



City of Nedlands

# Technical Services Reports


**Committee Consideration – 10 November 2015**

**Council Resolution – 24 November 2015**

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<b>TS27.15</b>	<b>Tender No. 2015/16.02 Reticulation Relocation Services</b>
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<b>Committee</b>	10 November 2015
<b>Council</b>	24 November 2015
<b>Applicant</b>	City of Nedlands
<b>Officer</b>	Nathan Brewer – Purchasing and Tenders Coordinator
<b>Director</b>	Mark Goodlet – Director Technical Services
<b>Director Signature</b>	
<b>File Reference</b>	TS-PRO-00086
<b>Previous Item</b>	Nil

## Executive Summary

To award the term contract for the provision of reticulation relocation services in the City of Nedlands.

## Recommendation to Committee

### Council:

1. **Agrees to award tender no. 2015/16.02 to MA King & S King for the provision of reticulation relocation services as per the schedule of rates submitted; and**
2. **Authorises the Chief Executive Officer to sign an acceptance of offer for this tender.**

## Strategic Plan

KFA: Natural and Built Environment

Award of this tender enables the City to maintain the irrigation and reticulation network throughout the City.

## Background

The City of Nedlands includes a provision for the provision of reticulation relocation services to maintain and repair the City's and private infrastructure as part of the engineering services operational works. Expenditure on this contract will exceed \$150,000. Therefore to comply with legislative requirements outlined in the *Local Government Act 1995* and ensure the best value for money for the City, this service must be tendered.

Tender documents were advertised on Wednesday 8 July 2015 in the West Australian Newspaper. The tender submission period commenced on Wednesday 8 July 2015 and submissions closed at 2:00 pm Wednesday 29 July 2015. Submitted tenders were opened by Officers of the City at 2:00 pm Wednesday 29 July 2015.

The City received eight conforming tender submissions as follows:

1. Add Business Group Pty Ltd;
2. Elliotts Irrigation Pty Ltd;
3. Environmental Industries Pty Ltd;
4. Environmental Industries Pty Ltd alternate bid;
5. Horizon West Landscape and Irrigation Pty Ltd;
6. Greenworx Commercial Maintenance Pty Ltd;
7. CO and JM Dowsing PL ATF The Dowsing Family Trust T/A Dowsing Concrete; and
8. MA King and S King.

## Key Relevant Previous Council Decisions

Nil.

## Consultation

Required by legislation:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Required by City of Nedlands policy:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

## Legislation / Policy

*Local Government Act 1995, section 3.57*  
*Local Government (Functions and General) Regulations 1996, Part 4*  
City of Nedlands Policy – ‘Purchasing of Goods and Services’

## Budget/Financial Implications

Within current approved budget:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Requires further budget consideration:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

## Risk Management

Failing to appoint the contract will impact on the City’s ability to maintain the current service levels of irrigation and reticulation repair.

Key risk areas, including financial and regulatory risks, have been addressed through the control measures applied through the tender documentation and evaluation process. Reference checks were completed on the recommended contractor following the evaluation process.

## Discussion

The tender was independently evaluated by three City Officers in accordance with the qualitative criteria specified in the tender documentation, as set out in the below table extract from RFT 2015/16.02.

<p><b>Organisation Capabilities</b> A Tenderer must as a minimum, address the following information and label it “<b>Organisation Capabilities</b>”:</p> <ul style="list-style-type: none"> <li>a) Nominate key personnel to be involved in this contract and provide relevant experience and industry-recognised qualifications and registrations of the key personnel.</li> <li>b) Demonstrate the ability to supply and sustain the necessary manpower, plant and equipment.</li> <li>c) Demonstrate recent experience with contracts of a similar size and scope including % of workload involved in road reserves.</li> </ul>	<p><b>Weighting</b>  <b>15%</b></p>
<p><b>Performance</b> A Tenderer must as a minimum, address the following information and label it “<b>Performance</b>”:</p> <ul style="list-style-type: none"> <li>a) Demonstrate ability to provide high quality and standard of work;</li> <li>b) Demonstrated successful outcomes on previous projects of similar scope.</li> </ul>	<p><b>Weighting</b>  <b>30%</b></p>
<p><b>Demonstrated Understanding</b> A Tenderer must as a minimum, address the following information and label it “<b>Demonstrated Understanding</b>”:</p> <ul style="list-style-type: none"> <li>a) An outline of proposed methodology, including equipment and material supply details.</li> <li>b) Notice requirements to guarantee availability for works.</li> <li>c) Demonstrate understanding of working in a local government environment with examples.</li> </ul>	<p><b>Weighting</b>  <b>25%</b></p>
<p><b>Price</b> A Tenderer must as a minimum, address the following information in an attachment and label “<b>Price</b>”:  The tendered price(s) will be considered along with related factors affecting total cost to the Principal. Early settlement discounts, lifetime costs, the major components to be utilised, the Principal’s contract management costs may also be considered in assessing the best value for money outcome.</p>	<p><b>Weighting</b>  <b>30%</b></p>

The priced items were compiled in to a spreadsheet for analysis of value comparison. A price criteria score was allocated based on the best value being scored at 100% and other values scored proportionally against this price.

The pricing was weighted at 30% of the assessment with the remaining percentage being allocated to the qualitative section criteria.

## **Evaluation**

MA King and S King scored 81.36%.

The final evaluation score and price is published in Confidential Attachment 1.

## **Conclusion**

After an assessment of the submitted tenders it is proposed that the tender submission received from the contractor MA King & S King be accepted having attained the highest score in the evaluation and providing the most cost efficient outcome.


The evaluation team agreed that MA King & S King had a proven ability to provide a high standard of work.

The contract provides the option to extend the contract for a period of four 12 month extensions at the end of the initial one year period, subject to satisfactory performance.

## **Attachments**

1. Confidential Tender Assessment (not to be published).

<b>TS28.15</b>	<b>Tender No. 2014/15.21 Waste Removal from John XXIII Depot, Mt Claremont</b>
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<b>Committee</b>	10 November 2015
<b>Council</b>	24 November 2015
<b>Applicant</b>	City of Nedlands
<b>Officer</b>	Nathan Brewer – Purchasing and Tenders Coordinator
<b>Director</b>	Mark Goodlet – Director Technical Services
<b>Director Signature</b>	
<b>File Reference</b>	TS-PRO-00074
<b>Previous Item</b>	Nil

## Executive Summary

To award the term contract for the provision of waste removal services from the John XXIII depot in the City of Nedlands.

## Recommendation to Committee

- 1. Agrees to award tender no. 2014/15.21 to All Earth Group Pty Ltd for the provision of Waste Removal from John XXIII depot as per the schedule of rates (Attachment 1) submitted; and**
- 2. Authorises the Chief Executive Officer to sign an acceptance of offer for this tender.**

*[Please note the wording in this Recommendation to Committee has been corrected since original publication and was re-distributed on 9 November 2015].*

## Strategic Plan

KFA: Natural and Built Environment

Award of this tender enables the City to keep the John XXIII depot operational and maintain it as a safe area.

## Background

The City of Nedlands includes a provision for the removal of waste from John XXIII depot to maintain the City's infrastructure as part of the engineering services operational works. Expenditure on this contract will exceed \$150,000. Therefore to comply with legislative requirements outlined in the *Local Government Act 1995* and ensure the best value for money for the City, this service must be tendered.

Tender documents were advertised on Wednesday 8 July 2015 in the West Australian Newspaper. The tender submission period commenced on Wednesday 8 July 2015 and submissions closed at 2:00 pm Wednesday 29 July 2015. Submitted tenders were opened by Officers of the City at 2:00 pm Wednesday 29 July 2015.

The City received four conforming tender submissions as follows:

1. All Earth Group Pty Ltd;
2. Fairfield Holdings Pty Ltd ATF R Gullotto Family Trust T/A Capital Recycling;
3. Kelair Holdings Pty Ltd; and
4. Western Maze Pty Ltd T/A Barak Transport Australia.

## Key Relevant Previous Council Decisions

Nil.

## Consultation

Required by legislation:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Required by City of Nedlands policy:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

## Legislation / Policy

*Local Government Act 1995, section 3.57*  
*Local Government (Functions and General) Regulations 1996, Part 4*  
City of Nedlands Policy – ‘Purchasing of Goods and Services’

## Budget/Financial Implications

Within current approved budget:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>
Requires further budget consideration:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

## Risk Management

Failing to appoint the contract will impact on the City’s ability to maintain the John XXIII depot.

Key risk areas, including financial and regulatory risks, have been addressed through the control measures applied through the tender documentation and evaluation process. Reference checks were completed on the recommended contractor following the evaluation process.

## Discussion

The tender was independently evaluated by three City Officers in accordance with the qualitative criteria specified in the tender documentation, as set out in the below table extract from RFT 2014/15.21.

<b>Key Personnel, Skills and Experience</b> Tenderer's must, as a minimum, address the following information in an attachment and label it " <b>Key Personnel</b> ": a) Nominate key personnel to be involved in this contract; and b) Provide relevant industry experience, current qualifications and registrations of the key personnel;	<b>Weighting</b>  <b>10%</b>
<b>Performance</b> A Tenderer must as a minimum, address the following information in an attachment and label it " <b>Performance</b> ": a) The ability to supply and sustain the necessary resources, staff and equipment; b) Demonstrated ability to meet specifications of this request; and c) Ability to demonstrate recycling of waste items removed from John XXIII depot.	<b>Weighting</b>  <b>60%</b>
<b>Price</b> A Tenderer must as a minimum, address the following information in an attachment and label " <b>Price</b> ": The tendered price(s) will be considered along with related factors affecting total cost to the Principal. Early settlement discounts, lifetime costs, the major components to be utilised, the Principal's contract management costs may also be considered in assessing the best value for money outcome.	<b>Weighting</b>  <b>30%</b>

The priced items were compiled in to a spreadsheet for analysis of value comparison. A price criteria score was allocated based on the best value being scored at 100% and other values scored proportionally against this price.

The pricing was weighted at 30% of the assessment with the remaining percentage being allocated to the qualitative section criteria.

## Evaluation

The contractor that scored the highest in the evaluation was All Earth Group Pty Ltd with a score of 92.33%.

The final evaluation score and price is published in Confidential Attachment 1.

## Conclusion

After an assessment of the submitted tenders it is proposed that Council agrees to award tender no. 2014/15.21 to the contractor All Earth Group Pty Ltd.

All Earth Group Pty Ltd scored highly in all areas of the assessment. The price schedule provided by All Earth Group, although within budget, was not the lowest of the assessed submissions. However, All Earth Group scored highest in the qualitative




criteria demonstrating excellent resources, relevant experience and a capacity to recycle a high percentage of materials resulting in a higher landfill diversion rate.

The contract provides the option to extend the contract for a period of four 12 month extensions at the end of the initial one year period, subject to satisfactory performance.

## **Attachments**

1. Confidential Tender Assessment (not to be published).

## **TS29.15      Railway Road Easement Request**

<b>Committee</b>	10 November 2015
<b>Council</b>	24 November 2015
<b>Applicant</b>	Metropolitan Cemeteries Board
<b>Officer</b>	Jacqueline Scott – Manager Technical Services
<b>Director</b>	Mark Goodlet – Director Technical Services
<b>Director Signature</b>	
<b>File Reference</b>	PAR-NSDA-00275
<b>Previous Item</b>	Nil

### **Executive Summary**

The Metropolitan Cemeteries Board wishes to install CCTV cameras within the Cemetery Railway Road Public Carpark. Fibre optic and power cables are required to cross Railway Road to link this infrastructure with the Karrakatta Cemetery.

The Metropolitan Cemeteries Board has received Development Approval from the City for the installation of these services subject to certain conditions being met, one of which is the provision of an easement to accommodate the required conduits, pits and cabling, for the benefit of the City of Nedlands.

This report formalises Council approval for the provision of an easement in Railway Road for the services owned by the MCB for the purpose of providing CCTV coverage of the cemetery carpark.

### **Recommendation to Committee**

**Council consents to the creation of a lot and easement in Railway Road shown on the preliminary deposited plan (Attachment 3 of this report) to the benefit of the Metropolitan Cemeteries Board for the specified purpose of the provision of fibre optic and power services, subject to the following conditions:**

- 1) the easement being for non-exclusive use of the land subject to the easement;**
- 2) the City of Nedlands retaining the right to carry out works on the easement land at its own discretion;**
- 3) that should the services become redundant then the Metropolitan Cemeteries Board shall arrange for the removal of the easement within two years of the service's redundancy;**

- 4) all costs associated with the creation, changes to, or removal of the easement on the title being the responsibility of the Metropolitan Cemeteries Board; and
- 5) inclusion of conditions 1) to 3) above on the Certificate of Title or as section 70A notification on the Certificate of Title.

## Strategic Plan

KFA: Natural and Built Environment

Consent for this easement contributes to land use planning by the creation of appropriate land tenure.

## Background

The Metropolitan Cemeteries Board wishes to provide CCTV coverage to the Cemetery Railway Road Public Carpark and require power and fibre optic cabling to do so (refer to Attachment 1).

In September 2015 the City of Nedlands approved the private works, under routine delegation, for the installation of the conduits, pits and cabling across Railway Road, subject to standard conditions (refer to Attachment 2).

Landgate have recommended that an easement be created in the Railway Road reserve to help identify its location. As the Metropolitan Cemeteries Board is not a public utility with automatic rights to construct services within road reserves, this would protect their right to have services under the road and ensure that it is identified in its current position into the future; thus minimising the risk that it will be accidentally damaged by construction or maintenance activity.

## Key Relevant Previous Council Decisions

Nil.

## Consultation

Required by legislation:

Yes ☐

No ☒

Required by City of Nedlands policy:

Yes ☐

No ☒

## Legislation / Policy

The *Land Administration Act 1997*, Part eight directs matters pertaining to easements over Crown land. Section 144 allows the Minister, with the consent of every management body, to grant an easement over the Crown land, subject to any conditions that the Minister may impose.

As the Crown is the owner of the road reserve an easement would be granted by the Minister for Regional Development; Lands. Nevertheless, the City of Nedlands has

care and control of Railway Road and the City's consent for the creation of the easement is required.

## Budget/Financial Implications

Within current approved budget:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Requires further budget consideration:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

Costs associated with creation of the lot and the easement will be borne by the Metropolitan Cemeteries Board.

## Risk Management

Provision of the easement provides surety for both the Metropolitan Cemeteries Board and the City of Nedlands. The Metropolitan Cemeteries Board is able to minimise risk of damage to its services through certificate of title identification of the easement, making future location of the services simple.

The City of Nedlands is able to mitigate its risk of having private works in its road reserve by stipulating the terms under which the services and their easement are to be allowed.

## Discussion

### Lot Creation

In order to create the easement within a road reserve a new lot must firstly be created for the section of Railway Road where the easement is to be located. The easement can then be created within the new lot. This new lot will be shown on the draft deposited plan.

The lot will be Crown land with care and control vested in the City of Nedlands.

### Easement

The City of Nedlands is vested with care and control of the road reserve and it has an interest in knowing the location of the services. The City may have no objection to an easement being created on the land but may seek provision of a 70A notification on the Certificate of Title, to include the following statements;

- a) the easement is for non-exclusive use of the land subject to the easement;
- b) that the City of Nedlands retains the right to carry out works on the easement land at its own discretion;
- c) that all costs associated with the creation, changes to, or removal of the easement on the title are the responsibility of the Metropolitan Cemeteries Board; and
- d) that should the services become redundant then the Metropolitan Cemeteries Board shall arrange for the removal of the easement within two years of the service's redundancy.

The Metropolitan Cemeteries Board has acknowledged and agreed to conditions a) to c) above. The recommendation to Council is that The Metropolitan Cemeteries Board now incorporates these terms formally into the Certificate of Title.

## **Conclusion**

It is recommended that the City of Nedlands provide consent for the creation of a lot and an easement for the benefit of The Metropolitan Cemeteries Board. The easement will ensure the services can be readily located in future and will protect the Metropolitan Cemeteries Board right to use the land for the services, providing orderly and proper planning for Railway Road Reserve.

## **Attachments**

1. Proposed CCTV and Fibre Optic Cable on Railway Road and Train Station Carpark; and
2. Nature Strip Development Approval Permit.

# TS29.15 – Attachment 1 – Proposed CCTV and Fibre Optic Cable on Railway Road and Train Station Carpark





Enquiries: Civil Compliance Officer - 9273 3500  
Our reference: PAR-006765

23 September 2015

Metropolitan Cemeteries Board of WA  
PO Box 53  
CLAREMONT WA 6910

Dear Sir/Madam

**Nature strip development application – Installation of Fibre Optic and Power Cabling - Railway Road Public Carpark**

I refer to the above application received on 5 August 2015 regarding the installation of fibre optic and power cabling on the nature strip adjacent to the above property.

In accordance with the provisions of Council's Nature Strip Development policy, and the authority delegated to the City, your request to install fibre optic and power cabling has been **approved**. Permit to commence construction is conditional to:

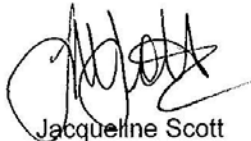
1. Metropolitan Cemeteries Board accepting all costs involved in the design and installation of the fibre optic and power cabling development in accordance with this permit.
2. The development being installed / constructed in accordance with the enclosed approved plan(s).
3. The property owner accepting that the nature strip remains a public space and may be traversed by the public if and when required.
4. The property owner accepting responsibility for maintaining the development and keeping it in a safe and tidy condition.
5. Ensuring no damage is caused to utilities services or infrastructure during construction / installation of the cabling works and damage of any kind to adjacent property or nature strip areas in the course of construction works is reinstated to the satisfaction of the City. Metropolitan Cemeteries Board is responsible for defects liability for a period of 2 years from the completion of the works.



6. Metropolitan Cemeteries Board accepting where the City or a utilities provider carrying out works disturbs a nature strip, the City or the utilities provider is not liable or obligated to compensate any owner / occupier for the disturbance or to replace or restore any nature strip development.
7. Contacting the City's Civil Compliance Officer (9273 3500) to arrange a site inspection prior to commencement of the works.
8. No works be undertaken without a suitable traffic management plan for the works in place and approved by the City of Nedlands.
9. No construction works are permitted without all the necessary approvals in place to the satisfaction of the City of Nedlands.
10. Metropolitan Cemeteries Board is to provide an easement to the benefit of the City of Nedlands (All costs associated with this are the responsibility of the Metropolitan Cemeteries Board).
11. Metropolitan Cemeteries Board to undertake consultation with all affected stakeholders prior to works. This includes but not limited to service authorities and customers.
12. Metropolitan Cemeteries Board to provide as constructed data to the City of Nedlands upon finalisation of the works.
13. Metropolitan Cemeteries Board agree to reimburse the City of Nedlands in the instance of emergency safety works required by the City of Nedlands are not completed in a timely manner according to the City of Nedlands and the City of Nedlands carries out the works itself or under contract.
14. Metropolitan Cemeteries Board indemnifies the City of Nedlands against all loss or liability for the construction, maintenance and ongoing use of the conduit or pipe in the road reserve.

If you have any enquiries regarding this matter, please contact the City's Civil Compliance Officer on 9273 3500.

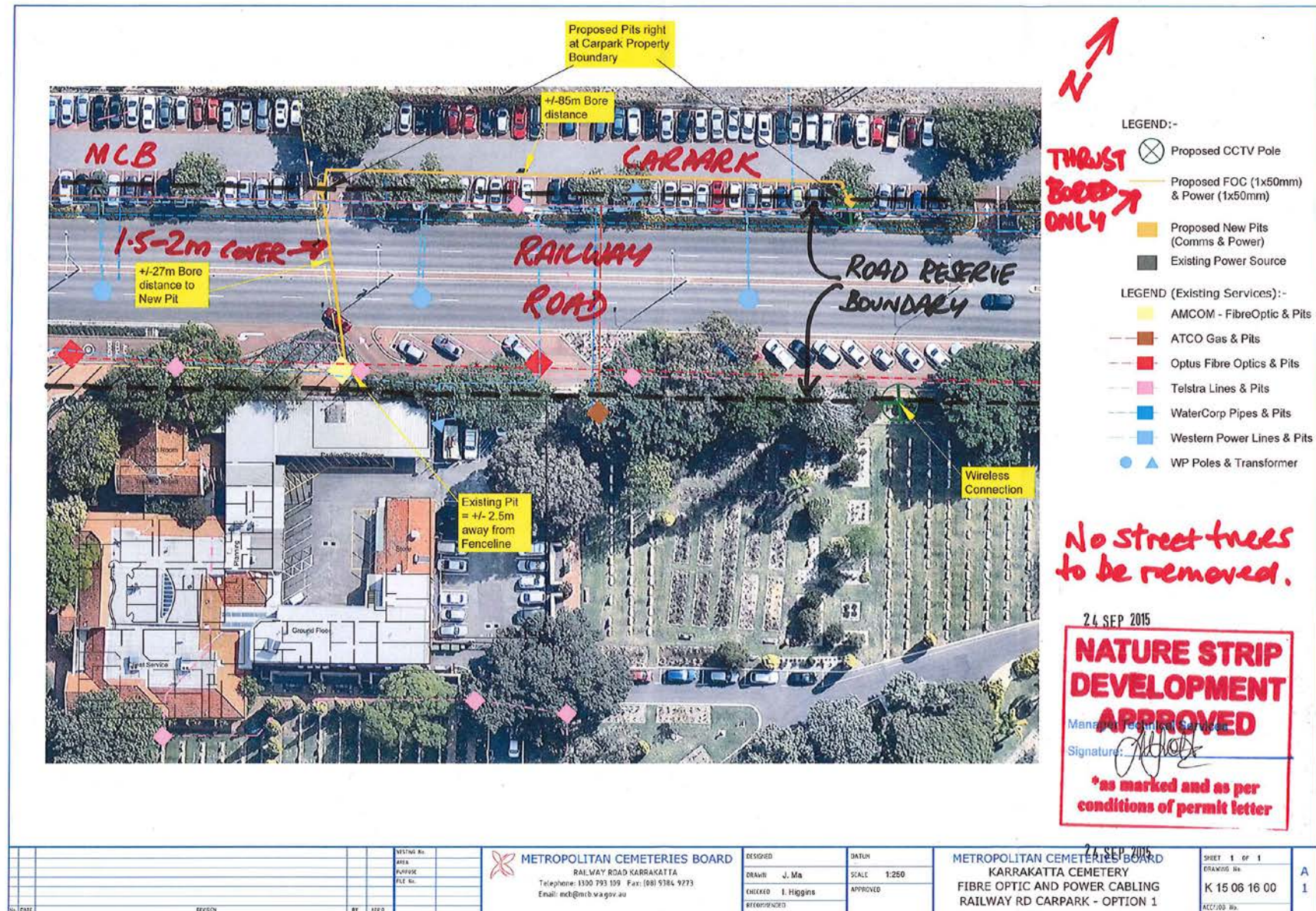
Yours sincerely




Jacqueline Scott  
Manager Technical Services

Enclosed: Copy of Approved Plans  
Specification for the Construction of Crossovers





## **TS30.15 Funding for River Wall Maintenance**

<b>Committee</b>	10 November 2015
<b>Council</b>	24 November 2015
<b>Applicant</b>	City of Nedlands
<b>Officer</b>	Jacqueline Scott – Manager Technical Services
<b>Director</b>	Mark Goodlet – Director Technical Services
<b>Director Signature</b>	
<b>File Reference</b>	PRS/100-16; TS-PRJ-00008
<b>Previous Item</b>	TS04.13; TS03.15

### **Executive Summary**

Following proactive maintenance works to the river wall completed by the City in 2013/14, the Rivers and Estuaries Division of the Department of Parks and Wildlife (DPaW) has now proposed to allocate funding for the repair of the river wall with the City boundary subject to complementary funding from the City.

### **Recommendation to Committee**

**Council agrees:**

1. to include \$400,000 plus overheads in the 2016/17 draft budget, being \$150,000 of City funds and \$250,000 from Department of Parks and Wildlife funds, for repair of the river wall, and subject to a successful grant application;
2. to include \$800,000 plus overheads in the 2017/18 draft budget, being \$250,000 of City funds and \$550,000 from Department of Parks and Wildlife funds, for repair of the river wall, and subject to a successful grant application; and
3. authorises the Chief Executive Officer to sign a collaborative agreement between the City of Nedlands and The Department of Parks and Wildlife for the Nedlands River Wall Foreshore Restoration *P15NL01*.

### **Strategic Plan**

KFA: Natural and Built Environment

To manage the City's assets in a sustainable and responsible manner and to provide and maintain quality riverbank access for community leisure activities.

### **Background**

#### **Key Relevant Previous Council Decisions**

At the Council Meeting of 10 February 2015 Council resolved the following.

*Council:*

1. Approves Stage 1 detailed design of the rock revetment solution for the river wall;
2. Approves funding in the 2014/15 budget to the value of \$76,560. This funding to be made up of a re-allocation of \$44,050 of City funds from the Tawarri Jetty project (non-reserve) and grant funding of \$32,510 from the Swan River Trust;
3. Authorises the Chief Executive Officer to sign a collaborative agreement between the City of Nedlands and Swan River Trust for the Nedlands River Wall Foreshore Restoration P15NL01; and
4. Approves consideration of funding in the 2015/16 budget as follows:
  - a) \$11,880, being \$5,940 from City funds and \$5,940 from Swan River Trust grant funds as part of the collaborative agreement between the parties; and
  - b) \$465,500, being \$299,250 from City funds and \$166,250 from Swan River Trust funds, for construction of the river wall and subject to a successful grant application.

The funding in point 4b was not subsequently approved in the 2015/16 budget, and as a result repair of the river wall is not included in the 2015/16 capital works program.

## Consultation

Required by legislation:

Yes ☐

No ☒

Required by City of Nedlands policy:

Yes ☐

No ☒

A community consultation plan was developed and implemented for the 'long term planning for the river wall', presenting the overall concept plan for the river wall upgrades. This consultation was completed in early 2015. Support for the solution combining of limestone wall, rock revetment and pocket beaches along the foreshore was high with 86% in favour.

## Legislation / Policy

*Swan and Canning Rivers Management Act 2006*

*Planning and Development Act 2005*

*City of Nedlands Greenways Policy*

*Swan River Trust Policy SRT/DE7 River Retaining Walls*

## Budget/Financial Implications

Within current approved budget:

Yes ☐

No ☒

Requires further budget consideration:

Yes ☐

No ☒

This requires a total of \$400,000 plus overheads of City funding over two years, in order to access \$800,000 of DPaW funding; \$150,000 in 2016/17 and \$250,000 in 2017/18. This \$2 for \$1 offer is the most cost advantageous proposal the City has received in recent times for the river wall repair.



DPaW is proposing to jointly fund these works over two years from 2016 to 2018. A substantial contribution to these works of \$800,000 by DPaW is required to be matched by \$400,000 from the City. This is a significant improvement on the previous cost share model, as detailed in Table 1.

In order to confirm the funding a commitment is required from the City by the end of 2015/16, as a portion of funds would be released to the City immediately. This commitment would be demonstrated by the City through the resolution to include the required funds in the draft budget, and signing of a Collaborative Agreement by the City's CEO and the Divisional Manager of the Rivers and Estuaries Division of DPaW.

Table 1: Comparison of Funding Offers

<b>2015/16 Funding Proposal</b>	
City of Nedlands	Department of Parks and Wildlife
\$99,750	\$99,750
50%	50%
<b>2016/17 Funding Proposal</b>	
City of Nedlands	Department of Parks and Wildlife
\$150,000	\$250,000
37.5%	63.5%
<b>2017/18 Funding Proposal</b>	
City of Nedlands	Department of Parks and Wildlife
\$250,000	\$550,000
31%	69%

## Risk Management

The condition of the river wall is continuing to worsen. There is a risk that significant damage and further failure could be experienced to large sections of the river walls prior to their replacement. Several sections (between 1,100 and 1,200 m and around 890 m) have already failed. These areas require immediate repair or replacement to ensure public safety is maintained, however budget has not been provided in the 2015/16 capital works budget. In the absence of repair it is expected that adjacent sections of wall will continue to fail.

The river wall design also takes into account the most recent Department of Transport predictions about long term water level rise and therefore will also mitigate the current regular overtopping events.

The projected maintenance costs are increasing at an accelerating rate due to the increasing failures of the wall. Within the next 5 years ongoing annual maintenance costs are expected to exceed the current projected costs for the repair of the wall.

Should the replacement of the first section of the river wall be delayed further, it is likely that the following may occur:

- Continued damage to sections of river wall that are already failing, requiring ongoing repair and resulting in public safety issues;

- Failure of adjacent and other sections of river wall in the area, requiring on-going repair and resulting in public safety issues;
- Increased cost of repairs and maintenance of the river walls;
- Increased cost of replacement of the river walls due to requirements to dispose of failed sections prior to replacement; and
- Loss of funding from DPaW.

Should the current DPaW funding not be accessed at the current time, there is a high risk that it will not be available in future years. DPaW is seeking a firm commitment from the City in order to provide funding towards the repair of the river wall. In the absence of a commitment it is expected that the funding will be reallocated to other sections of the river wall outside the City, and this funding opportunity is likely to be lost.

A risk assessment on the wall has identified the loss of the wall itself as the most adverse outcome, with subsequent loss of park land. This would be a highly undesirable outcome for the City. From the perspective of DPaW leaving the wall un-restored is a relatively low risk, at least in the short term, because there is no expensive infrastructure in proximity to the rear of the wall, such as roads, utilities or buildings that need to be protected.

DPaW has indicated a strong preference to build the wall in the summer months when tide and wave influences are minimised. The City supports this view as it will minimise risks and dewatering requirements during construction and therefore result in the lowest achievable construction costs.

## **Discussion**

The condition of the river wall has been deteriorating for some time (Figure 1). The construction works to repair the wall had not been programmed to date firstly due to a lack of funding from State Government and latterly due to non-approval by council in the 2015/16 budget. The design and consultation of the works has continued to be progressed over the last two years with funding from DPaW.

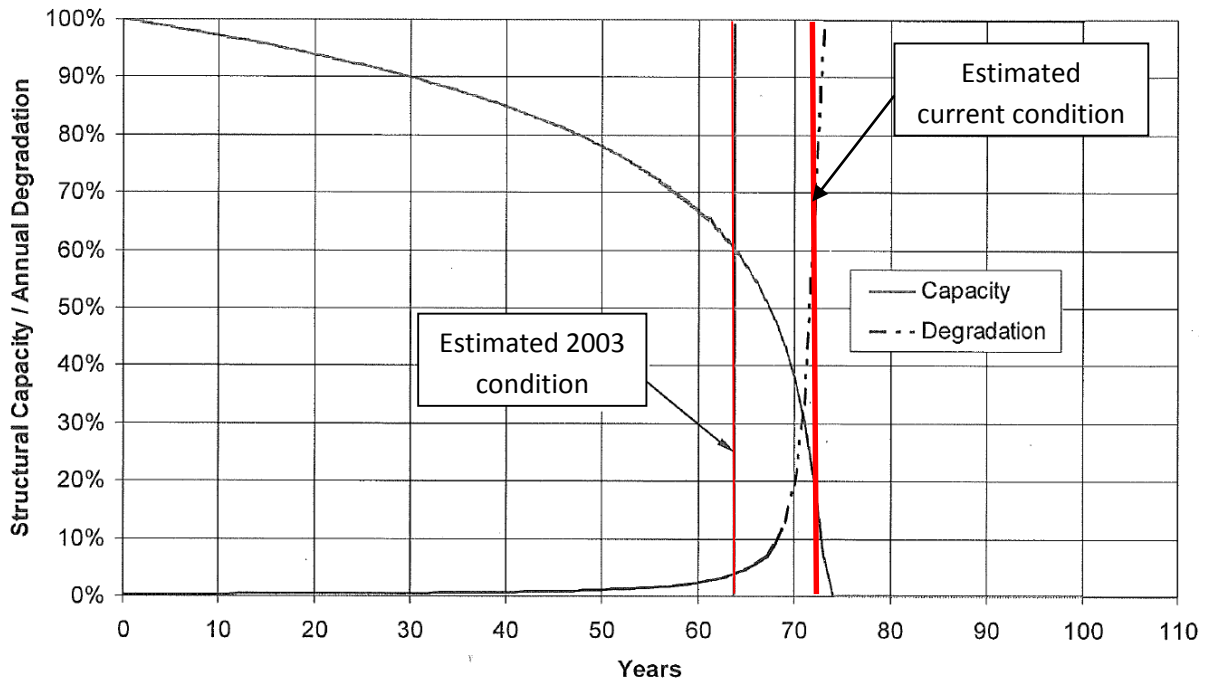


Figure 1: Structural Capacity vs Degradation Model (Damara 2003)

With funding the works would progress to construction in two phases during the low water levels of the summers of 2016/17 and 2017/18. Previously the funding only allowed for 57m of wall to be repaired. The current funding offer would allow for approximately 100m to be completed in 2016/17 and 200m in 2017/18.

An assessment of the river wall has identified that it is in a generally poor condition.

- Replacement of the entire section of river wall from Perth Flying Squadron Yacht Club (PFSYC) to Iris Avenue is recommended;
- Immediate repair is recommended for several sections of failed wall; and
- It is recommended the City consider fencing and signage for public safety between chainage 1,100 m and chainage 1,200 m.



Figure 2: Typical River Wall Degradation

Until the capital works are done maintenance activities will be completed to make the river wall safe within the existing maintenance budget for 2015/16. To ensure pedestrian safety the Dual Use Path may be diverted away from the river wall and permanent fencing be erected to keep pedestrian traffic away from the damaged wall.

It is estimated that up to \$40,000 will be required for the installation of fencing to protect the public. This is proposed to be similar to the protective fencing previously provided by the City of South Perth (Figure 3) at their failed river wall. The remaining funds will be used to patch the wall where possible, but these repairs provide limited efficacy for a short time. As further degradation continues the financial demands of maintenance will continue to increase.



Figure 3: Proposed Protective Fencing

The sections to be upgraded in each year are detailed in Attachment 1. Approximately 100m would be replaced in 2016/17 and a further 200m in 2017/18. The proposed design is of a rock revetment overlaying the existing degraded river wall. In Western Australia, the DoT has recommended appropriate allowances for sea level rise to be used in coastal planning, and the proposed design raises the crest height of the wall to make allowance for this. Landscaping will be provided to blend the revetment into the existing landscape. The planting will soften the appearance of the structure and also discourage public access over the revetment. Details of the proposed works are shown in Figure 4 and Figure 5.

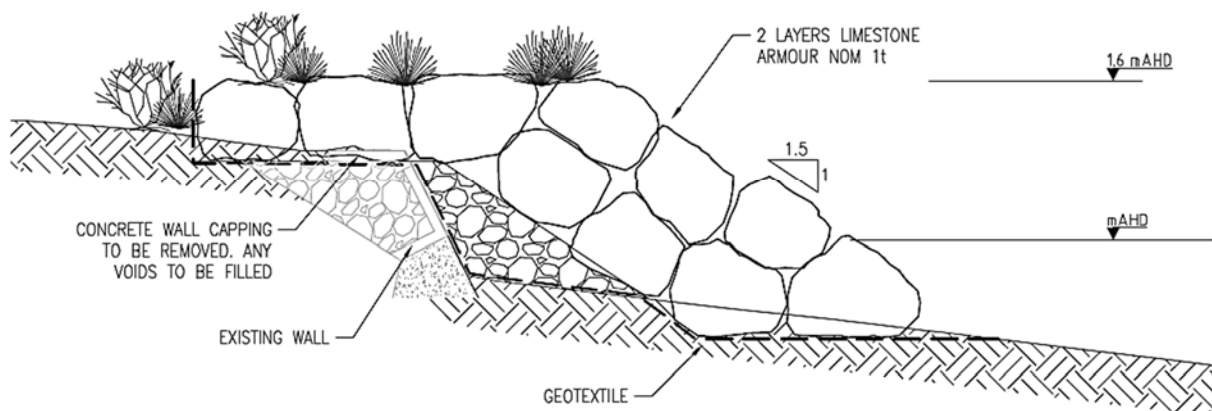


Figure 4: Rock Revetment Design





Figure 5: River Wall Before (left) and After (right)

## Conclusion

The river wall is now suffering from an extreme level of degradation. In the absence of any funding provision this will continue to worsen and maintenance and replacement costs will increase.

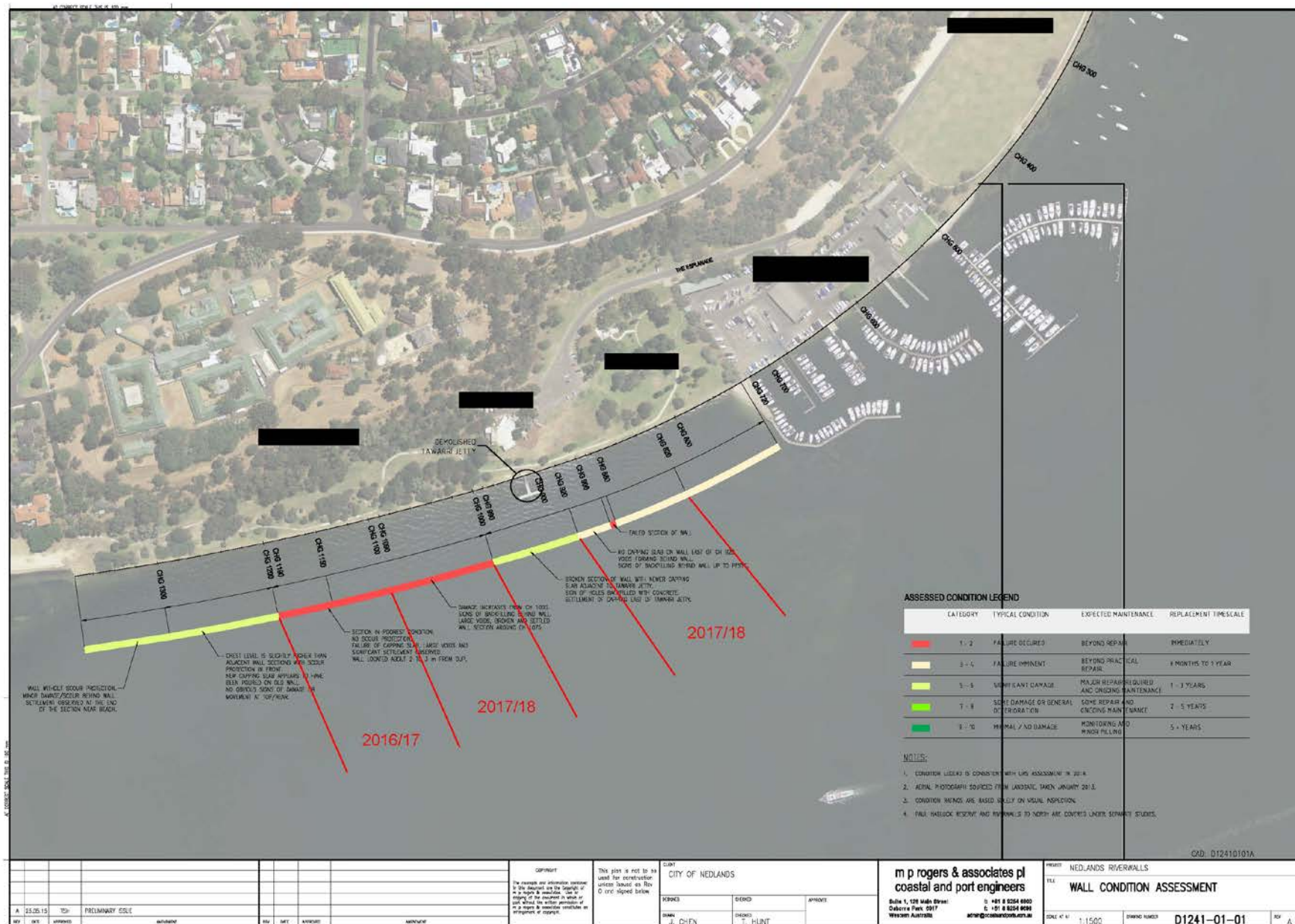
Funding is now on offer from the DPaW and a commitment from Council is required to allow the repair of the river wall to be undertaken in the 2016/17 and 2017/18 capital works programmes. This commitment would be demonstrated by the City through the resolution to include the required funds in the draft budget, and signing of the Collaborative Agreement.

## Attachments


1. Drawing of sections to be upgraded in 2016/17 and 2017/18 works.



TS30.15 – Attachment 1 – Drawing of sections to be upgraded in 2016/17 and 2017/18 works.



<b>TS31.15</b>	<b>Western Suburbs Recycled Water</b>
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<b>Committee</b>	10 November 2015
<b>Council</b>	24 November 2015
<b>Applicant</b>	City of Nedlands
<b>Officer</b>	Mark Goodlet – Director Technical Services
<b>Director</b>	Mark Goodlet – Director Technical Services
<b>Director Signature</b>	
<b>File Reference</b>	TS-PRO-00002
<b>Previous Item</b>	Nil

## Executive Summary

WESROC has also for some years been concerned with securing and future proofing its supply of water for irrigation of public open space (POS).

Recent investigations into how best to secure recycled water for POS have led to the conclusion that recycled water and groundwater supply are intrinsically linked and that both issues need to be addressed to secure and future proof Western Suburbs POS water supply.

For the past three years the City of Nedlands has been pursuing the concept of using recycled water to irrigate its public open spaces. The City now has the opportunity to partner with Western Suburbs Councils, the Department of Water and Water Corporation, through the Cooperative Research Centre Water Sensitive Cities (CRCWSC) program to develop and assess the merits of a number of recycled water options.

## Recommendation to Committee

### Council:

1. Endorses the City of Nedlands' participation in the CRCWSC research synthesis project and the Tranche 2 project as a means to furthering POS water security for the City's parks, oval and reserves;
2. Endorses the City of Nedlands' partnership with the Western Suburbs Councils, Department of Water and the Water Corporation in developing and evaluating options as a means to furthering POS water security for the City's parks, oval and reserves;
3. Agrees to allocate \$47,000 in its 2015/16 budget towards the following recycled water initiatives, to be determined in the mid-year budget:
  - a. Stormwater Infiltration; and
  - b. Cost Benefit Analysis of Recycled Water options.

4. Requests the CEO to write to the Western Suburbs Councils with a proposal to each contribute to the City of Nedlands for these recycled water initiatives in the following amounts:

• Mosman Park	\$ 5,593
• Cottesloe	\$ 5,358
• Peppermint Grove	\$ 3,760
• Claremont	\$ 5,781
• Subiaco	\$ 7,943
• Cambridge	\$ 9,870
Total	\$38,305

(Nett contribution by City of Nedlands is \$8,695 if all Councils participate, but individual amounts will be subject to proportional recalibration should Councils not contribute);

5. Requests that Administration report back to Council on the outcomes of the development and assessment of the recycled water options;
6. Agrees to consider the inclusion of \$42,550 in the 2016/17 budget for progression of a recycled water scheme/s; and
7. Requests the CEO to write to the Western Suburbs Councils with a proposal to each contribute to the these recycled water initiatives in the following amounts for the 2016/17 financial year:

• Mosman Park	\$ 27,370
• Cottesloe	\$ 26,220
• Peppermint Grove	\$ 18,400
• Claremont	\$ 28,290
• Subiaco	\$ 38,870
• Cambridge	\$ 48,300
Total	\$187,450

(Total contribution to this stage, including City of Nedlands \$42,550, is \$230,000 if all Councils participate, but individual amounts will be subject to proportional recalibration should Councils not contribute).

## Strategic Plan

KFA: Natural and Built Environment

A Council outcome under this key focus area is for enhanced, engaging community spaces, including parks, ovals and reserves.

Ultimately this project is about future proofing water supply for the irrigation of parks, ovals and reserves, which will ensure the City's ability to keep its parkland amenity.

Two key influences are impacting on the City's ability to keep its parks, ovals and reserves green. The first is small but persistent additions of public open space as new developments are approved and built. These each add an impost on the City's set groundwater allocation, which then leads to reduced watering in other parks in order to incorporate the new POS irrigation areas.

The second influence impacting on the City's ability to keep its parks, ovals and reserves green is from the Department of Water, which is hinting that in providing

adequate environmental groundwater resources against a backdrop of a significant decline in rainfall, it is considering lowering Council and other groundwater allocations.

The City already undertakes best practice hydro-zoning as a full member of the Waterwise program. The City is also undertaking an extensive program of upgrading the City's irrigation to enable better irrigation practices and to minimise leaks. Despite these investments there is a need to find alternative means to future proof water supply to Western Suburbs POS.

## **Background**

In 2006 WESROC developed and partly implemented a stormwater infiltration program as a means of improving groundwater supplies, with the aim of ensuring adequate irrigation water to POS. The Town of Cottesloe was most successful with this as it completed a project to infiltrate almost all of its stormwater and virtually eliminated the need for ocean outfalls. This model remains as an exemplar to the Western Suburbs.

In 2013/14 WESROC began investigating options for the use of recycled water from the Water Corporation's Subiaco waste water treatment facility (SWTF). A concept was developed for directly irrigating the open spaces of the Western Suburbs Local Governments, public and private schools, golf courses, cemeteries, Defence Force land, and the University of WA, from the SWTF, via a direct pipe, store and irrigate proposal.

The Direct Pipe, store and irrigate proposal was circulated to all the stakeholders and presented to the Water Corporation, the Department of Water and the Minister for Water in 2014.

At the same time as the Direct Pipe proposal was developed the Water Corporation's Beenyp Managed Aquifer Recharge (MAR) project was found to be successful and the Water Corporation commenced investigations into using the same technology at its other ocean outfall wastewater treatment facilities, including Subiaco.

The Water Corporation's response to the WESROC proposal was to offer a small amount of post-production water from the Subiaco Wastewater Treatment Facility, on the basis that they could now use the bulk of the wastewater for their own potable water MAR. This rendered the WESROC project unviable due to the loss of economies of scale and the amount of extra water treatment that would be required to bring the water up to a usable standard. The Minister for Water responded to WESROC on the Water Corporation's behalf on this matter.

In December 2014, Meredith Blais, Manager, Water Policy at the Water Corporation extended an olive branch to WESROC and offered to work collaboratively to undertake a cost benefit analysis of the two proposals to see which provided the best economic return with a view to pursuing the highest value opportunity.

At the same time the Department of Water has been considering groundwater allocation and use in the Perth metropolitan area and they have been a stakeholder of the CRC Water Sensitive Cities. They have been interested in maximising the potential for the use of recycled water and have recommended that two additional alternative water reuse options be developed and examined:

1. Stormwater Infiltration Proposal; and
2. Non-potable Recycled Water Managed Aquifer Recharge Proposal.

In essence then there are now five proposals to be developed, costed, and compared on a cost / benefit basis to determine the greatest public good outcome. The fifth is a proposal by the Department of Water on how to optimise water use, a bit like Waterwise, which is discussed later in this report. The five projects then are:

1. Potable Recycled Water Managed Aquifer Recharge (Water Corporation);
1. Direct Pipe Store and Irrigate (WESROC);
2. Non-potable Recycled Water Managed Aquifer Recharge (WESROC);
3. Stormwater Infiltration (WESROC); and
4. Water Use Minimisation/Optimisation (DoW – discussed later).

## Key Relevant Previous Council Decisions

Nil.

## Consultation

Required by legislation:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Required by City of Nedlands policy:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>

At this stage of the project no public consultation is necessary. If the project proceeds beyond the cost benefit stage then public consultation be carried out as an essential part of the next stage and is identified in the 2016/17 financial proposal below.

## Legislation / Policy

Nil.

## Budget/Financial Implications

Within current approved budget:	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>
Requires further budget consideration:	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>

Other than the in-kind project work the WESROC contribution to the Phase 1 costs elements are as follows:

• MAR pre-feasibility	\$ 0	DoW to fund
• Groundwater modelling	\$ 0	DoW to fund
• Stormwater Infiltration	\$ 27,000	WESROC
• Cost Benefit Analysis	\$ 20,000	WESROC
<b>Total</b>	<b>\$ 47,000</b>	

Contributions by each Council for 2015/16:

Cambridge	Claremont	Cottesloe	Mosman Park	Nedlands	Peppermint Grove	Subiaco	<b>Total Cost</b>
\$9,870	\$5,781	\$5,358	\$5,593	\$8,695	\$3,760	\$7,943	\$47,000

Funding for this first phase is required for this financial year.

Funding for the next phase of the project is dependent on the outcomes of the first phase, however a minimum project funding to advance work on the WESROC MAR or the Stormwater Drainage Infiltration will be required and it is recommended that \$200,000 be set aside for this purpose, including a component for public consultation.

Currently only the City of Subiaco and the City of Nedlands contribute to the CRCWSC program as industry partners and it is recommended that WESROC become an active industry member, in order to participate in the Tranche 2 projects round and benefit from the knowledge, support and access to funds that CRCWSC is able to unlock.

Funding for the second phase would be required in 2016/17 and the WESROC contribution to Phase 2 costs elements are:

• MAR / Stormwater Infiltration development/Consultation	\$200,000
• WESROC CRCWSC membership	\$ 30,000
<b>Total</b>	<b>\$230,000</b>

Contributions by each Council for 2016/17:

Cambridge	Claremont	Cottesloe	Mosman Park	Nedlands	Peppermint Grove	Subiaco	<b>Total Cost</b>
\$48,300	\$28,290	\$26,220	\$27,370	\$42,550	\$18,400	\$38,870	\$230,000

The use of the WESROC Project Officer to support and drive this project is essential for its success. This will be a key activity of the officer's role and because it is a western suburbs wide project, the officer's participation and communications efforts will be essential. It is noted that the WESROC Project Officer's skill set and qualifications in the environmental knowledge area are an ideal match for this project.

WESROC's support through in-kind utilisation of the WESROC Project Officer will be an indication of our commitment to the project outcomes. For these reasons it is recommended that the City formally propose to each of the Western Suburbs Councils that they participate in this project and assist in funding it.

## Risk Management

The risks associated with declining groundwater allocation have been discussed elsewhere in this report.

The recommendation to Council seeks a \$47,000 commitment from the City of Nedlands for this project in the 2015/16 stage, with letters to go to each Western Suburbs Council to seek their contribution. Should a Council elect not to participate then the City of Nedlands will bear the cost of the non-participation of the other Council/s. However, given the importance of the project to the City and the significant benefit the City of Nedlands will derive from participating with the other State Government stakeholders and the CRCWSC, it is considered that there is a strong benefit for the City in taking this leadership position.

The recommendation on expenditure of for the 2016/17, however, seeks the joint participation of the other Councils without the impost to the City of Nedlands of bearing the full cost of this stage and then asking for contributions.

## **Discussion**

### Groundwater Quality

As well as groundwater volumes, groundwater quality has been on the WESROC agenda and this year further concerns have been raised in relation to this and the suspected connection to tree decline and deaths. Partnering with the Department of Water and the CRCWSC will enable the Western Suburbs Councils to investigate this issue with the potential to simultaneously provide solutions to this problem as well as to the POS water security problem.

### Project Partnership

The City's partnerships on this initiative present a significant opportunity to maximize external expertise being focused on the Western Suburbs. This project will allow the Department of Water to develop a much better informed, localized understanding of groundwater in the Western Suburbs which will enable them to properly assess and assign future groundwater allocations. It will also allow them to develop policy positions based on direct knowledge and experience in dealing with the recycled water in the Western suburbs, potentially supplementing declining groundwater allocations.

This will put the Western Suburbs in the best possible position to gain a positive outcome in the allocation of groundwater, as a pilot project area. In short, the City's participation in this project working with State Government provides a leadership position towards meeting the City's strategic community outcome of enhanced community space.

### Storm water Infiltration Proposal

This scheme was developed by WESROC and successfully deployed in Cottesloe where all ocean outflows were reduced to just the events exceeding a 1 in 10 year storm. This involved installing at source infiltration pits in the streets and parks.

Post installation groundwater level reassessment is now being carried out jointly between the WESROC and the Department of Water to quantify the results of this new regime in Cottesloe.

Importantly, the Department of Water have indicated that they may be conducive to increased water extraction allocations to the WESROC member Councils should this

continue to be rolled out. It is therefore proposed that this option be further developed within the City and be assessed on a cost benefit basis against the other options.

#### Non-potable Recycled Water Managed Aquifer Recharge Proposal

MAR recharge is the intentional recharge of water to suitable aquifers for subsequent recovery or to achieve environmental benefits; the managed process assures adequate protection of human health and the environment.

There are a number of methods used to recharge aquifers including injection wells or infiltration structures such as ponds, basins, galleries and trenches. These methods help to reduce transport and storage costs and water loss through evaporation.

As discussed the Department of Water is prepared to undertake a pre-feasibility study (in the order of \$100,000) to develop this proposal to a point where injection locations can be determined and broad costs determined. They are also funding the development of the local groundwater model for the Western Suburbs. These expenditures represent a significant benefit to the western suburbs. This superficial MAR option will then be assessed against the other options for its cost benefit outcomes.

#### Direct Pipe, Store and Irrigate

This model has been successfully led by local government in regional WA for many years. Additional filtration and backwash occurs at the Subiaco wastewater treatment facility. Water would be distributed along 23 km of pipeline ranging in diameter from 450mm down to 80mm into tanks and held for a day. Water is chlorinated with the irrigation cycle.

This is the scheme developed by the City of Nedlands and it will also be assessed against the other options for its cost benefit outcomes.

#### Groundwater Restoration Campaign

The issue of groundwater has become prominent because of the concerns regarding water quality and because the interconnectedness of the Recycled Water options to groundwater. Direct Pipe would virtually eliminate reliance on groundwater, while the Storm water Infiltration and the two MAR options essentially use the space below ground as a large, non-evaporative storage area.

#### Department of Water

The Department of Water have been considering Metropolitan groundwater allocations and are keen to provide leadership on the next step in which water supply is managed in all its forms and the inter-relationship between its various forms is dealt with holistically.

In order to gain a sound understanding of groundwater allocations and in order to integrate the benefits of recycled water they are proposing pre-feasibility work be carried out on the local WESROC area groundwater model and on the non-potable water MAR option. They are offering to fund this themselves and their proposal is as follows.



- *The Department of Water are very keen to partner with WESROC through the Cooperative Research Centre for Water Sensitive Cities (CRCWSC), to investigate alternative water use Phase 1 work (to June 2016)-*
  - *The pre-feasibility study primarily involves a desktop literature review of previous studies into MAR using recycled water, identify potential infiltration sites and outline the requirements for meeting the Australian Guidelines for water recycling and the DoW's MAR policy.*
  - *Groundwater conceptual model of the western suburbs area. This will review all available geology, hydrogeology, water levels, water quality and groundwater abstraction data to develop a conceptual model of the groundwater hydrogeology, the water balance, water level and water quality trends under a drying climate. The study will provide reasons for the water quality problems occurring, and identify the gaps in knowledge and monitoring and make recommendations on future actions to rectify these. This work will be done by an experienced hydrogeologist working on contract, in house, to DoW standards for this kind of work. The DoW will fund all of this work.*
  - *Cost benefit analysis of the three recycled water for POS options. Some work will be required to bring all three options to a comparable cost and benefit basis and then compare them using the Marden and Jacobs recycled water CBA method. Although this would involve DoW, WESROC and the Water Corporation, someone will need to do the work. This could be done by DoW as they have the in-house capability.*
- *Phase 2 work (post June 2016) –*
  - *Review of phase 1 outcomes and agree on next steps and timing. If the outcome of the CBA indicates that the MAR option is the preferred approach and that further work is required on this to firm up then phase 2 MAR work would proceed (subject to funding) as below.*
  - *Feasibility level investigation work in accordance with the Australian Guidelines based on the outcomes of the phase 1 work. This may require development of a groundwater local area numerical model based on the groundwater conceptual model. This investigation would firm up feasibility in terms of costs, benefits, scheme configuration and acceptable management of health and environmental risks.*

#### Water Use Minimisation/Optimisation

*DoW has been working with the CRC for Water Sensitive Cities at UWA on methods to optimise/minimise water use for POS in the Perth region. This could be regarded as a 'fifth option' for POS watering to be evaluated as part of the joint WESROC, DoW, Water Corporation western suburbs POS watering work. In reality it isn't a full alternative (as it would minimise but not replace the need for some POS watering) but more an essential first step in an overall strategy to provide alternative POS watering to meet future needs. The CRC will do work on the costs and benefits of this approach as part of this project. It makes sense to include this as part of the overall WESROC POS work.*

### Cooperative Research Centre for Water Sensitive Cities

The Cooperative Research Centre for Water Sensitive Cities is the nation's peak research group on water for cities. All of the stakeholders involved in this project are also working with CRCWSC.

Phase 1 is proposed to be linked to the CRCWSC Research Synthesis Project and it will benefit from the CRC's research expertise applying its knowledge to this phase of the work.

Phase 1 is proposed to also be linked to the CRCWSC Tranche 2 Project and it will benefit from directly applicable CRC's research expertise applying its knowledge to this phase of the work.

## **Conclusion**

This report is provided to Council on the basis of the latest industry and research developments on recycled water and groundwater. Wastewater has finally become a scarce and competitive resource in the Metropolitan area and there is an opportunity for the City of Nedlands and the Western Suburbs Councils to partner the Department of Water, the Water Corporation under the CRCWSC banner to develop further recycled water options and assess the best outcomes for POS future proof irrigation water.

## **Attachments**

Nil.