ATTACHMENTS

Attachments for the Ordinary Council Meeting

24 February 2015

Part 3 of 4

Item 10.3.3

City of South Perth

ATTACHMENTS TO AGENDA ITEMS

Ordinary Council Meeting - 24 February 2015

Contents

ROYAL PERTH GOLF CLUB

Royal Perth Golf Club (Incorporated) ABN 74 515 567 620
Labouchere Road South Perth Western Australia 6151 Telephone (08) 6436 4900 Facsimile (08) 9367 5219
Website www.rpgc.com.au Email frontdesk@rpgc.com.au

17 September 2014

City of South Perth
Planning Department
Civic Centre
Cnr Sandgate Street and South Terrace
SOUTH PERTH WA 6151

Dear Sir,

Please find enclosed completed Form 1, Application for Approval to Commence Development together with a report and recommendation from Country Club International, third party experts in the design, installation and project management of high sporting safety screening.

This application is in respect of a proposal to erect a safety screen between the Golf Club and Richardson Park Reserve, starting at the boundary between Amherst Street and the Golf Club driving range teeing mats, past the western end of the Amherst Street Parking Station for the sporting clubs, continuing past the cricket club practice nets, a total distance of 160 metres.

It is proposed to construct the safety screen on the existing fence line, which varies from slightly more than 2 metres encroaching into Amherst Street / Richardson Reserve, to in excess of 5 metres encroaching into Royal Perth Golf Club. To construct the safety screen on the actual boundary would interfere with considerable paving / bitumen and established cricket practice nets and facilities, which in this instance does not appear justified. We have attached a surveyors drawing showing the boundary and where the existing fence is located, along with where the safety screen is proposed to be erected.

It is proposed to erect the safety screen immediately on the South side of the existing fencing. The proposed safety screen is anticipated to be erected off ground level at approximately 1.5 – 2 metres to minimise the risk of any vandalism but more importantly, to allow our Course staff to mow and maintain the area directly beneath the safety screen. This therefore will mean that the existing fence will remain in place and provide protection from errant golf balls at the lower level. The appropriate Dial Before You Dig application has been made and indicates that no services will be impacted. Additionally, Storm Water lines have been identified and after recent discussions with a City Officer, we believe that the safety netting can be commissioned without interference.

The construction of the safety screen will necessitate the removal of existing trees to prevent them fouling the proposed netting. Our Lease requires consultation with the City before felling or removing any mature trees on the Reserve. We do not believe in this instance these trees are significant in nature, however, we do seek your agreement to remove all interfering trees for 160 metres along this boundary. It may also result in trees on both sides of the fencing to require removal, some of which may be outside the Golf Club boundary.

Similar safety screens have been subject to environmental reports at other locations in Australia particularly in relation to the potential for bird life to be impacted by the netting. Studies have

however shown that bird life simply cannot become lodged in the type of netting that is proposed to be used. After contacting the Wembley Golf Course owned by the Town of Cambridge who have a similar safety screen (albeit higher) with identical materials, advise that there has been no issues with birdlife. References to the environmental reports are included in the attached Proposal Document from Country Club International.

For many years, Royal Perth Golf Club has had a Driving Range located in the current location and operated the practice facility on the south side of the existing fence line. The Club's driving range location and facility has been in operation since the early 1970's with the practice cricket nets relocating to the current location in the early 1980's, increasing the patronage of this area. The driving range is used for Member practice, tuition, warm-up, club fitting and selection, and is an essential part of the golf club operations.

Over recent years, the density of sporting club use of the car park has further increased, partly stemming from the introduction of metered parking in Richardson Reserve Parking Station, which resulted in all three sporting clubs, with the approval of the City, to introduce parking permits for the use of this shared facility that is in existence today. In more recent times, the introduction of gym facilities at the hockey and cricket Clubrooms has also increased usage of the Amherst Street Parking Station shared car park facilities, particularly in the early mornings and late afternoons.

At the same time, enhanced golf equipment and golf ball technology over the years has ensured that golf balls now fly further and higher. The Golf Club has already spent thousands of dollars on preventative measures such as fencing solutions and strategic tree planting, ensuring we are pro-active in minimising the number of errant golf balls leaving our boundary. We have also procured special low compression practice range balls which have a shorter flight and lower trajectory as well as limiting the times that the driving range can be used. Our ultimate aim is to again increase the operating hours of our driving range once the fence is constructed in order to promote sport and healthy lifestyles.

Unfortunately despite the preventative measures mentioned above, our statistics still show that there is a number of errant golf balls leaving the driving range and landing in the Amherst Street Parking Station car park or the adjacent sporting club facilities. Education and supervision of our Members, together with the adoption of driving range specific golf balls which have a shorter and lower flight path has shown a measurable improvement, however we have reluctantly concluded that a safety screen is essential to further mitigate the risk of injury to members of the three sporting clubs sharing the use of the car park and sporting facilities or additionally general public visitors and now gym users (at times when parking cards are not required in this parking facility).

The safety screen in the attached report is proposed to be 160 metres long and 24 metres high comprised of certain fibre and properties that have been used successfully at other sporting venues here in Perth and around the country. The proposed safety screen is seen as a much safer and effective means of capturing errant golf balls as opposed to the existing measures currently in place. The report details other venues where the safety screen has been used satisfactorily and the photos demonstrate that the visual effect of the netting is minimal. The supporting pylons which are engineered to withstand the prevailing winds are the main cost in the project and also the visible element. We believe that this recommendation from Country Club International is a sensible and pragmatic approach to public safety.

We look forward to expeditious consideration of our proposal, as set out in the report from Country Club International.

Brad Dawson
General Manager

August 25, 2014

Proposed

Safety Fencing
At

Royal Perth Golf Club

Presented to

Mr Brad Dawson
General Manager
ROYAL PERTH GOLF CLUB

By

COUNTRY CLUB
INTERNATIONAL

Royal Perth Golf Club.

INTRODUCTION:

Country Club International was established in 1992 and has been at the forefront of developing designs and systems for high safety screens in Australia, New Zealand and South East Asia – particularly for sports fields, golf courses and ranges.

Much of the technology has originally been based on systems used in USA and Europe where extreme conditions have demanded "world's best practice" in both design and componentry. In many ways CCI have now taken structural design of safety screens to another level again.

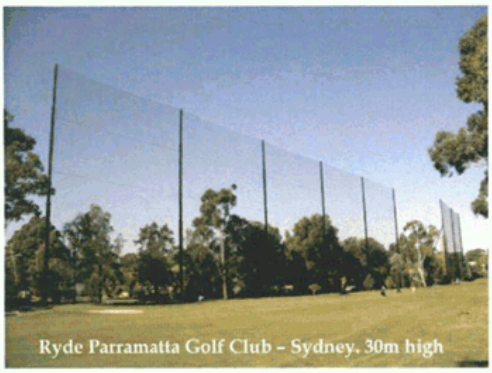
Country Club International are the exclusive importers of Redden #930 multifilament polyester barrier netting – regarded as the lightest and strongest net of its type. At 92% sheer it is also aesthetically better as it is almost translucent.

This quality and strength at such a low wind load rating (8%) has allowed design development to surpass anything ever seen here before, with screens up to 30 metres high – the tallest in Australia – using slender poles and wide pole spacing to significantly reduce the visual impact of the screens..

There is no greater example of Country Club's motto *"Supplying the best. Nothing less"* than the work now being done by CCI in safety screens for the Golf and Sports industry.

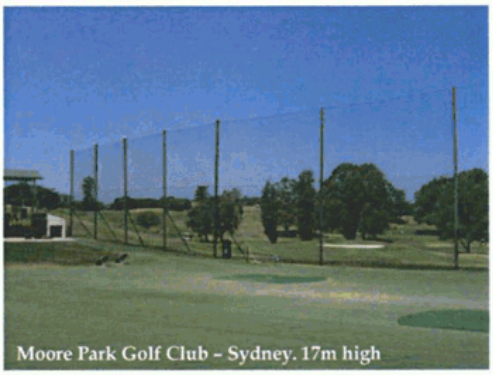
Wembley Golf Course - Perth. At up to 36m tall this is one of the highest engineered fences in Australia and has set new design parameters for both poles and footings in this country.

Royal Perth Golf Club.


Ryde Parramatta Golf Club – Sydney. 30m high

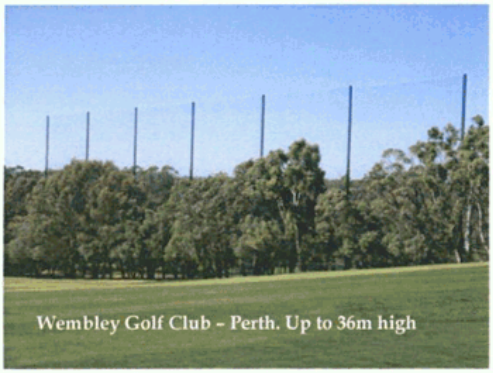

Wollongong Golf Club – NSW. 20m high


Gold Coast Burleigh Golf Club – 25m high


Moore Park Golf Club – Sydney. 17m high


Malvern Valley Golf Club – Melbourne. 18m high


Tempe Golf Range – Sydney. 15m high


Wembley Golf Club – Perth. Up to 36m high


Commonwealth Golf Club – Melbourne. 18m high

Royal Perth Golf Club.

NETTING

To effectively compare alternative fibre components used to manufacture sports netting you need to evaluate each fibre component and their properties using the following criteria in order of importance. This typical value chart was provided by the USA Cordage Institute Technical Service:

1: Resistance to Ultra Violet degradation from sunlight

- The ability of a fibre to retain its inherent qualities (strength and flexibility) after long exposure to sunlight:

BEST	**Polyester**
GOOD	Nylon
FAIR	Polypropylene

2: Breaking strength (both wet and dry)

- Not only should strength be considered but – more importantly – the ability of a fibre to retain a high percentage of its initial strength after being exposed to UV and water:

Breaking strength – dry (grams per denier)

7.8 – 10.4	Nylon
7.0 – 10.0	**Polyester**
6.5	Polypropylene

Wet strength compared to dry

100%	**Polyester**
100%	Polypropylene
85%-90%	Nylon

3: Water absorption

- If the fibre absorbs moisture such as condensation and rainfall, greater stress (weight) is put upon the fibre and structure:

0%	Polypropylene
<1%	**Polyester**
2%-8%	Nylon

4: Elongated creep under sustained workload

- If a fibre elongates it becomes weaker. Such elongation creates "droop" or "bagging" of the net:

Low	**Polyester**
Moderate	Nylon
High	Polypropylene

There is no doubt in the industry that polyester is by far the premium fibre to be used for high barrier netting. Cheaper polyethylene and polypropylene can be used to reasonable effect on lower nets but have a history of failure on high nets under adverse conditions. Nylon is simply not in consideration due to its ability to absorb water.

Royal Perth Golf Club.

Transparency is directly related to the wind load rating. Redden #930 polyester is rated at 8%. The result is clear.

Ryde Parramatta Golf Club

Moore Park Golf Course & Range

Royal Perth Golf Club.

WARRANTY

- Redden #930 has a 10 year pro rated warranty.
- Average field life for #930 has been demonstrated to be in the region of 10 – 15 years.
- All Redden netting is full UV treated.
- Calculated weight is 146 grams per sq.m (0.03 oz per sq. Ft.)
- Wind load rating #930 is 8%
- If the net is cut or damaged it will not unravel
- Redden #930 is a flat rashelle weave (Knotless)
- Porosity is less than 1%

MAINTAINENCE

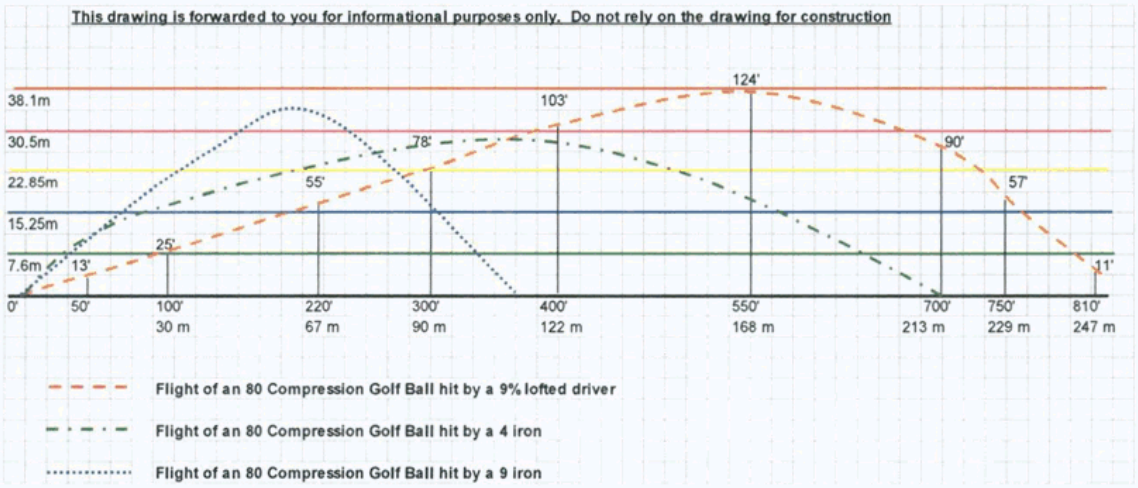
There is little in terms of Maintenance other than ensuring nets are clear of debris and are sufficiently clear of trees.

Replacement panels are custom made in the USA and are generally air freighted out due to their low weight.

All rigging is fixed and there is virtually no risk of failure. Components are kept in stock at Country Club at all times.

If required Country Club International would conduct an annual inspection of all netting, rigging and components. This would involve boom lift hire plus riggers – the costs of such to be passed on.

GOLF BALL TRAJECTORY STUDIES



Golf ball trajectory studies indicate that a well hit drive off a tee can reach 38-42 metres in height depending on atmospheric conditions. Typically, though, most shots are less than this – particularly errant ones as they tend to lose power.

WEATHER CONDITIONS

Bureau of Meteorology data provided indicates the general wind pattern ranges from mild easterlies in the morning to stronger south-westerlies in the afternoon.

The nett effect of this is to increase the risk of errant balls from the golf range in the afternoon but at the same time "flattening" the trajectory.

SPECIFICATION OF WORKS

After conducting a site visit, Country Club International was asked to provide recommendations as to how best contain errant golf balls from the practice fairway into the adjacent sporting ground and buildings.

It is our considered opinion that – despite there being reasonable tree growth in the subject area which provides a level of protection – proper containment of errant balls cannot be achieved without the introduction of some safety netting.

With safety paramount to the club and all concerned Country Club International have provided our recommendation based on the three key points outlined below:-

- Install a structure that is to provide maximum protection to the general public and vehicular traffic.
- Install a structure that has the least detrimental effect to the aesthetics of the course.
- Provide a cost efficient solution

Royal Perth Golf Club.

With great consideration given to the current situation along with our golf ball trajectory studies we proposed the following option:-

- **Screen 1: Practice fairway**
  Installation of a safety screen along the northern boundary for a total distance of 160 metres and a height of 24 metres

Despite reasonable tree growth reducing the incidence of errant balls there is and always will be an ongoing risk of balls leaving the practice fairway and into the adjacent carpark and playing fields.

The ball trajectory study would suggest a higher screen but due to factors including the use of range balls which generally have up to 20% reduced flight path and prevailing weather conditions that can reduce trajectory patterns further we are satisfied that a 24m high screen will reduce any risk to an absolute minimum.

The yellow line indicates the general location of the proposed safety screen.

As discussed on site we will provide further effective protection by filling the "triangle" created by the supporting guy cable with safety netting. Our final recommendations vary slightly from the original proposal in 2011 in that we believe we should protect the area more comprehensively right from the back tee rather than from just 40m forward.

Effectively this adds another 40m to the length of the originally proposed screen – although its furthest point remains the same and it only involves the addition of one extra 12m high pole.

Hard slicing balls from the tee (for right handers) will have essentially "done their work" before the end of the screen. There is also reasonably dense foliage beyond the 120m screen to further assist in containing balls that might make the distance.

Royal Perth Golf Club.

STRUCTURE:

Poles: In accordance with our latest designs as per Metropolitan golf course, Wembley and at many other facilities we are proposing steel poles with 3 pack corrosion proof painted black.

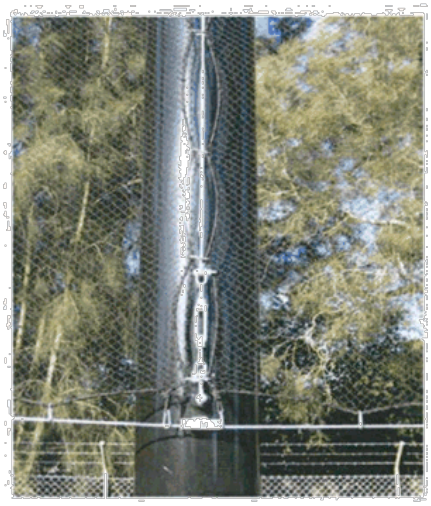
Footings: Due to the very sandy soil conditions and expected high water table in this area we have been advised that concrete pier footings would not be suitable. Accordingly we have reverted to twin screw piles with a concrete cap – essentially the same as we employed at Wembley Golf Course.

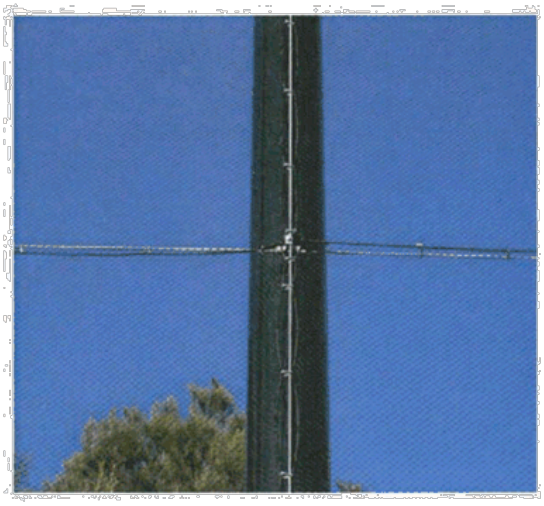
Netting: The netting would be the latest polyester Redden raschelle flat weave. At 92% sheer it is the lightest and strongest net available for this purpose.

Pole Spacing: To be set at 20 metre intervals.

Lower Cable: To be set at 1.5m – 2m from ground level to allow for maintenance.

Rigging: Correct cabling is critical to structural rigidity and also how the net hangs as a "flat sheet" rather than a billowing sail. This system has been developed over many years and is world's best practice.





- Wire rope is never used. It will stretch and fray and is most prone to rust. We will use only high tensile galvanised hard drawn cable with the appropriate rated dead ends rather than wire rope, clamps or swages.
- All cable rigging supporting the net panels will be on the face of the poles. This provides the clean sheet effect rather than coming out from centre cables to go around the poles. It also ensures that no gap goes down either edge of the pole.
- Correct 1 bolt clamps, 3 bolt clamps, sheave wheels and turnbuckles are bolted to threaded mounts on the poles for total structural rigidity.

Royal Perth Golf Club.

PRICING:
Design & construction of 160m long x 24m high safety screen on the northern boundary of the practice fairway adjacent to other sports field.
Includes engineering design, supply of materials, excavation and construction of footings, erection of steel poles, installation of high tensile rigging and netting.
Full price $428,160 plus GST

The pricing assumes normal stable soil conditions with no rock to interfere with the footings. Surveying would be carried out but it is ultimately the responsibility of the Club to advise of any underground services that may be in the vicinity of the screen.

We would provide all engineering plans, computations and survey drawings required for Planning and Building Permits. It would be the responsibility of the Club to lodge the relevant applications and pay the required fees.

SUMMARY:
This proposal seeks to provide – based on many years of experience in this industry – with the ultimate practical solution rather than a stopgap measure that would need to be addressed again in the future.

There is no doubt we could go higher. On many occasions we do, as can be seen herein. To put this in perspective, though, this proposed screen would still rate as one of the highest fences in Australia - and in fact no other company has *ever built* an engineered safety screen higher than 20m in Australia. Ever!

On a practical level a few years ago we were commissioned to design and construct a safety screen at Metropolitan Golf Club in Melbourne (see below) as they were faced with very similar issues of golf balls going from their practice fairway onto the adjacent sports oval.

The nett result following a site specific ball trajectory study we commissioned from USA was the construction of a 24m high safety screen. This has proven to be outstandingly successful in almost totally eliminating the problem – other than it not being long enough (60m).

Metropolitan Golf Club – Melbourne. This screen of 24m high at one of Australia's top golf courses is essentially the same height and pole design as that proposed herein.

ENVIRONMENTAL:

Legitimate questions have been raised in the past regarding high safety netting being a potential risk to birdlife.

Following our construction of the largest safety screen overall ever built in Australia along the new Eastlink Freeway in Melbourne (520m long. See below) we were requested to commission an Environmental Impact Statement to study any issues in this regard before proceeding with construction of similar screens on Mornington Peninsula's new Peninsula Link adjacent to Centenary Park Golf Course. The summary was as follows:

6.1.2. Potential for fauna impacts

Little information is available on the impacts on fauna of golf safety netting. At the Ringwood Golf Course, there have been no bird or bat casualties reported to or by the golf club since the installation of similar netting three years ago. Birds have been seen to change their flight path to avoid colliding with the nets (J. Cutarar, Superintendent: Ringwood Golf Course, pers. comm. 22 November 2011).

The full Ecological Report is available if required.

In practical terms we have never experienced any safety issues with birdlife. We noted some amusing times during construction at Ringwood when wattle birds (not noted for their high intelligence!) in the first couple of weeks tried continually to fly through. They bounced off harmlessly to try again. Finally they learned to go over or around and these days use it as a very handy perch.

Similar questions have been put to our netting suppliers in USA. They have never heard of any bird being caught in the golf netting. It is simply the wrong size and type of mesh for that purpose.

On a more local scale, Wembley Golf Course's 36m high screen in the centre of the golf course would be a very good indicator of risk to local fauna and would be worth checking out. We have certainly not heard of any issue there.

Ringwood Golf Course – Melbourne. Here we have gone up to 30m as tour balls are used on course and there is a very exposed new freeway adjacent.

REFERENCES:

Should the club wish to talk with any of our recent previous client's then numbers and contact names can be made available upon request.
Recent references include:-

- Metropolitan Golf Club
- Ryde Parramatta Golf Club
- SEITA (East link Melbourne)
- AbiGroup (Peninsula Link Melbourne)
- The Ridge Driving Range
- Wollongong Golf Club
- City of Greater Geelong
- Wembley Golf Club
- Dorset Golf Club
- Malvern Valley Golf Club

... and many more across Australia.

CORPORATE SUMMARY

Country Club International is committed to best Practice procedures to ensure professional customer service through Quality Assurance and Environmental Management systems, adopting best Safe Working Practices to the following standards:

ANZS/ISO9001:2000	**Quality Management System**			
ISO 14001	**Environmental Management System**			
INSURANCE	**Company**	**Policy Number**	**Expiry**	**Cover**
Public Liability	QBE Insurance	41 A001354PRL	18.12.2014	$20million
Corporate Liability	QBE Insurance	41 A001354PRL	18.12.2014	$1million
NSW WorkCover	QBE Insurance	1SPE001674GWC154	15.06.2015	
VIC WorkCover	Allianz	1176978	30.06.2015	

All relevant manuals and documentation are available for inspection.

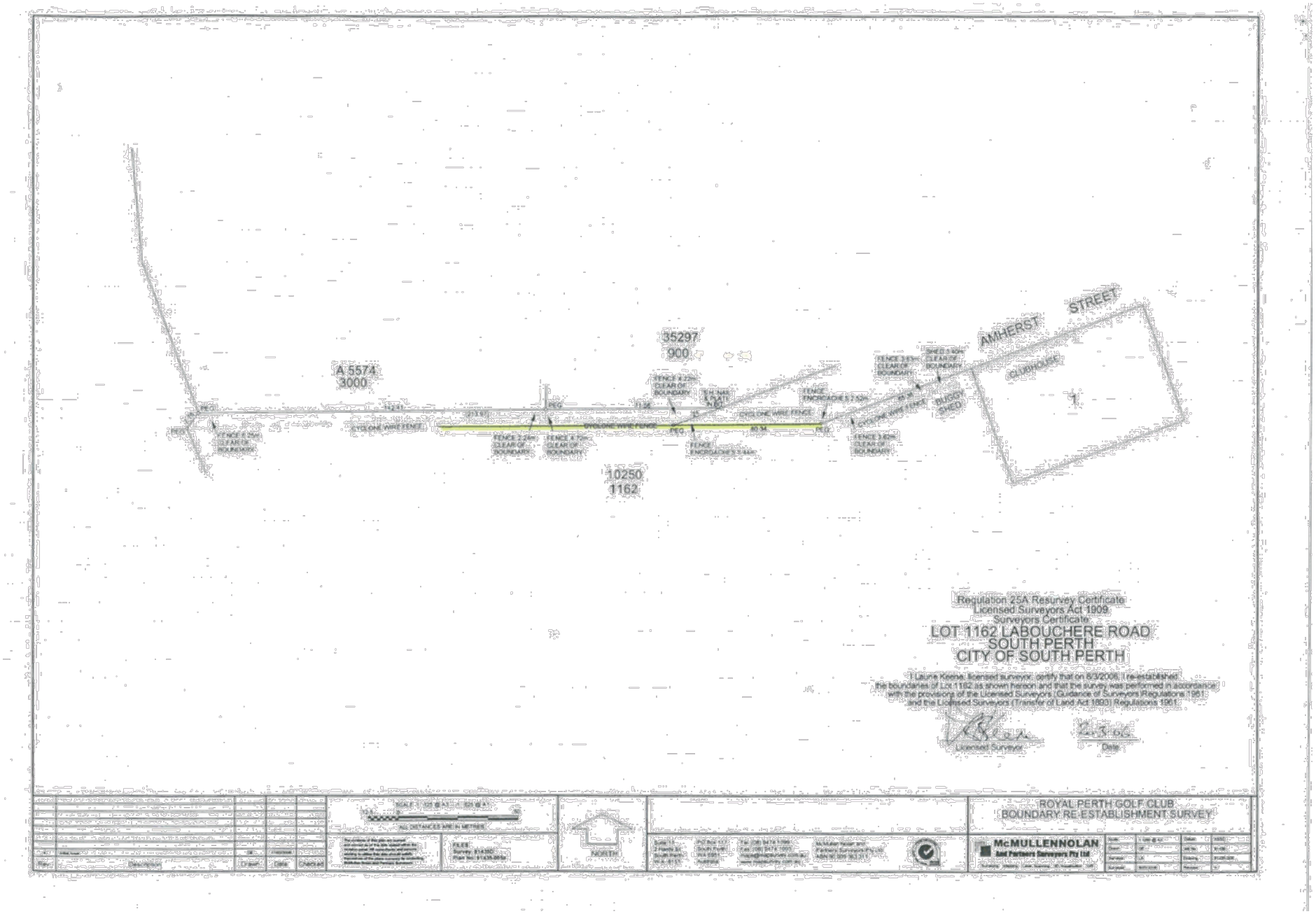
TRADING TERMS:

Our standard trading terms for custom work is 50% on placement of order, 25% on delivery of materials and 25% on completion of works.

I hope the enclosed provides the information you required and ultimately meets with your approval. Should you require any further details or clarification please contact me at any stage.

Yours Sincerely,

Mike Baker
Managing Director


AMHERST STREET
CLUBHOUSE
35297
900
A 5574
3000
10250
1162
BUGGY SHED
Regulation 25A Resurvey Certificate
Licensed Surveyors Act 1909
Surveyors Certificate
LOT 1162 LABOUCHERE ROAD
SOUTH PERTH
CITY OF SOUTH PERTH
I Laura Keene, licensed surveyor, certify that on 8/3/2006, I re-established the boundaries of Lot 1162 as shown hereon and that the survey was performed in accordance with the provisions of the Licensed Surveyors (Guidance of Surveyors) Regulations 1961 and the Licensed Surveyors (Transfer of Land Act 1893) Regulations 1961.
Licensed Surveyor
Date
NORTH
ROYAL PERTH GOLF CLUB
BOUNDARY RE-ESTABLISHMENT SURVEY
McMULLENNOLAN

ROYAL PERTH
GOLF CLUB

Royal Perth Golf Club (Incorporated) ABN 74 515 567 620
Labouchere Road South Perth Western Australia 6151 Telephone (08) 6436 4900 Facsimile (08) 9367 5219
Website www.rpgc.com.au Email frontdesk@rpgc.com.au

2 December 2014

Ms T Nguyen
Development Services
City of South Perth
Cnr Sandgate St and South Tce
SOUTH PERTH WA 6151

Dear Trinh,

Thank you for your correspondence of 11 November 2014 regarding our proposal to construct Safety Netting and also your subsequent approval to extend our response period until Friday 12 December.

We hereby now submit the following response to the City's request for further information:

Internal City Referrals

We have engaged the Club's Arborist to undertake a Tree Survey Assessment along the proposed route of the Safety Screen. A copy of this document is attached for your reference.

Item 1)
You will note that some 59 trees will need to be removed, 13 of which are juvenile trees situated on the City's land. In addition, there are a number of other trees situated on the City's land and Royal Perth Golf Club land that will require as a minimum, canopy pruning and possibly further removal depending on the final location and installation requirements of the Safety Screen infrastructure. The impact on the trees from the installation of the Safety Screen will be minimised wherever possible.

The Safety Screen is expected to come within the 3 metres of the City's trees hence the need for canopy pruning which will possibly result in the trees being able to be retained and maintained without much risk to the Safety Screen. However as you will note in the report, once the closest row of trees has been removed and the final alignment of the Safety Screen and its posts are known, this would need to be verified. It is imperative that any trees along the proposed route are either removed or have their canopy pruned where appropriate, so as to not foul the netting or create ongoing maintenance issues.

The Club had not considered at length compensating the City for the loss of any trees however will undertake the cost of removal and pruning requirements during the construction phase as required. Should there be any ongoing maintenance requirements as a result of canopy pruning rather than tree removal during construction, further discussions between the City and the Club will need to take place.

The Arborist has assessed the impact of the excavations near the trees and pending the results of any root pruning undertaken during the excavations, some measures may need may be required to be implemented for a period of time afterwards. Again, these matters would need to be further discussed between the City and the Club at a later stage.

Item 2)
Included in the attached Tree Survey Assessment are the details requested by the City's Heritage Department. A full tree survey identifying species etc is included, along with justifications for doing so.

The suggestion to consider the relocation of the route for the Safety Screen is not a viable option. As noted in the Arborist report, this would require the Screen to be relocated some 8-10 metres away to allow for future tree growth and canopy development and due to the confined space on the Driving Range, this would be a totally impractical option.

As such, the proposed installation route will require the removal of mature trees from Royal Perth Golf Club land and in accordance with the current Deed of Lease between the Club and the City, we wish for the approval to remove such mature trees to be included within the City's decision on this Application.

Item 3)
We note that the City is undergoing consultation with the both the Cricket and Hockey Clubs regarding the application. It should be noted that the Royal Perth Golf Club held discussions with both of these Clubs prior to us lodging the application with the City. It is our view following these discussions that both Clubs are fully supportive of the proposal to install the Safety Screen with a common view being that the installation is in the best interests all the sporting Clubs. This support is evidenced in the copy of the attached letter that has been forwarded to the City requesting joint funding for this project.

Statutory Planning Matters

Item 4)
Our Application states "It is proposed to construct the Safety Screen on the existing fence line, which varies from slightly more than 2 metres encroaching into Amherst Street / Richardson Reserve, to in excess of 5 metres encroaching into Royal Perth Golf Club".

This statement is referring to the location of the existing fence line and the boundaries in which it currently crosses. The route of the proposed Safety Screen will follow the same direction of the current fence line however will be located on the South side of the existing fence. We therefore confirm that the safety screen will be located entirely within the Royal Perth Golf Club boundaries.

As such, no revised drawings or plans are required to be submitted.

Item 5)
In relation to Clause 6.7(2) of TPS6, we confirm that the Safety Screen will not adversely affect any amenity of any property in the locality as the Safety Screen is proposed to positively provide protection and safety to the adjacent Clubrooms and Sporting Practice

facilities and its Members and visitors. Additionally, the construction will not clash with the exterior design of buildings in the locality as the area is predominately a sporting precinct for golf, cricket, hockey and gym users with a substantial amount of netting already in place. There is no residential or commercial property in the immediate locality apart from those of the sporting Clubs.

Council Policy P350.7 requires the issue of adverse amenity impact to be addressed. The contractor who has been involved with providing the quotation which was submitted as part of our Application, has addressed many issues such as those raised. That is, similar screening is evident in other locations and the visual impact is reportedly minimal, with Wembley Public Golf Course being the local example. The proposed design structure of slender poles and wide pole spacing, along with 92% sheer in the netting itself, means that the screening is almost translucent.

Therefore, the Safety Screen is expected to provide no shadow effect and likely to provide additional sunlight to the area as a result of the some of the tree removal. Additionally, it will not restrict any views, nor we believe that it will have a dominant or unattractive visual impact.

As such, we are confident that the proposed Safety Screen will not have an adverse impact in any manner.

We trust the above information along with the Tree Survey Assessment provides satisfactory documentation to the questions raised and look forward to your response in due course.

Yours sincerely

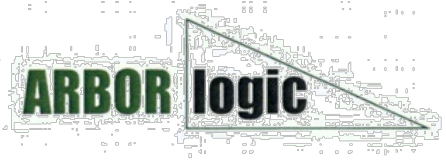
Brad Dawson
General Manager

Preliminary Tree Survey Assessment

Trees adjacent Northern Boundary of Driving Range

Prepared For

Royal Perth Golf Club



Contents

Attachments to this Report

1. Terminology

The following terms have been used throughout this report.

'Club'	meaning Royal Perth Gold Club
'Site'	meaning the area of the Club that is the subject of this investigation
'Trees'	meaning the trees that are found within the identified Site
'Fence'	meaning the existing cyclone fence structure running along the northern boundary of the Driving Range
'Safety Screen'	meaning the safety screen structure proposed to be installed along the long the northern boundary of the Driving Range
'Boundary'	meaning the true boundary line of the Club
'AS 4970'	meaning Australian Standards 4970; Protection of Trees on Development Sites
'CoSP'	meaning City of South Perth

2. Background and Scope of Works

At the request of RPGC, I have been commissioned to undertake an inspection of all of the trees found in a section of the northern boundary of the Driving Range identified on the aerial image below.

The purpose of the inspection was to:

- Undertake an inspection of all of the Trees on the Site.
- Identify any Trees present and provide information in regards to the species of each of the identified Trees, its current physical attributes (height, main stem calliper, canopy width, health condition, and structural condition etc.), and any comments deemed pertinent to the identified tree.
- Identify if any of the Trees may be considered significant in accordance with the City of South Perth's 'Significant Tree Criteria'.
- Provide comment on the potential impact of the installation of the proposed Safety Screen based on the plans and information that have been detailed in the Country Club International proposal document dated August 25th, 2014.

3. Particulars to the Assessment

The information and opinions provided in this document are my own and are based on the findings from the visual observations of the identified Trees during the Site inspection undertaken November 24, 2014, and the information on the Safety Screen and what works may be required to enable its installation provided in the Country Club International proposal document dated August 25th, 2014.

It should be noted that no exploratory excavations were undertaken as part of my assessment to verify the actual root spread of any given Tree.

As such the allocation of tree protection zones have at this stage been based on the physical size of the Tree and the known typical root zone morphology and typical root spread of specimens of the given species in the sort of soil profile considered likely to be found in the given area of the Club.

4. Tree Assessment Methodology

4.1 Tree Assessment Method

All of the Trees were visually inspected from ground level and in accordance with 'visual tree assessment' ("VTA") method[1] and principles.

The VTA method is based on the sciences of tree biology, physiology, tree structure, and tree bio-mechanics. It is a method widely used by arborists worldwide to identify visible signs on trees that indicate any health or potential structural issues that in turn could increase the risks associated with the given tree.

4.2 Health Condition

The overall health of each Tree was adjudged from an inspection of its leaf, overall percentage of leaf mass present in the canopy of the Tree, and the presence (or absence) of any pest or disease factor that could have an effect on the overall health of the Tree.

4.3 Structural Condition

The structural integrity of each Tree was determined from a visual inspection of its main stem, primary (and secondary) branch unions, and its root plate area.

The presence of cavities, decay, and/or any pathogen that could have an effect on the structural integrity of the Tree is also taken into consideration as part of the assessment process.

Where considered necessary further investigation by way of the use of sounding techniques was utilised to determine the presence and general extent of any areas of cavity or associated decay within a Tree's main stem structure.

4.4 Known Species Traits

The known typical species traits of the given Tree was also taken into consideration when determining its potential root spread, likelihood of being impacted by the proposed works, and potential impact it may have to the Safety Screen once it has been installed.

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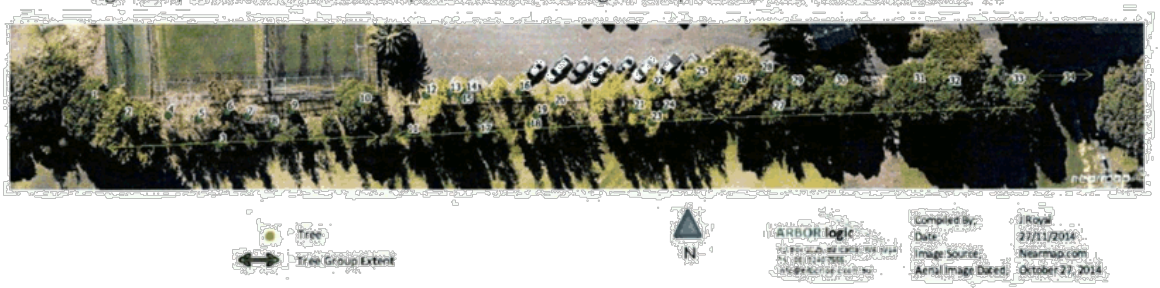
1 Field Guide for Visual Tree Assessment (VTA); Arboricultural Journal 1994 (Vol 18); C Matteck, H Breloer)

5. Key Findings of the Assessment

5.1 Number of Trees Identified

A total of 29 individual Trees and a further 5 groups of Tree (of the same species, size, condition and age class) were identified in the specified areas during the inspection; seen on the aerial below.



5.2 Species Identified

9 different species of tree were identified.

Of these species, only one was noted to be a West Australian native species.

Five were noted to be a species originating from eastern parts of Australia and the remaining three species were noted as being introduced 'exotic' species.

The table below shows a summary of the species identified on the Site.

Table 1; List of the species Identified

Botanical Name	Origin	No of on Site
Bottlebrush Kings Park Special (*Callistemon* 'Kings Park Special')	Australian Native	1
Ironbark (*Eucalyptus sideroxylon*)	Australian Native	1
Italian Cypress (*Cupressus sempervirens*)	Introduced	1
Jarrah (*Eucalyptus marginata*)	WA Native	1
Lombardy Poplar (*Populus nigra 'Italica'*)	Introduced	12
Queensland Box (*Lophostemon confertus*)	Australian Native	8
River Sheoak (*Casuarina cunninghamiana*)	Australian Native	131
South Australian Yellow Gum (*Eucalyptus leucoxylon 'Rosea'*)	Australian Native	1
White Poplar (*Populus alba*)	Introduced	4

With the exception of the White Poplar, all of the other species identified are considered to be common species for the metropolitan Perth area.

5. Key Findings of the Assessment

5.3 Age Class

All of the Queensland Box, White Poplar, Jarrah, South Australian Yellow Gum, and Italian Cypress look to be mature trees, possibly in the 30-50 year old range.

The majority (if not all) of the Lombardy Poplar look to be semi-mature, quite possibly only 20-30 years old at most.

The Ironbark specimen and all of the River Sheoak Trees look to be juvenile specimens, many of which look to have been planted at some stage within the last 10-15 years, or are possibly self-sown and only been present in the area for the last 3-5 years.

5.4 Health Condition

The majority of the Trees identified in this assessment showed to be in (what is considered to be) 'excellent or 'good' health for specimens of their given species as adjudged by the condition of their leaf and overall volume of canopy leaf mass.

Whilst some showed to have (mostly minor diameter sized) deadwood within their respective canopies, its appearance was considered to be indicative of deadwood occurring as part of the natural growth processes of trees as opposed to any pest or disease factor.

Five near dead trees were seen during the inspection, two Queensland Box, two Poplars, and one Italian Cypress. All look to have declined due to environmental issues/natural causes.

I could see no visual evidence of any pest or disease pathogen that could have a major impact on the health of the Trees during my inspection.

5.5 Structural Condition

The majority of the Trees showed to have (what is considered to be) typical structural forms for specimens of their given species.

The development and canopy form of some looks to have been affected due to their proximity to each other, and some have grown on a lean or have a relatively one-sided canopy as a result.

A number of the Trees also showed to have what are considered to be 'structural defects' such as bi-furcated unions with signs of swelling and included bark which are considered to potentially have an increased likelihood for failure than other forms of branch unions.

However any defect noted was not considered to be of any major concern at this time, and any risks associated with the Trees looks to be remaining within the realms and scope of management at this time.

I could see no visible evidence of any noticeable cracking, heave or movement in the root plate of any of the Trees and they all looked to be root stable at the time of my inspection.

5. Key Findings of the Assessment

5.6 Significant Trees

Only one Tree (Tree #26, Jarrah) was noted to meet the City of South Perth's criteria for 'significance' status under their Category '4' rating.

This Tree looks to be within the Club's Boundary.

This Tree looks to be a 'young' mature specimen, possibly in the order of 30-40 years old, with a secondary younger main stem (possibly even another tree that has self-sown off the older one) arising close by.

It shows reasonably good health. Its canopy is slightly sparse for a specimen of this species, but what leaf mass is present shows good form and condition at this time.

It has a reasonably typical structural form for a specimen of this species. It is noted to have grown on a lean north, probably due to the presence of other trees around it, and an area of decay and cavity was noted in southern side at the base of its main stem. Whilst the full extent of the cavity and decay was not able to be determined by way of a visual inspection it does not appear to be of any major concern to this Tree's structural integrity at this time but it will require further investigations part of its ongoing management.

Overall a reasonably good specimen of its species.

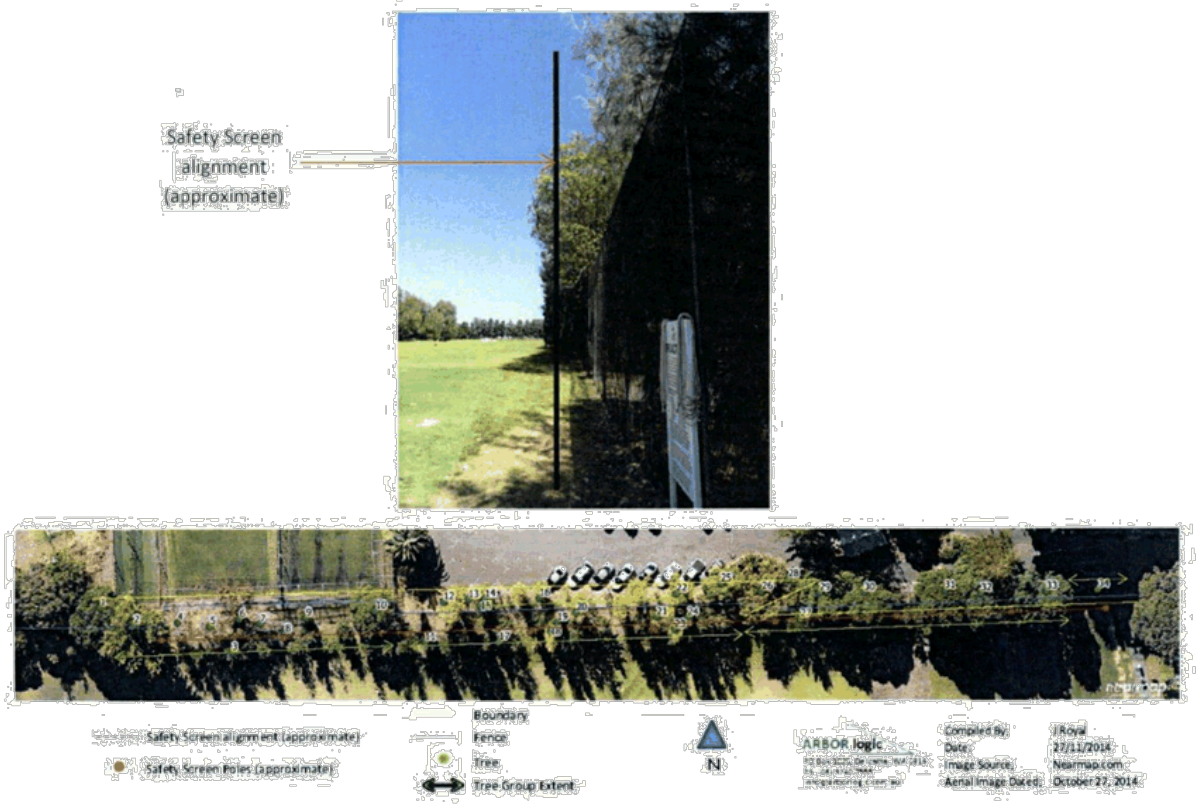
However whilst it is of a species that is endemic to this area of Perth, as an individual tree, in my opinion I do not considered to be of any great significance.

5. Key Findings of the Assessment

5.6 Impact from Proposed Works

5.6.1 Trees required to be removed

The Safety Screen is proposed to be installed approximately 1-1.5 metres 'south' of the existing Fence; approximate location shown on the image below:



Based on this and the anticipated extent of excavation required for the footings for the Safety Screen the following Trees look likely to be required to be removed to enable its installation at the proposed alignment:

- #3 line of 18 juvenile River Sheoak
- #8 juvenile Ironbark
- #11 semi-mature Lombardy Poplar
- #17 line of 22 juvenile River Sheoak
- #18 semi-mature Lombardy Poplar
- #19 semi-mature Lombardy Poplar
- #21 semi-mature Lombardy Poplar
- #23 semi-mature Lombardy Poplar
- #27 line of 13 juvenile Sheoak

In total, 59 Trees look to be required to be removed to accommodate the Safety Screen at its proposed alignment, and a further one Tree (#24; semi-mature Lombardy Poplar) may be required to be removed depending on the final actual alignment of the Safety Screen and its proximity to the Tree.

5. Key Findings of the Assessment

However all of these Trees look to be juvenile or semi-mature trees, and the majority only look to have been planted around 10-15 years ago based on their size and typical growth rates of specimens of their species in this area of Western Australia.

Tree (group) #27 looks to (possibly) be within CoSP land.

None of the other Trees that would be required to be removed look to be within CoSP land, and all look to be located within the Club's Boundary.

5.6.2 Impact from installation of footings/foundations

Installation of footings for the Safety Screen may impact on the likely root zone area of a number of other Trees; depending on the actual final location of individual posts.

At this time 20 metre spacing are anticipated between posts for the Safety Screen.

Based on this spacing (and approximate start point for the Safety Screen) excavations could impact on the root zone of Trees #2, #26, #30 and #32.

Of these Trees, Trees #29, #30, #31, #32 and #33 look to be within CoSP land.

However with some minor modification to the actual final location of the posts so that no excavations occur within a 5 metre radius of any Tree's main stem, then impact from those works should be able to be minimised so that any impact caused should be able to be mitigated by way of compensatory measures (i.e. watering, soil improvement measures) being implemented for a (short) period of time after the works have occurred.

Some degree of root pruning and further input from an arboricultural consultant should be anticipated to be required as part of works.

5.6.3 Canopy Works

Depending on the final alignment of the Screen, canopy pruning looks likely to be required on Trees #2, #5, #7, #29, #30, #31, #32 and #33 to provide good (full) clearance for the Safety Screen.

All of these Trees look to be able to tolerate the extent of pruning required without impacting their future health or structural integrity.

All canopy pruning works must comply with AS 4373; *Pruning of Amenity Trees*.

Of these Trees, Trees #29, #30, #31, #32 and #33 look to be within CoSP land so permission from the owner of these Trees will be required in order to undertake the necessary works to the required standards.

5.7 Table of Results

The following pages provide a full table of results of the inspection and further comment on each of the Trees identified during the assessment.

Tree No	Species	Approx Height (metres)	DBH (cm)	Canopy Spread (metres diameter) N-S	Canopy Spread (metres diameter) E-W	Health	Structure	Age Class	Comments on the Tree	Image	Comments on the Potential Impact from Works
1	Queensland Box (*Lophostemon confertus*)	11	65	8-10	8-10	Poor	Good	mature	Near dead tree; Canopy condition suggests it probably has limited life span remaining regardless. Situated on opposite side of the Fence to the Driving Range		Works are unlikely to impact this Tree to any great extent. However suggest to consider removing it as part of the works before it dies completely
2	White Poplar (*Populus alba*)	17	60	10-12	8-10	Good	Good	mature	Reasonably good specimen. Canopy is sparse (open) but what leaf mass is present shows good condition and form		A reasonably large amount of this Tree's canopy would need to be removed to accommodate the Safety Screen structure. May be better to remove this Tree as part of works and replant the area with a more suitable species once the Safety Screen is in place
3	River Sheoak (*Casuarina cunninghamiana*)	range from 8 to 13	10-15 (x14), 15-20 (x3), 20-25 x1	2-4	2-4	Excellent	Good	Juvenile	Line of 18 juvenile trees. All show good health and form. All look to have been planted and have quite possibly on been in-ground for no more than 10 years		All of these trees would need to be removed to accommodate the proposed Safety Screen
4	White Poplar (*Populus alba*)	8	25	2-4	2-4	Dead	Acceptable	Semi-mature	Near dead tree.		Works are unlikely impact this Tree to any great extent. However I would suggest to remove this Tree before it dies completely (as it would then have an even more increased probability of failing onto the new Safety Screen)

Tree No	Species	Approx Height (metres)	DBH (cm)	Canopy Spread (metres diameter) N-S	E-W	Health	Structure	Age Class	Comments on the Tree	Image	Comments on the Potential Impact from Works
5	White Poplar (*Populus alba*)	10	30	6-8	4-6	Good	Acceptable - Good	Semi-mature	Reasonably good specimen. Canopy is sparse (open) but what leaf mass is present shows good condition and form		Works may impact this Tree to some albeit minor extent. Some canopy works may be required to accommodate the Safety Screen pending its final alignment but overall could be retained if desired. May require ongoing maintenance (pruning) to maintain clearance off Safety Screen netting
6	South Australian Yellow Gum (*Eucalyptus leucoxylon 'Rosea'*)	9	40	8-10	6-8	Excellent	Acceptable - Good	mature	Reasonably good specimen. Has grown on a lean north but not considered to be of any issue at this time		Works are unlikely impact this Tree to any great extent. Some canopy works may be required to accommodate the Safety Screen pending its final alignment. No excavations to occur within 5 metres radius of the Tree's main stem. Represents a low risk to Safety Screen
7	White Poplar (*Populus alba*)	8	25	4-6	4-6	Good	Undesirable	Semi-mature	Ok specimen. Main stem bi-furcates and evidence of included bark at the union. Union looks to be ok at this time but likely to cause issues longer term.		Works are unlikely impact this Tree to any great extent. Some canopy works may be required to accommodate the Safety Screen pending its final alignment. May require ongoing maintenance (pruning) to maintain clearance off Safety Screen netting
8	Ironbark (*Eucalyptus sideroxylon*)	7	15	2-4	2-4	Good	Acceptable	Juvenile	Ok specimen. Main stem bi-furcates and evidence of included bark at the union. Union looks to be ok at this time but likely to cause issues longer term. Small section of its canopy is dead but the remainder is ok.		Would need to be removed to accommodate Safety Screen structure

Royal Perth Golf Club - Tree Survey Assessment
Driving Range, Northern Boundary

November 2014

Tree No	Species	Approx Height (metres)	DBH (cm)	Canopy Spread (metres diameter) N-S	Canopy Spread (metres diameter) E-W	Health	Structure	Age Class	Comments on the Tree	Image	Comments on the Potential Impact from Works
9	Italian Cypress (*Cupressus sempervirens*)	8	30	2-4	2-4	Poor	Acceptable - Good	mature	Near dead tree. Canopy condition suggests it may have limited life span remaining		Works look unlikely impact this Tree to any great extent but suggest to remove before it dies completely and has an even more increased probability of failing onto the new Safety Screen
10	Queensland Box (*Lophostemon confertus*)	8	50	8-10	8-10	Excellent	Good	mature	Reasonably good specimen. Canopy is ever-so slightly sparse but what leaf mass is present shows good condition and form		Works look unlikely to impact this Tree to any great extent. Some canopy pruning may be required to provide necessary clearance. Represents a low risk to Safety Screen. May require ongoing maintenance (pruning) to maintain clearance off Safety Screen netting
11	Lombardy Poplar (*Populus nigra 'Italica'*)	9	25 & 25	2-4	2-4	Excellent	Acceptable - Good	Semi-mature	Reasonably good specimen. Multi-stemmed from near ground level		Would need to be removed to accommodate Safety Screen structure
12	Lombardy Poplar (*Populus nigra 'Italica'*)	16	40	2-4	2-4	Good	Good	mature	Reasonably good specimen. Canopy is ever-so slightly sparse but what leaf mass is present shows good condition and form. Situated on opposite side of the Fence to the Driving Range		Works look unlikely to impact this Tree to any great extent. Represents a low risk to Safety Screen

ARBOR logic

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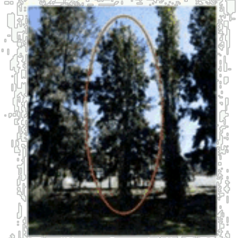
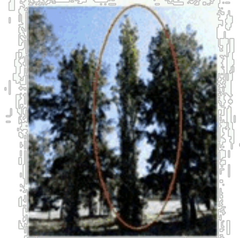
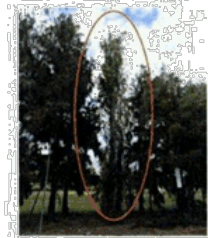
Tree No	Species	Approx Height (metres)	DBH (cm)	Canopy Spread (metres diameter) N-S	Canopy Spread (metres diameter) E-W	Health	Structure	Age Class	Comments on the Tree	Image	Comments on the Potential Impact from Works
13	Lombardy Poplar (*Populus nigra 'Italica'*)	19	40	2-4	2-4	Excellent	Good	mature	Good specimen. Situated on opposite side of the Fence to the Driving Range		Works look unlikely to impact this Tree to any great extent. Represents a low risk to Safety Screen
14	Lombardy Poplar (*Populus nigra 'Italica'*)	12	15	1-2	1-2	Poor	Undesirable	mature	Canopy condition suggests it may have limited life span remaining. Near dead tree. Decay in base of main stem. Situated on opposite side of the Fence to the Driving Range		Works unlikely to impact this Tree to any great extent but suggest remove to obviate potential future issues with it causing damage to the Safety Screen once it has died (which will possibly occur within the next couple of years regardless of any works)
15	Lombardy Poplar (*Populus nigra 'Italica'*)	11	10	1-2	1-2	Good	Good	Semi-mature	Reasonably good specimen. Canopy is ever-so slightly sparse but what leaf mass is present shows good condition and form. Situated on opposite side of the Fence to the Driving Range		Works look unlikely to impact this Tree to any great extent. Represents a low risk to Safety Screen
16	River Sheoak (*Casuarina cunninghamiana*)	3-8	<10 (x25), 10-15 (x3)	2-4	2-4	Excellent	Good	Juvenile	Line of 28 juvenile trees. All show good health and form. Most (if not all) look to be self-sown and look to be ≤2-3 years old. Situated on opposite side of the Fence to the Driving Range		Works look unlikely to impact this Tree to any great extent. Represents a low risk to Safety Screen at this time but may cause some issues longer term once they have matured further and increased in physical size

Tree No	Species	Approx Height (metres)	DBH (cm)	Canopy Spread (metres diameter) N-S	E-W	Health	Structure	Age Class	Comments on the Tree	Image	Comments on the Potential Impact from Works
17	River Sheoak (*Casuarina cunninghamiana*)	8-14 range	<10 (x3), 10-15 (x6), 15-20 (x4), 20-25 (x3), 25-30 (x6)	2-4	2-4	Excellent	Good	Juvenile	Line of 22 juvenile trees. All show good health and form. All look to have been planted and have possibly only been in ground for around 10 years		All of these trees would need to be removed to accommodate the proposed Safety Screen
18	Lombardy Poplar (*Populus nigra* 'Italica')	9	12	2-4	2-4	Excellent	Good	Semi-mature	Reasonably good specimen.		Would need to be removed to accommodate Safety Screen structure
19	Lombardy Poplar (*Populus nigra* 'Italica')	15	20 & 15	2-4	2-4	Excellent	Good	Semi-mature	Reasonably good specimen. Multi-stemmed from near ground level		Would probably need to be removed to accommodate Safety Screen structure
20	Lombardy Poplar (*Populus nigra* 'Italica')	11	12	1-2	1-2	Excellent	Good	Semi-mature	Reasonably good specimen.		Works may not impact this Tree to any great extent depending on the final alignment and proximity of the Safety Screen structure. Represents a low risk to Safety Screen

Royal Perth Golf Club - Tree Survey (Assessment Driving Range, Northern Boundary)

Tree No	Species	Approx Height (metres)	DBH (cm)	Canopy Spread (metres diameter) N-S	E-W	Health	Structure	Age Class	Comments on the Tree	Image	Comments on the Potential Impact from Works
21	Lombardy Poplar (*Populus nigra 'Italica'*)	15	20	2-4	1-2	Excellent	Good	Semi-mature	Reasonably good specimen		Would probably need to be removed to accommodate Safety Screen structure
22	Lombardy Poplar (*Populus nigra 'Italica'*)	14	18	1-2	1-2	Good	Good	Semi-mature	Reasonably good specimen. Canopy is slightly sparse and suggests that it may be starting to decline in health. Situated on opposite side of the Fence to the Driving Range		Works look unlikely to impact this Tree to any great extent. Represents a low risk to Safety Screen
23	Lombardy Poplar (*Populus nigra 'Italica'*)	16	20 x2	2-4	2-4	Excellent	Acceptable	Semi-mature	Reasonably good specimen. Multi-stemmed from near ground level		Would need to be removed to accommodate Safety Screen structure
24	Lombardy Poplar (*Populus nigra 'Italica'*)	15	25	1-2	1-2	Excellent	Good	Semi-mature	Reasonably good specimen		Would possibly be required to be removed pending the final alignment and proximity of the Safety Screen

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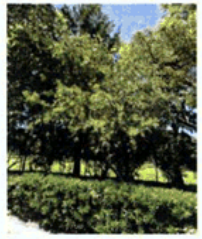
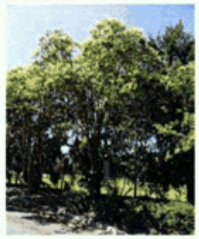
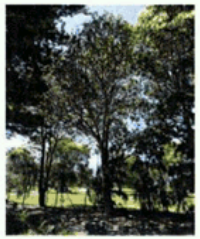
Tree No	Species	Approx Height (metres)	DBH (cm)	Canopy Spread (metres diameter) N-S	E-W	Health	Structure	Age Class	Comments on the Tree	Image	Comments on the Potential Impact from Works
25	Queensland Box (*Lophostemon confertus*)	9	30	4-6	4-6	Poor	Good	mature	Near dead tree. Canopy condition suggests it may have limited life span remaining		Works unlikely to impact this Tree to any great extent, but it may have limited life span remaining regardless of any activity undertaken in its vicinity. Represents a low risk to Safety Screen
26	Jarrah (*Eucalyptus marginata*)	9	50 & 20	8-10	8-10	Excellent	Good	mature	Reasonably good specimen. Area of decay noted in base of main stem but not of a major concern at this time. Canopy is one sided (north). Situated just on opposite side of the Fence to the Driving Range		Works may not impact this Tree to any great extent. No excavations are however to occur within 5 metres radius of this Tree's main stem. Represents a low risk to Safety Screen
27	River Sheoak (*Casuarina cunninghamiana*)	6-10 (x9), 12-15 (x4)	<10 (9), 10-15 (x1), 15-20 (x1), 25-30 (x2)	2-4	2-4	Excellent	Good	Juvenile	Line of 13 juvenile trees. All show good health and form. All look to have been planted and most (if not all) have possibly only been in-ground for around 10-12 years		All of these trees would need to be removed to accommodate the proposed Safety Screen
28	Bottlebrush Kings Park Special (*Callistemon* 'Kings Park Spec	6	18	4-6	4-6	Excellent	Acceptable - Good	mature	Reasonably good specimen. Main stem bi-furcates and evidence of included bark at the union		Works unlikely to impact this Tree to any great extent

Tree No	Species	Approx Height (metres)	DBH (cm)	Canopy Spread (metres diameter) N-S	E-W	Health	Structure	Age Class	Comments on the Tree	Image	Comments on the Potential Impact from Works
29	Queensland Box (*Lophostemon confertus*)	13	55	6-8	6-8	Good	Good	mature	Good specimen. Canopy is slightly sparse and suggests that it may be starting to decline in health		Looks to be in CoSP land. Works may not impact this Tree to any great extent. Some canopy pruning will likely be required to provide the necessary clearances to the Safety Screen and will remain an ongoing maintenance requirement. Represents a low risk to Safety Screen. No excavations to occur within 5 metres radius of the Tree's main stem.
30	Queensland Box (*Lophostemon confertus*)	12	65	8-10	8-10	Excellent	Good	mature	Good specimen. Canopy is ever-so slightly sparse but what leaf mass is present shows good condition and form		Looks to be in CoSP land. Works may not impact this Tree to any great extent. Some canopy pruning will likely be required to provide the necessary clearances to the Safety Screen and will remain an ongoing maintenance requirement. Represents a low risk to Safety Screen. No excavations to occur within 5 metres radius of the Tree's main stem.
31	Queensland Box (*Lophostemon confertus*)	15	65	8-10	8-10	Excellent	Good	mature	Good specimen. Canopy is ever-so slightly sparse but what leaf mass is present shows good condition and form		Looks to be in CoSP land. Works may not impact this Tree to any great extent. Some canopy pruning will likely be required to provide the necessary clearances to the Safety Screen and will remain an ongoing maintenance requirement. Represents a low risk to Safety Screen. No excavations to occur within 5 metres radius of the Tree's main stem.
32	Queensland Box (*Lophostemon confertus*)	14	50	8-10	6-8	Good	Good	mature	Reasonably good specimen. Canopy is slightly sparse and suggests that it may be starting to decline in health		Looks to be in CoSP land. Works may not impact this Tree to any great extent. Some canopy pruning will likely be required to provide the necessary clearances to the Safety Screen and will remain an ongoing maintenance requirement. Represents a low risk to Safety Screen. No excavations to occur within 5 metres radius of the Tree's main stem.

November 2014

Royal Perth Golf Club Tree Survey Assessment
Division Rang, Northern Boundary

Tree No	Species	Approx Height (metres)	DBH (cm)	Canopy Spread (metres diameter) N-S	Canopy Spread (metres diameter) E-W	Health	Structure	Age Class	Comments on the Tree	Image	Comments on the Potential Impact from Works
33	Queensland Box (*Lophostemon confertus*)	14	45	6-8	6-8	Good	Good	mature	Reasonably good specimen. Canopy is slightly sparse and suggests that it may be starting to decline in health		Looks to be in CoSP land. Works may not impact this Tree to any great extent. Some canopy pruning will likely be required to provide the necessary clearances to the Safety Screen and will remain an ongoing maintenance requirement. Represents a low risk to Safety Screen. No excavations to occur within 5 metres radius of the Tree's main stem.
34	River Sheoak (*Casuarina cunninghamiana*)	range from 5 up to 9	<10 (x20) 10-15 (x1)	2-4	2-4	Excellent	Good	Juvenile	Line of 21 juvenile trees. All show good health and form. Some look to be self-sown and all look to be <10 years old		These Trees look to be within CoSP land. Some (if not all) may be ok to retain pending the final alignment of the Safety Screen and its proximity to these Trees. Represents a low risk to Safety Screen at this time but may cause some issues longer term once they have matured further and increased in physical size

ARBOR logic

6. Opinion

At this point in time it appears that 59 of the Trees will need to be removed to accommodate the proposed Safety Screen at its proposed alignment.

Of these Trees, only Tree (group) #27 looks to be situated in CoSP land.

This line of 13 River Sheoak look to be juvenile trees and have quite possibly only been planted at some stage within the last 10-15 years. They do not meet any of the City's criteria to be considered as 'significant' at this time.

The remainder of the Trees that look to be required to be removed to accommodate the Safety Screen look to be situated within Club's Boundary.

The majority of these Trees also look to be juvenile specimens (possibly <10-15 years old), with only five Trees that look to be semi-mature; possibly only as much as 20-30 years old.

Furthermore, none of these particular Trees meet any of the City of South Perth's criteria to be considered a 'Significant Tree'.

As such whilst some visual screening will be lost as a result of the removal of these Trees, with the correct species selection and the implementation of best industry planting and establishment practices, any visual screening lost as a result of their removal may be able to be replaced within a relatively short time frame.

7. Further Considerations

The only way to minimise the need to remove the Trees would be to realign the Safety Screen further away by some 8-10 metres to allow for future growth and canopy development.

With regards to minimising impact to the Trees that look to be able to be retained at the proposed alignment, with some careful positioning of the footings for the Safety Screen, the majority of the other Trees may be able to be retained (including the mature Trees found within the CoSP land) and impact from the works should be minimal (if any in many instances).

However in saying this, a further inspection is suggested to be undertaken once the closest row of Trees has been removed and the actual location of the Safety Screen and its posts in proximity to the remaining Trees has been finalised.

A number of the remaining Trees will however likely require canopy works to provide the necessary clearances from the netting of the structure.

Given Trees #29, #30, #31, #32 and #33 look to be within CoSP land, permission from the owner of these Trees will be required in order to undertake the necessary works to the required standards.

Whilst some canopy of some of these Trees will quite possibly remain within 1-2 metres of the Safety Screen once installed, all but Tree #2 are known to be species that are low risk in terms of their propensity for branch failure, and look to be at mature size.

As such, at this time they look to possibly be able to be retained and maintained without much risk to the adjacent Safety Screen; although again this would need to be verified once the closest row of Trees has been removed, and the final alignment of the Safety Screen and its posts is finalised.

If retained future pruning to maintain some degree of clearance from the Safety Screen is likely to be required possibly every 2 or 3 years depending on amount of regrowth that occurs.

Tree #2 (White Poplar) does in my opinion represent a slightly higher risk potential for branch failures to occur in the future, and whilst canopy pruning may be able to provide the extent of lateral clearance required, any failures occurring in the upper canopy of this Tree could in my opinion have some risk to cause damage to the netting of the Safety Screen. As such, although it is a mature tree in good health at this time I would suggest considering removing it as part of the works.

In addition to the Trees required to be removed to accommodate the Safety Screen I would also suggest (recommend) to remove the five near dead Trees to ground level as part of the works to obviate potential future issues from these Trees. Note: None of these Trees look to be situated within CoSP land.

Protection of the remaining Trees in accordance with AS 4970 is strongly recommended to occur during the works, and pending the results of any root pruning undertaken during excavations, some compensatory measures may be required to be implemented for a period of time afterwards; the details of which is largely dependent on how much root loss actually occurs to each Tree.

Maintaining any watering of the area around the Trees during the works is also seen as a vital part of minimising impact to any of the Trees that are desired (or required) to be retained.

Attachments to this Report

Attachment 1; Tree Location Guide with Boundary, Fence and Safety Screen alignments overlaid

Attachment 2; References Used

Attachment 3; Company Information & Disclaimer


Royal Perth Golf Club: Tree Survey Assessment
Driving Range: Northern Boundary
November 2014
nearmap
Compiled By: ARBOR logic
Date: 27/11/2014
Image Source: Nearmap.com
Aerial Image Dated: October 27, 2014
N
Boundary
Fence
Tree
Tree Group Extent
Safety Screen alignment (approximate)
Safety Screen Poles (approximate)
ARBOR logic

Attachment 2; References

The following documents have been referenced in this report:

1. Australian Standards guideline 4970 (2009); *Protection of Trees on Development Sites*
2. Australian Standards guideline 4373 (2007); *Pruning of Amenity Trees.*

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Attachment 3; Company Information & Disclaimer

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Royal Perth Golf Club; Tree Survey Assessment;
Driving Range; Northern Boundary *November 2014*

Company Name:	ARBOR logic
A.C.N.:	107 194 061
A.B.N.:	66 566 369 687

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General Liability;	Zurich	$20 million
Professional Indemnity;	Dual Australia	$5 million
Personal Protection;	Macquarie	

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ARBOR logic

Disclaimer

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- Failure by the Client to follow this advice.
- The action(s) or inaction(s) of the Client or any other party that gives rise to the loss of, or damage to, the tree(s) that are the subject of this advice.

It is also important to take into consideration that all trees are living organisms and as such there are many variables that can affect their health and structural properties that remain beyond the scope of reasonable management practices or the advice provided in this Report based on the visual inspection of the tree(s).

As such a degree of risk will still remain with any given tree(s) despite the adoption of any best management practices or recommendations made in this Report.

28 November 2014

Mr C Frewing
Chief Executive Officer
City of South Perth
Cnr Sandgate Street and South Terrace
SOUTH PERTH WA 6151

Dear Cliff,

RE: Amherst Street sporting precinct, request for assistance.

You will be aware that Royal Perth Golf Club has sought planning permission to erect a 24 metre high safety screen between the Golf Club and Amherst Street Parking Station / Richardson Park Reserve. The safety screen is to protect members of all three sporting clubs using the Amherst Street Parking Station and the cricket/hockey/gym club facilities, together with members of the public, and also other sporting club visitors using Richardson Park. The protection provided by the proposed safety screen is for errant golf balls leaving the Royal Perth Golf Club driving range which is situated immediately to the south of the boundary.

As you are aware, several months ago a member of the public visiting the cricket/hockey facility was struck by an errant golf ball and although no claim for injury was made, this incident has highlighted a dangerous situation. The Golf Club has taken further measures since this incident to mitigate the risk however our research still indicates that there are a number errant golf balls leaving the Golf Club's driving range, hence the decision to apply to erect the safety screen.

Over the years, the relocation of the cricket practice nets to their current location and additional non-sports-club-member activities, have increased sports activities and pedestrian and vehicular traffic alongside the Golf Club driving range, which has led to the need to further address safety issues.

After recently discussing this matter between the three Presidents of the sporting Clubs, all three Clubs support the move by Royal Perth Golf Club to protect our club members and visitors. We believe that this area is a valuable community facility and the provision of the safety screen will allow all clubs and their guests to enjoy the shared area in safety.

The total proposed cost is estimated at $428,160 and Royal Perth Golf Club has indicated that it is willing to fund 50% of the installation cost, and we now jointly apply to the City of South Perth to assist by contributing the balance of 50%.

We look forward to your favourable consideration of this request.

Yours sincerely

Ian Armstrong
President
Royal Perth Golf Club

Steve Barry
President
South Perth Cricket Club

Hayley Gardner
President
Wesley South Perth Hockey Club


WOMEN


WOMEN