

# Penarth Heights

## Woodland Management Report

ON BEHALF OF CREST NICHOLSON (SW)



FEBRUARY 2007

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## **1.0 INTRODUCTION**

- 1.1 This document sets out outline woodland management proposals for land at Penarth Heights as of January 2007. It has been prepared by Nicholas Pearson Associates on behalf of Crest Nicholson (SW) Ltd for submission as part of a planning application for the site. A previous report (Wardell Armstrong 2003), with associated recommendations, forms the basis of this report. This report is included as Appendix A.
- 1.2 The development site, located on a prominent hillside overlooking Cardiff Bay, currently comprises a number of residential blocks, associated external gardens and courtyards/parking areas together with areas of open space generally laid to grass with a range of trees. The residential blocks are for the most part empty and have been for a number of years. The site is framed to the north and west by unmanaged woodland and scrub. The site and adjacent woodland areas are currently owned by Vale of Glamorgan Council (VGC). An area of allotments is owned by Penarth Town Council.
- 1.3 The proposals set out in this report relate to the management of the woodland adjacent to the site. These woodland areas will remain in the ownership and under the control of VGC. Costs associated with this management will be paid for by VGC and are included as part of the S106 Agreement between Crest Nicholson and VGC.
- 1.4 No further arboricultural surveys have been undertaken of the woodland. However recommendations included within the Wardell Armstrong report have been reviewed against the aspirations and requirements of Crest Nicholson of the proposed development with regard to the role that the woodland areas will play as a setting for the development and its use for informal recreation.
- 1.5 A separate ecological survey of the site and adjacent woodland areas has been undertaken by Nicholas Pearson Associates. The results of this are reported in Ecological Report January 2007.

## **2.0 EXISTING CONDITIONS**

- 2.1 The Wardell Armstrong report (see Appendix A) sets out the condition of woodland as of September 2003. Figure 1 indicates the woodland compartments as defined in this previous report in relation to the proposed development site. No general woodland management

works (ie. relating to trees) are understood to have been undertaken in the intervening years by VGC, although an intensive Japanese Knotweed treatment programme has been ongoing since September 2004. This has had the effect of locally opening up the shrub storey of some areas where knotweed is present. A separate Japanese Knotweed report has been prepared which details the works undertaken (Nicholas Pearson Associates 2007).

- 2.2 Areas of woodland, to the south west of the site, outside the survey undertaken by Wardell Armstrong are also shown on figure 1 and are described below. In general terms these areas are of a similar character to much of the woodland discussed in appendix A. They are unmanaged, generally youthful succession woodland areas of self seeded trees in a poor condition. These areas lie on the south west facing slope that runs down to the railway line.
- 2.3 Compartments 5: Dense unmanaged woodland on slope. Canopy species are Ash, Field Maple, and cherry with a Hawthorn understorey and some Hazel. Ground cover is dominated by Ivy. An informal path route is aligned along the northern edge of this area. Access into the area is restricted by understorey growth and discouraged further by the steep slopes in the locality. A clump of Japanese Knotweed has been noted on the northern edge boundary with compartment 4D.
- 2.4 Compartment 6: Dense, secondary broad-leaved woodland located between informal path through woodland - possibly having developed over part of a planted area of shrubs. Eastern edge opens out toward the main development area. Sycamore is the dominant canopy species, with an understorey comprising Goat Willow, Hawthorn, Dogwood and Garden Privet. Flatter areas have been heavily disturbed by walkers and cyclists, and the woodland is generally of low botanical interest.
- 2.5 Compartment 7: Dense unmanaged plantation woodland on a steep south west facing slope. The key canopy trees are ornamental cherries and Ash, with a shrub understorey of Garden Privet and Hawthorn. The woodland is dense and apparently unmanaged, with Ivy dominating the ground. Some fallen dead wood is also present. There are no mature trees. An informal path route is aligned along part of the northern edge of this area. Access into the area is restricted by understorey growth and discouraged further by the steep slopes in the locality.
- 2.6 Compartment 8: An immature secondary Sycamore-Ash-Field Maple woodland on very steep south west facing slope, with drapes of Traveller's-joy, and impenetrable Bramble
-

scrub along the edges. The canopy casts dense shade, and consequently the ground flora is very impoverished (mostly Ivy and Bramble). A pedestrian route (with flights of steps) follows the eastern edge of this area and vehicular access is also available to the rear of Chichester Road. This has resulted in fly tipping at the edges of the woodland.

- 2.7 Given that no management works have been undertaken (other than Japanese Knotweed treatment), it is considered likely that the assessment of the woodland as set out in the Wardell Armstrong report remain a fair representation of the conditions. Recommendations with regard to health and safety/ risk assessments are therefore also considered to remain valid.

### **3.0 IMPLICATIONS OF PROPOSED DEVELOPMENT UPON WOODLAND**

- 3.1 The proposed development area is shown in figure 2. Development proposals are therefore related to the following compartments as defined by Wardell Armstrong and as in this report above:

- Compartment 3C: The development proposals lie adjacent to the southern edge – boundary will comprise private garden fences (1.8m high).
- Compartment 3D: The development proposals lie adjacent to part of the southern edge – boundary will comprise private garden fences (1.8m high). Other area bounds the upper slopes of the 'The Bowl'.
- Compartment 4A: The development proposals lie adjacent to the southern edge, at the top of the slope. The proposals will comprise partly adopted highway and partly private access.
- Compartment 4C: The development proposals lie adjacent to the southern edge, at the top of the slope. The proposals will comprise partly adopted highway and informal open space adjacent to 'The Crescent'.
- Compartment 6: The development proposals lie adjacent to the eastern edge, at the top of the slope. The proposals will comprise informal open space adjacent to 'The Crescent'.

- Compartment 7: The development proposals lie adjacent to the eastern edge, at the top of the slope. The proposals will comprise The Crescent and associated parking area.
  - Compartment 8: The development proposals lie adjacent to the eastern edge, at the top of the slope. The proposals will comprise the rear of redevelopment along Chichester Road.
- 3.2 The development proposals include for an upgraded pedestrian route (with lighting) down through The Bowl area to Terra Nova Way, and an enhanced path between compartments 4a and 4B.
- 3.3 The development will result in an increase in levels of activity likely toward the levels of when the site was previously occupied.

#### **4.0 PROPOSED WOODLAND MANAGEMENT**

- 4.1 The proposed woodland management generally corresponds to the objectives proposed with the Wardell Armstrong report. The key objectives are:

- To increase woodland habitat and species diversity;
- To maintain and/or enhance safety;
- To increase recreational amenity;
- To seek eradication of Japanese Knotweed.

*Increase woodland habitat and species diversity*

- 4.2 This will be focused on, and achieved variously by:

- Significant thinning/ opening up of woodland in key locations, especially compartments 3D and 3E (western parts), 4A, 4C southern edge and 6;
- Minor thinning in other areas, especially selective removal of dominant species;
- Planting a range of other native tree and shrub species;
- Establishing wildflower rich grassland in open areas, especially in The Bowl and compartments 3D, 3E, 4A and 6.



- Providing piles of dead wood;
- In the long term seeking a varied age and structure of woodland.

*Maintain and/or enhance safety*

4.3 This will be achieved by:

- Appropriate management of trees on steep slopes that are overhanging well used areas and along paths, including adjacent to Terra Nova Way, zig-zag path, the Bowl;
- Undertake, as soon as possible, felling work as identified in Wardell Armstrong report where this is yet to be undertaken;
- Reducing areas of understorey shrubs along paths to increase visual permeability;
- Maintaining dense shrub, to restrict access, in areas adjacent to steep slopes (all compartments);
- Lighting the key route between the Bowl and Terra Nova Way;
- Undertaking regular arboricultural monitoring with regard to health and safety aspects.

*Increase recreational amenity*

4.2 This will be achieved by:

- Removal of fly tipped rubbish and prevention/ reduced vehicular accessibility by 'gating' the lane to the rear of Chichester Road;
- Providing enhanced routes through the woodland;
- Increasing structural diversity of woodland habitats and associated increased nature conservation value;
- Introduction of public art features;
- Providing ongoing regular woodland management and maintenance especially along and adjacent to paths.

*Japanese Knotweed*

- 4.3 It is understood that treatment of Japanese Knotweed will continue until full control is achieved. Ongoing monitoring is recommended to ensure any new growth is treated at the earliest opportunity.

## 5.0 CONCLUSIONS

- 5.1 The woodland areas to the north, west and south west margins of the proposed development site generally comprise 'secondary broad-leaved woodland'. The main canopy trees are Ash *Fraxinus excelsior* and Sycamore *Acer pseudoplatanus*, with a poorly developed shrub and herbaceous understorey below, except for some of the lower woodland, which contains outgrown Hazel *Corylus avellana* coppice. Dense and impenetrable Bramble *Rubus fruticosus* scrub is spreading outwards from the edges of most woodland stands.
- 5.2 The proposed management objectives outlined above concur with those put forward previously by Wardell Armstrong. The key objectives are to increase woodland habitat and species diversity; to maintain and/or enhance safety; to increase recreational amenity; and to seek eradication of Japanese Knotweed.

**APPENDIX A:      WOODLAND      MANAGEMENT      REPORT,      WARDELL  
ARMSTRONG, 2003**

**PENARTH HEIGHTS, SOUTH  
GLAMORGAN, AMENITY  
WOODLAND INVENTORY AND  
MANAGEMENT SURVEY:**

**DATE: SEPTEMBER 2003**

**SURVEYORS: T.A.SEYMOUR ND.ARB  
DIP.GEOG/ENVIRO.**

**G.M.AYRES  
BSC (HONS) ND ARB DIP. BIOL  
VALID FOR 12 MONTHS.  
STANDARD TERMS & CONDITIONS  
APPLY.**

**LOCATION: WOODLAND TO WEST  
OF TERRA NOVA WAY AND  
PENARTH PORTWAY ON SLOPING  
GROUND AND LIMESTONE CLIFFS  
ADJACENT TO PENARTH HEIGHTS,  
PENARTH, SOUTH GLAMORGAN.**

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## 1. OBJECTIVES, METHODOLOGY AND LIMITATIONS

This report has been commissioned by Wardell Armstrong and forms part of an overall ecological survey of this area being undertaken as part of an overall re-development scheme. The report concerns the general condition of trees within the woodland area growing on the Limestone escarpment that runs in a North South axis bordering Terra Nova Way, Penarth Portway below Harbour view Road, that borders it on the eastern side. The main objectives of this report are to establish the overall composition of the woodland by species and age class and to outline a management plan to ensure their safe upkeep and a continuity of diverse tree cover.

The area has been divided into compartments and sub compartments, shown on the plans. CA02466.0.. – 0.. These have been drawn up to enable identification of individual trees and areas with specific management requirements and or composition. Trees have been visually inspected from the ground and some individuals have been plotted on the enclosed plan with numbers that correspond to timber tags attached to the main stem. The age class composition has been evaluated for each sub compartment by observation within sample plots and is detailed in table form at the beginning of each section of the report. Trees have been inspected during 3 separate walk by surveys and notes taken on management requirements depending on assessed risk to users of the woodland and users of adjoining property, land, paths and roadways

All measurements are approximate. No details on underground or overhead services (power cables, gas or water mains) have been included. No evaluation has been made on the stability of the sloping ground and the risk of landslips. It has been assumed that access to the site is limited in most areas where fencing exists and access paths through the more open parts of the site have a low occupancy rate.

## RISK ASSESSMENT

### *General site notes and overview*

The woodland is situated on a prominent cliff and erosion slope of Liassic Limestone and Penarth mudstones on land adjacent to a prestigious development, Penarth Marina. The larger site encompassed by the overall survey Penarth Heights, includes several blocks of flats at the top of the cliff which are due for demolition and re-development. The woodland runs in a North

south axis forming a narrow strip that follows the rock outcrop and is visible from a very wide surrounding area of Cardiff including the bay development area and major trunk roads. On the eastern bottom edge of the woodland and slope are the roads Terra Nova Way and Penarth Portway as well as car parking and boat yards. Bordering the woodland on the western edge are recreational areas playgrounds and the land attached to the flats due for demolition.

The woods are believed to be a natural feature that has developed on this site with the prominent species of tree being Ash, Sycamore, Cherry and Hawthorn. Other tree species present are Goat Willow, Field Maple, Oak, Alder, Birch and Elder, privet and some Bay trees. The main understorey plants include Hazel (*Corylus avellana*), Guelder Rose (*Viburnum opulus*), spindle tree (*Euonymus europaeus*), and Buddleia. Woodland floor plants, although not surveyed in detail include ferns of which Harts tongue was noted, large areas of dense bramble and nettle and other herbaceous woodland plants. There are also large areas where Japanese knotweed has colonised and these areas may need control measures. In some areas of the woodland species diversity is limited to mainly Ash and Sycamore and other areas where there appears to have some management the species range is far more diverse.

Parts of the sloped woodland area are subject to landslips, and cracking of top soil was observed in many areas. On the steeper parts above the car parks, it was noted that vegetation has been largely removed and the area stabilised with wire netting although sapling re-growth is evident in these areas. Management recommendations for the woodland have taken into account these areas where landslips are likely to occur and the removal of larger trees on the steeper slopes and on the edges of steeper slopes is one consideration made. In many areas within compartments 3 and 4 below the woodland are buffer zones where tree failures or landslips would not necessarily affect property. An appropriate authority on landslips and ground and soil stability should undertake a full assessment of the higher risk areas of unstable ground. Access to the southern part of the woodland is limited as it is fenced and level ground is limited to a very narrow (4-5m in some parts), strip. It is clear from damage to trees, litter and tree dens, that the woodland in these areas is used by children who access by gaps beneath the fence and there is a very real risk of falling in these areas, and it is considered inappropriate to increase the access to these areas (especially compartments 1, 2 & 3).



## 2. REPORT NOTES AND COMPARTMENT MANAGEMENT RECOMMENDATIONS

### 2.1 **Compartment 1:**

From tip of woodland by roundabout at the end of Penarth Portway to a East to west line through from entrance to Plas St. Pol de Leon to area of playground opposite number 14 Paget terrace. Penarth Portway and Paget Road as well as the playground border this compartment. There are also stone walls at the edge of the woodland on Penarth Portway and some steep sloping ground within the compartment.

Tree Species.	Age Class	Approximate % species and age class composition
Cherry	Y	5%
Ash	Y	5%
Sycamore	SM	15%
Cherry	SM	15%
Ash	SM	15%
Goat Willow	SM	10%
Hawthorn	SM	4%
Sycamore	EM	10%
Ash	EM	8%
Goat Willow (Salix Sp.)	EM	4%
Others	-	4%

#### 2.1.1 **Sub compartment 1A**

This sub compartment includes the trees within a narrow strip (5-10m) on the periphery of the area along the roads Penarth Portway, car parking areas and Paget Road. There are numerous early mature Ash (*Fraxinus Exelsior*) and Sycamore that overhang the roads and pavements that grow out of steep areas of rock and stone walls. On Paget Road are several larger Sycamore on the periphery growing close to the iron railing fence that overhang the road and pavement, two of these have been tagged (numbers 1253 and 1254). These larger trees along Paget Road at the top of the slope will require regular inspections as they have been pollarded in the past.

Other management of this area will include the immediate or early removal of trees overhanging the pavements and roads and the clearance of trees growing out of stone walling and on steep slopes that are likely to fail or are obscuring road signs and lamps. Thinning of trees overhanging and within falling distance

of the car park should be undertaken within 2 years and repeated on a 10 year cycle selecting larger trees but maintaining a cover of smaller diameter trees to maintain cover. The trees selected for thinning here will require marking prior to works being scheduled.

#### 2.1.2 **Sub Compartment 1B**

Bordering the play area this area extends from the south east corner of compartment 1 to the end of the basketball pitch opposite 13 Paget Terrace and extends in approximately 10m where the ground is fairly level before sloping away to the East.

There are several early mature Ash (*Fraxinus Exelsior*) of up to 12-14m in height in this area which border the play area many of which are multi-stemmed specimens and overhang the play area periphery. Other species include semi mature Cherry (*Prunus Sp.*) Ash (*Fraxinus Exelsior*) Sycamore Oak and early mature Hawthorn . At the western most part of this area on this front edge is a coppiced hazel of good size and early maturity. Management requirements in this sub compartment are minimal although some limbs may need reducing back from the play area and although the high trees obscure views of the bay from surrounding properties the trees are all deciduous.

#### 2.1.3 **Sub Compartment 1C**

This area is in the centre of compartment 1 and extends from the level ground at the edge of 1B across steeper sloping ground to the trees in 1A and to a larger group of trees in 1 D (see plan). This area in the southern corner is populated largely with semi mature trees of Cherry (*Prunus avium*) Sycamore (*Acer pseudoplatanus*) and Ash (*Fraxinus Exelsior*). And is divided by a clearing that has been cut. Management in this area should be confined to a selective thinning of the larger stems although this will not be necessary immediately and may need undertaking in 3-5 years and then on a 10 year cycle.

#### 2.1.4 **Sub compartment 1D.**

A small area in the central part of this compartment 1 containing large early mature multi-stemmed Ash (*Fraxinus Exelsior*) and a large multi-stemmed Sycamore (1256) and a mature Hazel. There is some evidence of ground movement in this area. Management in this area will involve the re-pollarding of tree 1256 a large Sycamore on the edge of a steep drop and the pollarding of the adjacent Ash (*Fraxinus Exelsior*) and Hazel. This should be undertaken within 12 months.

## 2.2 COMPARTMENT 2:

From edge of playground opposite 15 Paget Terrace sloping grass opposite 16 Paget Road to edge of Car park adjoining Penarth Portway.

Tree Species.	Age Class	Approximate % species and age class composition
Sycamore	Y	10%
Cherry (Prunus Sp.)	Y	3%
Ash	Y	8%
Sycamore	SM	15%
Hawthorn	SM	8%
Cherry (Prunus Sp.)	SM	3%
Ash	SM	8%
Goat Willow	SM	2%
Hawthorn	SM	10%
Sycamore	EM	18%
Ash	EM	10%
Goat Willow(Salix Sp.)	EM	2%
Hazel	EM	4%

### 2.2.1. **Sub compartment 2A**

This sub compartment extends from a clearing at the edge of the play area on Paget Terrace to the end the play area on this front edge and extends in some 30m to where the cliff with rock outcrops occurs above the car park. This sub compartment (S/C) contains more mature trees particularly Sycamore and Ash (Fraxinus Excelsior) with some larger specimens of Hazel and Hawthorn. On the front edge of the S/C is a planting of Bird Cherry (Prunus padus). Many of the early mature Ash (Fraxinus Excelsior) and Sycamore trees here are multi-stemmed trees with tightly forked limbs arising from pollard points.

Management in this area will involve the re-pollarding of multi stemmed trees including tree 1258 on the cliff edge that overhang the car park below to reduce the risk of branch failure and this will require undertaking within 12 months. The trees at the front edge of the S/C overhanging the play area also require early attention with some limbs requiring reducing back and crown lifting. The pollarding of trees on the steep cliff edge will need repeating on a 10-15 year cycle.

### 2.2.2 **Sub compartment 2B**

This S/C includes the steeper slope to the edge of the car park on Penarth Portway and is mainly populated with smaller sapling Sycamore and Buddleia shrubs.

Management of this area will involve the selection of larger trees and shrubs for removal on a 5-10 year cycle.

### 2.2.3 **Sub compartment 2C.**

This S/C extends from the end of the railed play area to the end of compartment 2 and is marked by a large area of Japanese knotweed but also contains some early mature Ash (*Fraxinus Exelsior*) Sycamore and Hawthorn, with Bird Cherry (*Prunus Sp.*) at the front edge and young Hawthorn with a dense undergrowth of bramble.

Management of this area will involve the re-pollarding of Sycamore trees 1259, 1260 & 1261 on the cliff edge within 5 years and the cutting back of bramble and trees growing over the fence into the play area. The area of knotweed should be cleared and re-planted with Cherry (*Prunus Sp.*), and Birch.

## 2.3 **Compartment 3:**

From opposite 16 Paget Road on west edge to access path that descends to Terra Nova Way. A large compartment with 5 distinct sub compartments with some large open areas covered with dense undergrowth.

Tree Species.	Age Class	Approximate % species and age class composition
Sycamore	Y	9%
Cherry	Y	5%
Ash	Y	12%
Sycamore	SM	15%
Cherry	SM	15%
Ash	SM	15%
Hawthorn	SM	4%
Sycamore	EM	8%
Ash	EM	10%
Hawthorn	EM	4%
Buddleia	-	3%

### 2.3.1 Sub compartment 3A

This S/C is the area at the bottom of the cliff that runs alongside Penarth Portway and the adjoining car park area and boat storage area and is mainly on steep sloping ground with trees overhanging the car parks. At the southern part of this S/C are mainly young Sycamore, Buddleia, Hazel and Ash although these become larger further towards the north.

Management in this S/C will involve the periodical thinning of larger trees that are close to the car park edge and may be required on a 10 year cycle. Works required in the near future will involve the removal of a dead tree opposite 2 Plas Glen Rosa.

There is a large area of cliff face in this S/C that has been meshed and re-growth will need clearing every 5-10 years.

### 2.3.2 Sub compartment 3B

S/C 3B is a very narrow strip of ground mainly populated with young Hawthorn Cherry (*Prunus* Sp.), sapling Ash (*Fraxinus Exelsior*) and Sycamore with a dense undergrowth of bramble. The front edge of this S/C has been planted with Bird Cherry (*Prunus* Sp.).

Management of this area will involve the cutting back of undergrowth growing out over the sloped grass recreational area periodically and the pollarding and thinning out of larger trees at the edge of the steep slope within the next 5 years.

### 2.3.3 Sub compartment 3C

S/C 3C extends from the path that runs down to the east edge of the woodland opposite Steep Street to the bend in the existing block of flats known as Prince Charles Court and internally to the edge of 3A where the cliff edge and rock outcrops.

Immediately in front of the flats is a dense area of saplings with individual early mature specimens of Sycamore and Ash (*Fraxinus Exelsior*) and Cherry (*Prunus* Sp.). In the centre of the S/C is an open plateau area covered in dense bramble and saplings. Closer to the steep cliff edge are a number of early mature Ash (*Fraxinus Exelsior*) and Cherry (*Prunus* Sp.) trees of 10-12m in height.

Management in this area will involve the thinning out of larger stems close to the cliff edge within the next 5 years to reduce the risk of failure.

#### 2.3.4 Sub compartment 3D

S/C 3D extends from the bend in Prince Charles Court flats to the edge of the zig zag path down to Terra Nova Way on the western edge, to the edge of the steeper cliff and a large group of trees within S/C 3E in the North East corner of compartment 3. There is a greater diversity of species within this sub compartment. In large parts the undergrowth is very dense with Buddleia Elder and privet forming a closed canopy on sloping ground in front of the existing flats. In front of this area is a group of early mature Sycamore on a gentler slope which is surrounded by areas of sapling trees, Hazel Viburnum and Euonymus , and an open area of low shrub growth. Further north in this S/C and on the edge of the steep slope is a group of early mature Sycamore which lies above a roundabout on the lower Terra Nova Way and is quite a prominent group.

The remainder of S/C 3D contains a very varied population of shrubs and trees that follow the paths down to Terra Nova Way and cover the slopes above the paths to the east. In this area are; Hazel Field Maple Birch Blackthorn Hawthorn Guelder rose Goat Willow (Salix Sp.) and this diverse group is of mainly young and semi mature age class that gives a rich and varied appearance to the landscape in this area. Either side of the path in this area the bramble and Buddleia is beginning to dominate the undergrowth.

Management in this area will involve the selective thinning of larger trees at the edge of the steep cliff edge. The area around the access paths would make ideal recreational areas and the dense undergrowth of bramble and Buddleia would appear better cleared to open up this area.

#### 2.3.5 Sub compartment 3E

This is a distinct area of more mature trees that overhang the zig zag path and extends northwards in a strip along the ground adjacent to Terra Nova Way to and beyond the roundabout. This S/C is populated with many large Early mature Ash (Fraxinus Exelsior) and Sycamore and some mature Ash (Fraxinus Exelsior) with an understorey of Hazel area. The ground here is quite steeply sloped and the canopy is complete and from Terra Nova Way these trees appear tall and prominent. There is a good buffer zone between this S/C and the road and car park.

The more mature trees in this area may need monitoring for early signs of decay although most are outside of falling distance of roads and paths. Some of the larger Ash (*Fraxinus Exelsior*) overhanging the path to Terra Nova Way may need lower limbs reducing to reduce the risk to users of the path, in particular tree 1264.

#### 2.4. **Compartment 4**

This compartment extends from the zig zag path to Terra Nova Way to the most northern tip of the woodland which lies behind the Tesco superstore. There are extensive areas of knotweed within this compartment and access paths and generally the area is lower risk with gentler slopes and larger buffer zones between the woods roads and property.

<b>Tree Species.</b>	<b>Age Class</b>	<b>Approximate % species and age class composition</b>
Sycamore	Y	12%
Goat Willow	Y	5%
Ash	Y	8%
Hazel	Y	12%
Sycamore	SM	8%
Goat Willow	SM	8%
Ash	SM	12%
Hawthorn	SM	4%
Hazel	SM	8%
Ash	EM	9%
Hazel	EM	9%
Goat Willow	EM	5%

##### 2.4.1 **Sub compartment 4a**

This sub compartment includes the sloping ground to the west of the path that runs south to north from the zig zag path to where the path turns up on to open grassland.

The area immediately around the zig zag path contains two groups of early mature Ash trees and the remaining ground is densely covered with bramble, buddleia and saplings of Ash and Alder. This area could be greatly enhanced with new planting of trees and shrubs, if the undergrowth was cleared. A mix of Dogwood, Guelder rose and Birch would be suitable here.

The land immediately above and to the west of the path is largely covered by knotweed and above this area are groups of early mature Ash (*Fraxinus Exelsior*) Sycamore and Field Maple with some Cherry (*Prunus Sp.*) and Goat Willow that form a prominent group on the ridge of the sloping ground.

Management in this area is restricted to the widening of the clear area near the path and the clearing of the knotweed. This area would then be suitable for replanting with trees.

#### 2.4.2 **Sub compartment 4B**

This sub compartment extends from the path to Terra Nova Way to a East West line drawn from the point at which the path running north to south bends up to the sloped grass area. At the northern end of the S/C is a prominent group of early mature Ash (*Fraxinus Exelsior*) trees that are adjacent to Terra Nova Way and the remaining area is populated largely with younger trees. Most of the species present are a mix of Goat Willow (*Salix Sp.*) Ash (*Fraxinus Exelsior*) Sycamore Hawthorn and Field maple of young to semi mature age class. The ground is not steeply sloped and there is a large buffer zone between here and the road.

Management of this area will involve the maintenance of the pathway and the clearance of vegetation, which will be regular, and the monitoring of trees within the group of early mature Ash (*Fraxinus Exelsior*).

#### 2.4.3 **Sub compartment 4C**

This sub compartment extends further north to the line drawn from the rear of Faraday House on Terra Nova Way to include the land up to the footpath. At the southern most part of this S/C is an area of landslip and in this immediate area are two trees of early mature age class ( Sycamore and Ash (*Fraxinus Exelsior*)). These two trees are at risk of being undermined buy the ground movement. The area to the east of this is then fairly open having suffered a landslide and is mainly populated with young shrub growth of Guelder rose and sapling trees. Progressing further north the area becomes more densely populated with a good diverse covering of Hazel, Field Maple, Sycamore, Ash (*Fraxinus Exelsior*) and Guelder rose. A distinct raised narrow area within this S/C has been colonised with young Sycamore and Hazel.

Management in this area will include the pollarding of the two trees undermined by a landslip.

#### 2.4.4 **Sub compartment 4D**



This sub compartment includes the area around the path as it doubles back and the slope down behind Tesco's. It appears to be widely used for fly tipping and joy riding and is mainly populated with semi mature trees of Sycamore, Hazel, Hawthorn and Ash (*Fraxinus Excelsior*) with dense bramble undergrowth and some early mature specimens of Ash (*Fraxinus Excelsior*) and multi stemmed Sycamore. Generally this area appears more derelict particularly close to the path although with gentle slopes and extensive buffer zones the risk factor to property is low.

This area would benefit from the access being restricted to avoid the fly tipping.

### **3.0 CONCLUDING COMMENTS**

The woodland in general contains a wide range of plants with some areas having benefited from being opened up allowing areas of greater diversity. The main management problems exist where there are steep slopes overhanging well-used areas and trees overhanging main roads. There are areas where recreational use could be improved particularly near the access paths but in the areas where steep slopes exist access should be kept to a minimum. The maintenance of paths in the northern parts of the woodland strip will require regular maintenance and the clearing of undergrowth and knotweed in these areas will simplify this. There is some felling work that will need undertaking in the near future and regular monitoring will also be needed in these areas. It is recommended that a work schedule is drawn up for the more urgent works and that trees requiring removal or pruning are clearly marked prior to the works being put out to tender.

#### **4.0 BREAKDOWN OF WORKS BY PRIORITY AND AREA**

Priority 1 area of higher risk with works to be undertaken within 12 - 24months.

Priority 2 works required to ensure risks reduced or for woodland management to be undertaken within 5 years.

Priority 3 works to improve amenity and appearance of area.

#### **5.0 BREAKDOWN OF COSTS**

The prices given below are the subject of a quotation obtained from Cardiff Treescapes in February 2004.

The prices have been estimated on the assumption that the bottom car park can be cleared of cars and boats, as there is a very clear hazard from falling rocks and trees whilst works are being undertaken.

Prices are exclusive of VAT and are valid for six months.

If items of work are requested individually then prices may vary from those shown within the schedule below.

<b>Compartment or Sub Compartment</b>	<b>Priority</b>	<b>Description Of Works</b>	
1A	1	Remove Ash ( <i>Fraxinus Exelsior</i> ) and Sycamore that overhang the roads and pavements growing out of steep areas of rock and stone walls and on steep slopes that are likely to fail or are obscuring road signs and lamps. Selectively thin trees overhanging and within falling distance of the car park selecting larger trees but maintaining a cover of smaller diameter trees to maintain cover. The trees selected for thinning here will require marking prior to works being scheduled.	
1B	1	Reduce limbs back from the play area where required.	
1C	2	Selectively thin larger stems to open up woodland floor and maintain semi mature tree population.	
1D	1	Re-pollard tree 1256 a large Sycamore on the edge of a steep drop and pollard adjacent Ash ( <i>Fraxinus Exelsior</i> ) and Hazel.	
2A	1	Re-pollard multi stemmed trees including tree 1258 on the cliff edge that overhang the car park below to reduce the risk of branch failure. Reduce back limbs and crown lift trees overhanging play area	
2B	1	Selectively thin out larger trees and shrubs on steeply sloped area above car park.	
2C	2	Re-pollard Sycamore trees on the cliff edge. The area of Knotweed should be cleared and re-planted with Cherry ( <i>Prunus Sp.</i> ) and Birch.	
2C Cont'd	1	Cut back bramble and trees growing over the fence into the play area	

Compartment or Sub Compartment	Priority	Description Of Works	
3A	2	Selectively thin out larger trees close to the car park edge. There is a large area of cliff face in this S/C that has been meshed and re-growth will need clearing every 5-10 years.	
	1	Remove dead tree opposite 2 Plas Glen Rosa.	
3B	2	Cut back undergrowth growing out over the sloped grass recreational area pollard and thin out larger trees at the edge of the steep slope..	
3C	2	Thin out larger stems close to the cliff edge to reduce the risk of failure	
3D	2	Selectively thin larger trees at the edge of the steep cliff edge. Clear area around the access paths of dense bramble and Buddleia to open up this area.	
3E	2	Monitor mature trees in this area for early signs of decay. Reduce back limbs overhanging footpath.	
4A	3	Clear wider area near the path and knotweed. Replant with trees, mixed species.	
4B	1	Regular clearance of vegetation near pathway.	
	2	Monitor trees within the group of early mature Ash (Fraxinus Exelsior).	
4C	1	Pollard the two trees undermined by a landslip marked on map	
4D	N/A	N/A	

**6.0**

**MAPS DETAILING COMPARTMENTS**



# KEY

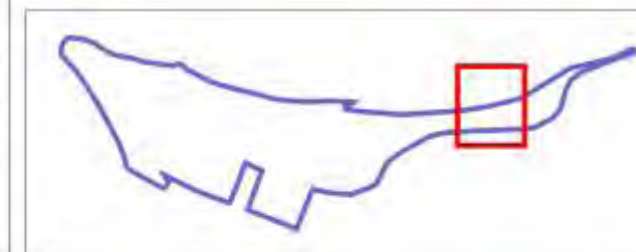
- SEMI-MATURE CHERRY, ASH & SYCAMORE
- ASH, SYCAMORE SAPLINGS

REVISION	DETAILS	DATE	DRAWN	CHECKED	APPROVED
CLIENT					
VALE OF GLAMORGAN COUNTY COUNCIL					
PROJECT					
PENARTH HEIGHTS ENVIRONMENTAL IMPACT ASSESSMENT					
DRAWING TITLE					
ARBORICULTURAL CONDITION SURVEY SECTION 1					
DRG No CA02466/A01		SCALE NTS		DATE JAN 2004	
DRAWN BY SJS		CHECKED BY		APPROVED BY	
<input type="checkbox"/> NEWCASTLE-UNDER-LYME (HEAD OFFICE)		TEL 01782 612626		<input checked="" type="checkbox"/> CARDIFF	
<input type="checkbox"/> NEWCASTLE UPON TYNE		TEL 0191 232 0840		<input type="checkbox"/> LEIGH	
<input type="checkbox"/> WEST BROMWICH		TEL 0121 580 0908		<input type="checkbox"/> SHEFFIELD	
<input type="checkbox"/> LONDON		TEL 020 7287 2872		TEL 029 2098 2468	
				TEL 01942 260101	
				TEL 0114 246 6244	



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# KEY

- JAPANESE KNOTWEED
- PRUNUS UNDERSTOREY
- HAWTHORN

REVISION	DETAILS	DATE	BY	CHKD	APPD

CLIENT

VALE OF GLAMORGAN  
COUNTY COUNCIL

PROJECT

PENARTH HEIGHTS  
ENVIRONMENTAL IMPACT ASSESSMENT

DRAWING TITLE

ARBORICULTURAL CONDITION SURVEY  
SECTION 2

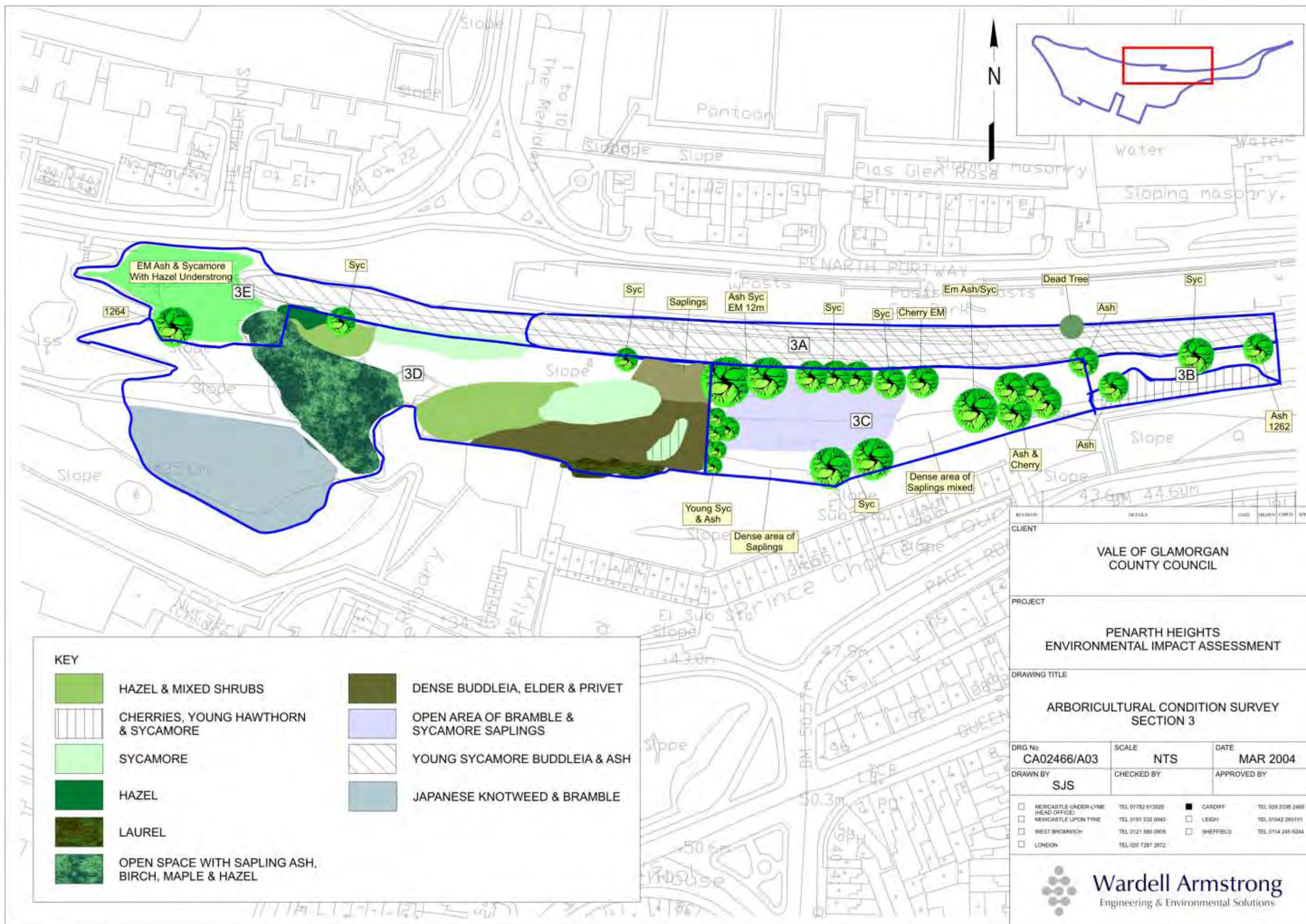
DRG No <b>CA02466/A02</b>	SCALE <b>NTS</b>	DATE <b>MAR 2004</b>
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DRAWN BY <b>SJS</b>	CHECKED BY	APPROVED BY
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<input type="checkbox"/> NEWCASTLE UPON TYNE	TEL 0191 232 0840	<input type="checkbox"/> LEIGH	TEL 01942 260101
<input type="checkbox"/> WEST BROMWICH	TEL 0121 580 0909	<input type="checkbox"/> SHEFFIELD	TEL 0114 245 6244
<input type="checkbox"/> LONDON	TEL 020 7267 2672		

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- KEY**
- KNOTWEED
  - AREA OF EM/S.M SYCAMORE & HAWTHORN WITH BRAMBLE
  - YOUNG SYCAMORE & VIBURNUM OPULUS
  - Y/S.M GOAT WILLOW, ASH & SYCAMORE
  - AREA OF S.M/Y ASH, SYCAMORE, HAWTHORN & FIELD MAPLE
  - BIRCH, ALDER, WILLOW, CHERRY & FIELD MAPLE
  - BRAMBLE & BUDDLEIA SAPLING, ASH & ALDER

REVISION	DETAILS	DATE	DESIGN	CHECK	APP'D
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CLIENT  
**VALE OF GLAMORGAN  
COUNTY COUNCIL**

PROJECT  
**PENARTH HEIGHTS  
ENVIRONMENTAL IMPACT ASSESSMENT**

DRAWING TITLE  
**ARBORICULTURAL CONDITION SURVEY  
SECTION 4**

DRG No <b>CA02466/A04</b>	SCALE <b>NTS</b>	DATE <b>MAR 2004</b>
DRAWN BY <b>SJS</b>	CHECKED BY	APPROVED BY

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<input type="checkbox"/> NEWCASTLE UPON TYNE	TEL 0191 232 0843	<input type="checkbox"/> LEIGH	TEL 01942 260101
<input type="checkbox"/> WEST BROMWICH	TEL 0121 580 0908	<input type="checkbox"/> SHEFFIELD	TEL 0114 245 6244
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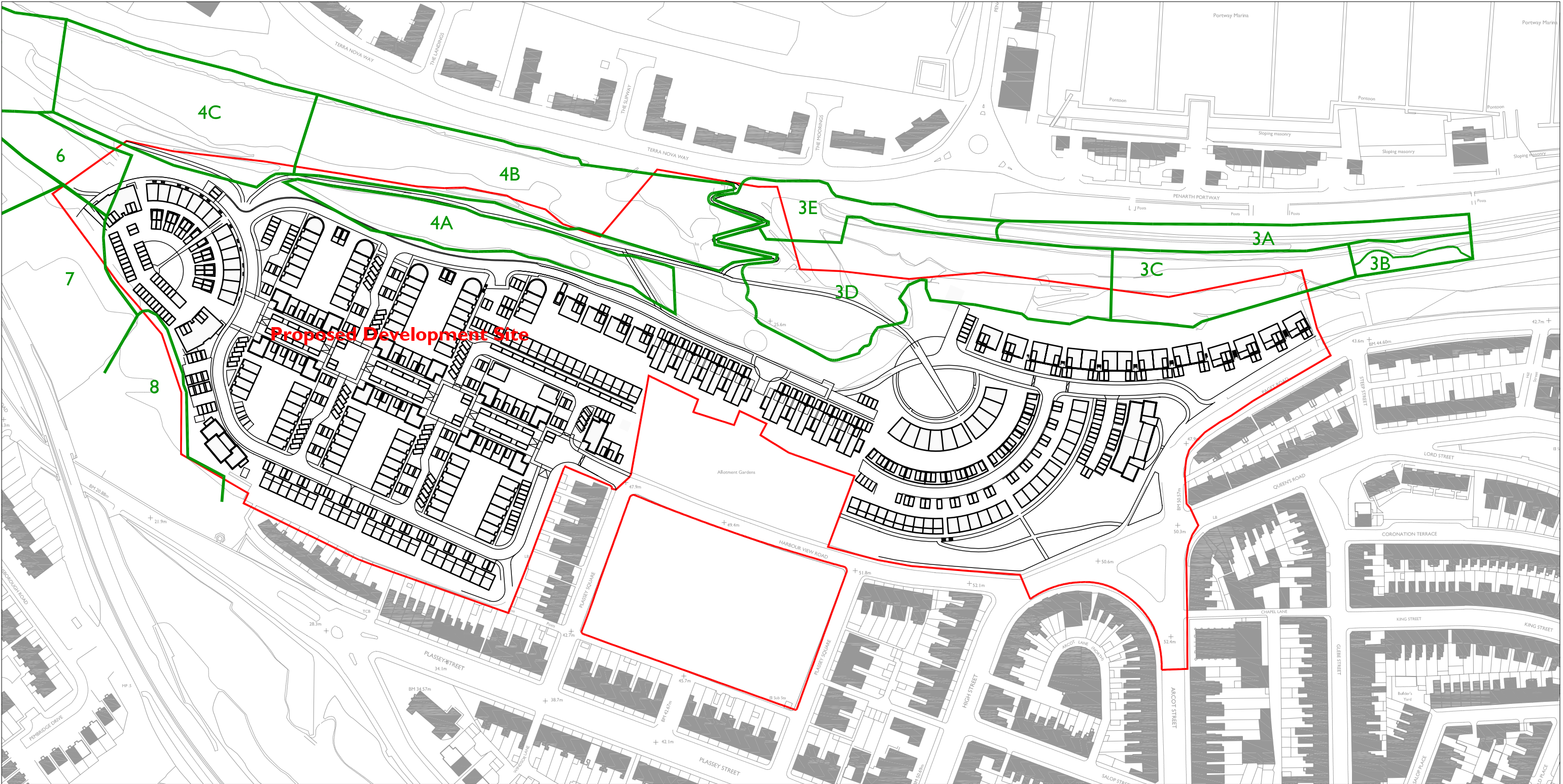
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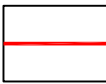










 Site Planning Application Boundary



0 25 50 100m

NICHOLAS PEARSON ASSOCIATES  
ENVIRONMENTAL PLANNERS • LANDSCAPE ARCHITECTS • ECOLOGISTS

Crest Nicholson (S.W) Ltd.  
PENARTH HEIGHTS  
LANDSCAPE APPRAISAL

Figure 2 - Proposed development area and layout

# NICHOLAS PEARSON ASSOCIATES

ENVIRONMENTAL PLANNERS • LANDSCAPE ARCHITECTS • ECOLOGISTS

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Document Title: Land at Penarth Heights: Woodland Management Report

Status: Final Project No: CN/NPA/I0050 Copy No:

	Name	Signature	Position	Date
Prepared by:	S Kale		Associate Director	8.02.2007
Checked by:	N. Pearson		Director	08.02.2007
Approved by:	N. Pearson		Director	08.02.2007

## REVISION RECORD

Rev	Date	Originator	Checker	Approver	Description

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*We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above.*

*The report is provided for the sole use of the named client and is confidential to them and their professional advisors.  
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NPA F32

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