

## **Chapter 102.**

### **Official Survey Base.**

#### **§ 102-1. Name and description.**

The official survey base for the State of North Carolina shall be a system of plane coordinates to be known as the "North Carolina Coordinate System," said system being defined as a Lambert conformal projection of Clarke's spheroid of 1866, having a central meridian of 79°-00' west from Greenwich and standard parallels of latitude of 34°-20' and 36°-10' north of the equator, along which parallels the scale shall be exact. All coordinates of the system are expressed in feet, the x coordinate being measured easterly along the grid and the y coordinate being measured northerly along the grid. The origin of the coordinates is hereby established on the meridian 79°-00' west from Greenwich at the intersection of the parallels 33°-45' north latitude, such origin being given the coordinates x=2,000,000 feet, y=0 feet. The precise position of said system shall be as marked on the ground by triangulation or traverse stations or monuments established in conformity with the standards adopted by the United States Coast and Geodetic Survey for first-and second-order work, whose geodetic positions have been rigidly on the North American datum of 1927, and whose plane coordinates have been computed on the system defined. (1939, c. 163, s. 1.)

#### **§ 102-1.1. Name and description in relation to 1983 North American Datum.**

From and after the date and time the North Carolina Geodetic Survey Section in the Division of Emergency Management of the Department of Public Safety receives from the National Geodetic Survey, official notice of a complete, published definition of the North American Datum of 1983 including the State plane coordinate constants applicable to North Carolina, the official survey base for North Carolina shall be a system of plane coordinates to be known as the "North Carolina Coordinate System of 1983," said system being defined as a Lambert conformal projection of the "Geodetic Reference System (GRS 80 Ellipsoid)" having a central meridian of 79° – 00' west from Greenwich and standard parallels of latitude of 34° – 20' and 36° – 10' north of the equator, along which parallels the scale shall be exact. All coordinates of the system are expressed in metres, the x coordinate being measured easterly along the grid and the y coordinate being measured northerly along the grid. The U.S. Survey Foot, 1 meter = 39.37 inches or 3.2808333333 feet, shall be used as a conversion factor. The origin of the coordinates is hereby established on the meridian 79° – 00' west from Greenwich at the intersection of the parallels 33° – 45' north latitude, such origin being given the coordinates x = 609,601.22 metres, y = 0 metres. The precise position of said system shall be as marked on the ground by triangulation or traverse stations or monuments established in conformity with the standards adopted by the National Geodetic Survey for first- and second-order work, whose geodetic positions have been rigidly adjusted on the North American Datum of 1983, and whose plane coordinates have been computed on the system defined. Whenever plane coordinates are used in the description or identification of surface area or location within this State, the coordinates shall be identified as "NAD 83", indicating North American Datum of 1983, or as "NAD 27", indicating North American Datum of 1927. (1979, c. 4; 1987, c. 148; 1989, c. 727, s. 218(33); 1997-443, s. 11A.119(a); 2005-386, s. 1.2; 2012-142, s. 12.4(b); repealed by 2023-92, s. 2(a), effective July 10, 2023; 2025-51, s. 7.)

#### **§ 102-1.2. Name and description in relation to the North American Terrestrial Reference Frame of 2022.**

From and after the date and time the North Carolina Geodetic Survey Section in the Division of Emergency Management of the Department of Public Safety receives from the National Oceanic

and Atmospheric Administration's National Geodetic Survey (NGS) official notice of a complete, published definition of the North American Terrestrial Reference Frame of 2022 (NATRF2022), including the State plane coordinate constants applicable to North Carolina, the official survey base for North Carolina shall be a system of plane coordinates to be known as the "North Carolina Coordinate System of 2022," said system being defined as a one-parallel Lambert conformal conic projection of the "Geodetic Reference System (GRS 80) ellipsoid" having a central meridian of 79° - 00' west from the prime meridian and a central parallel of latitude of 35° - 15' north of the equator, along which parallel the scale shall be exactly 0.999 96 or 1 part in 25,000 smaller than unity. All coordinates of the system are expressed in meters, the east or x coordinate being measured easterly along the grid and the north or y coordinate being measured northerly along the grid. The International Foot, 1 foot = 0.3048 meter exactly, shall be used as a conversion factor. The origin of the coordinates is hereby established at the intersection of the central meridian and the central parallel, such origin being given the coordinates of east or x = 1,000,000 meters and north or y = 200,000 meters. The precise position of said system shall be as marked on the ground by geodetic monuments and Continuously Operating Reference Stations (CORSS) established in conformity with the standards adopted by NGS, whose geodetic positions have been adjusted on NATRF2022, and whose plane coordinates have been computed on the system defined. Whenever plane coordinates are used in the description or identification of surface area or location within this State, the coordinates shall be identified as "NATRF2022," indicating North American Terrestrial Reference Frame of 2022, or as "NAD 83," indicating North American Datum of 1983, or as "NAD 27," indicating North American Datum of 1927. (2023-92, s. 2(b).)

#### **§ 102-1.3. Name and description of future horizontal and vertical reference frames.**

From and after the date and time that the North Carolina Geodetic Survey Section in the Division of Emergency Management of the Department of Public Safety receives an official notice from the National Geodetic Survey of a change or adjustment to NATRF2022 or any other part of the National Spatial Reference System (NSRS), the North Carolina Geodetic Survey will have the authority, as described in G.S. 102-9, to adopt rules, regulations, and specifications on the official use or characteristics of any future horizontal or vertical reference frames and associated coordinate systems of the NSRS. (2023-92, s. 2(c).)

#### **§ 102-2. Physical control.**

Any triangulation or traverse station or monument established as described in G.S. 102-1 may be used in establishing a connection between any survey and the above-mentioned system of rectangular coordinates. (1939, c. 163, s. 2.)

#### **§ 102-3. Use of name.**

The use of the term "North Carolina Coordinate System" on any map, report, or survey, or other document, shall be limited to coordinates based on the North Carolina Coordinate System as defined in this Chapter. (1939, c. 163, s. 3.)

#### **§ 102-4. Damaging, defacing, or destroying monuments.**

If any person shall willfully damage, deface, destroy, or otherwise injure a station, monument or permanent mark of the North Carolina Coordinate System, or shall oppose any obstacles to the proper, reasonable, and legal use of any such station or monument, such person shall be guilty of a Class 1 misdemeanor. (1939, c. 163, s. 4; 1993, c. 539, s. 683; 1994, Ex. Sess., c. 24, s. 14(c).)

**§ 102-5. Repealed by Session Laws 1963, c. 783.**

**§ 102-6. Legality of use in descriptions.**

For the purpose of describing the location of any survey station or land boundary corner in the State of North Carolina, it shall be considered a complete, legal, and satisfactory description to define the location of such point or points by means of coordinates of the North Carolina Coordinate System as described herein. (1963, c. 163, s. 6; c. 783.)

**§ 102-7. Use not compulsory.**

Nothing contained in this Chapter shall be interpreted as requiring any purchaser or mortgagee to rely wholly on a description based upon the North Carolina Coordinate System. (1939, c. 163, s. 7.)

**§ 102-8. Administrative agency.**

The administrative agency of the North Carolina Coordinate System shall be the Department of Public Safety through its appropriate division hereinafter called the "agency." (1939, c. 163, s. 8; 1973, c. 1262, s. 86; 1977, c. 771, s. 4; 1989, c. 727, s. 218(34); 1997-443, s. 11A.119(a); 2012-142, s. 12.4(c).)

**§ 102-9. Duties and powers of the agency.**

It shall be the duty of the agency to make or cause to be made from time to time such surveys and computations as are necessary to further or complete the North Carolina Coordinate System. The agency shall endeavor to carry to completion as soon as practicable the field monumentation and office computations of the coordinate system. For the purpose of this work the agency shall have the power to accept grants for the specific purpose of carrying on the work; to coordinate, organize, and direct any federal or other assistance which may be offered to further the work; to cooperate with any individual, firm, company, public or private agency, State or federal agencies, in the prosecution of the work; to enter into contracts or cooperative agreements with other state or federal agencies in promoting the work of the coordinating system. The agency shall further have the power to adopt necessary rules, regulations, and specifications relating to the establishment and use of the coordinate system as defined in this Chapter, consistent with the standards and practice of the United States Coast and Geodetic Survey. (1939, c. 163, s. 9; 1997-443, s. 11A.119(a).)

**§ 102-10. Prior work.**

The system of stations, monuments, traverses, computations, and other work which has been done or is under way in North Carolina by the so-called North Carolina Geodetic Survey, under the supervision of the United States Coast and Geodetic Survey, is, where consistent with the provisions of this Chapter, hereby made a part of the North Carolina Coordinate System. The surveys, notes, computations, monuments, stations, and all other work relating to the coordinate system, which has been done by said North Carolina Geodetic Survey, under the supervision of and in cooperation with the United States Coast and Geodetic Survey and federal relief agencies, hereby are placed under the direction of, and shall become the property of, the administrative agency. All persons or agencies having in their possession any surveys, notes, computations, or other data pertaining to the aforementioned coordinate system, shall turn over to the Department of

Public Safety such data upon request. (1939, c. 163, s. 10; 1959, c. 1315, s. 1; 1973, c. 1262, s. 86; 1977, c. 771, s. 4; 1989, c. 727, s. 218(35); 1997-443, s. 11A.119(a); 2012-142, s. 12.4(d).)

**§ 102-11. Vertical control.**

Whereas the foregoing provisions of this Chapter heretofore are related to horizontal control only, the administrative agency may adopt standards for vertical control or levying surveys consistent with those recommended by and used by the United States National Geodetic Survey, and make or cause to be made such surveys as are necessary to complete the vertical control of North Carolina, in accordance with the provisions for horizontal control surveys as defined in this Chapter. The administrative agency shall have the authority to determine the official vertical datum used in this State. (1939, c. 163, s. 11; 2023-92, s. 2(d).)

**§ 102-12. Control system map.**

The agency shall prepare for publication and cause to be published a map or maps setting forth the location of monuments for both horizontal and vertical control, together with such other pertinent data as the agency may direct for implementation of the North Carolina Coordinate System. The agency shall furnish such map or maps to any person or may make such charge as will defray the expense of printing and distribution. It shall be the responsibility of the agency to maintain this map, make revisions as often as necessary to provide up-to-date information and furnish up-to-date copies to the register of deeds of each county in the State. (1959, c. 1315, s. 2; 2012-142, s. 12.4(e).)

**§ 102-13. Repealed by Session Laws 1975, c. 183, s. 1.**

**§ 102-14. Repealed by Session Laws 1973, c. 1262, s. 86.**

**§ 102-15. Improvement of land records.**

There is hereby established a statewide program for improvement of county land records to be administered by the Secretary of State (hereafter called the Secretary). First emphasis shall be given to the completion of countywide base maps. Counties with a base map system prepared to acceptable standards will be encouraged to undertake subsequent logical improvements in their respective land records systems. Work undertaken by any county under this program will be eligible for financial assistance out of funds appropriated for this purpose to the Department of the Secretary of State. The amount allotted to each project is to be determined by the Secretary, but in no case shall such allotments exceed one dollar for every dollar of local tax funds expended on the project by the county. Federal or other State funds available to the project will not be eligible as matching money under the State program. (1977, c. 1099, s. 1; 1985, c. 479, s. 165(b); 1989, c. 727, s. 218(36); 1989 (Reg. Sess., 1990), c. 1004, s. 19(b); 1997-443, s. 11A.119(a); 1999-119, s. 1.)

**§ 102-16. Board of county commissioners to apply for assistance.**

The board of county commissioners of each county may apply to the Secretary, upon forms provided by him and in accordance with directives and requirements outlined in G.S. 102-17, for assistance in completing one or more projects. Such project or projects shall constitute one or more phases of a plan for the improvement of the county's land records. The work to be undertaken shall be described in relation to the county's revaluation schedule, and it shall be shown to be a part of a larger undertaking for achieving ultimate long-term improvements in the land records maintained

by the county register of deeds, the county tax supervisor, or other county office. (1977, c. 1099, s. 1.)

**§ 102-17. County projects eligible for assistance.**

All projects funded under this assistance program shall be described as conforming to one or more of the project outlines defined herein. All projects shall achieve a substantial measure of conformity with the objectives set forth in these project outlines such that a greater degree of statewide standardization of land records will result. The Secretary shall prepare and make available to all counties administrative regulations designed to assist the counties in preparing project plans and applications for assistance, and to assure compliance with the objectives and other requirements of G.S. 102-15, 102-16, and this section. County projects shall be eligible for assistance subject to availability of funds, compliance with administrative regulations, and conformity with one or more of the project outlines as follows:

- (1) Base Maps. – Preparation of accurate planimetric or orthophoto maps with countywide coverage at one or more scale ratios suitable as a base for the development and maintenance of current cadastral maps. These maps shall have additional information included where appropriate to increase their utility for other purposes. The formulation of technical standards and detailed specifications and the coordination of all such mapping projects with other State mapping programs shall be the responsibility of the Department of the Secretary of State. Insofar as possible mapping projects funded under this assistance program shall utilize existing photography, geodetic control surveys, and previously mapped information, and be coordinated or combined with adjacent or related mapping projects to achieve the best efficiency and economy consistent with the maintenance of high quality map production.
- (2) Cadastral Maps. – Preparation of accurate maps of all property boundaries together with other supporting information and based on up-to-date planimetric or orthophoto maps conforming to the specifications for base maps outlined in subdivision (1) of this section. The formulation of specifications and standards for these cadastral maps shall be the responsibility of the Department of the Secretary of State. These specifications and standards shall be designed to conform to the best acceptable practice for county land records in North Carolina. The cadastral maps shall be scheduled as nearly as possible to be completed and made available for the next revaluation cycle to be undertaken by each county and the maps shall include references to subdivision plat numbers, property codes, and other related information considered useful to the appraisal process or to the public generally.
- (3) Standardized Parcel Identifiers. – Adoption of a system of parcel identifiers which will serve to provide unique identification of each parcel of land, a permanent historical record of change and the chain of title, and any necessary cross-reference to other preexisting parcel identifiers. The proposed system of parcel identifiers shall conform to such minimum specifications and standards as may be promulgated by the Secretary for the purpose of achieving consistency and compatibility among all counties throughout the State. Said minimum specifications and standards for parcel identifier systems shall be adopted and administered by the Secretary only after consultation with the

recommendation from an advisory committee on land records with a membership representative of professional organizations concerned with public land records and map making.

- (4) Automated Processing of Land Parcel Records. – Preparation and implementation of a system of automated record keeping and processing which will expedite the maintenance of accurate up-to-date files, improve the appraisal process, and facilitate analytical operations needed to respond to requirements for current information. Technical standards and minimum specifications shall be the joint responsibility of the Department of the Secretary of State, the Department of Revenue, and the Department of Natural and Cultural Resources. (1977, c. 771, s. 4; c. 1099, s. 1; 1985, c. 479, s. 165(c); 1989, c. 727, s. 218(37); 1997-443, s. 11A.119(a); 1999-119, s. 2; 2015-241, s. 14.30(s).)