

Georgia State Board of Professional Engineers and Land Surveyors
Board Meeting
July 8, 2020 (Open Session Minutes)

The State Board of Registration for Professional Engineers and Land Surveyors met on **Wednesday, July 8, 2020**, via teleconference

Present Board Members:

William 'Bill' Womack, PE
Dan Davis, PE,
Darien Sykes, PE, Vice Chairman
Russell Pennington, PE, Chairman
Taylor Wright, PE
Mark E. Chastain, LS
Julie Busbee, Consumer Member
Neil Wyche, PE

Absent Board Members:

Elmo A. Richardson, Jr., PE/LS

Staff present:

Ashley Foust, Licensure Supervisor
Logan Malcom, Board Support Specialist
Darren Mickler, Executive Director

Staff Absent:

Jasmine Dorn, Licensure Analyst

Attorney General Representative Absent:

Max Changus, Assistant Attorney General

Call to Order

At 3:01 p.m., Chairman Russ Pennington established that a quorum was present and called the meeting to order.

Mark Chastain made a motion for the Board to vote to post 180-6-.09 and 180-7-.04 with any formatting changes necessary. Bill Womack seconded, and the motion carried unanimously.

A. Vote to post Board Rule 180-6-.09 Certification

- (4) Engineers or land surveyors who prepare or issue maps, drawings, plats, plans, or electronic files which include contours or other elevation data shall note the source thereof. For land surveyors such shall adhere to Rule 180-7-.04. For engineers, the source of contour or elevation data shall be stated which shall include the name of the surveyor (or firm) that prepared it and is responsible for it, or when depicting contours or elevation data obtained from a public source, shall include

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the following statement:” The topographic and elevation data shown hereon was obtained from (state source) and is not certified as correct by this engineer. Users of this data do so at their own risk”. Failure to provide this statement and the required data shall be both a violation of this rule and an acceptance of responsibility for accuracy of the depicted contours or elevation data.

B. Vote to post Board Rule 180-7-.04 Topography and Vertical Measurements

Board Rule 180-7-.04 “Topography and Vertical Measurements.”

(1) Definitions. As used in this rule, the following definitions apply.

A. ~~(1)~~ Field run precision leveling. A circuit of levels between precise bench marks or a circuit closed upon the initial bench mark shall not differ more than 0.02 foot multiplied by the square root of the number of miles in the circuit, and in no case to exceed 0.05 foot.

B. ~~(2)~~ Field run local or temporary benchmark leveling. Levels run for control to topographic mapping of a site or project shall have an error of closure of not less than 0.1 foot per square root of the number of miles. The surveyor and client may agree upon different precision specifications that are deemed to be more applicable to individual situations.

C. Positional check. A position whose location and elevation is determined by traditional or GNSS surveying equipment independently of the remainder of the survey effort or data collection exercise. When determining where to measure positional checks, the surveyor may use whatever approach and location choice that is deemed to be most applicable and feasible for the individual project. Running cross sections through a surveyed area is considered to be the most desirable, though most intensive, positional check approach. Positional checks should not be limited to easily visible and accessible areas but should include a reasonable portion in areas with ground cover and within the interior of the project. If firms or individuals are employed in the production of topographic or elevation surveys which are not regular employees under the direct supervision of the surveyor who is responsible for the work, special care must be given to providing adequate Direct Supervisory Control as defined by Rule 180-6-.03(6). Production of contour maps and elevation data to typical survey precision or for use in applications typical for surveying works, and the advertising thereof, is considered to be the practice of Land Surveying and must be performed by properly licensed individuals and authorized firms.

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(2) This rule applies to all ~~(3) topographic maps and plats, delineated either by contours or by points, digital terrain models, or other geospatial format with indicated elevation data, shall be of such accuracy that no more than 10% of the area covered shall be in error by more than one half (1/2) of the contour interval shown. This degree of accuracy applied to maps and plats prepared from field work and those compiled by photogrammetric whether prepared from traditional surveying techniques or other remote sensing techniques including but not limited to aerial photography, Light Detection and Ranging (LIDAR), or any other remote sensing technology whether implemented from fixed stations, vehicles, manned aircraft, or unmanned aerial systems (UAS) and also includes existing data obtained from public agencies.~~

(3) All drawings or electronic work product which depict or provide contours or elevation data shall contain the following information:

A. The vertical datum of the elevations provided or reported, how the datum was verified or placed on the site (whether by level loop, GNSS observations, published benchmark, etc.),

B. The type of survey performed to produce contours or elevation data (see paragraph 5 for each type).

C. The contour interval or vertical precision. Contours and elevation data provided shall be of such accuracy that no more than 10% of the area covered shall be in error by more than one half (1/2) of the contour interval shown; or such that no part of the surveyed area fails to achieve a 95% confidence level in the three-dimensional positioning provided. If initial results do not confirm required accuracy, the surveyor may either:

i. collect replacement data and retest for precision

ii. identify areas which are not reliable in accordance with subparagraph E below

iii. or increase the contour interval until measured precision conforms

D. Depiction of the location of at least 3 fixed positions which can be used to situate future works into the vertical datum of the survey. Such fixed positions should include at least one stable survey monument and can also include fixed artificial positions such as fire hydrant bolts, pipe inverts, concrete surfaces, or finished floor elevations of structures.

E. A clear explanation and delineation of any portion of the contours or elevation data which is not certified or reliable, such as areas which are obscured, shadowed, or otherwise which cannot be certified to the required mapping precision. This shall

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also apply to data which was obtained from a public agency or other lawful source. The following statement shall accompany any such obscured or uncertified topographic map or portion thereof: "The topographic and elevation data shown hereon was obtained from (state source) and is not certified as correct by this surveyor. Users of this data do so at their own risk".

F. All pertinent data that may be required particular to the type of survey as set forth in paragraph (5).

(4) The following types of elevation surveys are envisioned by this rule. Should any equipment or methodology be considered which is not clearly addressed, the most applicable type shall apply.

A. Field run topographic surveys. Traditional surveying equipment and techniques are employed to produce a contour map. Field ran topographic surveys must state the date(s) of field work and the equipment used. Additional positional checks are not required for field ran topographic surveys.

B. Traditional stereophotogrammetric maps. Traditional or digital photography of sufficient specifications is obtained by a manned aircraft. Contours and features are generated using stereoscopes or software. A minimum of four (4) three-dimensional ground control targets or photo-identifiable positions (known as "control points") shall be surveyed and incorporated into the preparation of such maps, and more are required as dictated by project size, photo overlap, and height of camera. The surveyor responsible for the accuracy of the survey shall perform positional checks at a number of locations that is at least that of the number of control points required, and shall report the vertical accuracy of each point or an average of the points checked. Such photogrammetric maps shall state the date of photography, the height flown, the firm or individual who performed portions of the survey, including which portions, if not the surveyor or firm issuing the map, and the results of the positional checks by the surveyor either listed individually or as an average.

C. Ground based remote sensing (LIDAR, laser scanning, etc.). LIDAR equipment is used either from motor vehicles or fixed tripods to survey an area. Control points shall be placed and surveyed sufficiently along the perimeter of the mapped area to ensure adequate confidence level of the contours or elevation data. Positional checks shall be measured at positions deemed relevant by the surveyor who shall report the vertical accuracy of each point or an average of the points checked. Surveys and reports produced under this section shall provide the type of equipment used, the date(s) of data collection, the firm or individual who performed portions of

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the survey, including which portions, if not the surveyor or firm issuing the map, and the results of the positional checks by the surveyor either listed individually or as an average.

D. Unmanned Aerial Systems (UAS) data collection. LIDAR, optical camera, or other remote sensing equipment is used to collect data used to prepare contour maps or elevation data. The surveyor shall survey ground control targets or photo-identifiable positions (known as "control points") along the flight lines of the UAS sufficient to provide adequate three-dimensional constraint of the data used to prepare the contours or elevation data.

1. The surveyor shall perform positional checks along the perimeter of and within the surveyed area. The minimum number of such positional checks shall be determined as follows:
 - a. For project size 1-10 acres, a minimum of 4 positional checks are required
 - b. For project size 10-25 acres, a minimum of 8 positional checks are required
 - c. For project size 25-100 acres, a minimum of 12 positional checks are required
 - d. For project size 100-200 acres, a minimum of 24 positional checks are required
 - e. For project size 300 acres or more, a minimum of 36 positional checks are required
2. Topography or elevation data produced in this manner must provide the date(s) of UAS data collection, the type of UAS including model or other identifying description, the type of LIDAR sensor or camera used, how many ground control points were used, the firm or individual who performed portions of the survey, including which portions, if not the surveyor or firm issuing the map, and the results of the positional checks by the surveyor either listed individually or as an average.

(5) Incorporation of publicly available contour or elevation data. When the surveyor incorporates contour or elevation data into a survey, map, or electronic work product, and such data is from a public source which is exempt from professional licensing and oversight by OCGA 43-15-29(b)(7), the surveyor must state the source of the data (such as the specific agency or department), the date of data acquisition if known, the contour interval shown, the type of collection used for such data (such as photogrammetric, LIDAR, etc.), and any other pertinent information available. The work product (whether map, electronic drawing file, or other terrain model format) shall include the following statement: "The topographic and elevation data shown hereon was obtained from (state source) and is not certified as correct by this surveyor. Users of this data do so at their own risk". Failure to provide this statement and the required data shall be both a violation of this rule and an acceptance of responsibility for the depicted work by the surveyor. The surveyor may also identify which portion(s) of elevation data is from a public source in situations where the surveyor has also verified some of the data provided.

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O.C.G.A. §§ 43-15-4, 43-15-6

The Board briefly discussed previous cases.

The Board will post Acampora action on the upcoming PELS Newsletter.

The August the Board will assemble a task force for rule making. Executive Director Darren Mickler is to reach out to NCEES, and Darien Sykes to reach out to Structural Engineers Association of Georgia for guidance.

Executive Director Darren Mickler spoke briefly about changes at the State office and possibly one in person meeting a year.

The next meeting of the Board will be held on August 18, 2020 at 9:30 a.m.

With no further business to discuss, the meeting adjourned at 3:32 p.m.

Minutes recorded by:

Logan K. Malcom, Board Support Specialist

Minutes reviewed and edited by:

Darren Mickler, Executive Director

Russ Pennington, Board Chairman

Darren Mickler, Executive Director

Minutes Approved On: August 18, 2020