ARBORICULTURAL IMPACT ASSESSMENT

BIGGE PARK LIVERPOOL

DRAFT

September 2015

Prepared for: Liverpool Council

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1.0 INTRODUCTION

This report was commissioned by Liverpool Council to assess the potential impact on existing trees from proposed development works within and around Bigge Park. The design proposal seeks to widen Bigge Street footpath, replace Elizabeth Street boundary retaining wall, including the provision of new street trees, and install a new circular path as an internal circuit within the park. Additionally, a number of internal pathways are to be realigned providing more direct through park connections.
It is the aim of this report to:

a) Assess health and condition of trees likely to be impacted by the proposed works,
b) Assess potential impact on existing trees by the proposed works,
c) Provide comment on the viability and future management of the trees,
d) Determine tree protection measures,
e) Provide recommendation on removal and replacement if required.

2.0 METHODOLOGY

Tree assessment was undertaken by the author on Wednesday the 5th of August 2015.
Referenced documents include:

a) 95% Construction documentation, Revision D, No. 4, (6th March 2015) prepared by Urbis,
b) AS 4970-2009 Protection of trees on development sites,
c) Site survey prepared by Liverpool Council, Issue A (2nd June 2010), and
d) Preliminary arboricultural report prepared by Turf Design Studio February 2011.

The trees were inspected from the ground and assessed on visible features only. Internal defects and root systems were not investigated.
Assessment of heritage significance has not been undertaken. Recommendations are based purely on the current health and condition of trees.
Trunk diameter was measured at 1.4m above ground.
Tree heights are estimated only.
TPZ's are both calculated based on trunk diameter according to AS4970, but also nominated according to actual site conditions and construction requirements. The nominated TPZ's are to be installed prior to construction.
Tree numbers have been appropriated from the 2011 TDS report.

2.0 HERITAGE REPORT REVIEW

The heritage impact statement prepared by OCP Architects in August 2015 has been reviewed. The report identifies the park is within a general conservation area identified within Liverpool Council's LLEP 2008.

Figure 1.0: Locally listed heritage items within the vicinity of Bigge Park. (Source: LLEP 2008).

The report also categorises the overall site as having exceptional (State) significance. Exceptional categorisation is defined as "*rare or outstanding item of local or State significance. High degree of intactness. Item can be interpreted relatively easily. Fulfils criteria for local or State listing*".

Regarding vegetation the report states:

> "*The Park features border plantings of trees including Tallow wood (Eucalyptus microcorys),Brush Box (Lophostemon confertus), Hill's Fig (Ficus hillii) and Red Ash (Alphitonia excelsa). The plantings along Bigge and Elizabeth Streets are particularly impressive. A variety of trees have been planted through the park in an informal layout. Included amongst these are trees planted to commemorate special events such as the Magnolia (Magnolia grandiflora) planted in 1982, the year of the Tree*".

Vegetation is also categorised as being of high (local) importance, as below:

- *"Boundary tree plantings along Bigge Street and Elizabeth Street are of high (local) importance,*
- *Individual ornamental tree plantings within Bigge Park are of high (local) importance"*.

The high category is defined as:

> "*High degree of original fabric. Demonstrates a key element of the item's significance. Alterations do not detract from significance. Fulfils criteria for local or State listing*".

The report does not identify any individual trees likely to be impacted by the works as having special heritage significance over and above what has been described above.

The age of the sites vegetation is likely to vary. However, the heritage report states "*Bigge Park was a part of the original early 19th century commons planned by the surveyor Meehan for the town of Liverpool. The park once extended to Scott Street and much of the present development dates back to the 1950's*". Additionally, 1943 aerial photography reveals absence of trees. It could

therefore be deciphered that the current vegetation structure has been developed post 1943, and likely through the 50's, 60's.

Figure 2.0: *1943 aerial photo. (Source: Six maps).*

Concluding review of heritage information trees within Bigge Park are of high heritage significance and should be considered for retention wherever possible.

3.0 TREE ANALYSIS & RECOMMENDATIONS

The following descriptions provide supportive information to the specific issues identified within the attached tree survey.
Issues discussed and recommendations made are based on the age of the trees in question. Typically, older and larger trees (typical of Bigge Park) are less tolerant to construction impacts due to lower energy reserves. This weakened state affects the ability and time frame in which a tree can produce callus growth over wounds. An older weaker tree may also have less ability to combat fungi, bacteria and insect pests. Recommendations are made accordingly.

3.1 Pirie building Fig (T1)

T1 is a *Ficus macrocarpa var. hillii*, approximately 17m high with a 25m canopy spread, a DOB of 1.3m, an excellent form and it is in fine health with no evidence of pest or fungal attack.
Branch unions appear strong and typical of the species.
Past evident minor pruning reveal strong callus growth and wound healing.
It is one of the most substantially formed trees within the Liverpool CBD and provides dense summer shade to Bigge Street and the adjacent play ground. It visually punctuates the vista along Bigge Street with its broad reaching canopy and forms part of the setting around the curtilage of the adjacent Post War International architectural style of the Pirie building.
Its glossy green mesophyllic foliage offers relief to the typical sclerophyllic foliage of the area.
It is therefore considered to have a high retention value.
Due to the nature of the heavier, poorly drained, clay soil types (Wianamatta Shale derived) around Liverpool, and the typical shallow rooting species, the root system is evident along the ground surface to the edge of the existing concrete footpath. However, roots are likely to extend beneath the existing path to the edge of the Bigge Street road surfacing. Given there are limited

impediments to root plate development (apart from the footpath and roadway) it is likely that roots extend beneath the canopy and beyond.
Due to the expansive size, mass, bulk, and weight of the canopy, the shallow root system is extremely important in retaining not only tree health, but also tree stability. Additionally, the trunk has a slight lean to the north/west which may shift weight and balance.
The proposed works impacting on the tree include widening of the street footpath from 3m to approximately 4.3m. The proposed path width will encroach within the structural root zone by approximately 1m. Construction works would require cutting and removal of substantially size roots ton install base and wearing course, and may compromise structural integrity of the tree. It is recommended that no works encroach within the structural root zone of the tree. The design should be altered and the proposed footpath widening not undertaken for 6m either side of the tree.
The specified TPZ should be established and maintained during construction.

Figure 3.0: *Pirie Fig analysis*

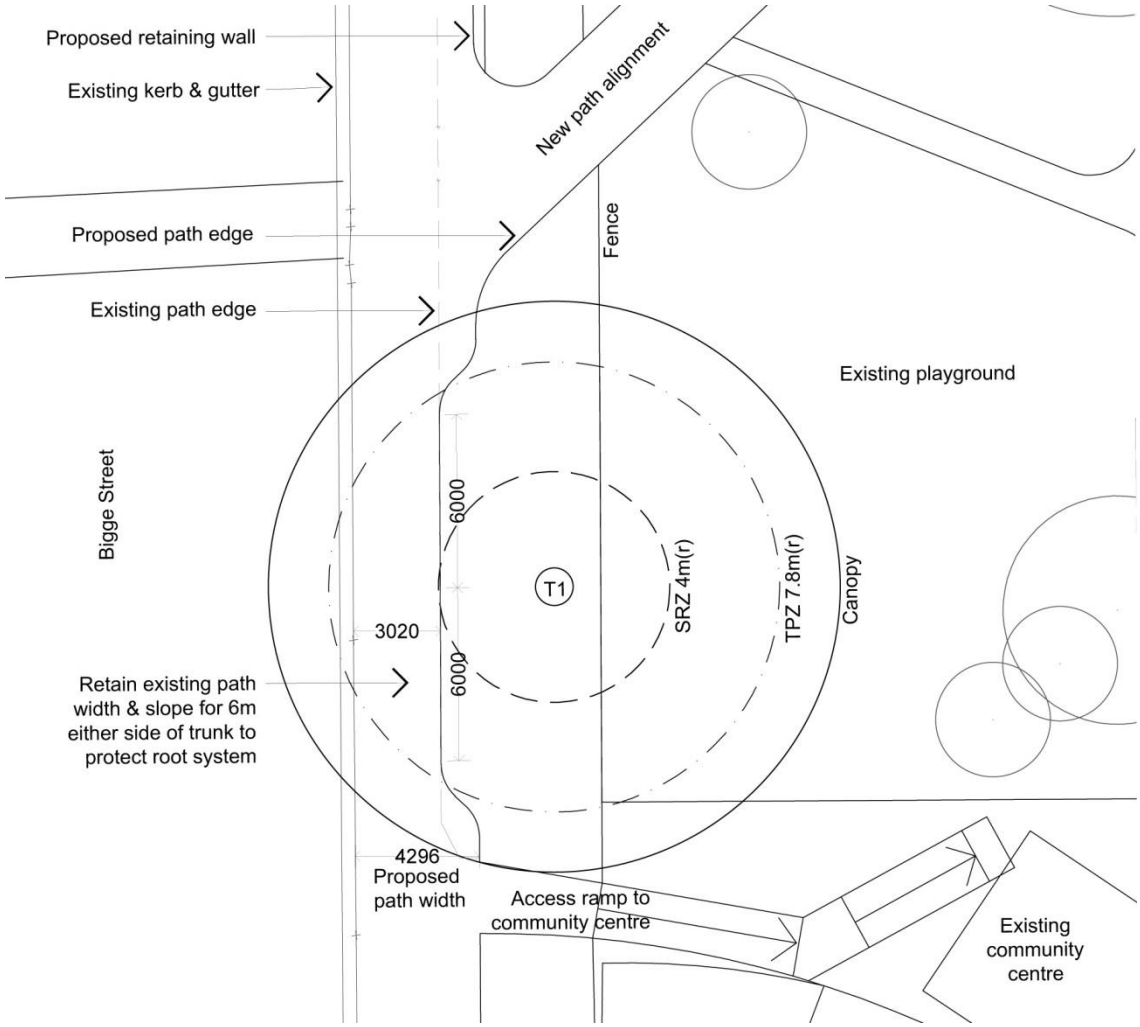

Figure 4.0: Pirie Fig recommendation diagram

3.2 Bigge Street Avenue

General

The Bigge Street edge is comprised largely of *Lophostemon confertus* (Brush Box) arranged to form an avenue along the internal edge of the park. Generally, the species is less than exemplary, evidenced by poor form, competing leaders, and thinning projective foliage cover. This is likely due to soil conditions and low soil moisture. The species, though very hardy, originates in the moist tall forests of NSW with friable soils high in organic matter. Western Sydney clay and low rainfall affect the potential of the species and typically cause summer stress and foliage wilt. However, as an avenue, the Brush Box form an impressive western edge to Bigge Park and contribute significantly to the streetscape of Bigge Street.

Two large *Eucalyptus microcorys* are located mid way along the Bigge Street boundary (T21, and T40). These trees are mature, of a substantial size, and contribute substantially to the nature of the park, its heritage character, and Bigge Street.

It is anticipated that footpath widening works will affect existing trees to varying degrees.

Works to trees with impacts on TPZ's

Trees T6, 24, 26, 27, and 30 will require proposed works within the calculated TPZ, though less than 10% encroachment is required. For these trees the following work methods are recommended:

1. Undertake works in months that do not have environmental extremes. Autumn and spring are preferable. This will reduce moisture stress on trees when the soil is opened via excavation.
2. Prior to undertaking works establish the nominated TPZ and install a temporary irrigation to bolster and maintain soil moisture throughout the construction phase to the full extent of the TPZ.
3. Air-knife along the proposed retaining wall excavation line to a depth of 300mm exposing roots. Sever roots cleanly with a sharp blade and excavate for retaining wall footings.
4. Once excavated immediately cover face of cut with heavy material such as carpet underlay which can retain moisture for extended periods. Maintain moisture to the cut edge so that when the material is lifted moisture is evident.
5. Install footing, drainage and retaining wall.
6. Backfill with topsoil mixture equal to Benedicts 80:20 as soon as practical.
7. No roots greater than or equal to 50mm are to be cut. Where roots greater than 50mm are encountered the contractor must cease work and request inspection and advice by the Site.

Works to trees with impacts on SRZ's

Trees T7, 34, 21, 38, 40, 42, 44, 46, 47, and T50 are likely to have impacts on the structural root zone base on AS4970 calculations.

Lophostemon confertus (T7)

T7 is a semi-mature Brush Box approximately 10m x 5m, with a DOB of 400mm.
Being close to the existing pathway and the T.G. Scott Memorial entry, the canopy has been pruned to remove lower branches leaving branch scars. Past pruning has affected the form of the tree producing a vase shaped crown leaning slightly to the north/west.
The tree is in average health, though there is evidence of die back to secondary and tertiary branching, likely due to water stress.
The tree forms part of the Bigge Street avenue planting though it is awkwardly located between the memorial gates pillars. It is noted that the proposed design accounts for this and aligns the new entry path toward the north of the structure.
Based on the design there appears to be minimal impact that would be inflicted on the tree.
The tree may be retained within the nominated TPZ during construction.

Lophostemon confertus (T34, 38, 42, 44, 46, 47, and T50)

For these trees the following work methods are recommended:

1. *All works to be supervised by the site arborist.*
2. Undertake works in months that do not have environmental extremes. Autumn and spring are preferable. This will reduce moisture stress on trees when the soil is opened via excavation.
3. Prior to undertaking works establish the nominated TPZ and install a temporary irrigation to bolster and maintain soil moisture throughout the construction phase to the full extent of the TPZ.
4. Air-knife along the proposed retaining wall excavation line to a depth of 300mm exposing roots. Do not severe roots without approval of the site arborist. Based on site inspections and roots encountered the Site Arborist may recommend design alterations to prevent impact on tree roots. Once approved by the Site Arborist roots may be severed cleanly with a sharp blade and bulk excavation undertaken.
5. Once excavated immediately cover face of cut with heavy material such as carpet underlay which can retain moisture for extended periods. Maintain moisture to the cut edge so that when the material is lifted moisture is evident.
6. Install footing, drainage and retaining wall.
7. Backfill with topsoil mixture equal to Benedicts 80:20 as soon as practical.
8. Maintain the irrigation system and soil moisture until completion of works.

Eucalyptus microcorys (T21, and T40)

Both these trees are very large (approximately 30m tall) and are very prominent along Bigge Street, and contribute significantly to the streetscape of Bigge Street. Due to their size the extent of

impact is likely to be significant. However, the extent will best be determined on site after air knifing. Tree No. 21, in particular, has an unbalanced crown leaning toward the roadway and pedestrian footpath. It is likely that either it is recommended that the retaining wall be modified around the root system, or it be removed to prevent future hazard.
The work method undertaken around these trees is to be in accord with that nominated above. In particular, *all works are to be supervised by the site arborist*.

3.3 Cnr Bigge and Elizabeth Street (T54)

This corner is dominated by a single specimen of *Eucalyptus baueriana* (Blue Box). The species is becoming locally rarer due to development of river flats. Its significance is therefore high. It also forms part of the parks perimeter planting and marks the Bigge and Elizabeth Street corner.
The tree is situated within a tight corner surrounded by retaining walls and pavements. Given this proximity to the corner the proposed works to alter the streetscape pavements, expand widths and replace the existing retaining wall, impact on tree roots is very likely. However, the extent cannot be fully determined without visual inspection during removal of existing structures. The nature of the proposed retaining wall is also unknown. It is therefore recommended that the tree is retained and detailed assessment be made during or prior to construction. Initial analysis would suggest the impacts from the proposed works will be sufficient enough to impact structural roots and therefore increase hazard through structural failure of the tree. Removal is likely to be recommended. If so a replacement tree should be considered to mark the corner. Recommendations to be made at detailed assessment.

3.4 Elizabeth Street avenue

Alphitonia, Brachychiton (T64, 65, 66, 67, 68, 69, 70, 71, 72, 73, and 92.)
The Elizabeth Street boundary is largely lined with *Alphitonia excelsa* and *Brachychiton populneus* sitting above the existing retaining wall. The specimens are generally in average health with poor branching structures and tree forms. Dieback and heavy pruning of major limbs is also evident. However, the trees collectively form the Park's northern avenue planting and significantly contribute to the character of the park.
It is likely that root systems extend to, and run along the existing retaining wall. This wall is to be demolished and shifted back approximately 200mm. However, assuming allowance for over excavation to enable footing and drainage installation, an excavation line of approximately 500mm from rear of the existing wall is expected. Though the trees are small to medium sizes root impact will occur. Calculations based on AS4970 indicate the SRZ may be impacted.
The following works are therefore recommended:

1. *All works to be supervised by the site arborist.*
2. Prior to undertaking works establish the nominated TPZ and install a temporary irrigation to bolster and maintain soil moisture throughout the construction phase to the full extent of the TPZ.
3. Air-knife along the proposed retaining wall excavation line to a depth of 300mm exposing roots. Do not severe roots without approval of the site arborist. Once approved by the Site Arborist roots may be severed cleanly with a sharp blade and bulk excavation undertaken.
4. Once excavated immediately cover face of cut with heavy material such as carpet underlay which can retain moisture for extended periods. Maintain moisture to the cut edge so that when the material is lifted moisture is evident.
5. Install footing, drainage and retaining wall.
6. Backfill with topsoil mixture equal to Benedicts 80:20 as soon as practical.
7. Maintain the irrigation system and soil moisture until completion of works.

Cinnamomum camphora (T94 and T95)
T94 and 95 are small Camphor laurel trees in poor health and poor form that have been heavily lopped with large branch scars. No particular works are recommended to reduce impact on these trees. The trees are listed as weed species and could be removed if desirable.

3.5 Cnr Elizabeth and College Streets, Melia azedarach (T97)

An existing White Cedar occupies the corner of Elizabeth and College Streets within a small tree pit within concrete pavement truncated by an existing retaining wall. The corner appears to have undergone recent upgrade evidenced by the fresh concrete pavement.

The tree appears in good health considering its restricted location.
Tree retention is recommended to maintain a park presence at the corner, and shade to the roadway and pavements.
It is likely that, due to the open natured existing retaining wall with soft footings, roots extend into the park green space adjacent. Installation of the proposed new steps and street pavement is therefore likely to impact existing roots. It is therefore recommended that the Site Arborist be present during excavation works to monitor root impact and viability of tree retention. Should retention be viable tree pit size and pavement the proposed pavement strategy should be considered to assist retention of tree health. Permeable pavement, expansion of tree pit size, or aeration coils beneath pavement may be considered.
Soil moisture is to be retained around the tree during the extent of construction works.

3.6 Internal park pathways (T13, 22, 23, 85, 86, 87, and T 88)

Alterations to internal pathways within the park pass by a number of existing trees. The trees identified for assessment are mature Eucalypt species that contribute significantly to the character of the park and local environment. Their retention value is therefore high.
Proposed paths are located within the calculated SRZ of all specimens. As the proposed works do not require deep excavations it is unlikely that the trees will be significantly impacted. In particular feeder roots toward the outer canopy edge will be retained. However, to avoid impact on structural roots it is recommended that pathway levels be adjusted / raised to ensure that excavations for base material and wearing courses do not sever structural roots. It is recommended that the Site Arborist inspect lawn stripping works and excavations to make final recommendations during construction.
Where existing pavements are to be removed from beneath the canopy of existing trees remove by hand. Once removed the entire area must be covered with a 50mm layer of course washed sand and watered. The sand cover must be watered every second day prior to installation of new pavement or new lawn.

3.7 Internal park pathway (T90)

There is a discrepancy in information provided. The tree survey indicates that tree 90 is whithin the alignment of the proposed internal circular path. However, the Urbis plan shows the tree offset to the north of the path.
It is recommended that the path be marked out to clarify impact / requirement for tree removal.

4.0 SUGGESTED RETAINING WALL DESIGN

It is recommended that the proposed retaining wall be engineered to minimise the extent of cut into tree root systems. The foot of the retaining wall footing is recommended to extend no further into the park than the rear face of the wall, as per the following indicative detail.

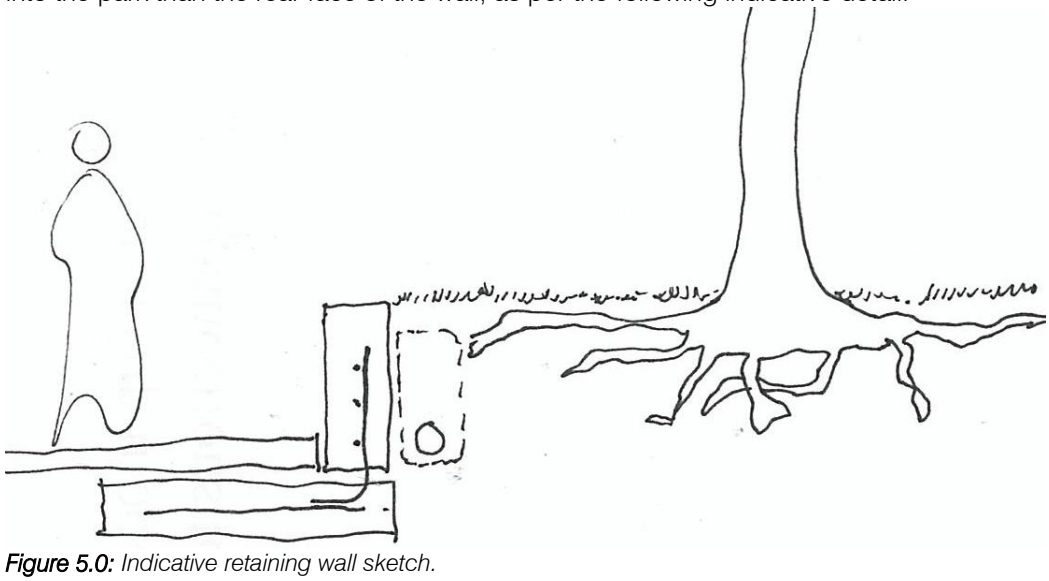

Figure 5.0: Indicative retaining wall sketch.

5.0 BENCH INSTALLATION

A number of park benches are identified around the park. It is recommended that the location of these benches be considered flexible to avoid root impact. Where roots are encountered it is recommended that benches be aligned to prevent root severance during footing installation.

6.0 ELIZABETH STREET TREE PLANTING

New pavement and tree planting works are also recommended within the footpath along Elizabeth Street. Prior to installation thorough investigations are recommended to ascertain planting constraints, including; existing services, parking meters, signage, and authority requirements to maintain safe roads and clear views. Detailed plans and specifications should be provided post assessment to ensure the best outcome.
It is recommended that the preferred tree pit design incorporate Strata Cell from City Green. The following product specification is recommended:

Product Code:	SC250 lower length 30 Series
Description:	Recycled plastic rigid skeletal interlocking octagonal structure
Dimensions:	510mm x 510mm x 250mm
Material:	Advanced polymer
Load:	300Kpa vertical load (appropriateness to foot traffic to be confirmed by engineer).

It is recommended that a soil volume of approximately 30m3 be provided for each tree to establish a medium sized tree at no greater than 1m depth. Area designation needs to account for the 90% soil occupancy of Strata Cells.
Soil vaults are to incorporate aeration pipe to ensure soils beneath pavement are sufficiently aerated.
Root control barriers are not recommended. Development of unrestricted structural root systems is required for tree stability.
Purchased trees are to be sourced from a reputable nursery who grow specimens in accordance with NATSPEC “Guide for assessing the quality of and purchasing of landscape trees” by Ross Clark 2003, and AS 2303:2015.

Figure 6.0: Elizabeth Street footpath existing condition.

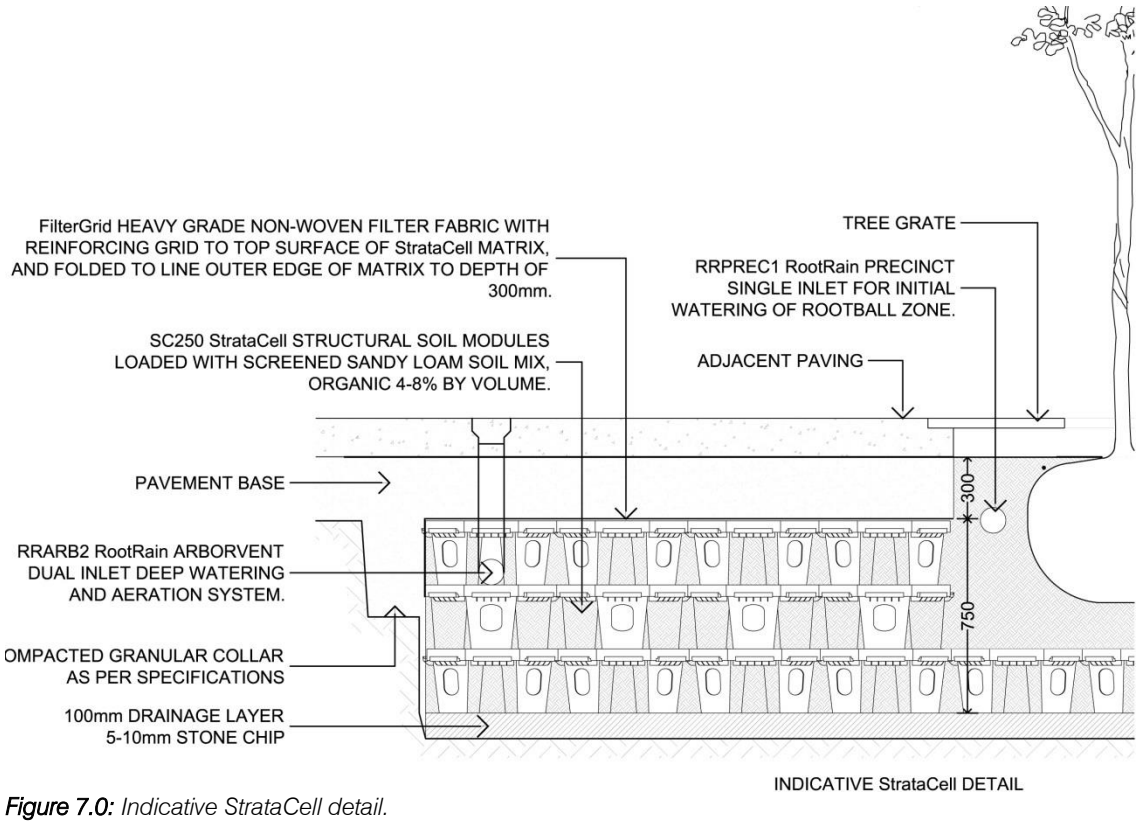

Figure 7.0: Indicative StrataCell detail.

7.0 PROJECT STAGING / SITE ARBORIST

It is recommended that Council consider an early works package under the supervision of a Site Arborist to ascertain the extent of potential root impact prior to engaging a head contractor. This will enable tree issues to be resolved and incorporated into the construction contract prior to the contract being awarded. Dealing with tree issues under contract can cause program pressures, cost variations, and potential extensions of time effecting quality, working relationships and vocational pressures.
Should this not be achievable a Site Arborist is recommended to be engaged by Council for the extent of the construction works. The Site Arborist is to attend site during critical stages of construction works beneath the canopy of existing trees to assess the impact of proposed works and employ best practices e.g. minimise compaction, soil build up and or excavation within tree protection zones, to ensure longevity of trees to be retained.
The Site Arborist must be given 24hrs notice to be on site.

8.0 TPZ's

The Tree Protection Zones (TPZ's) have been calculated using the formula and criteria outlined in AS 4970-2009 Protection of Trees on Development Sites. In summary the standard applies the calculation for the radius of the TPZ as 12 x (the tree trunk diameter (in metres) calculated at breast height (DBH)). DBH is taken at 1.4m above ground level.
A maximum TPZ radius will be 15m (unless crown protection is required) while the minimum TPZ radius shall be 2m.
The TPZ is typically assumed to be radial and centred on the centre of the trees trunk unless other site factors or tree canopy size and location dictate an adjustment.
During the works site trees must be protected through the establishment of Tree protection Zones (TPZ) - locations as documented on the attached Tree Identification Plan. TPZ's must be constructed of 1800mm high steel mesh fencing. Signage must be fixed to the fence at 15m intervals. The signs must be durable and clearly state that works within the TPZ are not permitted unless supervised by the project Arborist. "Works" include any task / action related to the construction of the project. The contractor must include tree protection requirements at site inductions to alert all subcontractors of their responsibilities to protect site trees.
The Site Arborist will inspect the TPZ's to ensure compliance. Damage to trees will require rectification by the contractor as specified by the Site Arborist.
TPZ's must be erected prior to the commencement of works.
Any works not nominated within this report within TPZ's are deemed hold points. The contractor must notify the Client's Representative who will arrange an inspection by the Site Arborist to discuss a works methodology to minimise adverse impacts. The Site Arborist will report to the Client's Representative for approval. The contractor must not take direct action from the Site Arborist.

9.0 CONCLUSION

The proposed works within and around Bigge Park are likely to impact existing trees to varying degrees. Recommendations made herein aim to minimise and or prevent impact. Broadly, these are:

a) Engage a Site Arborist to monitor works,
b) Undertake air knife analysis prior to undertaking full excavation works,
c) Modify retaining wall footing design to minimise excavations,
d) Alter path design around existing Pirie building Fig,
e) Install tree protection fencing,
f) Irrigate within the TPZ throughout works, and
g) Raise internal path levels over existing root plates.

Following the recommendations herein, the proposed works are considered feasible to improve the urban context and accessibility of Bigge Park and the broader Liverpool CBD.

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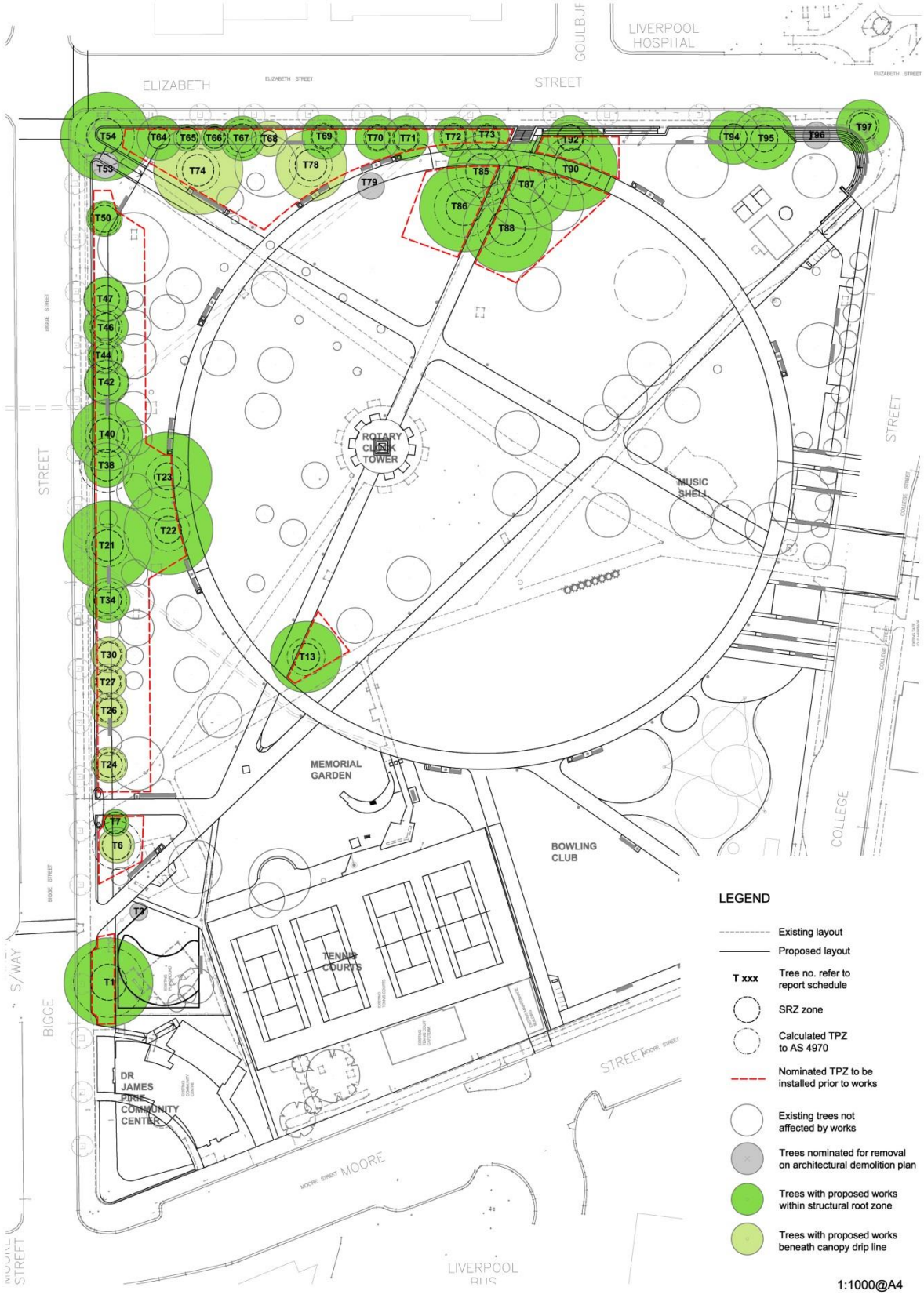
Sep 2015

APPENDICES

Appendix A - TREE IDENTIFICATION PLAN



Appendix B - TREE SURVEY

ID	Botanical Name	Common Name	Ave Hght x Sprd (m)	DBH (m)	SRZ	TPZ	Age	Cndtn	AV
T1	*Ficus Microcarpa var. hillii*	Hill's Weeping Fig	15 x 25	1.3	4	15.6	M	G	F,O,S, V
T6	*Lophostemon confertus*	Brush Box	13 x 10	0.9	3.2	10.8	M	G	O,S
T7	*Lophostemon confertus*	Brush Box	10 x 5	0.4	2.4	4.8	SM	P	O,S
T13	*Corymbia maculata*	Spotted Gum	22 x 16	0.7	3	8.4	M	G	F
T21	*Eucalyptus microcorys*	Tallowwood	28 X 18	0.8	3.5	9.6	OM	F	S
T22	*Eucalyptus microcorys*	Tallowwood	28 x 18	0.8	3	9.6	OM	F	S
T23	*Eucalyptus microcorys*	Tallowwood	28 x 18	0.8	2.8	9.6	OM	G	S
T24	*Lophostemon confertus*	Brush Box	8 x5	0.6	2.8	7.2	Y	F	O,S
T26	*Lophostemon confertus*	Brush Box	9 x 6	0.5	2.7	6	SM	F	O,S
T27	*Lophostemon confertus*	Brush Box	11 x 6	0.5	2.7	6	SM	P	O,S
T30	*Lophostemon confertus*	Brush Box	8 x 6	0.5	2.7	6	SM	F	O,S
T34	*Lophostemon confertus*	Brush Box	8 x 6	0.7	3	8.4	SM	G	O,S
T38	*Lophostemon confertus*	Brush Box	9 x 6	1/Multi-trunk	3.5	12	SM	F	O,S
T39	*Lophostemon confertus*	Brush Box	8 x 6	0.4			SM	P	O,S
T40	*Eucalyptus microcorys*	Tallowwood	22 x 14	0.8	3.8	9.6	M	G	S, V
T42	*Lophostemon confertus*	Brush Box	10 x 6	0.8/Multi trunk	3	9.6	SM	F	O,S
T44	*Lophostemon confertus*	Brush Box	10 x 4	0.6/Multi trunk	2.7	7.2	SM	P	O,S
T46	*Lophostemon confertus*	Brush Box	12 x 6	0.6	3	7.2	M	G	O,S
T47	*Lophostemon confertus*	Brush Box	12 x 7	0.8	3	9.6	SM	F	O,S
T50	*Lophostemon confertus*	Brush Box	13 x 8	0.8	3	9.6	SM	F	O,S
T54	*Eucalyptus baueriana*	Blue Box	18 x 15	1.2	4	14.4	M	G	S, V
T64	*Alphitonia excelsa*	Red Ash	10 x 7	0.4	2.4	4.8	SM	F	O,S
T65	*Alphitonia excelsa*	Red Ash	8 x 7	0.4	2.4	4.8	SM	P	O,S
T66	*Brachychiton Populneus*	Kurrajong	8 x 6	0.4	2.4	4.8	SM	F	O,S
T67	*Alphitonia excelsa*	Red Ash	12 x 10	0.8	3.2	9.6	SM	P	O,S
T68	*Brachychiton Populneus*	Kurrajong	4 x 5	0.3	1.8	3.6	Y	P	O,S
T69	*Alphitonia excelsa*	Red Ash	10 x 10	0.5	2.7	6	M	F	O,S
T70	*Alphitonia excelsa*	Red Ash	9 x 10	0.5	2.4	6	M	F	O,S
T71	*Alphitonia excelsa*	Red Ash	9 x 10	0.6	2.7	7.2	M	F	O,S
T72	*Alphitonia excelsa*	Red Ash	9 x 10	0.8	2.7	9.6	M	F	O,S
T73	*Alphitonia excelsa*	Red Ash	9 x 10	0.8	2.7	9.6	M	F	O,S
T74	*Eucalyptus microcorys*	Tallowwood	20 x 15	1	3.5	12	M	F	S,V

T78	*Eucalyptus microcorys*	Tallowwood	20 x 15	0.8	3.5	9.6	OM	G	S,V
T85	*Eucalyptus microcorys*	Tallowwood	15 x 8	0.6	3.8	7.2	OM	G	S,V
T86	*Eucalyptus microcorys*	Tallowwood	19 x 8	0.8	4	9.6	OM	G	S,V
T87	*Eucalyptus microcorys*	Tallowwood	22 x 11	1.2	4	14.4	OM	G	S,V
T88	*Eucalyptus microcorys*	Tallowwood	16 x 8	0.9	4	10.8	OM	G	S,V
T90	*Eucalyptus microcorys*	Tallowwood	20 x 11	0.8	4	9.6	OM	G	S,V
T92	*Alphitonia excelsa*	Red Ash	12 x 5	0.5	2.8	6	SM	P	O,S
T94	*Alphitonia excelsa*	Red Ash	12 x 6	0.5	3	6	SM	P	O,S
T95	*Cinnamomum camphora*	Camphor Laurel	15 x 11	0.8	3	9.6	SM	P	_
T97	*Melia azedarach*	White Cedar	9 x 10	0.6	3	7.2	SM	F	O,S,V

Description Codes

Age	Y = Young (young or recently planted) SM = Semi mature (< 20% of life expectancy) M = Mature (20 - 80 % of life expectancy) OM = Over mature
Cndtn - Condition	G = Good (90-100% crown cover with little or no dieback or other problems) F = Fair/Average (60-80% canopy over, some twig dieback, consistent for species) P = Poor (20-60% canopy density, twig and branch dieback) R = Hazardus
DBH	Trunk diameter at breast height
AV - Amenity Value	C = Commemorative/Memorial F = Exceptional form O = Ornamental S = Provide Good Shade V = Visual - = No special significance
SRZ	Area around base of tree required for stability. Radius from centre of trunk (in meters)
TPZ	Area isolated from construction disturbance, a combination of root area and crown area requiring protection. Diameter from trunk (in meters)

END REPORT