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| DEP Logo | **Department of Environmental Protection** |
| ***STD-09061811.1.1*** | ***Last Revised: July 2014***  ***Page 1 of*** |
| **Geographic Information Systems (GIS)**  **Location Data Standard** | |

# Purpose

This document specifies the Florida Department of Environmental Protection’s (DEP) Geographic Information Systems (GIS) Location Data Standard. The purpose of this standard is to ensure that DEP physical data models contain consistent data elements for storing GIS location data.

# Scope

This standard applies to all database schema development at DEP.

# Standard

1. Developers shall follow the ***Location Data Specifications*** included in the Appendix of this standard.
2. All DEP database schemas shall follow Oracle database standards and guidelines found at the ***Oracle Technology Network website*** (Oracle).
3. Developers shall follow the ***Physical Data Modeling Standard*** which provides technical guidelines, definitions and references, including database naming standards, physical model diagram layout, and instructions for naming constraints, indexes, sequences, triggers and views.

# Deviation from Use

Any deviation from this standard shall be documented in associated project and contract documentation. For contracts, deviation from standard shall be documented and approved by the DEP contract manager. For non-contract work, deviation from use shall be documented in the project plan/scope of work and approved by the project manager.

# Bibliography

Oracle. (n.d.). *Oracle Technology Network*. Retrieved from Oracle Technology Network: http://www.oracle.com/technology/join/index.html

# Approvals

**Approved By:** DEP Chief Information Officer   
**Date Approved: August 2014**

**Appendix**

**Location Data Specifications**

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Specification Overview

The purpose of this specification is fourfold. First, its implementation will ensure that potential data users have sufficient information to assess the accuracy, precision and suitability of location data for their purposes. Enabling users to assess the quality of the data should help to preserve the value of the data over time and should also foster data sharing across programs. Data sharing should result in data collection savings realized by the citizens of Florida. Second, the implementation of a standard should help improve the quality of the data collected. Third, the use of standards will enable the agency to maintain the positional accuracy of location data over time. Fourth, the implementation of the standard will foster cross-program data integration by facilitating unified spatial display, analysis and manipulation of data from multiple programs.

The standard defines the minimum data required to fulfill the stated purpose. As such, the standard represents only the core location data. The standard is not an exhaustive list of all useful location data. Program areas may wish to augment the standard with additional location data elements in order to capture more of the useful information available for their purposes.

The standard does not address database-level implementation issues. The methods used to implement the standard will be determined by program area users, application developers and database administrators.

Data Element Overview

The data elements identified in the [Location Data Elements List](#_Location_Data_Element) section constitute the minimum elements for quality location data. The complete definition of the standard and its implementation at the data element level is in the [Location Data Element Detail](#_Location_Data_Element_1) section of this document. Note that there are required, recommended and optional data elements. The set of **required** data elements are those pieces of information that form the fundamental basis of judging fitness of the data for particular uses and of maintaining positional accuracy over time. The **recommended** elements provide supplemental information deemed useful, but not essential, in judging data quality and suitability. The **optional** data elements are those needed to support implementing the standard in relational normalized fashion and to support a unified location table across programs.

Both Geographic and projected planar coordinates will be supported and stored in the Oracle/Spatial geometric data type (MDSYS.SDO\_GEOMETRY) and, except for points, will not be represented by additional attributes. In the case of points, the standard still maintains coordinate attributes in addition to the geometry for backward compatibility. Note that historically, the point attributes pertained only to Lat/Long values in DD-MM-SS format. To support the multiple projections, the point attributes will now be stored in the form of an X and Y value. Thus, geographic coordinate attributes (Latitude & Longitude) will be stored in decimal degree form.

These specifications provide for all GIS feature types: points, lines and polygons which will allow the creation of more accurate models of the real world.

In addition to supporting all GIS feature types, the standard also allows several different projections/coordinate systems. The projection/coordinate systems supported are:

* + Geographic (latitude/longitude coordinates),
  + State Plane (East, West and North zones)
  + UTM (zones 16 and 17),
  + Cape Canaveral, and
  + The FDEP custom Albers.

Several datum are supported as well:

* + NAD27,
  + NAD83,
  + WGS84, and
  + Partially HPGN/HARN.

Oracle/Spatial does not support HPGN/HARN, so layers requiring that datum can only be stored as ArcSDE layers.

Location Data Element List

The element list consists of business elements that must be included in the physical data model when location data is to be stored. Refer to the ***DEP Physical Data Modeling Standard*** (FL Dept. of Environmental Protection, 2009)for database naming standards and other modeling requirements.

| **Business Data Element** | **Oracle Data Type** | **Size** | **Code Set** |
| --- | --- | --- | --- |
| ***Required Elements- All Features*** |  |  |  |
| Location Geometry | SDO\_GEOMETRY | n/a | No |
| Collection Method Identifier | VARCHAR2 | 4 | Yes |
| Object of Interest Identifier | VARCHAR2 | 25 | Yes |
| Proximity to Object Identifier | VARCHAR2 | 5 | Yes |
| Datum Identifier | VARCHAR2 | 10 | Yes |
|  |  |  |  |
| ***Required Elements - Points Only*** |  |  |  |
| Latitude Measure Degrees Number | NUMBER | 2 | No |
| Latitude Measure Minutes Number | NUMBER | 2 | No |
| Latitude Measure Seconds Number | NUMBER | 6, 4 | No |
| Longitude Measure Degrees Number | NUMBER | 3 | No |
| Longitude Measure Minutes Number | NUMBER | 2 | No |
| Longitude Measure Seconds Number | NUMBER | 6, 4 | No |
| X Coordinate Number | NUMBER | 12, 6 | No |
| Y Coordinate Number | NUMBER | 12, 6 | No |
|  |  |  |  |
| ***Recommended Elements*** |  |  |  |
| Collector Name | VARCHAR2 | 30 | No |
| Collector Affiliation Name | VARCHAR2 | 30 | No |
| Collecting Program Identifier | VARCHAR2 | 30 | Yes |
| Collection Date | DATE | n/a | No |
| Location Status Identifier | VARCHAR2 | 12 | Yes |
| Map Source Name | VARCHAR2 | 30 | No |
| Map Source Scale Number | NUMBER | 8 | No |
| Interpolation Scale Number | NUMBER | 8 | No |
| Coordinate Accuracy Level Identifier | NUMBER | 1 | Yes |
| Verification Method Identifier | VARCHAR2 | 4 | Yes |
| Verifier Name | VARCHAR2 | 30 | No |
| Verifier Affiliation Name | VARCHAR2 | 30 | No |
| Verifying Program Identifier | VARCHAR2 | 30 | Yes |
| Verification Date | DATE | n/a | No |
|  |  |  |  |
| ***Optional Elements*** |  |  |  |
| Elevation Number | NUMBER | 8, 2 | No |
| Elevation Datum Name | VARCHAR2 | 30 | No |
| Elevation Resolution Number | NUMBER | 8, 2 | No |
| Elevation Unit Name | VARCHAR2 | 10 | Yes |

Location Data Element Detail

| **Location Data Element** | **Definition** | **Data Type** | **Size** | **Code Set** |
| --- | --- | --- | --- | --- |
| Location Geometry | The actual geometric shape (point, line or polygon) defining the location and shape of the Object of Interest. The projection (datum and ellipsoid) must be constant for the entire layer.  Domain: Any valid SDO\_GEOMETRY | SDO\_GEOMETRY | N/A | No |
| Collection Method Identifier | The method or mechanism used to derive the measurements. See the [Collection/Verification Method Identifier](#_Appendix_B_-) section for a complete definition of Collection Method and information on expected collection cost and accuracy.  Domain:  ADDM – Address Matching  AGPS – Autonomous GPS  CALC – Calculated by GIS Software  CSUR – Cadastral Survey  DGPS – Differentially Corrected GPS  DMAP – Digital Map Interpolation  DPHO – Digital Aerial Photography With Ground Control  GGPS – Geodetic Quality GPS  LORN – LORAN-C Navigational Device  MMAP – Manual Map Interpolation  MPHO – Manual Aerial Photography With Ground Control  OTHR – A Method Not Listed  SATI – Satellite Imagery With Ground Control  WGPS – GPS with Wide-Area Augmentation Service Correction  UNKN – Unknown Method  ZIP2 – ZIP Code + 2 Segment Centroid  ZIP4 – ZIP Code + 4 Segment Centroid  ZIPC – Zip Code Centroid | VARCHAR2 | 4 | Yes |
| Object of Interest Identifier | The entity of interest (the thing regulated, permitted, or tracked). The DEP Office of Technology and Information Services (OTIS) maintain the Object of Interest code table; the program area is responsible for determining the taxonomy of codes needed to support their applications and business decisions.  Domain: Dynamic, maintained by DEP OTIS | VARCHAR2 | 25 | Yes |
| Proximity to Object Identifier | This element defines how close to the Object of Interest the location was obtained. For example, is the point the exact location of the object? Is the point the location of the center of the site/facility containing the object? Refer to the [Definition of Proximity to Object](#_Appendix_C_-) section for additional information on these relationships.  Domain:  EXACT - Exact Object of Interest Location  APPRX - Approximate Object of Interest Location  VICIN - Vicinity of Object of Interest Location  OFFST - Offset to Exact Object of Interest Location  ENTRA - Entrance to Site or Facility containing Object of Interest Location  CENTR - Center of Site or Facility containing Object of Interest Location  ADMIN - Administrative Center of Site or Facility containing Object of Interest Location | VARCHAR2 | 5 | Yes |
| X Coordinate Number | For points only, the X-coordinate is the decimal degree Longitude. This element is included to maintain backward compatibility with existing applications. The minus sign is implied for Lat/Long coordinates.  Domain: +0.000000 through +999,999.999999 | NUMBER | 12, 6 | No |
| Y Coordinate Number | For points only, the Y-coordinate is the decimal degree Latitude. This element is included to maintain backward compatibility with existing applications.  Domain: +0.000000 through +999,999.999999 | NUMBER | 12, 6 | No |
| Datum Identifier | The horizontal reference for measuring locations on the Earth’s surface.  Domain:  CAC – Cape Canaveral  HARN – High Accuracy Reference Network  HPGN – High Precision GIS Network / High Precision Geodetic Reference  NAD27 – North American Datum of 1927  NAD83 – North American Datum of 1983  WGS84 – World Geodetic Survey of 1984  Business Rule:   * The Datum are supported for the Florida landmass and coastal waters; * Oracle/Spatial does not presently support HPGN/HARN | VARCHAR2 | 10 | Yes |
| Collector Name | The name of the person taking the measurement.  Domain: Formatted text  Format Rule: XXX\_Y where XXX = Last Name and Y = First letter of First Name | VARCHAR2 | 30 | No |
| Collector Affiliation Name | The agency or company for whom the collector works.  Domain: Free form text | VARCHAR2 | 30 | No |
| Collecting Program Identifier | The DEP program which is obtaining the measurement.  Domain: See code table list | VARCHAR2 | 30 | Yes |
| Collection Date | The date and time on which the measurement was taken.  Domain: Valid date & time  Format Rule: YYYYMMDD HH:MM:SS where  YYYY - Current year including century  MM - Month in year  DD - Day in Month  HH - Hour in Day, 24 hour format  MM - Minute in Hour  SS - Second in Minute | DATE | N/A | No |
| Location Status Identifier | Identifies the current quality assurance status of location data.  Domain:  Reviewed - Location data reviewed  Not Reviewed - Location data not reviewed  Un-Locatable - Location closed, cannot be found or not economical to locate.  Default: Not Reviewed | VARCHAR2 | 12 | Yes |
| Map Source Name | If the measurement was derived from a map, the name of the map series that was used.  Domain: Free form text | VARCHAR2 | 30 | No |
| Map Source Scale Number | If the measurement was derived from a map, the scale of the map series that was used.  Domain: +0 through +99,999,999 | NUMBER | 8 | No |
| Interpolation Scale Number | For use with the location fixing applications like FieldPoint and WebPoint, the map scale of the map/imagery showing at the time the location was taken.  Domain: +0 through +99,999,999 | NUMBER | 8 | No |
| Coordinate Accuracy Level Identifier | The measured, estimated or deduced degree of correctness of the measurement.  Domain:  1 = <0.02 meter (+/- 0.01 meter)  2 = 0.02 to 1.0 meter  3 = >1.0 meter to 10 meters  4 = >10 meters to 20 meters  5 = >20 meters to 50 meters  6 = >50 meters to 999.99 | NUMBER | 1 | Yes |
| Verification Method Identifier | The method or mechanism used to verify the measurements. Refer to the [Collection/Verification Method Identifier](#_Figure_1_-_Collection/Verification_) section for a complete definition of Collection Method and information on expected collection cost and accuracy of these methods.  Domain:  ADDM – Address Matching  AGPS – Autonomous GPS  CALC – Calculated by GIS Software  CSUR – Cadastral Survey  DGPS – Differentially Corrected GPS  DMAP – Digital Map Interpolation  DPHO – Digital Aerial Photography with Ground Control  GGPS – Geodetic Quality GPS  LORN – LORAN-C Navigational Device  MMAP – Manual Map Interpolation  MPHO – Manual Aerial Photography with Ground Control  OTHR – A Method Not Listed  SATI – Satellite Imagery With Ground Control  WGPS – GPS with Wide-Area Augmentation Service Correction  UNKN – Unknown Method  ZIP2 – ZIP Code + 2 Segment Centroid  ZIP4 – ZIP Code + 4 Segment Centroid  ZIPC – Zip Code Centroid | VARCHAR2 | 4 | Yes |
| Verifier Name | The name of the person verifying the measurement.  Domain: Formatted text  Format Rule: XXX\_Y where XXX= Last Name and Y = First letter of First Name | VARCHAR2 | 30 | No |
| Verifier Affiliation Name | The agency or company for whom the verifier works.  Domain: Free form text | VARCHAR2 | 30 | No |
| Verifying Program Identifier | The DEP program area performing the verification.  Domain: See code table list | VARCHAR2 | 30 | Yes |
| Verification Date | The date and time on which the verification was performed.  Domain: Valid date & time  Format Rule: YYYYMMDD HH:MM:SS where  YYYY - Current year including century  MM - Month in year  DD - Day in Month  HH - Hour in Day, 24 hour format  MM - Minute in Hour  SS - Second in Minute | DATE | N/A | No |
| Latitude Measure Degrees Number | The degrees portion of the angular distance on a meridian north or south of the equator.  Domain: +23 though +31  Florida landmass and surrounding waters | NUMBER | 2 | No |
| Latitude Measure Minutes Number | The degrees portion of the angular distance on a meridian north or south of the equator.  Domain: +0 through +59 | NUMBER | 2 | No |
| Latitude Measure Seconds Number | The seconds portion to four significant digits of the angular distance on a meridian north or south of the equator.  Domain: +0.0000 through +59.9999 | NUMBER | 6, 4 | No |
| Longitude Measure Degrees Number | The degrees portion of the angular distance on a meridian east or west of the prime meridian.    Domain: 79 through 87  Business Rule:  - Although measurements west of the prime meridian are by convention regarded as negative, the standard provides for the storage of positive values to conform to current practice. | NUMBER | 3 | No |
| Longitude Measure Minutes Number | The minutes portion of the angular distance on a meridian east or west of the prime meridian.  Domain: +0 through +59 | NUMBER | 2 | No |
| Longitude Measure Seconds Number | The seconds portion to four significant digits of the angular distance on a meridian east or west of the prime meridian.  Domain: +0.0000 through +59.9999 | NUMBER | 6, 4 | No |
| Elevation Number | The vertical distance from a datum.  Domain: –99,999.99 to 99,999.99 | NUMBER | 8, 2 | No |
| Elevation Datum Name | The reference datum from which elevation measurements are made.  Domain: Free form text | VARCHAR2 | 30 | No |
| Elevation Resolution Number | The minimum distance possible between two adjacent elevation values.  Domain: –99,999.99 to 99,999.99 | NUMBER | 8, 2 | No |
| Elevation Unit Name | The units in which elevation is recorded.  Domain:  Meters  Feet | VARCHAR2 | 10 | Yes |

Collection/Verification Method Identifier

Definition, Accuracy and Cost Matrix Table

| **Code** | **Method** | **Expanded Description** | **Estimated Accuracy** | **Rank** | **Accuracy Level** |
| --- | --- | --- | --- | --- | --- |
| CSUR | Cadastral or Land Survey | Measurement of boundaries, area, and/or elevations of land (or structures) on the earth's surface by means of measuring angles and distances with optical survey equipment, and using geometry and trigonometry to determine locations. In the general plan, this includes a field-note record of the observations, measurements, legal description, and monuments descriptive of the work performed and a plat that represents the cadastral survey.  Ref: (http://www.cadastral.com/73manlc1.htm#1-2.) | < 0.01 M[[1]](#footnote-2) | 1 | 1 |
| GGPS | Geodetic Quality C/A Code and Carrier Phase GPS | Measurement of position using both Coarse Acquisition (C/A) and Carrier phase of GPS signal to determine location to a higher level of Accuracy. | < 0.1 M | 2 | 2 |
| DGPS | Differentially Corrected C/A Code Phase GPS | Measurement of position using a single GPS receiver and a localized correction signal from a commercial or public community base station such as the US Coast Guard Beacons. This includes Real Time Kinematic (RTK) | 1-5 M | 3 | 3 |
| WGPS | C/A Code Phase GPS with Wide-Area Augmentation Service Correction | Measurement of position using a single GPS receiver in conjunction with a correction obtained from a model using regional base stations and transmitted by telecommunications satellites. | 3-7 M | 4 | 3 |
| DPHO | Digital Aerial Photography | Assignment of location coordinates by means of visually referencing the coordinates to a background consisting of digital aerial photography. No interpolation is attempted. | 5-10 M | 5 | 3 |
| AGPS | Autonomous C/A Code Phase GPS | Measurement of position using a single GPS receiver, with coordinates determined within the receiver in real time. Such positioning involves using the information broadcast by the GPS satellites alone. | 5-50 M | 6 | 4/5 |
| DMAP | Digital Map Interpolation | Assignment of location coordinates by means of visually interpolating geographic coordinates on a background consisting of digital maps; i.e., USGS 1:24,000 Quadrangle maps, with geographic reference points. | 5-100 M | 7 | 4-6 |
| CALC | Calculated by GIS Software | The calculation of the center of a polygon by GIS software using the supplied boundary of a shape. The accuracy of the calculated value is a determined by the precision of the supplied boundary shape.  For example, a County center calculated from the US Bureau of the Census TIGER/Line file based on 1:100,000 scale maps would not be as accurate as a center calculated from a survey-grade small parcel shape. | 20-150 M | 7 | 5 |
| LORN | LORAN-C Navigational Device | Long Range Aid to Navigation (LORAN) - Measurement of position using a long distance radio navigation land station transmitting synchronized pulses. Hyperbolic lines of position are determined by the measurement of the difference in the time of arrival of these pulses. Three or more stations are needed to remove ambiguities in the position of the receiver. | 50-150 M | 8 | 6 |
| ADDM | Address Matching / Precision Mapping | Automatic or semi-automatic operations to estimate location coordinates by geo-referencing locations with digital cartographic street reference data. Census data, such as the Bureau of Census's TIGER, containing street names, address ranges and latitude/longitude of the street network, are used to interpolate point locations, usually within the block range.  Ref: http://www.hanford.gov/dqo/project/level5/ldpigscm.pdf | 50-150 M | 9 | 6 |
| MPHO | Manual Aerial Photography With Ground Control | Direct measurement of locations from existing printed aerial photography using various methods (i.e., bar scale, engineer's scale or electronic ruler, electronic digitizer). Such aerial photography must have been orthorectified | 50-150 M | 10 | 6 |
| MMAP | Manual Map Interpolation | Direct measurement of locations from existing paper maps, using various methods (i.e., bar scale, engineer's scale or electronic ruler, electronic digitizer).  Ref: http://www.hanford.gov/dqo/project/level5/ldpigscm.pdf | > 150 M | 11 | 6 |
| SATI | Satellite Imagery | Assignment of location coordinates by means of visually interpolating geographic coordinates on a background consisting of digital or satellite imagery. | > 150 M | 12 | 6 |
| ZIP2 | ZIP Code + 2 Segment Centroid | Automated method for the assignment of location coordinates to the centroid of the ZIP+2 street segment that contains the feature address. | < 1 Km[[2]](#footnote-3) | 13 | 6 |
| ZIP4 | ZIP Code +4 Segment Centroid | Automated method for the assignment of location coordinates to the centroid of the ZIP+4 street segment that contains the feature address. | < 0.5 Km4 | 14 | 6 |
| ZIPC | ZIP Code Centroid | Automated method for the assignment of location coordinates to the centroid of a polygon representing the zip-code area and containing the feature. | < 2 Km4 | 15 | 6 |
| OTHR | A Method Not Listed | Assignment of location coordinates using a method excluded from this group of collection methods. | n/a | 99 | 6 |
| UNKN | Unknown Method | Method of assignment of location coordinates is unknown. | n/a | 99 | 6 |

Definition of Proximity to Object

The regulated/permitted entity (tank, well, dock, site, facility, etc) in which DEP has an environmental interest. Usually we can reach the object of interest. However, sometimes we can't reach the object of interest, so we have to use a surrogate location to obtain coordinates. This code stores whether or not we had to use a surrogate, and if so what kind of surrogate it was. This code may or may not interact with coordinate accuracy level.

EXACT - meaning the measurement was taken on the object of interest; only very large scale high quality imagery or GPS would yield EXACT point proximity.

APPRX - meaning the approximate location of the object of interest (nearby for GPS or decent quality imagery for visible features), say within 50 meters or less of the true object location.

VICIN - meaning within the vicinity of the object of interest (lower quality imagery with less visible features, map interpolation), greater than 50 meters away.

OFFST - meaning the measurement was taken at a point of some known distance and bearing from the object of interest. It is not specified where the known distance and bearing are stored.

ENTRA - meaning the entrance through which one must travel to get to the object of interest. This code is like APPRX and VICIN, but adds additional information.

CENTR - meaning the center of the site/facility containing the object of interest. This code is like APPRX and VICIN, but adds additional information.

ADMIN - meaning the administrative building of the site/facility containing the object of interest. This code is like APPRX and VICIN, but adds additional information.

Collection Method to Datum Mapping

These mappings of method to most likely datum are to be used only when the datum is not reported.

|  |  |
| --- | --- |
| **Method** | **Most Likely Datum** |
| ADDM | NAD83 |
| AGPS | WGS84 |
| CALC | NAD83 |
| CSUR | NAD83 |
| DGPS | WGS84 |
| DMAP | NAD27 |
| DPHO | NAD83 |
| GGPS | WGS84 |
| LORN | WGS84 |
| MMAP | NAD83 |
| MPHO | NAD83 |
| OTHR | NAD83 |
| SATI | NAD83 |
| WGPS | WGS84 |
| UNKN | NAD27 |
| ZIP2 | WGS84 |
| ZIP4 | WGS84 |
| ZIPC | NAD83 |

FDM Location Data Element Mapping

The table below shows how each of the Business Data Element fields has or has not been implemented in the Integrated Management System schema, FDM. The following columns; FDM Table, Short Name, Column Name, Data Type and Size contains the actual names and specifications used to hold the values for the Business Data Elements.

| **Business Data Element** | **FDM Table** | **Short Name** | **Column Name** | **Data Type** | **Size** |
| --- | --- | --- | --- | --- | --- |
| Location Geometry | GEOGRAPHIC\_LOCATIONS | GL | GEOMETRY | SDO\_GEOMETRY | N/A |
| Collection Method Identifier | COORDINATE\_METHOD\_CODES | CMC2 | COORDINATE\_METHOD\_ID | VARCHAR2 | 4 |
| Object of Interest Identifier | OBJECT\_OF\_INTEREST\_CODES | OIC | OBJECT\_OF\_INTEREST\_ID | VARCHAR2 | 5 |
| Relationship to Object Identifier | PROXIMITY\_CODES | PC2 | PROXIMITY\_ID | VARCHAR2 | 5 |
| X Coordinate Number | GEOGRAPHIC\_LOCATIONS | GL | X\_COORDINATE | NUMBER | 12,6 |
| Y Coordinate Number | GEOGRAPHIC\_LOCATIONS | GL | Y\_COORDINATE | NUMBER | 12,6 |
| Datum Identifier | DATUM\_CODES | DC4 | DATUM\_ID | VARCHAR2 | 10 |
| Collector Name | GEOGRAPHIC\_LOCATIONS | GL | COLLECT\_USERNAME | VARCHAR2 | 30 |
| Collector Affiliation Name | GEOGRAPHIC\_LOCATIONS | GL | COLLECT\_AFFILIATION | VARCHAR2 | 60 |
| Collecting Program Identifier |  |  |  |  |  |
| Collection Date | GEOGRAPHIC\_LOCATIONS | GL | COLLECT\_DATE | DATE |  |
| Map Source Name | GEOGRAPHIC\_LOCATIONS | GL | MAP\_SOURCE | VARCHAR2 | 30 |
| Map Source Scale Number | GEOGRAPHIC\_LOCATIONS | GL | MAP\_SOURCE\_SCALE | NUMBER | 8 |
| Interpolation Scale | GEOGRAPHIC\_LOCATIONS | GL | INTERPOLATION\_SCALE | NUMBER | 8 |
| Coordinate Accuracy Level Identifier | COORD\_ACCURACY\_LEVEL\_CODES | CALC | COORD\_ACCURACY\_LEVEL\_ID | NUMBER | 3 |
| Verification Method Identifier | GEOGRAPHIC\_LOCATIONS | GL | VERIFIED\_COORDINATE\_METHOD\_ID | VARCHAR2 | 4 |
| Verifier Name | GEOGRAPHIC\_LOCATIONS | GL | VERIFIER\_USERNAME | VARCHAR2 | 30 |
| Verifier Affiliation Name | GEOGRAPHIC\_LOCATIONS | GL | VERIFIER\_AFFILIATION | VARCHAR2 | 60 |
| Verifying Program Identifier |  |  |  |  |  |
| Verification Date | GEOGRAPHIC\_LOCATIONS | GL | VERIFICATION\_DATE | DATE |  |
| Latitude Measure Degrees Number | GEOGRAPHIC\_LOCATIONS | GL | LATITUDE\_DD | NUMBER | 2 |
| Latitude Measure Minutes Number | GEOGRAPHIC\_LOCATIONS | GL | LATITUDE\_MM | NUMBER | 2 |
| Latitude Measure Seconds Number | GEOGRAPHIC\_LOCATIONS | GL | LATITUDE\_SS | NUMBER | 6,4 |
| Longitude Measure Degrees Number | GEOGRAPHIC\_LOCATIONS | GL | LONGITUDE\_DD | NUMBER | 3 |
| Longitude Measure Minutes Number | GEOGRAPHIC\_LOCATIONS | GL | LONGITUDE\_MM | NUMBER | 2 |
| Longitude Measure Seconds Number | GEOGRAPHIC\_LOCATIONS | GL | LONGITUDE\_SS | NUMBER | 6, 4 |
| Elevation Number |  |  |  |  |  |
| Elevation Datum Name |  |  |  |  |  |
| Elevation Resolution Number |  |  |  |  |  |
| Elevation Unit Name |  |  |  |  |  |

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1. M - Meters [↑](#footnote-ref-2)
2. Km - Kilometer [↑](#footnote-ref-3)