

# Black Hawk County Primary Geodetic Control Network

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## Identification Information

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### Citation:

#### Citation Information:

**Originator:** Black Hawk County Engineering Department

**Publication Date:** 1994

**Title:** Black Hawk County Primary Geodetic Control Network

**Geospatial Data Presentation Form:** model

### Description:

#### Abstract:

Establishment of the geodetic control network is essential to modernization and integration of land information within the county. Black Hawk County Engineering established a network of ground control points that are positioned using global positioning system (GPS) survey methods. Eight National Geodetic Survey (NGS) horizontal and one NGS vertical survey monuments were utilized as primary control for initial adjustments within the network. The Geoid 93 Central zone was utilized to provide a model of the height of geoid. One hundred thirty two (132) targeted control points were added to the existing NGS and USGS monuments for orthophotography control, with additional control points were added in the metropolitan areas, bringing the total number of ground control points to 158. These locations are physically marked by the installation of permanent monuments at each targeted control point (contact Black Hawk County Engineering for details). The total network of 179 stations and 282 baselines also includes three (3) temporary control points and thirteen (13) benchmarks. Both horizontal coordinates and vertical coordinates were surveyed using GPS survey techniques and recorded for future reference.

#### Purpose:

The purpose of this survey was to establish throughout Black Hawk County IA a primary geodetic control network using GPS survey equipment and techniques. This ground control point network is essential for digitally removing distortion from aerial photographs as the photos are developed into digital orthophotographic images and for georeferencing the images. The GPS control monumentation is a

necessary component of all future updates to digital orthophotography.

**Supplemental Information:**

Three Trimble 4000SSE dual frequency receivers were used in the 1994 survey. GPS observations began on May 31, 1994 and continued through June 8, 1994 (excluding June 4 and 5). Contact Point of Contact person for details of measurement periods and observation times.

**Time Period of Content:**

**Time Period Information:**

**Single Date/Time:**

**Calendar Date:** 1994

**Currentness Reference:** publication date

**Status:**

**Progress:** Complete

**Maintenance and Update Frequency:** As needed

**Spatial Domain:**

**Bounding Coordinates:**

**West Bounding Coordinate:** -92.556

**East Bounding Coordinate:** -92.062

**North Bounding Coordinate:** 42.644

**South Bounding Coordinate:** 42.294

**Keywords:**

**Theme:**

**Theme Keyword Thesaurus:** None

**Theme Keyword:** GPS

**Theme Keyword:** Geodetic/Cadastral

**Theme Keyword:** Survey Control

**Theme Keyword:** Control Network

**Place:**

**Place Keyword Thesaurus:** None

**Place Keyword:** Black Hawk County Iowa

**Place Keyword:** North East Iowa

**Place Keyword:** Iowa

**Place Keyword:** USA

**Access Constraints:** The recipient may not assert any proprietary rights thereto nor represent it to anyone as other than Black Hawk County and Aerial Services Inc.

**Use Constraints:**

This data set is provided "as-is" without warranty of any kind, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. The user assumes all responsibility for the accuracy and suitability of this data set for a specific application. In no event will Black Hawk County be liable for any damages, including lost profits, lost savings, or other incidental or consequential damages arising from the use of or inability to use this data set.

**Point of Contact:**

**Contact Information:**

**Contact Person Primary:**

**Contact Person:** Geoffrey Tinker

**Contact Organization:** Black Hawk County Engineer's Office

**Contact Position:** Senior Engineering Technician/Surveyor

**Contact Address:**

**Address Type:** mailing and physical address

**Address:** 316 E. 5th Street

**City:** Waterloo

**State or Province:** IA

**Postal Code:** 50703

**Country:** USA

**Contact Voice Telephone:** (319) 833-3008

**Contact Facsimile Telephone:** (319) 833-3139

**Contact Electronic Mail Address:** gtinker@co.black-hawk.ia.us

**Hours of Service:** 8 AM - 4:30 PM

**Contact Instructions:** Call, e-mail, or write with requests

**Data Set Credit:** Black Hawk County Engineer's Office and Aerial Services Inc. (2120 Center Street, Cedar Falls IA 50613), contracted vendor

**Native Data Set Environment:** ASCII file(s)

**Cross Reference:**

**Citation Information:**

**Originator:** Aerial Services Inc.

**Publication Date:** 1994

**Title:** Black Hawk County Iowa G.P.S. Countywide Survey Control Network for Support of Cadastral Mapping Project

**Geospatial Data Presentation Form:** model

**Publication Information:**

**Publication Place:** 2120 Center Street, Cedar Falls IA 50613

**Publisher:** Aerial Services Inc.

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## Data Quality Information

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#### **Completeness Report:**

Initial project completed as planned. Black Hawk County Engineering staff will continue to densify the control network and establish supplemental control networks as needed, using three JAVAD dual frequency receivers. Contact the Primary Contact Person regarding availability of additional/supplemental control data.

#### **Positional Accuracy:**

##### **Horizontal Positional Accuracy:**

**Horizontal Positional Accuracy Report:** First order precision

**Quantitative Horizontal Positional Accuracy Assessment:**

**Horizontal Positional Accuracy Value:** 0.05

**Horizontal Positional Accuracy Explanation:**

All measured points will fall within +/- 0.05 meters horizontally utilizing a 95% confidence factor. In the final adjusted network 85% of the adjusted vectors have an estimated error of 1:100,000 or less. 27% of the adjusted vectors have an estimated error of 1:200,000 or less and 11% have an estimated error of 1:300,000 or less.

##### **Vertical Positional Accuracy:**

**Vertical Positional Accuracy Report:** First order accuracy

**Quantitative Vertical Positional Accuracy Assessment:**

**Vertical Positional Accuracy Value:** 0.07

**Vertical Positional Accuracy Explanation:** All measure points will fall within +/- 0.07 meters vertically utilizing a 95% confidence factor

**Lineage:**

**Source Information:**

**Source Citation:**

**Citation Information:**

**Originator:** National Geodetic Survey, National Oceanic and Atmospheric Administration (NOAA), U.S. Department of Commerce

**Publication Date:** Varies with Sheet

**Title:** National Geodetic Survey (NGS) Data Sheets

**Geospatial Data Presentation Form:** Data Sheet

**Series Information:**

**Series Name:** North Central U.S.

**Issue Identification:** Iowa

**Publication Information:**

**Publisher:** NGS/NOAA

**Other Citation Details:**

NGS data sheets were used to gather specific information about the eight National Geodetic Survey (NGS) horizontal /vertical control and USGS survey monuments used as targeted control points within the network.

**Process Step:**

**Process Description:** Contact the Primary Contact Person for the detailed report noted in the Identification Information Cross-Reference and for NGS data sheets specific to this project.

**Process Date:** 1994

**Process Contact:**

**Contact Information:**

**Contact Person Primary:**

**Contact Person:** Geoffry Tinker

**Contact Organization:** Black Hawk County Engineer's Office

**Contact Position:** Senior Engineering Technician/Surveyor

**Contact Address:**

**Address Type:** mailing and physical address

**Address:** 316 E. 5th Street

**City:** Waterloo

**State or Province:** IA

**Postal Code:** 50703

**Country:** USA

**Contact Voice Telephone:** (319) 833-3008

**Contact Facsimile Telephone:** (319) 833-3139

**Contact Electronic Mail Address:** gtinker@co.black-hawk.ia.us

**Hours of Service:** 8 AM - 4:30 PM

**Contact Instructions:** Call, e-mail, or write with requests

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## Spatial Data Organization Information

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**Direct Spatial Reference Method:** Point  
**Point and Vector Object Information:**  
**SDTS Terms Description:**  
**SDTS Point and Vector Object Type:** Point

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## Spatial Reference Information

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**Horizontal Coordinate System Definition:**

**Planar:**

**Grid Coordinate System:**

**Grid Coordinate System Name:** State Plane Coordinate System 1983

**State Plane Coordinate System:**

**SPCS Zone Identifier:** 1401 Iowa North

**Lambert Conformal Conic:**

**Standard Parallel:** 42.067

**Standard Parallel:** 43.267

**Longitude of Central Meridian:** 93.5

**Latitude of Projection Origin:** 41.5

**False Easting:** 1500000

**False Northing:** 1000000

**Planar Coordinate Information:**

**Planar Coordinate Encoding Method:** Coordinate Pair

**Planar Distance Units:** meters

**Geodetic Model:**

**Horizontal Datum Name:** North American Datum of 1983

**Ellipsoid Name:** Geodetic Reference System 80

**Semi-major Axis:** 6378137

**Denominator of Flattening Ratio:** 298.257222101

**Vertical Coordinate System Definition:**

**Altitude System Definition:**

**Altitude Datum Name:** National Geodetic Vertical Datum of 1929

**Altitude Distance Units:** feet

**Altitude Encoding Method:** Explicit elevation coordinate included with horizontal coordinates

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## Entity and Attribute Information

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**Overview Description:**

**Entity and Attribute Overview:** Primary Control Network with 158 monumented control points, a total of 179 control points and 282 baselines.

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# Distribution Information

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### **Distributor:**

#### **Contact Information:**

##### **Contact Person Primary:**

**Contact Person:** Geoffry Tinker

**Contact Organization:** Black Hawk County Engineer's Office

**Contact Position:** Senior Engineering Technician/Surveyor

##### **Contact Address:**

**Address Type:** mailing and physical address

**Address:** 316 E. 5th Street

**City:** Waterloo

**State or Province:** IA

**Postal Code:** 50703

**Country:** USA

**Contact Voice Telephone:** (319) 833-3008

**Contact Facsimile Telephone:** (319) 833-3139

**Contact Electronic Mail Address:** gtinker@co.black-hawk.ia.us

**Hours of Service:** 8 AM - 4:30 PM

**Contact Instructions:** Call, e-mail, or write with requests

**Distribution Liability:** See Use Access and Use Constraints under Identification Section

### **Standard Order Process:**

#### **Digital Form:**

##### **Digital Transfer Information:**

**Format Name:** ASCII

##### **Digital Transfer Option:**

###### **Offline Option:**

**Offline Media:** 3-1/2 inch floppy disk

##### **Digital Transfer Option:**

###### **Offline Option:**

**Offline Media:** E-mail attachment

**Fees:** Direct cost of services and materials.

**Ordering Instructions:** Contact Distributor

**Turnaround:** Generally one week or less

### **Standard Order Process:**

**Non-digital Form:** Map showing Monument Locations and Network

**Fees:** Cost of materials and services

**Ordering Instructions:** Contact Distributor

**Turnaround:** Generally one week or less

**Custom Order Process:** Contact Distributor

### **Available Time Period:**

#### **Time Period Information:**

##### **Range of Dates/Times:**

**Beginning Date:** 3/1/1999

**Ending Date:** Present

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## Metadata Reference Information

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**Metadata Date:** 2/4/2000

**Metadata Review Date:**

**Metadata Future Review Date:** 2/4/2001

**Metadata Contact:**

**Contact Information:**

**Contact Person Primary:**

**Contact Person:** Kim Veeder

**Contact Organization:** Black Hawk County MIS

**Contact Position:** IT Director/GIS Coordinator

**Contact Address:**

**Address Type:** mailing and physical address

**Address:** 316 E. 5th Street

**City:** Waterloo

**State or Province:** IA

**Postal Code:** 50703

**Country:** USA

**Contact Voice Telephone:** (319) 833-3154

**Contact Facsimile Telephone:** (319) 833-3165

**Contact Electronic Mail Address:** [it@co.black-hawk.ia.us](mailto:it@co.black-hawk.ia.us)

**Hours of Service:** 8:00 AM - 4:30 PM

**Contact Instructions:** Call, e-mail, or write with requests for geospatial datasets

**Metadata Standard Name:** FGDC Content Standards for Digital Geospatial Metadata

**Metadata Standard Version:** FGDC\_STD\_0012\_1998

**Metadata Time Convention:** local time