Expert Report in Response to Revocation of Confirmed Order VPO3

Protected Vegetation: ***Araucaria columnaris* (Cook Island Pine)**

Located at: **62-64 Beachcrest Road, Wellington Point, Qld 4160**

Report Prepared for Redland City Council

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Contents

1.0 Introduction

In accordance with section 19 of the *Local Law 6 Protection of Vegetation*, before Council decides to revoke a VPO is must obtain and consider an expert report which assesses the significance of the vegetation to which the order relates. This report represents the expert report to be considered before deciding on whether to revoke VPO No.3.

This report also assesses the potential impacts caused to the tree as a result of the building works carried out to date on the site associated with the construction of a two storey dwelling house.

This report should be read in conjunction with both the initial Tree Assessment Report dated 27 March 2013 and the revised Tree Assessment Report dated 7 May 2013.

2.0 Assessment of significance criteria of VPO

The matters of significance as detailed in the Local Law, or grounds upon which VP0 3 was created are;

> *Item: m) important for its aesthetic value or its beneficial effect on the amenity of the locality in which it is situated;*
>
> *Item: n) important for its age, height, trunk circumference, or canopy spread; and,*
>
> *item: o) important for its unique contribution to the landscape*.

Amenity Value

Cook and Norfolk Island Pines are often considered an important distinguishing feature of seaside locations and as such these trees have a positive effect on the amenity of the locality in which they are situated.

This Cook Island Pine provides significant amenity in regards to its contribution to sense of place, as a defined visual landmark, a dynamic focal attribute to the existing landscape and a living contribution to the history of Beachcrest Road and the wider suburb of Wellington Point.

The tree's dominating height and distinct shape and form contributes to its aesthetic value within the urban landscape. The tree is signatory to Wellington Point and a well-known landmark from both land and the bay, being visible from across Moreton Bay, Manly, Cleveland and other areas. The tree's presence imparts a definitive sense of place to the Wellington Point locality.

The contribution and relationship of the Cook Island Pine to its immediate area and link to neighbouring urban forest is illustrated in Figures 1 and 2 in the Appendix.

Important for Age, Height, etc.

In respect to the criteria of age, height, truck circumference or canopy spread, the tree is undoubtedly significant due to its age and height.

The tree is estimated to be over 30 metres in height and considered to be about 130 years of age. In arboricultural terms this tree is identified as a veteran tree. Generally it is unusual to find veteran trees in the urban areas as they tend to decline rapidly after development has occurred and are usually considered a safety risk. However, this species (the Cook Pine) is one of a few species which is actually suitable for retention in close proximity of dwellings. The Cook Island Pine has minimal horizontal limb spread and a compact form and canopy (refer to photograph 9).

The tree can be considered the oldest Cook Island Pine recorded in the Redland area, making its value in respect to age significant. The first Cook Island Pine seedlings reportedly[1] came to Australia (Kew Gardens) in 1851 from England. There is reference[2] in the 1865 Brisbane Courier, of a 'diminutive' Cook Island Pine growing in 'The South Brisbane Nursery'. The nursery was 13 years old at the time, so this particular Cook Island Pine at South Brisbane would perhaps have been planted around 1852. The land around Douro Road was in private ownership around 1880. It is reported by previous owners of the property that the subject Cook Island Pine at Wellington Point was already of some height and a dominating feature in 1949. Based on these facts, it can be concluded that the tree was planted around 1880, aging the tree around 133 years old – consistent with the growth characteristics and size of this tree and historical data available.

The tree provides a timeless 'sense of place' that only veteran trees of this age and size can impart and which is not possible to achieve with new or establishing trees. Veteran trees are becoming increasingly rare within the urban landscape, but where they are found their contribution to the landscape is significant. The urban forest requires a balanced mix of exotic and native mature canopy to provide antiquity and scale to a landscape.

Unique contribution to the Landscape

The focal dominance of the tree, which is visible from the surrounding area and acts as a visual landmark and location beacon, makes a unique contribution to the landscape. The trees uniqueness and value to the landscape is reinforced and evidenced by the symbiotic relationship between the ecological value of the tree (as a Osprey habitat), and the urban landscape value.

The tree's height and proximity to Moreton Bay, provides a unique nesting site for the Eastern Osprey (*Pandion cristatus*) (refer to figure 4). The tree has an important ecological value by providing a habitat for arboreal birds. The Eastern Osprey requires high roosting sites with an uninterrupted view to the water for food-gathering and observation. The Eastern Osprey is territorial with a territorial forage-range of around 30 square kilometres. The tree currently has an Eastern Osprey stick nest located in the apex of the tree. It is reported by locals as being occupied annually by breeding Eastern Osprey. This year, the nest was occupied by a breeding pair of Eastern Osprey, and the parents and chicks have only just recently vacated the nest. The closest Raptor neighbour is a Brahminy Kite (*Haliastur indus*), which has a stick nest high in the canopy of a veteran blue gum located on the foreshore at number 26 Beachcrest Road, approximately 200 metres away. The Raptor will normally return to the same nest during annual breeding cycles. This particular tree has been reported by locals as being used each year for over 30 years by Osprey including this year (2013) (refer to photograph 3).The Brahminy Kite is a Raptor that lives symbiotically within an Eastern Ospreys territory on a symbiotic relationship, often stealing the Ospreys fish in mid-air.

Eastern Osprey including their nests is protected under the Queensland *Nature Conservation Act Wildlife Management Regulations*, the Federal *Environmental Protection and Biodiversity Conservation Act 1999 (EPBC)*. Ospreys are also listed under the Bonn Convention on the Conservation of Migratory Species of Wild Animals, the China-Australia Migratory Bird Agreement (CAMBA), both of which fall within the Federal Government's EPBC Act and the RAMSAR Convention to protect the ecological integrity of Moreton Bay.

Conclusion on the assessment of significance

The age of this tree, the definable link of the tree back to the early settlement of Wellington Point in the 1880's, the focal dominance of the tree from close by or afar, the link and visual balance the tree provides to the older established urban forest in Wellington Point and Beachcrest Road, are all factors that make this tree a valuable asset to Wellington Point.

The tree is of a significant age and height, is a highly visible landmark within the local and broader landscapes and contributes to the local amenity. The tree continues to meet the criteria for which it was initially identified as significant and worthy of protection under Local Law 6.

3.0 Aboricultural Assessment

A site inspection was undertaken on 14th November 2013 during which the property owner was present. A visual assessment of the tree was carried out from ground level.

New, healthy growth was observed over the tree, indicating a functioning root system. A large amount of deadwood, throughout the canopy, was also observed, as no maintenance appears to have been carried out on the tree as was recommended after the initial assessment of 27 March 2013.

In spite of the construction works carried out on the site and subsequent changes in the overall natural site dynamics, there were no discernable changes or general decline in the health of the tree, as compared to the previous assessment of the 7 May 2013.

From an Arboreal perspective, this veteran tree is healthy, structurally sound and physically worthy of retention. The tree has good prospects for a long Safe Useful Life Expectancy (S.U.L.E.) provided proper arboreal care and management is undertaken. The Cook Island Pines natural compact canopy growth, strong trunk and root system, ability to withstand severe cyclonic weather conditions and long life lends them to co-existing well within urban areas and smaller urban lots. Cook Island Pines have evolved to withstand cyclonic conditions and have strong root systems, straight, tapered trunks and very little limb overhang. The radial structure of the limbs and epicormic growth buds allows these trees to shed old limbs and continually regenerate new limbs. Shed limbs are generally decayed, light, and mostly fall straight down into the canopy and around the trunk – unlike the limb-failure pattern of Eucalypts where large, horizontal limbs can extend 20 metres out from the trunk.

Ground level assessment (natural water flow)

Prior to construction commencing, the tree had a large, fertile growing space with no interference from abiotic or biotic influences. Rainfall and sub-surface water was directed naturally to the trees root zone (refer to figure 1).

Hydrological impact

The newly constructed dwelling and associated development on the site has impacted on the site's natural hydrology. The tree is situated at the rear of the site and the dwelling covers a large area of the site. The furthermost edge of the new dwelling is situated approximately 9 metres from the trunk of the tree. The slab design of the new dwelling has been engineered for the tree and involved excavation of clay, installation and compaction of gravel-base, and pouring of a concrete slab and structural piers. The impact to the trees root zone as a result of these works appears minimal as excavation occurred outside the structural root zone (SRZ) and within an acceptable distance from the tree.

A 3 metre wide concrete slab for paving is to be constructed to the rear of the dwelling, bringing the development encroachment to within 6 metres of the trees trunk (refer figure 8).

A concrete boat/caravan parking bay is to be constructed down the eastern boundary. The ground level along this boundary has been built up, with all water collected by the adjoining properties paved driveway and diverted to the street (refer to figure 5).

A concrete pathway is to be constructed down the western boundary between the dwelling and the boundary (figure 6). A trench has been excavated along the western boundary for the installation of the sewer pipe. This trench has been filled in with a gravel base, thus further restricting rainwater from reaching the tree roots through natural hydrological processes.

Summary of hydrological impacts

The natural water movement on the site flows from Beachcrest Road towards the tree at the rear of the site. The combined rainfall catchment area and natural movement to the trees root zone has been reduced significantly by the combined effects of the impermeable concrete structures, large roof catchment and subsequent diversion of all collected water to the street outlet.

Overall, it is estimated that the tree's natural rainfall and sub-surface catchment has been reduced from approximately 800m^2 to 200 m^2. As a result, the tree needs to sustain on about 25% of the amount of water it was previously receiving.

Root interference impact

The initial tree assessment report of 27 March 2013, found that there was no root damage to the tree, principally as the site was vacant at the time and there was no history of any development having occurred on the site. At the time, several functioning surface roots were found 8 metres from the trunk towards the front of the property, indicating the extent of root travel.

On 3 May 2013, a site investigation was undertaken in response to a complaint alleging that Council (Redland Water) had excavated a trench to install a sewer connection point on the subject property and had subsequently damaged the tree roots. This report was not able to determine the extent of root damage and therefore recommended that further investigation be undertaken to determine whether any root damage had occurred and if so the extent of the damage.

As per the recommendation, a meeting was held on site on the 31 May 2013 between Redland Water staff, the property owners, their consulting Arborist and Council's Arborist to excavate the trench and ascertain whether or not major root damage had occurred as a result of the activities of Redland Water. It was agreed by all parties, including both Arborists, that there was no evidence of any significant or major root damage which would compromise the structural integrity of the tree. A file note was prepared to reflect this inspection and discussion.

The property owners installed a tree protection zone (TPZ) fence around the root zone of the tree shortly after a site inspection and investigation was undertaken on the 8 August 2013. This inspection was in response to a public compliant that there had possibly been damage caused to the tree in respect to building works undertaken on site. This

protective fencing has remained in place, and there has been no further encroachment into the TPZ.

In preparation of this report a final inspection was carried out on 14 November 2013. The inspection revealed that here has been excavation and installation of stormwater pipes along the edge of the rear building alignment. It was noted that the sewer connection point had been opened, a trench excavated in a southerly direction, and a sewer pipe installed and connected to the dwelling. The exact location of the trench could not be determined and the property owner was also unsure as to its location. Based on the visual soil difference indicating a trench, I estimated the general direction of the trench until its connection point at the dwelling, but could not determine whether there has been any damage resulting from the trenching operation.

4. Discussion, Conclusion & Recommendations

Discussion

The most significant impact to a tree on a development site is typically caused by severe root damage. A tree with severely damaged roots generally declines in health very rapidly. If a tree survives these construction impacts over the short-term and structural roots have not been damaged, a tree should have a long S.U.L.E (safe useful life expectancy) providing it is managed in perpetuity in accordance with appropriate aboricultural practices.

There has been considerable construction activities occurring within close proximity to this tree's root zone, however, from a professional Aboricultural perspective, there are no identified findings or reasons for this trees destruction based on its health or structural integrity for both the short or long term.

The new growth occurring over the tree indicates it is still functioning normally. If there had been structural root damage or other severe impacts, it would be highly probable, that the tree would have visibly declined, very quickly, given the climatically dry conditions experienced since construction commenced.

Visually, at the time of assessment, the tree appeared to be structurally sound. There is no supporting evidence to suggest that major structural roots have been damaged, or the tree weakened by the construction activities. The few roots found scattered over the site appear to be secondary roots and not a cause of structural weakness.

There has been an approximate 75% reduction in the natural water catchment to the trees root zone as a result of the development which has occurred on site. This alteration of hydrological factors restricts the trees access to water from both the surface flow and sub-soil seepage. This impact may cause a decline in the trees health over the short-term and may or may not have an adverse effect on the trees health over the longer-term. There is no immediate visual adverse impact on the trees health. The resulting impact of this reduced water catchment on the tree is dependent on the implementation of appropriate aboricultural management practices over the long-term.

The construction of the 2 storey dwelling in front of the tree has blocked part of the lower visual aspect of the tree; however the true aesthetic value is with the trees height, landscape dominance and visibility from surrounding area. The tree is considered by many locals and visitors as an integral part of the history and identify of Wellington Point and the development which has occurred within close proximity to the tree has not diminished its significance.

Conclusion

Despite the identified development impacts caused to the root zone and hydrological factors, the Cook Island Pine has not shown any adverse decline in health or structural integrity since the initial tree assessment was carried out on 27 March 2013. From an aboricultural perspective, the Cook Island Pine is worthy of retention and protection.

The tree is a dominating landscape specimen in Wellington Point, and is still significant in terms of the three grounds on which the VPO was originally made. The tree's age and height contribute to its positive effect on the amenity of the locality which results in its unique contribution to the landscape.

It is considered that there are also other additional grounds for which protection of this vegetation is warranted under Local Law 6. That is the tree is significant because it is also;

a) *a valuable part of the natural heritage of the area;*
h) *a significant habitat for native animals (including native or migratory birds) or a part of the fauna and flora corridor; and*
r) *important in the context of the objectives of State or Local Government planning, land management policies and initiatives.*

.**Recommendations:**

- **that a minimum AQF3 qualified Arborist undertake the removal of deadwood from the tree; and**

- **that a long-term 'tree management' plan be prepared by an AQF 5 qualified Arborist and implemented.**

References:

[1] Hortus Camdenensis: An illustrated catalogue of plants grown by Sir William MacArthur at Camden Park, NSW Australia between c.1820 and 1861.

[2] The Brisbane Courier (Qld: 1864-1933), Wednesday 1 November 1865, page 3.

Appendix
photographs and images

Figure 1: **Aerial photo dated 2008 of Beachcrest Rd and the surrounding urban forest. It is these large and mature trees that provide the landscape amenity, ambience and balance. Each veteran tree is an identity to the area and each can have significant meaning to local residents and as well as to visitors to the area.**

Figure 2: **Aerial dated 2013. Due to urban development, shrinking property sizes, and the application of Local Law 6 permissible exemptions, the large and dominating trees within the urban forest are fast disappearing, as can be seen in this 2013 photo as compared to the 2008 photo above.**

Figure 3: **Photograph of Eastern Osprey in its nest in the apex of the Cook Island Pine**

Figure 4: **Photograph of Eastern Osprey in flight**

Figure 5: **Photography: A concrete drive/parking bay extends the length and width of the eastern boundary. The ground level has been filled.**

Figure 6: **Photograph - A concrete pathway will extend down the western boundary.**

Figure 7: **Photograph - Sewer trenching occurred 7 metres from the trees trunk and can be seen in the photo as a white inspection cap near the white car. The exact sewer alignment is unknown but appears to be outside the structural root zone.**

Figure 8: **Photograph - Looking west. There will be a 3 metre wide concrete pad constructed from the house pillars towards the tree. The distance from the concrete to the tree will be 6 metres.**

Figure 9: **Aerial photograph showing the compact form and canopy of the Cook Island Pine in the rear yard. There is minimal horizontal limb spread.**