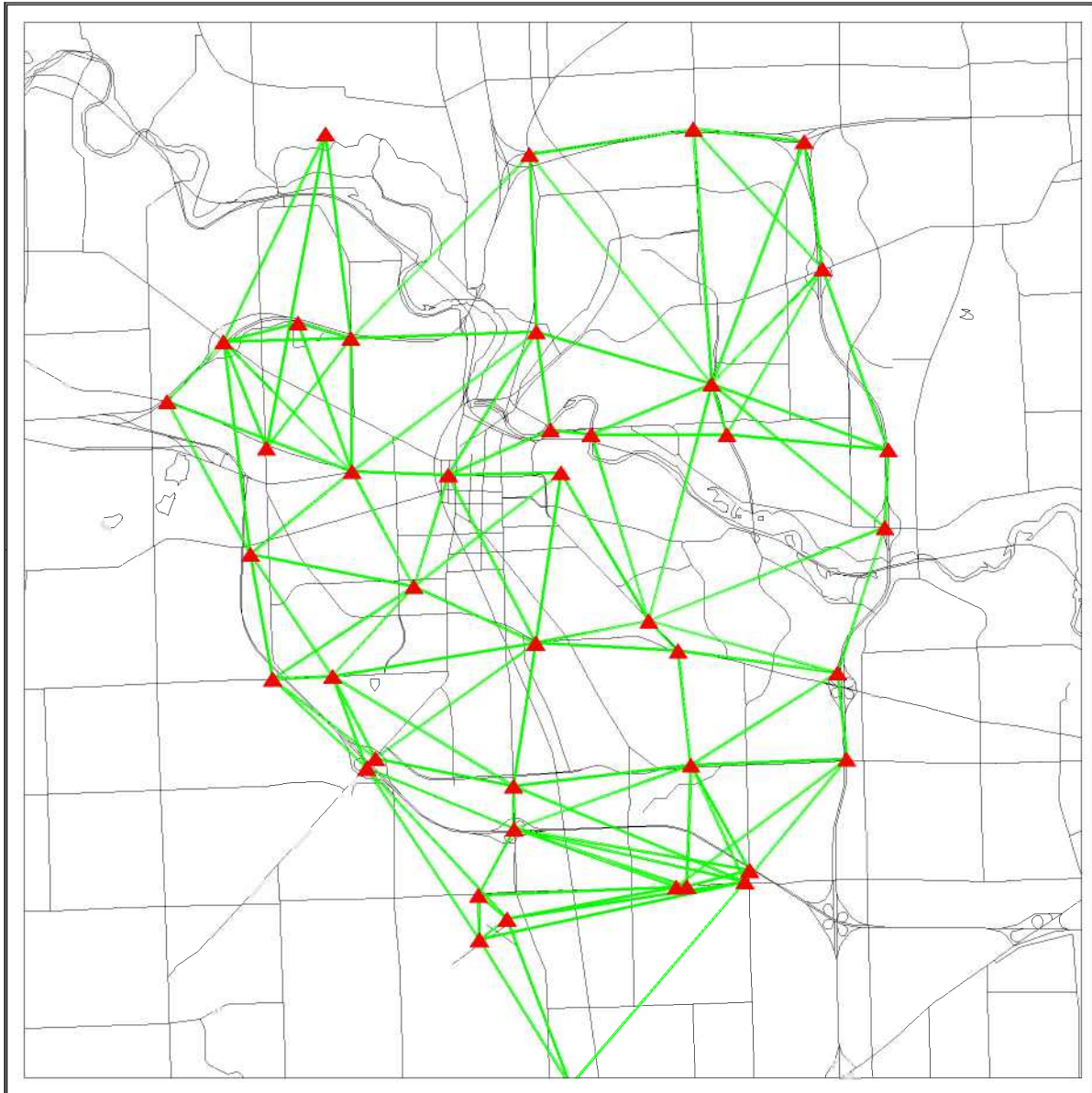


INTRODUCTION



City of Ann Arbor Geodetic Control Manual



CITY OF ANN ARBOR, MICHIGAN

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Public Services Department

August 2, 2004

Re: Public Services Area, Project Management Unit Geodetic Control Manual

Ladies and Gentlemen:

Attached please find the 08/04 updates to the City of Ann Arbor Geodetic Control Manual. Several changes have occurred which has prompted this update:

- The Geoid Height has been updated by the National Geodetic Survey, and is now identified as "GEOID03"
- Three stations have been destroyed: 0108, 1014 and 1025, and have been removed from the manual.
- The City of Ann Arbor has changed our Primary Geodetic Unit to the "International Foot".

Please replace the "Introduction", "Using State Plane Coordinates", "Reference Tables" and "Data Sheets" in your copy of the City of Ann Arbor Geodetic Control Manual with those enclosed with this letter.

Very truly yours,

PUBLIC SERVICES AREA
PROJECT MANAGEMENT UNIT

Gerald F. Dann
Senior Surveyor

BOOK NO. _____

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Revised 2004

GEODETIC CONTROL MANUAL

INTRODUCTION

This manual is published by the City of Ann Arbor, Public Services Area, Project Management Unit. The purpose of the manual is to give surveying and engineering professionals convenient access to geodetic control information within the city of Ann Arbor, Michigan.

This manual is divided into five sections:

- Section 1 "Introduction" gives background and datum information as it relates to this manual.
- Section 2 "Using State Plane Coordinates" poses a sample problem and describes the solution for a survey using state plane coordinates.
- Section 3 "Reference Tables" which include X, Y, Z values and General Location for all stations.
- Section 4 "Control Station Data Sheets" these six subsections provide the latest Geodetic Control for Monuments within the City of Ann Arbor. These six subsections are divided into six sectors:
 - * Northwest
 - * West Central
 - * Southwest
 - * Northeast
 - * East Central
 - * Southeast

An index map and a table are provided at the beginning of each section for quick access to monuments that are close to areas of interest. Within each sector, the monuments are arranged in ascending numerical order.

- Section 5 "Recovery sheet and monument details"

GENERAL STATION DESCRIPTIONS AND USAGE

The City of Ann Arbor Geodetic Control has been broken down into 3 categories. These would include:

- 1) City of Ann Arbor Primary Control Stations (horizontal and vertical).
- 2) Other Governmental Agency Control Stations (horizontal and/or vertical).
- 3) City of Ann Arbor Vertical Control Stations (vertical only)

City of Ann Arbor Primary Control Stations

The City of Ann Arbor has 36 primary control stations (15 pairs and 6 solo stations) around the City. These stations will have both horizontal and vertical datum associated with them. When described as "the 1993 edition of the City of Ann Arbor Disc, set in concrete per Detail I", refer to drawing No. TMD-1 (located in section 7). "Station ID" will be preceded by 2-zero's (example: 0015A or 0003A) The lettered suffix will indicate the point is part of a pair for azimuth determination. (Example: 0015A would be paired with 0015B).

Other Governmental Agency Control Stations

The City of Ann Arbor has incorporated other governmental agency control stations into the Geodetic Control Network. These stations were set by Other Governmental Agencies and incorporated into the National Geodetic Survey control system. Horizontal (and/or) vertical datum for these stations have been established by the NGS and they have been tied into the City of Ann Arbor Geodetic Control Network. The physical characteristics will be as described on the individual station data sheet. "Station ID" will be preceded by a single zero (example: 0115).

City of Ann Arbor Vertical Control Stations

The City of Ann Arbor has set vertical control stations around the City and has incorporated many, but not all, of them into the City of Ann Arbor Geodetic Control Network. When described as "the 1993 edition of the City of Ann Arbor Brass Disc, set in concrete per Detail II", refer to Drawing No. TMD-2 (located in section 7), and when described as "the 1972 edition of the City of Ann Arbor Brass Disc, set in concrete per Detail III," refer to Drawing No. TMD-3. "Station ID" will be preceded by a 1 (example: 1015).

DATUM INFORMATION

All references in this manual to NAD 83 mean the Michigan State Plane Coordinate System of 1983, South Zone. This datum is a Lambert conformal conic projection of the North American Datum of 1983, with standard parallels at north latitude 42°06' and 43° 40', along which parallels the scale must be exact. The origin of coordinates is at the intersection of the meridian 84° 22' west of Greenwich and the parallel 41° 30' north latitude. This origin is given the coordinates X = 4,000,000

meters and Y = 0 meters. The GEOID height was determined by GEOID03.

NOTE: The horizontal coordinates were established by GPS observations and adjusted by the National Geodetic Survey in 1997. The orthometric height was determined by differential leveling and adjusted by the National Geodetic Survey in either 1991 or 1995.

Except as specifically described in this manual, references to feet mean International feet. Conversion between the metric system and International feet is given by the following relationship:

$$1 \text{ International foot} = 0.3048 \text{ meters}$$

Horizontal Datum

Horizontal positions, state plane coordinates, and geodetic positions contained in this manual reference NAD 83.

Vertical Datum

Vertical positions (elevations) currently reference NAVD 88.

Azimuths

Azimuths contained in this manual are **grid** bearings, not **geodetic** bearings. Accuracy of these bearings is ± 10 seconds. The convergence or mapping angle has been included for conversion from the grid bearing to the geodetic bearing.

STATION RECOVERY

Please completely fill out a "Monument Recovery Sheet", (found in the back of this manual) whenever a monument is used for horizontal and/or vertical control and mail to the City of Ann Arbor, Public Services Department, Project Management (Address: 100 North Fifth Avenue, P.O. Box 8647, Ann Arbor, Michigan 48107).

REGISTRATION

- 1) This document is a working document and will be updated on a regular basis. As a Geodetic Control Manual holder, you will be notified of the availability of these updates based on the registration information you provide at the time of your purchase. However, it will be your responsibility as the Geodetic Control Manual holder to ensure that you have the most current version of the Geodetic Control Manual, including all updates, and that any change in your registration information has been forwarded to the Public Services Area, Project Management Unit.

- 2) Registration will be done on the attached form at time of purchase of the Geodetic Control Manual. (1st page of manual)

The City spent much time and effort obtaining the information contained in this manual and ensuring its accuracy. However, we understand that errors and inconsistencies may be present. If you find any such errors or omissions, please bring them to the attention of the following:

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Your cooperation is truly appreciated.

