

Arboricultural Impact Assessment Report

STP West Byron
Byron Bay.

Client:
Byron Shire Council.

Report compiled by
Northern Tree Care
ABN 73 674 526 681

PO Box 81, Burringbar NSW 2483.
Ph 0414186161
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1. Introduction

Peter Gray has compiled this report on request from Planit Consulting. Byron Shire Council is planning to construct a loading facility at the West Byron Sewerage Treatment Plant. The planned facility will include a concrete hardstand area and turn around. There are several trees that will be affected by the construction of the new facility.

2. Scope

This report describes the trees that are potentially affected by the construction of the new facility. The significance of the trees in the landscape is assessed. Only trees above 3 m tall are assessed in the report. The suitability of the trees for retention is assessed. Where trees are retained in the development that have the potential to be damaged by construction, recommendations for their protection are made.

3. Method

The trees were assessed visually from the ground. The diameter at breast height (DBH) was measured at 1.4 m above ground level with a girthing tape. The height of the trees was measured with a hypsometer. The methods recommended in the Australian Standard AS 4970-2009 *Protection of trees on development sites* was used to assess the trees.

The health and condition of the trees was assessed using the Visual Tree Assessment method (Mattheck & Breloer 2003). This is a method of assessing the trees using the body language or shape and features of the trees to indicate their condition. These tree shapes or body language are a reliable indicator of the underlying condition of that part of the tree. The trees were identified using the signs and features present at the time of inspection.

The information in this report is derived from a site visit carried out on 15th January, 2010 and from plans and drawings supplied by Planit Consulting Consulting. The drawings are:

- *Image of Plans for the Construction of Hopper.* Planit Consulting. 01/2020.

4. Description

The site is in the West Byron STP. The land is controlled by Council and is flat and close to the coast (see Attachment 1. Location Plan). There are water bodies and coastal swamp areas near the site. The Byron Council mapping shows Coastal Freshwater Lagoon and nearby but the area where the works are planned to be carried out are not mapped (see Attachment 2 and 3 Significant Vegetation).

The land is flat and the soil sandy. Few species are able to tolerate these conditions and soil types. The vegetation reflects the poor growing conditions and in the subject site area is dominated by Swamp Oak *Casuarina glauca*. There is a mounded area next to the access road. The trees growing on the side of this road are all Swamp Oak and are in a straight line. They may have been planted when the original construction works took place.

The trees subject of this report are restricted to the trees that are likely to be affected by the works. Only the trees taller than 3 m have been included in the report (except tree # 4). The trees are described in detail in Table 1. Tree Data below.

Table 1. Tree Data.

Tree #	Name	Condition	Height m	DBH mm	Crown m	TPZ m	Encroachment %	Comments
1	Swamp Oak <i>Casuarina glauca</i>	Fair	8	330	4	4.0	18	Dead branch in the crown. May need one branch pruned off to allow truck access.
2	Swamp Oak <i>Casuarina glauca</i>	Good	9	220	4	2.6	-	In the footprint of planned truck access
3	Swamp Oak <i>Casuarina glauca</i>	Good	9	320	4	3.8	-	In the footprint of the planned truck access
4	Blueberry Ash	Good	2.5	150	2	2.0	0	Close to planned excavation

(Leiper et al 2009).

5. Tree Significance

When considering the retention value of trees, two major issues were considered. They are the significance of the tree and its estimated life expectancy.

When assigning a value to the significance of the tree a number of factors should be considered (Moreton 2003). The significant outcomes have been determined in **Attachment 2. Significance of the Tree in the Landscape**

Table 2. Significance of Tree in the Landscape.

Tree #	Name	Condition	Vigour	Protected	Environmental value	Amenity value	Significance
1	Swamp Oak <i>Casuarina glauca</i>	Fair	Fair	Yes	Very High	Low	Low
2	Swamp Oak <i>Casuarina glauca</i>	Good	Good	Yes	Very High	Low	Low
3	Swamp Oak <i>Casuarina glauca</i>	Good	Good	Yes	Very High	Low	Low
4	Blueberry Ash	Good	Good	No	Very High	Low	Low

6. Tree Retention Value

Once the significance of the tree in the landscape has been determined, it can be assessed against its Estimated Life Expectancy. The values for the trees have been placed into **Table 3. Tree Retention Values** below.

Table 3. Tree Retention Values

	Landscape Significant Rating						
	1 Significant	2 Very High	3 High	4 Moderate	5 Low	6 Very Low	7 Insignificant
Estimated Life Expectancy	Greater than 40 years	High Retention Value			Moderate Retention Value		Low Retention Value
	15 to 40 years				# 1, 2, 3, 4		
	5 to 15 years						
	Less than 15 years						Very Low Retention Value
	Dead						

Ref:- Modified from

Couston, Mark & Howden, Melanie (2001) *Tree Retention Values Table*. Footprint Green Pty Ltd, Sydney Australia

Where trees have a high retention value they should be retained and protected in the development if possible. It may be necessary to remove the trees to allow for the development and this can only be done if it is considered that the development is more important than the trees. Where trees have a low retention value they can be removed if they conflict with the development. Where there is no conflict they may be retained.

7. Appraisal

Tree # 1

Swamp Oak *Casuarina glauca*.

Medium sized mature aged tree. This tree has a dying central branch and is in poor condition. There is evidence of borer attack in the trunk. The branch on the northern side of the tree is likely to be in the way of trucks accessing the collection hopper. The encroachment into the TPZ by the planned construction is 18% which is a major encroachment as defined by the Australian Standard AS 4970-2009 *Protection of trees on development sites. Sect 3.3.3 Major encroachment*.

Tree # 2

Swamp Oak *Casuarina glauca*.

Medium sized mature aged tree in good condition. The tree is growing in the footprint of the planned loading area.

Tree # 3

Swamp Oak *Casuarina glauca*.

Medium sized mature aged tree in good condition. The tree is growing in the footprint of the planned loading area.

Tree # 4

Blueberry Ash *Eleocarpus reticulatus*.

This is a small young tree in good condition. Even though it is less than 3 m tall and therefore not protected by Byron Shire Council's DCP Chapter B2 Protection of Trees and Other Vegetation it has been included in this report because it is close to the planned earthworks required to change the soil level for the truck access. The planned work is outside the TPZ of this tree.

8. Recommendations

It is recommended that tree # 1, 2 and 3 be removed to allow construction of the planned works. Tree # 4 should be retained. The small shrubs consisting of Banksia and Swamp Oak should be removed to allow construction of the planned works.

It is not considered necessary to provide any additional protection to the trees retained on site. The trees to be retained should be identified to the works contractors and it should be explained to them that the trees must be retained in good health and condition during the works.

In accordance with Council's No Net Vegetation Loss Policy the trees removed should be replaced. A ratio of 3:1 is considered to be an appropriate replacement for these trees. The tree species used should be Swamp Oak and be planted on the Council controlled site. The planting should use stock sourced from a reputable nursery and ideally be 1 litre pots. A plastic guard should be placed around the tree to prevent browsing from native wildlife such as Swamp Wallabies and the like.

9. Tree Protection

The trees retained on the site should be protected during construction in accordance with the recommendations of the Australian Standard AS 4970-2009 *Protection of trees on development sites*. The standard sets out a Tree Protection Zone that is calculated to be an area around the tree with a radius of 12 times the diameter at breast height (DBH). The TPZ has a maximum radius of 15m. The TPZ should be protected during development to ensure the viability of the tree.

The Standard lists activities that are prohibited in the TPZ. They are:

- (a) machine excavation including trenching;*
- (b) excavation for silt fencing;*
- (c) cultivation;*
- (d) storage;*
- (e) preparation of chemicals, including preparation of cement products;*
- (f) parking of vehicles and plant;*
- (g) refuelling;*
- (h) dumping of waste;*
- (i) wash down and cleaning of equipment;*
- (j) placement of fill;*
- (k) lighting of fires;*
- (l) soil level changes;*
- (m) temporary or permanent installation of utilities and signs, and*
- (n) physical damage to the tree.*

The Standard recommends a temporary 1.8 m high fence to be placed around the TPZ. In this development some works will be required to be undertaken near trees that are to be retained. It is recommended that the trees be protected by the installation of a 1 m high visibility plastic mesh fence. An example of high visibility protective fencing is shown in Figure 1 below. The location of the fence is shown in Attachment



Figure 1.
Example of high visibility temporary fencing.

9. Disclaimer

The information contained in the report is true and accurate to the best knowledge of the author. Best professional judgement was used to make recommendations. However the author of this report is not responsible for any action which might be taken or not taken in reliance on it.

This report remains the property of the author and Planit Consulting. It may not be used or reprinted without their express permission.

10. Bibliography

Barrell J. 2006. Workshop Manual Trees on Construction Sites. Barrell Tree Consultancy. Brisbane.

Leiper G. Glazebrook J. Cox D. Ruthie K. 2009. *Mangroves to Mountains*. Society for Growing Australian Plants. Browns Plains.

Mattheck C. Breloer H. 2003. *The Body Language of Trees*. TSO. London.

Standards Australia. 2009. *AS 4970-2009 Protection of Trees on Development Sites*. Standards Australia. Homebush.

11. About the Author

This report was compiled by Peter Gray, of Northern Tree Care. The author is an arborist who has been providing Arborist Assessment Reports for Local Government, State Government and private clients for over 15 years. His qualifications include:

- Graduate Certificate of Arboriculture (AQF 8)
- Diploma of Arboriculture (AQF level 5)
- Diploma of Horticulture (Arboriculture)
- Quantified Tree Risk Assessment (QTRA)
- VALID Tree Risk-Benefit Management Validator

He is a registered general member of Arboriculture Australia No. 2344, trained and registered practitioner of Quantified Tree Risk Assessment (QTRA) Registered User number 980 and a registered member of VALID Tree Risk-Benefit Management..

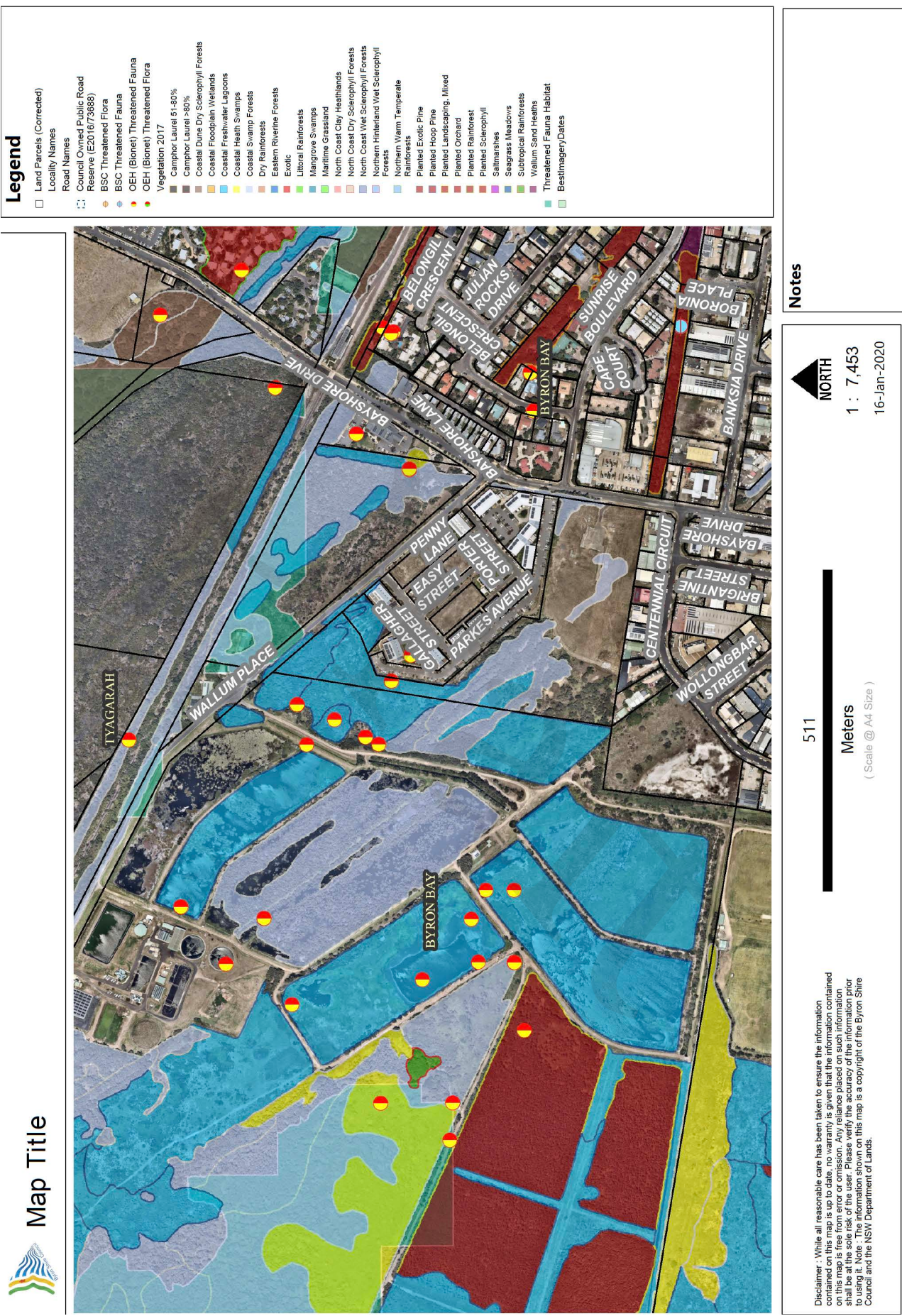
I declare that I have compiled this report impartially using best professional judgement. I have no financial interest in the outcome of the report.

Signed Peter Gray, Northern Tree Care
3rd February, 2020.

12. Attachment 1. Location Plan.



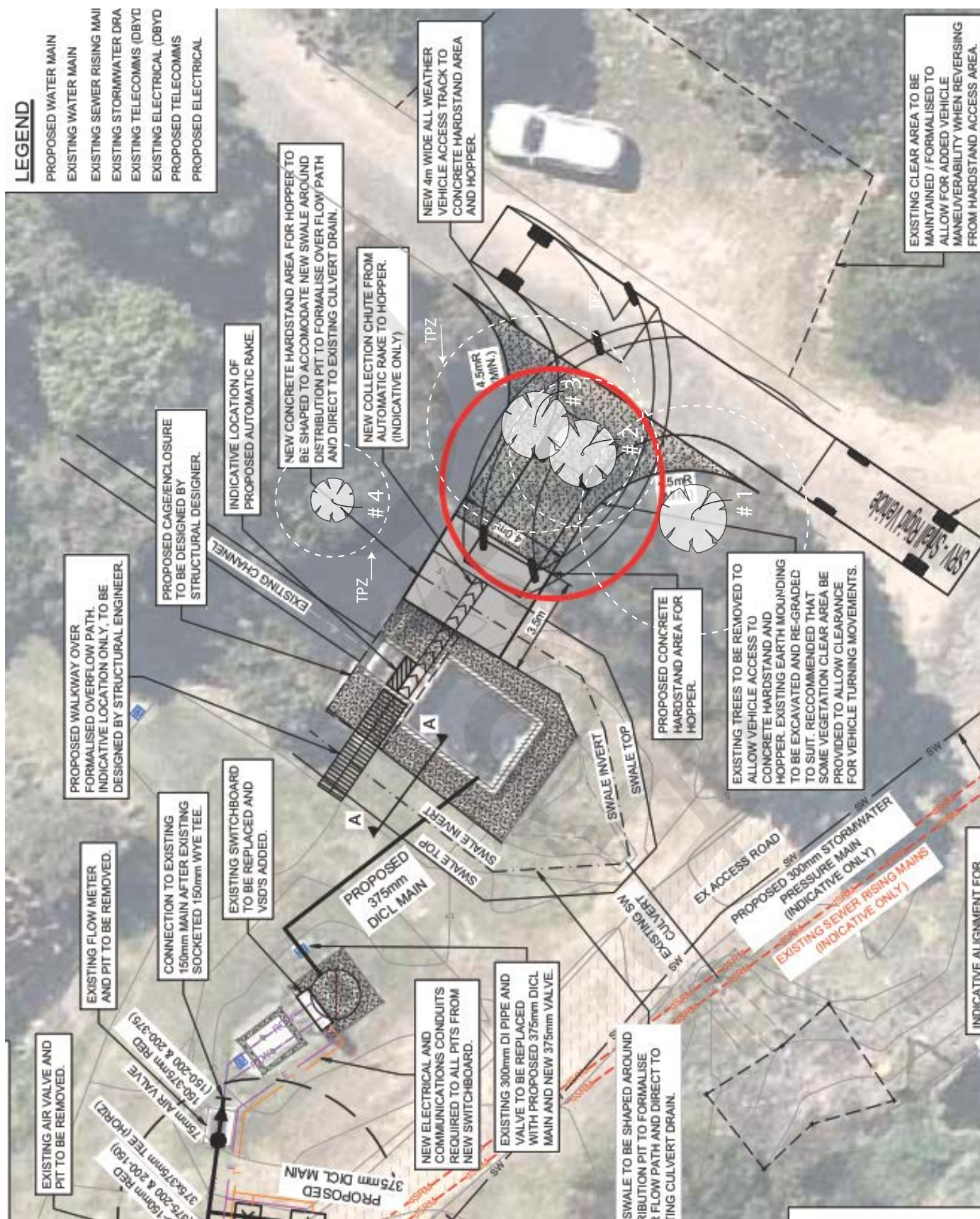
13. Attachment 2. Significant Vegetation



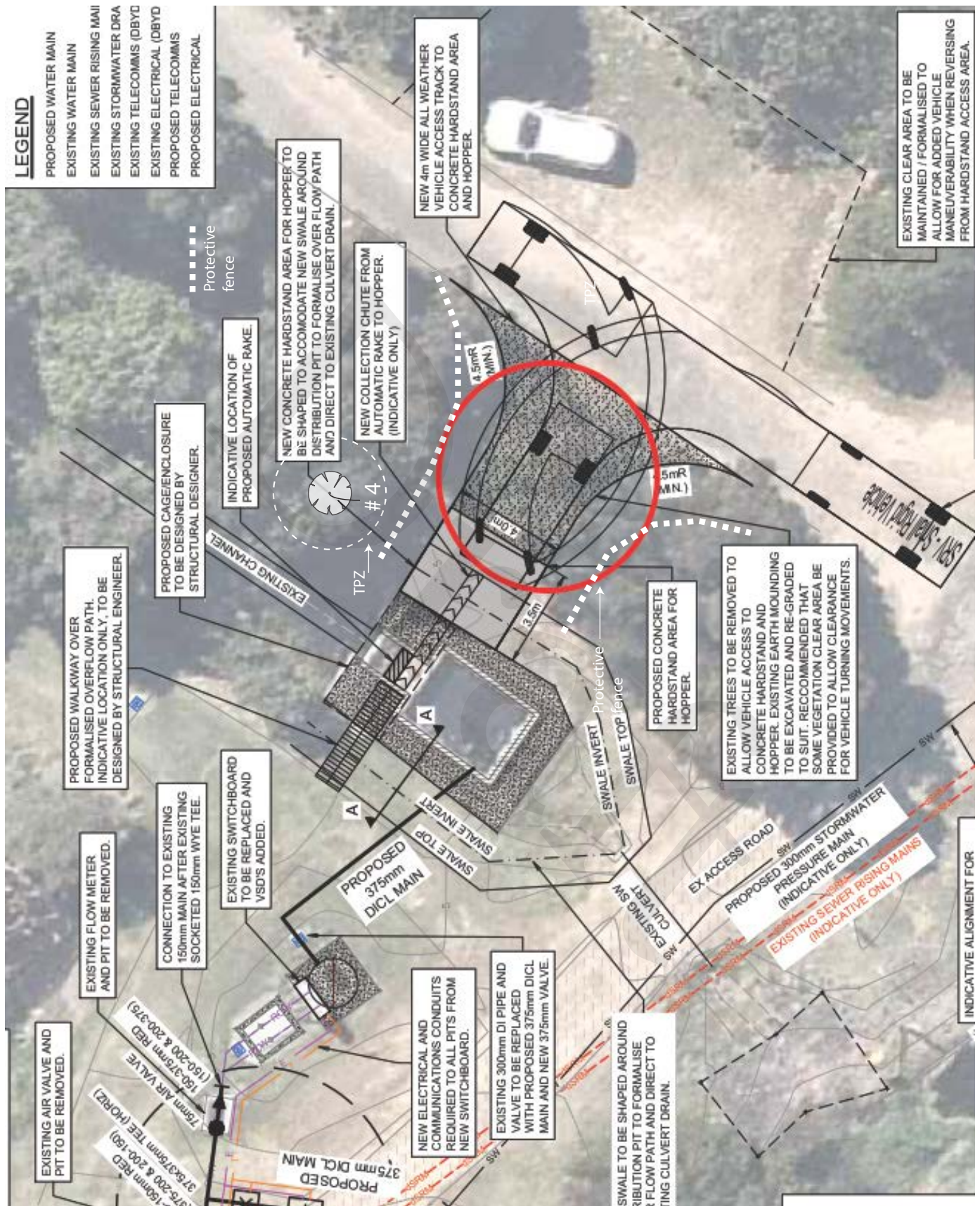
14. Attachment 3. Vegetation Type Detail



15. Attachment 4. Site Plan.



16. Attachment 5. Site Plan.



17. Attachment 6. Photos

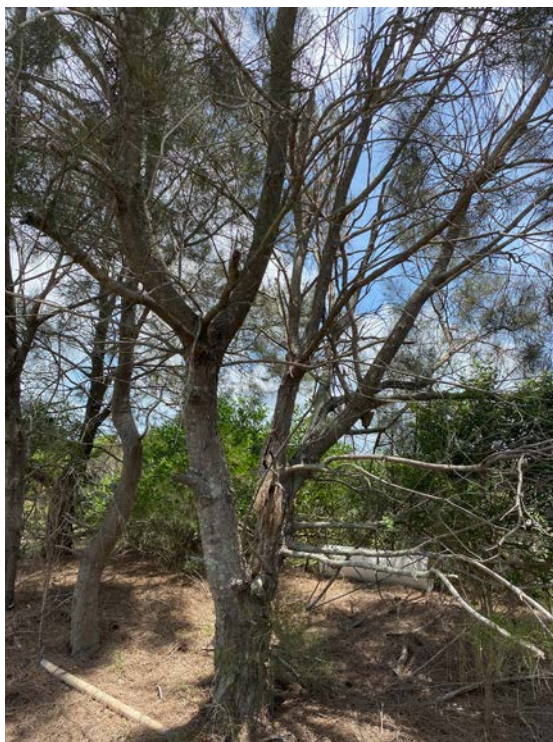


Photo 1
Tree # 1
Swamp Oak tree to be removed



Photo 2
Tree # 2 & 3
Swamp Oaks to be removed



Photo 3
Banksia and Swamp Oak shrubs. Less than
3 m tall. To be removed.



Photo 4
Tree # 4
Blueberry Ash. Small tree to be retained.