

Land Survey Requirements For The Release Of AHTD Right of Way

Re: JOB
Highway
County
Release Tract(s)

The AHTD needs certain specific information to be included on the plat that is prepared by a professional surveyor (PS) hired by the individual making the request prepared for a right of way release. General information as well as any information specific to this project follows.

- Metes & Bounds survey that covers each tract to be released and adjoiners as they currently exist.
- Adequate ties to PLSS corners to correctly locate the tract(s) as well as to verify the physical location of the property to be released compared to the property description by which they property was originally acquired by the AHTD.
- Provide a complete description of all monuments found and set, by size, type, and markings found and used for this survey.
- Include an explanation for all abbreviated information in a Surveyor's note or in the legend.
- Set monuments shall have a plastic or aluminum cap affixed to the top stamped with the PS Number or COA Number as well as other required markings to comply with AR Standards of Practice.
- The AHTD will furnish a property description of the area to be released. This description will be based on the survey by which the property was originally acquired. The description may or may not cover the correct area. Therefore, the property description should only be used as a guide.
- The AHTD will provide (if available) copies of the parcel surveys, right of way plans, and construction plans that cover the area to be released.
- Include coordinate file with all land/property monuments, control points and topography points. Be sure to fully describe each monument found and set by type, size/outside diameter, cap type and all pertinent markings on the monument or cap. The point number range to use is attached.
- If coordinates and bearings are established using GPS – state Name/location of the points used as the static points;
- Data based on AR SPCS include:
 - Name/location of the points used as the static points;
 - Lat/Long/Convergence angle used for the geodetic data.
 - Combination Adjustment Factor (CF) used and geodetic position of the CF.
 - Elevation used for the Elevation Factor
 - Statement on each page of plat whether distances shown are Grid or Ground
- Plats in AR SPCS Grid include:
 - Name/location of the points used as the static points;

- Lat/Long/Convergence angle used for the geodetic data.
 - Combination Adjustment Factor (CF) used and geodetic position of the CF.
 - Elevation used for the Elevation Factor
 - Statement on each page of plat whether distances shown are Grid or Ground
 - Area based on Grid
 - Area based on projection to Ground. ***Area = Inverse of Combination Factor Squared = 1/(CF)²***
 - Property description based on projection to Ground.
- Provide coordinates to AHTD in one of the formats that follow: (SDMS, Inroads Alg. LandXML, or ASCII Format). Data shall include adequate descriptive information.
 - Maximum Plat Size – 11” x 17”.
 - Plat Scale – Standard engineering scales shall be used.
 - Specify State Plane Coordinate Zone used
 - Specify whether data shown is grid or ground.
 - All text must be legible.
 - Multiple sheets shall be used if necessary to be sure all pertinent text and surveyor’s notes are included on the plat(s).
 - Plat will include standard information but will be based on AHTD keeping what is needed for highway purposes. The release is actually a remainder.
 - Multiple redundant survey measurements (which includes direct and reverse angles) from two (2) control points to all ROW monuments.
 - Include the referenced AHTD Job Number and the Tract Number(s) in the Title Block. Electronic data file of survey to be provided in one of the following formats: Microstation DGN or a DWG file.
 - Once land survey work is approved, AHTD will provide any additional information that may be required for the property release description that will be included on the plat.
 - Once plat is completed and approved, AHTD will contact the State Land Surveyor’s Office for the Instrument Number and filing date for the plat. That information will be given to the PS and added to the plat (top right corner).
 - PS will submit three signed and dated copies, with recording information affixed, to the - Surveys Division.

Things to know about AHTD Right of Way

Right of Way monuments on many state highways can be scarce, nonexistent, or incorrectly set. They have been destroyed over the years by many causes. And, they have been incorrectly set due to blunders, techniques, and in year past (especially concrete monuments) set by the construction contractor. The information that follows can be an aid in making decisions on the best way to establish highway right of way.

- The AHTD has used a number of different monument types and the markings vary based on what a monument is set to represent.

- Concrete monuments are normally 5" x 5".
- Starting around 1980, rebars and aluminum caps have been set.
 - The older versions of these monuments (3/4" rebars with 1 1/2" aluminum caps) will be stamped with either "AHTD R/W" or "AHTD BDY" and other information. Old caps should have the number of the PS that set that cap if not set by AHTD personnel.
 - Newer monuments will be 5/8" rebars with 2" aluminum caps and the stamping may be similar to the stamping on the older caps. New caps (including those set by the Surveys Division, AHTD) will include the PS number of the Surveyor who set that monument.
- Monument witness post/sign
 - Orange Triangle – Will be found **in front of or behind** the monument
 - Yellow Rectangle – Is set in front of (highway centerline side) of the monument
- Due to the lack of right of way monuments or accurately set monuments in an area, it is recommended the centerline stationing be used to aid in establishing the right of way. Structures (bridges and cross drains) on the interstate highways are generally built very close to the plan location. Therefore, it is recommended the structures indicated on the layouts be tied and used to verify stationing to aid in the location of the release area.
- The bridge end stationing on the plan and profile sheets and the bridge plans is defined as the back face of the end bent back wall (See sketch). The bridge end point may be indicated by a center punch mark in the steel angle.
- The distance between structures (when three or more are tied) will also be an indicator of the linear measurement error that can be expected in that area of the project. The right of way monument set on the project would have been set by the plus and out from centerline. Therefore, this will also aid in determining whether the distance along the right of way is shorter or longer than the plan distances.
- Many highways have been constructed with spiraled curves. The Right of Way is based on the original circular curve not the spiraled curve. Therefore, the centerline of the pavement within the area of the spiraled curve cannot be used to establish the right of way. The original curve (defined in the Court Order) is to be used.
- Court Ordered Right of Way - What should be used to establish the right of way – The Court Ordered centerline description or existing monuments? Due to the inherent errors in both the original survey and in the placement of the monuments during construction, there is no absolute answer.

The centerline of the road as built will normally follow the original survey and can indicate where measurement errors (both systematic errors and blunders) exist. This can aid in determining where errors in the Court Order description may exist. But, there may have been changes made during construction that did not get updated in the Court Order. In that case it will have to be determined by the AHTD whether the Court Order should be held or whether corrections will need to be made to correct the record.

In all cases it will be required to establish a significant amount of the centerline in the area of the survey to be able to determine whether the road indicates the "center" of the right of way or meanders within the right of way.

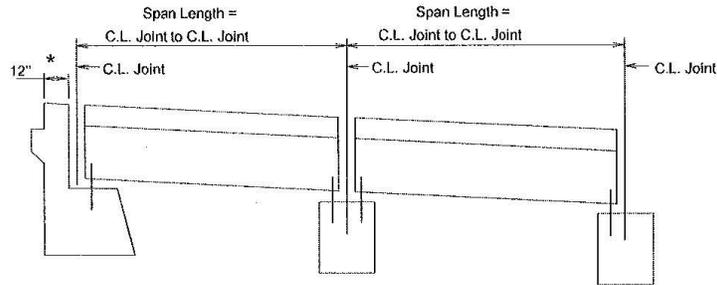
- Rebars and caps set by the AHTD will normally be checked from two or more control points and should be within specified tolerance. But, on occasion, errors have been found in the control used after the fact and the monuments are not in the correct location, but are in harmony with each other and may appear to be correctly set. Therefore, multiple monuments on both sides of the roadway should be tied and used in the analysis to determine whether blunders may have been made when the monuments were originally set.
- Right of Way monuments have been disturbed and reset by property owner, utility companies, etc. The monuments are normally reset by “eye” and may or may not be at or near the original location. Therefore, it is best not to yield to a monument just because it exists. It is also difficult to say what is a reasonable error. Therefore, it is recommended Surveys Division be contacted for advice when these situations are encountered.

AHTD SYSTEM OF SPAN MEASUREMENT FOR STEEL SPANS

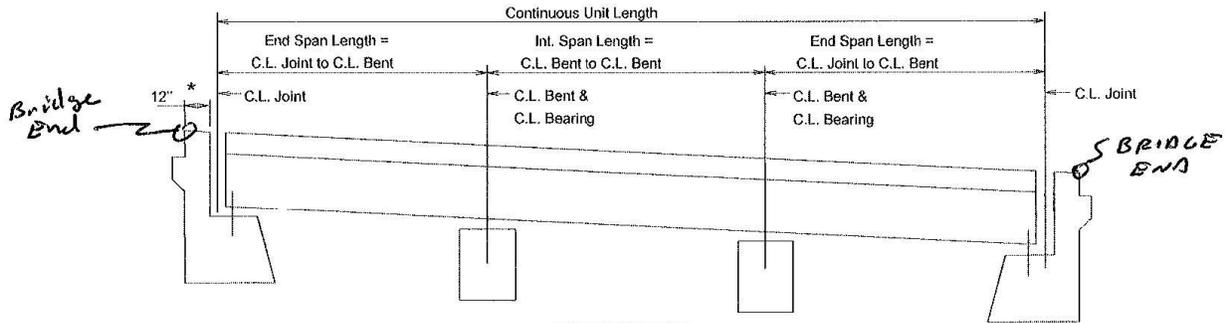
Where a joint is called for at a bent, the span length will always be measured from the centerline of joint. Where no joint is called for at a bent, the span length will be measured from the centerline of bent (Coincides with C.L. Bearing)

Note: All span length measurements are taken along a true horizontal

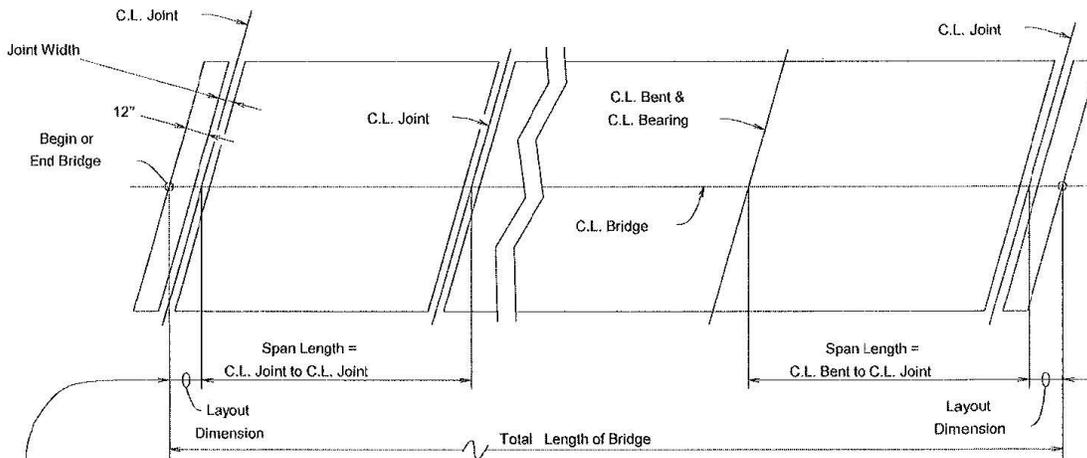
* Measured perpendicular to centerline joint.



SIMPLE SPANS



CONTINUOUS UNIT



$[12' + 1/2 \text{ Joint Width}] \times \text{Sec Skew} \sim$

AHTD System of Span Measurement for Steel Spans

Project Specific Information Required

Specific information will be listed for each specific release location.

For more information, contact:

Jim Tadel, Staff Land Surveyor

501-569-2094

Jim.Tadel@arkansashighways.com

POINT NUMBERING

TRAVERSE AND RADIAL TOPOGRAPHY SURVEYS

TYPICAL RANGES

<u>POINT RANGE</u>	<u>IDENTITY</u>
1 - 199 P S. (CTL)	Primary control and survey points excluding numbers assigned to G
(100 - 199)	GPS Points
200 - 599	Land Tie Points and Parcel Tie Points (Found Monuments) (IP)
600 - 699	Photogrammetry VPT points
700 - 799	Photogrammetry HPT points
900 - 999	Benchmarks (BM)
1000 - 1099	Primary return traverse numbers (for closed traverse loops) (CTL)
1100 - 1199	Topo move-up points (TV)
1200 - 1499	Secondary traverse (land ties) numbers (TV)
1500 - 1999	References for primary control points (SU with two sets)
2000 - 2999	Calculated points (LC)
3000 - 6999	Right - of - way Division points (XR, PL , etc.)
7000 - 7999	Additional calculated points (LC)
8000 - 8999	Construction Division Points (P.C., P.T., P.O.T., P.I.)
10000 - xxxx in field	Calculated RTO point numbers as assigned by processing data or