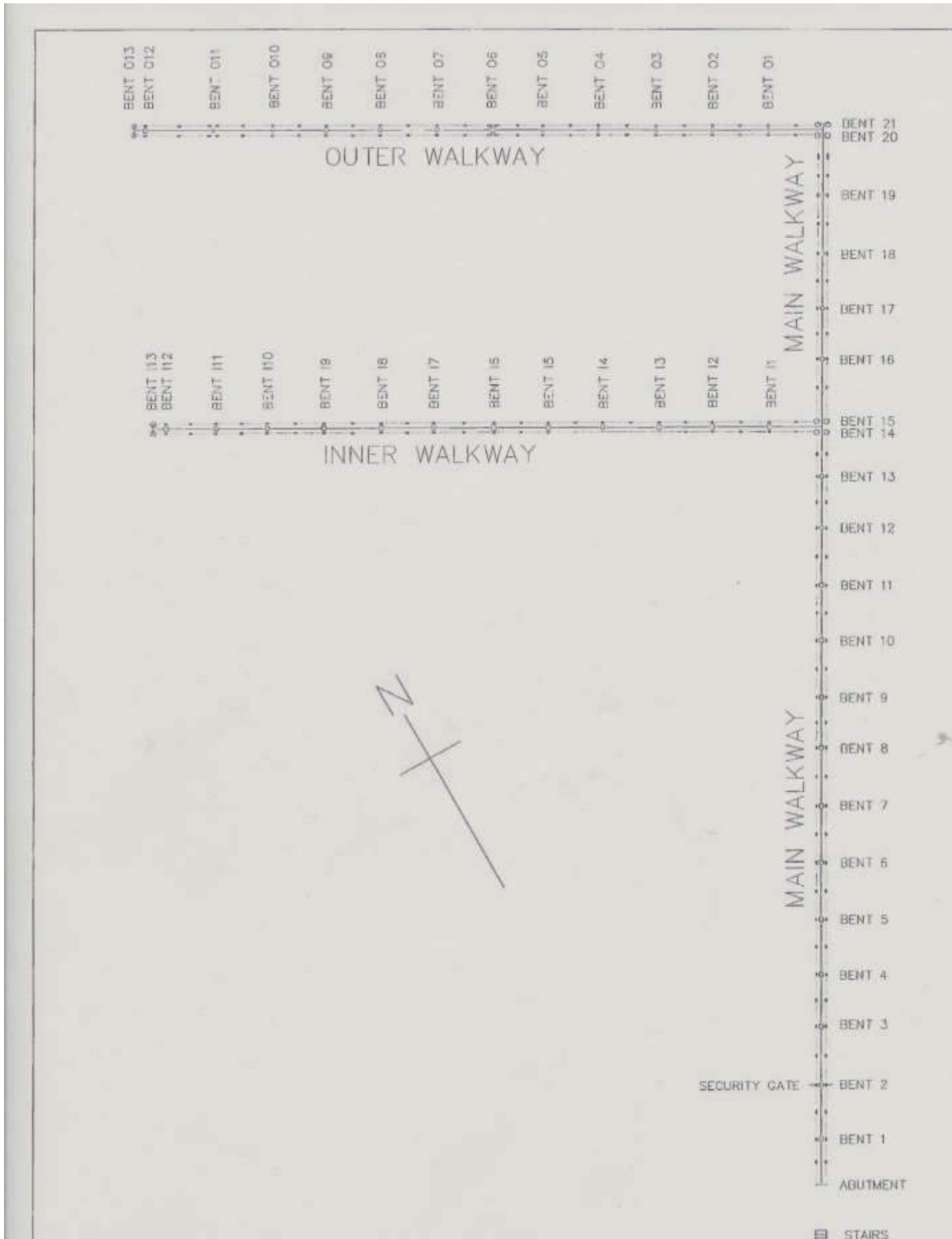
The above water section of the jetty was not inspected

Pile Lay-out

The jetty consisted of 21 bents of mainly single timber piles on the main walkway, 13 bents on the outer walkway & 13 bents on the inner walkway as illustrated in the below plan. Some of the piles had 200mm square hollow section SHS (steel) piles driven adjacent in order to shore up the structural integrity of the older timber piles. Where cleaned of marine growth the square hollow section piles were found to be in good condition with paintwork intact & no visual signs of corrosion. Ultra sonic thickness measurements were not taken

Marine growth consisted of general hard & soft marine growth up to 100mm thick

The seabed consisted mainly of muddy bottom with overlying general marine growth.

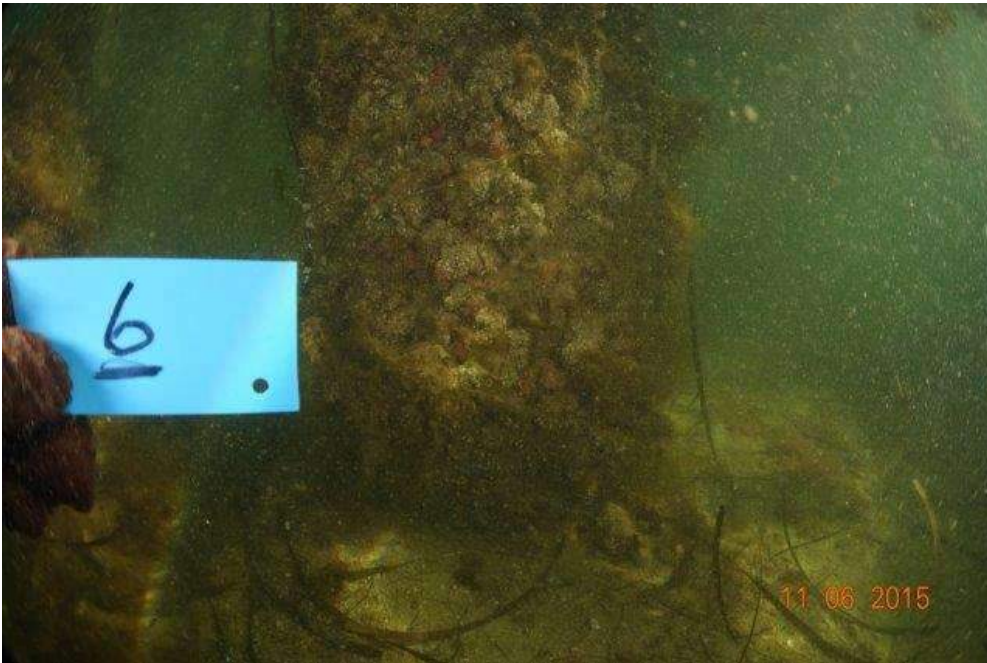


Main Walkway

Bent Nos	Pile thickness where pile appeared most deteriorated (mm)	Height above seabed of measured section (mm)	Estimated Percentage of pile deterioration %	Defects (ie splits, holes, necking, fractures, worm activity, scouring structural damage)	Comments
2	460	300	5		No visual defects
3	410	300	5		No visual defects
4	460	300	5		No visual defects
5	460	300	5		No visual defects
6	500	300	5		Broken vertical fender pile on eastern side



Photo illustrates broken vertical rectangular timber fender adjacent to pile 6 on the eastern side



Underwater view of pile 6 at seabed (no visual defect)

Bent Nos	Pile thickness where pile appeared most deteriorated (mm)	Height above seabed of measured section (mm)	Estimated Percentage of pile deterioration %	Defects (ie splits, holes, necking, fractures, worm activity, scouring structural damage)	Comments
7	480	1 metre	minimal		No visual defects
8	430	300mm	5		No visual defects
9	400	1 metre	5		No visual defects
10	460	1 metre	5		Western fender broken
11	530	1 metre	minimal		No visual defects
12	450	1 metre	minimal		No visual defects
13	440	1 metre	10		Crosshead wear
14 east	500	1 metre	minimal		No visual defects
14 west	400	1 metre	10	Very small split	
15 east	600	1 metre	minimal		No visual defects
15 west	420	1 metre	5		No visual defects
16	320	1 metre	5		No visual defects
17		500mm	100		Defect pile



Photo illustrates pile at bent 17 fully deteriorated

Bent Nos	Pile thickness where pile appeared most deteriorated (mm)	Height above seabed of measured section (mm)	Estimated Percentage of pile deterioration %	Defects (ie splits, holes, necking, fractures, worm activity, scouring structural damage)	Comments
18	340	1 metre	5		No visual defects
19	Steel pile				Paintwork intact
20 east	Steel pile				Paintwork intact
20 west	Steel pile				Paintwork intact
21 east	Steel pile				Paintwork intact
21 west	Steel pile				Paintwork intact



Typical condition of steel pile where cleaned of marine growth (paintwork intact, no signs of corrosion)

Outer walkway

Bent Nos	Pile thickness where pile appeared most deteriorated (mm)	Height above seabed of measured section (mm)	Estimated Percentage of pile deterioration %	Defects (ie splits, holes, necking, fractures, worm activity, scouring structural damage)	Comments
1	60	1 metre	80		Defect pile

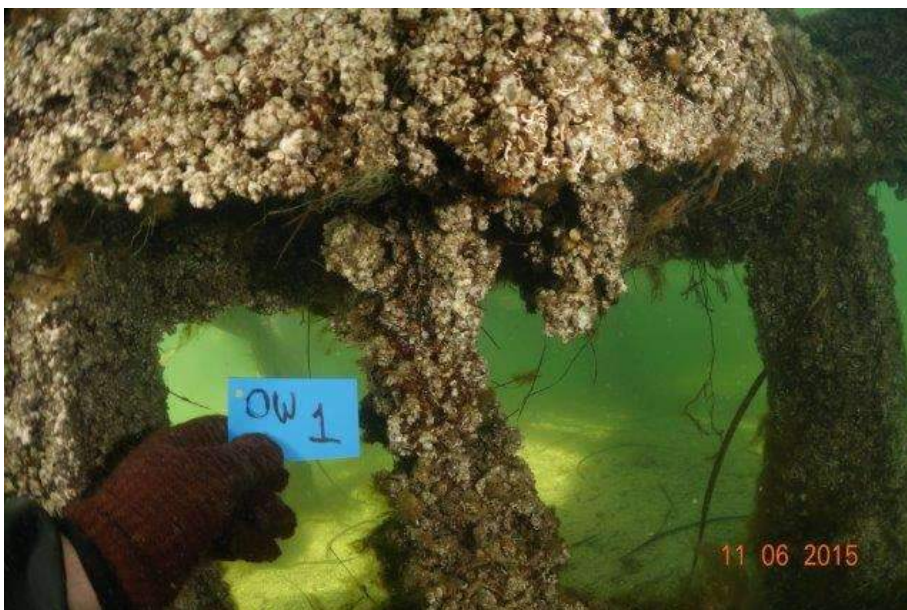
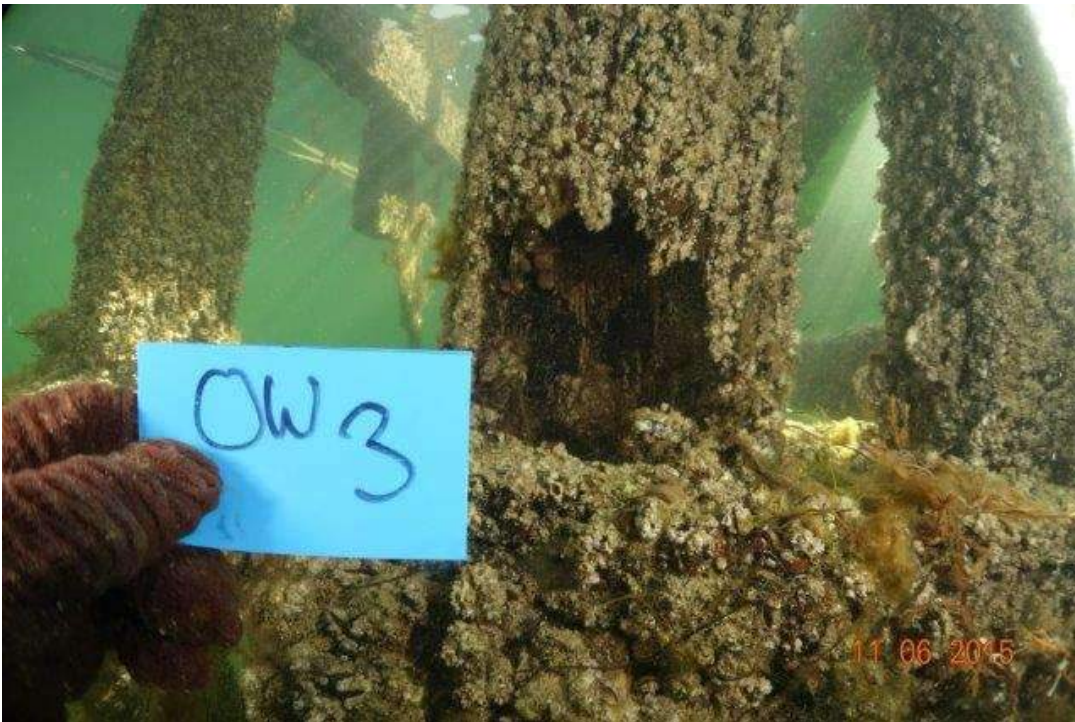


Photo illustrates pile at bent 1 on the outer walkway in poor condition

Outer walkway

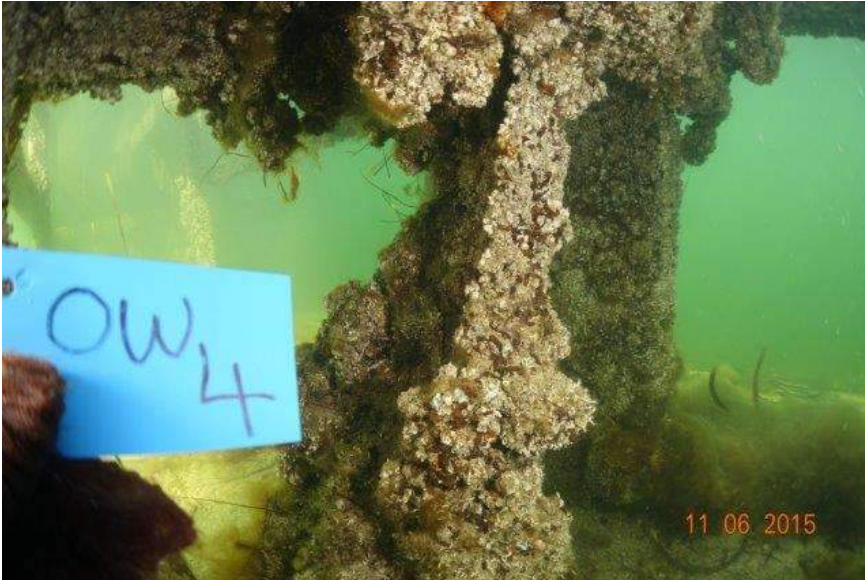
Bent Nos	Pile thickness where pile appeared most deteriorated (mm)	Height above seabed of measured section (mm)	Estimated Percentage of pile deterioration %	Defects (ie splits, holes, necking, fractures, worm activity, scouring structural damage)	Comments
OW 2	Steel pile				No visual defects
OW 3	100	1 metre	75		Poor condition



Illustrating defect at at outer walkway bent 3

Outer walkway

Bent Nos	Pile thickness where pile appeared most deteriorated (mm)	Height above seabed of measured section (mm)	Estimated Percentage of pile deterioration %	Defects (ie splits, holes, necking, fractures, worm activity, scouring structural damage)	Comments
OW 4	70	1 Metre	90		



Illustrating defect at outer walkway bent 4 pile

Outer walkway

Bent Nos	Pile thickness where pile appeared most deteriorated (mm)	Height above seabed of measured section (mm)	Estimated Percentage of pile deterioration %	Defects (ie splits, holes, necking, fractures, worm activity, scouring structural damage)	Comments
5	400	1 metre	minimal		No visual defects
6 north	270	1 metre	15		
6 south	290	1 metre	20		



Pile condition at bent 6 south, outer walkway

Outer walkway

Bent Nos	Pile diameter where pile appeared most deteriorated (mm)	Height above seabed of measured section (mm)	Estimated Percentage of pile deterioration %	Defects (ie splits, holes, necking, fractures, worm activity, scouring structural damage)	Comments
7	270	1.5 metres	40		



Bent 7 outer walkway pile defect at the crosshead

Outer walkway

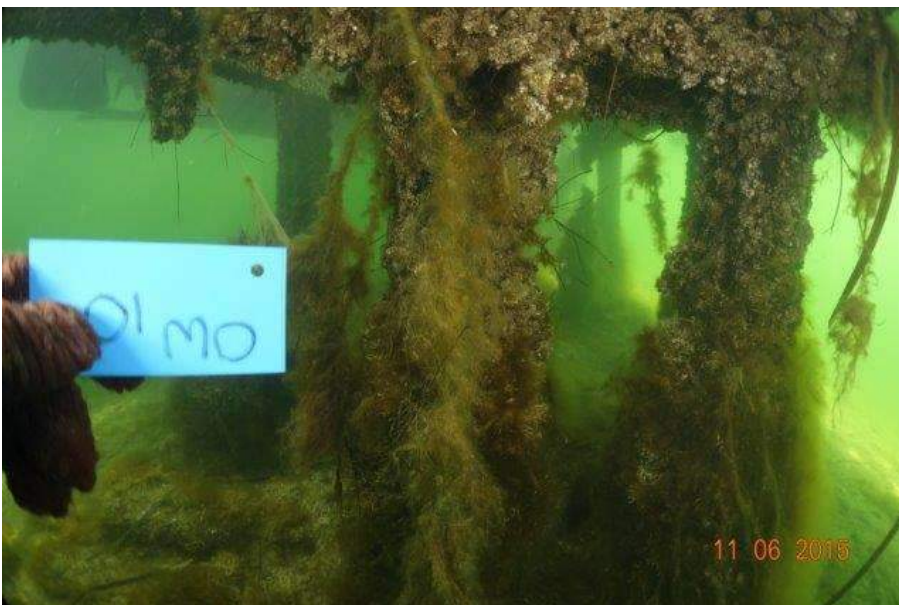
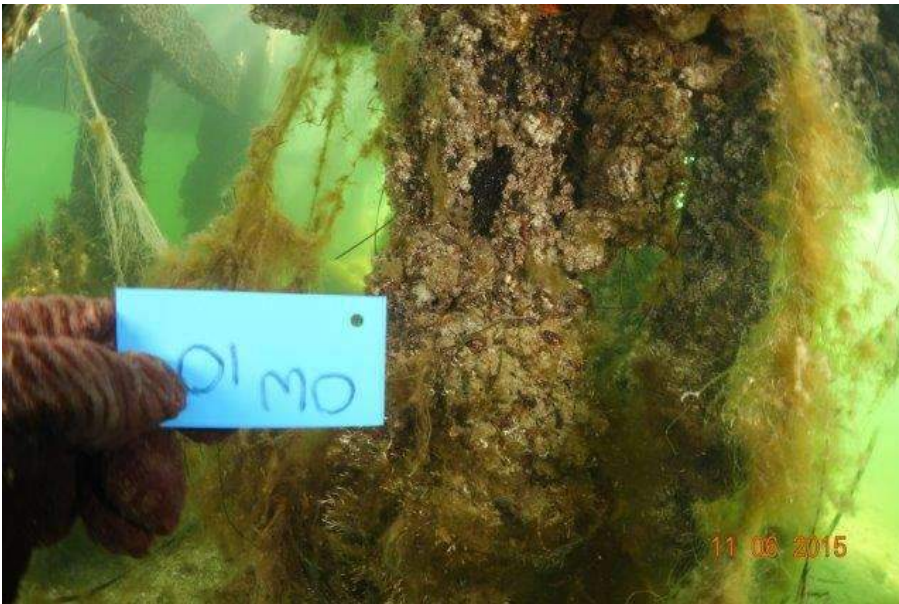
Bent Nos	Pile thickness where pile appeared most deteriorated (mm)	Height above seabed of measured section (mm)	Estimated Percentage of pile deterioration %	Defects (ie splits, holes, necking, fractures, worm activity, scouring structural damage)	Comments
8					Broken pile



Outer walkway bent 8 illustrating fully broken pile

Outer walkway

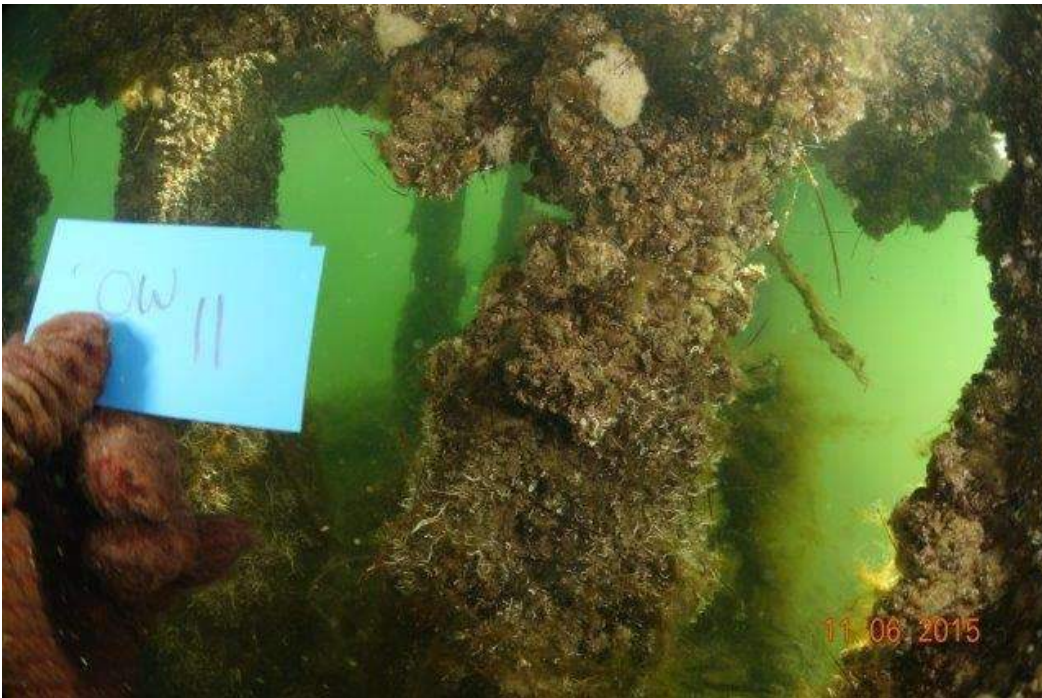
Bent Nos	Pile thickness where pile appeared most deteriorated (mm)	Height above seabed of measured section (mm)	Estimated Percentage of pile deterioration %	Defects (ie splits, holes, necking, fractures, worm activity, scouring structural damage)	Comments
9	320	1 metre	10		No visual defects
10	130	1 metre	80		



Outer walkway bent 10 pile

Outer walkway

Bent Nos	Pile thickness where pile appeared most deteriorated (mm)	Height above seabed of measured section (mm)	Estimated Percentage of pile deterioration %	Defects (ie splits, holes, necking, fractures, worm activity, scouring structural damage)	Comments
11	120	1 metre	70		



Outer walkway bent 11 pile

Outer walkway

Bent Nos	Pile thickness where pile appeared most deteriorated (mm)	Height above seabed of measured section (mm)	Estimated Percentage of pile deterioration %	Defects (ie splits, holes, necking, fractures, worm activity, scouring structural damage)	Comments
12					Steel pile
13 north					Steel pile
13 south					Steel pile



No bolt fitted at pile 12

Inner walkway

Bent Nos	Pile thickness where pile appeared most deteriorated (mm)	Height above seabed of measured section (mm)	Estimated Percentage of pile deterioration %	Defects (ie splits, holes, necking, fractures, worm activity, scouring structural damage)	Comments
1	400	1 metre	5%		No visual defects
2	440	1 metre	5		No visual defects
3	440	1 metre	5		No visual defects
4	440	1 metre	5		No visual defects
5	390	1 metre	5		No visual defects
6	500	1 metre	5		No visual defects
7	380	1 metre	5		No visual defects
8	500	1 metre	5		No visual defects
9	440	1 metre	5		No visual defects
10	400	1 metre	5		No visual defects
11	500	1 metre	5		Adjacent steel pile In good condition
12	460	1 metre	5		No visual defects
13 north	470	1 metre	5		No visual defects
13 south	460	1 metre	5		No visual defects

EMAIL commdivers@bigpond.com

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Summary

Significant pile defects were visually observed at the following bents

Main walkway

Bent 17

Outer walkway

Bents 1, 3, 4, 7, 8, 10, 11

Inner walkway

None

Photos have been downsized for emailing.

Specific cleaning around where cross head bolts are located for elongation could be considered during future inspections

The inspection was carried out from a commercial diver's perspective.

Should you require any further details or have any queries please do not hesitate to contact the undersigned direct on 0407 69 45 26 or email commdivers@bigpond.com

Yours sincerely



Jock Lawrie

***Cost Estimate for
Upgrade to Existing Wharf Facility at
Fisherman's Wharf
Port Pirie, S.A.***

For the Port Pirie Regional Council

Project No: 13467 Rev B

Prepared by: AR

August, 2013

This project involves the upgrading of the existing wharf facility by replacing an existing jetty with floating pontoons. The upgrade also includes a new gang way from the shore line to the floating pontoons and dredging of the area to 2.0 meters below LAT.

Notes:

This cost estimate is for budgeting purposes only, and should not be considered as comparable to a tender price for the works.

This cost estimate is based on Rawlinson's Australian Construction Handbook (2012) and rates obtained from local contractors.

The estimate has been compiled with all due care, however Magryn & Associates Pty Ltd accepts no liability for the accuracy of the estimate.

**UPGRADE of EXISTING BOAT MOORING FACILITY
INSTALLATION OF FLOATING PONTOONS (OPTION A)**

Project No: 13467 REV B

ITEM DESCRIPTION		AMOUNT	UNITS	RATE	TOTAL	ITEM TOTAL
remove existing jetty	remove	160	m ²	\$ 100	\$ 16,000	
remove existing jetty piers	remove	84	each	\$ 350	\$ 29,400	
transport/tip fees (local)	dispose	32	T	\$ 125	\$ 4,000	
existing services	disconnect	item		\$ 2,000	\$ 2,000	
gang way	supply & install	17	m	\$ 2,000	\$ 34,000	
pontoons (3.0m wide)	supply & install	85	m	\$ 2,500	\$ 212,500	
pontoons (2.0m wide)	supply & install	120	m	\$ 1,800	\$ 216,000	
fingers (0.9m wide)	supply & install	201	m	\$ 1,000	\$ 201,000	
piling rig	mobilisation & set up	item		\$ 50,000	\$ 50,000	
guide piles inc cap	supply & driving	37	each	\$ 3,000	\$ 111,000	
					Subtotal	\$ 875,900
Statutory Charges						
Allowance for statutory Charges						\$ 7,500
					Total	\$ 883,400
Preliminaries 5%						\$ 43,795
Builders Margin 5%						\$ 43,795
Contingencies 10%						\$ 87,590
					Total excl.GST	\$ 1,058,580

Cost savings can be made on this job if it is done at the same time as the "demolish, remove, dispose and replace existing pontoons" and "installation of floating pontoons with widened boat ramp under" jobs on the upgrade of existing boat launching facility job.

The saving could be up to \$100,000 if all the jobs are done at the same time due to only having to pay for the mobilisation and set up for the pile rig once.

**UPGRADE of EXISTING BOAT MOORING FACILITY
INSTALLATION OF FLOATING PONTOONS (OPTION B)**

Project No: 13467 REV B

ITEM DESCRIPTION		AMOUNT	UNITS	RATE	TOTAL	ITEM TOTAL
remove existing jetty	remove	160	m ²	\$ 100	\$ 16,000	
remove existing jetty piers	remove	84	each	\$ 350	\$ 29,400	
transport/tip fees (local)	dispose	38	T	\$ 125	\$ 4,750	
existing services	disconnect	item		\$ 2,000	\$ 2,000	
remove existing guide piles	remove	37	each	\$ 500	\$ 18,500	
gang way	supply & install	17	m	\$ 2,000	\$ 34,000	
pontoons (3.0m wide)	supply & install	85	m	\$ 2,500	\$ 212,500	
pontoons (2.0m wide)	supply & install	120	m	\$ 1,800	\$ 216,000	
fingers (0.9m wide)	supply & install	313	m	\$ 1,000	\$ 313,000	
piling rig	mobilisation & set up	item		\$ 50,000	\$ 50,000	
guide piles inc cap	supply & driving	48	each	\$ 3,000	\$ 144,000	
					Subtotal	\$ 1,040,150
Statutory Charges						
Allowance for statutory Charges						\$ 7,500
					Total	\$ 1,047,650
Preliminaries 5%						\$ 43,795
Builders Margin 5%						\$ 43,795
Contingencies 10%						\$ 87,590
					Total excl.GST	\$ 1,222,830

Cost savings can be made on this job if it is done at the same time as the "demolish, remove, dispose and replace existing pontoons" and "installation of floating pontoons with widened boat ramp under" jobs on the upgrade of existing boat launching facility job. The saving could be up to \$100,000 if all the jobs are done at the same time due to only having to pay for the mobilisation and set up for the pile rig once.

UPGRADE of EXISTING BOAT MOORING FACILITY DREDGING WHARF

Project No: 13467 REV B

dredging (inc EPA fees/ water monitoring)	mobilisation & set up	item	\$	160,000	\$	160,000		
dredging	plant & labour	4000	m ³	\$	14	\$	56,000	
						Subtotal	\$ 216,000	
Statutory Charges								
Allowance for statutory Charges							\$	7,500
							Total	\$ 223,500
Preliminaries 5%							\$	42,325
Builders Margin 5%							\$	42,325
Contingencies 10%							\$	84,650
							Total excl.GST	\$ 392,800

Cost savings can be made on this job if it is done at the same time as the "dredging and new rock rip rap wall" job on the upgrade of existing boat launching facility job. The saving would be \$160,000 over both jobs due to only having to pay for the mobilisation and set up of dredging.

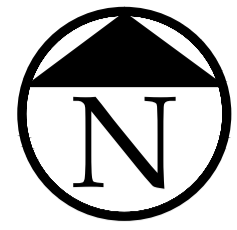
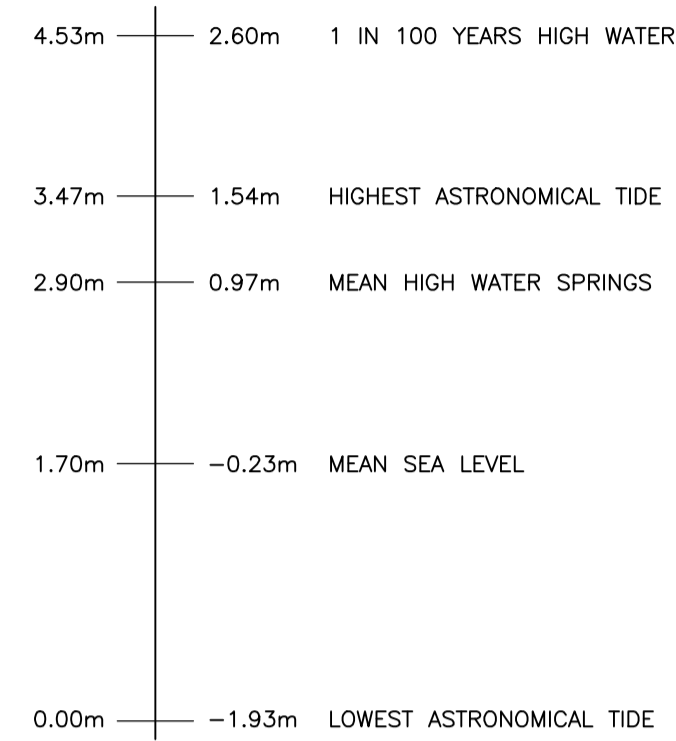


CHART DATUM AUSTRALIAN HEIGHT DATUM



WATER LEVEL DATA

SCALE 1:50

NOTES:

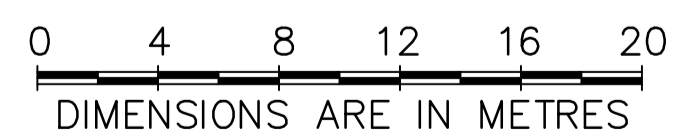
SURVEY BY SYMONDS RYAN & CORNISH.
 REF No 130709 VERSION 01, 28-07-2013.
 DATUM FOR LEVELS AUSTRALIAN HEIGHT DATUM.

LEGEND

- DEMOLISH AND REMOVE EXISTING JETTY AND REPLACE WITH 3.0 METER WIDE FLOATING PONTOONS.
- DEMOLISH AND REMOVE EXISTING JETTY AND REPLACE WITH 2.0 METER WIDE FLOATING PONTOONS.
- NEW 3.0 METER WIDE GANG WAY, MAX GRADE 1:4 WITH FIXED PLATFORM AT HAT.
- DREDGE AREA TO -3.93 AHD (ANTICIPATED VOLUME 4000 CUBIC METERS).
- NEW 0.9 METER WIDE FINGERS.
- EXISTING JETTY TO BE DEMOLISHED AND REMOVED.
- NEW GUIDE PILE.
- RETAIN EXISTING GUIDE PILE.
- DEMOLISH AND REMOVE EXISTING GUIDE PILE.
- SINGLE BERTH MOORING 12 METER LONG VESSEL.
- DOUBLE BERTH MOORING 12 METER LONG VESSEL.
- SINGLE BERTH MOORING 10 METER LONG VESSEL.
- DOUBLE BERTH MOORING 10 METER LONG VESSEL.
- SINGLE BERTH MOORING 6 METER LONG VESSEL.
- SINGLE BERTH MOORING 8 METER LONG VESSEL.
- DOUBLE BERTH MOORING 8 METER LONG VESSEL.
- SINGLE BERTH MOORING 22 METER LONG VESSEL.
- SINGLE BERTH MOORING 18 METER LONG VESSEL.

No OF VESSEL BERTHS

22m	1 BOAT
12m	11 BOATS
10m	30 BOATS
6m	37 BOATS



CONCEPT PLAN A

SCALE 1:250

NEW FIXED GANGWAY
 MIN 1.54 METERS AHD

NEW FLOATING GANGWAY

NEW PILE

NEW LIGHT

NEW BOLLARDS

NEW STEPS

NEW EDGE

NEW WALL

NEW MIN

NEW JETTY

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A	PRELIMINARY ISSUE	AR 16.08.13
ISSUE	AMENDMENTS	INT./DATE



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CLIENT:

PORT PIRIE REGIONAL
 COUNCIL

PROJECT:

WHARF UPGRADE

PROJECT ADDRESS:

FISHERMANS WHARF
 PORT PIRIE

TITLE:

CONCEPT DRAWING A

CONTRACTORS MUST VERIFY ALL DIMENSIONS PRIOR TO ANY OFF SITE FABRICATION.

DESIGN: AR	SCALE: AS SHOWN	DATE: AUG 2013
SHEET SIZE: A1	DRAWING NUMBER: 13467-1	REVISION: A

