

TREE REPORT

Old School Site/
Turnstones, St.
Mary's



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Client: Council Isles of Scilly

1. Background

This report was commissioned by the Infrastructure and Planning Department of the Council of the Isles of Scilly to inspect a single standing *Pinus Radiata* (Monterey Pine) on the Eastern edge of the Old Secondary School Site, St. Mary's, following concerns raised by the owner and occupier of Turnstones, immediately to the East of the tree.

2. Scope

As instructed in the initial brief (email from Emma Kingwell to Matthew Rogers dated 25/6/2020), the scope of this report is to ascertain the safety of the tree with regards to the adjacent property, and to make recommendations for a schedule of works based on the findings.

3. Technical References

This report draws upon information contained in the following publications:

- British Standards Institution (2010) BS 3998 Recommendations for tree work
- British Standards Institution (2012) BS 5837 Trees in relation to design demolition and construction
- Lonsdale, D., 1999, Principles of Tree Hazard Assessment and Management. The Stationary Office, London.
- James, N. D. G., 2010, The Arboriculturist's Companion, Oxford

4. Information and documentation provided

Other than two separate site visits, this report has been informed by emails provided by the Council of the Isles of Scilly (26/6/2020 and 29/6/2020), a discussion with the owner occupier of Turnstones and a discussion with the contractor who attended to a damaged sewerage pipe at Turnstones.

5. Methodology and limitations

The majority of this inspection is based on a visual survey from ground level only, employing methods such as:

The carrying out of a Visual Tree Assessment (VTA), which takes into account the following:

- General health
- Balance of the Crown

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- Extent to which it leans in any direction
 - Overall form and shape
 - Foliage colour and observed growth appropriate for the time of year

The carrying out of closer inspection including the following

- Site, situation and general exposure of the tree to the weather
- Physical damage and presence of dead branches and sections
- Ground conditions and topography
- Condition of the main trunk, bark and limbs
- Presence of holes or areas of rot at base of tree
- Evidence of fungal infections and cavities
- A sounding mallet has also been used to detect possible cavities up to a height of approximately 2 metres.

In addition to the above, additional evidence has been sought as to the history of other trees of this species on the Islands.

Trees are dynamic living organisms and as such are unpredictable. Many of the forces acting on them (such as weather) are also unpredictable. Given this, it is never possible to give a definitive answer as to the safety of a tree. This report will present observations and the possible risks, and reach a conclusion based on these.

6. Site and surrounding area

The tree in question, a *Pinus Radiata* (Monterey Pine) is located on the Eastern edge of the Old Secondary School site at Carn Thomas, St. Mary's, Isles of Scilly, TR21 0LP.

Below is a google map image of the site.



Fig 1.1 Google map image of site

The tree stands as a solitary tree on the Easterly flank of a large exposed hill, its trunk being approximately 3 metres from the Eastern boundary of the Old Secondary School Site. There is a vertical drop of approximately 4 metres from the boundary of the Old School Site immediately to the East of the tree to the Westerly extremity of the garden and building of Turnstones. This was presumably excavated when Turnstones was constructed. The edge of the building at Turnstones is approximately 6-8 metres at its closest point to the trunk of the tree in question. There is an array of other shrubs and bushes around the tree, extending in all directions and particularly along the edge of the boundary with Turnstones. These include *Pittosporum Crassifolium*, *Olearia Traversii* and numerous suckering *Ulmus*.

Although a full soil analysis has not been carried out, a visual observation has been made. Granite bedrock is evident in the area to the west of the tree, and in the excavation for the house to the East and the topography would suggest that the top soil depth is minimal in the position of the tree. Visual and tactile observations indicate that the soil is a sandy loam type, and given the granitic bedrock, is likely to be acidic in nature.

The tree in question is assessed as not having a high amenity value. From most vantage points other than looking from the summit of the hill to the West of the tree or immediately up from the adjacent road, the tree mostly blends into the background of the hill and surrounding shrubs and bushes. It is not a striking example of this species, it has received no formative pruning, nor does the species hold any scarcity value on the Islands. However, it should be noted that any tree plays a vital part in the fight against climate change, and also will be an important element in any ecosystem.



Fig 1.2 View of tree and Turnstones looking in a south westerly direction



Fig 1.3 View of tree from summit of adjacent hill looking in an Easterly direction



Tree in question

Fig 1.4 Showing tree from ground level at Turnstones. Note *Pittosporum* and *Ulmus* in foreground. Also note sheer drop from tree level to ground level and Turnstones. Picture taken looking approx. West.



Fig 1.5 Showing Turnstones roof from position of tree trunk looking approximately East. Note the presence of numerous *Ulmus* in the foreground

7. Background and relevant documentation/ information

The owner of Turnstones has long been concerned about the position of the tree in relation to the safety, and to some extent, structure of her property. This matter came to a head when a sewerage pipe serving the property was found to be damaged and blocked by a tree root.



Turnstones,
Porthor
SI

Fig 1.6 Photograph of tree root damaging sewage pipe system at Turnstones during works. Picture provided by Council Isles of Scilly.

Unfortunately, this picture is not of sufficient quality to be certain that this root extends from the Pine tree in question. The root in the picture does look like a Pine root and, given the lack of other larger trees in the immediate vicinity, it is possible – roots of a 25 year old *Pinus Radiata* have been documented to extend laterally beyond 10.4 metres.¹ In addition, as calculated in BS 5837, the boundary of the house and the position of the damaged pipe lies inside the Root Protection Area – this is defined in BS 5837 as the “minimum area around a tree deemed to contain sufficient roots and rooting volume to maintain a tree’s viability, and where the protection of the roots and soil structure is treated as a priority.” It is calculated at 12 times the diameter of the tree at 1.5 metres above ground – in this case, 12 x 0.6m, which gives a Root Protection Area out to 7.2 metres from the tree. Given the above, it is likely but not certain, that the root which damaged the sewerage pipe at Turnstones was from the *Pinus Radiata* in question.

Having spoken to the contractor who carried out the work and the owner of the property, in order to remedy the issue with the pipe, a significant amount of the root was removed.

The species of *Pinus Radiata* is widespread on the Islands. The species was probably first introduced in the 1870s², and has excellent tolerance to salt laden winds and survives on poor soils. There are numerous stands of the tree on Tresco and St. Mary’s, including for example the Garrision, Trenoweth, Innisidgen, Porth Hellick, Carn Friars, Kitty Downs, Bishop’s View, Telegraph and Mount Todden on St. Mary’s. In these sites, it was planted as a primary wind break. Mature examples have subsequently been sculpted and “deadwooded”, and provide a great asset to the Islands’ landscape – for example at Mount Todden.

Despite the fact that the tree species is well suited to exposed maritime situations, there have been numerous examples of specimens being up rooted and blown over by high winds. During the 1989-90 gales, at least 50 trees of *Pinus Radiata* were blown over on St. Mary’s, and up to 100 on Tresco³. More recently, during the 2013-14 winter gales, numerous *Pinus Radiata* were blown down, including a mix of semi-mature, mature and over mature examples at for example the Garrison, Bishop’s View, Trenoweth and Telegraph.

¹ Watson and O’Loughlin, *Structural and Root Morphology and Biomass of three age classes of Pinus Radiata*, (1989), p.97

² King, *Tresco England’s Island of Flowers*, (1985), p.156

³ Pers Comm, Andrew Lawson, Head Gardner Tresco



Fig 1.7 *Pinus Radiata* windblown across highway, Bishop’s View, Telegraph, February 2014

This shows that during high winds, these trees are susceptible to falling from wind blow in various states of maturity. Although a solitary tree may have more resistance to extreme wind, the exposed nature of this tree means that failure from windblow is a possibility, and this is made more likely by the sheer drop immediately to the East of the tree. This issue is compounded by the fact that the prevailing winds are from the South West, and therefore any failure is likely to be in the direction of the adjacent property.

This species of tree does not respond to pruning below a green shoot of growth, and will not re-grow from a cut made on a stem. Therefore, there are only limited tree surgery techniques that can be used on this tree.

8. Site visit and observations

Two site visits have been carried out: a preliminary visit on 28 June and a further visit on 13 July. The findings are below, and estimated distances and heights are indicated by *:

		Additional notes
Tree Identification/ Ref No	PR1	As identified above
Owner of Tree	Council Isles of Scilly (as advised)	

Species	<i>Pinus Radiata</i> (Monterey Pine)	
Age years	Approx 25-40 years (estimate) Classed as semi-mature	
TPO/ Conservation Area	Unaware of any TPO on this tree but whole of Islands are conservation area	Planning department need to be notified of works – Tree Works in Conservation Area form to be completed
Height in Metres	12 metres*	
Stem diameter at 1.5m	0.60 metres	
Crown Spread	North 3 metres* East 6 metres* South 6 metres* West 5 metres*	
Soil Type	Sandy Loam – probably acidic Topsoil depth estimated to be shallow	
Root system assessment	Nothing significant to observe. Possible issue with regard to large drop to East may have forced roots deeper in this direction and towards the house. Possible damage during drain repairs at adjacent property	Any damage to root system will take time to show outwardly on tree
Stem assessment	Sound visually. Tapping with nylon mallet indicated no internal cavities. No signs of fungal growth on the stem.	
Scaffold/ Crown assessment	Large lateral spread common with this species, and some lower branches starting to lose some needles as again common with species. Generally sound. Crown and upper scaffold generally leaning to East	
Foliage/ twigs/ needles/ growing points	Good growing points at needles in general	Possible damage to roots will take time to show

Overall physiological condition	Overall appeared good	
Overall structural condition	Appeared good but leans towards East and property	Possible damage to roots will take time to show
Retention quality BS5837	Assessed to be category C, a tree of low quality, offering low landscape value and no specific cultural value.	See BS5837 p.9
Targets within falling distance	Turnstones house, oil storage tank and garden	All to East of tree – i.e. direction of likely fall caused by prevailing SW winds
Overall risk	Assessed as medium at present time. Tree appears to be in overall good condition.	See below for details

9. Possible options

Actions	Risks
Leave tree in current condition and allow to mature	<ul style="list-style-type: none"> • Tree will continue to grow – eventually possibly reaching a height and spread of 15-20 metres. In this condition it will represent a very significant risk to the adjacent property, and will present a challenge to remove. • Tree is likely to grow more towards East and lean further over property. • Tree may succumb to windblow in near future. • Tree may damage drainage system of adjacent property further. • Possible damage from root removal may have significantly weakened tree
Undertake pruning works to tree	<ul style="list-style-type: none"> • Limited techniques available with this species of tree. • Risk of windblow will still remain • Roots may cause further damage
Remove tree	<ul style="list-style-type: none"> • Risk of damage to building and further damage to underground services eliminated • Trees play vital role in fighting climate change

10. Recommendations

Whilst the tree appears to be in a sound condition at the present time, it does pose a real (and potentially very damaging) risk to the adjacent property which will only increase over time. Bearing this in mind, **it is recommended that the tree be sectionally felled and removed.** However, **at least two trees** of a suitable species such as *Pinus Radiata* should be planted at a suitable location as a result of its removal.

Recommendation	Justification
<p>Removal of tree within next 6 months.</p> <p>Scrub vegetation should be managed and suckering Elm (Ulmus) will cause a similar problem in the future if they are not managed or removed. Suggest monitoring and removal of suckering Elm (qualified person not required for this, and planning not required as at present trees are below size necessary for planning).</p>	<ul style="list-style-type: none">• Risk of windblow and severe damage to adjacent property• Shallow/ rocky soil and topography may increase chance of windblow• Tree does not have high amenity value• Vertical drop adjacent to tree may cause instability and likely to increase force of fall and chance of windblow• Roots may have been damaged by works to sewage pipe at adjacent property• Roots may continue to further damage pipes and underground services

All works to the identified tree should be carried out by a properly qualified arborist, certified under the industry standard NPTC/ City and Guilds Scheme, hold appropriate insurance and carry our works to BS3998. The Planning Department will need to be notified of the proposed works and a Tree Works in a Conservation Area form completed and submitted. Where possible, works should be scheduled to avoid disturbing nesting birds.