

# BLM COLORADO CULTURAL RESOURCES DIGITAL DATA SPECIFICATIONS GUIDE



**Last Revised April 2020**

Supplement to

Handbook of Guidelines and Procedures for Inventory, Evaluation, and Mitigation  
of Cultural Resources

Bureau of Land Management

Colorado State Office

**New Content Highlighted**

## **GPS and GIS Data**

Because of its emphasis on data security, the Colorado OAHP serves as BLM's primary repository for geospatial inventory and site location data. Consequently, BLM and the OAHP operate under the same set of geospatial parameters and digital data requirements. Some field offices have additional requirements. Permittees should request details about these additional requirements from the field office of interest.

### **GPS Data Collection**

Data collected by GPS must meet a  $\pm 5$  m. accuracy standard. You should independently confirm that the GPS equipment that you are using in the field is correctly recording locational information at the requisite level of accuracy. If the GPS equipment is proving to be inaccurate, or if satellite coverage is not available, you must record sites and isolated finds using hard-copy methods, and create the appropriate shapefiles or geodatabase feature classes upon returning from the field. Differential correction is strongly encouraged, but the resulting data must meet the standards and format outlined below. Do not submit raw correction files.

If you are using a GPS device that does not support shapefile or ESRI file geodatabase formats, you must convert your field data into an acceptable format. BLM will not provide technical support for this process; there are plenty of online references and utilities that serve this purpose (e.g. [www.gisconvert.com](http://www.gisconvert.com)).

Reminder: Do not leave physical datums in the field unless otherwise instructed. Datums may be used during site recording but must be removed once the field work is completed.

### **GIS Data Format**

BLM will accept geospatial data as either shapefiles or ESRI file geodatabases. Do not submit ESRI personal geodatabases, .kml/.kmz files, or other raw formats. All site and survey boundary data must be submitted as polygons. Do not submit point, line, or polyline data for site or survey boundaries. Some offices may also require submission of the artifact/feature-level point, line, and polygon data. Permittees may request details about these requirements from the field office of interest.

## Coordinate Systems

All cultural resources data submitted to BLM must conform to one of two coordinate systems:

### Projected Coordinate System (preferred)

The accepted projected coordinate system is:

Universal Transverse Mercator using the 1983 North American Datum.

**NAD\_83\_UTM\_Zone\_13N** – WKID: 26913 Authority: EPSG

or

**NAD\_83\_UTM\_Zone\_12N** – WKID: 26912 Authority: EPSG

The NAD\_83\_UTM projection is subdivided into zones. Most of Colorado is in Zone 13N, while the far western edge of the state is in Zone 12N. Surveys conducted within Zone 13 must be submitted in the Zone 13 projection. For those surveys that fall within Zone 12, please check with the field office with which you are working before submitting data; some offices no longer accept Zone 12 data and may require data reprojected to Zone 13. In such cases, the site form must clearly indicate “Zone 12 projected to Zone 13”. Generally, the error resulting from the reprojection is negligible.

### Geographic Coordinate System

The accepted geographic coordinate system is:

**GCS\_North\_American\_1983** – WKID: 4269 Authority: EPSG

Reminder: Do not use the 1927 North American Datum in either case.

## Geometry Types

All site and survey boundary data must be submitted as polygons. Do not use generic shapes (circle, oval, rectangle, etc.) to delineate site boundaries. All sites must be recorded with multiple vertices that precisely form the site boundary. Linear survey corridors must accurately reflect the width of the inventory (e.g., a 100'-wide inventory corridor should be buffered 50' in either direction from the centerline). Isolated finds may be created from a single point, but must be buffered and submitted to the BLM as polygons (the standard buffer is 4 meters). Isolated find polygons should be made to portray actual boundaries when possible and do not have to be circular (for example, 10 flakes found in a 12- by 8-meter area can be displayed as a 12- by 8-meter ellipse).

## Attributes

Site and survey attribute tables must conform to those presented in Appendix I. In both cases there is a set of core attributes that must be populated and an additional set of optional attributes that should be populated where possible.

## Packaging and Delivery

Do not submit sites and surveys in the same shapefile or feature class. Site shapefiles may contain multiple features (multiple sites), but the attribute table must clearly differentiate sites by Smithsonian Number. Sites that cross counties should be separated in the shapefile accordingly. Surveys should be submitted as a single row within the survey shapefile or geodatabase feature class. Where a survey comprises multiple discontinuous inventory areas, the resulting survey file should be submitted as a single, multipart polygon. That is, the individual areas should be dissolved to a single feature (single row) that includes all the individual surveyed areas. Individual rows for each survey area creates inconsistencies with the SHPO relational database, resulting in inaccurate data. See the ESRI help docs for more information.

Please use the “Check Geometry” tool or equivalent before submitting shapefiles or feature classes to BLM. If the tool identifies errors, correct them using the “Repair Geometry” tool before submission. See the ESRI help docs for more information.

Submit shapefiles or feature classes directly to BLM (not directly to the SHPO). The following outlines best practices for submitting digital data.

- Use short, uncomplicated names for shapefiles or geodatabases; use the OAH document/project number in the feature class/shapefile title (e.g. ME\_LM\_R1000\_Survey, ME\_LM\_R1000\_Sites).
- Pay particular attention to path lengths; most operating systems and applications enforce a 256 character path length limit. Do not use long, redundant file names.
- If using shapefiles, ensure that all the requisite component files are included.
- Compress file geodatabases before submission.
- Do not nest compressed folders in other compressed folders.
- Use an underscore rather than a period or space in file names. This is particularly important when naming linear features, e.g. “5BL358\_1” instead of “5BL358.1”.
- Submit digital files on a flash drive, or via a secure file transfer protocol or other secure company website.
- Avoid using CDs where possible; many new computers do not have disk drives, and most field offices will no longer accept them; please consult the field office in question before submitting digital data on CD.

# SITE FORM AND REPORT DOCUMENTATION

## Report and Site Numbers

Please request both BLM and SHPO report IDs from the BLM and not from the SHPO directly; request site and IF numbers directly from the SHPO.

## Documentation Requirements<sup>1</sup>

All documentation must be submitted to BLM (not directly to the SHPO). Check with the BLM field office archaeologist before submitting draft documentation; most prefer to review draft deliverables electronically in Microsoft Word format (.docx). Ensure the draft versions are not locked or encrypted so that comments and suggested revisions can be added directly to the document. BLM and SHPO both generally prefer unbound copies (consult local field office) of final deliverables. Final PDF versions must be submitted to BLM at the end of the project and should be saved as either PDF/A-1a or PDF/A-1b. The final PDF versions must have the relevant SHPO and BLM numbers populated where appropriate throughout. PDFs created from scanned hard copies must be processed using optical character recognition (OCR) to make them searchable, or converted to PDF/A. Most BLM archaeologists prefer to receive draft documents in Word (.doc or .docx) format in order to use the built-in review functions (consult local field office). PDF is not recommended for review, but is the only format in which final reports and site forms will be accepted.

- Make sure that draft documents are not locked, secured, or encrypted as this prohibits electronic review.
- Compile all the PDFs of reports and site forms before submitting to BLM. BLM will not compile PDFs for contractors.
- The individual components of the site form (Management Data Form, component forms, maps, photographs and other documentation) must be compiled in a single file, titled by Smithsonian number as detailed below. IFs must include the IF form and map, along with any other relevant documentation, in a single file, titled by Smithsonian number as detailed below.
- Check with the BLM field office archaeologist for additional map documentation requirements; most require at least one site location map printed at 1:24,000 scale on a USGS topographic basemap.
- Make sure all report and site form deliverables are printed double-sided.

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<sup>1</sup> See the BLM Colorado Handbook (revised 2017), the 2014 BLM state Protocol, the OAHF Survey Manual (2007), and any relevant BLM field office or district standards and procedures documents for other reporting requirements.

- When submitting print copies of deliverables to other agencies (USFS, NPS, etc), send those materials to the other agencies directly. Do not send printed documents to BLM to be forwarded on your behalf.

### **Naming Conventions**

Site and IF naming conventions are based on the Smithsonian trinomial; report naming conventions are based on the SHPO report number.

Site and IF forms must adhere to the following naming conventions:

**5\*\*\_\*\*\*\* (site or IF)**

**5\*\*\_\*\*\*\*\_\* (linear)**

where 5\*\*\_ is the county abbreviation (e.g. 5PA\_) and \*\*\*\* is the site number (and point number, if appropriate).

Reports must adhere to the following naming conventions, based on the SHPO document number:

**\*\*\_LM\_R\*\*\*\* or \*\*\_LM\_NR\*\*\*\***

where the first \*\* are the two-letter county code (e.g. FN), “R” for results and “NR” for no results, and the last series of \*\*\*\* is a SHPO-assigned consecutive number (e.g. FN\_LM\_NR1 or FN\_LM\_R236)

### **Photographs**

Photographs should follow the SHPO and SHF standards found at:

<https://www.historycolorado.org/sites/default/files/media/document/2017/1527photo.pdf>

### **Document Delivery**

The following outlines best practices for submitting digital site form and report content.

- Use an underscore rather than a period or space in file names.
- Submit digital files on a flash drive, or via a secure file transfer protocol or other secure company website.
- Avoid using CDs where possible; many new computers do not have disk drives, and most field offices will no longer accept them; please consult the field office in question before submitting digital data on CD.
- **DO NOT USE GENERIC FILE-SHARING SITES** such as Dropbox, Google Drive, etc. Most BLM offices are unable to create accounts for these and will not be able to download your data.

## APPENDIX I: GEOSPATIAL DATA REQUIRED ATTRIBUTES

Recommended fields are highlighted; all other fields are required.

### SITE ATTRIBUTE TABLE

| Attribute   | Type    | Definition   |
|-------------|---------|--|
| ID          | Integer | Unique sequential numeric ID for a given spatial feature. <b>(LEAVE BLANK)</b>   |
| SITE_       | Text    | Smithsonian site number in SHPO format (ex 5ME.4000 or 5GF.342). <b>Do not use leading zeros in site IDs (e.g. 5LR.00462). Do not use zeros or underscores in the place of the period (e.g. 5LR_462). Do not include any other descriptors (e.g. 5LR.462_IF) in the site ID.</b> |
| SITE_NAME   | Text    | Name of resource, if any.  |
| AGENCY_     | Text    | Project number unique to the BLM agency/office responsible for the data.   |
| SHPO_ID     | Text    | Unique SHPO number referring to a specific report document.  |
| DATE        | Date    | Date site was digitized in GIS.  |
| ACRES       | Double  | Calculated area of the site in acres (must match site form information)  |
| SITE_TYPE   | Text    | General temporal affiliation<br>Use: [ Historic / Prehistoric / Multicomponent / Protohistoric / Unknown ]   |
| SITE_DESC   | Text    | Brief description of resource (use standard terminology where possible)  |
| LINEAR      | Integer | Enter 1 or 0. A "1" denotes that the site is a linear site. A "0", the default, is used for all non-linear sites.  |
| ELIGIBILITY | Text    | Resource eligibility for the NRHP.<br>Use: [ Eligible / Not Eligible / Needs Data / Supporting / Non-Supporting / Contributing / Non-Contributing ]  |
| ZONE        | Integer | This is the UTM zone in which the site is located.   |
| X           | Double  | The X coordinate in UTM meters of the center point of the site (can be automatically calculated by GIS but must match info on site form)   |
| Y           | Double  | The Y coordinate in UTM meters of the center point of the site (can be automatically calculated by GIS but must match info on site form)   |
| COMMENTS    | Text    | Any additional information not captured elsewhere.   |
| SOURCE      | Text    | BLM field office name  |
| BND_CMPLT   | Text    | Boundary completeness. Refers to the completeness of the site boundary. Values for this field will either be Y (YES the boundary is complete) or N (NO the boundary of the site is not complete or unknown) or 9 if the completeness of the site boundary has not been checked.  |
| CONF        | Text    | Confidence given to the spatial accuracy of the digitized feature. Values for this attribute consist of LC (Low Confidence – ex: digitizing from hand drawn maps, or not field checked), HC (High Confidence – collected via GPS units in the field) or P (Paleontological).     |
| VER         | Text    | <b>(LEAVE BLANK FOR OAHP use)</b>  |
| AREA        | Double  | Area of the spatial features in the data set (Calculate via GIS)   |
| PERIMETER   | Double  | Perimeter of spatial features in the data set. (Calculate via GIS)   |

## SURVEY ATTRIBUTE TABLE

| Attribute  | Type    | Definition   |
|------------|---------|--|
| ID         | Integer | Unique sequential numeric ID for a given spatial feature. <b>(LEAVE BLANK)</b>   |
| DOC_       | Text    | Unique SHPO number referring to a specific report document in the appropriate format (e.g. ME.LM.R1000). Do not use zeros or underscores in the place of the period (e.g. ME_LM_R1000).  |
| AGENCY_    | Text    | Project number unique to the BLM agency/office responsible for the data.   |
| TITLE      | Text    | Report title   |
| AUTHOR     | Text    | Primary report author.   |
| DATE       | Date    | Date the shapefile was created.  |
| ACRES      | Double  | Acreage of the survey area calculated by the GIS from the spatial features in the data set   |
| SURV_TYPE  | Text    | Inventory strategy / survey type<br>Use: [ INTENSIVE / RECONNAISSANCE / PALEONTOLOGICAL / UNSPECIFIED ]  |
| SITE_COUNT | Integer | The total number of sites recorded during the inventory.   |
| IF_COUNT   | Integer | The total number of isolated finds recorded during the inventory.  |
| EL_COUNT   | Integer | The total number of eligible sites recorded during the inventory (a subset of SITE_COUNT).   |
| ZONE       | Integer | UTM Zone the survey is located in. If a survey crosses two zones, digitize it in the zone in which the most land is covered.   |
| X          | Double  | The X coordinate in UTM meters of the center point of the survey.  |
| Y          | Double  | The Y coordinate in UTM meters of the center point of the survey.  |
| COMMENTS   | Text    | Any additional information not captured elsewhere.   |
| SOURCE     | Text    | BLM field office name  |
| CONF       | Text    | Confidence given to the spatial accuracy of the digitized feature. Values for this attribute consist of LC (Low Confidence – ex: digitizing from hand drawn maps, or not field checked), HC (High Confidence – collected via GPS units in the field) or P (Paleontological). |
| VER        | Text    | <b>(LEAVE BLANK FOR OAHP use)</b>  |
| AREA       | Double  | Area of the spatial features in the data set   |
| PERIMETER  | Double  | Perimeter of spatial features in the data set  |