Table 1: Structure of Bucks HLC data table

	Field Name	Sample Data	Required	Status	Location
	ID No	4	Yes	Auto	
Observation	Place		No	Free Txt	N/A
	Character Groups	ENC (Enclosure)	Yes	Look up	landscape_type.dbf
	Morphology Pattern	Regular	No	Look up	morphology.dbf
	Morphology Internal Boundaries	str (straight)	No	Look up	Internalboundary.dbf
	Size	Medium	Yes	Look up	size.dbf
	Boundary Change (post 1st edition)	d	No	Look up	boundarychange.dbf
	No. of Fields	7	No	Free txt	
	Place-Names	FURL	No	Look up	placenames.dbf
	Water Features	PON	No	Look up	waterfeature.dbf
	Clearings	N/A	No	Look up	clearings.dbf
	Trees	HED	No	Look up	trees.dbf
	Buildings	FC	No	Look up	Buildings.dbf
	Roads	ENC	No	Look up	roads.dbf
Interpretation	Aerial Photographs 1999	et	Yes	Look up	types.dbf
	OS Landline/Raster map	et	Yes	Look up	types.dbf
	OS Explorer map	et	Yes	Look up	types.dbf
	OS 1950s map	et	No	Look up	types.dbf
	OS 1st edition 6''	en	Yes	Look up	types.dbf
	OS 1st edition 2" surveyors	en	No	Look up	types.dbf
	Enclosure Map	ee	No	Look up	types.dbf
	Bryant Map 1825		No	Look up	types.dbf
	Jeffreys Maps	cm	No	Look up	types.dbf
	Date of Enclosure	1798	No	Free Txt	
	Relict Features (Major)	DMV	No	Look up	relict.dbf
	Relict Features (Minor)	R&F	No	Look up	relict.dbf
	Origins of Enclosure	ENCH	No	Look up	enclosure_origins.dbf
	Origins of Wood	N/A	No	Look up	woodland_origins.dbf
	Date	ii	Yes	Look up	dates.dbf
	Confidence Level	PROB	Yes	Look up	confidence.dbf
	Notes		No	Free txt	
Administration	Polygon Area	500.0000	Yes	Auto	
	Digitiser	D. Green	Yes	Auto??	
	Date	09/09/2002	Yes	Auto??	

3.2.1. Administration (Metadata)

i) Polygon ID No.
Unique identifier. Provides link to ArcView shapefile where polygon extent is digitised.

ii). Author & Date: Self-explanatory fields; each polygon is dated and signed.

3.2.2. Observations/Analysis

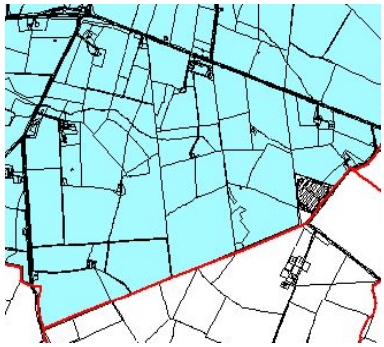
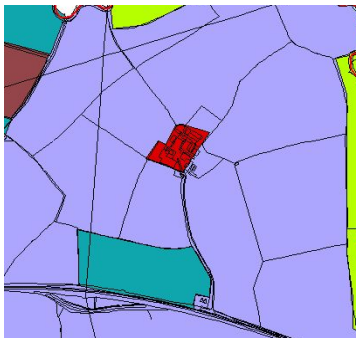
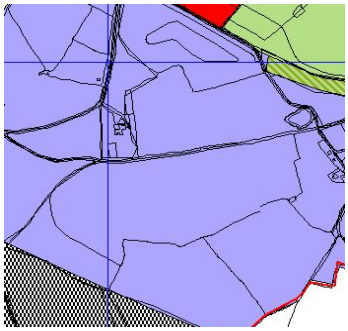
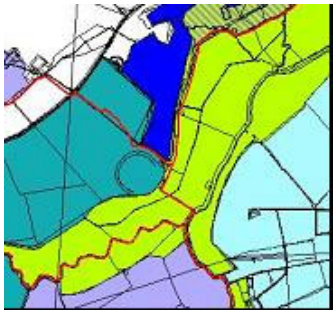
i). Character Groups

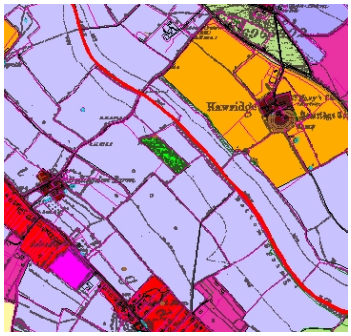
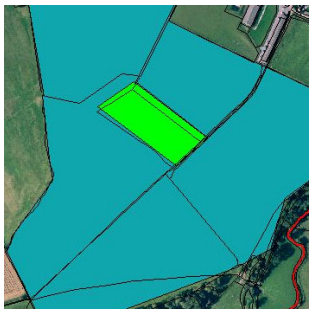
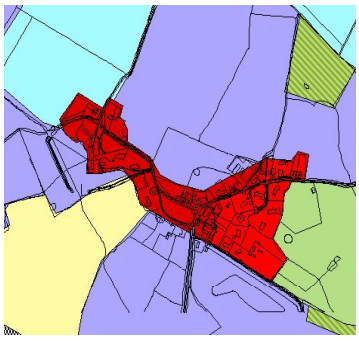
Once a particular area or land parcel has been identified by the consultation of the paper map and supporting sources the first process is to determine the Landscape Character Group. These have been predefined as:

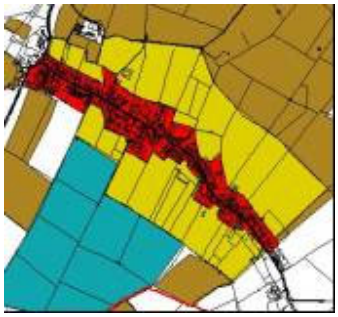
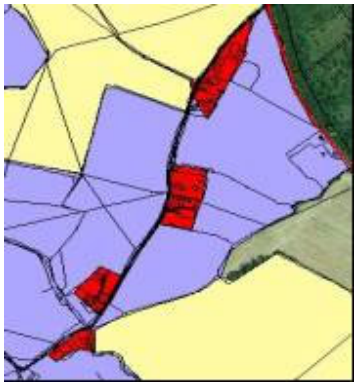
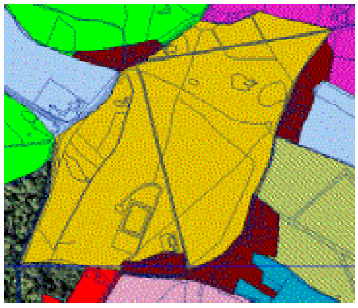
Code	*Definition*
CIV	**Civic** Hospitals, government offices, university campuses, utilities.
COM	**Communications**. Motorways & Service stations, Railway yards, Aerodromes.
ENC	**Enclosed Land**. 'Fieldscapes'
IND	**Industrial** Indicates sites connected with mineral extraction. Data derived from historic and modern OS maps and archaeological surveys. Also other industrial/commercial complexes.
MIL	**Military**: Shows all sites with military function including, army camps, prisoner-of-war camps military airfields, etc. Derived from modern and historic OS maps.
OPN	**Open (Unenclosed) Land**
PAR	**Parkland** Historic parks and gardens. Derived primarily from EH Register of Parks and Gardens and Bucks GIS layer.
REC	**Recreation:** 20th century leisure, golf courses, playing fields
SET	**Settlement** Towns, villages and urban areas
WAT	**Water** Large water bodies such as reservoirs and areas reclaimed from mineral working
WOO	**Woodland**

ii). Morphology Patterns: This data field records the dominant morphology of enclosures, woodland and settlement both in terms of boundaries and internal divisions. Other projects have focussed in great detail on the various permutations of field appearance, (Devon, Cumbria). However the Bucks approach is keep morphology simplified. The categories have been based upon the distinctions made by Oliver Rackham (1986) and Taylor (1974), (settlement patterns are based on the Leverhulme classifications as devised by (Lewis, C. *et al* 2001) with further distinctions included.

In order to decide what pattern characteristic to choose each polygon must have the most prevalent Pattern Morphology as defined in the table below. The last 3 settlement classifications will usually apply to dispersed settlement and will usually be too small for digitisation, these categories will appear as part of enclosures or open land as a secondary element (see Buildings).

REG	**Regular**: Ruler Straight surveyed boundaries according to a preconceived geometry, often associated with post-medieval surveying techniques, land enclosed and fields enclosed under acts of parliament.	**ENCLOSURES** 
SEM	**Semi-Irregular**: Fields organised with a more complex geometry or a pattern less exactly followed.	**ENCLOSURES** 
IRR	**Irregular**: Fields showing no organisational pattern or attempt at geometry.	**ENCLOSURES** 
SIN	**Sinuous**: 'Stringy' fields that often associated with piecemeal enclosure, watercourses and woodland edge.	**ENCLOSURES** 

COA	**Co-axial**: Sinous Fields Possibly a Pre-Medieval landscape	**ENCLOSURES** 
CUR	**Curvilinear**: Shape of woods that follow a pre-existing boundary. The boundary straggles across the country in a series of curves changing direction every few yards. (Rackham defines these as sinuous).	**WOODLAND** 
REC	**Rectilinear**: Woodland of more regular geometric shape, often indicative of designed or planted forestry plots and woodland plantations, although sometimes can be a remnant of an older wood.	**WOODLAND** 
NUC	**Nucleated Clusters:** These are agglomerated settlements where more than five dwellings or farmsteads are grouped together at a single point in a compact grid, radial or cluster plan, sometimes around a green, market place or other focus.	**SETTLEMENT** 

NUR	**Nucleated Regulated Streets and Rows:** These are linear settlements which are arranged contiguously along a straight street or green with boundaries which lie at right angles to the street. The plots are usually all of equal width.	**SETTLEMENT** 
IN	Interrupted or Irregular Rows: These are dispersed settlements where tofts are strung out along lanes, usually separated from their neighbours by small arable or pasture fields and often winding for a kilometre or more.	**SETTLEMENT** 
CM	Common Edge Settlement: These forms of dispersed settlements are similar to **IN** but here the tofts are perched on the edges of tracts of common or heath land, often close to the margins of parishes or townships.	**SETTLEMENT** 
FC	Small Farm Cluster: These include farms and clusters of less than five tofts	**SETTLEMENT** No picture

iii). Internal Boundaries: In addition to the field or woodland pattern a secondary classification of internal boundaries has been devised for discerning further subtleties in field morphology. Again the predominant boundary type is noted.

str	Straight
cur	Curving
sin	Semi Straight
wav	Wavy
N/A	Not Applicable

iv). Size: Applicable to enclosures, woodland and settlement.

S	**Small**: Enclosures less than 4 hectares
M	**Medium**: Enclosures between 4 to 25 hectares
L	**Large**: Enclosures greater than 25 hectares
N/A	**Not Applicable**

v). Boundary Change: A further category shows the degree of boundary change within enclosed areas between the periods of the current landline data and the 1st edition maps (constant data source). The degree of loss and gain will be recorded in a look up table and defined as:

a	**No loss**: Fields have no boundary loss since 1st edition or earlier.
b	**Minimal loss**: Fields that has some boundary loss (40% or less). Although the land parcels within the polygon remain in a good state of preservation.
c	**Major loss**: The polygon contains fields with more than 40% loss although; character of the fields within is still retained.
d	**Gain**: Fields subdivided or increased, but retain overall original character.
N/A	**Not Applicable**

vi). Place Names: Within the selected area for digitisation a further data field is available for recording details from the 1:25,000 Explorer maps of any notable place names that may assist in the interpretation of previous or current landscape use. The pull down list of place names below is a provisional one with further scope for new names to be added.

Code	***Place name***
ASST	Assarted Field
FURL	Furlong
COPP	Coppice/Copse
WOOD	Wood
GREN	Green
SPIN	Spinney
FURZ	Furze
COMM	Common

SHAW	Shaw
HANG	Hanger
LEIG	Leigh/Ley
GROV	Grove
MARS	Marsh
PARK	Park
PLAN	Plantation

vii) Secondary Features: There are some landscape aspects that are too small to digitise but in some way may constitute a significant element in the landscape, these will be recorded as secondary features with fields for the following:

Code	**Name**	**Distinctions**
Buildings	FC	Small Farm Cluster
	CM	Common Edge Settlement
	CO	Country House
	LN	Linear Settlement
	MO	Modern Housing (Estates)
	IS	Isolated Farmstead
	IN	Industrial
	CH	Church/Religious House
Water Features	ORN	Ornamental Lakes
	PON	Ponds
	STR	Streams
	CAN	Canal
	DRA	Drain
	WEL	Well
	LEE	Leet
	SPR	Spring
Trees	COP	Small Copse
	ORN	Ornamental
	DIS	Disp. Tree Cover
	PLA	Plantation
	DEN	Abundant Tree Cover
	HED	Pronounced Woodland Hedgerows
	SPN	Spinney
Clearings	Y	Yes
	N	No
Roads	MIN	Minor Road
	MAJ	Major Road
	ROM	Roman Road
	WIN	Winding Road
	TRA	Trackways
	MTW	Motorways
	RWY	Railways
	RID	Woodland Rides
	FOT	Footpaths
	BRD	Bridleway

3.2.3 Interpretation

Once the attributes have been defined, an interpretation of the dominant polygon type is allocated based on the map sources. The interpretative section of the HLC has been subdivided into eight sets of columns each containing basic interpretative statements qualified with the source to chart the time depth change of a particular land parcel. This is achieved by using a stratigraphic method starting with the most recent source (current Landline data & Aerial Photos) going back to the earliest 1st edition OS map or where necessary, Enclosure maps or detailed County surveys undertaken by Bryant and Jeffreys. At each stage an assessment is made whether the land-use has changed over time or has remained the same. A list of Buckinghamshire Landscape Interpretations has been defined in a look up table in ArcView. This list is in no way definitive and there is scope for adding new categories as the project progresses.

ec	**Enclosure (Pre 18th Century 'Co-axial'):** Morphologically this category of enclosure has a sinuous pattern with small, elongated fields. The enclosure layout can be dictated by topography but still indicative of older field systems.	ENCLOSURE
ei	**Enclosure (Pre 18th Century Irregular):** Piecemeal enclosure is applied where enclosures appear to have been established on a field-by-field basis. Morphologically, 'ei' can vary considerably in shape and size.	ENCLOSURE
ee	**Parliamentary Enclosure:** Planned, generally large-scale enclosure, of open field and sometimes wastes occurring through Buckinghamshire from *c.* 1780- *c.* 1860. Parliamentary enclosure normally possesses a distinctive, organised layout with ruler straight boundaries and often with contemporaneous roads or trackways.	ENCLOSURE
ep	**Enclosure (19th Century):** Morphologically similar to parliamentary enclosure, although not always laid out with quite the same precision. Planned private enclosure of wastes and open field will be identifiable particularly in areas where the extents of parliamentary enclosure are already known.	ENCLOSURE
ep	**Enclosure (Prairie Fields):** Characterised by widespread boundary removal and/or rationalisation, resulting in large (sometimes irregular) enclosures. Modern improvements occur largely post- 1950.	ENCLOSURE
et	**Enclosure 20th Century:** Can vary but are usual regular in morphology, but are defined here as parcels of enclosures that represent an expansion of agricultural land into wastes and common pasture and alterations of older enclosures.	ENCLOSURE
as	**Assarted Enclosures** In this instance, assarting refers to the enclosure and clearance of wooded areas, resulting in patterns of small, irregular enclosures interspersed with woodland.	ENCLOSURES
ht	**Heaths**	OPEN LAND
dw	**Downland:** Areas of grassland uplands predominately in the Chiltern Hills	OPEN LAND
of	**Open Fields:** Often quite large areas that were farmed communally in cultivation strips during the Medieval and early post-medieval periods. Open fields were subject to different processes and timescales of enclosure and so can be indicated by many morphological forms.	OPEN LAND
cm	**Commons & Greens:** Village greens are a visible element of many villages in Buckinghamshire but have not always survived due to encroachment of settlement and enclosure. They were important	OPEN LAND

	communally used areas that often formed the point of departure for driftways or outgang along which stock was taken to summer pastures. Former wastes and commons frequently retain the physical evidence of past industrial activities such as mining, quarrying and peat cutting.	
se	**Settlement (Pre 1885):** Built environment in towns and urban areas existing at the time of the 1st edition Ordnance Survey map.	SETTLEMENT
st	**Settlement (Post 1885):** Built environment after 1st edition date, urban development in Buckinghamshire mostly after the 1950s.	SETTLEMENT
fs	**Furlong Strips:** Long thin enclosures with parallel curving boundaries. This category is a direct indicator of open field, the enclosures representing the shape of previous cultivation strips.	ENCLOSURES
pp	**Parkland (16th 19th Century)** This category applies to areas of landscape that have a noticeable ornamental element. Often associated with Manor houses ornamental parklands date from the 16th century, although most examples in Buckinghamshire are of 18th or 19th century date.	PARKLAND
dp	**Medieval Deer Park:** Medieval parklands were normally large, single enclosures that both preserved the diminishing habitat of deer and provided potent status symbols for their owners. They are sometimes visible in the present landscape as discrete running boundaries often forming large enclosures, oval in shape or with rounded corners.	PARKLAND
wp	**Woodland Pasture:** Pollarded woodland for the grazing of Livestock.	WOODLAND
wc	**Woodland Coniferous Plantation:** Used where there are clear indications of woodland for commercial forestry.	WOODLAND
wr	**Woodland (Ancient Replanted)** Ancient woodland sites where the original native tree cover has been felled and replaced by planting, usually with conifers and usually this century.	WOODLAND
ws	**Woodland Secondary (18th –19th Century):** Encroachment of woodland since Jeffreys and OS 1st edition	WOODLAND
wa	**Woodland (Ancient Semi Natural):** Ancient woodland sites that have retained the native tree and shrub cover that has not been planted, although it may have been managed by coppicing or felling and allowed to regenerate naturally.	WOODLAND
rl	**Riverine Landscape:** Areas of large river catchment, (Thames) of sinuous nature. This includes riverbanks, eyots, mills and moorings.	WATER
rw	**Water Reservoir:** Self Explanatory	WATER
mf	**Flooded Restored Mineral Extraction:** Gravel Pits	WATER
id	**Industrial (disused)**	INDUSTRIAL
in	**Industrial (post 1885)**	INDUSTRIAL
de	**Disused Mineral Extraction:** Some areas of present agricultural or recreational land have previously been subject to intense industrial activity between the O.S. 1st edition and present O.S. coverage (e.g. open casting, gravel extraction, landfill sites etc). The category provides a method of indicating this activity whilst retaining the definition of present status.	INDUSTRIAL
me	**Mineral Extraction**	INDUSTRIAL
mw	**Meadow:** Generally sinuous enclosures alongside rivers and streams.	LANDUSE
ng	**Nursery with Glasshouses:** 20th century market gardening	LANDUSE
ag	**Allotments:**	LANDUSE
fw	**Watercress Farming:** Commercial watercress beds	LANDUSE

hs	**Hospitals, Schools, Universities:** Self Explanatory	CIVIC
ut	**Utilities:** Power Stations, Water Works etc.	CIVIC
tr	**Recreation:** 20th century leisure, golf courses, playing fields etc.	RECREATION
pm	**Military (post Medieval):** Barracks, training grounds	MILITARY
ap	**Airfields:** including extant former WWII airfields	MILITARY
mr	**Motorways:** M40, M4	COMMUNICATIONS
xx	**Unknown:** Land parcels of uncertain provenance. Highlights the need for further research where the origins (or a particular phase) of an area development are unclear.	

Examples

This approach breaks the overall interpretation assigned to any area down into its constituent parts and allows for a huge variety of potential combinations. It will be the requirement to complete four data fields, Landline Data, Aerial Photographs, OS Explorer and OS 1st edition. An example of an entry where the characteristics of polygon has not changed is likely to is likely to appear as:

Aerial Photographs	OS Landline	Explorer	OS 1950s	OS 1st Edition	Enclosure Map	Bryant	Jeffreys
ee	ee	ee	ee	ee	ee	NA	NA

So if no new 'Landscape Character/Stratigraphic Position' entry is made, then the character type of later periods must be assumed to be the same as that of the previous period for which an entry was made. More complex interpretations requiring more columns would indicate modern fields, formerly parliamentary enclosure in turn enclosed from commons. For example:

Aerial Photographs	OS Landline	OS Explorer	OS 1950s	OS 1st edition	Enclosure map	Bryant	Jeffreys
et	et	et	ee	ee	ee	cm	cm

i). Origins of Enclosure: After assigning the time depth, two data fields are used by the digitiser to make an assessment of the origins of the land parcel. This list should eventually cover all permutations of enclosure origin.

ENOF	Enclosed from Open field
ENAF	Enclosed from older fields
ENPA	Enclosed from Pasture
AENC	Ancient or Old Enclosure
ASST	Assarted from Woodland
RECH	Reclaimed from Commons/Heathland
N/A	Not Applicable

ii). Origins of Woodland: Categories of woodland origin are in part derived from the classifications devised by English Nature and woodland evolution described by Rackham

(1986). 'Ancient' is defined as being in existence by 1600 with the 'Secondary' classification applying to woodland after this date.

ANCG	Ancient (General)
APLN	Ancient Replanted
SGEN	Secondary Regenerated
SPLN	Secondary Plantation
SECG	Secondary (General)
WENC	Secondary Wood from Enclosed Fields
WCOM	Secondary Wood from Commons
WPAK	Secondary Wood from Parkland
N/A	Not Applicable

iii). Period: A date is also given to the digitised area. The framework for dating is based around the constraints of the known map sources from Jeffreys' maps to the modern OS editions. This is preferable to making speculative judgements for specific periods, e.g. prehistoric, medieval, that cannot be properly substantiated. An opportunity for further elaboration on dating of land parcels can be expanded in the notes section below.

i	**Pre- 1774**: This category is deliberately broad because with earlier periods of enclosure it is often easier to assign an interpretative category (see next section) to a parcel of land than to accurately interpret a date. Nevertheless it will be possible to identify likely dates for some areas of pre- 1770 enclosure and these will be coded within the comments field.
ii	**1774- 1885**: Encompasses much of the 'Enclosure Period', characterised by large scale regular enclosure of wastes and commons, and some remnant areas of open field. The formation of country houses and parks. The cut-off date of 1885 represents the O.S. first edition map. All pre- 1885 settlement is placed within this category.
iii	**1885-1950s**: This period is one of industrial expansion, increase in railway network. A large degree of post- 1885 settlement is placed within this category.
iv	**Post- 1950s**: The post 1950 period is characterised by widespread agricultural improvements, re-alignment of field boundaries and in arable areas, the removal of boundaries to allow mechanisation and maximise crop yields, (particularly in lowland areas). Large-scale mineral extraction and the growth of urbanisation within south Buckinghamshire.
v	**N/A**: Used on unenclosed areas such as moorland and downland where a date cannot be assigned.

iv). Relict: *Previous Historic Character*. Provision has been made to record any salient relict features in the landscape. This will be achieved through a combination of map regression, the observations made from aerial photographs and information gleaned from archaeological surveys such as the English Heritage datasets for surviving ridge and furrow (Hall 2001). Given the coincidence of more than one type of relict in the landscape (especially in areas of the Vale) it was felt appropriate to create two data fields to record the most dominant types. Below is an interim list of relicts; more categories can be added as the project progresses**.**

PRE	Prehistoric Earthworks
ROM	Roman Earthworks
DMV	Deserted Medieval Village

FSH	Fishpond Earthworks
R&F	Ridge & Furrow
CAS	Castle/Moat
EWK	Earthworks (Other)
QUY	Quarry
GAR	Garden Earthworks
PIT	Clay/Lime Pits
N/A	Not Applicable

v). Confidence: As noted above, 'confidence' relates the overall conclusion of the polygon from morphology to interpretation. Quantifying these terms is very hard but can be split into 4 categories:

CERT	**Certain**: means there is no doubt that during the period indicated, the polygon had the given landscape character. Where landscape types are identified and dated through documentary source, landscape surveys or other research.
PROB	**Probable**: Applied to areas of landscape that are morphologically typical of a specific character type or period. – Indicates a strong degree of likelihood 80% chance.
POSS	**Possible**: indicates a reasonable degree of likelihood perhaps over 50% confidence.
UNSR	**Unsure**: Used in circumstances of type or date through morphology Less than 50% confidence.

vi). Notes: This is a free text field to justify the interpretation and reinforce the confidence level. It is also an opportunity for the digitiser to note any other changes or features of interest.