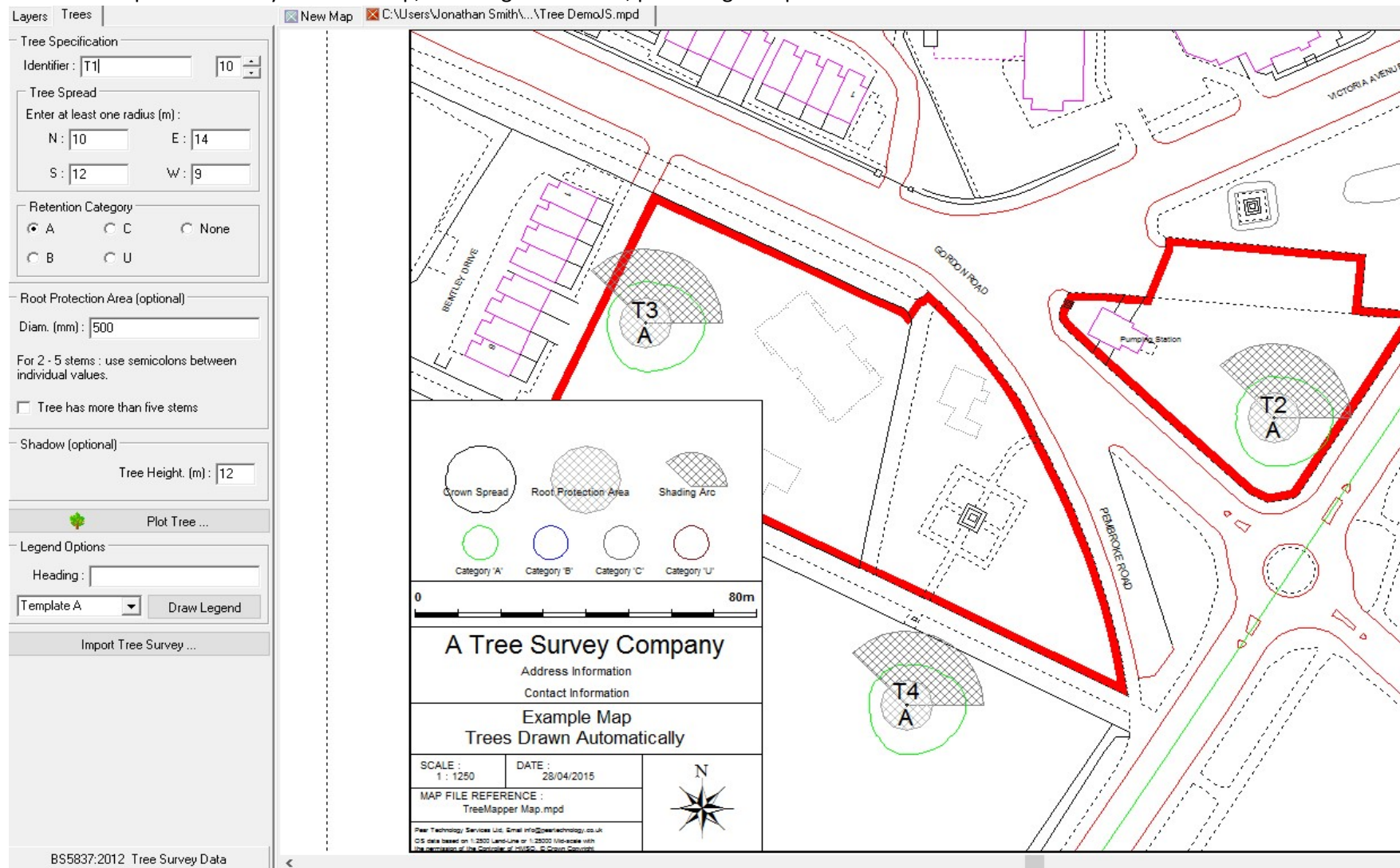# Pear Technology for
Arboricultural and Forestry
Mapping, Surveys and Management

Pear Technology for Arboriculture, Forestry and Ecology Mapping and Management

Software and services			
Note: Training quoted is online, but is also available at Pear Technology offices or on site.			
Usage and Output		Requirements	Costs
1. **Basic** producing BS 5837 maps from recording/marking up maps for individual properties in the field and updating PT Mapper Pro. No hand held device for data capture/surveys in the field This is insufficient to lease	PT Mapper Pro – Uses Ordnance Survey Master Map or VML data, "topo" maps, CAD drawings, scanned paper maps: Import/export .mpd, .dxf, .shp,.mif, .kml (Google Earth), raster (.jpg, .bmp) Edit map – Add trees to BS 5837, or icon or as groups of trees Measure distances, areas. Add lines, shapes, text, additional map layers . Produce map of just area required, add title box and legend Print to pdf or paper	PT Mapper Pro Minimum 1.5 hours online training Annual technical support/software updates	£895 £127.50 140pa **Total £1,162.50**
2. **Field Data Capture** - using own Android device (phone or tablet) Lease costs **£48/month** Plus initial £462.5	As above, plus performance of field data surveys for BS5837, General Survey, VTA, Assets, lines and areas plus free option to modify/create surveys Android and Pocket GIS Windows 10 versions available	As above, plus Pocket GIS , technical support and training. This assumes you are using your own Android/Windows 10 device. Pear Technology can supply hardware – see below.	As above plus PGIS £600 Tech Supp £110pa Trg £85 **Total £1,957.50**
3. As above plus **analysis, reporting and themed map production** Lease costs **£73/month** Plus initial £690	As above, plus tree management and reporting facility using TreeMinder. TreeMinder analyses the data collected during survey and produces reports according to criteria selected. MapLink enables "theming" of the map eg immediately shows by colour, trees requiring urgent work or forestry areas coloured to show felling year, species, grants etc	As above, plus MapLink and TreeMinder, training technical support	As above plus £800 £127.50 £100pa **Total £2,985**

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1. Basic – PT Mapper Pro only. £1,162.50

Trees can be plotted directly onto the map, including dimensions, producing a map such as that below.

PT Mapper Pro does much more; see http://www.peartechnology.co.uk/products/ptmapper/

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Map Purchase

Pear Technology is an Ordnance Survey partner, and as such can supply OS maps as required, or PT Mapper Pro can import "topos" from CAD.

You can order required maps by outlining an area in Google Earth and emailing it to Pear Technology for a quote. In 2017, it will be possible to select your required map, using Pear Technology MapShop. This enables you to outline an area, get a quote , order, download and open in PT Mapper Pro. See screenshot below.
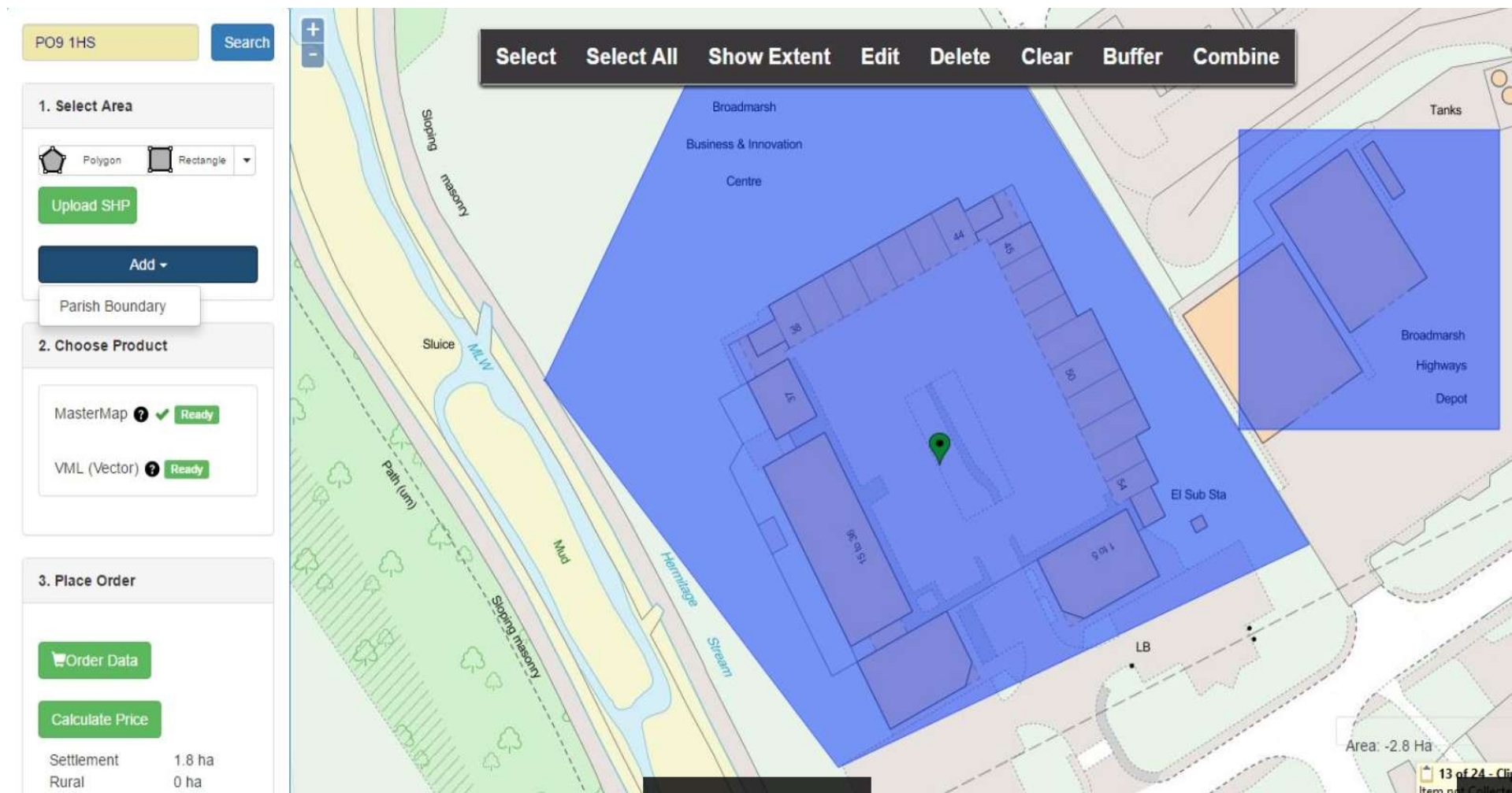
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You can also import a variety of other map data, for use with the map, including :

Land Registry, SSSI, flood areas, ancient woodland and National Tree Map from Bluesky (www.bluesky-world.com), see below

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2. Field Data Capture – Using PocketGIS software £1,957.50

Export map from PC to mobile device. Use GPS to locate position of tree. Tap position of tree on map to open survey and follow survey instructions. Most fields are drop down or numerical entry, for speed and accuracy.

The result created is a .csv or spreadsheet file. This can then be imported to create a map like that above, but with accurately plotted trees.

The spreadsheet created can be used as the basis or appendix of reports.

Existing surveys include:

BS5837, General Survey, Risk Assessment Survey, lines and areas, assets.

Or create your own survey.

BS5837 Survey V111   ✓

--- BS 5837 Survey ---   --- Species ---   --- Measurements ---   --- Stem Diameter ---   ---- Stem Diameter ----   --- Crown Spread ---   --- Canop

Tree ID *

[   ]

Tag Number

[   ]

TPO No

[   ]

In Conservation Area

○ Yes   ○ No   ⦿ Unknown

BS5837 Survey V111   ✓

/ Height ---   --- Structure/Form ---   --- Retention Category ---   --- Physiological Condition ---   --- Recommendation 1 ---   --- Recommendation 2 -

Phys Condition

[⌄]

Build Stage

[⌄]

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Risk Assessment Survey - Sample Screenshots

The result of the survey is a spreadsheet, example below.

3.TreeMinder and MapLink   £2,985

TreeMinder allows the user to focus on the data collected from the survey and produce a range of reports.

Easting	Northing	Height	ID	G	Comment	Tag No	TPO No	E cm	In Con	N cm	Tree Type	Common Name	Latin Name	Stems	Height (m)	Stem Dia (mm)	Spread (m	Maturity
363897.451	339167.123	101.65	93		Weak crown som	739		36389745	No	33916712	Prunus	Wild Cherry	Prunus avium	1	4	200	3	Semi-mature
363901.004	339171.517	113.45	94			741		36390100	No	33917151	Prunus	Wild Cherry	Prunus avium	1	8	290	2.6	Semi-mature
363903.059	339164.366	103.85	95			742		36390305	No	33916436	Prunus	Wild Cherry	Prunus avium	1	6	190	4	Semi-mature
363958.316	339135.988	104.15	96		Minor bark lift	743		36395831	No	33913598	Apple			1	6	190	2.5	Mature
363988.979	339181.651	103.85	97			744		36398897	No	33918165	Prunus	Wild Cherry	Prunus avium	1	7	230	3.6	Semi-mature
364001.586	339133.402	113.25	98		Canker in stem	745		36400158	No	33913340	Prunus	Wild Cherry	Prunus avium	1	7	270	4	Semi-mature
364000.449	339120.378	101.75	99		Some canker in s	746		36400044	No	33912037	Maple	Norway Maple	Acer platanoides	1	12	700	7	Semi-mature
364008.614	339072.209	105.35	100		No tag (nor on 74	747		36400861	No	33907220	Cupressus	Monterey Cypres	Cupressus macro	3	9.5	30	4	Semi-mature

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| JS
Any Street
Anytown
CVxx 1xx | Phone: 07593299752
Mobile: 07593299752
jsmith@peartechnology.co.uk | | **Sample Company Name**
Big Blue House
123 Any Road
Anytown
West Eastfordshire
AT34 2BB | Phone: 01234 909090
Mobile: N/A
N/A |

Tree Survey Work Analysis Summary

Tree Summary

Common Name	Species	No of Trees of each Type
Common Beech	Fagus sylvatica	1
Common Lime	Tilia europaea	2
Common Oak	Quercus robur	3
Mountain Ash	Sorbus aucuparia	1
Red Oak	Quercus rubra	1
Scots Pine	Pinus sylvestris	1
	Total Number of Trees	9

Work Summary

Work Description		Total Hours	No of Trees Requiring Work
Reduce crown(s)	By 30%	04:00	1
Remove	Faulted branch/limbs		1
	Major dead wood	12:00	3
	Minor dead wood	06:00	2
	Unspecified	01:00	1
See Comment	See Comment	04:00	1
	Unspecified		1
	Total Hours	27:00	

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Client: Sample Client
Project: New BS5837
Survey Date: 16/08/2012 - 09/06/2014
Surveyor: Sample Surveyor

Tree and Tag No / Species	Hght (m)	Stems No	Stems Ø (mm)	Crown Spread (m)	Crown Clear (m)	Age	RP A (m²) R (m)	Phys Condition	Structural Condition	Preliminary Recommendations / Survey Comment	Cat ERC
NewBS03 Tg002											
European White Elm *Ulmus laevis*	21	2	1345 (Eq)	N 6 E 6 S 6.4 W 6.1	4.1 3 3 4	M	A: 707 R: 15	Good	C: Good S: Ivy B: Good	Ivy :: Sever/remove ivy	A 1.2
NewBS02 Rmv001											
Copper Beech *Fagus sylvatica 'Purpurea'*	12	1	123	N 3 E 3 S 3 W 3	5 5 5 5	OM	A: 6.8 R: 1.47	Dead	C: Poor S: Ivy B: Poor	Fell :: Fell and remove stump(s) Potentially unsafe	U n/a
NewBS01 Tg0012											
Cedar of Lebanon *Cedrus libani*	7.9	2	1256 (Eq)	N 7.1 E 6.3 S 6.8 W 6.9	8.1 8.1 7.9 7.9	SM	A: 707 R: 15		C: S: B:		

Age Classifications:	N Newly planted	EM Early Mature	Condition:	C Crown	Stems:	Ø Diameter
	Y Young	M Mature		S Stem		(Eq) Equivalent stem diameter using BS5837:2012 definition
	SM Semi-mature	OM Over Mature		B Basal area		

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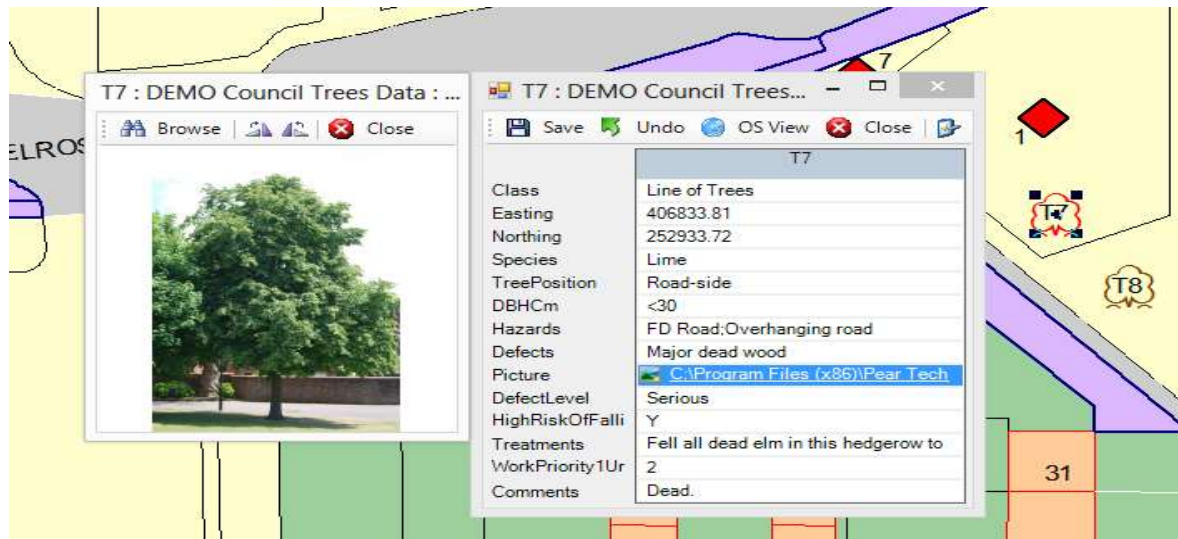# Pear Technology for Arboriculture, Forestry and Ecology Mapping and Management
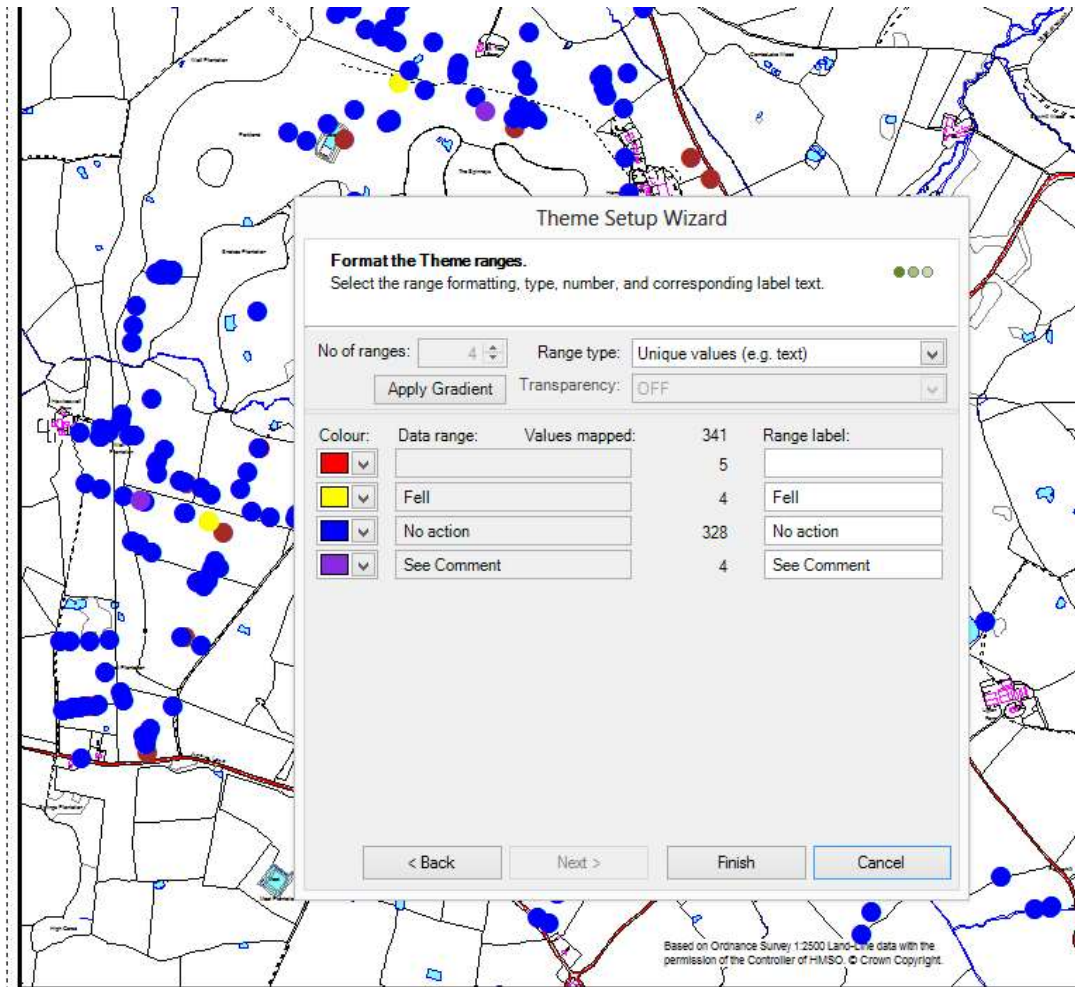
MapLink

MapLink links the underlying data (eg that gathered whilst surveying in the field) and represents that data on the map, thus visually highlighting the distribution of trees according to the criteria chosen eg

- Where are the trees requiring urgent attention
- Tree species distribution
- Tree disease distribution
- Planting date distribution
- Felling date distribution
- Bat habitat
- Height

You can also:

- click on an individual tree to pull up the data related to that tree
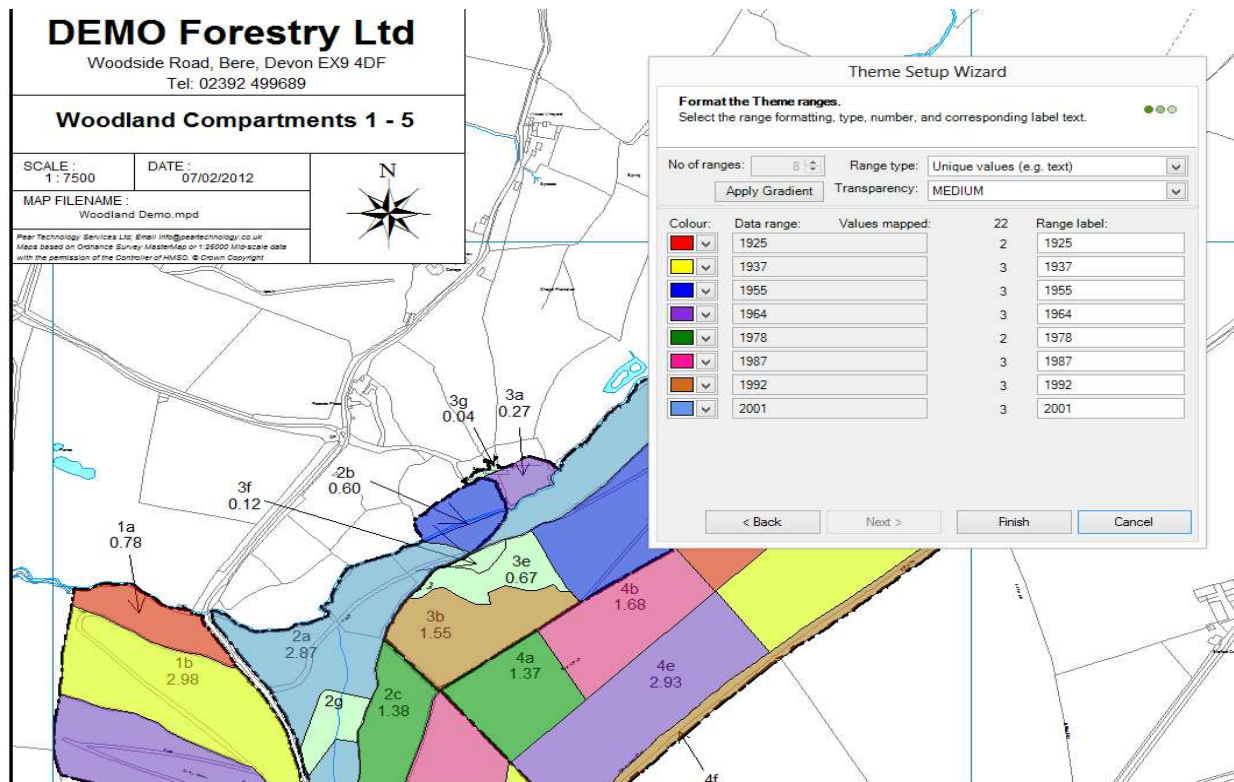- Connect an image or document to that tree record

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Maplink is very useful for forestry requirements in showing compartments and sub compartments by eg

- Species
- Maturity
- Planting date
- Felling date
- Grants applied for/won
- Soil ph

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Bonus: MapLink links to postcodes and comes with a UK Ordnance Survey map, so you could link and theme your client sites. The screenshot below is for football grounds around the country.

You can zoom in and then access street view level OS data via the internet, as below.
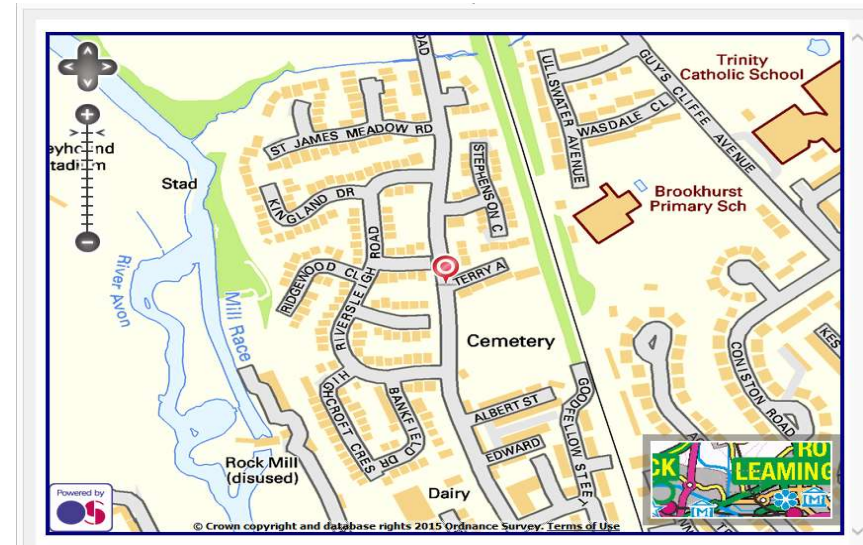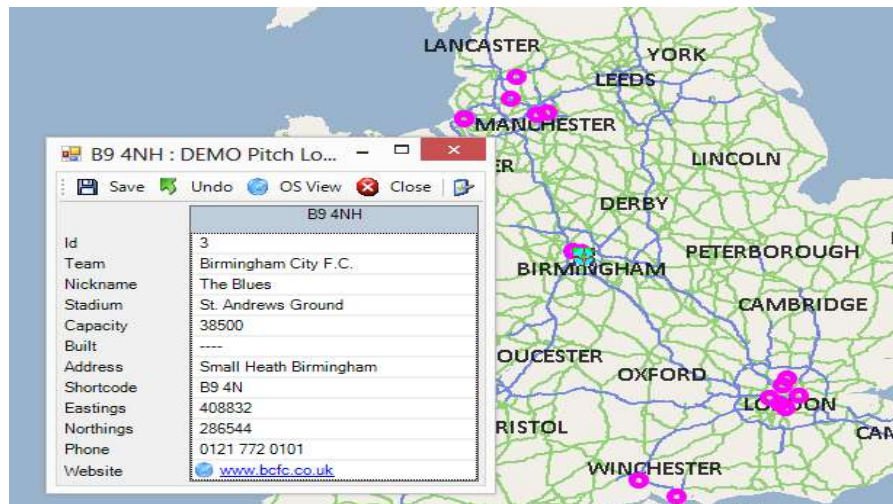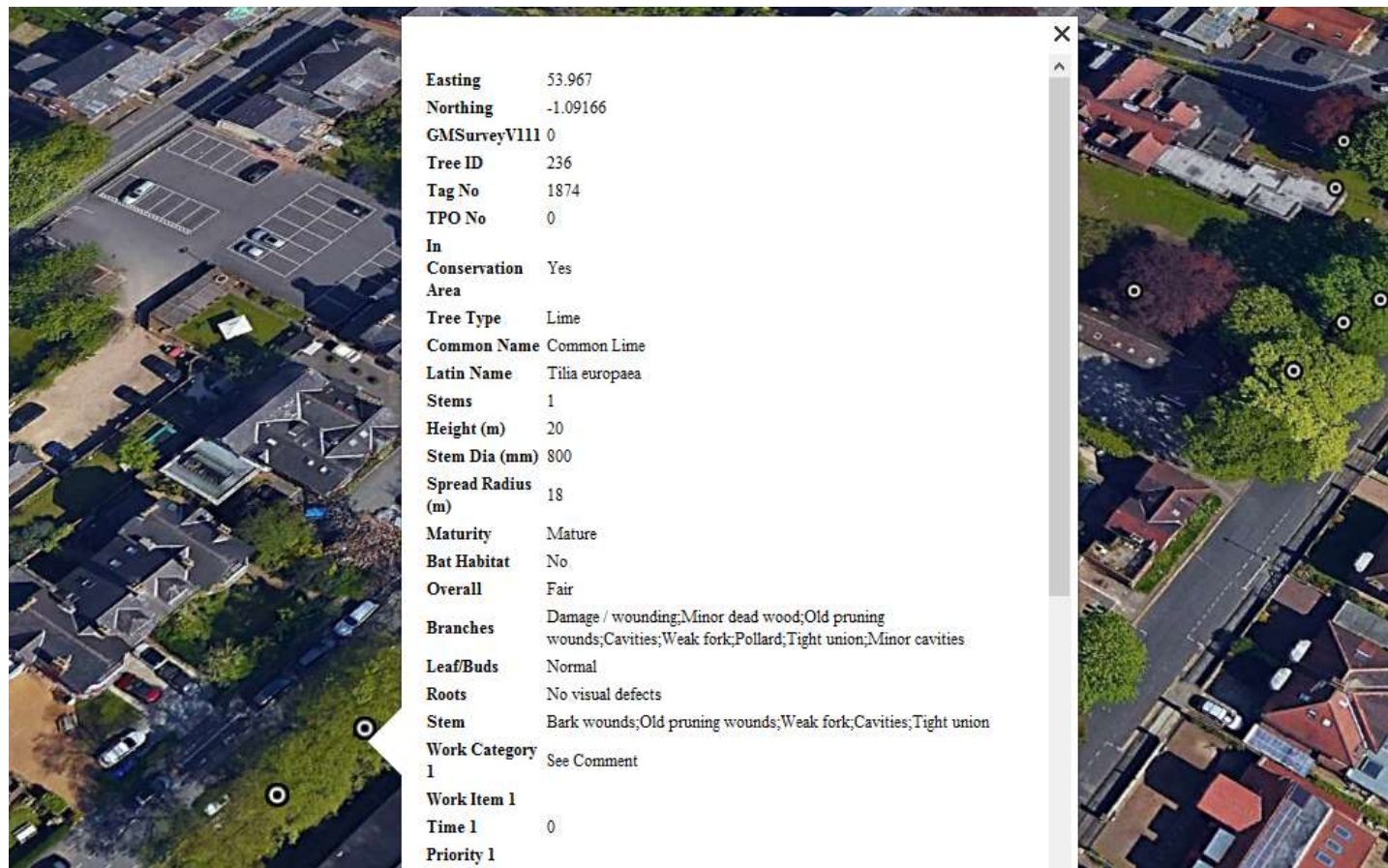
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4. Google Earth

If you select an item in PT Mapper Pro, then if you have an internet connection, you can click on the Google Earth (GE) icon in PTMP, which will open GE and zoom to your selection.

With Google Earth, you can draw around an area and copy that outline back across to PT Mapper Pro. This is helpful if feature are visible on GE, but not shown on the map. However, Ordnance Survey mapping is based on OS aerial imagery (which we can supply), so GE outlines are not guaranteed to line up.

You can also link your survey data to GE (subject to converting eastings and northings to latitude and longitude for interpretation by GE – call us if needed).

Easting	53.967
Northing	-1.09166
GMSurveyV111	0
Tree ID	236
Tag No	1874
TPO No	0
In Conservation Area	Yes
Tree Type	Lime
Common Name	Common Lime
Latin Name	Tilia europaea
Stems	1
Height (m)	20
Stem Dia (mm)	800
Spread Radius (m)	18
Maturity	Mature
Bat Habitat	No
Overall	Fair
Branches	Damage / wounding;Minor dead wood;Old pruning wounds;Cavities;Weak fork;Pollard;Tight union;Minor cavities
Leaf/Buds	Normal
Roots	No visual defects
Stem	Bark wounds;Old pruning wounds;Weak fork;Cavities;Tight union
Work Category 1	See Comment
Work Item 1	
Time 1	0
Priority 1	

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5.Hardware

Hardware available from Pear Technology for use with the above for tree surveys and field based data capture. We may be able to provide a trial and can certainly advise, based on your requirements.

Pocket GIS **Android** can also be run on other Android phones and tablets. Pocket GIS Windows 10, runs on **Windows 10** phones, tablets and computers.

We are able to provide a trial copy of Pocket GIS, for use on these devices. **Leasing** is an option for **limited companies**, subject to approval by Grenke Leasing. Prices are based on 3 year lease, 3 year warranty and are payable quarterly. There is an option to purchase for 5% of original price at end of contract.

Weekly hire of equipment is also a possible option. Prices are plus delivery and VAT. Hirer to pay return delivery. Hire hardware includes Pocket GIS.

Panasonic FZ-A2, Trimble TDC100 wifi, Juniper Geode sub metre GPS   **£150/week each**

Leica Zeno 20, 5cm GPS, from £350/week, subject to availability. Please enquire.

PocketGIS software, required for performing surveys using hand held device,

Windows or Android, **£ 600** lease cost **£20/month**

Trimble TDC100, 5" screen (1280 x 720), Android **1.5 metre GPS**, 8mp camera, IP67 (waterproof), 15 hour battery, 3 year warranty

Wifi version £995 lease cost **£31.54/month***

4G version £1200 lease cost **£38.04**

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Panasonic FZ-A2 10" Android 6.0 tablet, ruggedized, IP65, 1920 x 1200, camera, 2-5m GPS, 9hr battery,880g. For use with Pocket GIS Android

3 year warranty   **£ 1,200** lease cost **£38/month***

Spare battery £136, hand/neck strap £53, soft tip stylus £19, extension to 5 year warranty £130

Juniper Geode

Sub metre possible under canopy and 30cm possible in open, with no ongoing cost.
price, including universal mounting bracket for hand held/tablet **£1650**

lease cost **£52/month**

Geode plus CT5 (basic 4.7" Android tablet in left hand picture), monopod and clamp £1995 lease £64/month

Optional accessories include lightweight, telescopic monopod and clamp (pictured right, not extended) and backpack to hold pole and Geode.