

Natural Resources Conservation Service
Easement Programs
Land Survey Specifications

A. SCOPE

A professional land surveyor, licensed or registered in the State where the land survey will be conducted, must complete all legal easement boundary surveys, including ingress and egress routes, required for Natural Resources Conservation Service (NRCS) easement programs. The work will consist of performing all surveys, measurements, computations, drawings, descriptions, monumentation, and markings required by this specification. NRCS will provide the surveyor with a deed, preliminary title search, location map and aerial photograph of the proposed easement area. The map will include the area to be surveyed, the ingress and egress routes or points of access, and any other applicable descriptive information. The surveyor must furnish plat maps, written descriptions of the easement area, suitable electronic media of the survey information, and other items as required herein.

Note: The NRCS map is only a general estimate of the proposed boundary lines. The boundary survey will reveal the landowner's actual easement boundary lines.

B. QUALITY OF WORK

All land survey work must follow recognized professional practices and standards and meet the accuracy specifications and positional tolerances set forth in the regulations of the State where the survey will take place and the NRCS specifications defined herein. In the case of a discrepancy between the NRCS specifications and the State-specific requirements, the more stringent requirements will govern. In addition, any land survey in a Public Land Survey System (PLSS) State must comply with the guidelines, directions, and procedures specified in the current Bureau of Land Management (BLM) "Manual of Surveying Instructions" (Manual), except where authorized by these Land Survey Specifications. The easement boundary and ingress and egress route description must be clear, accurate, complete, must meet NRCS's intent and program requirements, and be documented as required by these Land Survey Specifications. All notes, sketches, computations, and other data must be complete, legible, and organized in a manner that will allow reproduction of paper copies.

C. PERSONNEL AND EQUIPMENT

All work must be performed by, or under the direct supervision of, a person licensed or registered to practice land surveying in the State where the land survey is to be conducted. Other support personnel must have the training and experience to perform the work competently. Equipment for surveys must be of the quality and condition to provide the accuracy required. Equipment must be in good condition and in proper adjustment at all times. The surveyor must keep a record of all adjustments and provide records as requested. The surveyor will select the methods and instruments to be used for field data collection and boundary location. Various survey methods such as traverse, triangulation, satellite and inertial positioning systems may be used.

The NRCS contracting officer (CO) may, at his or her discretion, designate a contracting officer's representative (COR) or a technical representative to assist in preparing, awarding, administering, inspecting, and accepting the professional land surveying services contract. This will be determined on a State-by-State basis and will be referenced in the work order.

D. NOTIFICATION OF INTENT TO SURVEY

Prior to the start of survey field work, the surveyor must conduct an onsite presurvey field visit with the landowner or landowner's designated representative, NRCS contracting officer's representative (COR or technical representative) and NRCS designated conservationist. During this onsite presurvey visit, the proposed easement boundaries and the ingress and egress route or points of access will be reviewed. Known encroachments and conflicting ownership areas should be avoided and excluded from the easement area.

Before fieldwork for surveying begins, the surveyor must notify the NRCS representative or designated conservationist and the landowner of the date and time the boundary survey will be conducted. Notification must be provided a minimum of 3 business days prior to beginning work. If the work is not started on the planned date, the surveyor must notify the designated conservationist, COR, and landowner of the revised date and time that work will begin.

E. SURVEY AREA

The area to be surveyed should be marked by wooden stakes or flags during the onsite presurvey meeting by the designated conservationist, landowner or landowner's representative. Only boundary angle points should be staked or flagged sufficient for field verification by the surveyor, COR, and landowner.

In cases where NRCS has agreed with the landowner's request to exclude areas from within the easement perimeter, they must be surveyed as described herein, including the requirement for access routes to each excluded area of a sufficient width for vehicular travel. All private and public roads and associated roadway easement areas must be excluded from the easement boundary area, unless otherwise specified by NRCS. The net easement area must be reported by the surveyor and computed by subtracting the excluded areas and excluded road rights-of-way from the exterior perimeter boundary area. The net easement area must be computed to the nearest hundredth of an acre.

The boundary survey must be a complete perimeter traverse of the easement area tied to at least two monumented corners of the PLSS or two monumented corners of a recorded deed.

The surveyor must inspect documents provided by NRCS and recorded documents in the county land registrar's office for the purpose of retrieving deeds of record and recorded plat maps for the subject and adjoining properties. Existing recorded easements, right-of-ways, onsite located unrecorded easements, utilities or infrastructure, and exceptions listed in the preliminary title commitment must be plotted and shown on the final plat of survey.

The surveyor must show latitude and longitude along with the State plane coordinates based on the North American Datum of 1983 (NAD 83) for the following:

1. The point of beginning for the easement area
2. The point of beginning for the ingress and egress to the easement area, if applicable
3. At least four other corners of the easement area

All coordinate values shown must be georeferenced to the National Spatial Reference System (NSRS) in compliance with BLM "Incorporating Standards for the Positional Accuracy of Cadastral Surveys When Using Global Navigation Satellite Systems," and documented in such a manner that future surveyors can confidently replicate the position.

The easement area must not encroach on areas possessed by or subject to claims by others and must exclude any

encroachments from adjoining properties. If the title line of the area to be surveyed differs from the area currently possessed or is subject to a claim by others, the differences must be shown on the plat of survey, noted in the surveyors report, and the easement area adjusted as follows:

- If the title lines fall short of the apparent lines of current possession, the easement boundary must not cross the title line.
- If the title lines cross apparent lines of current possession, the easement boundary must not cross the apparent lines as possessed.
- If title line and the adjoining property title line create an overlap or gap, the easement boundary must exclude the overlap or gap area.

Any conflicts or encroachments discovered by the surveyor in the course of the work must be reported to the NRCS COR in writing within 5 business days. The surveyor is not required to resolve title or possession conflicts, but is required to report facts and any professional opinions that may be relative to the conflict. The contractor must cease work in the area of conflict as directed by the NRCS COR.

Any significant (more than 10 percent) variation from the preliminary easement area estimated acres should be reported immediately to the COR and NRCS State easement program coordinator. The surveyor must not modify the easement area surveyed at the direction of the landowner or any other NRCS personnel except the designated NRCS CO or COR.

F. BOUNDARY LINES AND MARKING

The boundary line must be marked with visible monuments, witness posts with signs, painted tree blazing, and signs as appropriate. The markings must be visible from one marking to the next. **All signs, markers, blazing, and painting must face away from the easement area.**

Monuments and witness posts with signs must be installed by the surveyor prior to delivery of the final plat of the survey and legal description, unless otherwise specified by the NRCS CO. Monuments and witness posts with signs must be installed at each corner, angle point, road crossing, intersection of property lines, and approximately every 500 feet along the easement area boundary in open areas. In wooded areas, the surveyor must either blaze all 6-inch-minimum diameter (DBH) and larger trees that lie completely or partially within 3 feet inside of the easement boundary line and set monuments and witness post with signs approximately every 500 feet or install additional monuments and witness posts with signs approximately every 200 feet.

Trees that are blazed must be blazed with two parallel horizontal marks facing away from the easement boundary, and trees intersecting the easement boundary line must be blazed with one vertical mark at both points where the easement boundary line penetrates the tree. The blazed marks must be painted with white tree marking paint.

Property lines lying within wooded areas less than 100 feet wide (e.g., fence rows) with open agricultural or undeveloped land on either side is not subject to wooded area standards. Monuments and witness posts must not be placed in the flow line of drainage ditches.

All monuments must be thoroughly described and specifically identified as set or found, whenever shown on maps or referred to in documents prepared by the surveyor. Descriptions of monuments must be sufficiently detailed to readily facilitate future recovery by other surveyors and to enable positive identification.

All monuments must be a minimum of 5/8-inch diameter solid steel and a minimum of 24 inches long. Monument caps (approved by NRCS) must be placed on each monument. In open areas, the monument must be driven just below the ground surface. In wooded areas, monuments must not be driven below the ground surface. If there is a reason that such a monument cannot be established, the reason for a deviation from the NRCS specifications

must be noted on the face of the plat of survey.

The surveyor must provide witness posts, sign bolts, and nuts. NRCS will provide the signs, and the surveyor is required to pick them up at a location designated by NRCS. The surveyor must attach an NRCS boundary sign to the top of each witness post using a galvanized nut and bolt. Sign bolts must have a minimum length so as to protrude at least 1 inch past the firmly tightened nut and must be bent after attachment to the signs and posts to prevent the nuts from separating from the bolts. Witness posts must be steel “U” channel posts at least 78 inches in length and have a minimum weight of 2 lbs. per foot. Posts must be of a natural color, preferably green. Securing the signs using a wire attachment is not acceptable.

If the proposed easement boundary is along a river, creek, bayou, lake, drainage ditch, or other water body, the easement boundary to be surveyed will be determined on a case-by-case basis after onsite clarification with the NRCS COR or technical representative and landowner and in compliance with appropriate State law on water boundaries. In States where acquisition of riparian rights is necessary to obtain water rights, the easement boundary should follow the riparian boundary.

An offset witness corner is required on each boundary line intersecting a river, creek, bayou, lake, drainage ditch, or other water body boundary and for angle points that lie within the water boundary. The witness corner must be monumented to provide a visual marker on the ground for use in maintaining the boundary integrity. Witness corner locations must be as close to the actual corner as practicable considering factors such as visibility, potential stream bank changes, encroachment, and recreational use in the area. Witness corner locations with bearings and distances to the actual corners must be clearly documented on the survey plat of the easement area and cited in the conservation easement boundary description.

G. INGRESS AND EGRESS ROUTE

The land description must include a delineated route of ingress and egress to and from the easement area. The ingress and egress route to the easement area must be described in the survey, shown on the survey plat, and recorded with the easement deed. The surveyor must tie the ingress and egress route to the easement boundary and to a designated public road. Monuments must be set at the points where the ingress and egress route intersects the easement boundary. The survey description of the route of ingress and egress to the subject property must be shown as exhibit B to the survey and shown on the survey plat. If the easement area is adjacent to a right-of-way maintained for the public and there is no field-surveyed-and-described metes and bounds ingress and egress route to the easement area, the point of access from a public right-of-way to the easement area must be shown on the survey plat and the survey description for the route of ingress and egress from a public right-of-way must be provided as exhibit B to the survey as shown below.

The following is an example of the survey description in exhibit B if the ingress and egress to the easement area is a point of access from an adjacent public right-of-way:

EXHIBIT B Route of Ingress and Egress

The easement area described in EXHIBIT A is accessed by [name of road] in [County name] County, [State].

The aforementioned road is a maintained public road, and provides ingress and egress to the easement area as it is described in EXHIBIT A of this Warranty Easement Deed.

H. SURVEY DATA

All survey data obtained by the surveyor must be recorded and maintained in accordance with State standards of

practice.

I. INSPECTION OF WORK

The NRCS CO, COR, technical representative, or designated conservationist may make periodic inspections of any phase of the work as it progresses. The surveyor must, without charge, make available for inspection originals or copies of such items as field notes, working plats and drawings, material obtained through research, computation sheets, computer printouts, correspondence to and from adjoining landowners, and any other item deemed necessary to ensure contract compliance and to verify accomplishments.

J. PRELIMINARY SURVEY REVIEW and FINAL SURVEY SUBMITTALS

Preliminary Survey Submittal: Prior to submittal of final, hardcopy documents, the surveyor must notify the NRCS CO, COR, or technical representative that the field work has been completed and must submit unsigned electronic files of the draft survey, easement legal descriptions, ingress and egress route descriptions (.pdf); the computer-generated tabulation of bearings; and the draft surveyor's report. These documents must be of sufficient detail for the field review by the landowner and NRCS to verify that the monuments and witness posts were installed as required and to verify that the area surveyed represents the easement area to be conveyed. These files must be sent to the NRCS CO, COR, or NRCS technical representative as determined by the work order.

The NRCS CO, COR, or technical representative will review the preliminary survey documents based on the NRCS land survey specifications requirements and notify the surveyor of any initial revisions or modifications required. Upon receipt of acceptable preliminary survey submittals, the NRCS CO, COR, technical representative, or designated conservationist will meet with the landowner in the field to verify that the area surveyed represents the easement area to be conveyed. NRCS and the landowner must document the onsite review and NRCS will notify the surveyor of any further revisions or modifications required.

In the case of a discrepancy in the lines as surveyed and marked, and the area the landowner and NRCS intend to be conveyed, the surveyor may be required to meet with NRCS and the landowner to reconcile the discrepancy. After the preliminary survey materials are determined acceptable and the onsite field review by NRCS and the landowner has been completed and documented in the "Easement Boundary Survey Field Review Memorandum to the File," the NRCS CO, COR, or technical reviewer will instruct the surveyor to provide final submittals.

Final Survey Submittal: The survey plat must, at minimum, include the following items:

1. The surveyor's seal affixed to the survey plat, signed and dated by the surveyor.
2. Latitude and longitude and State plane coordinates (NAD 83) for the point of beginning and other specified points.
3. Location map inset showing easement area, major roads and nearest municipality.
4. The record description of the property or the reference to the source of the recorded description of the property on which the easement is located.
5. The survey description of the easement area as exhibit A to the survey.
6. The survey description of the route of ingress and egress to the subject property is required as exhibit B to the survey and shown on the survey plat. If the easement is adjacent to a right-of-way maintained for the public and there is no field-surveyed-and-described metes and bounds ingress and egress easement route, the point of access from a public right-of-way to the easement area must be shown on the survey plat and

must be described in an exhibit B for route of ingress and egress from a public right-of-way.

7. North arrow. Convergence angle between grid north and the true meridian as defined by the axis of the earth's rotation shall be shown.
8. Graphic scale.
9. The point of beginning of the easement boundary and the point of beginning of the ingress and egress easement route, if applicable, must be clearly identified and noted as such. If the point of commencement differs from the point of beginning, it must be clearly identified and noted.
10. The surveyor must identify all lines on the plat of survey by line type or note. The surveyor must indicate and cite the source of all lines copied from previous surveys, copied from tax maps, or plotted from deeds.
11. Label adjoining properties listing landowner, recording information and property assessor identification information.
12. Show and label State, county and municipal boundaries that impact the easement area or ingress and egress routes.
13. The direction of courses, shown in bearings to whole seconds of arc, and the distances to hundredths of feet for all courses, course tables may be used on the survey plat. All data must be referenced to the appropriate State plane coordinate system, referenced to the NSRS U.S. Survey Foot, and basis of bearing to grid north of the appropriate State plane coordinate system.
14. The central angles, length of curves, radii, and the length and bearing of the long chords from the point of curvatures to the point of tangencies for each curve along the boundary line.

Note: In addition, curves should be noted on the survey plat as either simple curves, compound curves, or spiral curves (also note if they are railroad or highway curves) curve tables may be used on the survey plat.

15. Scale factor and geoid used for State plane coordinate values with note stating what portion of the survey was performed using GPS equipment, the precision of work in relative positional accuracy, and how GPS data was determined:
 - Type of GPS equipment used. Model number, manufacturer, and type of frequency.
 - Type of GPS survey performed (static, RTK, adjusted RTK, etc.).
16. Monuments identified as set or found, along with a description of the monument.
17. Area of the surveyed easement.
18. Observed evidence of possession or occupation and use by others on the subject parcel or across any boundary lines of the subject property. Major topographical features shown such as highways, roads, field roads, railroads, trails, streams, creeks, and rivers that cross the property line.
19. Recorded encumbrances, rights of way or other easements as listed in the preliminary title **coor** found when researching deeds for the subject or adjoining properties.
20. Observed and field-located evidence of any easements, utilities, or infrastructure not addressed in 19 and 20 above.
21. Sufficient data, diagrams, maps, and survey ties to corners to indicate that the location of the boundaries and corners of the property were correctly surveyed and located, including diagrams to show that the PLSS section or sections were properly surveyed and subdivided to locate PLSS aliquot parts and PLSS

lots.

22. Name, registration number, address, and phone number of the professional land surveyor in responsible charge of the survey.
23. Client name.
24. Date survey was completed.
25. Title block in lower right hand corner of plat to include NRCS easement agreement name and number with number in the following format: **XX-XXXX-XX-XXXXXX**. The total acres in the easement must also be shown in this title block.
26. Certification. The following statement must be included on each survey plat: “THIS IS TO CERTIFY THAT THIS SURVEY, DONE BY THE UNDERSIGNED, WAS DONE ON THE GROUND IN ACCORDANCE WITH THE MOST RECENT MINIMUM STANDARDS FOR PROPERTY BOUNDARY SURVEYS AS SET FORTH BY THE **[insert name of State agency responsible for licensing surveyors]**. THE ACCURACY AND POSITION TOLERANCE ARE ALSO IN ACCORDANCE WITH RURAL SURVEYS AND HAS BEEN MADE IN STRICT CONFORMITY WITH THE NATURAL RESOURCES CONSERVATION SERVICE EASEMENT PROGRAMS LAND SURVEY SPECIFICATIONS.”

The plat and description must be titled “Plat or Description of NRCS Conservation Easement, NRCS Agreement Number: _____ on lands of _____ (landowner name) prepared for USDA-Natural Resources Conservation Service.”

K. DELIVERABLES

The surveyor must provide the following to the NRCS CO, COR, or technical representative by the date stated in the task order:

1. Five original completed survey plat (24 inches by 36 inches) with required seal and signature. The surveyor must ascertain any special or particular requirements of the registrar of deeds in the county where the survey area is located as to the size of plat map required for recording and furnish plat maps of proper size for recording. Where multiple sheets are produced, also produce an index sheet showing entire survey area. Lettering must be large enough that it will remain legible after plat is reduced to the size required for recording.
2. Five reduced signed (11- by 17-inch) of the survey plat.
3. Five printed copies of the legal land descriptions of the easement area and ingress and egress routes depicted on the surveyor’s survey plat. The following must be included in the legal description (as exhibit A and B to the survey plat) of the property:
 - A clear statement of the relationship between the described property and the survey control or the basis of the unique location
 - The basis of bearings
 - Metes and bounds descriptions that include bearings or azimuths and distances related to the horizontal measurement at the mean ground elevation for the line above sea level to allow for computation and mathematical closure and acreage
 - Citations to the recording information or other identifying documentation for any maps, plats, or

other documents referenced

- Detailed description of any natural or artificial monuments referenced
- Total acreage in easement area
- NRCS easement name and agreement number in the title

4. Five copies of a computer-generated tabulation of bearings, distances, and coordinates around the easement area, with a closure statement indicating the cited bearings and distances meeting acceptable State standards for survey closure accuracies and the area of the easement.

Note: The survey plat, legal description, and tabulation demonstrating acceptable survey closure must all consistently traverse the perimeter of the easement area and ingress and egress routes in the same direction and with the same starting and ending points.

5. In PLSS States, legible copies of the most recent and current GLO/BLM original survey plat and original field notes, or the GLO/BLM resurvey plat and field notes for the surveyed sections in which the easement area is located.

Note: Copies of the survey plats and notes need only include the full sections in which the easement area is located; in the metes and bounds States, copies of the original source documents creating the subject parcel in which the easement area is located are acceptable.

6. The surveyor must provide a surveyor's report containing a narrative description of method used to locate points and theory of location applied in formulating the opinions as to the probable location of the boundaries and corners of the property.
7. Compact disk containing an electronic copy of the following (all files must reference NRCS agreement number):

- AutoCAD, version 2009 file of the survey. The .dwg file must be georeferenced to the appropriate State Plane Coordinate System, referenced to the NSRS U.S. Survey Foot, and basis of bearing to grid north of the appropriate State plane coordinate system. The perimeter of the easement area and the ingress and egress routes should be attributed as a separate and extractable polyline layer or polygon feature component of the drawing for conversion to a Geographic Information System (GIS) documentation identifying which coordinate system is used (for example, MO Coordinate System of 1983, West Zone, NAD 83 horizontal datum, survey units – U.S. Survey Foot).
- Separate polygon shape files of the easement area and ingress and egress route with all points projected into the appropriate State plane coordinate system in a (.shp, .dbf or .shx) format.
- Each polygon should contain the following attributes:
 - NRCS agreement number: **XX-XXXX-XX-XXXXX**
 - Easement acres (value to the hundredth of an acre)
 - The method of data capture
- Each polygon should have the following metadata:
 - Date generated
 - Software and version used to generate file
 - Brief description of process used to generate files

- Provide ESRI ArcGIS Info shapefile (.shp, .dbf, .shx) or geodatabase (.gdb)
 - Projection must be clearly defined.
 - PDF file of the final signed survey plat. Where there are multiple sheets a single pdf combining all sheets. PDF files of items K(3) and K(4).
 - MS Word or text document containing the easement boundary descriptions and descriptions of the ingress and egress route if applicable.
8. When the final survey is complete and the final submittals have been presented for review, the NRCS CO, COR, technical representative, or designated conservationist will certify that the work has been completed according to the NRCS land survey specifications.

L. CONFLICT OF INTEREST

A surveyor must not survey a NRCS easement property for him or herself, spouse, children, partners, or business associates, and must not have a financial interest in the property to be covered by the proposed NRCS easement.

M. NONDISCLOSURE

Work performance required by this specification will involve access to potentially sensitive information about governmental and landowner issues. All survey contractor personnel must comply with the terms of AGAR 452.224-70, "Confidentiality of Information," as well as provisions of the Privacy Act of 1974, 5 U.S.C Section 552a. Additionally, the survey contractor's employees must comply with the rules governing the privacy of personal information relating to NRCS programs, in accordance with section 1244 of title II of the Farm Security and Rural Investment Act of 2002 (Public Law 1078-171).

N. CIVIL RIGHTS AND PROGRAM DELIVERY

The survey contractor must ensure that personnel prohibit discrimination in all aspects of programs and activities related to the contract on the basis of race, color, national origin, sex, religion, age, disability, political beliefs, sexual orientation, or marital or family status.