

Arboricultural Assessment Survey 2019



Arboricultural Assessment of trees within boundary of Greenfields School, Pentrebach, Merthyr Tydfil.

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1.0 Introduction

- 1.1 The following report has been commissioned by Merthyr Tydfil County Borough Council Parks department. Its aims to provide a health and safety report and provide viability for tree retention within the boundaries of Greenfields Primary School, Pentrebach, Merthyr Tydfil.
- 1.2 The report is aimed at creating a balance between existing trees and existing land uses. In particular regarding the maintenance of trees to preserve, protect and prolong tree cover within the school. It will create a catalogue of existing trees for management strategies, recommendations for improvements to specimens and stock.
- 1.3 The trees in question will be individually assessed for physiological and structural conditions and appropriate strategies drawn for sustainable tree management, whilst maintaining the volume of trees and tree cover in the area. Whilst every healthy tree would ideally be retained, other factors such as longevity of contribution, associated damage caused and other issues must also be addressed.
- 1.4 The tree assessments consist of visual inspections at ground level only and are intended to identify hazards, structural floors or defects that may cause issues to occur within the next 12 months.
- 1.5 It must be clearly emphasized not no tree is entirely safe, even a perfectly healthy tree of symmetrical and uniform composition with no structural floors may be damaged or uprooted by severe weather anomalies.
- 1.6 This report is based upon data collected by Andrew Taylor; the data was collected on the 15th August 2019. The weather was warm and dry, visibility was good.

1.7 It must be made clear that whilst every attempt has been made to provide an accurate assessment of the trees condition at the time of inspection, no responsibility can be accepted for damage or injury sustained as a result of the failure of any tree due to faults that are not apparent upon a visual ground level inspection, or to faults developing subsequent to the survey. Similarly, no liability can be accepted for defects hidden from view by ivy or dense foliage or certain features that may provide evidence of decay, such as fungi or insect emergence holes but may not be evident at the time of inspection. Only those features that are apparent at the time of inspection could be assessed.

1.8 The Survey located in the report records each tree in the specified area, Whether they require works or not, each is individually assessed with estimated measurements, defects or other noteworthy characteristics, recommendations for retention, remedial works or removal of the individual tree. Only trees greater than 150mm will be assessed.

1.9 Trees are dynamic, living organisms and their condition can change rapidly as they grow and can be affected by external conditions and therefore this report is valid for a period of 12 months. This period may be reduced if significant changes occur to the trees or the ground conditions close to them.

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2.0 Tree Survey Details

Client Name –	Merthyr Tydfil County Borough Council Education department Unit 5, Pentrebach Merthyr Tydfil
Site –	Greenfields School, Pentrebach , Merthyr Tydfil
Date of Inspection –	15 th August 2019
Surveyor –	Andrew Taylor
Purpose of Survey –	To collect data and implement management recommendations for safe access into the School, increase longevity of current tree stock, replace poor stock and advise to achieve a sustainable tree stock.
Survey method –	This tree assessment comprised a visual inspection carried out at ground level only . It was intended to identify distinct defects and other failure-prone characteristics of the trees, where these features might give rise to hazards within the near future. Measurements and details for classification were also noted.
Weather -	Weather was warm and dry, visibility was good.

2.1 Site Maps and Plans-



Map 1: Overview of area surveyed within school boundaries.

3.0 Tree details

Explanation of terms

Tree I.D Number - Individual identification tag number of each Specimen

Tree Species - Botanical/scientific name for tree species

Tree Height - Approximate height of specimen (Meters (m))

Tree Age Class - Young trees **(Y)** - age less than one third of life expectancy
Semi Mature trees **(SM)** - One to Two thirds of life expectancy
Mature trees **(M)** - Over two thirds life expectancy
Over Mature trees **(OM)** - Over two thirds life expectancy and health in decline
Veteran **(V)** - trees at or exceeding life expectancy

Tree Width - Measures the diameter at one meter above ground level.

Physiological Condition - Categorized as Dead, Poor, Fair or Good

Structural Condition - More detailed description of tree health including physical defects and levels of decay

Management Recommendations - Details of tree work that is required

Work Priority - Timescale given for recommended works to be completed.

Tree labelling - Trees were tagged sequentially and comprised number tags from 2444 to 2480 for individual identification.

3.1 Classification of severity and reoccurrence of inspection.

- 3.1.1 All trees within the boundaries of the school were assessed have been individually tagged and recorded. These trees should be re-inspected every year and monitored for and significant structural change or pathogen development. These trees are in high footfall areas, which have a high likelihood of incidence if an issue arose.
- 3.1.2 This survey is to a specification regarding the safety and maintenance of council owned trees. Trees interfering with the local highways or footpaths will fall under annual routine maintenance, although a full condition survey will be conducted to investigate any other issues.

4.0 Re-Planting

The Specification for this survey states that parks and schools should maintain a healthy tree stock that it is sustainable. This survey will assess the spacing, physiological and structural factors of each tree. It is a likely consequence that a number of trees may have to be removed to increase the longevity of others and decrease pathogen effectiveness.

Land use is of upmost importance in amenity areas and a balance must be struck between tree retention and ongoing sustainable usage. Specific replanting schemes/plans should be formulated as a separate document by the landowners, with care taken into species selection, location and final specimen size.

Trees of a good standard and which present little issues and conflict should be retained and protected as much as possible. Some trees may be of a poor standard and some may offer little ecological benefits or long term remaining contributions for the area. Therefore early management and reallocation of tree stock within the boundaries may reduce conflict, increase the longevity of remaining and newly planted trees and insure enjoyment for future generations.

5.0 Tree Survey

5.1 Tables

Tree ID	Height (m)	Age Class	Width(mm)	Priority	Structural Condition	Common Name	Physical Condition	Recommendations	Species
2444	8	SM	750		Good form, previous reduction, good response, no major problems	White willow	Good		Salix Alba
2445	10	SM	500		Lean to east, away from property, large union at 3meters, no signs of stress, upright form	Wild cherry	Good		Prunus avium
2446	4	SM	450		Recent pollard, single bole to 2meters then tight union to 2 stems	Large leaved lime	Good		Tilia platphyllus
2447	4	Y	250		Recent pollard, no major issues	Large leaved lime	Good		Tilia platphyllus
2448	12	SM	300		Good upright form , minor wind burn on leaves due to new exposure, no major issues	Small leaved lime	Good		Tilia cordata
2449	16	M	1050	1 year	Good, large heavy limb to west, good union no signs of weakness but close proximity to property	Sycamore	Good	Monitor union for decline or stress. Reduce weight of large limb by a third	Acer pseudoplatanus

Tree ID	Height (m)	Age Class	Width(mm)	Priority	Structural Condition	Common Name	Physical Condition	Recommendations	Species
2450	6	Y	150	1 year	Fair, growing in fence will cause future issue	Ash	Good	Fell	Fraxinus excelsior
2451	16	M	950	1 year	Large vertical crack to northern side, 4meters in length with signs of decay, major structural floor	Large leaved lime	Good	Pollard to 4 meters above main union.to reduce mechanical forces on main bole	Tilia platyphyllus
2452	12	SM	600		Good form, good unions, minor. Tar spot on leaves, no significant issues	Sycamore	Good		Acer pseudoplatanus
2453	16	M	850	1 year	Heavy ivy colonisation, large union at 5meters, hard to inspect due to ivy. No major visible defects	Sycamore	Good	Remove ivy and reinspect	Acer pseudoplatanus
2454	14	M	850		Good, large sound union at 3 meters! Slight lean to west, no major issues	Sycamore	Good		Acer pseudoplatanus
2455	18	M	1050		Excellent, specimen tree, good form good unions, no major issues	Sycamore	Good		Acer pseudoplatanus
2456	18	M	1000		Good, large tree and canopy, large union at 3meters in good condition, has had minor remedial works. No major issues	Norway maple	Good		Acer platanoides

Tree ID	Height (m)	Age Class	Width(mm)	Priority	Structural Condition	Common Name	Physical Condition	Recommendations	Species
2457	8	SM	400		Fair, multiple unions, no current safety concerns	Norway maple	Good		Acer platanoides
2458	8	SM	350		Fair, scar at base good compartmentization. Suppressed from surrounding trees. No major safety issues	Norway maple	Good		Acer platanoides
2459	9	SM	450		Good form, large union at 3 meters, needs monitoring	Norway maple	Good	Monitor union for defects	Acer platanoides
2460	0		0						
2460	3	M	550	1 year	Poor, ganoderma present within buttresses, dieback within crown	Wild cherry	Fair	Fell	Prunus avium
2461	6	M	400		Good, minor old wound and crowded crown, no major issues	Crab apple	Good		Malus sylvestris
2462	4	SM	400		Fair, poor unions but small mechanical forces and in low target area. Typical low form, no significant defects	Bird cherry	fair		Prunus padus
2463	4	Dead	300	1 year	Dead	Cherry	Dead	Fell	Prunus Spp

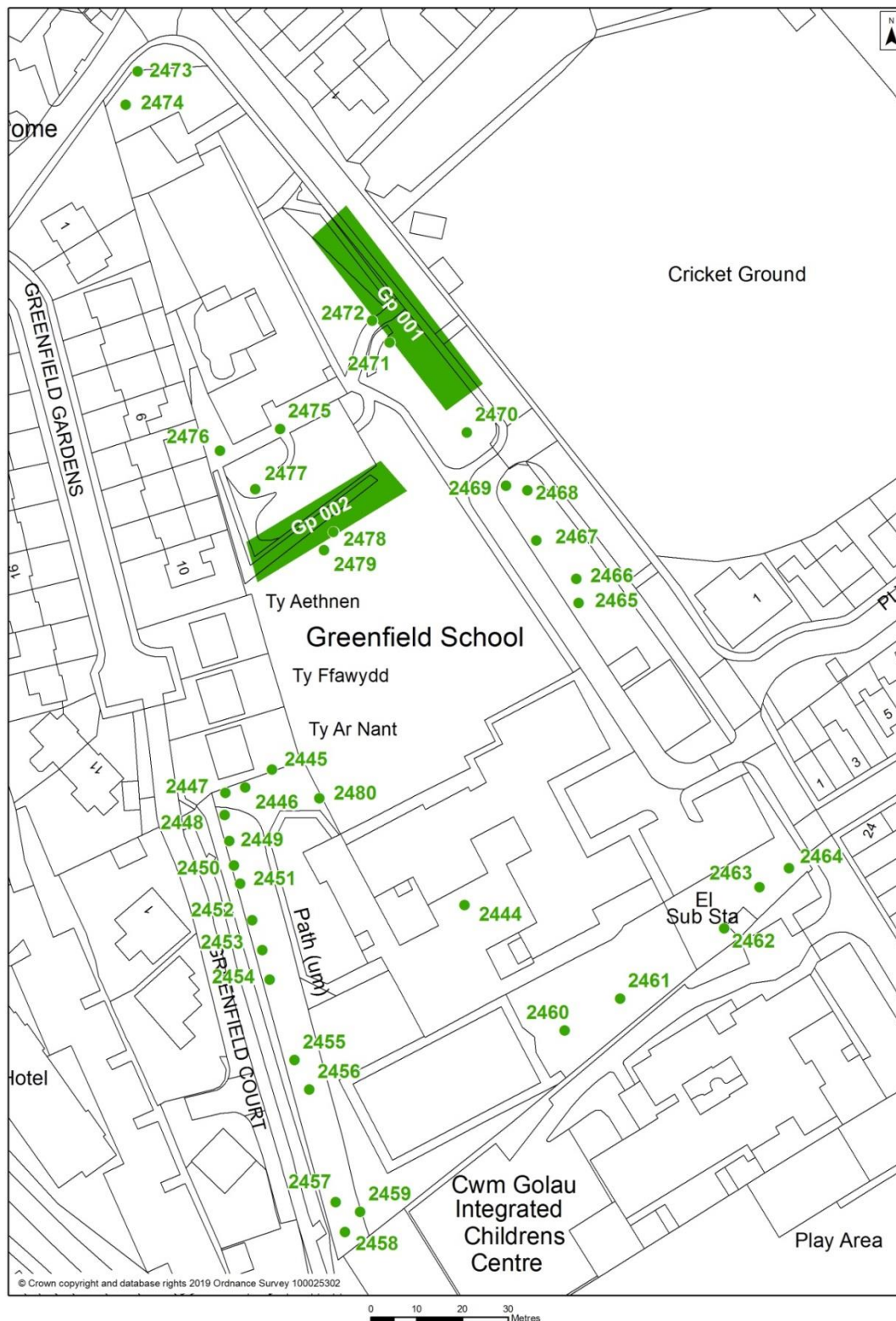
Tree ID	Height (m)	Age Class	Width(mm)	Priority	Structural Condition	Common Name	Physical Condition	Recommendations	Species
2464	12	M	800	1 year	Extensive decay at base and ink cap mushrooms present. Decay extends from buttresses internally for over 2 meters and approximately a third of main bole defected. Many pruning wounds indicating internal issues.	Sycamore	Fair	Fell and replant	Acer pseudoplatanus
2465	12	M	650		Good, had height reduced recently, good canopy recovery. No major visible defects	Sycamore	Good		Acer pseudoplatanus
2466	12	M	800		Good, height recently reduced, no major issues, good crown recovery, good unions,	Sycamore	Good		Acer pseudoplatanus
2467	12	M	700		Good, height previously reduced. Large limb to east with weight reduced, no major issues	Sycamore	Good		Acer pseudoplatanus
2468	10	SM	500		Good, previously reduced good reactive growth, union at 3 meters in good condition	Sycamore	Good		Acer pseudoplatanus

Tree ID	Height (m)	Age Class	Width(mm)	Priority	Structural Condition	Common Name	Physical Condition	Recommendations	Species
2469	10	SM	500		Fair, cavity at 5meters to monitor, reacted well to recent works, lean to west, no current safety issues	Sycamore	Good		Acer pseudoplatanus
2470	14	M	900	1 year	Large saddle fungus bracket approx at 2 meters in large pruning wound, likely localised. Large amount of good wood remaining.	Sycamore	Good	Monitor cavity and crown for decline	Acer pseudoplatanus
2471	10	M	790	1 year	Poor, canopy sparse, brittle cinder fungus present at base and within buttresses	Sycamore	poor	Fell	Acer pseudoplatanus
2472	10	SM	670		Good, large union with dogleg at 4 meters, no signs of stress on joint. Pruning wound up to 5meters, no serious safety issues	Sycamore	Good		Acer pseudoplatanus
2473	12	M	850	1 year	Heavy ivy colonisation, stem divides into multiple stems at 2meters, inspection limited due to ivy	Norway maple	Good	Remove ivy to above main unions and re inspect	Acer platanoides

Tree ID	Height (m)	Age Class	Width(mm)	Priority	Structural Condition	Common Name	Physical Condition	Recommendations	Species
2474	7	Y	400		2x small maple groups, multistem poor form, low ERC but small safety risk	Sycamore and Norway maple	Good	Monitor	Acer
2475	4	SM	370		Poor form, low canopy, small mechanical forces	Tibetan cherry	Good		Prunus serrula
2476	6	Y	320		Good, no major defects	Ermans birch	Good		Betula ermanii
2477	4	Y	200		Good form, no major issues	Indian bean tree	Good		Catalpa bignonioides
2478	10	SM	400		Fair, ivy colonisation and large union at 4 meters	Downy birch	Good		Betula pubescens
2479	10	SM	400		Good, large union at 3 meters no signs of stress. No major issues	Silver birch	Good		Betula pendula
2480	2	Y	150	1 year	Row of trees in fence line, will cause damage and future issue	Various	Good	Fell out of fence line	

Tree ID	Height (m)	Age Class	Width(mm)	Priority	Structural Condition	Common Name	Physical Condition	Recommendations	Species
Gp 001	8	SM	400	1 year	Low canopies and leaning into school grounds	Various	Good	Raise canopies and cut back to boundaries	
Gp 002	8	SM	300	1 year	Overgrown hedge boundary.	Various	Good	Cut back out of infants playground with 1 meter fence clearance	

5.2 Tree location maps



Map 2 – Tree ID Locations From 2444 to 2480

5.3 Photographs

5.3.1 Trees to be felled:



Image 1 and 2: Tree ID- 2463 and 2464: Hazardous trees for removal

5.3.2 Trees with remedial action



Image 3: Tree ID 2451 – Major longitudinal crack on mature lime, remedial action to reduce weight and mechanical forces.



Image 4: heavy ivy present on some trees – needs to be removed before detailed inspection can occur.

5.3.3 Fungal associations with trees



Image 5: Ganoderma fungal colonisation within buttress - Tree ID 2460



Image 6: Saddle fungus present in old pruning wound – Tree ID 2470



Image 7: Brittle cinder evident on base of Sycamore – Tree ID – 2471

5.3.4 Maintenance



Image 8: Severe overhang from outside invading school boundaries Gp 001



Image 9: Trees growing within fence line need to be removed before damage occurs.

6.0 Recommendations

- 6.1 All of the remedial tree works are detailed in the tree survey table and are located in section 5.1. In total 37 trees were surveyed, with 6 recommended for removal. Tree ID 2460 has a *Ganoderma* fungus which will kill the tree and create hazards. Tree ID – 2463 is dead, 2464 and 2471 regarding their structural or physiological state (safety reasons as they are dead). 2 further trees highlighted for removal are small and pose future issues regarding fence lines.
- 6.2 2 trees in the report were detailed for remedial works which involves the reduction of canopies to reduce loads upon tree branch unions, decreasing the likelihood of future failure. This will increase the trees remaining contribution to the area.
- 6.3 Most of the trees surveyed were healthy and posed no current significant issues.
- 6.4 Some of the trees surveyed have significant raised roots; this may have been caused by incorrect original planting depths, poor ground conditions or the trampling overtime of children playing. This poses a limited current significant risk but trip factors do exist. Solutions to this may include mulching at the base of trees to protect the roots, and mask the trip factors. (This option has been adopted around some trees on site).
- 6.5 Four types of tree fungus were surveyed within the site, some pathogens can indicate immediate hazards and some can be localised within the trees. *Ganoderma Spp* and *Kretzschmaria deusta* (Brittle charcoal fungus) are very aggressive pathogens and trees with these associations have been recommended for removal to prevent incidence. The two other fungi namely *polyporus squamosus* (saddle fungus) and *Coprinellus micaceus* (inkcaps) are known colonisers of deadwood and due to the compartmentization of zones within the trees structure for protection, these may not always result in immediate felling, however these trees are to be monitored
- 6.6 Numerous trees were highlighted in the report to be monitored, these trees have been identified as having a defect but it is not serious enough to warrant reactive management. However some present poor union joints which will support heavier

loads and increased mechanical forces as the trees develop in size and weight, others with insignificant pathogen association which may develop over time.

- 6.7 A balance must be struck to ensure that equilibrium can be established with the number of tree stock within open areas. Trees are important both aesthetically and ecologically in areas but need to be located in adequate spacing. The correct selection of both tree species and their location are vital components if the tree is to mature. It is recommended that to maintain the tree stock in Greenfields School at least 12 trees need to be planted. This number accounts for the replacement of the 6 being removed and incorporates a 60% survival rate of semi mature plantings to maturity.
- 6.8 Suitable areas for planting are available within Greenfields School; they should be planted with nursery stocks that are semi mature in nature. This will limit the likelihood of importing infected stock and increase the likelihood of successful establishment. Species can be varied as is the nature of public authority areas however it would be advised to plant trees with a minimum of 2 meter clearance of footpaths, fence lines and clear of areas of contention to avoid future issues.
- 6.9 Areas advised for planting would be alongside the car park to the south of the school where two trees are marked for removal. There is plenty of available space for planting within the boundaries of the school for trees to develop and have little impact on current land uses.
- 6.10 Advised species for planting this area may include the small leaved lime (*Tilia cordata*), Common Beech (*Fagus sylvatica*), Silver birch (*Betula pendula*) or London plane (*Platanus x Hispanica*). These are species that are currently within or in close proximity to the site and indicate good compatibility between species and the area, hopefully leading to successful establishment.
- 6.11 General maintenance of boundary trees needs to be addressed within the site, many trees are growing within fence lines and need to be removed to prevent damage to the fences, areas of the school boundary to the east towards the infants area have significant overhanging limbs from outside the boundary which should be

cut back to avoid future issues and maximise the space available with the school. Hedges and visual boundaries around the infants need to be cut back as some obscure paths and others invade play areas and may not be child friendly species (hawthorn and blackthorn). All hedges around the main school and need to be cut regularly.

- 6.12 Any Works undertaken from the recommendations in this report should only be undertaken by suitable contractors working in accordance with 'BS 3998' 'British Standard Recommendations for Tree Works 2010'.

7.0 Legal Constraints

TPO's – Prior to any works commencing the client should check with the local authority that the trees are not covered by a tree preservation order or within a conservation area or by any other planning conditions.

Felling licence – even when no specific legal protection exists it may be necessary to obtain a felling licence, these are generally associated with the forestry commission and developed to control the amount of trees/timber in the landscape of particular areas.

Birds and Bats – it is the contactors responsibility to inspect trees prior to carrying out works. Works must commence outside of the bird nesting season (March and July) and comply with the wildlife and countryside act 1981.

Duty of care – Attention is drawn to the provisions of the occupiers liability Acts. Which place a duty of care upon landowners/occupiers to ensure the safety of neighbours and others entering their land. There is a special responsibility to ensure the safety of minors who may be unaware of any dangers. Annual or regimented inspections of trees by a competent person, together with implementation of any recommendations, should ensure compliance with legislation regarding tree safety.

8.0 Glossary of terms

Bark	All tissue outside of the trunk, roots, stems branches and twigs.
Cambium	A layer of actively dividing cells between xylem (wood) and phloem tissues that is responsible for the secondary growth of stems.
Canopy	The part of the tree composed of leaves and twigs.
Cavity	An open wound characterized by the presence of decay and causing a hollow.
Crown	The main foliage carrying part of the tree.
Crown lifting	The removal of lower branches to a specified height.
Crown reduction	The shortening of vertical and lateral branches to proportionally reduce the size of the crown.
Crown Thinning	The balance removal of secondary or minor live branch growth to reduce the density of foliage within the crown, without altering the trees size and shape.
Decay	The process of degradation of woody tissues by fungi and bacteria (Rot).
Dominant	A dominant tree is a tree taking other trees light, dominating the available resources.
Failure	A partial or total fracture of wood tissue or loss of cohesion between soil and root or Limb and main stem.
Hazard	Anything that has the potential to cause harm.
Included bark	Bark of neighbouring parts of the tree that are face to face, resulting in the lack of wood union and a subsequent weakness.
Limb reduction	The shortening of a specific branch usually be a specific amount.
Mature	A plant that will respond to flower inducing conditions and that is fully physiologically developed.
Pruning	The removal of cuttings or twigs, branches or roots.
Risk	The likelihood of potential harm from a hazard becoming actual harm.
Rot	See decay.
Root	Part of the tree that contains woody and non woody tissues to absorb water and minerals from the soil, gases from the atmosphere and support the trunk and crown.

Significant	Relates to health and safety- describing a condition, state, hazard or risk that is deemed to exceed accepted standards requiring remedial or preventative action.
Stem	The principle portion of the woody structure (Trunk) or one of a number of such portions with similar size or status.
Suppressed	Trees that have been over shadowed and whose crown development is restricted by neighbouring trees
Target	The area which is likely to be impacted by total or partial failure
Tree	A woody plant that typically has a single self-supporting stem , attaining a height in excess of 4 meters in maturity.
Trunk	A single main self-supporting stem of a tree.
Union	The joint between limbs or limbs and the main stem.
Wound	An injury that induces a response by the tree to compartmentalize internally.

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