Manual of Surveying Instructions

United States Department of the Interior
Bureau of Land Management
Cadastral Survey

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Key to Citation of Authorities, by Volume and Page or Section

A-
Administrative Decisions of the Department of the Interior.

CFR

F.

F.2d
Federal Reporter, second series.

F.3d
Federal Reporter, third series.

IBLA

Interior Dec.
Decisions of the Department of the Interior, 1930 and later, beginning with Vol. 53.

M-
Department of the Interior Solicitor’s Opinion.

Decisions of the Department of the Interior relating to the public lands through 1929, Vols. 1 to 52.

Revised Statutes of the United States; citation includes section number.

Stat.
United States Statutes at Large.

Title 43
Public Lands: Interior.

U.S.
United States Reports. Decisions of the Supreme Court of the United States.

U.S.C.

Section numbers cited in this Manual without other designation indicate the chapter and chapter section of the Manual.

The information contained within this Manual of Surveying Instructions assures consistency with the Cadastral Data Content Standard developed by the Federal Geographic Data Committee’s Subcommittee on Cadastral Data in support of the requirements of the Office of Management and Budget Circular No. A-16, revised, entitled Coordination of Geographic Information and Related Spatial Data Activities.

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(3) The field notes of the retracement form an important part of the report, since the field notes show how correctly the natural features were represented in the original record.

(4) Finally, the surveyor recommends the procedure that will best deal with the existing conditions.

The report of the field examination is reviewed in the supervising office. Special instructions (or supplemental special instructions) are written to show the detail of the proposed resurvey. If the independent method is selected, an important consideration is the fixing of the outer-bounds of the sections, township, or townships within the planned resurvey. These limiting boundaries must be lines that can be restored in such a manner as to protect existing rights in the adjoining outside lands. An exception is where such a large area is to be independently resurveyed that it cannot all be included in one assignment. Occasionally, one portion of a township can be dependently resurveyed, while an independent resurvey is necessary in the remaining portion. In such a case the subdivisional lines separating the two types of resurvey must be dependently resurveyed.

5-34. Even when the procedures have been based on a preliminary examination, unforeseen difficulties may occur during the progress of the resurvey due to the greater detail of the work. The new factors may make the special instructions inapplicable. If this occurs the surveyor should suspend further monumentation, report the situation promptly to the supervising office, describe the nature of the difficulties, and request further instruction. Attention may be given to any additional retracement or other examination required.

5-35. During the course of a resurvey the surveyor should advise all interested parties, as occasion and opportunity allow, that the resurvey is not official or binding upon the United States until it has been duly accepted for the Director, Bureau of Land Management, and officially filed as provided by law. It is subject to change or correction, and therefore no alteration in the position of improvements or claim boundaries should be made in advance of the official filing of the resurvey.

The Dependent Resurvey

General Rules

5-36. A dependent resurvey is an official re-marking of the original lines upon a plan whereby the best available evidence of the original survey or of a prior resurvey is given primary control over the position of the lines to be reestablished. The dependent resurvey is designed to restore the original conditions of the official survey according to the record. It is based, first, upon identified and found original corners, second, other acceptable points of control including “obliterated corners,” and, third, restored “lost corners” by proportionate measurement in harmony with the record of the original survey. Some flexibility is allowable in applying the rules of proportionate measurement and subdivision of sections in order to protect the bona fide rights of claimants. This is particularly so in those cases where no objection is found to adopting a point acceptably located under the good faith location rule, and only slightly at variance with the theoretical position computed from the primary control.

5-37. The dependent resurvey is commenced by making a retracement of the township exteriors and subdivisional lines of the established prior survey within the assigned work. Concurrently, a study is made of the records of any known supplemental surveys, and testimony obtained from witnesses to ascertain if this collateral evidence is sufficiently well-qualified to support the identification of obliterated corners. A retracement of lines first run by local surveyors that may affect the resurvey is begun to ascertain if this evidence is sufficiently well-qualified to support the identification of obliterated corners or the location of legal subdivisions.

The retracement leads at once to identification of known and plainer evidence of the original survey. A trial calculation is made of the proportionate positions of the missing corners, followed by a second and more exhaustive search for the more obscure evidence of the original survey. If additional evidence is found, a new trial calculation is made.

5-38. A comparison of the temporary points with the corners and boundaries of alienated lands often helps in determining how the original survey was made, how the claims were located, or both. In analyzing the problem, in developing search areas for a particular corner’s location, and in weighting the collateral evidence, it is often helpful to determine where the theoretical corner point would fall using various methods. In the case of an interior section corner, for example, three-point or two-point control, particularly when supported by field-note calls to well-identified natural features may prove to be the best method to reestablish the position of the original corner, or prove that a corner, which would otherwise be lost, has been perpetuated by an acceptably located claim.
5-39. Ordinarily, one-point control is inconsistent with the general plan of a dependent resurvey. The courts have sometimes turned to this as the only apparent solution of a bad situation, and unfortunately this has been the method applied in many local surveys, thus minimizing the work to be done, and the cost. Almost without exception, the method is supported to the degree that “it follows the record.” This overlooks the fact, however, that the record is equally applicable when reversing the direction of the control from other good corners, monuments, or marks.

The use of one-point control to reestablish a lost corner is strictly limited as delineated in section 7-56. However, another use of the concept is to develop corner search areas. This is appropriate in areas of evident unfaithfulness in execution of the original survey where the evidence suggests the possibility of an original corner having been established by one point control despite records indicating otherwise. These are calculated at record bearing and distance from each adjacent corner, with an index correction if applicable.

5-40. At this stage of the field work, the surveyor should exhaust every possible means of identifying the existing or obliterated corners from direct evidence of the original survey. Once this has been accomplished, attention may be given to the adoption as an integral part of the dependent resurvey system, of corner positions determined by evidence of a lesser character, including witness statements and acceptable local survey corners of claim locations. Such evidence, termed “collateral evidence” is combined with the direct evidence of the original survey to give the basic control for the resurvey. All local corners not adopted will be noted in the record.

5-41. The process and governing rules of the dependent resurvey comprehensively bring into consideration the position of recognized land boundaries in the absence of direct evidence of the original corners. Chapter VII is specific regarding the application of the rules of proportionate measurement for the determination of the theoretical positions of lost corners. These rules will be applied in the dependent resurvey generally with respect to the township as a unit. The surveyor must exhaust the means of identification of each and every existing and obliterated corner and the theoretical position will be determined for each lost corner. The existing or obliterated corners are to be considered as fixed points (except in the most unusual cases) and may be monumented at any time. The lost corners will be subjected to the possible influence of points that may afterwards be determined to be acceptably located under the good faith location rule, and should be marked only as temporary points until this question has been resolved.

5-42. In the absence of other considerations the theoretical points determined by proportionate measurement and based upon existent or obliterated original corners are fixed to a mathematical certainty and then the surveyor is prepared to consider the weight of such collateral evidence as may be available.

5-43. In the plan of dependent resurvey, the surveyor must remember that the lengths of lines, when subject to double proportion, are comparable only when reduced to cardinal equivalents (section 7-9) or to equivalents along the direct lines between the nearest existing corners.

5-44. The final calculations for the corners that are to be treated as lost is based upon the known position of the corners of the general control as adopted and proportionate measurement, as provided in chapter VII. The result of this process balances in regular proportion the differences between the measurements shown in the record of the original survey and those derived in the retracement. Thus, the true lines of the dependent resurvey are determined through the influence exercised by the identified existent and obliterated corners of the original survey, other identified calls of the record, and such collateral evidence of the position of recognized land boundaries as may properly be adopted for such influence.

5-45. Any marks made either before or subsequent to the official survey, or at the time of the survey but not under the direction of the chief of field party, are not to be regarded as evidence of that survey except when authenticated by field notes or qualified testimony. Reference will be made in the field notes, however, if the marks are of a permanent nature. If such marks or monuments are rejected, the reason will be shown by the new record.

5-46. The surveyor should make certain while still in the field, that complete descriptions of all identified, accepted, rejected, or nonaccepted corners have been noted for entry in the official record of the resurvey so that the record will embrace:

(1) A complete description of the remaining evidence of each original monument;

(2) A complete description of the original accessories as identified;
(3) A concise statement relating to the recovery of a corner based upon identified line trees, blazed lines, items of topography, or other calls of the field notes of the original survey, in the absence of evidence of the monument or its accessories;

(4) A statement of the determining features leading to the acceptance of a recognized local corner;

(5) A complete description of the new monument(s);

(6) A complete description of any new accessories; and

(7) A complete description of rejected and nonaccepted local corners and accessories with a statement of the determining features leading to their rejection or nonacceptance.

Reestablishment of True Lines

5-47. The running and measurement of the true lines of the dependent resurvey, the marking of lines between corners, the notation of objects to be recorded, and the monumentation of the survey must conform to the requirements for original surveys and to the special instructions. The official record of the resurvey shows the relationship between the original survey, prior resurveys, and the reestablished lines.

5-48. In the course of marking the true lines, it is often desirable to establish sixteen-section corners or minor subdivision corners that control the position of intermingled Federal interest land within a section. Later subdivision of the section would then not require a new dependent resurvey of the section lines for that purpose. This will be addressed in the special instructions or the supplemental special instructions.

Reasonable discrepancies between former and new measurements may generally be expected when retracing the section boundaries. The shortage or surplus is distributed by proportion in establishing a sixteen-section corner. For example: The length of the line from the quarter-section corner on the west boundary of section 2 to the north line of the township, by the official survey was reported as 43.40 chains, and by the surveyor's measurement was found to be 42.90 chains. The distance at which the sixteen-section corner should be located north of the quarter-section corner would be determined by proportion as follows: As 43.40 chains, the official measurement of the whole distance, is to 42.90 chains, the surveyor's measurement of the same distance, so is 20 chains, original measurement, to 19.77 chains by the surveyor's measurement. By proportionate measurement in this case the sixteenth-section corner should be set at 19.77 chains north of the quarter-section corner and not 20 chains north of said corner, as represented on the official plat. In this manner the discrepancies between original and new measurements are equitably distributed.

5-49. The limit of closure already prescribed will be observed, unless modified in the special instructions. Special stress will be given to the need for greater accuracy in the measurements, which largely govern the restoration of lost corners, or the placement of monuments marking corners for the first time.

The Independent Resurvey

General Rules

5-50. The independent resurvey is used when the original survey cannot be identified with any degree of certainty in accordance with the representations of the official record, especially where there are considerable areas of Federal interest lands. An independent resurvey may be required where the prevailing conditions are such that strictly restorative processes, when applied as an inflexible rule between existing monuments or adopted corner positions, are either inadequate or lead to unsatisfactory results. If it is decided to supersede the record of the original survey with respect to the remaining Federal interest lands, an independent resurvey is appropriate.

This type of resurvey provides for the protection of existing bona fide rights by segregating individual tracts or conforming them to the subdivisions of the dependent resurvey if that can be done suitably. Generally, tract surveys can be avoided by restoring the section boundaries in which the claim is situated, using the same control that would have been employed to govern the tract survey. The control may be locally recognized corners, three-point, two-point, or even one-point control.

In effect this may employ both types of resurvey, dependent and independent, in the same township, with the dependent resurvey covering those sections that include alienated lands. Tract segregation is necessary only in those unusual cases where unrelated control prevents the