

(Circular)

General Land Office
23d September 1831.

Sir.

I herewith communicate for your guidance and direction in the discharge of your official duties, the requirements of the Department in reference to the township surveys and the mode of making returns thereof in order that you may model and adapt your contracts with your deputies, and instructions and forms of field books precisely to suit those requirements.

In the preparation of the township plats it is requisite that they exhibit a perfect delineation of the country as represented in the field notes of the survey.

1st The plats are to be so constructed as to indicate both by protraction and by figures the courses and distances of all lines. Viz. The exact distance between the posts planted at the corners of each section or fractional section, and the courses of the lines, where from any cause, they vary from the cardinal points, also the precise delineation by courses and distances of private claims, reservations, and other tracts of land not conforming to sectional lines.

2nd Whenever the continuation of a surveyed line is interrupted by an impassable swamp or from any other cause, the distance of the line actually run, between the starting and finishing posts, is to be truly represented by the platting and also by figures.

3d The distance on a surveyed line at the points where streams cross the same, is to be indicated by figures, and the general course of such streams, where they are not navigable, between such different points of intersection, is to be delineated on the plat as nearly as the same can be conjectured. The courses and distances of the meanders of navigable streams are to be truly delineated and also represented by figures on the plat opposite the delineation wherever it is practicable so to do, and where the same are too numerous to admit of their exhibition by figures on the plat, in that mode, the same are required to be exhibited in a detached tabular form, either on the face of the plat, or connected therewith as may be found most expedient. The width of all water courses, rivers, creeks etc., is to be represented in figures on the plat.

4th The plat is to exhibit the received names of all rivers, creeks, lakes, swamps, prairies, hills, mountains, and all other natural objects, and the surveyors should be instructed never to give original names to such objects, where names have heretofore been given. All lakes or ponds of sufficient magnitude to justify such expense are to be meandered and platted agreeably to courses and distances, which are also to be exhibited by figures. In passing such ponds or lakes as are not to be meandered, offsets are to be taken, which offsets are to be carefully noted on the plat to shew that the distance across has been correctly ascertained. Such ponds or lakes are to be exhibited on the plat as accurately as practicable from careful ocular observation to be made by the Deputy and noted in his field book.

5th Swamps are to be represented in the ordinary method by slightly shaded black lines and dots, and the outlines of the same should be distinctly exhibited.

6th Prairies are to be represented by slightly shaded green lines and dots, and the outlines of the same to be distinctly exhibited.

7th The plats should also exhibit as far as practicable all mines, salt springs, salt licks, and mill seats, also towns, villages, and settlements, and the names of the same, also forges, factories, cotton gins, and all other such items of information, also the general course of travelled roads and tracks, denoting the place to which they may lead.

8th The exterior lines of the township plat should be double the thickness of the sectional lines, and both of them should be in black ink. The lines denoting the quarter sections and the subdivisions of fractional sections should be in red.

9th The quantities of the subdivisions of fractional sections are to be indicated by red figures within the respective subdivisions. The numbers and quantities of the sections and fractional sections are to be exhibited in black figures at the centre of each as nearly as practicable, and in cases where the marks and figures on the plat are too numerous to admit of the convenient exhibition of the quantities in that way, the quantity of each section and fractional section is to be exhibited in a neat tabular statement on the right side of the plat, and where there are private claims in the township, the quantities of such claims are to be exhibited under a separate head in the tabular statement, which is to exhibit separate totals of public lands and private claims. Where any private claim, indian or other reservation etc., is exhibited, the name of the confirmer or reservee must be given: also such other reference as will clearly identify the tract with the report by which it was confirmed, or the treaty &c under which the individual claims the title.

In cases where the quantities are exhibited in the centre of the section or fractional section, and it is not necessary to resort to a tabular statement, the sum total of the public lands in the township is to be exhibited as one item near the foot of the plat.

10th At the foot of each plat the surveyor general must give an official certificate of the following purport.

Viz.

The above map of Township No___, of Range No___ is strictly conformable to the field notes of the survey thereof on file in this office which have been examined and approved (or if any exceptions are taken to the field notes by reason of their not standing the test of correct platting, such exceptions are to be stated in the margin of the plat, as before mentioned, and exhibited on the face of the plat by red dotted lines, and alluded to in the certificate thus "with the exception stated in the margin hereof.") The certificate is then to be closed by indicating the name of the Deputy or Deputies by whom the exterior boundary lines, and the subdivisional lines were respectively surveyed, shewing the sum total of miles run by each Deputy Surveyor, also the date of the contract, the quarter of the year in which the survey was made, and the quarter in which the same was paid for and charged in the accounts of the surveyor general.

11th All lines in a township survey which have not been actually run, must be represented on your plat of survey by red dotted lines, and any portion of a survey found or suspected to be erroneous must also be represented by red dotted lines, and payment for the same is to be suspended until the error is corrected or the cause of suspicion done away to the full satisfaction of the surveyor general, and in every case when the survey of a township is incomplete from any cause, such cause must be fully set forth by a marginal note on the face of the plat, and certified thereon in the mode designated in the 10th article of this letter.

12th Navigable Streams are declared by law to be public highways - except in cases where navigable streams constitute the boundary line between two land districts and where the Ranges and Townships in each District are numbered from different meridians and base lines, they are not to interrupt the regular survey of the township lines, which are to be continued across such stream for the exact distance. Each border of such stream is however to be meandered, by course and distance, and a fractional portion of the same township will be constituted on each side thereof to be denominated, as the case may be, the fraction of township North or South, or East or West, of such stream, having special regard in such designation to the general course thereof from its source to its mouth.

A Deputy Surveyor continuing surveys on the opposite banks of streams must invariably be made to shew the connections of such survey, with certain established posts or points in the opposite survey, which connections, as well as the mode by which the same was ascertained, are to be shewn in the field book and exhibited in the plat of survey, and

in passing up or down rivers, frequent connections with the surveys across should be made and exhibited both in the field book and plat.

The width of navigable streams and bayous binding on the surveys, should frequently be ascertained by trigonometrical process. Where the width of the same does not sensibly vary in the township the measurement there of is to be made at the two extreme points of intersection of such objects with the township line, but where there is a sensible variation in the width, measurement there of must be made as often as may be justly deemed necessary for the accuracy of the survey in connection with the adjoining lands and the correct exhibition thereof in the township plats.

13th Where it is necessary to make a return to this office of township boundaries merely prior to the subdividing of such townships into sections and the rendition of the regular plats of survey, such boundaries are to be platted in connection on a scale of from two to three inches to six miles.

14th The paper to be used in your plats of survey must be of the best quality and of uniform size.

The descriptive notes are to be written on paper of the folio post size, best quality. The records of the plats & field notes, to be kept in your office, must be made out on paper of the best quality. Great care and neatness are to be observed in the execution of the work and in the particular examination thereof after the same is completed.

SURVEYS AND CONTRACTS

15th You are to require bond and approved security for the due execution of all surveying contracts in the penalty of double the value of the contract - and in case of failure to comply with the terms of a contract, unless such failure arise from causes satisfactorily proved to be beyond the control of the contractor, immediate measures are to be taken to recover the penalty of the bond, agreeably to law, and no Deputy Surveyor who has improperly failed to fulfil his engagements is afterwards to be employed by you, and of every such failure you are required to give immediate notice to the Department.

The surveys must be executed under the personal and immediate superintendance of the contractor. Sub-contracts are illegal. The contract and bond of the Deputy are expressly to provide against sub-contracts.

16th The act of 18th May 1796 (Land laws, New Edition p. 420) provides that the public lands "shall be divided by north & south lines, run according to the true meridian and by others crossing them at right angles so as to form townships of six miles square."

"The corners of the townships shall be marked with progressive numbers from the beginning: each distance of a mile between the said corners shall be also distinctly marked with marks different from those of the corners."

The same law requires that "townships shall be subdivided into sections, containing as nearly as may be, six hundred and forty acres each, by running through the same, each way, parallel lines at the end of every two miles, and by marking a corner, on each of the said lines at the end of every mile: the sections shall be numbered respectively, beginning with the number one in the north east section, and proceeding west & east alternately through the township with progressive numbers, till the thirty six be completed."

"And it shall be the duty of the Deputy Surveyors to cause to be marked on a tree near each corner made, as aforesaid, and within the section the number of such section, and over it the number of the township within which such section may be, and the said Deputies shall carefully note in their respective field books the names of the corner trees marked and the numbers so made."

The act of 10 May 1800 (Land laws, New Edition. P 456) prescribes the mode of subdividing sections into half sections of three hundred and twenty acres each, as nearly as may be, "by running parallel lines through the same from east to west, and from south to north, at the distance of one mile from each other, and marking corners at the distance of each half mile on the lines running from east to west, and at the distance of each mile on those running from south to north," and

making the marks, notes and descriptions, prescribed to surveyors by the act of 18th May 1796-The same act also provides that, "in all cases where the exterior lines of the townships thus to be subdivided into sections or half sections, shall exceed, or shall not extend six miles, the excess or deficiency shall be specially noted, and added to or deducted from the western & northern ranges of sections or half sections in such townships, according as the error may be in running the lines from east to west, or from south to north: the sections and half sections bounded on the northern and western lines of such townships shall be sold as containing only the quantity expressed in the returns and plats respectively, and all others as containing the complete legal quantity." By a vigilant & faithful attention to duty on the part of the Deputy Surveyor, the excesses and deficiencies alluded to by the law, except to a trifling extent, will be of rare occurrence.

The act of 11th February 1805, entitled "An act concerning the mode of surveying the public lands of the United States" (Land laws, New Edition, page 515) prescribes general regulations for dividing townships into sections, and subdividing such sections into half sections and quarter sections. The following is a summary of those regulations.

The lands are to be laid off in townships of precisely six miles square, by lines running due north & south & east and west. On each of those lines precisely at the distance of one mile apart, corners are to be established for sectional lines. Parallel lines are to be run through the township each way, from each sectional corner to the corresponding sectional corner, on the opposite side of the township, on each of which lines sectional corners are to be established at the distance of one mile apart, which process will divide the township into thirty six sections. In running the exterior township lines, and also the interior sectional lines, intermediate, half mile posts or corners (precisely equi-distant between the corners of the sections) are to be established as the boundaries of quarter sections.

17th Each Deputy Surveyor is to provide himself with two, two pole chains containing each thirty three feet and subdivided into fifty links, which are to be regulated by the Standard Chain in the surveyor's office: one of which chains is to be specially reserved by the Deputy as a standard for his field work, and by which he will adjust the one in active use, at least every other day, if not oftener. Each Deputy will also provide himself with a good compass with a nonius, or a theodolite (which latter, in some respects, is preferable by reason of its peculiar adaptation to the taking of long sights) which will be compared with the standard in the surveyor's office.

18th The surveys are required by law to be made agreeably to the true meridian, and at right angles therewith. The variation of the magnetic meridian is to be observed and ascertained from time to time, as often as the surveyor general may deem expedient, and is always to be indicated on the township plat.

19th The greatest care is to be taken in levelling the chain and plumbing the pins, so as to obtain the true horizontal distance where the surface of the country is irregular and hilly.

The oath to be taken by the chain men must specially provide for such levelling and plumbing. The Deputy Surveyor must ever be vigilant over the conduct of his sub-agents (chain men, marker, & flag bearers) whose oaths with that of the Deputies are to be filed in your office.

You are to enjoin on your Deputies a strict regard to the moral integrity of their sub-agents. None must be employed in whom implicit confidence cannot be reposed, as the interest of the public service is at stake.

AS TO MARKING

20th The greatest possible caution is to be observed in marking the corners of townships &c, in a plain, distinct and permanent manner.

Where a tree is not found immediately at the corner, a corner is to be established by planting a post on which is to be marked the number of the township, over which is to be marked the number of the

Range, and underneath the number of the Section.

The bearing and distance, also the names & respective diameters of the nearest trees from such corner are to be carefully taken and noted in the field book. The nearest of such trees (where there are more than one) is to be marked to correspond with the marked corner. The mark should be in a regular chop, squared off, to be made into such tree, so as to be always distinguishable from a mere blaze. The letters B.T. to denote the fact of its being a "bearing tree" should be distinctly cut into the wood some distance below the other marks. All these particulars are to be most intelligibly & minutely noted in the field book. The posts used in forming the corners of townships must always be larger (for the sake of distinction) than those which denote the sectional and quarter sectional corners, and should be neatly squared off at the top to correspond with the cardinal points.

The marks on the posts and bearing trees should be deeply burnt into the wood with marking irons. The posts must always be made of the most durable wood that can be had, and should be set in the earth to the depth of two feet and very securely rammed in with earth and stone. It is highly important in reference to their durability that the portion of each post below the surface should be charred and the whole of it rubbed over with tar, except the portion which bears the surveyor's marks. The sectional posts are to indicate by a number of notches on each of the four corners directed to the cardinal points, the number of miles that it stands from the outlines of the township - the side of the post will be numbered to correspond with the number of the section it faces. Each half mile post on a section line, and quarter section post on a township line should be marked to indicate that it is a quarter sectional "(1.4.S.)" post, and the nearest adjoining tree on each side of such post, must be similarly marked - The surveyor to note in his field book the kind of tree, its diameter, bearing & distance from the true corner.

Posts denoting the same kind of character of boundary, should be of uniform construction, and there should always be a striking difference between posts denoting different kinds of boundary.

To create additional and increased facility in the discovery of boundary lines by the purchasers of public lands and to prevent errors of entry, you are to require your deputies to fasten to the sectional and quarter sectional posts, near the ground, but so as to be plainly seen, a finger board, on which is to be distinctly marked with black, oil paint, the appropriate number of the tract. This board to point diagonally across the tract, and to be marked similarly to this: NW $\frac{1}{4}$.S.1.T.1.N.-R.1E.

In prairie countries where bearing trees cannot be had, mounds, to be covered with sod, are, agreeably to contract, to be erected. Such mounds should be of uniform size, and conform precisely to instructions to be given by you. As mounds are subject to be worn away by the action of the weather and other causes, I would recommend that a stone be planted in the centre of the mound, and that a few handfuls of charcoal be enclosed therein. I would further recommend that at each corner of a square which will enclose the mound and conform to the cardinal points, there be planted a chesnut, hickory nut, walnut or acorn.

A stake to be set up in the centre of the mound to which is to be fastened a finger board on which is to be designated in black, oil paint the appropriate numbers.

All the particulars relative to the construction of a mound are to be minutely indicated in the field book.

The perpetuation of the corners of the public surveys is a subject of primary importance. Every possible care and precaution to secure correct and durable corners must be observed by your agents whose fidelity you should test by every means in your power.

AS TO FIELD BOOKS

21st You are to furnish your Deputy Surveyors with a printed specimen form of field book, which is to be so constructed as to exhibit every particular required either by law or instruction, so as to admit of a perfect topographical exhibition of the country, and accompany such form with special instructions on every point in relation to which

it can be presumed that instructions are necessary.

In the field book the number of miles, chains & links run on a line are to be exhibited in a column, which is to be added up at the foot of each page and carried forward from page to page, so as to form at the conclusion of the book the aggregate of miles, chains & links run in the township or fractional township.

The Act of Congress approved 18th May 1796 (Land laws, New Edition, page 420) requires, that "every surveyor shall note in his field book the true situation of all mines, salt licks, salt springs & mill seats which shall come to his knowledge, all water courses over which the line he runs shall pass, also the quality of the lands. These field books shall be returned to the Surveyor General, who shall there upon cause a description of the whole lands surveyed to be made out and transmitted to the officers who may superintend the sales. He shall also cause a fair plat to be made of the townships and fractional parts of townships contained in the said lands, describing the subdivisions there of and the marks of the corners. This plat shall be recorded in books to be kept for that purpose, a copy thereof shall be kept open at the Surveyor Generals Office, for public information, and other copies sent to the places of sale, and to the Secretary of the Treasury."

As the protraction of the surveys at the office of the surveyor general, from the field books furnished by his Deputies is the test of the accuracy or incorrectness of the survey, the greatest caution is to be observed in making such protractions.

The field books are to indicate the examination & approval there of (or disapproval, as the case may be) by the Surveyor General, with the date of such examination and approval under his own proper signature, also the date of the contract, the quarter of the year in which the land was surveyed and payment made therefor.

The field books are to be signed by the Deputy Surveyor, and also by the chain men, marker and flag bearers employed in the survey.

SUBDIVISIONS OF SECTIONS AND FRACTIONAL SECTIONS

22nd The Act of 24th April 1820 entitled "An act making further provision for the sale of the public lands" (Land laws, New Edition, page 770) requires that the public lands be offered for sale in half quarter sections, and requires that the lines, supposed to divide the quarter sections into half quarter sections are to run North & South. This law also requires that the corners & contents of half quarter sections shall be ascertained in the manner and on the principles prescribed by the Act of 11th February 1805, (Land laws, New Edition, page 515).

The same act requires that "fractional sections containing one hundred and sixty acres and upwards shall in like manner, as nearly as practicable, be subdivided into half quarter sections under such rules & regulation as may be prescribed by the Secretary of the Treasury; but fractional sections containing less than one hundred and sixty acres, shall not be divided, but shall be sold entire".

The instruction of the Secretary of the Treasury under the aforesaid act, is, that the lines of the subdivisions of fractional sections containing one hundred and sixty acres or upwards, may run either North & South or East and West, so as to preserve to the respective subdivisions the most compact and convenient forms.

The lines of the subdivisions of quarter sections and fractional sections are to be merely indicated on the maps. It is not contemplated by the existing laws that they should be actually surveyed at the expense of the United States.

In the subdivision of fractional sections you are requested to observe as a general rule, points equidistant between the half mile posts, as the supposed boundaries whether North & South, or East & West, between the subdivisions.

I am, very respectfully
Yr. Obt. Servt
Elijah Hayward

(Signed)

P.S. It is invariably required that you furnish to this office and to the Register of the proper Land Office copies of the same township plats & descriptive notes, at the same time. A failure to observe this rule will necessarily embarrass the operations of the Government in the sale of public lands.

Col. Robert Butler
Surveyor General
Tallahassee
Florida.

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The foregoing is copied from a circular (written in longhand) from Elijah Hayward, Commissioner of the General Land Office, Washington, D. C., and is addressed to Col. Robert Butler, U. S. Surveyor General of Florida, and is on file in the Field Note Division, Department of Agriculture, Tallahassee, Florida. (October 28, 1960)