

MINUTES

BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS

RULES WORKSHOP

October 12, 2004

Renaissance Resort
500 Lagacy Trail
St. Augustine, Florida

The workshop was called to order by Mr. Jeff Cooner, Chair, at 10:50 a.m.

Members Present:

Pam Nobles
Jeff Cooner, Chair
Louis Lebron
Sidney Greer
Fran Poppell
Beverly Sutphin
Lou Bush

Members Not Present:

Dennis Blankenship
Omar Armenteros

Others Present:

Fred Myers
David Melvin
Howard Ehmke
Robert Richards
Kathy Wade
Marilyn Evers
Shelly Dvorak
Michelle Champman
David Schryver
Pam Nobles
Steve Gordon
Harley Glimore
W. Lanier Mathews, II
Allen Nobles
Alvin Gloer
Pablo Ferrari
Art Mastronicola
Russell Daly

REVIEW AND APPROVAL OF THE JULY 14, 2004 MTS WORKSHOP MEETING MINUTES

The committee reviewed the July 14, 2004 Rule Workshop meeting minutes and after review the following motion was made.

- MOTION: Mr. Bush made a motion to approve the July 14, 2004 Rules workshop minutes with corrections.
- SECOND: Mr. Lebron seconded the motion and it passed unanimously.

REVIEW AND DISCUSSION

61G17-6, F.A.C. – Minimum Technical Standards

Mr. Cooner advised the board that included in their agenda materials was the draft proposal that included the changes made at the July 2004 meeting. Mr. Cooner conducted an overview of the revisions made to Rule 61G17-6, F.A.C.

Mr. Cooner stated that the goal of the MTS workshops was to remove technology dependent language and to re-organize the rule in a way to make it easier for the licensed surveyor and the public to understand. Mr. Cooner stated that he did not want to continue with discussion and revisions unless he had the support of changes from the majority of the board. After discussion it was the consensus of the board to move forward and support changes to the MTS rule.

Mr. Cooner thanked Ms. Oliver for assisting the board with maintaining the MTS working document throughout the workshops. Mr. Cooner stated there were still two areas that needed to be addressed, Raster Imagery and Ortho Imagery.

Mr. Bush reviewed the rule regarding raster imagery with the board and stated Raster and Ortho Imagery are different and should be defined separately. Mr. Bush handed out proposed draft language. Mr. Stabley agreed that each should be defined. The board discussed definitions.

The board reviewed the MTS working document page by page and made some changes. Mr. Stabley stated he would work on the grammar and formatting changes when preparing the revisions for adoption.

Ms. Patterson stated she would obtain a clean copy of the MTS document from Ms. Oliver and would provide the board a copy to be considered at the general business meeting.

Below is the final language after changes were made.

CHAPTER 61G17-6 MINIMUM TECHNICAL STANDARDS

61G17-6.002 Definitions.

61G17-6.003 General Survey, Map, and Report Requirements.

61G17-6.004 Specific Survey, Map, and Report Requirements.

61G17-6.002 Definitions.

As used in this chapter, the following terms have the following meanings:

(1) Benchmark: a relatively permanent material object, natural or artificial, bearing a marked point whose elevation above or below an adopted datum plane is known.

(2) Corner: a point on a land boundary that designates a change in direction, for example: points of curvature, points of tangency, points of compound curvature and so forth.

(3) Geodetic: a survey or mapping process that takes into account the curvature of the earth and astronomic observations, and which results in positions expressed on a recognized datum.

(4) Map of Survey (or Survey Map): a graphical or digital depiction of the facts of size, shape, identity, geodetic location, or legal location determined by a survey. The term "Map of Survey" (Survey Map) includes the terms: Sketch of Survey, Plat of Survey, or other similar titles. "Map of Survey" or "Survey Map" may also be referred to as "a map" or "the map."

(5) Monument: an artificial or natural object that is permanent or semi-permanent, and used or presumed to occupy any real property corner, point on a boundary line, or reference point.

(6) Ortho Images/Photos: an image from which distortions due to tilt and ground relief have been removed.

(7) Photogrammetric Methods: a means of surveying and mapping that involves: making precise measurements from a combination of ground control, photographs and other sources of imagery, to document, within pre-ordained accuracies, the existence, the identity, the location and the size of selected features.

(8) Raster Images: a matrix of pixels whose values represent the level of energy reflected or emitted by the surface being photographed, scanned, or otherwise sensed. Each pixel contains an attribute value and a coordinate value in a recognized coordinate system.

(9) Reference Point: any defined position that is or can be established in relation to another defined position.

(10) Survey: the orderly process of determining facts of size, shape, identity, geodetic location, or legal location by viewing and applying direct measurement of features on or near the earth's surface using field or image methods; defined as follows according to the type of data obtained, the methods used, and the purpose(s) to be served:

(a) As-Built Survey: a survey performed to obtain horizontal and/or vertical dimensional data so that constructed improvements may be located and delineated; also known as a Record Survey.

(b) Boundary Survey: a survey, the primary purpose of which is to document the perimeters, or any one of them, of a parcel or tract of land by establishing or re-establishing corners, monuments, and boundary lines for the purposes of describing the parcel, locating fixed improvements on the parcel, dividing the parcel, or platting.

(c) Condominium Survey: a survey performed pursuant to Chapter 718, Florida Statutes; includes a Boundary Survey.

(d) Construction Layout Survey: the measurements made, prior to or while construction is in progress, to control elevation, configuration, and horizontal position and dimensions.

(e) Control Survey: a survey which provides horizontal or vertical position data for the support or control of subordinate surveys or for mapping.

(f) Hydrographic Survey: a survey having as its principal purpose the determination of data relating to bodies of water, and which may consist of the determination of one or several of the following classes of data: depth of water and configuration of bottom; directions and force of current; heights and times of water stages; and location of fixed objects for survey and navigation purposes.

(g) Mean High Water Line Survey: a survey to document the mean high water line as defined in Part II, Chapter 177, Florida Statutes.

(h) Quantity Survey: a survey to obtain measurements of quantity.

(i) Record Survey: a survey performed to obtain horizontal and/or vertical dimensional data so that constructed improvements may be located and delineated; also known as an As-Built Survey.

(j) Specific or Special Purpose Survey: a survey performed for a purpose other than the purposes detailed in (8)(a)-(i) or (k) of this rule.

(k) Topographic Survey: a survey of selected natural and artificial features of a part of the earth's surface to determine horizontal and vertical spatial relations.

(9) Survey Report: a written document, sometimes referred to as "a report" or "the report," detailing methods used, measurements and computations made, accuracies obtained, and information obtained or developed by surveying and mapping techniques.

(10) Surveying and Mapping: a process of direct measurement and analysis specifically designed to document the existence, the identity, the location, and the dimension or size of natural or artificial features on land or in the air, space or water for the purpose of producing accurate and reliable maps, suitable for visualization when needed, of such documentation.

Specific Authority 472.008, 472.027 FS. Law Implemented 472.027 FS. History—New 9-1-81, Formerly 21HH-6.02, Amended 12-18-88, Formerly 21HH-6.002, Amended 12-25-95, 5-25-99, 3-25-01, 3-13-03.

61G17-6.003 General Survey, Map, and Report Requirements.

(1) REGULATORY OBJECTIVE: The public must be able to rely on the accuracy of measurements and maps produced by a surveyor and mapper. In meeting this objective, surveyors and mappers must achieve the following minimum standards of accuracy, completeness, and quality:

(a) The accuracy of the survey measurements shall be premised upon the type of survey and the expected use of the survey and map. All measurements must be in accordance with the United States standard, using either feet or meters.

(b) Records of these measurements shall be maintained for each survey by either the individual surveyor and mapper or the surveying and mapping business entity.

(c) Measurement and computation records must be dated and must contain sufficient data to substantiate the survey map and insure that the accuracy portion of these standards has been met.

(2) Other More Stringent Requirements.

(a) When more stringent survey standards other than those set forth in this chapter are required by federal, state, or local governmental agencies, the survey shall also comply with those standards.

(b) When more stringent survey standards or requirements other than those set forth in this chapter are mandated by the client and agreed to by the surveyor and mapper, the survey shall

also comply with those survey standards, providing said survey requirements are within the scope of the surveyor and mapper's expertise.

(3) Other Standards and/or Requirements that Apply to All Surveys, Maps, and/or Survey Products:

(a) REGULATORY OBJECTIVE: In order to avoid misuse of a survey and map, the surveyor and mapper must adequately communicate the survey results to the public through a map, report, or report with an attached map. Any survey map or report must identify the responsible surveyor and mapper and contain standard content. In meeting this objective, surveyors and mappers must meet the following minimum standards of accuracy, completeness, and quality:

(b) Each survey map and report shall state the type of survey it depicts consistent with the types of surveys defined in Rule 61G17-6.002(10)(a)-(k), F.A.C. The purpose of a survey, as set out in Rule 61G17-6.002(10)(a)-(k), F.A.C., dictates the type of survey to be performed and depicted, and a licensee may not avoid the minimum standards required by rule of a particular survey type merely by changing the name of the survey type to conform with what standards or lack of them the licensee chooses to follow.

(c) All survey maps and reports must bear the name, certificate of authorization number, and street and mailing address of the business entity issuing the map and report, along with the name and license number of the surveyor and mapper in responsible charge. The name, license number, and street and mailing address of a surveyor and mapper practicing independent of any business entity must be shown on each survey map and report.

(d) All survey maps must reflect a survey date, which is the date of data acquisition. When the graphics of a map are revised, but the survey date stays the same, the map must list dates for all revisions.

(e) The survey map and report and the copies of the survey map and report, except those with electronic signature and electronic seal, must contain a statement indicating that the survey map and report or the copies thereof are not valid without the signature and the original raised seal of a Florida licensed surveyor and mapper.

(f) If either the business entity or the individual licensee does not possess professional liability insurance, then the map, report, and/or survey must contain the following printed statement in letters at least ¼" high: The survey depicted here is not covered by professional liability insurance.

(g) Additions or deletions to survey maps or reports by other than the signing party or parties is prohibited without written consent of the signing party or parties.

(h) All computed data or plotted features shown on survey maps must be supported by accurate survey measurements unless clearly stated otherwise.

(i) Bearings, distances, coordinates, and elevations shown on a survey map shall be substantiated by survey measurements unless clearly stated otherwise.

(j) A reference to all bearings shown on a survey map or report must be clearly stated, i.e., whether to "True North"; "Grid North as established by the NOS"; "Assumed North based on a bearing for a well defined line, such as the center line of a road or right of way, etc."; "a Deed Call for a particular line"; or "the bearing of a particular line shown upon a plat." References to

Magnetic North should be avoided except in the cases where a comparison is necessitated by a Deed Call. In all cases, the bearings used shall be referenced to some well-established and monumented line.

(k) A designated "north arrow" and either a stated scale or graphic scale of the map shall be prominently shown upon the survey map.

(l) Abbreviations generally used by the public or in proper names that do not relate to matters of survey are excluded from the legend requirement.

1. Acceptable abbreviations on the face of survey maps are:

N = North

S = South

E = East

W = West

or any combination such as NE, SW, etc.

° = Degrees

' = Minutes when used in a bearing

'' = Seconds when used in a bearing

' = Feet when used in a distance

" = Inches when used in a distance

AC = Acres

+/- = More or less (or Plus or Minus)

metric notation

2. Any other abbreviations relating to survey matters must be clearly shown within a legend or notes appearing on the face of the map or report.

(m) When special conditions exist that effectively prevent the survey from meeting these minimum standards, the special conditions and any necessary deviation from the standards shall be noted upon the map or report.

(n) The responsibility for all mapped features must be clearly stated on any map or report signed by a Florida licensed surveyor and mapper. When mapped features surveyed by the signing surveyor and mapper have been integrated with mapped features surveyed by others, then the map or report shall clearly state the individual primarily responsible for the map or report, and the signing surveyor and mapper shall include in the map or report an assessment of the quality and accuracy of all mapped features delivered.

(o) Report Items.

1. Report items are information, as required by other parts of this rule, such as: abbreviations, legends, accuracy statements, feature lists, datums used, and things done or not done as part of the survey and mapping process. In addition, the map or report shall contain other items necessary for an adequate communication of survey methods and results as judged by the surveyor and mapper such as: data sources, measurement methods, history and lineage of data, and limitations pertaining to the information presented.

2. Text Report items shall be displayed either through notes on the map, report, or in a text report delivered with the map. When the report is produced as a text document and a map is attached, the report shall be signed and sealed. When the map is delivered in digital form only, then a report is required. An attached map must clearly reference the report by title, date and subject; and the report must likewise clearly refer to the map by title, date, and subject. Statements must be made on the map and in the report that neither is full and complete without the other.

(p) Map Accuracy. The expected accuracies of features shown on a survey map must be stated.

1. Vertical Feature Accuracy:

a. All surveys performed showing vertical data shall have a vertical positional accuracy statement. That statement shall be to the effect of: "Elevations and/or contours shown hereon have been measured to an estimated vertical positional accuracy of: ____ (ft) (m)." When different accuracy levels exist for different features, then applicable features and accuracies shall be identified with similar statements.

b. When contour lines are shown, then sufficient data must be obtained in order to insure that 90% of test elevations taken, when compared to map contours, are within stated positional accuracy.

c. Vertical Control: Field-measured control for elevation information shown upon survey maps or reports shall be based on a level loop or closure to a second benchmark. Closure in feet must be accurate to a standard of plus or minus .05 ft. times the square root of the distance in miles. All surveys and maps or reports with elevation data shall indicate the datum and a description of the benchmark(s) upon which the survey is based. Minor elevation data may be obtained on an assumed datum provided the base elevation of the datum is obviously different than the established datum.

2. Horizontal Feature Accuracy:

a. A survey and map's horizontal positional accuracy must be stated. The stated accuracy is a plus or minus tolerance that encompasses 90% of coordinate differences between map displayed values and ground truth. All survey maps or reports shall have a statement of the effect: "Well-identified features in this survey and map have been measured to an estimated horizontal positional accuracy of ____ (ft) (m)." When different accuracy levels exist for different features, then applicable features and accuracies shall be identified with similar statements.

b. Horizontal Control: All surveys and maps or reports expressing or displaying features in a publically published coordinate system shall indicate the coordinate datum and a description of the control points upon which the survey is based. Minor coordinate data may be obtained and used on an assumed datum provided the numerical basis of the datum is obviously different than a publically published datum.

c. The accuracy of control survey data shall be verified by redundant measurements or traverse closures. All control measurements shall achieve the following closures:
Commercial/High Risk Linear: 1 foot in 10,000 feet;
Suburban: Linear: 1 foot in 7,500 feet;
Rural: Linear: 1 foot in 5,000 feet;

d. When statistical procedures are used to calculate survey accuracies, the maximum acceptable positional tolerance, based on the 95% confidence level, should meet the same equivalent relative distance standards as set forth in 61G17-6.003(3)(p)(2.) (c) F.A.C.

(q) Map Plotting Accuracy: The horizontal position of physical features surveyed by field methods must be plotted to within 1/20 of an inch at the map scale.

(r) Intended Display Scale: At the maximum intended display scale, a survey and map's positional accuracy value occupies 1/20" on the display. All maps or reports of surveys produced and delivered with digital coordinate files must contain a statement to the effect of: "This map is intended to be displayed at a scale of 1/___ or smaller".

Specific Authority 472.008, 472.015, 472.027 FS. Law Implemented 472.015, 472.025, 472.027 FS. History—New 9-1-81, Amended 7-29-85, Formerly 21HH-6.03, Amended 12-18-88, 11-27-89, 5-26-91, Formerly 21HH-6.003, Amended 12-25-95, 5-13-96, 11-3-97, 5-25-99.

61G17-6.004 Specific Survey, Map, and Report Requirements

(1) As-Built/Record Survey:

(a) When performing as-built or record surveys, the surveyor and mapper shall obtain field measurements of vertical or horizontal dimensions of constructed improvements so that the constructed facility can be delineated in such a way that the location of the construction may be compared with the construction plans.

(b) When the surveyor and mapper prepares as-built maps they will clearly show by symbols, notations, or delineations, those constructed improvements located by the survey.

(c) All maps prepared shall meet applicable minimum technical standards.

(d) The vertical and horizontal accuracy of the measurements made shall be such that it may be determined whether the improvements were constructed consistent with planned locations.

(2) Boundary Survey, Map, and Report.

(a) Boundaries of Real Property.

1. **REGULATORY OBJECTIVE:** The public must have confidence that boundaries of real property are located on the ground in an adequate and defensible manner. In meeting this objective, surveyors and mappers must meet the following minimum standards of accuracy, completeness, and quality:

2. The surveyor and mapper shall make a determination of the position of the boundary of real property in complete accord with the real property description shown on or attached to the survey map or report.

3. All boundary surveys shall result in a map.

4. Any discrepancies between the survey map and the real property description must be shown.

5. All changes in direction, including curves, shall be shown on the survey map by angles, bearings or azimuths, and will be in the same form as the description or other recorded document referenced on the map.

6. Curved lines with circular curves shall show the radii, arc distances and central angles, or radii, arc distances, chord distances and chord bearings.

7. When intersecting lines are non-radial to a curve, sufficient angular data shall be shown to relate the line to the curve.

8. Surveys of all or part of a lot(s) which is part of a recorded subdivision shall show the following upon the map:

a. The lot(s) and block numbers or other designations, including those of adjoining lots.

b. A comparison between recorded directions and distances with field measured directions and distances when they vary.

c. A comparison between the recorded directions and distances with field measured directions and distances to the nearest street intersection, right of way intersection or other identifiable reference point.

d. The dimensioned remaining portion of a lot(s) when part of a lot is included within the description.

9. Surveys of parcels described by metes and bounds shall show the following upon the map:

a. The relationship of the parcel(s) to at least one established identifiable real property corner;

b. All information called for in the property description, such as point of commencement, course bearings and distances, and point of beginning;

c. A comparison between recorded directions and distances and field measured directions and distances on the boundary when they vary;

d. The most current abutting recorded instrument or recorded plat either known by the surveyor and mapper or furnished to the surveyor and mapper.

(b) Boundary Monuments.

1. REGULATORY OBJECTIVE: In order to prevent boundary conflicts, the public must have assurance that the corners of accurately located real property boundaries as found by a survey are durably marked with survey monuments that may be identified on the ground with the aid of the survey map. In meeting this objective, surveyors and mappers must meet the following minimum standards of accuracy, completeness, and quality:

2. The surveyor and mapper shall set monuments as defined herein, unless monuments already exist or cannot be set due to physical obstructions at such corners or unless a water boundary has been located in approximate position. The survey map shall clearly label all approximate water boundaries with notes and these shall be mapped in a distinctly different graphic fashion from water boundaries located to full survey accuracy.

3. Every boundary monument set shall:

a. Be composed of a durable material;

b. Have a minimal length of 18 inches;

c. Have a minimum cross-section area of material of 0.2 square inches;

d. Be identified with a durable marker or cap bearing either the Florida license number of the surveyor and mapper in responsible charge, the certificate of authorization number of the business entity; or name of the business entity;

e. Be detectable with conventional instruments for finding ferrous or magnetic objects.

f. When a corner falls in a hard surface such as asphalt or concrete, alternate monumentation may be used that is durable and identifiable.

4. All monuments, found or placed, must be described on the survey map. The corner descriptions shall state the size, material, and cap identification of the monument as well as whether the monument was found or set.

5. When a parcel has an irregular roadway as a boundary, such as a dirt road or a common law road, then a monumented meander or survey line shall be established along or near the feature.

6. For other irregular boundaries such as a river, lake, beach, marsh or stream, not identified as in Rule 61G17-6.004(2)(a)2., F.A.C. a dimensioned meander or survey line may be used. When a meander or survey line is used, monuments shall be set at the meander or survey line's terminus points on real property boundary lines. and dimensions shall be shown between a meander or survey line and the boundary line sufficient to show the relationship between the two.

7. A boundary survey updating a previous survey made by the same surveyor and mapper or business entity, and which is performed for the purpose of locating non-completed new improvements by measurements to the property lines or related offset lines placed on the property since the previous survey, need not have the property corners reset.

8. Side ties to locate or set monuments shall be substantiated by a redundancy of measurements.

(c) Boundary Inconsistencies.

1. REGULATORY OBJECTIVE: In order to protect and enhance stability of property location and title, the public must have assurance that potential boundary inconsistencies are adequately researched and disclosed. A survey map should present the factual basis of potential boundary inconsistencies in a clear fashion. In meeting this objective, surveyors and mappers must meet the following minimum standards of accuracy, completeness, and quality:

2. Potential boundary inconsistencies that the survey process did not attempt to detect shall be clearly indicated and explained on the survey map or in the report. Where evidence of inconsistency is found, the nature of the inconsistency shall be shown upon the survey map, such as:

- a. Overlapping descriptions or hiatuses;
- b. Excess or deficiency;
- c. Conflicting boundary lines or monuments; or
- d. Doubt as to the location on the ground of survey lines or property rights.

3. Open and notorious evidence of boundary lines, such as fences, walls, buildings, monuments or otherwise, shall be shown upon the map, together with dimensions sufficient to show their relationship to the boundary line(s).

4. All apparent physical use onto or from adjoining property must be indicated, with the extent of such use shown or noted upon the map.

5. In all cases where foundations may violate deed or easement lines and are beneath the surface, failure to determine their location shall be noted upon the map or report.

(d) Rights-of-Way, Easements, and Other Real Property Concerns.

1. REGULATORY OBJECTIVE: In order to provide assurance of the status of access and other real property rights, the public must be informed of the existence and location of rights-of-way

and easements associated with property being surveyed. In meeting this objective, surveyors and mappers must meet the following minimum standards of accuracy, completeness, and quality:

2. All recorded public and private rights of way shown on applicable recorded plats adjoining or across the land being surveyed shall be located and shown upon the map.

3. Easements shown on applicable record plats or open and notorious evidence of easements or rights-of-way on or across the land being surveyed shall be located and shown upon the map.

4. When streets or street rights-of-way abutting the land surveyed are physically closed to travel, a note to this effect shall be shown upon the map.

5. When location of easements or rights-of-way of record, other than those on record plats, is required, this information must be furnished to the surveyor and mapper.

6. Human cemeteries and burial grounds located within the premises shall be located and shown upon the map when open and notorious, or when knowledge of their existence and location is furnished to the surveyor and mapper.

(e) Real Property Improvements.

1. REGULATORY OBJECTIVE: The public must be informed of the existence and location of pertinent real property improvements and their relation to the boundary of real property. In meeting this objective, surveyors and mappers must meet the following minimum standards of accuracy, completeness, and quality:

2. Location of fixed improvements pertinent to the survey shall be graphically shown upon the map and their positions shall be dimensioned in reference to the boundaries, either directly or by offset lines.

3. When fixed improvements are not located or do not exist, a note to this effect shall be shown upon the map.

4. Building corners are acceptable as monumentation so long as use of building corners as monumentation is clearly noted on survey drawing.

5. When a boundary survey is updating a previous boundary survey is made by same surveyor or survey firm for purpose of locating non-completed new improvements; then property corners need not be reset; however, when a boundary survey is updating a previous survey made by the same surveyor or survey firm and is performed for purpose of locating completed new improvements then property corners must be recovered or reset. When a boundary survey updates a previous boundary survey made by a different surveyor or survey firm for the purpose of locating either non-completed or completed new improvements, property corners must be recovered or reset.

(3) Construction Layout Survey

(a) When the surveyor and mapper provides construction staking, these stakes must be based on controls established using the survey standards set out in Rules 61G17-6.003(3)(p), F.A.C., of this chapter. The stakes provided should be adequate in number and position so that the physical items can be constructed from the plans as designed

(b) Horizontal and Vertical Controls for Public and Private Construction Layout.

1. Section 472.003(3), Florida Statutes, provides an exemption from licensing for certain classes of individuals performing construction layout from boundary, horizontal and vertical controls that have been established by a licensed professional surveyor and mapper. This rule is designed to set out what constitutes horizontal and vertical controls.

a. Horizontal control monumentation for the purpose of this rule includes:

1. Points of Curve, Points of Tangency, Points of Tangent Intersections, Points on Line and Points on Curve.

2. Points of Intersection of other streets or roads.

3. Angle points or changes in direction.

b. Horizontal control monumentation for road centerlines, right-of-way lines, reference lines or base lines shall be at least a minimum of two (2) points placed so that no point on the line being monumented is more than 700 feet from a control monument.

c. Horizontal control monumentation for main utility lines (such as water, sewer, storm drainage, electric, telephone, television, gas, etc.) when not constructed within or along a road right-of-way control in accordance with subsection Rule 61G17-6.004(3)(b)1.b., F.A.C. shall be at least a minimum of two (2) points placed so that no point on the line being monumented is more than 700 feet from a control monument.

d. Horizontal control monumentation for buildings and/or primary constructions shall be at least:

1. Boundaries or,

2. Control or base lines (minimum of 2 points) or,

3. A minimum of a four-corner envelope for non-residential construction improvement layout.

e. Horizontal control monumentation required by plans as a control for horizontal location not included in Rule 61G17-6.004(3)(b)1.b.,c., or d., F.A.C. shall meet the requirements of (3)(b)1.a.

(c) All construction requiring benchmarks shall have a minimum of two (2) existent or established benchmarks for vertical control.

(d) Vertical control for linear type construction sites such as roads and sewer lines shall have a maximum of 1,100 feet between existent or established benchmarks.

(e) Vertical control for acreage construction sites shall have two (2) existent or established benchmarks on the first ten (10) acres plus an additional benchmark for each additional ten (10) acres.

(f) The only required documentation for this type of survey product shall be field notes.

(4) Control Survey

(a) Geodetic Control Surveys: When applicable, all geodetic control surveys, both vertical and horizontal, shall conform to the Standards and Specifications for Geodetic Control Networks (1984) as set forth by the Federal Geodetic Control Committee (FGCC), which Standards and Specifications are incorporated herein by reference, effective 5-13-96, and the Geospatial Positioning Accuracy Standards Parts 1, 2, and 3, FGDC-STD-007.1-1998, entitled "Geospatial Positioning Accuracy Standards Part 2: Standards for Geodetic Networks", and FGDC-STD-007.3-1998, entitled "Geospatial Positioning Accuracy Standards Part 3: National Standard for Spatial Data Accuracy", which are hereby incorporated by reference, effective 5-18-00, copies of which may be obtained via the internet web site (<http://fgdc.er.usgs.gov>). No use of the terminology of these standards may be made without completely adopting and following all the standards in their entirety. When these standards are not employed, then a survey, map, or report shall explain applicable standards used in the geodetic control survey. All geodetic control survey maps or reports shall show the horizontal and vertical datum used and shall contain adequate graphical or written descriptions of the locations, construction and marking of all marks used or set and shall explain methods employed in the survey and adjustment.

(b) Other Control Surveys: Any control survey map or report shall detail the datum used and control stations used in a manner consistent with the general survey and map provisions of Rule 61G17-6.003(1), F.A.C.

(5) Descriptions/Sketch to Accompany Description

(a) Descriptions written by a surveyor and mapper to describe land boundaries by metes and bounds shall provide definitive identification of boundary lines.

(b) When a sketch accompanies the property description, it shall show all information referenced in the description and shall state that such sketch is not a survey. The initial point in the description shall be tied to either a government corner, a recorded corner, or some other well-established survey point.

(6) Digital Data

(a) When survey information is provided in digital form only, the surveyor and mapper shall provide a signed and sealed report as set forth in F.A.C. 61G17-6.003(3)(o).

(b) The digital file will reference the report and that the digital file is not full and complete without the report.

(7) Ortho Images/Photos.

(a) The survey, map, and/or report must contain a list of control points employed in georeferencing the image along with the source of control positions used.

(b) Positional Accuracy: Feature accuracies shall be stated in a manner consistent with the general survey and map accuracy provisions of Rule 61G17-6.003(3)(p), F.A.C.

(c) The Ortho Image/Photo shall comply with the US Department of the Interior, US Geological Survey National Mapping Divisions, "National Mapping Program Technical Instructions Part 2 Specifications Standards for Digital Orthophotos."

(8) Quantity Survey

(a) Quantity Surveys: The surveyor and mapper shall obtain horizontal and vertical measurements adequate to delineate graphically geometric configurations and/or dimensions that can be mathematically computed.

(9) Raster Imagery

(a) REGULATION OBJECTIVE: The public must be able to rely on surveys and maps presented in image form, digital or graphical, where coordinate positions of mapped features on a recognized coordinate system may be extracted from the image.

(b) The survey and report must contain a list of control points employed in geo-referencing the image along with the source of control positions used. The survey and report must contain a statement clearly stating that "This is not an orthoimage or orthophoto."

(c) Feature accuracies shall be stated in a manner consistent with the general survey and map accuracy provisions outlined in Rule 61G17-6.003(3)(p), F.A.C.

(10) Subdivision Record Plat

(a) This rule shall not apply to plats being prepared for filing and recording pursuant to Chapter 177, Florida Statutes; however, this rule shall apply to any boundary survey performed during the preparation of the plat

(11) Specific Purpose Survey

(a) Surveys which are performed for a purpose other than the purposes encompassed by the definitions in Rule 61G17-6.002(8)(a)-(i) or (k), F.A.C., shall be permitted only where unusual conditions make impracticable or impossible the performance of one of the types of surveys defined in Rule 61G17-6.002(8)(a)-(j) or (k), F.A.C.

(b) Such purpose and conditions shall be clearly shown upon the survey map or in the survey report.

(c) Surveys performed for purposes of monumenting, referencing, describing, and mapping centerline or baseline may be performed as Specific Purpose Surveys. Additionally, surveys performed for the purpose of monumenting official right-of-way lines may be performed as Specific Purpose Surveys.

(12) Topographic Survey

(a) Topographic surveying and mapping by field methods shall meet general provisions applicable to all surveys and maps as set out in Rule 61G17-6.003, F.A.C. A minimum of two site benchmarks on or near the survey shall be indicated upon the survey map.

(b) Topographic Features.

1. REGULATORY OBJECTIVE: The public must be able to rely on topographic information contained on a survey map and must be able to correctly interpret the intended map coverage.

2. Intended Features. The surveyor and mapper shall devise a method of reporting which topographic features were intended to be surveyed and mapped, the style of cartographic representation employed for each, and the degree of intended completeness in the surveying and mapping of each feature. As with abbreviations, any symbols, line types, etc. shown on the survey map shall be explained/defined in a legend.

3. Obscured Areas. Features in obscured areas where the desired points or surfaces being mapped are not clearly visible on source images shall be clearly labeled on the map as "interpolated" or "estimated" through the use of notes and shall be depicted graphically clearly different from other surveyed features.

4. Scale of Map. The scale of the map that is selected when provided in hard copy shall be sufficient to accurately and clearly show the results of the survey.

5. Property Lines. Any depiction of property lines on a topographic map shall be accompanied with a statement as to the source of the property lines shown.

Specific Authority 472.008, 472.027 FS. Law Implemented 472.027 FS. History—New 2-20-96, Amended 5-25-99, 3-25-01.

Specific Authority 472.008, 472.027 FS. Law Implemented 472.027 FS. History—New 9-1-81, Formerly 21HH-6.04, Amended 12-18-88, Formerly 21HH-6.004, Amended 12-25-95, 5-13-96, 5-25-99.

Specific Authority 472.008, 472.027 FS. Law Implemented 472.027 FS. History—New 9-1-81, Formerly 21HH-6.05, Amended 12-18-88, Formerly 21HH-6.005, Amended 12-25-95, 5-18-00, 3-25-01.

Specific Authority 472.008, 472.027 FS. Law Implemented 472.027 FS. History—New 12-18-88, Formerly 21HH-6.0051, Amended 12-25-95, 5-13-96, 5-18-00.

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Specific Authority 472.008, 472.027 FS. Law Implemented 472.027 FS. History—New 12-25-95.

Specific Authority 472.008, 472.027 FS. Law Implemented 472.027 FS. History—New 8-7-81, Amended 12-30-81, 7-29-85, Formerly 21HH-6.06, Amended 4-29-86, 12-18-88, Formerly 21HH-6.006, Amended 12-25-95.

Specific Authority 472.008, 472.027 FS. Law Implemented 472.003(3), 472.027 FS. History—New 5-20-92, Formerly 21HH-6.007, Amended 12-25-95.

Ms. Oliver stated she would provide Mr. Stabley with a digital copy of the document and Mr. Stabley stated he would review for grammar and proper rule format.

There being no other business the meeting adjourned at 4:20 p.m.