

Guidelines for BS 7666:2006

Section 6. Creating a land and property gazetteer

Version 1

May 2007

This Section provides detailed guidance on how to create a land and property gazetteer. It explains aspects of BS 7666 Part 2: Specification for a land and property gazetteer, and should be read in conjunction with that document. It is aimed at those compiling such gazetteers, particularly in local authorities. The guidelines are general and not aimed at any specific implementation such as the National Land and Property Gazetteer, for which specific guidelines will apply. A Glossary of Terms, list of abbreviations and references, and an explanation of the UML data modelling conventions used in the Standard are given in Section 1 of these Guidelines.

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Preface

These Guidelines are intended for use with BS 7666: 2006 *Spatial datasets for geographical referencing*. They complement the Standard with more detailed explanation of the content and a general approach to creation of gazetteers. They are not specific to any particular implementation, for which it is expected that specific data specifications and capture and maintenance rules will be produced.

The Guidelines are aimed at:

- gazetteer owners – those with ultimate responsibility for the gazetteer;
- gazetteer custodians – those responsible for the creation, maintenance and quality of gazetteers;
- suppliers of gazetteer software;
- those developing and implementing gazetteer systems
- providers of gazetteer data;
- others who are responsible for aspects of the quality management of gazetteers.

The Guidelines are currently in six Sections:

1. Introduction to BS 7666;
2. How to create a gazetteer of a new type of geographic object;
3. Quality assessment and reporting;
4. How to create a national gazetteer;
5. How to create a street gazetteer;
6. How to create a land and property gazetteer (this section).

No guidelines for public rights of way which form an informative annex to Part 1 of the Standard, or for Part 5 Gazetteer of delivery points are planned at present.

These Guidelines have been produced under the auspices of BSI IST/36 geographic information who are responsible for BS 7666. They were written by Rob Walker and Les Rackham working under the guidance of a Steering Group comprising representatives of major stakeholders in the Standard. The work is sponsored by the Department for Communities and Local Government (DCLG), Ordnance Survey, Office for National Statistics and Mayrise Ltd.

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1. Introduction

A land and property gazetteer is a list of land and property units in an area, together with information about their location. BS 7666-2 is based upon the concept of a Basic Land and Property Unit (BLPU), defined as an “area of land, property or structure of fixed location having a uniform occupation, ownership or function”. This definition is intended to be broad, and what is considered to be a BLPU is to a certain extent dependent on the user perspective. There is no single correct view, and different user communities will record BLPUs at different levels of granularity. For example, where one will see a block of flats, another will see a set of individual residences. Both views are equally valid.

Each BLPU is identified by one or more Land and Property Identifier (LPI), which is based on the concept of an address. A BLPU can have more than one LPI, but an LPI can only identify a single BLPU. Thus a corner property might be both 25 High Street, and 1 Side Road.

2. Details of changes from previous edition and implications for implementation

The main changes to Part 2 from the previous (2000) edition of the Standard are as follows:

- Addition of a requirement to provide metadata for all gazetteers:
 - This is important, especially the scope statement, as it aids understanding of the gazetteer. The requirements are described in **3.6** of this section of the Guidelines.
- Addition of a facility for recording descriptive identifiers in multiple languages.
 - This will aid those creating multi-lingual gazetteers. It does not affect mono-lingual gazetteers. This is described in **3.5** of this section.
- Addition of a facility for classification of BLPUs:
 - For many purposes, it is desirable to classify BLPUs, for example identifying whether they are residential, commercial or public. This addition is optional, and its usage is a decision for the implementation. For further details, see **3.2.3** of this section.
- Clarification of street references for a BLPU:
 - A street no longer has to be referenced from a street gazetteer, but can be described by a descriptive identifier in full. For further details, see **3.3.3** of this section.
- Extension of facilities for cross-referencing to other datasets:
 - These have been added throughout the Standard. They are optional in all cases. Cross-referencing to other datasets is very useful, particularly to integrate existing datasets. How it is carried out is a matter for the implementation.
- Addition of a requirement for a data quality report:

- This is a major new requirement, and a significant additional task. For general information on this, see Section 3 of these Guidelines. For specific details see **3.7** of this section.
- Changes to the role of provenance:
 - Provenance is now associated with the BLPU Extent rather than BLPU itself. This change reflects the normal practice.
- Other minor changes:
 - Addition of an identifier for a Land and Property Identifier (LPI) - this is always done in implementations, but is now explicit.
 - Field lengths are no longer prescribed – these are not necessary with current database technology, but may be useful in implementing rules.
 - Changes to some of the definitions to improve understanding.

3. Explanations of requirements

3.1 Gazetteer Scope

The scope is a description of the type of objects to be included in the gazetteer. In the case of a land and property gazetteer, it is the types of property and land. The scope defines the bounds of what should be included and what should not be included. For example a gazetteer might include all individual residential property eligible for Council Tax and all individual commercial property eligible for Non-Domestic Rates but not ‘grouped’ commercial properties, and exclude land parcels. The scope statement should also include a statement of what level of detail the gazetteer contains, e.g. whether communal properties are broken down into sub-units.

It is important to have a clear scope statement, because of the flexible definition of a BLPU, to ensure that compilers know what to include, and users know what to expect. It is also important that where gazetteers from different sources are combined, they have similar scopes, otherwise an inconsistent gazetteer will result.

Example of Gazetteer scope for a land and property gazetteer:

Land and Property Gazetteer for the county of Dorsetshire, including:

- *all individual properties registered for Council Tax,*
- *blocks of residencies sharing a common address,*
- *all individual commercial properties registered for non-domestic rates, but not grouped commercial properties,*
- *blocks of commercial properties,*
- *residential blocks such as university and nursing accommodation, but not individual units,*
- *community and public buildings and other facilities, including halls and major monuments,*

but excluding unoccupied land .

The statement of the gazetteer scope is recorded in the gazetteer metadata (see **3.6**).

3.2 BLPUs records

3.2.1 Attributes

Details of the attributes of a land and property unit are defined in Clause 6 of BS 7666-2. Some of the issues relating to them are described here.

3.2.2 Unique Property Reference Numbers (UPRN)

The UPRN uniquely identifies the BLPU within the gazetteer, and is constant over the life of the BLPU. It should not be changed when attributes of the BLPU change. Where land and property gazetteers are to be merged to cover a wider area, there needs to be a central authority to allocate UPRN ranges to ensure uniqueness. This might be achieved by the addition of pre-fixes.

3.2.3 BLPU classification

BLPUs are not homogeneous. A BLPU classification code has been added to the requirements in the 2006 edition of the Standard. However, this is optional. The purpose of this is to provide a high-level description of the type of BLPU. A recommended list of codes is given in Annex C of BS 7666-2. This does not have to be used. Where a different code list is used, this should be specified in the metadata (see **3.6**). A more detailed classification (secondary classification) may be added as an additional user-defined attribute.

3.2.4 Representative point

The BLPU is required to have a coordinate reference of a representative point and a corresponding representative point code. The representative point should normally lie within the BLPU but in some circumstances may lie outside, for example where information about the exact limits of the BLPU or the precise position is lacking. Where the representative point lies outside the BLPU, it may be given the coordinate of either:

- a) the south-west corner of the 100m grid square (when using a metric grid) containing the BLPU, or
- b) the start point of the street in which the BLPU lies.

The representative point code identifies the choice of representative point. Allowable values are given in Table 3 in BS 7666-2.

3.2.5 Dates

Dates should be recorded at an appropriate level of resolution. Normally this will be a day, but where this is not known, it may be only a month (e.g. '2006-08') or a year (e.g. '1900'). The dates should be recorded consistently either in the basic format (YYYYMMDD) or extended format (YYYY-MM-DD, YYYY-MM or YYYY), where YYYY is the year, MM the month and DD the day. The two formats should not be mixed, and for each implementation of the Standard it will have to be decided which format is to be used.

Care needs to be taken to distinguish between actual dates, when something happened either in the real world or to a source of information, and capture and update dates, when changes are made to the data.

Actual dates:

- **start date:** the date when the BLPU came into existence;
- **end date:** the date when the BLPU ceased to exist;
- **current state date:** the date when the BLPU came into its current state;
- **current date:** the date at which the gazetteer is considered to be current.

Capture and update dates:

- **entry date:** the date when the BLPU record was entered into the gazetteer;
- **update date:** the date when the BLPU record was last updated;
- **metadata date:** the date when the metadata was last updated.

Where dates are not known exactly, a notional date at which the date criterion was known to be correct should be used. This applies in particular to start date. Where update date is not known, or the record has not been updated, the update date should be same as the entry date.

3.2.6 BLPU logical status

The BLPU logical status, identified by a code, gives an indication of the confidence level of the BLPU record. These are shown in Table 1.

Table 1. BLPUs logical status codes

BLPU record status	BLPU logical status	Description	Notes
Approved	1	BLPU identified by at least one approved LPI and confirmed by the gazetteer custodian as the most appropriate spatial identification	
Candidate	5	BLPU posted for inclusion in the gazetteer but awaiting approval by the gazetteer custodian	A candidate BLPU is only identified by a 'candidate' LPI
Provisional	6	BLPU held in the gazetteer on a temporary basis	An example is a building plot. The purpose of a provisional BLPU is to assist in the matching or reconciliation of identifiers.
Historic	8	BLPU no longer in use	An end date should be recorded. The purpose of an historic BLPU is to facilitate the maintenance of cross-references to historic datasets. An example is where a building has been demolished.
Rejected	9	BLPU not approved by the gazetteer custodian and awaiting deletion	The BLPU should be deleted as soon as possible. The associated LPIs should also be 'rejected'.

3.3 Land and Property Identifier records

3.3.1 Attributes

Details of the attributes of a land and property identifier are given in Clause 7 of BS 7666-2. Some of the issues relating to them are described here.

3.3.2 Object name

Primary Addressable Objects

The object name identifies the BLPU within the context of a street. Where the BLPU is directly addressable in its own right (i.e. without reference to any other BLPU), it is called a Primary Addressable Object. The Primary Addressable Object Name (PAON) is defined according to the following order of priorities:

1. a designated premises number for the BLPU;
2. a premises name for the BLPU;
3. an organisation name for the corporate occupier of the BLPU;
4. a description of the BLPU.

Examples of Primary Addressable Object Names

- 221b
- Bush House
- Tesco
- Development site bounded by Church Land and Priory Avenue
- Terminal 1
- Greyfriars School

Secondary Addressable Objects

Where a BLPU can only be addressed by reference to another BLPU, because it forms a part of it, or is associated with it by physical proximity or route of access, it is called a Secondary addressable Object (SAO). The secondary object name identifies the BLPU by reference to the Primary Addressable Object.

Examples of Secondary Addressable Object Names

- Flat 4
- The cyber shed
- Fourth floor
- Room 101
- Annex
- Unit 17

3.3.3 Spatial references

The spatial reference of the BLPU is a street reference, in the form of either:

- a) the unique street reference number of the street, as recorded in a street gazetteer, or
- b) a descriptive identifier for the street, comprising the street name and sufficient of names of locality, town and administrative area to create a unique identifier for the street as defined in BS 7666-1.

In the previous edition of BS 7666-1, only the first of these was allowed. The second should only be used where no street gazetteer is available.

3.3.4 LPI logical status

The logical status, identified by a code gives an indication of the confidence level of the LPI record. These are shown in Table 2.

Table 2. LPI Logical status codes.

LPI record status	LPI logical status	Description	Maximum number of occurrences¹	Notes
Approved preferred	1	An identifier or address corresponding to the entry in the official street name and numbering register (if such exists); otherwise the address deemed by the Gazetteer Custodian to be correct or the most commonly used	1	For any BLPU, only one LPI can have 'approved' status for any particular language (identified by the language code)
Approved alternative	2	An identifier or address recognised by the Gazetteer Custodian as being in common use but differing from the official/preferred LPI	1	An approved alternative LPI may be used for alternative spelling or local naming custom. This status should only be applied to one LPI record for each BLPU, and there should be a corresponding LPI with logical status 1
Alternative	3	An identifier or address that is not the approved preferred or approved alternative	N	Examples are special interest identifiers and additional descriptions (e.g. First floor flat)
Candidate	5	An identifier or address posted for inclusion in the gazetteer and awaiting confirmation or approval by the Gazetteer Custodian	N	
Provisional	6	An identifier or address held on a temporary basis	N	An example is a plot number. A 'provisional' LPI should not be used where there is an 'approved preferred', 'approved alternative' or 'alternative' LPI.
Historical	8	An identifier or address no longer in use	N	This facilitates the maintenance of cross-references to historic data, for example where a postcode has changed or where the property has been demolished.
Rejected	9	An identifier or address that has not been approved by the Gazetteer Custodian and is awaiting deletion.	N	An example is a candidate that is found to be a duplicate or misspelled entry. The LPI should be deleted as soon as possible.

¹ Per BLPU, per language. 1 = should be only one; N = could be many

3.4 BLPU Extents

BLPU Extents may be included in the gazetteer, with a BLPU represented by one or more BLPU Extents, each representing a different BLPU provenance. A BLPU Extent may be discontinuous or have “holes” in it, and is represented by one or more polygons. BS 7666-2 provides a means for recording these polygons (BLPU Extent Polygons). An alternative way of recording extents is by use of external cross-references to topographic datasets. This has the advantage of reducing the complex task of maintenance of the data and is preferable where applicable (i.e. where the BLPU is identified as an object in the topographic dataset).

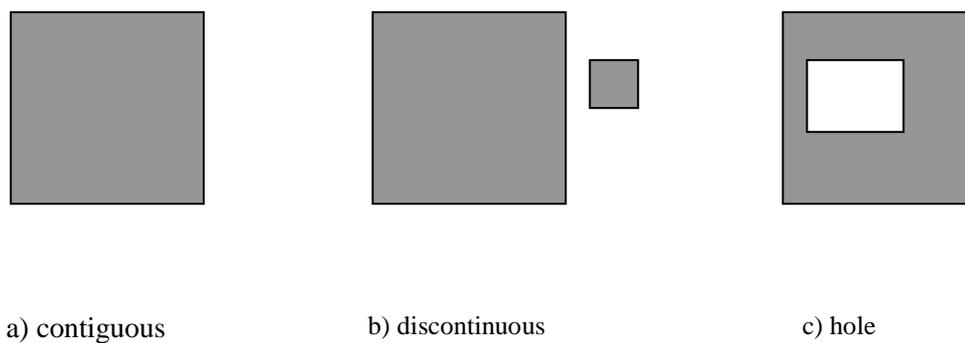


Figure 1. Types of BLPU extent

BLPU Provenances are the “world views” which determine the extent of the BLPU. The different views may lead to different extents, for example the extent of a residential building may be different from the extent of the land on which it is situated (which may include a garden). The allowable Provenance Codes are shown in Table 3. For some specific purposes it may be necessary to introduce additional provenance codes. Where this occurs, the additional Provenance Codes should be recorded in the metadata. An example of this would be a major land owner or user who wanted to define BLPUs subject to their jurisdiction.

Table 3 Provenance codes

BLPU provenance	BLPU provenance code	BLPU provenance description	Example of BLPU
Registered land title	T	Title registered by a land registry	residential property
Unregistered land title	L	Title deeds or similar (but not registered)	farm land
Formal tenancy agreement	F	Subject of formal tenancy agreement	rented or leased residential property
Rental agreement	R	Subject of rental agreement	sub-unit of a large office block
Physical features	P	Defined by physical extent	land parcel bounded by a fence
Occupancy	O	Defined by identified occupancy	local authority department
Use	U	Defined by established use	public space

3.5 Multi-lingual gazetteers

BS 7666 now contains explicit provision for multi-lingual entries². In a multi-lingual gazetteer, a record may have multiple LPs, each in a different language. A code identifies the particular language used. These codes are listed in Table C.3 in Annex C of BS 7666-2.

It is not possible to mix languages in an LPI. However a Welsh language descriptive identifier may contain elements in English, and vice-versa. Ordering of LPs is not important.

The languages used in addition to English should be recorded in the metadata (see 3.6), together with any additional character sets used. Where the gazetteer is mono-lingual, nothing extra need be done, as the language is assumed to be English.

² In previous editions of the Standard, multi-lingual entries could be recorded through the use of the 'alias' facility. Now, the explicit provision for multi-lingual entries enables Welsh implementations to meet local requirements.

3.6 Gazetteer Metadata

3.6.1 Requirements

The recording of metadata is a new requirement in the revised edition of BS 7666-2. The purpose of this is to provide users and potential users with information about the gazetteer. This metadata should be supplied with the gazetteer.

3.6.2 Mandatory elements

The mandatory metadata elements are as follows:

- a) **Name:** of the gazetteer, e.g. ‘Borsetshire County Council Land and Property Gazetteer’;
- b) **Scope:** see 3.1;
- c) **Territory of use:** the geographic domain of the gazetteer, e.g. ‘Borsetshire’;
- d) **Gazetteer owner:** with overall responsibility, e.g. ‘Borsetshire County Council’;
- e) **Custodian:** the practitioner who compiles the gazetteer, e.g. ‘the Borsetshire Land and Property Gazetteer Custodian’;
- f) **Coordinate system:** this will usually be the National Grid (NG) of Great Britain, or Irish Transverse Mercator (ITM);
- g) **Current date:** the date at which the gazetteer can be considered to be current (not the date of last update of the data).

These are described in more detail in Clause 5 of BS 7666-2.

3.6.3 Optional elements

The following metadata elements are optional. They should be recorded where they are applicable.

- a) **Coordinate axis units:** this will usually be ‘metres’;
- b) **Metadata date:** when the metadata was last updated (not the date at which it is deemed to be current);
- c) **BLPU classification scheme:** where one is used, details should be given (see 3.2.3);
- d) **State coding scheme:** where one is used, details should be given;
- e) **Language(s):** any languages other than English that are used should be recorded, e.g. ‘CYM’;
- f) **Character set(s):** any character sets other than English that are used should be recorded, e.g. "UNICODE UTF-8 character set" to support the full Welsh language;
- g) **External cross-referencing scheme(s):** If external cross-references are included in the gazetteer, the scheme should be recorded, e.g. ‘Ordnance Survey TOIDs’.

These are described in more detail in Clause 5 of BS 7666-2.

3.6.4 Creation and maintenance

It is recommended that the metadata is collected as part of the gazetteer creation process. This requires little additional effort, and may aid the understanding of the creation process. The metadata should be kept up to date as part of the data maintenance process. Additional metadata elements may be recorded as required.

3.7 Data quality

The Standard specifies a requirement for a data quality report. This is an assessment of the quality of the data in terms of the following:

- Lineage
- Currency
- Positional accuracy
- Attribute accuracy
- Completeness
- Logical consistency

These general aspects are discussed in detail in Section 3 of these Guidelines. Additional specific guidance for land and property gazetteers is given in **4.6** of this section of the Guidelines.

4. Recommended approach

4.1 Planning and initiation

4.1.1 Scope

Before starting a gazetteer implementation, it is necessary to define the scope of the gazetteer. The scope is described in **3.1**. It should state what is to be included in the gazetteer, and what is not included, including the level of detail. Note that only objects that are BLPUs should be contained in a land and property gazetteer.

4.1.2 Data specification

Any gazetteer implementation should have a data specification. BS 7666-2 defines a general structure for a land and property gazetteer, and allows many options. It does not define the detail of the content of the gazetteer. As part of any implementation, it is necessary to specify in detail the data to be included. This should include the following:

- **Description of the details of the implementation of the Standard:** definition of the data structures to be used, including referencing schemes (e.g. unique property reference numbers) and BLPU classifications;
- **Identification of attributes of each entity:** for BLPUs and LPIs, the attributes need to be defined, including whether attributes identified in BS 7666-2 as optional are to be included, and if so the rules for their inclusion, any additional attributes to be recorded, field lengths and domains (allowable values);

- **Links to other datasets:** any cross-references to other datasets, and how they are to be established;
- **Rules for inclusion of instances of BLPUs:** in particular how they are identified and referenced;
- **Identification of the source of the data:** a process needs to be established to collect the data. It should include the creation of new instances including how they are referenced, for example the process of street naming.

4.1.3 Acceptable quality levels

BS 7666 does not specify acceptable quality levels (AQLs), threshold values applied to the results of testing data quality to determine whether the data meets criteria determined from the data specification. These need to be established as part of the gazetteer implementation. In setting AQLs, the user and usage of the gazetteer should always be borne in mind. AQLs are discussed in 4.2 of Section 3 of these Guidelines.

4.2 Identification of BLPUs

A fundamental issue in the building of a gazetteer is identification of a BLPU. A BLPU is defined in BS 7666 as an “area of land, property or structure of fixed location having uniform occupation, ownership and function”. This is intended to include most objects that can be referenced by means of an address (i.e. are an addressable object). The structure of the addressable object name into primary and secondary addressable object names (see 3.3.2) implies that that BLPU should not be broken down excessively in the land and property gazetteer, i.e. should not go beyond one level of decomposition of an identifiable object. Further decompositions are often better recorded in other ways, for example in a GIS.

Examples of BLPUs

The following could be BLPUs:

- building (residential, commercial or public)
- land on which a building is situated
- land parcel
- block of flats
- individual residential unit within a block (e.g. a flat)
- business premises
- office block
- office within a block
- public hall
- sports facility
- school
- church
- cemetery
- park
- theatre, cinema etc
- car park
- significant monument

The following general guidelines apply to BLPU identification:

- In general, a geographic object is **likely** to be a BLPU if any of the following are true:
 - it has a street address (in the everyday sense), i.e. has a number or name that enables it to be located on a street;
 - it is commonly referred to in its own right (e.g. a recreation or leisure facility);
 - it is a piece of land on which events do or will take place (e.g. a field, development site).
- A geographic object is **unlikely** to be a BLPU if any of the following are true:
 - it cannot be readily identified in the real world through a simple address or description (e.g. an individual parking place, street furniture);
 - it is only identifiable by reference to two or more ‘parent’ objects, i.e. it is a sub-division of a sub-division (e.g. a kiosk, an ATM or advertising hoarding, for which the BLPU is likely to be the building to which they are attached);
 - it is transient (e.g. a market stall, recycling point).
- Pieces of equipment are not BLPU, rather the site or kiosk at which they are situated is the relevant BLPU, e.g. for telecommunications masts, the BLPU is likely to be the enclosure rather than the mast itself.

4.3 Creating Land and Property Identifiers

The main issue in creating Land and Property Identifiers (LPIs) is how to create an address, i.e. object name and spatial reference. Addressable object names comprises a primary addressable object name (PAON) and, optionally, a secondary object name (SAON), as described in 3.3.2. Where possible, the object name should comprise only a PAON. Where it is necessary to use a SAON (i.e. where the BLPU can only be identified by reference to a SAO), then it is essential that the PAO is created first.

Examples of addressable object names	
Secondary Addressable Object Name	Primary Addressable Object Name
	42
10	Albert Mansions
3	Railway Terrace ³
Flat 6	436
Chemists shop	Tesco
Ticket Office	Victoria Station
Intelligent Addressing	Ivybridge House

³ where Railway Terrace is a group of properties, not a street.

As stated in 3.3.3, the Spatial Reference of the BLPU is a street reference, in the form of either the unique street reference number (USRN) of the street, as recorded in a street gazetteer, or a descriptive identifier for the street, comprising the street name and sufficient of locality, town and administrative area to create a unique identifier for the street as defined in BS 7666-1.

The street is the one that provides access to the BLPU, or is the last street on a route providing access to the BLPU, where no street provides direct access to the BLPU. Note that this street:

- will not necessary be the one closest to the BLPU (which may not provide access);
- may stop some way short of the BLPU (for example in remote areas).

4.4 Linking to other datasets

The UPRN is designed to be used for referencing the BLPU in other systems as well as the Land and Property Gazetteer. In addition, the Standard explicitly allows other links between BLPU records in the gazetteer and other datasets. How this is implemented will depend on the form of the other dataset and the nature of the corresponding related object. The linkage will be geographical in nature, but the other object does not have to correspond exactly or be exactly coincident spatially. The relationships may involve time as well as space.

In all cases, the link will take the form of the identifier or identifiers of the related object or objects in the other dataset being recorded in the gazetteer. The nature of the relationship and the dataset to which the data is cross-referenced should be identified in the metadata (see 3.6). This relationship need not be one-to-one (i.e. an object in one dataset may be related to more than one object in the other dataset, and the two objects may not correspond exactly). The corresponding object in the other dataset is identified by the appropriate identifier or identifiers (where the object is made up of several smaller ones). Examples of this would be the property reference number in another system, or a set of Ordnance Survey TOIDs defining the BLPU extent.

4.5 Data maintenance

A land and property gazetteer is not a static dataset, but a continually changing description of a set of real-world objects. Consequently, it is essential that a maintenance regime is established. There are three main stages in the life-cycle of a land and property record in the gazetteer, creation, change and closure. Different procedures are required for each.

- **Creation:** a business process needs to be devised to identify new instances of BLPUs, and to collect the necessary data about them. This will involve some level of interaction with the life-cycle of the BLPU, including with the development control function. It will need to be decided at what point in the life-cycle a new development is entered into the gazetteer.
- **Change:** change to a gazetteer record can occur for many reasons. They essentially fall into two categories, those representing real-world change, and those due to correction of data or insertion of missing data. The changes

should include the date information. The UPRN is not changed. The metadata will need to be updated at regular intervals.

- **Closure:** a BLPU ceases to exist in the gazetteer when it is either physically demolished, or it ceases to exist as a named entity (e.g. where it is merged into another BLPU). The gazetteer record for this instance is amended to change its state, and to input a value for the end date. Historic records should not be deleted, as they may still be of interest, but may be archived.

The following general rules apply:

- **BLPU subdivision:**
 - When a BLPU is subdivided, at least one new BLPU (which may be a Secondary Addressable Object) is created. The old BLPU should be retained, with changed data, if it is substantially the same, either physically, or in terms of its address.
- **Merging of BLPUs:**
 - A new BLPU is created with a new LPI, and the old ones are closed.
- **Changes to the address** (e.g. change in name of a property, or the postcode):
 - A new LPI is created, and the old one is given an end date and has its status changed to 'historic'.
- **Change to the function of the BLPU** (e.g. from commercial to residential)
 - The BLPU record is updated, with a new BLPU Classification. The LPI may be changed.

4.6 Data quality

4.6.1 Requirements

BS 7666-2 specifies a requirement for a data quality report. This is an assessment of the quality of the data in terms of the following:

- Lineage
- Currency
- Positional accuracy
- Attribute accuracy
- Completeness
- Logical consistency

The data quality report should contain details of any tests carried out, including the test methods, the date of the test, the name of the tester and details of any source material or other information used. Where tests are carried out on samples of the data, these should be chosen at random, and the method of generation of the sample recorded. The general aspects of reporting data quality are discussed in Section 3 of these Guidelines. This section provides some additional specific guidance for land and property gazetteers.

4.6.2 Lineage

The lineage statement should describe how the gazetteer was created and how it is updated. This should include details of the processes and the sources of information.

4.6.3 Currency

The currency statement should describe the date at which the data was considered to be current. Tests should be carried out to check if this is actually so, as it may be that in certain areas, updates have not been carried out. Where this is the case, it should be recorded in the quality report.

4.6.4 Positional accuracy

Detailed positional accuracy checks can only be carried out on samples of the data, comparing the coordinate of the representative point for the BLPU with a true position as defined on a map, or by GPS survey. However, simple checks of coordinates can be carried out to establish whether the points are within the geographic extent of the gazetteer, and the locale of the various spatial units (administrative area, town, locality) identified in the spatial reference.

4.6.5 Attribute accuracy

It is not generally possible to test the accuracy of all attributes. However, some key attributes should be checked on a sample basis, especially the object names and other key identifiers. It is also possible to test attributes for valid values. In particular, the following should be tested:

- any identifier, such as a cross-reference, to confirm that it exists;
- dates as being within pre-defined ranges;
- codes have valid values from code lists.

4.6.6 Completeness

Completeness errors can be of omission (missing items) or commission (additional items). The following should be checked and reported on:

- whether all BLPUs have been included (testing for this is probably best done on a sample area);
- whether there are any duplicate BLPUs;
- that all BLPUs have LPIs;
- that all mandatory attributes of BLPUs and LPIs have values.

4.6.7 Logical consistency

The particular aspects of logical consistency that are important for a land and property gazetteer are as follows:

- BLPUs recorded in the gazetteer are actually BLPUs as defined by the gazetteer scope;
- UPRNs and object names are unique;
- for every Secondary Addressable Object, there is a Primary Addressable Object;
- every BLPU has at least one LPI;

- for every LPI, there is a BLPU;
- attributes are in the prescribed format;
- attribute values are consistent with the domain set out in the data specification;
- dates are consistent with respect to each other (e.g. end date is not after start date).

4.6.8 Quality management and Quality improvement

It is essential that a formal quality management system is introduced for the gazetteer creation and maintenance process. A simple flow model of gazetteer creation and maintenance is given in Section 3 of these Guidelines. Built into this scheme should be the maintenance and improvement of the quality of the data. Users will be looking for continuing improvements in data and this means that there will be a requirement for further quality improvement. To achieve this there will need to be a mechanism for:

- feeding back and acting on errors found in the data;
- feeding back on improvement to processes by operators of those processes;
- learning and applying lessons from the use of current processes;
- managing change whether to the data specification or the acceptable quality levels (AQLs).

5. Common misunderstandings and errors

Because of the nature of land and property gazetteers, certain types of errors tend to be prevalent. Many of these errors can be overcome by a more rigorous approach to managing quality. These errors include the following:

- Objects being entered into a land and property gazetteer which are not BLPU, such as street furniture, attachments to buildings (e.g. ATMs, advertising hoardings), virtual objects (e.g. parking places, planning applications⁴). Those objects are better held in a GIS;
- Duplicate entries, often with slightly different data – for example the same BLPU held more than once with different LPIs (e.g. object name of ‘Flat 1’ and ‘Ground floor flat’);
- Excessive sub-division of BLPU adding little or no value for the user and complicating the maintenance of the gazetteer;
- Street references that do not exist,
- Street references that reference non-streets (e.g. waterways and railways).

⁴ The site to which a planning application applies is the BLPU.

6. Conformance issues

Annex A of BS 7666-2 defines a set of conformance levels for a land and property gazetteer. To claim conformance to the Standard, it is necessary to demonstrate that a gazetteer fulfils all the requirements outlined in the conformance statement. Such claims should be independently verifiable.

Essentially, a land and property gazetteer must have:

- a record of all BLPUs within the scope of the gazetteer;
- all the mandatory attributes for each BLPU record;
- at least one LPI for each BLPU;
- all the mandatory attributes for each LPI;
- gazetteer metadata;
- a quality report.