



**British  
Geological Survey**

NATURAL ENVIRONMENT RESEARCH COUNCIL

# Procedures for digital capture of MHLG minerals planning permission information

Economic Minerals Programme

Internal Report IR/06/52



BRITISH GEOLOGICAL SURVEY

ECONOMIC MINERALS PROGRAMME

INTERNAL REPORT IR/06/52

# Procedures for digital capture of MHLG minerals planning permission information

S F Hobbs

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# Summary

This report describes the procedures that have been established for the digital capture of mineral planning permission polygons and associated data on historic MHLG (Ministry of Housing and Local Government) maps and cards, so that they may be incorporated into an Oracle database and ArcGis system as part of the MODSS (Mineral Oriented Decision Support Systems) project.

The preparation of documented procedures is an essential part of the project quality assurance scheme and will allow any member of the project team to adopt standardised working practices over the duration of the project. The documentation held in this report may also be utilised by other similar projects in the future.

# 1 Introduction

The MODSS project aim is to develop GIS-oriented decision support products and services based on data, expertise and experience developed over the past 5-10 years through the Economic Minerals Programme commissioned research (CR) and science budget projects (particularly Mineral Resource Information for National Regional & Local Planning Maps and Sustainable Mineral Solutions). These systems will have applications to a wide range of markets and will have synergies with other data and expert system products within BGS. One of the barriers to the take up of Minerals GIS products is that we do not at present have national coverage of key datasets. Investment in Minerals GIS systems has been relatively modest over the years. Several attempts have been made to attract CR funding and these have met with variable success. Many CR projects have fed data into the Minerals GIS, and we have won CR contracts on the basis of Minerals GIS development. Accelerated GIS decision support system development at this stage should underpin future work and enhance our ability to attract future CR.

The first step of the MODSS project will be the creation of an all-England database of mineral planning permissions based on post-1947 MHLG historic non-digital data. Planning permission polygons will be held in ArcGIS with associated attribute data held in an existing ORACLE database. Later stages of the project will involve addition of further information from alternative sources and will be carried out on a region-by-region basis. This national data set will then be integrated with other data sets to develop a range of decision support products and services.

This report describes the procedures that have been developed to digitally capture and attribute, over the next three years, all underground and surface planning permission and worked-ground information held on the MHLG maps/cards.

## 1.1 STATUS OF MHLG MINERALS PLANNING PERMISSON INFORMATION

Between 2001 and 2003 BGS received approximately 1400 1:25K paper maps and associated card index from the Office of the Deputy Prime Minister. The maps, originally compiled by the then Ministry of Housing and Local Government contained hand drawn boundaries for permitted, withdrawn and refused mineral planning permissions, and worked ground. The maps show information collated from the 1930s to the 1980s. The index cards provide supplementary information regarding name, operator, dates and relevant Mineral Planning Authority. Examples of the maps, legends and index cards are shown below.



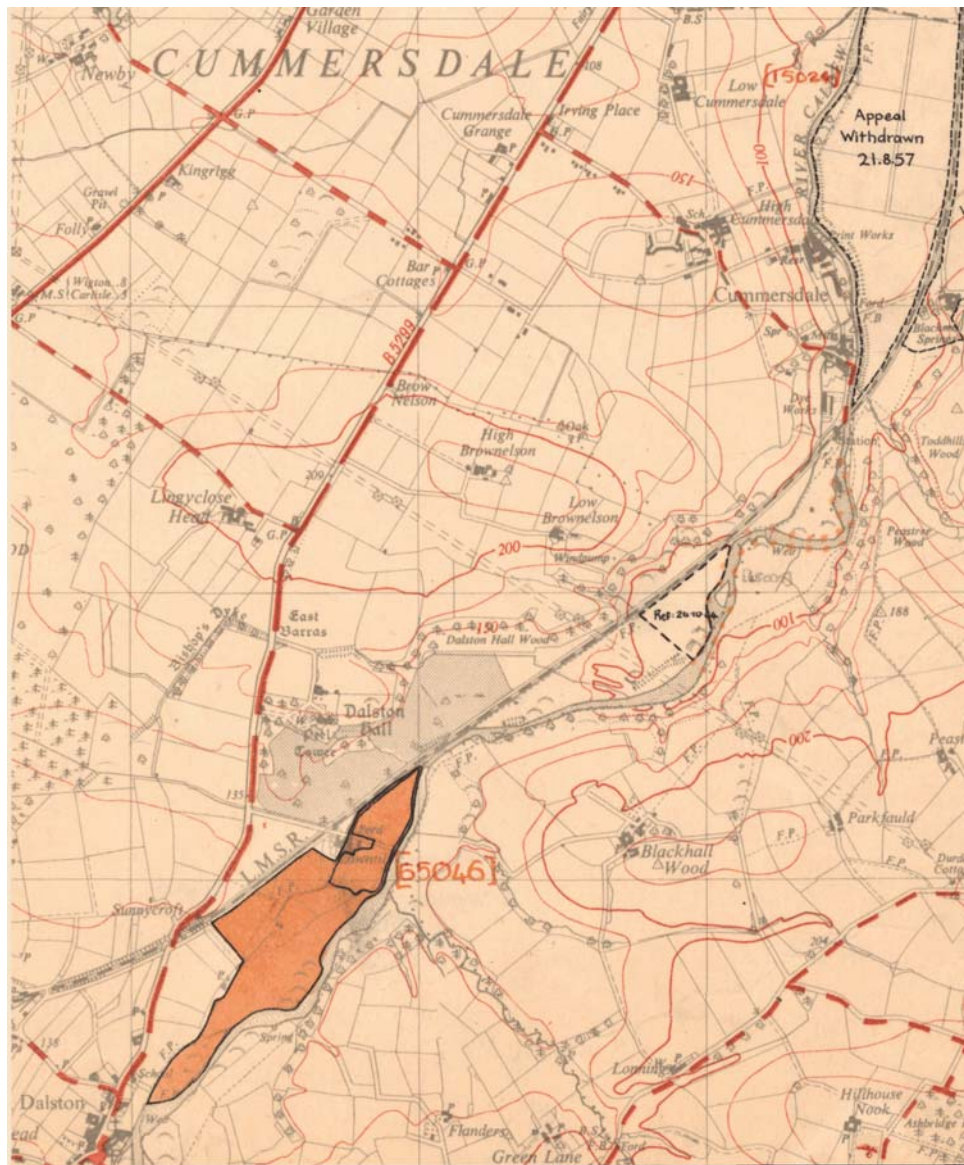


Figure 1 Section of MHLG map

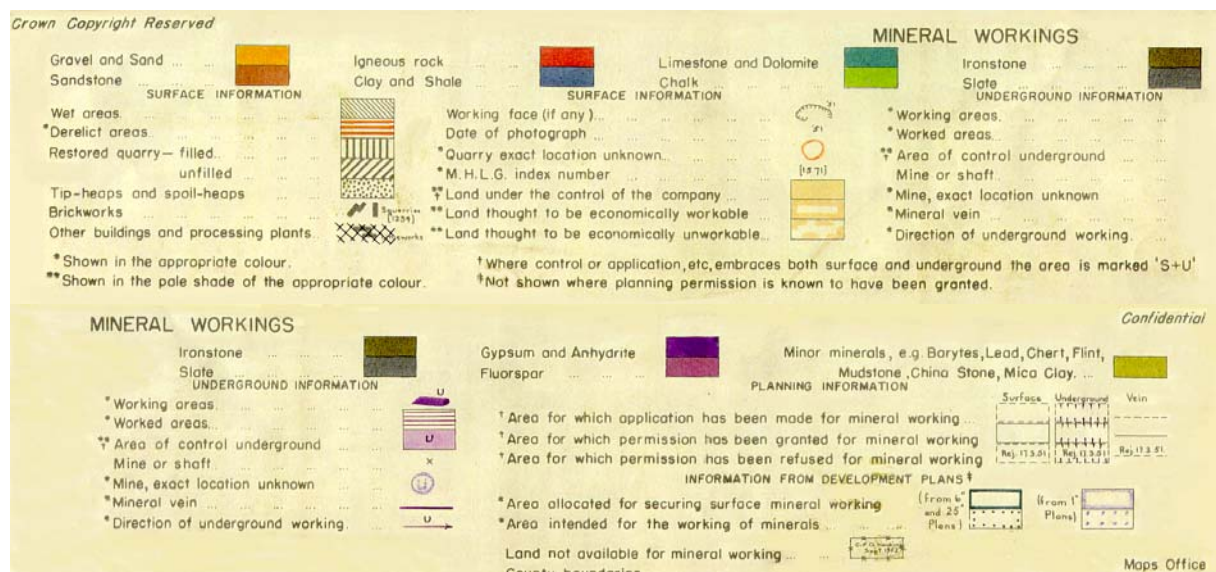


Figure 2 Legend of MHLG map



E 33 755	65046	Reg. 1	Product Sand & Gravel
N 55 075		Co. <u>Cumbria</u>	Geology
Producer & Corres. Address 1. Carlisle Sand & Gravel Co Ltd 2. Robert Liddle Ltd. 47 Nelson St, Carlisle 3. Seymour Bros. (Stanley) Ltd. 47, Nelson Street Carlisle		L.A. Name & Site Address Low Mill, Dalton	Air Photo : S
			1" G.S. Sheet
Year	Output	Year	Output
1959	9,130 c.yds		
1960	7,885 ..		
1	18,390 ..		
2	8,650 ..		
3	9,308 ..		
		Notes Opened 1950 by R. Liddle Ltd Changed hands 1961	

S 84084/6/5747 2m 3/61 DL

Permission area taken from inf. - file APP/1938<sup>14</sup>/A/84630  
 which refers to pit [64073] on 35/55. (Mapped in crayon from  
 1" plan)

M/658/BV/1

Application by A. Braithwaite & Co. withdrawn 17/3/53 after many  
 objections. Covered whole area. (No 87 on schedule).

Permission granted for northern area at 379512 on 19/11/56  
 to Carlisle Sand & Gravel Co. No waste discharge to river. Limited  
 by railway + buildings. Estimated 20,000 tons/yr. Wet pit. (No 74 on list)

Permission granted to Robert Liddle Ltd 16/10/61 for whole  
 area. Later river bank damage was blamed on workings.  
 Some conditions (re tipping) not met with. (No 59 on list)

Figure 3 MHLG index card (front & back)

## 2 Procedures and Work Flow

### 2.1 SUMMARY OF WORKFLOW

The chart below shows the flow of work and the areas of responsibility for each group involved.

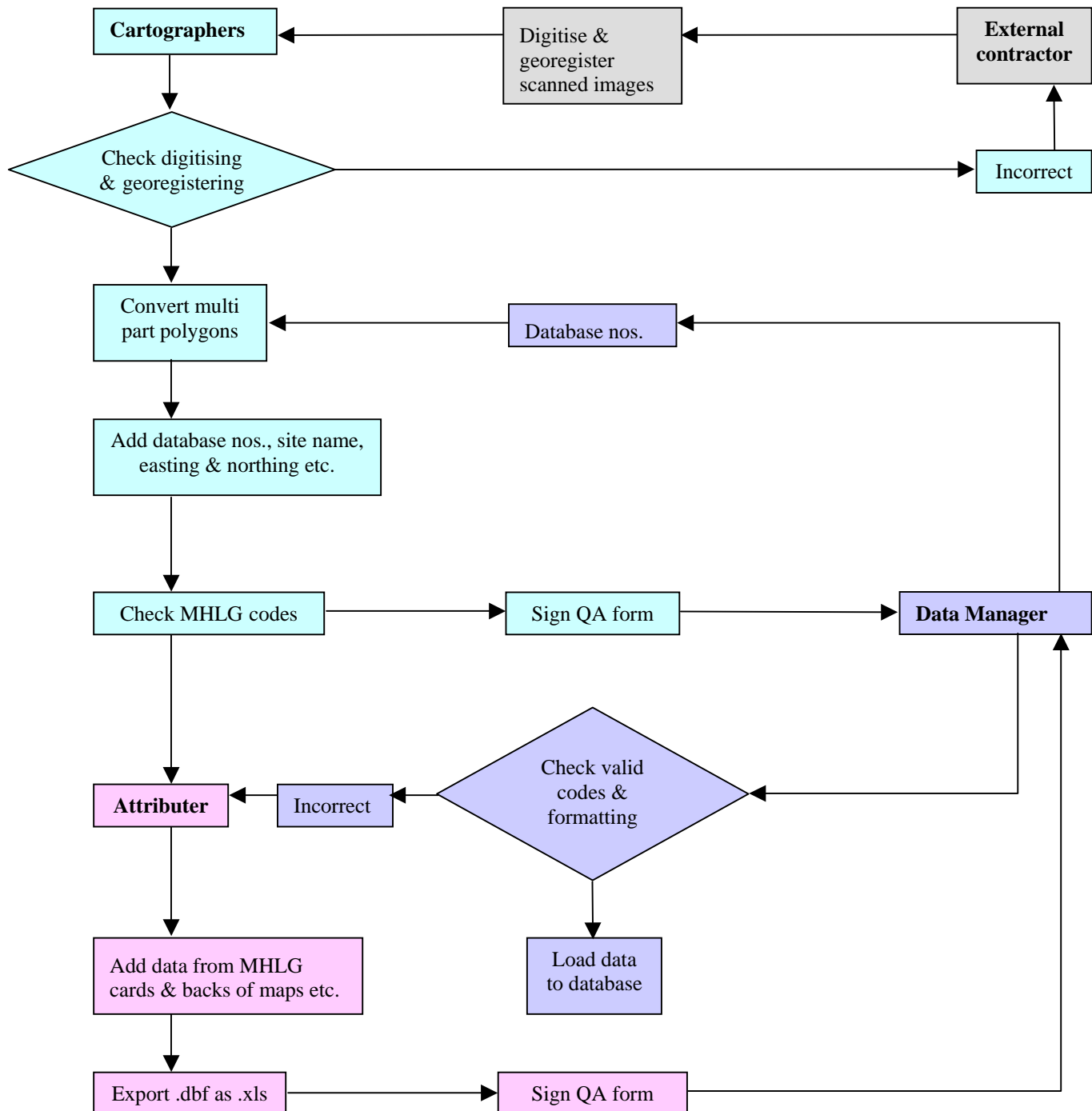


Figure 4 Summary of workflow

## 2.2 CARTOGRAPHERS

### 2.2.1 Procedures for attributing planning permission polygons in ArcView

BGS Cartographic Staff should follow the following steps for data entry into ArcView of the basic information on each planning permission polygon. The order of the map sheets and the 100km squares will be decided by discussion between Economic Minerals (EM) staff and Roger Parnaby. Start in the SW corner and progress eastwards so that there is a regular progression across the 100km square.

1. Receive from Landmark CDs of georegistered .tif and .shp files.
2. Roger Parnaby and Niall Spencer load MHLG Sheet .tif and .shp files from CD to the folder *S:\Scans\Maps\MHLGTifOriginal* on the SAN.
3. Check map registration and quality of digitising. Reject if incorrect and return to Landmark.
4. Create QA form with MHLG Sheet numbers (*e.g. SA10NW*) for each CD.
5. Obtain a range of unique Database Link Numbers from Sue Hobbs.
6. Pass QA form to Cartographer.
7. Open .tif and .shp file in ArcView.
8. Run XTools to convert multipart polygons to single part.
9. Select the first polygon starting in the SW corner.
10. Check MHLG Reference ID for that polygon (*e.g. MK/374/78*).
11. Add Plan\_Database Number to .dbf Table.
12. Add Site Name, if shown on map.
13. Add Easting and Northing of centre of polygon.
14. Repeat steps 9-13 until every polygon has been attributed. Save at regular intervals.
15. Open .dbf table and check that all polygons have been attributed.
16. Save the shapefile to *W:\EM\SustMineralSolutions\DATA\MODSS\Archive* folder on the Server.
17. Sign the QA form with your Name, and Date alongside the MHLG Sheet number.
18. Repeat steps 7-17 for each MHLG Map sheet.
19. Pass QA form to Roger Parnaby for final checking and signing off.
20. QA form passed to Sue Hobbs for CDs that have been finished.

### **2.2.2 Notes**

1. Report any problems to Roger Parnaby, Don Cameron or Sue Hobbs.

## 2.3 ATTRIBUTERS

Digitised and checked data from the drawing office is placed in *W:\EM\SustMineralSolutions\DATA\MODSS\Archive* folder on SAN.

Collect QC forms for the 100k sq you are to work on from Sue Hobbs.

### 2.3.1 Preparation of ArcGIS project and importing data


Copy the shapefiles for the 100k area you have been allocated from the appropriate 100k folder on the SAN under *W:\EM\SustMineralSolutions\DATA\MODSS\Archive* e.g. *se\_100k* to the *Annotated\_100K\_Sheets* folder under *W:\EM\SustMineralSolutions\DATA\MODSS\Data*. There are a number of files that make up a shapefile (the files have the same name but different extensions) ranging from three to six depending on the processes that have been carried out on that particular shapefile. Make sure all the associated files for each shapefile are copied. Only use the planning permission files which have the following format ‘\*\*\*\**pper*’ where the ‘\*\*\*\*’ is the 100K label e.g. *SE\_100pper* (some of the earlier 100k areas may have the file name in the format ‘\*\*\*\**PPer\_Poly*’ again where ‘\*\*\*\*’ is the 100K label, these should be renamed to produce the same file format as described below). Rename each of the associated shapefiles by adding “\_join” to the end of the file name e.g. *SE\_100pper\_join*.

Open the *MODSS\_Arc9\_Template.MXD* file under

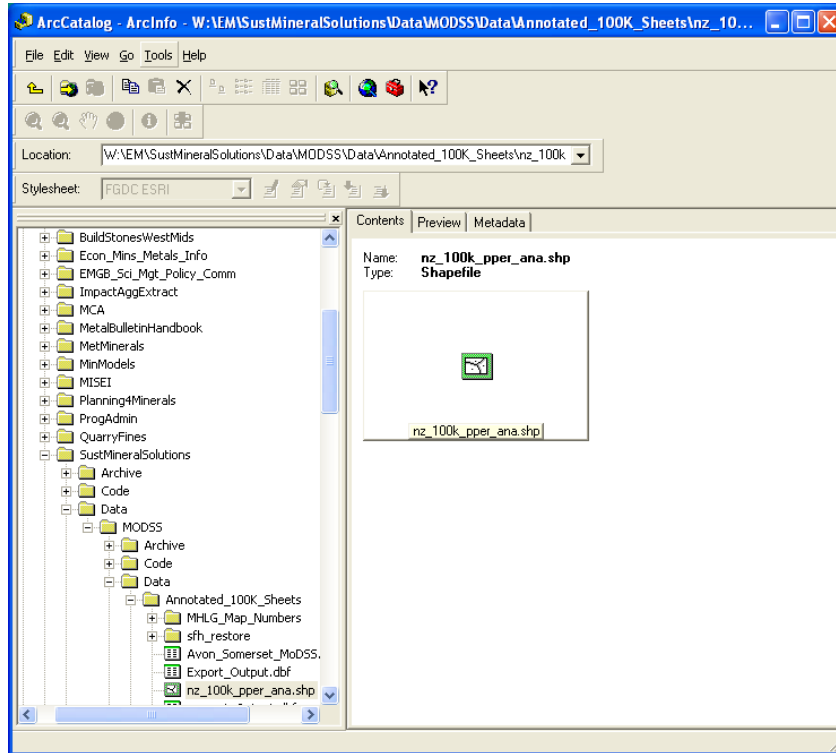
*W:\EM\SustMineralSolutions\DATA\MODSS\Data*, located in the *Apr\_MXD* directory.

Immediately save the project using the 100k square letter code and your initials as the label e.g. *SE\_SFH.mxd* in the *Apr\_MXD* directory.

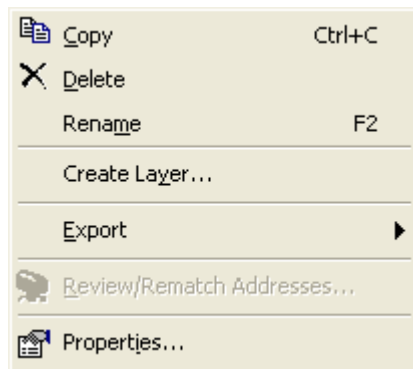
Before importing the shapefiles you will need to apply the National Grid to the shapefile. This is done as follows.


1. Launch *ArcCatalog* by clicking on the button  whilst in *ArcMap*.

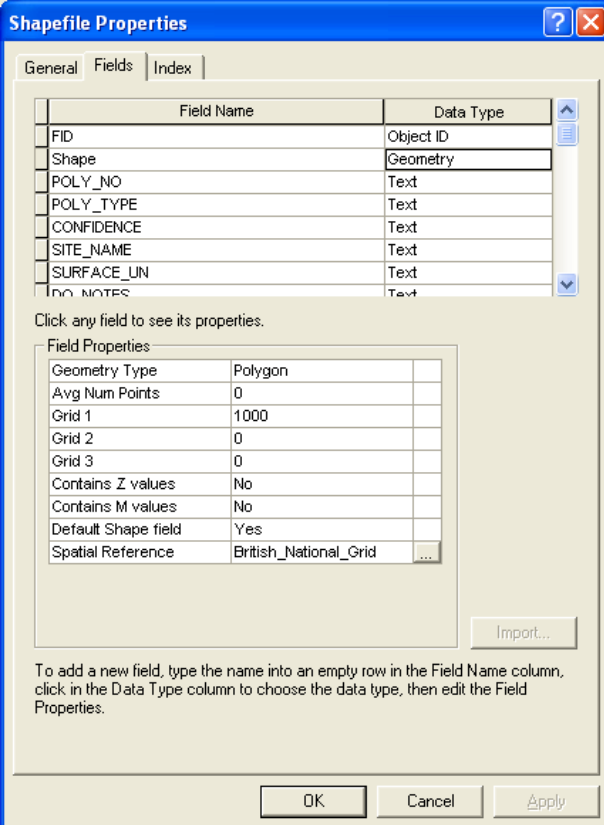
2. Navigate to the shapefile you are to work on and *right mouse click* on it.



3. Select **Properties** and then select the **Shape** field.



4. Select the **Spatial reference unknown** field and then click on the  button next to it.



The Shapefile Properties dialog box is shown with the Fields tab selected. It displays a table of fields and their data types. Below the table is a section for field properties, including Geometry Type, Avg Num Points, Grid 1, Grid 2, Grid 3, Contains Z values, Contains M values, Default Shape field, and Spatial Reference. The Spatial Reference is currently set to British\_National\_Grid. An Import... button is located to the right of the field properties section. At the bottom are OK, Cancel, and Apply buttons.

Field Name	Data Type
FID	Object ID
Shape	Geometry
POLY_NO	Text
POLY_TYPE	Text
CONFIDENCE	Text
SITE_NAME	Text
SURFACE_UN	Text
NO NOTES	Text

Click any field to see its properties.

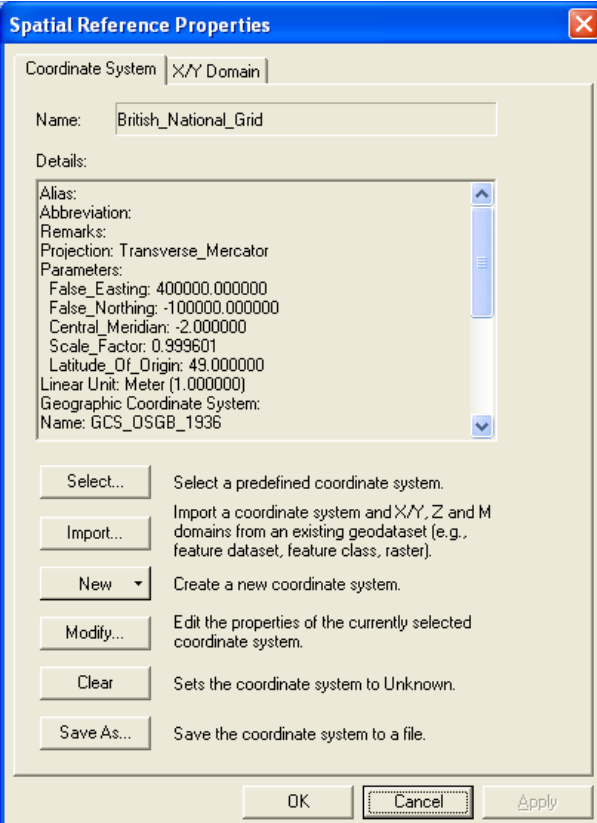
Field Properties	
Geometry Type	Polygon
Avg Num Points	0
Grid 1	1000
Grid 2	0
Grid 3	0
Contains Z values	No
Contains M values	No
Default Shape field	Yes
Spatial Reference	British_National_Grid ...

Import...

To add a new field, type the name into an empty row in the Field Name column, click in the Data Type column to choose the data type, then edit the Field Properties.

OK Cancel Apply

5. Click on the **Select** button.



The Spatial Reference Properties dialog box is shown with the X/Y Domain tab selected. It displays the Name of the coordinate system (British\_National\_Grid) and a list of details including Alias, Abbreviation, Remarks, Projection, Parameters, and Linear Unit. Below the details are buttons for Select..., Import..., New, Modify..., Clear, and Save As..., each with a description of its function. At the bottom are OK, Cancel, and Apply buttons.

Coordinate System X/Y Domain

Name: British\_National\_Grid

Details:

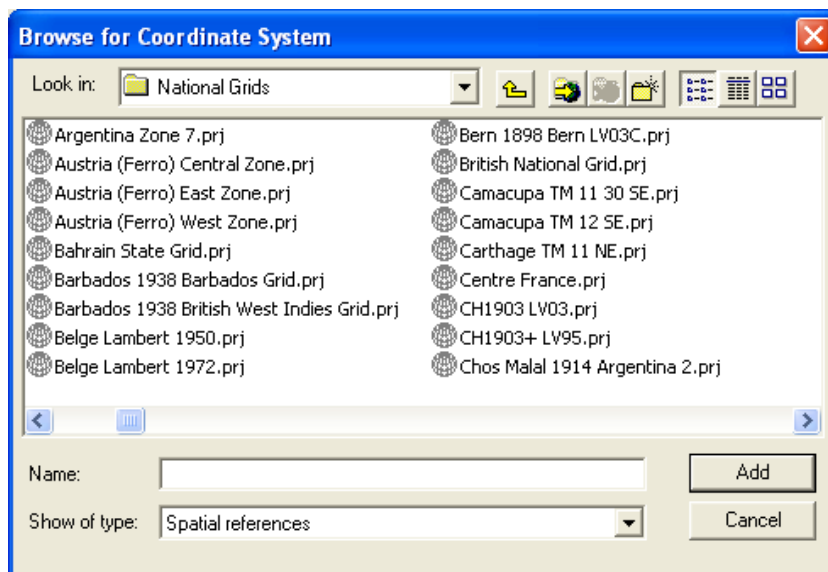
Alias:  
Abbreviation:  
Remarks:  
Projection: Transverse\_Mercator  
Parameters:  
False\_Easting: 400000.000000  
False\_Northing: -100000.000000  
Central\_Meridian: -2.000000  
Scale\_Factor: 0.999601  
Latitude\_Of\_Origin: 49.000000  
Linear Unit: Meter (1.000000)  
Geographic Coordinate System:  
Name: GCS\_OSGB\_1936

Select... Select a predefined coordinate system.  
Import... Import a coordinate system and X/Y, Z and M domains from an existing geodataset (e.g., feature dataset, feature class, raster).  
New Create a new coordinate system.  
Modify... Edit the properties of the currently selected coordinate system.  
Clear Sets the coordinate system to Unknown.  
Save As... Save the coordinate system to a file.

OK Cancel Apply



6. Double click on **Projected coordinate systems, National grids** and then choose **British National Grid**.



7. Click **Ok** all the way back and then close *ArcCatalog*.

Import the appropriate shapefiles from *W:\EM\SustMineralSolutions\DATA\MODSS\Data\Annotated\_100K\_Sheets* for the 100k area into the view, by clicking on **File, Add\_data** and then navigate to the location of the shapefiles.

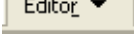
Import the MHLG scans, from *S:\Scans\Maps\MHLGTifOriginal*, into your project, you may not want to import them all at once as it could slow down your computer.

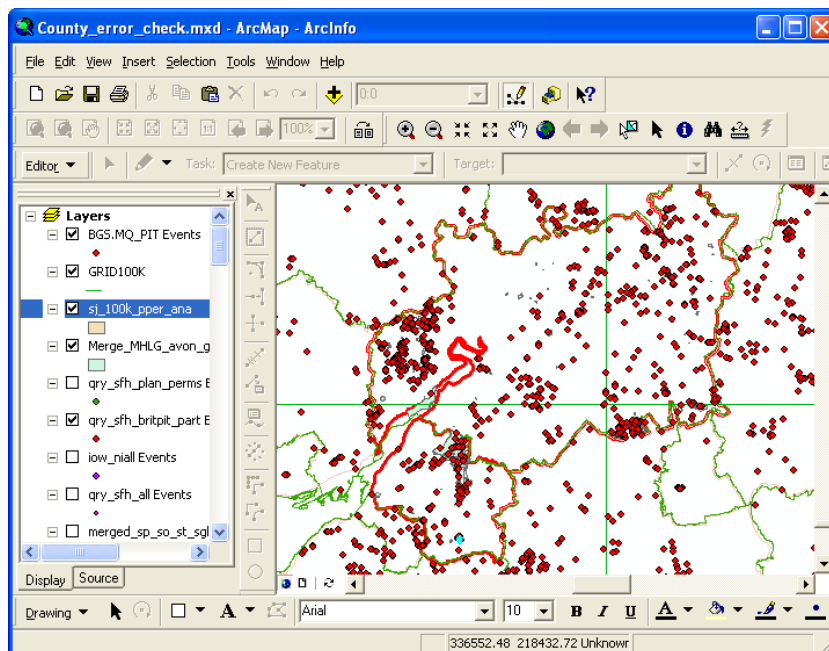
It may be useful to import the **100k** and **10k grid** from *S:\gdi\sysdata\grid10k* along with the **labels** *S:\gdi\gdianno\labelqs*. In this instance click on the corner of the folder until it opens and then select *annotation.labels*. These are useful for working out where you are in the view. The **mpas\_final2** layer, *W\EM\MISE\DATA\Mingis\_Dat\Topographical\Vector\Counties*, should also be imported to the project, as this will make identification of the MPA for each polygon much easier. Just click near the polygon whilst the **mpas\_final2** layer is highlighted using the **Identify** tool and the MPA code along with other information will be displayed. The Britpits Database is already joined to the *MODSS\_Template.MXD*, this may be useful to identify polygons without names as well as providing the Britpit Database number. The “QUICK GUIDE To The Planning Permissions Database” may also be useful (Appendix3).

### 2.3.2 Merging polygons

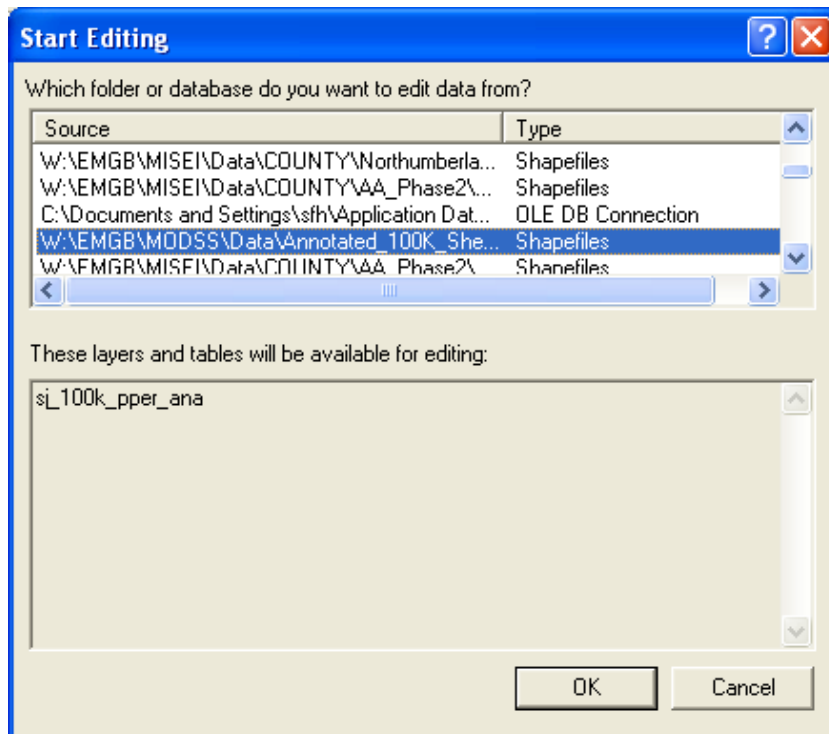
The process of joining polygons across the sheet boundaries should be carried out as systematically as possible. It is, therefore, suggested that all the horizontal boundaries are completed first and then the vertical ones (or the vertical boundaries first and then the horizontal so long as you are consistent) rather than sheet by sheet. It has also been recommended that, by using the graphics tools, a line or some sort of mark is placed across each sheet boundary when it has been checked and/or edited. This will enable you to keep a check of where you are in the block as this process of joining polygons could take a few days depending on the number of polygons. As polygons are merged together some of the **Plan\_database\_numbers** will be discarded, please make a note as you go along as to which ones are lost on the back of Attribution document (Appendix3).

Before starting to edit the data it would be a good idea if only the layer you are working on is editable. Click on the **Selection Menu** and then click on **Set selectable layers**. Click on **Clear all** and then tick the box of the layer that you wish to make editable.

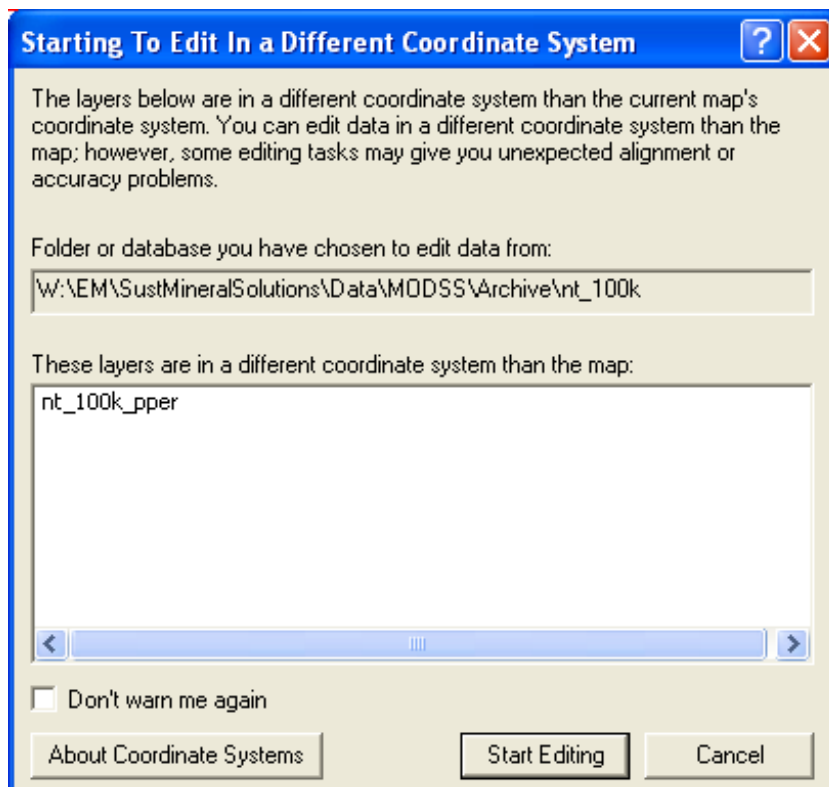
1. Click on the Editor button  and select Start Editing.



2. Click on the folder, which contains the 100k shapefile, which you want to edit e.g. *W:\EM\SustMineralSolutions\DATA\MODSS\Data\Annotated\_100K\_Sheets*.





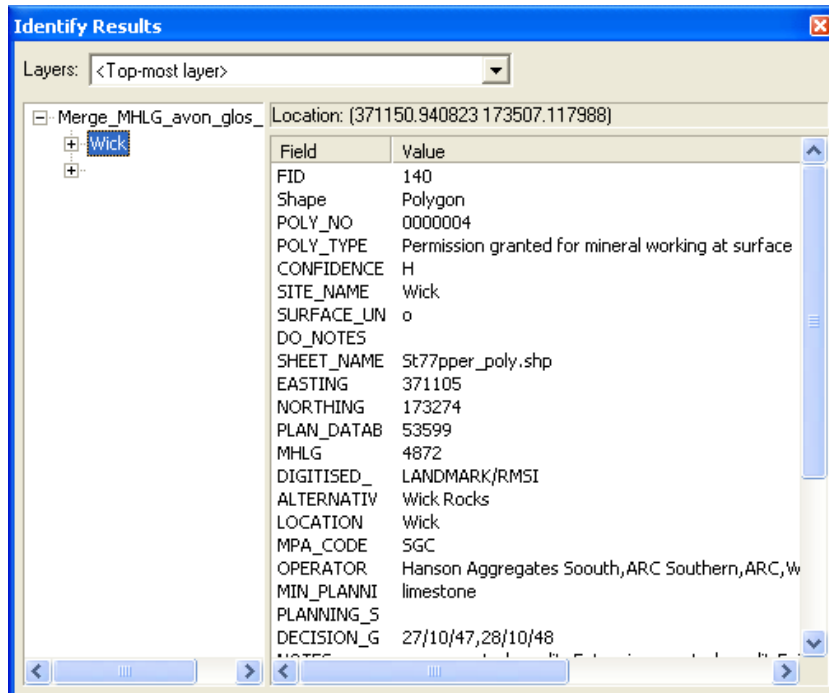
3. Click **Ok**.
4. If a window pops up that tells you one layer is in a different coordinate system just press start editing so long as it isn't the layer you are working on. If it is the layer you are working on, it just means that coordinates haven't been defined in the projection file (.prj). See section 3.1 above on how to do this.



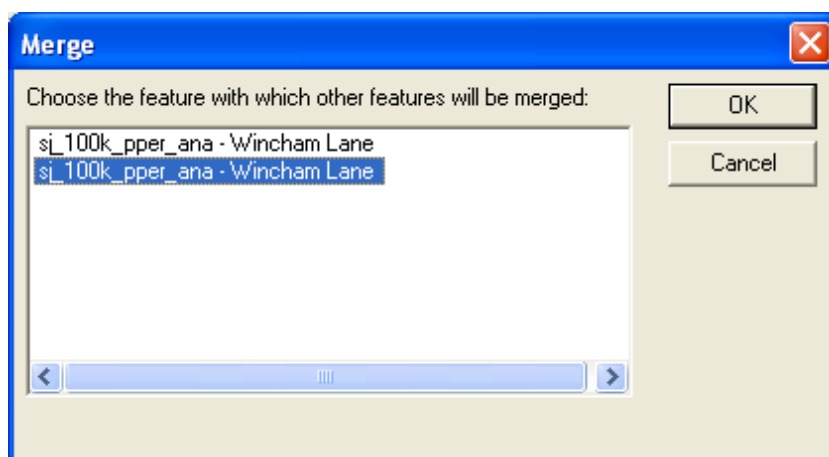
5. Before merging two or more polygons ensure that there is some physical overlap between them. If there isn't, one or more of the polygons will have to be edited to

create an overlap otherwise a multi polygon will result leading to problems within the database.

6. Using the **Edit** tool , select one polygon, hold down the shift key and select all other polygons to be merged to it.
7. Select the **Identify** tool  and check each polygon to make sure they are the same and therefore should be merged by examining the data in the **Identify Results** box (e.g. same MHLG number). If they are, close the **Identify Results** box and click on the **Editor** button, select the **merge** option.



8. Choose which of the polygons is to be used for its field contents. If they are all the same select the largest polygon, making a note of the **Plan\_database\_numbers** that will be discarded. As you click on the options in the merged box the associated polygon will momentarily be highlighted, this should aid you in making your selection.



9. Click Ok

10. Once you have finished joining all the polygons along the internal boundaries, make a copy of the layer and rename it as follows e.g. *SE\_100pper\_ana*. Record the date you completed the merging of the polygons on the QC form.

### 2.3.3 Editing attribute table and adding extra fields

Use the information from the MHLG cards (located in D102) and the backs of the MHLG Maps (located in the Records room in N Block) to populate the extra fields. Make sure all paper records are signed in and out as more than one person may wish to use a particular set of data and this will aid finding it.

1. Open Attributes Table and add the following fields if not already present, **Britpit\_Database\_Number** and **Operational\_Status**.
2. For each polygon add any additional MHLG numbers to **MHLG** field, separated by commas. Check the MHLG number that has already been entered to ensure it is the right one. Not all polygons will have MHLG numbers. If a polygon has an inappropriate MHLG number, delete the MHLG number even if there is nothing else that is suitable.
3. Enter either the code for opencast (o) or underground (u), which ever is appropriate, in the **Surface\_Underground** field if not already done.
4. If there isn't a **Site\_Name** present, enter the name used on the MHLG card or on the MHLG map. If there is no name use the Britpit name if appropriate, failing that use the "Site" address. If there is more than one name put the extra names in the **Alternative\_site\_name**.
5. Enter **Plan\_Status** where it is specifically mentioned on the maps or cards e.g. withdrawn (w) or refused (r). The rest of the **Plan\_Status** field may be automatically populated from the **Poly\_Type** field once the data has been exported into Excel using filters. It may also be possible to do this using an Access update query.
6. Enter the **Britpit\_Database\_Number** where there is a Britpit present along with the **Operational\_Status** and **Operator** (the Britpit Database also lists the current Operator – see below for order in which Operators should be entered). If there isn't a Britpit, some information about the **Operational\_Status** may be obtained from the MHLG card (often on the front, bottom right) such as closed or disused.
7. Enter the appropriate information from the MHLG cards and maps into the **Location**, **MPA\_Code** (see mpas\_final2 above), **Operator** (if there is more than one Operator they should be entered in the following order left to right, 'Current', 'Previous', then 'First'), **Min\_Planning\_Authority\_comm** (product on MHLG cards) and **Decision\_Granted** (date) fields. As you complete each 10k map cross it off on the QC form provided, if there are no polygons on a particular map use a circle to mark it off rather than a cross. List and date all 10k sheets completed for each day.
8. For any polygons that have been missed and therefore need digitising or polygons that need to be split into two or more polygons new **Plan\_database\_numbers** will be required. Please see Sue Hobbs for the next available number. Do not reuse the **Plan\_database\_numbers** discarded during the polygon joining process as these may be needed later for cross-referencing or checking.
9. Once the 100k area is complete, open the *Attributes* table and export the data as a **.dbf** (dBase) file using the **Options** button. Click on **Export**. Navigate to the *Annotated\_100K\_Sheets* folder to save the file and rename – e.g. *ST\_100K\_UPPER\_ANA\_OUTPUT.DBF*.

10. Copy all the shapefiles for your 100k area along with the output file you have just created to your personnel corporate space which will either be on drive N: or U: (to create an easily accessible backup).
11. Open the New output file, stored in the *Annotated\_100K\_Sheets* folder, in Excel and IMMEDIATELY save as an Excel file. DO NOT MAKE ANY OF THE FOLLOWING AMENDMENTS TO THE .DBF FILE, AS DATA MAY BE LOST. Add the following fields if not already present: **Source** (MHLG - default), **Digitised\_by** (LANDMARK/RMSI – default, your initials for any extra polygons that you digitise), **Date\_digitised** (Feb-04 - default), **Altered\_by** (initials), **Entered\_by**, (e.g. ILC,initials) **Date\_entered**, **Panning\_Status\_Code** (use the Quick Guide to the Planning Permissions Database to translate the data recorded in the **Planning\_Status** field – see Appendix 3), **Commodity\_code**, **Digital\_File\_Name** (e.g. St\_100k\_upper\_ana) and **NERC\_Copyright** (for all MHLG records the default is Y). Populate the **Commodity\_code** field from the **Min\_Planning\_Authority\_comm** field. It is recommended that you use the Commodity list in Table 3 of Appendix1 to help with the translation into code. This table contains about 200 commodities whereas the Planning Permissions Database laminated sheet contains a list of only a dozen or so of the most common ones by way of an example. For any Commodity that does not appear in the table, consult with Don Cameron for advice.
12. Make sure all the fields are in the appropriate format e.g. text, number or date. Populate the fields with the information in brackets. In the example above ILC are the initials for Ian L Cook but the initials for whichever member/s of the Drawing Office team carried out the work on the sheet that you are working on should be used. These must be included with your own initials in the **Entered\_by** field, as they have entered some of the data. Save the file and indicate on the QC form the name and location of the file.
13. Once the entire 100k sq has been completed and signed off return the QC forms to Sue Hobbs.

### 2.3.4 Importing data into Planning Permissions database

Import Excel file into the *Plan\_Perm Access database* as a new table, check for duplicate **Plan\_database\_Numbers** and that all fields are populated correctly. If there are any problems return to the attributer to sort out and correct where necessary.

NB Do not import the following fields: **Poly\_no**, **Poly\_type**, **DO\_Notes**, **Confidence**, and **Sheet\_name**.

If the data is Ok add to the BGS\_PLAN\_PERM table using an append query.

Date and stamp QC sheet and record the loaded data in the Minerals Planning Permission Database logbook.

It should be noted that at this stage polygons across the 100k boundaries have not yet been merged. The same procedures can be used to join the 100k boundaries as have been used to do 10k ones, however this probably should not be done until all 100k sheets have been completed.



# Appendix 1

## Useful codes

*The tables below contain extra information that may not be in the lookup tables*

**Table 1 Extra Operational Status Translations**

<b>Operational Status</b>	<b>Code</b>	<b>Translation</b>
Worked out	c	Ceased
Closed	c	Ceased
Disused	c	Ceased
Dormant	d	Inactive

**Table 2 Extra Planning Status Translations**

<b>Planning Status</b>	<b>Code</b>	<b>Translation</b>
Granted	v	Valid
Allocation dropped	w	Withdrawn
Active	v	Valid
Inactive	d	Dormant
Lapsed	e	Expired
Permitted	v	Valid
Revoked	r	Refused
Rejected	r	Refused

**Table 3 Commodity Code Lists**

BGS COMMODITY Code	MIN_PLANNING_AUTHORITY_COMM	Notes
CHA	Limestone	* In areas where there is Chalk, but no Limestone outcrop, check commodity against Geological Map
SAG	Sandstone	*Check Use of Commodity, some sandstones are soft enough for SAG
Commodities which have to be checked		
	Aggregates	* check commodity against Geological Map
	Blockstone	* check commodity against Geological Map
	Borrow Pit	* check commodity against Geological Map
	Building stone	* check commodity against Geological Map
	Common fill	* check commodity against Geological Map
	Dimension Stone	* check commodity against Geological Map
	Excavation	* check commodity against Geological Map
	Exploration	* check commodity against Geological Map
	Fill	* check commodity against Geological Map
	Fill, Borrow Pit	* check commodity against Geological Map
	Filling material	* check commodity against Geological Map
	Freestone	* check commodity against Geological Map
	Mineral(s)	* check commodity against Geological Map
	Others	* check commodity against Geological Map
	Other minerals	* check commodity against Geological Map
	Road stone	* check commodity against Geological Map
	Rock	* check commodity against Geological Map
	Rockery Stone	* check commodity against Geological Map
	Stone	* check commodity against Geological Map
	Underground Mining	* check commodity against Geological Map
	Walling Stone	* check commodity against Geological Map

BGS COMMODITY Code	MIN_PLANNING_AUTHORITY_COMM	Definitions
AG	Silver	Silver ores
ALA	Alabaster	Gypsum used as a decorative stone
ALU	Alum	Aluminium Sulphate, Ammonium Sulphate, Potassium Sulphate mixture used to fix dyes
AMM	Abandoned Mine Methane	Methane derived from the voids of former coal mine workings, mainly methane
ANT	Anhydrite	
AS	Arsenic	
AU	Gold	Gold ores
BAL	Ball Clay	
BAR	Barytes	
BAU	Bauxite	
BFS	Blast Furnace Slag	By-product of iron & steel making, secondary aggregate
BFS	Slag	
CAL	Calcite	
CBM	Coalbed Methane	Methane abstracted from virgin or unworked coal seams using boreholes
CD	Coal Drift	
CD	Coal, Deep	Deep or drift mined coal
CD	Colliery Coal	
CD	Drift Coal	
CD	Drift Mine	
CEL	Celestite	
CHA	Chalk	
CHC	China Clay	
CHC	Kaolinite	
CHS	China Stone	
CHT	Chert	Chert
CHW	China Clay Waste	Aggregate material derived from China Clay extraction
CLA	Alluvium, clay	
CLA	Brick and Tile Clay	
CLA	Brick Clay; Brickclay	
CLA	Brick Making	
CLA	Brick Shale	
CLA	Brickearth; Brick earth	
CLA	Bricks	
CLA	Brickworks	

CLA	Brickworks, Surface Minerals	
CLA	Common Clay & Shale	Clays and/or shales used as fill in brick making
CLA	Facing and engineering bricks	
CLA	Marl	
CLA	Mudstone	
CLA	Pottery	
CLA	Sandlime Bricks	
CLA	Silt dredging	
CLA	Siltstone	
CLA	Slate/shale	
CLA	Spoil Tipping	
CLA,SAN	Brickearth, sand for Tile and Brick Manufacture	
CMM	Mine Drainage Gas/Coal Gassification	Gas derived from the voids of working coal mines, mainly methane
CO	Coal Recovery	
CO	Coal washing	
CO	Coal, Opencast	
CO	Tipwash	
COA	Anthracite	
COA	Coal	Coal, unspecified
COL	Coal Tips	
COL	Colliery Spoil	Coal and other materials as secondary aggregates, or for coal processing
COL	Pit refuse	
COL	Spoil	
COP	Coprolite	Phosphatic nodules, used as phosphate fertiliser
CR	Chromite	
CRA	Crushed Rock	Undifferentiated crushed hard rock
CRA	Rail Aggregates	Rail Depots and Wharfs
CU	Copper	Copper ores
DIT	Diatomite	
DOL	Dolomite	
DOL	Magnesian Limestone	
FBA	Furnace Bottom Ash	By-product of electricity generation, lightweight and secondary aggregate
FEL	Felspar	Pegmatitic Felspar for glass making
FEO	Iron ore	Unspecified iron ores
FIR	Bastard Fireclay	
FIR	Clay, Refractory clay products	
FIR	Clay/shale. Silica Clay, Upper Estuarine Fireclay	
FIR	Fireclay	
FIR	Silica Clay; Siliceous Clay	

FLI	Flint	Flints
FLI	Flintstone	
FLU	Fluorspar	
FUL	Fullers Earth	
GAN	Ganister	Siliceous sandstones used in steelmaking
GAS	Hydrocarbons	
GAS	Natural Gas	Gas abstracted from strata other than Coal Measures
GRA	Gravel	Material >4mm.
GYP	FGD Gypsum tip	
GYP	Gypsum	
GYP	Gypsum & Anhydrite	
HON	Honestone	Stone used for sharpening blades
HON	Underground mining of Whetstone	
IGN	Andesitic Tuff	
IGN	Dolerite	
IGN	Glensanda Granite	
IGN	Granite	
IGN	Hornfels	
IGN	Igneous & Metamorphic Rock	
IGN	Norwegian Granite	
IGN	Qtz dolerite	
IGN	Rhyolitic Tuff	
IGN	Volcanic tuff	
IGN	Whinstone	
IOH	Iron Ore - Hematite	Hematite used for iron making and pigment
IOH	Iron Ore Waste	
IOH	Micaceous Hematite	
IOH	Micaceous Iron Ore	
IOI	Iron Ore - Ironstone	Fe-rich limestones used as a source of iron
IOI	Ironstone	
IOI	Ironstone and overlying Minerals	
IOI	Septaria	
IOO	Iron Ore - Ochre	Iron ores used for pigment
JET	Jet	Semi-precious
LFG	Landfill Gas	Gas produced from landfill sites. Not a natural product
LIG	Lignite	
LIG	Montamite and Lignite	
LST	Bath Stone	
LST	Frosterley Marble	
LST	Hythe Beds	

LST	Limestone	
LST	Limestone Northampton Sand	
LST	Ragstone	
LST	Red Crag	
MAN	Manganese	Manganese Ores
MBL	Mineral Black	Carbonaceous material used for pigment
MIC	Mica	Mica books or flakes for Industrial use
MIN	Canal Dredgings	Unidentifiable
MIN	Mineral	
MIN	Mineral(s)	Unspecified mineral commodity - See notes above before using this code
MSG	Gravel & Sand	Wharfs
MSG	Marine Aggregates	Wharfs
MSG	Marine dredged ballast	Wharfs
MSG	Marine Sand & Gravel	Sand & gravel dredged from the sea floor
OIL	Drilling and Evaluation of wells	
OIL	Hydrocarbon Exploration	
OIL	Hydrocarbons	
OIL	Oil	
PB	Lead	Lead ores
PEA	Peat	
PFA	Pulverised Fuel Ash	By-product of electricity generation, secondary aggregate
POT	Potash	
PYR	Iron Pyrites	FeS <sub>2</sub> Iron Pyrites, used in manufacture of Sulphuric acid
QUW	Quarry Waste	Waste from quarry operations, secondary aggregate
SAG	Aggregates as raised material	
SAG	Ballast	
SAG	Beach	
SAG	Course Aggregate	
SAG	Granular	
SAG	Granular Fill/Ext of aggregates	
SAG	Head Gravel	
SAG	Hoggin	
SAG	River Dredgings	
SAG	Sand - poor quality	
SAG	Sand & Ballast	
SAG	Sand & Gravel	
SAG	Sandpit	
SAG	Shingle	
SAL	Brine Pumping	

SAL	Brine settling	
SAL	Salt	
SAN	Building Sand	
SAN	Fine building sand	
SAN	Glacial sand	
SAN	Permian Sand	
SAN	Sand	
SAN	Soft Sand	
SAN	Thanet Sand	
SB	Antimony	
SEC	Ash & Cinders	
SEC	Clinker, limestone and sand	
SEC	Crushing	
SEC	Demolition	
SEC	Railway Embankment	
SEC	Railway waste, Ash Ballast	
SEC	Reclaiming Red Shale	
SEC	Recycled aggregate	
SEC	Recycling	
SEC	Secondary	Unspecified secondary minerals
SLA	Slag (inc. BOS and EAF slags)	By-product of steel making, secondary aggregate
SLT	Slate	
SLW	Slate Waste	Waste from slate workings, secondary aggregate
SN	Tin	Tin ores
SOI	Soil	Soil or Topsoil removed from mineral working or construction project as a by-product
SOP	Soapstone	Altered igneous rock used as decorative stone
SPT	Serpentine	Metamorphic rock used as decorative stone
SPT	Serpentinite	
SSA	Moulding Sand	
SSA	Silica Sand	Sand used in industrial processes
SSR	Silica Rock	Sandstone used in industrial processes
SSR	Silica Stone	
SSR	Stone Gannister, other materials	
SST	Crag	
SST	Grit	
SST	Gritstone	
SST	Sandstone	Includes sandstones, quartzites, gritstones and conglomerates
TAL	Talc	

TUF	Tufa	
UMB	Umber	Manganese oxide ores used for pigment, also known as 'wad'
VMI	Vein Minerals	Unspecified vein minerals
W	Tungsten	Tungsten ores
WIT	Witherite	Witherite
ZN	Zinc	Zinc ores



# Appendix 2

## QUICK GUIDE to the Planning Permissions Database

Obligatory fields in **Red**

### Plan Database

Unique number for the database record

### Site Name

Name of the Planning Permission site (given by MPA)

### Alternative Site name (Optional)

Alternative name to the above

### Easting and Northing

Grid Coordinates in **metres**, all numeric, of the centre of the site

### BritPits Database Number

Number of the BritPits entry for the Quarry if known

### Map Plot

Enter **p** for Plot this permission on the resource map

### Surface Underground

Code	Description
o	open-pit/surface workings (default)
p	desulphurisation plant

r	Rail depot
u	underground workings
w	wharf

### Commodity

BGS standard commodity codes, the commonest ones are:

Code	Description
CHA	Chalk
DOL	Dolomite
FLI	Flint
GAN	Ganister
IGN	Igneous and Metamorphic Rock
IOI	Ironstone
LST	Limestone
PEA	Peat
SAG	Sand & Gravel
SAN	Sand
SLT	Slate
SSA	Silica Sand
SST	Sandstone

More than one Commodity can be entered separated by commas.

### MIN Planning Authority Comm

Name of commodity given by the MPA (free text)

### Planning Status

Status recorded by the MPA or MHLG

### Planning Status Code

Code for the planning status

Code	Description
a	Application only
d	Dormant
e	Expired
r	Refused
v	Valid
w	Withdrawn

Blank field = Not known

### Planning Status Date

Date, if known, when the above field was recorded.

### Plan Perm Application Number

Number in free text given to the application by the MPA

### Decision Granted

Date when the planning decision was made by the MPA

### Start Date

Date when the Planning Permission started

### Expiry Date

Date when the Planning Permission expired

### Operational Status

Free text field for the current operating status

### Operational Status Code

BGS code describing the current operating status of the PP area

Status Code	Description
a	Active
c	Ceased
d	Inactive
r	Restored
s	Special
t	Tipping
y	Yet to Begin

Blank field = Not known

### Operational Status Date

Date when the above code was recorded

### Operator

Free text field for the current Operator

### Location

Free text field giving the approximate location – village, town etc

### Landbank

Is the PP included in the current Landbank

Y, N or blank

### Notes

Free text field for comments

### Mineral Planning Authority

Choose code from drop down list of all MPAs

### Region

Economic Planning Region Code

### Former County

Code for the former County (pre-19??)

### District

Free text for the District

### Source

Abbreviation of the source of the data e.g. MHLG

### File Reference

File name given by the MPA

### Site Plan 1 and 2

Plan codes given by MPA

### App. Type

### App dec.

### Expires

### Develop

### Digitised by

Initials of the person doing the digitising

### Date digitised

Date when the digitising was completed

### Digital file name

Name of the shp file

### Altered by

User ID of person altering this record

### Date altered

Date of alteration

### Entered by

User ID of person entering this record

### Date entered

Date of record entry

### MHLG Number

Reference number on the file MHLG index card and map

### NERC Copyright

Does NERC hold the copyright? Y or N

### **NB**

If you are unclear about the contents of any fields enter them as comments in the **Notes** field.

## Appendix 3

### Table 4 Quality Assurance Form for MHLG Maps

## QC document: Attribution of MHLG polygons

100K Sheet	File Name	Location
------------	-----------	----------

**Date joining polygons across sheet boundaries completed** \_\_\_\_\_

09	19	29	39	49	59	69	79	89	99
08	18	28	38	48	58	68	78	88	98
07	17	27	37	47	57	67	77	87	97
06	16	26	36	46	56	66	76	86	96
05	15	25	35	45	55	65	75	85	95
04	14	24	34	44	54	64	74	84	94
03	13	23	33	43	53	63	73	83	93
02	12	22	32	42	52	62	72	82	92
01	11	21	31	41	51	61	71	81	91
00	10	20	30	40	50	60	70	80	90

X = polygons present

0 = no polygons

[illegible]

Forms to be returned to Sue Hobbs when completed

date received\_\_\_\_\_

# Glossary

MHLG – Ministry of Housing and Local Government

ODPM – Office of the Deputy Prime Minister

SAN – Storage Area Network

ODBC – Open Database Connectivity

MODSS – Mineral Oriented Decision Support Systems

SMS – Sustainable Mineral Solutions

# References

COATS, J S. 2003. Quick Guide the Planning Permissions Database