

Geodetic Control Points

Data format: SDE Feature Class

File or table name: SDV_PUBLIC.GEODETIC_CONTROL_POINT

Coordinate system: Lambert Conformal Conic

Theme keywords: location, NSRS, geodetic, horizontal control, vertical control, ellipsoid height, benchmark, orthometric height, latitude, longitude, geodetic control

Abstract: This data contains a set of geodetic control stations maintained by the National Geodetic Survey. Each geodetic control station in this dataset has either a precise Latitude/Longitude used for horizontal control or a precise Orthometric Height used for vertical control, or both. The National Geodetic Survey (NGS) serves as the Nation's depository for geodetic data. The NGS distributes geodetic data worldwide to a variety of users. These geodetic data include the final results of geodetic surveys, software programs to format, compute, verify, and adjust original survey observations or to convert values from one geodetic datum to another, and publications that describe how to obtain and use Geodetic Data products and services.

FGDC and ESRI Metadata:

- [Identification Information](#)
- [Data Quality Information](#)
- [Spatial Data Organization Information](#)
- [Spatial Reference Information](#)
- [Entity and Attribute Information](#)
- [Distribution Information](#)
- [Metadata Reference Information](#)
- [Geoprocessing History](#)

Metadata elements shown with blue text are defined in the Federal Geographic Data Committee's (FGDC) [Content Standard for Digital Geospatial Metadata \(CSDGM\)](#). Elements shown with green text are defined in the [ESRI Profile of the CSDGM](#). Elements shown with a green asterisk (*) will be automatically updated by ArcCatalog. ArcCatalog adds hints indicating which FGDC elements are mandatory; these are shown with gray text.

Identification Information:

Citation:

Citation information:

Originators: NOAA, National Geodetic Survey

Title:

Geodetic Control Points

***File or table name:** SDV_PUBLIC.GEODETIC_CONTROL_POINT

Publication date: 20120522

Edition: latest available

***Geospatial data presentation form:** vector digital data

Series information:

Series name: N/A

Issue identification: N/A

Publication information:

Publication place: NOAA Campus, Silver Spring, MD

Publisher: NOAA, National Geodetic Survey

Other citation details:

Questions concerning this data may be addressed to NGS Information Services Branch EMail - ngs.software@noaa.gov Phone - 301-713-3242

Online linkage:

Description:

Abstract:

This data contains a set of geodetic control stations maintained by the National Geodetic Survey. Each geodetic control station in this dataset has either a precise Latitude/Longitude used for horizontal control or a precise Orthometric Height used for vertical control, or both.

The National Geodetic Survey (NGS) serves as the Nation's depository for geodetic data. The NGS distributes geodetic data worldwide to a variety of users. These geodetic data include the final results of geodetic surveys, software programs to format, compute, verify, and adjust original survey observations or to convert values from one geodetic datum to another, and publications that describe how to obtain and use Geodetic Data products and services.

Purpose:

Provide a base of reference for latitude, longitude and height throughout the United States.

***Language of dataset:** en

Time period of content:

Time period information:

Single date/time:

Calendar date: 20120518

Currentness reference:

retrieval date

Status:

Progress: Complete

Maintenance and update frequency: Continually

Spatial domain:

Bounding coordinates:

***West bounding coordinate:** -84.434977

***East bounding coordinate:** -75.233911

***North bounding coordinate:** 36.610420

***South bounding coordinate:** 33.729223

Local bounding coordinates:

***Left bounding coordinate:** 122806.477800

***Right bounding coordinate:** 946743.287600

***Top bounding coordinate:** 317338.866800

***Bottom bounding coordinate:** 10579.807800

Keywords:

Theme:

Theme keywords: location

Theme keyword thesaurus: ISO 19115 Topic Category

Theme:

Theme keywords: NSRS, geodetic, horizontal control, vertical control, ellipsoid height, benchmark, orthometric height, latitude, longitude, geodetic control

Theme keyword thesaurus: geodesy

Place:

Place keywords: The geographic limits of USA including trust Territories

Place keyword thesaurus: None

Stratum:

Stratum keywords: N/A

Stratum keyword thesaurus: N/A

Temporal:

Temporal keywords: N/A

Temporal keyword thesaurus: N/A

Access constraints: Geodetic Data are in the public domain, not restricted from access or distribution.

Use constraints:

Not restricted; Geodetic Data, including software were developed and compiled with U.S. Government funding; no proprietary rights may be attached to them nor may they be sold to the U.S. Government as part of any procurement of ADP products or services.

Point of contact:

Contact information:

Contact person primary:

Contact person: NGS Information Services Branch

Contact organization: NOAA, National Geodetic Survey

Contact position: IT Specialist

Contact address:

Address type: Mailing and Physical Address

Address:

SSMC2/9152

1315 East-west Highway

City: Silver Spring

State or province: MD

Postal code: 20910

Country: USA

Contact voice telephone: 301-713-3242

Contact facsimile telephone: 301-713-4172

Contact electronic mail address: ngs.software@noaa.gov

Hours of service: 8:30am to 5:00pm EST

Contact instructions:

Prefer EMail

Data set credit:

NOAA, National Geodetic Survey and cooperating organizations

Security information:

Security classification system: DOD

Security classification: Unclassified

Security handling description: none

***Native dataset format:** SDE Feature Class

***Native data set environment:**

Microsoft Windows Vista Version 6.1 (Build 7601) Service Pack 1; ESRI ArcCatalog 9.3.1.4000

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Data Quality Information:

Attribute accuracy:

Attribute accuracy report:

Horizontal control stations (those with precise Latitude, Longitude)

were established in accordance with FGDC publications

"Standards and Specifications for Geodetic Accuracy Standards"

and "Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques"

The final Latitude, Longitude of these stations were determined by a least squares adjustments of the horizontal observations.

Horizontal control station have Latitude, Longitudes displayed

to 5 places and are identified by attribute POS_SRCE = 'ADJUSTED'

Lesser quality Latitude, Longitudes may also be preset in the dataset.

These are identified by a POS_SRCE attributes

HD_HELD1, HD_HELD2, or SCALED.

These lesser quality positions are described at:

<http://www.ngs.noaa.gov/cgi-bin/ds_lookup.prl?Item=SCALED>

Vertical control stations (those with precise Orthometric Heights)

were established in accordance with FGDC publications

"Standards and Specifications for Geodetic Accuracy Standards"

The final Orthometric Height of these stations were in most cases

determined by a least squares adjustments of the vertical observations but in some cases may have been keyed from old survey documents.

Vertical control stations have Orthometric Heights displayed

to 2 or 3 places and are identified by attribute ELEV_SRCE of

ADJUSTED, ADJ UNCH, POSTED, READJUST, N HEIGHT, RESET, COMPUTED

Lesser quality Orthometric Heights may also be present in the dataset. These are identified by a ELEV_SRCE attributes GPS_OBS, VERT_ANG, H_LEVEL, VERTCON, SCALED. These lesser quality orthometric heights are described at: <http://www.ngs.noaa.gov/cgi-bin/ds_lookup.prl?Item=SCALED> IMPORTANT - Control stations do not always have both precise Latitude, Longitude AND precise Orthometric Height. A horizontal control station may have a orthometric height associated with it which is of non geodetic quality. These types of heights are displayed to 0, 1, or 2 decimal places. Worst case being off by +/- 1 meter. LIKEWISE - A Vertical control station may have a Latitude, Longitude associated with it which is of non geodetic quality. These types of Latitude, Longitudes are displayed to 0, 1 or 2 decimal places. Worst case being off by +/- 180 meter. Refer to <http://www.ngs.noaa.gov/cgi-bin/ds_lookup.prl?Item=SCALED> for a description of the various type of methods used in determining the Latitude, Longitude, and Orthometric Height. Attribute POS_CHECK and ELEV_CHECK indicate whether or not an observational check was made to the position and/or orthometric height. Care should be taken when using "No Check" coordinates. If attribute ELEV_SRCE = 'VERTCON' then the Orthometric Height was determined by applying NGS program VERTCON to an Old NGVD 29 height. In most areas VERTCON gives results to +/- 2 cm. See <<http://www.ngs.noaa.gov/TOOLS/Vertcon/vertcon.html>> for a more detailed explanation of VERTCON accuracy. Ellipsoid Heights are also present in the dataset. The ellipsoid heights consist of those determined using a precise geoid model, which are displayed to 2 decimal places and are considered good to +/- .005 meters, and those displayed to 1 decimal place and are considered only good to +/- .5 meters

Quantitative attribute accuracy assessment:

Attribute accuracy value: 95 percent confidence level for geodetic quality data.

Attribute accuracy explanation:

Geodetic Data are continuously being processed; their standards and specifications are being reviewed for next publication release. "Standards and Specifications for Geodetic Control Networks", 1984 and "Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques," FGCS (formally FGCC) publication version 5.0 1989, are most current published documents.

Logical consistency report:

FGCS sponsored testing in cooperation with equipment manufacturers and National Institutes of Standards and Technology, Gaithersburg, MD 20850

Completeness report:

This dataset DOES NOT include destroyed marks. All other non-publishable marks are NOT included. Non-publishable criteria is available at <http://www.ngs.noaa.gov/cgi-bin/craigs_lib.prl?HELP_NONPUB=1>

Positional accuracy:

Horizontal positional accuracy:

Horizontal positional accuracy report:

The description of tests are explained in "Geometric Geodetic Accuracy Standards and Specifications For Using GPS Relative Positioning Techniques," FGCS (formally FGCC) publication version 5.0, 1989.

Quantitative horizontal positional accuracy assessment:

Horizontal positional accuracy value: .05 meters for highest order of accuracy

Horizontal positional accuracy explanation:

None.

Vertical positional accuracy:

Vertical positional accuracy report:

The description of tests are explained in "Geometric Geodetic Accuracy Standards and Specifications for Using GPS Relative Positioning Techniques," FGCS (formally FGCC) publication version 5.0, 1989, (See table 1, p6).

Quantitative vertical positional accuracy assessment:

Vertical positional accuracy value: .05 meter for highest order of accuracy

Vertical positional accuracy explanation:

None.

Lineage:

Source information:

Source citation:

Citation information:

Originators: NOAA, National Geodetic Survey

Title:

"Input Formats and Specifications of the National Geodetic Survey Data Base" published by FGCS (formally FGCC)

Publication date: 20120518

Edition: latest available

Geospatial data presentation form: diagram

Series information:

Series name: N/A

Issue identification: N/A

Publication information:

Publication place: NOAA Campus, Silver Spring, MD

Publisher: NOAA, National Geodetic Survey

Other citation details:

N/A

Online linkage: [<http://www.ngs.noaa.gov/FGCS/BlueBook/>](http://www.ngs.noaa.gov/FGCS/BlueBook/)

Type of source media: paper, Web

Source citation abbreviation:

Blue Book

Source contribution:

The geodetic data must be submitted in the digital formats specified in the FGCS (formally FGCC) publication "Input Formats and Specifications of the National Geodetic Survey Data Base" which describes the formats and procedures for submission of data for adjustment and assimilation into the National Geodetic Survey Data Base. Separate volumes of this publication refer to horizontal (volume 1), vertical (volume 2), and gravity (volume 3) control, and are available from NOAA, National Geodetic Survey, 1315 East-West Hwy, Code N/CGS1, Silver Spring, MD, 20910 (1-301-713-3242). Note guidelines for submission of three-dimensional Global Positioning System (GPS) relative positioning data are contained in annex L to volume 1.

Source time period of content:

Time period information:

Single date/time:

Calendar date: 1994

Source currentness reference:

publication date

Process step:

Process description:

The National Geodetic Survey produces geodetic data. Geodetic data comprise the results of geodetic surveys to determine, among other things, latitude, longitude, height, scale, and orientation control. The National Geodetic Survey original field survey project observations and final reports are accessioned into records system of the National Archives and Records Administration of the U.S.A. These surveys provide information valuable for a variety of uses in the mapping, charting and surveying community.

The NGS' final product is the geodetic data sheet. Geodetic data sheets are comprehensive summaries of all published information for a given geodetic reference point, including: the geographic position and/or height based on the current reference datum, condition of the survey mark when it was last visited, a description of where the point is located and how to reach it, and an explanation of the terms used in the data sheet. In support of these geodetic data, the NGS provides software, publications, and various user services, including geodetic advisor program, instrument calibration, surveying standards, and

technical workshops.

This dataset contains certain information extracted from the above mentioned data sheet.

Process date: Not complete

Source used citation abbreviation:

Geodetic Data

Source produced citation abbreviation:

NOAA, National Geodetic Survey and cooperating organizations.

Process contact:

Contact information:

Contact person primary:

Contact person: NGS Information Services Branch

Contact position: IT Specialist

Contact address:

Address type: Mailing and Physical Address

Address:

SSMC2/9152

1315 East-west Highway

City: Silver Spring

State or province: MD

Postal code: 20910

Country: USA

Contact voice telephone: 301-713-3242

Contact facsimile telephone: 301-713-4172

Contact electronic mail address: ngs.software@noaa.gov

Hours of service: 8:30am to 5:00pm EST

Contact instructions:

Prefer EMail

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Spatial Data Organization Information:

Indirect spatial reference method:

Geodetic Data- horizontal positional datum conversion, use program NADCON (version 2.1) Geodetic Data - vertical positional datum conversion, use program VERTCON (version 2.0) These programs provide indirect spatial reference data and are available from NOAA, National Geodetic Survey at
<http://www.ngs.noaa.gov/PC_PROD/pc_prod.shtml>

***Direct spatial reference method:** Vector

Point and vector object information:

SDTS terms description:

***Name:** SDV_PUBLIC.GEODETIC_CONTROL_POINT

***SDTS point and vector object type:** Entity point

***Point and vector object count:** 38203

ESRI terms description:

- ***Name:** SDV_PUBLIC.GEODETIC_CONTROL_POINT
- ***ESRI feature type:** Simple
- ***ESRI feature geometry:** Point
- ***ESRI topology:** FALSE
- ***ESRI feature count:** 38203
- ***Spatial index:** TRUE
- ***Linear referencing:** FALSE

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Spatial Reference Information:

Horizontal coordinate system definition:

Coordinate system name:

- ***Projected coordinate system name:**
NAD_1983_HARN_StatePlane_North_Carolina_FIPS_3200
- ***Geographic coordinate system name:** GCS_North_American_1983_HARN

Planar:

Map projection:

- ***Map projection name:** Lambert Conformal Conic
- Lambert conformal conic:**
 - ***Standard parallel:** 34.333333
 - ***Standard parallel:** 36.166667
 - ***Longitude of central meridian:** -79.000000
 - ***Latitude of projection origin:** 33.750000
 - ***False easting:** 609601.219202
 - ***False northing:** 0.000000

Planar coordinate information:

- ***Planar coordinate encoding method:** coordinate pair
- Coordinate representation:**
 - ***Abscissa resolution:** 0.000100
 - ***Ordinate resolution:** 0.000100
- ***Planar distance units:** meters

Geodetic model:

- ***Horizontal datum name:** D_North_American_1983_HARN
- ***Ellipsoid name:** Geodetic Reference System 80
- ***Semi-major axis:** 6378137.000000
- ***Denominator of flattening ratio:** 298.257222

Vertical coordinate system definition:

Altitude system definition:

- ***Altitude resolution:** 1.000000
- ***Altitude encoding method:** Explicit elevation coordinate included with horizontal coordinates

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Entity and Attribute Information:

Detailed description:

***Name:** SDV_PUBLIC.GEODETIC_CONTROL_POINT

Entity type:

***Entity type label:** SDV_PUBLIC.GEODETIC_CONTROL_POINT

***Entity type type:** Feature Class

***Entity type count:** 38203

Attribute:

***Attribute label:** OBJECTID

***Attribute alias:** OBJECTID

***Attribute definition:**
Internal feature number.

***Attribute definition source:**
ESRI

***Attribute type:** OID

***Attribute width:** 4

***Attribute precision:** 10

***Attribute scale:** 0

Attribute domain values:

***Unrepresentable domain:**
Sequential unique whole numbers that are automatically generated.

Attribute:

***Attribute label:** Shape

***Attribute alias:** Shape

***Attribute definition:**
Feature geometry.

***Attribute definition source:**
ESRI

***Attribute type:** Geometry

***Attribute width:** 4

***Attribute precision:** 0

***Attribute scale:** 0

Attribute domain values:

***Unrepresentable domain:**
Coordinates defining the features.

Attribute:

***Attribute label:** FeatureId

***Attribute alias:** FEATUREID

***Attribute type:** Integer

***Attribute width:** 4

***Attribute precision:** 10

***Attribute scale:** 0

Attribute:

***Attribute label:** DATA_DATE

***Attribute alias:** DATA_DATE

- *Attribute type: String
- *Attribute width: 8
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: DATA_SRCE
- *Attribute alias: DATA_SRCE

- *Attribute type: String
- *Attribute width: 57
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: DEC_LONG
- *Attribute alias: DEC_LONG

- *Attribute type: String
- *Attribute width: 15
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: DEC_LAT
- *Attribute alias: DEC_LAT

- *Attribute type: String
- *Attribute width: 13
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: PID
- *Attribute alias: PID

- *Attribute type: String
- *Attribute width: 6
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: STATE
- *Attribute alias: STATE

- *Attribute type: String
- *Attribute width: 2
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: COUNTY
- *Attribute alias: COUNTY

- *Attribute type: String
- *Attribute width: 26

*Attribute precision: 0

*Attribute scale: 0

Attribute:

*Attribute label: QUAD

*Attribute alias: QUAD

*Attribute type: String

*Attribute width: 40

*Attribute precision: 0

*Attribute scale: 0

Attribute:

*Attribute label: LATITUDE

*Attribute alias: LATITUDE

*Attribute type: String

*Attribute width: 17

*Attribute precision: 0

*Attribute scale: 0

Attribute:

*Attribute label: LONGITUDE

*Attribute alias: LONGITUDE

*Attribute type: String

*Attribute width: 18

*Attribute precision: 0

*Attribute scale: 0

Attribute:

*Attribute label: POS_DATUM

*Attribute alias: POS_DATUM

*Attribute type: String

*Attribute width: 6

*Attribute precision: 0

*Attribute scale: 0

Attribute:

*Attribute label: DATUM_TAG

*Attribute alias: DATUM_TAG

*Attribute type: String

*Attribute width: 6

*Attribute precision: 0

*Attribute scale: 0

Attribute:

*Attribute label: POS_SRCE

*Attribute alias: POS_SRCE

*Attribute type: String

*Attribute width: 12

*Attribute precision: 0

*Attribute scale: 0

Attribute:

***Attribute label:** ELEVATION
***Attribute alias:** ELEVATION

***Attribute type:** String
***Attribute width:** 9
***Attribute precision:** 0
***Attribute scale:** 0

Attribute:

***Attribute label:** ELEV_DATUM
***Attribute alias:** ELEV_DATUM

***Attribute type:** String
***Attribute width:** 12
***Attribute precision:** 0
***Attribute scale:** 0

Attribute:

***Attribute label:** ELEV_SRCE
***Attribute alias:** ELEV_SRCE

***Attribute type:** String
***Attribute width:** 12
***Attribute precision:** 0
***Attribute scale:** 0

Attribute:

***Attribute label:** ELLIP_HT
***Attribute alias:** ELLIP_HT

***Attribute type:** String
***Attribute width:** 9
***Attribute precision:** 0
***Attribute scale:** 0

Attribute:

***Attribute label:** ELLIP_SRCE
***Attribute alias:** ELLIP_SRCE

***Attribute type:** String
***Attribute width:** 12
***Attribute precision:** 0
***Attribute scale:** 0

Attribute:

***Attribute label:** POS_ORDER
***Attribute alias:** POS_ORDER

***Attribute type:** String
***Attribute width:** 1
***Attribute precision:** 0
***Attribute scale:** 0

Attribute:

***Attribute label:** POS_CHECK

***Attribute alias:** POS_CHECK

***Attribute type:** String

***Attribute width:** 1

***Attribute precision:** 0

***Attribute scale:** 0

Attribute:

***Attribute label:** ELEV_ORDER

***Attribute alias:** ELEV_ORDER

***Attribute type:** String

***Attribute width:** 1

***Attribute precision:** 0

***Attribute scale:** 0

Attribute:

***Attribute label:** ELEV_CLASS

***Attribute alias:** ELEV_CLASS

***Attribute type:** String

***Attribute width:** 1

***Attribute precision:** 0

***Attribute scale:** 0

Attribute:

***Attribute label:** ELEV_CHECK

***Attribute alias:** ELEV_CHECK

***Attribute type:** String

***Attribute width:** 1

***Attribute precision:** 0

***Attribute scale:** 0

Attribute:

***Attribute label:** DIST_RATE

***Attribute alias:** DIST_RATE

***Attribute type:** String

***Attribute width:** 1

***Attribute precision:** 0

***Attribute scale:** 0

Attribute:

***Attribute label:** ELLP_ORDER

***Attribute alias:** ELLP_ORDER

***Attribute type:** String

***Attribute width:** 1

***Attribute precision:** 0

***Attribute scale:** 0

Attribute:

***Attribute label:** ELLP_CLASS

***Attribute alias:** ELLP_CLASS

- *Attribute type: String
- *Attribute width: 1
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: FIRST_RECV
- *Attribute alias: FIRST_RECV

- *Attribute type: String
- *Attribute width: 8
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: LAST_RECV
- *Attribute alias: LAST_RECV

- *Attribute type: String
- *Attribute width: 8
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: LAST_COND
- *Attribute alias: LAST_COND

- *Attribute type: String
- *Attribute width: 16
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: LAST_RECBY
- *Attribute alias: LAST_RECBY

- *Attribute type: String
- *Attribute width: 6
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: SAT_USE
- *Attribute alias: SAT_USE

- *Attribute type: String
- *Attribute width: 1
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: SAT_DATE
- *Attribute alias: SAT_DATE

- *Attribute type: String

- *Attribute width: 8
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: STABILITY
- *Attribute alias: STABILITY

- *Attribute type: String
- *Attribute width: 1
- *Attribute precision: 0
- *Attribute scale: 0

Attribute:

- *Attribute label: GEOD_NAME
- *Attribute alias: GEOD_NAME

- *Attribute type: String
- *Attribute width: 40
- *Attribute precision: 0
- *Attribute scale: 0

Overview description:

Entity and attribute overview:

The current attributes and their meaning are shown below.

#FeatureId

Temporary unique ID assigned to this station.

DATA_DATE-

The date when this information was retrieved from the NGS database.

DATA_SRCE-

Data Source where the information for the mark came from.

You should use this link to obtain a full datasheet for the mark

or obtain the datasheets from <<http://www.ngs.noaa.gov/cgi-bin/datasheet.prl>>

if you intend to use the data for survey control.

DEC_LONG-

Decimal equivalent of the LONGITUDE

Always displayed to 10 decimal places, but you should

see POS_SRCE and POS_ORDER to determine the true accuracy.

DEC_LAT-

Decimal equivalent of the LATITUDE

PID-

Permanent Identifier assigned by NGS to each mark

NAME-

Station Name (a.k.a. Designation)

STATE-

State Code

COUNTY-

County Name

QUAD-

USGS Topographic Quad Map Name

LATITUDE-

Latitude in Deg-Min-Sec format

LONGITUDE-

Longitude in Deg-Min-Sec format

POS_DATUM-

Datum of the LATITUDE, LONGITUDE

Should always be NAD83

DATUM_TAG-

Datum Tag of the LATITUDE, LONGITUDE

NAD83 (1986) indicates positions on the NAD83 datum for the North American Adjustment, completed in 1986.

NAD83 (nnnn) indicates positions on the NAD83 datum for the North American Adjustment, but readjusted to a State High Accuracy Reference Network (HARN) on the date shown in (nnnn).

NAD83 (CORS) indicates positions which are part of the CORS network.

POS_SRCE-

Position Source for the LATITUDE, LONGITUDE

ADJUSTED = Least squares adjustment.

(Lat, Lon Rounded to 5 decimal places.)

HD_HELD1 = Differentially corrected hand held GPS observations.

(Lat, Lon Rounded to 2 decimal places.)

HD_HELD2 = Autonomous hand held GPS observations.

(Lat, Lon Rounded to 1 decimal places.)

SCALED = Scaled from a topographic map.

(Lat, Lon Rounded to 0 decimal places.)

ELEVATION-

Present if available.

The Orthometric Height in METERS indicating the height above the Geoid.

ELEV_DATUM-

Datum of the ELEVATION

ELEV_SRCE-

Elevation Source for the ELEVATION

ADJUSTED = Direct Digital Output from Least Squares Adjustment of Precise Leveling.

(Rounded to 3 decimal places.)

ADJ UNCH = Manually Entered (and NOT verified) Output of Least Squares Adjustment of Precise Leveling.

(Rounded to 3 decimal places.)

POSTED = Pre-1991 Precise Leveling Adjusted to the NAVD 88 Network After Completion of the NAVD 88 General Adjustment of 1991.

(Rounded to 3 decimal places.)

READJUST = Precise Leveling Readjusted as Required by Crustal Motion or Other Cause.

(Rounded to 2 decimal places.)

N HEIGHT = Computed from Precise Leveling Connected at Only One Published Bench Mark.

(Rounded to 2 decimal places.)

RESET = Reset Computation of Precise Leveling.

(Rounded to 2 decimal places.)

COMPUTED = Computed from Precise Leveling Using Non-rigorous Adjustment Technique.

(Rounded to 2 decimal places.)

LEVELING = Precise Leveling Performed by Horizontal Field Party.

(Rounded to 2 decimal places.)

H LEVEL = Level between control points not connected to bench mark.

(Rounded to 1 decimal places.)

GPS OBS = Computed from GPS Observations.

(Rounded to 1 decimal places.)

VERT ANG = Computed from Vertical Angle Observations.

(Rounded to 1 decimal place;

If No Check, to 0 decimal places.)

SCALED = Scaled from a Topographic Map.

(Rounded to 0 decimal places.)

U HEIGHT = Unvalidated height from precise leveling
connected at only one NSRS point.

(Rounded to 2 decimal places.)

VERTCON = The NAVD 88 height was computed by applying the
VERTCON shift value to the NGVD 29 height.

(Rounded to 0 decimal places.)

ELLIP_HT-

Present if available.

The ellipsoid height in METERS referenced to GRS80 ellipsoid.

ELLIP_SRCE-

Ellipsoid Ht Source for the ELLIP_HT

Should always be GPS_OBS when present.

POS_ORDER-

Order of accuracy for the LATITUDE, LONGITUDE

Should be one of the following-

A,B,1,2,3

Order and class for Orders 1, 2, and 3

are defined in the Federal Geodetic Control Committee publication
"Standards and Specifications for Geodetic Control Networks".

In addition-

Order A stations have a relative accuracy of

5 mm +/- 1-10,000,000 relative to other A-order stations.

Order B stations have a relative accuracy of

8 mm +/- 1- 1,000,000 relative to other A- and B-order stations.

POS_CHECK-

Y=Observational Check was made for the position,

N=NO Observational Check was made for the positions

ELEV_ORDER-

Order of accuracy for the ELEVATION

Should be 1,2, or 3 for Vertical Control Stations.

Will be blank for stations used for Horizontal Control only.

Also see attribute DIST_RATE which is used for some
vertical control stations.

Elevation order and class for 1, 2, and 3

are defined in the Federal Geodetic Control

Committee publication "Standards and Specifications for Geodetic
Control Networks". In addition-

Vertical control which were determined only for the purpose of
supplying a height for Horizontal Distance Reductions are
assigned an order of 3.

Class 0 is used for special cases of
orthometric vertical control as follows-

Vertical Order/Class Tolerance Factor

Vertical Order/Class	Tolerance Factor
1 class 0	2.0 mm or less
2 class 0	8.4 mm or less
3 class 0	12.0 mm or less

ELEV_CLASS-

Should be 0, 1, or 2

See details under ELEV_ORDER

ELEV_CHECK-

Y=Observational Check was made for the orthometric height,
 N=NO Observational Check was made for the orthometric heights
 VERTCONED-

Y=Orthometric Height was determined by applying VERTCON
 to an old NGVD 29 height.

N=Orthometric Height determined by observations.

DIST_RATE-

Distribution rate for POSTED and READJUSTED benchmarks
 which do not have an Order and Class are as follows

"Posted bench marks" are vertical control points in the NGS data
 base which were excluded from the NAVD 88 general adjustment.

Some of the bench marks were excluded due to large adjustment
 residuals, possibly caused by vertical movement of the bench marks
 during the time interval between different leveling epochs.

Adjusted NAVD 88 are computed for posted bench marks by
 supplemental adjustments.

A range of mean distribution rate corrections is listed for each
 posted bench mark in the data portion of the publication.

A summary table of the mean distribution rates and their codes is
 listed below. The mean distribution rate corrections which were
 applied to the original leveling observations is a good
 indication of the usefulness of the posted bench marks' adjusted
 NAVD 88 heights.

Distribution Rate Code	Distribution Rate Correction
---------------------------	---------------------------------

"a"	0.0 thru 1.0 mm/km
"b"	1.1 thru 2.0 "
"c"	2.1 thru 3.0 "
"d"	3.1 thru 4.0 "
"e"	4.1 thru 8.0 "
"f"	greater than 8.0 mm/km

POSTED BENCH MARKS SHOULD BE USED WITH CAUTION. As is the case for
 all leveling projects, the mandatory FGCS check leveling two-mark or
 three-mark tie procedure will usually detect any isolated movement
 (or other problem) at an individual bench mark. Of course, regional
 movement affecting all the marks equally is not detected by the two-
 or three-mark tie procedure.

ELLIP_ORDER-

Order of accuracy for the ELLIP_HT

Should be 1,2,3,4, or 5 if present.

The following ellipsoid height order and class relative accuracy
 standards have not yet been adopted by the Federal Geodetic
 Control Subcommittee, but are currently in use by NGS-

Ellipsoid Height Classification	Maximum Height Difference Accuracy
------------------------------------	---------------------------------------

1 class 1	0.5 (mm)/sqrt(km)
1 class 2	0.7
2 class 1	1.0
2 class 2	1.3
3 class 1	2.0
3 class 2	3.0
4 class 1	6.0
4 class 2	15.0
5 class 1	30.0

5 class 2 60.0

The ellipsoid height difference accuracy (b) is computed from a minimally constrained correctly weighted least squares adjustment by-

$$b = s / \text{sqrt}(d)$$

where

b = height difference accuracy

s = propagated standard deviation of ellipsoid height difference in millimeters between control points obtained from the least squares adjustment.

d = horizontal distance between control points in kilometers

ELLP_class-

Class of accuracy for ELLIP_HT

Should be 1 or 2

See details under ELLP_ORDER

FIRST_RECV-

Date when the station was first monumented or in the case of landmarks, first observed.

LAST_RECV-

Date when the station was last recovered.

LAST_COND-

Last recovered condition of the mark.

Should be one of the following-

MONUMENTED

FIRST OBSERVED

GOOD

POOR

MARK NOT FOUND

SEE DESCRIPTION

DESTROYED

LAST_RECBY-

Agency who reported the last condition of the mark.

STABILITY-

The stability of the mark may have 1 of 4 codes as indicated below-

A = MOST RELIABLE AND EXPECTED TO HOLD POSITION/ELEVATION WELL

B = PROBABLY HOLD POSITION/ELEVATION WELL

C = MAY HOLD, BUT OF TYPE COMMONLY SUBJECT TO SURFACE MOTION
- E.G. FROST HEAVE, ETC

D = MARK OF QUESTIONABLE OR UNKNOWN STABILITY

Entity and attribute detail citation:

All values were obtained from the NGA Datasheet available at <<http://www.ngs.noaa.gov/cgi-bin/datasheet.prl>>

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Distribution Information:

Distributor:

Contact information:

Contact organization primary:

Contact organization: Center for Geographic Information and Analysis

Contact position: NC OneMap Database Administrator

Contact address:**Address type:** mailing address**Address:**

20322 Mail Service Center

City: Raleigh**State or province:** NC**Postal code:** 27699-20322**Country:** USA**Contact voice telephone:** 919-754-6585**Contact electronic mail address:** nconemap@its.nc.gov**Hours of service:** 8:30-5:00**Contact instructions:**

email preferred

Resource description: Downloadable Data**Distribution liability:**

Because these data can quickly become outdated, the North Carolina Natural Heritage Program (Division of Natural Resources Planning and Conservation, Department of Environment and Natural Resources, MSC 1601, Raleigh, NC 27699-1601) should be contacted before use of the data set to ensure data currency. Acknowledgment of products derived from this data set should cite the North Carolina Natural Heritage Program. While efforts have been made to ensure that these data are accurate and reliable, the North Carolina Natural Heritage Program cannot assume liability for any damages or misrepresentation caused by any inaccuracies in the data. NCCGIA is charged with the development and maintenance of NC OneMap and, in cooperation with other mapping organizations, is committed to offering its users accurate, useful, and current information. Although every effort has been made to ensure the accuracy of information, errors and conditions originating from physical sources used to develop this dataset may be reflected in the data supplied. The user must be aware of possible conditions and bear responsibility for the appropriate use of the information with respect to possible errors, original map scale, collection methodology, currency of data, and other conditions specific to certain data. NCCGIA does not support secondary distribution of this dataset without its current, compliant metadata record. The use of trade names or commercial products does not constitute their endorsement by NCCGIA or North Carolina State Government.

Standard order process:**Digital form:****Digital transfer information:****Format name:** ARCG**Format version number:** 9.x**Format specification:**

shapefile

Transfer size: 32.812**Digital transfer option:****Online option:****Computer contact information:****Network address:****Network resource name:**<ftp://ftp.nconemap.com/outgoing/vector/gdc.zip>

Offline option:

Offline media: CD-ROM

Recording format: shapefile

Fees: None for online download; for offline distribution, contact nconemap@its.nc.gov

Ordering instructions:

see <http://data.nconemap.com> and search on "managed" or other keywords.

Custom order process:

Contact the Natural Heritage Program, 919-707-8630

Technical prerequisites:

Software that can display geospatial data.

Available time period:

Time period information:

Single date/time:

Calendar date: 2012

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Metadata Reference Information:

***Metadata date:** 20130212

***Language of metadata:** en

Metadata contact:

Contact information:

Contact organization primary:

Contact person: REQUIRED: The person responsible for the metadata information.

Contact organization: NC CGIA

Contact address:

Address type: Physical

Address:

333 E. Six Forks Road

City: Raleigh

State or province: North Carolina

Postal code: 27609

Country: U.S.A.

Contact address:

Address type: Mailing

Address:

20322 Mail Service Center

City: Raleigh

State or province: North Carolina

Postal code: 27699

Country: U.S.A.

Contact voice telephone: 919-754-6580

Contact facsimile telephone: 919-715-8551

Contact electronic mail address: dataq@its.nc.gov

Hours of service: 8am to 5pm

Contact instructions:

Phone and electronic mail preferred

***Metadata standard name:** FGDC Content Standards for Digital Geospatial Metadata

***Metadata standard version:** FGDC-STD-001-1998

***Metadata time convention:** local time

Metadata access constraints: None

Metadata use constraints:

This metadata file is to accompany the dataset. NCCGIA does not support secondary distribution of this dataset without its current, compliant metadata record. If the dataset described in this metadata record was received from anyone besides NCCGIA, this metadata and the dataset it describes may contain discrepancies.

Metadata extensions:

***Online linkage:** <http://www.esri.com/metadata/esriprof80.html>

***Profile name:** ESRI Metadata Profile

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Geoprocessing History:

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