Statewide PLSS Corner Numbering System
An Implementation of the Romportl System for the Statewide PLSS Database

PLSS Corner Numbering System

The Public Land Survey System (PLSS) is the foundation of property boundary descriptions in Wisconsin. An essential characteristic of PLSS is a numbering system that locates each corner within the statewide PLSS network. The Wisconsin Corner Point Identification System, commonly known as the Romportl System or Romportl ID, is one such system developed in the early 1990s by a committee chaired by Mike Romportl, Oneida County Surveyor.[1]

While the Romportl System has been adopted by many organizations in Wisconsin, there is no entity that formally administers it as a statewide standard. Thus, variations in implementation exist, particularly when special cases occur. This document describes an implementation of the Romportl System for the Statewide PLSS Database being developed by the State Cartographer's Office (SCO).[2] The document spells out the rules that will be used to assign Romportl numbers for the following special cases: closing corners; non-conforming areas; excess or deficiency in section length; and meander corners.

Basic Principles

The statewide corner numbering system is based on the original Romportl System, which uses an eleven-digit code to identify corner locations for each section. See Figure 1.

The first three elements of the code refer to the township within which the section is located.

1. **Principal Meridian Direction:** The character "2" denotes that the township is west of the principal meridian while the character "4" denotes that the township is east of the principal meridian.[3]

2. **Township:** These two characters denote the number of townships north of the Wisconsin baseline.[4]

3. **Range:** These two characters denote the number of townships west or east of the principal meridian.

The final two elements of the code refer to the section number and corner location

4. **Section:** These two characters give the section number based on the boustrophedon numbering scheme, as shown in Figure 2.

5. **Corner Number:** The final four characters refer to the corner location. The first two characters represent the north component, y, and the second two characters represent the west component, x. Both of these components start at 00 at the southeast corner of the section and increase in value moving north or west. Values increase by 01 for every 132 feet (2 chains) yielding a maximum value of 40 after a mile.

Most PLSS section corners are common to four different sections. **In the Romportl system the first seven characters (township and section information) are assigned from the section immediately to the west and north of the corner point being defined.**

See Figure 3 for an example. The figure shows a snippet of the original General Land Office (GLO) survey map and notes, together with a modern diagram showing Romportl numbers.

Special Case 1. Closing Corners

An exception to this rule occurs for closing corners. Closing corners often occur at correction lines, which can run both east-west and north-south. However, the mere existence of a correction line (or a county boundary) does not in itself imply that a closing corner rule must be used to assign the Romportl number.

What will trigger a closing corner rule, however, is a physical shift or offset in section line locations across the correction line. The rule for the statewide PLSS database is that a closing corner inherits the township and section information from the section that it closes, not the section to the west or north. In these cases the corner number will contain a value of 40 in the north or west component. See Figures 4 and 5 for examples.

Special Case 2. Non-Conforming Areas

Irregularities in the structure of PLSS can also occur when sections intersect with non-conforming areas. Figure 6 shows an example in an area with prior claims, while Figure 7 shows an example at the Wisconsin-Michigan border where the Wisconsin PLSS fabric ends. Several of the sections in these areas are truncated and have edges less than a mile in length. In the statewide PLSS database these situations are not treated as closing corners. Instead, corner numbers reflect approximate corner locations. For example in Figure 6 on the southern edge of section 31 the west component of the corner number has a maximum value of 35 since this edge is approximately 70 chains in length.

Special Case 3. Excess and Deficiency

Another exception occurs for townships that are significantly larger or smaller than six miles by six miles. Such townships occur in Wisconsin due to discrepancies in surveying. Excess or deficient acreages were accommodated by creating irregularly-sized government lots or fractionalized quarter or quarter-quarter sections along the northern and/or western tier of sections in the township.

Figures 4, 5, 8 and 9 show examples of deficiency and excess in cases with and without closing corners. For the statewide database the rule is that corner numbers for deficient and excess segments are computed as if the section had standard dimensions of one mile by one mile. In other words, when closing corners are present the west and/or north component will range from 20 to 40 from the quarter-section corner to the extremity of the section, and when closing corners are absent the components will range from 20 to 39. This rule is shown graphically in Figures 4, 5, 8 and 9 along the segments labeled with the letters D and E.

To summarize, this rule is applied for both deficiency and excess, regardless of the degree of deficiency or excess, in both north and west components of the corner number as needed, whether or not closing

corners exist. This rule also applies to non-conforming areas (Special Case 2) if excess occurs in an segment.

Therefore the largest corner number component in the statewide dataset will be 40, and 40 will always indicate a closing corner.

Special Case 4. Meander Corners

For meander corners, the statewide PLSS database uses a numbering system based on the following principles:

i.   Each section line is divided into four blocks (quarter-quarter section lines).

ii. Within each block, meander corners are assigned a number within that block's range, e.g., 01-09, 11-19, 21-29, and 31-39.

iii. Within that range, each meander corner has a unique corner number that approximates the corner's location within the block. Non-repeating is enforced.

iv. Within a block, corner numbers are sequential, ascending in the west and north directions.

This rule applies to meander corners, those locations along a surveyed section line where a navigable water body was encountered and a meander corner was established. Examples are shown in Figures 10 and 11.

Feedback

The SCO is seeking your input. If you have insights into special cases that have not been identified in this document, or have general comments or suggestions, please contact us the SCO:

<div align="center">

Phone: (608) 262-3065
Email: sco@wisc.edu

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Notes

1. *https://www.sco.wisc.edu/wp-content/uploads/2014/08/Wisconsin_Corner_Point_Identification_System.pdf*

2. *According to a recent agreement between the Wisconsin Department of Administration and UW-Madison's State Cartographer's Office, Wisconsin's statewide parcel database will be augmented with PLSS data by the end of 2019. The agreement is part of the Statewide Parcel Map Project, a multi-year plan to make up-to-date, accurate statewide GIS parcel data freely available online. Statewide PLSS data will be derived from accurate county coordinates where available.*

3. *In Wisconsin this is the "4th Principal Meridian."*

4. *In Wisconsin this is the "Baseline of the Extended 4th Principal Meridian" forming the Wisconsin-Illinois boundary.*
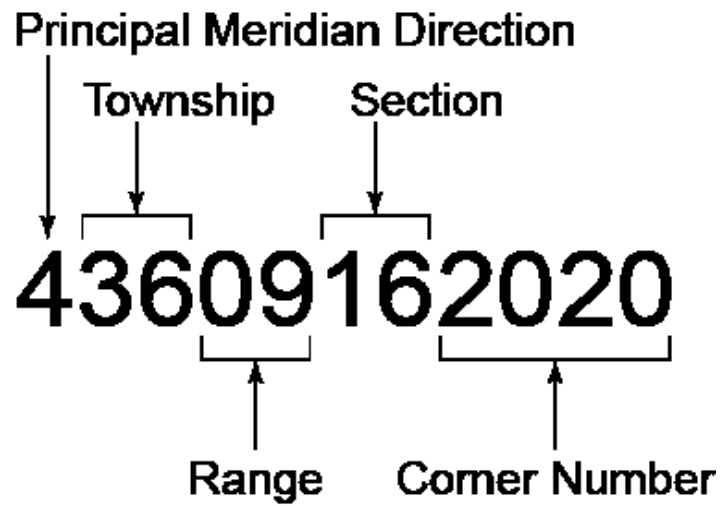
Fig. 1. Romportl Eleven-Digit Code (Example)

Principal Meridian Direction

Township   Section

43609162020

Range   Corner Number

Fig. 2. Boustrophedon Numbering Scheme for Sections in a Township

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

Note: If the GLO maps and notes on the following pages are difficult to read on the paper copy, please refer to the digital version of the PDF.

Fig. 3. Standard Section
Township 15 N, Range 21 E, Section 3 (Sheboygan County)
Romportl implementation for a standard section
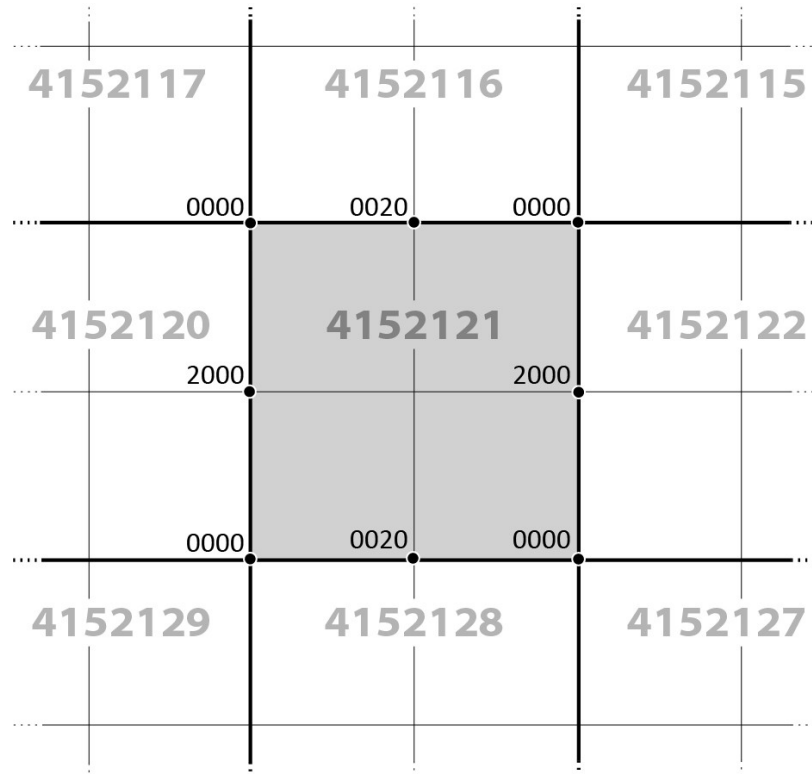
Fig. 4. Closing Corner on North Correction Line

Township 30 N, Range 5 W, Section 4 (Chippewa County)

Closing corners will carry a value of 40

✱   From Survey of Third Correction Line, 1847
✱✱ From interior survey of Township 30 N, Range 5W, 1849
◯   Closing corner

No monument set for this quarter section corner
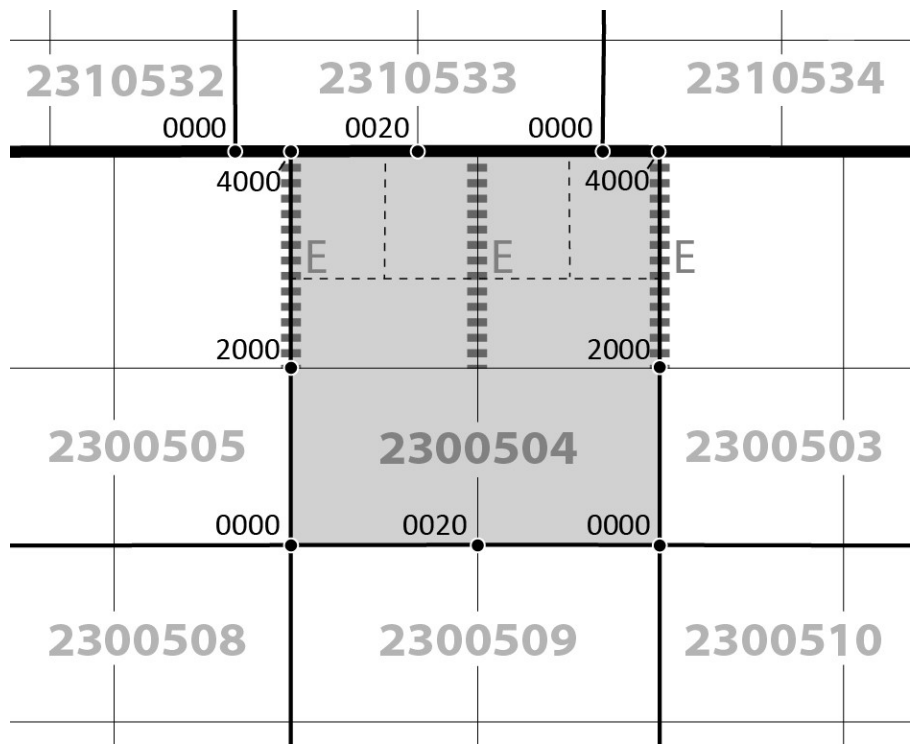
Fig. 5. Closing Corner on West Range Line
Township 8 N, Range 10 E, Section 19 (Dane County)

Closing corners will carry a value of 40

★ From exterior survey of Township 8 N, range 9 E, 1832
★★ From interior survey of Township 8 N, Range 10 E, 1834
O Closing corner

No monument set for this quarter section corner
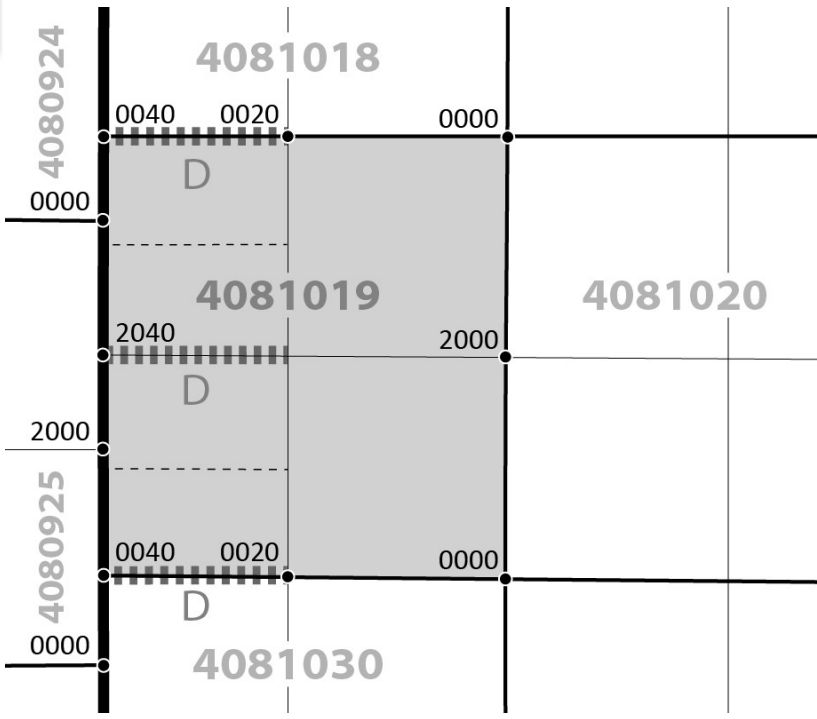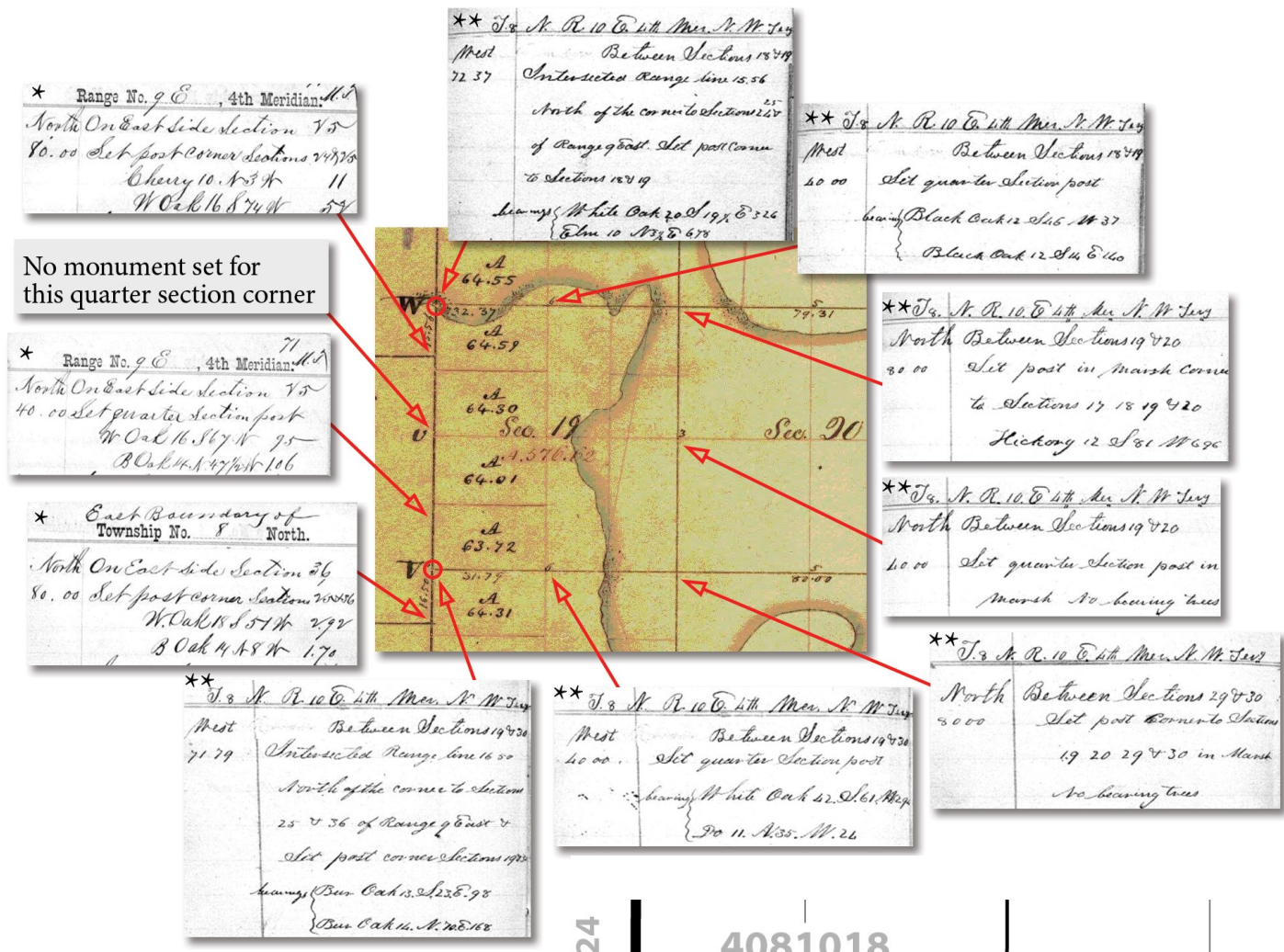
Fig. 6. Closing Corner on Prior Claim
Township 23 N, Range 21 E, Section 31 (Brown County)

Closing corners will carry a value indicating relative location

✳ From exterior survey of Township 23 N, Range 20 E, 1834
✳✳ From exterior survey of Township 23 N, Range 21 E, 1834
✳✳✳ From interior survey of Township 23 N, Range 21 E, 1835
⭕ Closing corners—set at intersection of prior claim and section lines
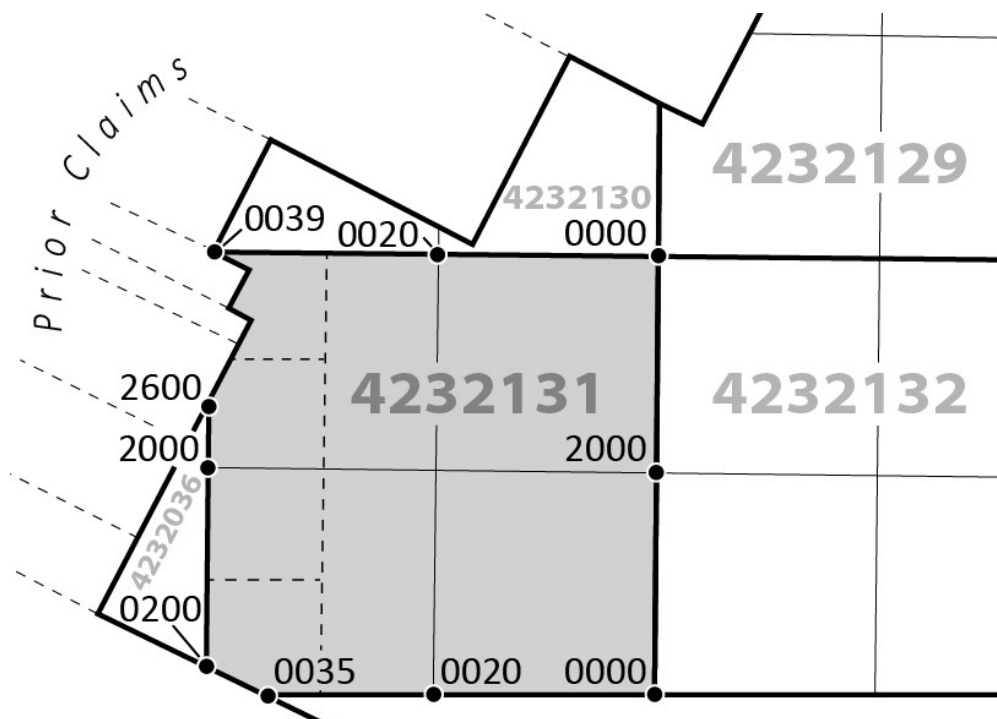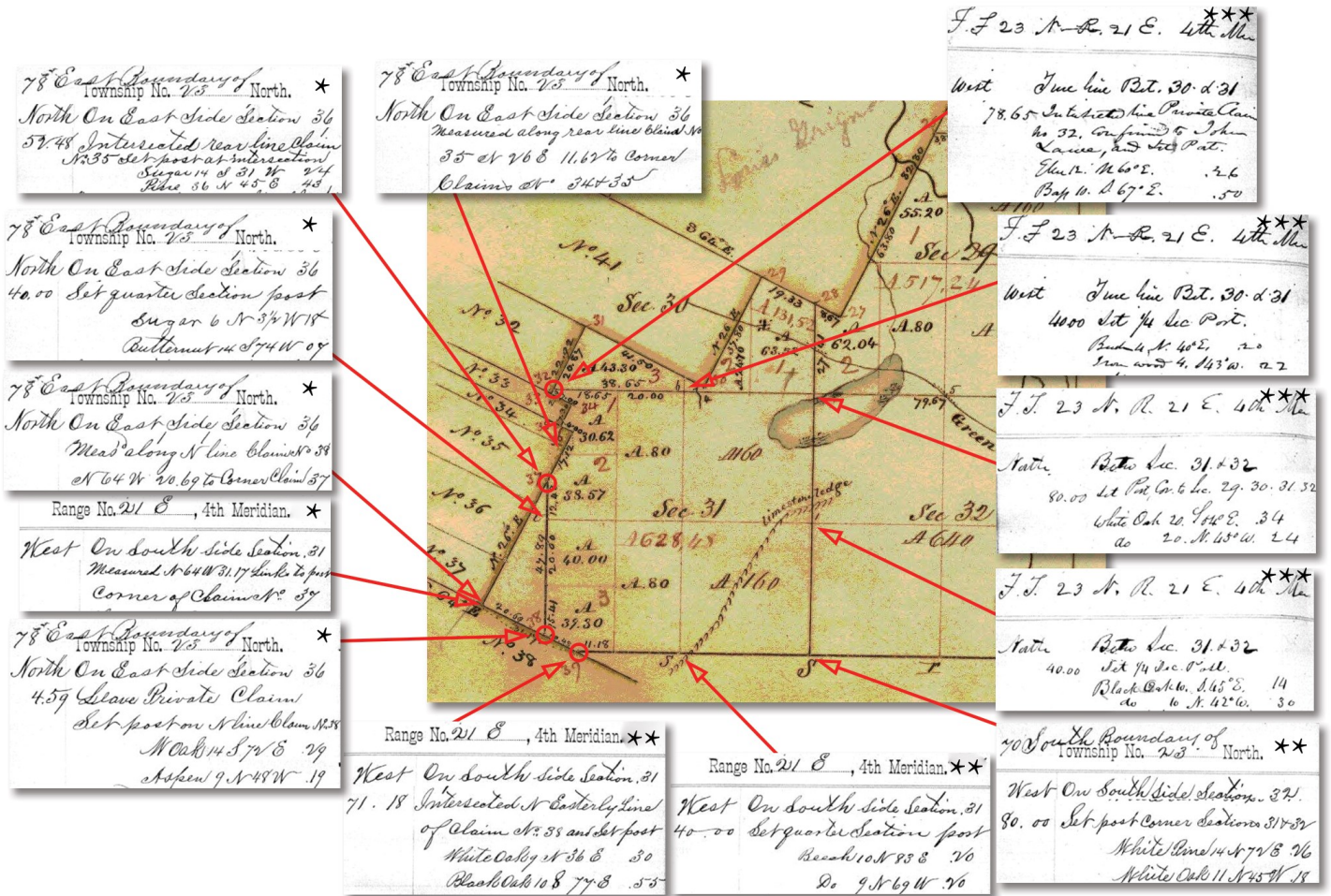
Fig. 7. Closing Corner on State Boundary
Township 44 N, Range 4 E, Section 9 (Iron County)
Closing corners will carry a value indicating relative location

○ Closing corners—set at intersection of state boundary line and section lines

No monument set at this location
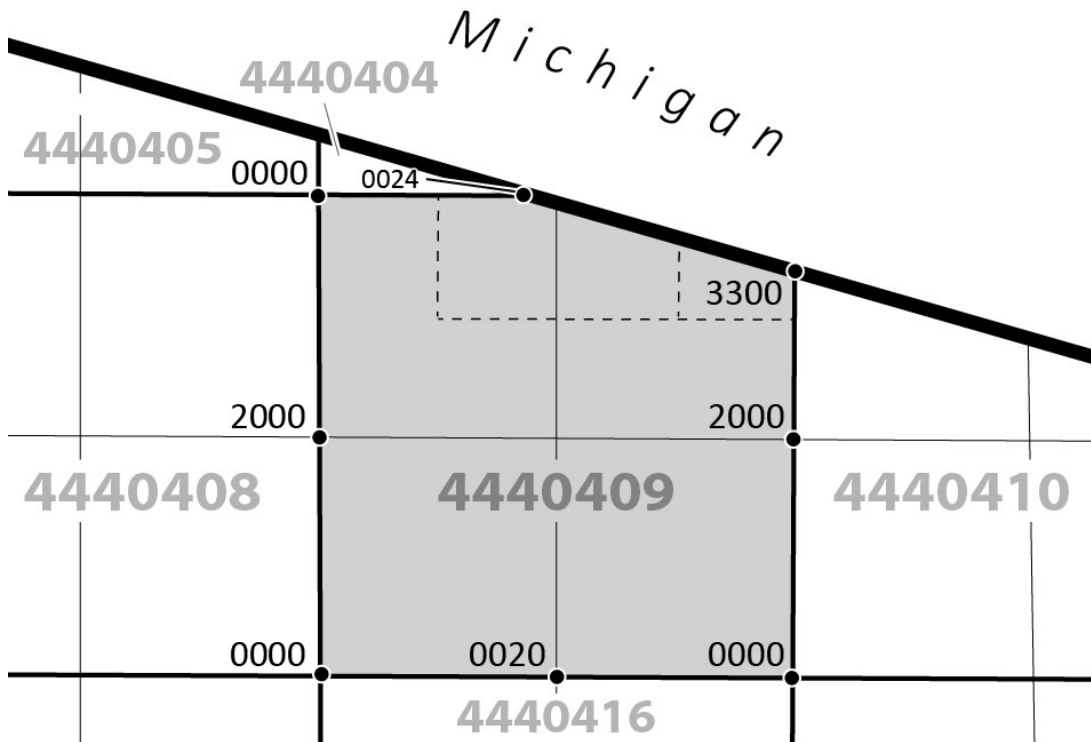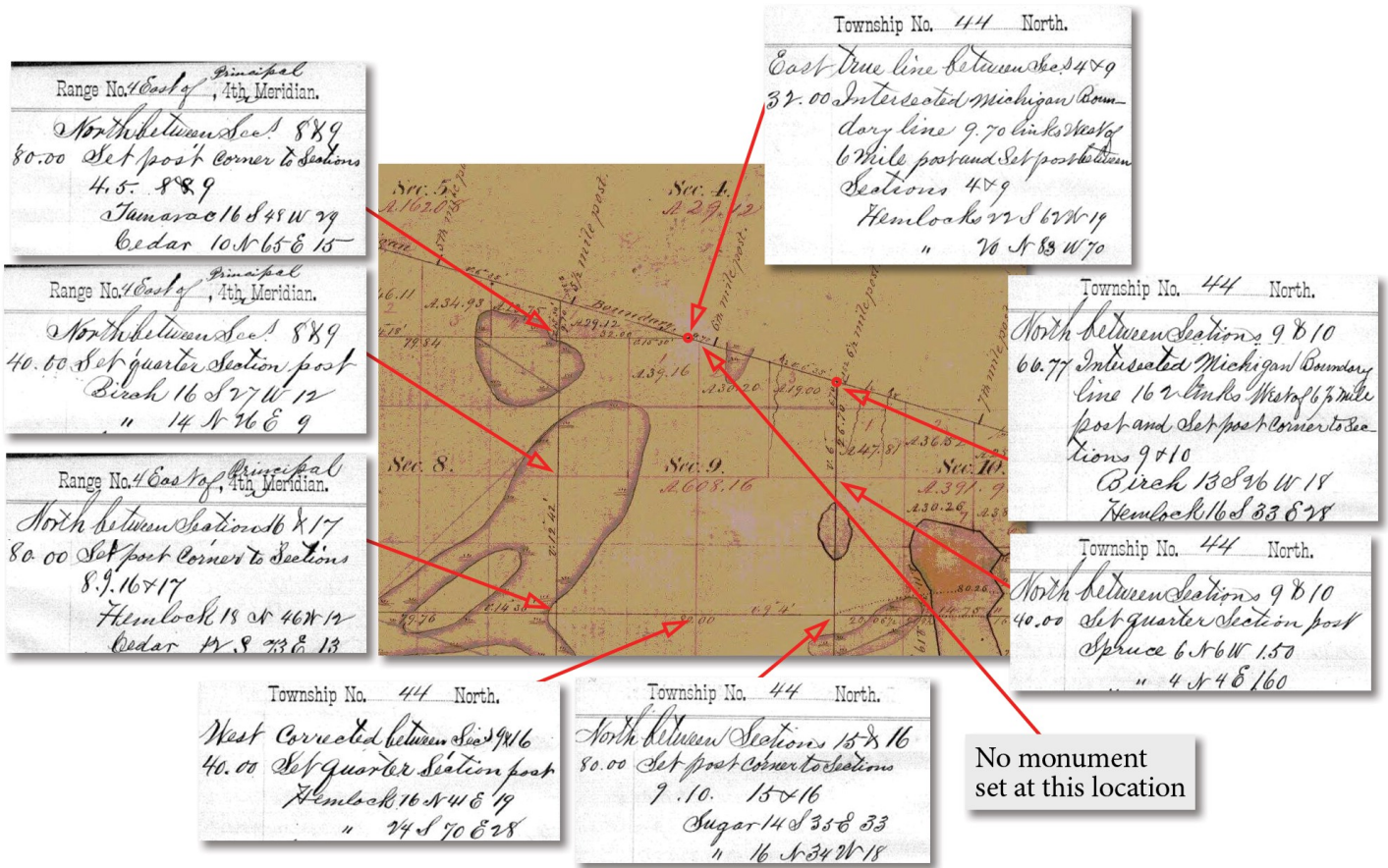
Fig. 8. Deficiency on North

Township 16 N, Range 1 E, Section 4
(Monroe County)

Section less than a mile in length north-south

✳ From exterior survey of Township 17 N, Range 1 E, 1851
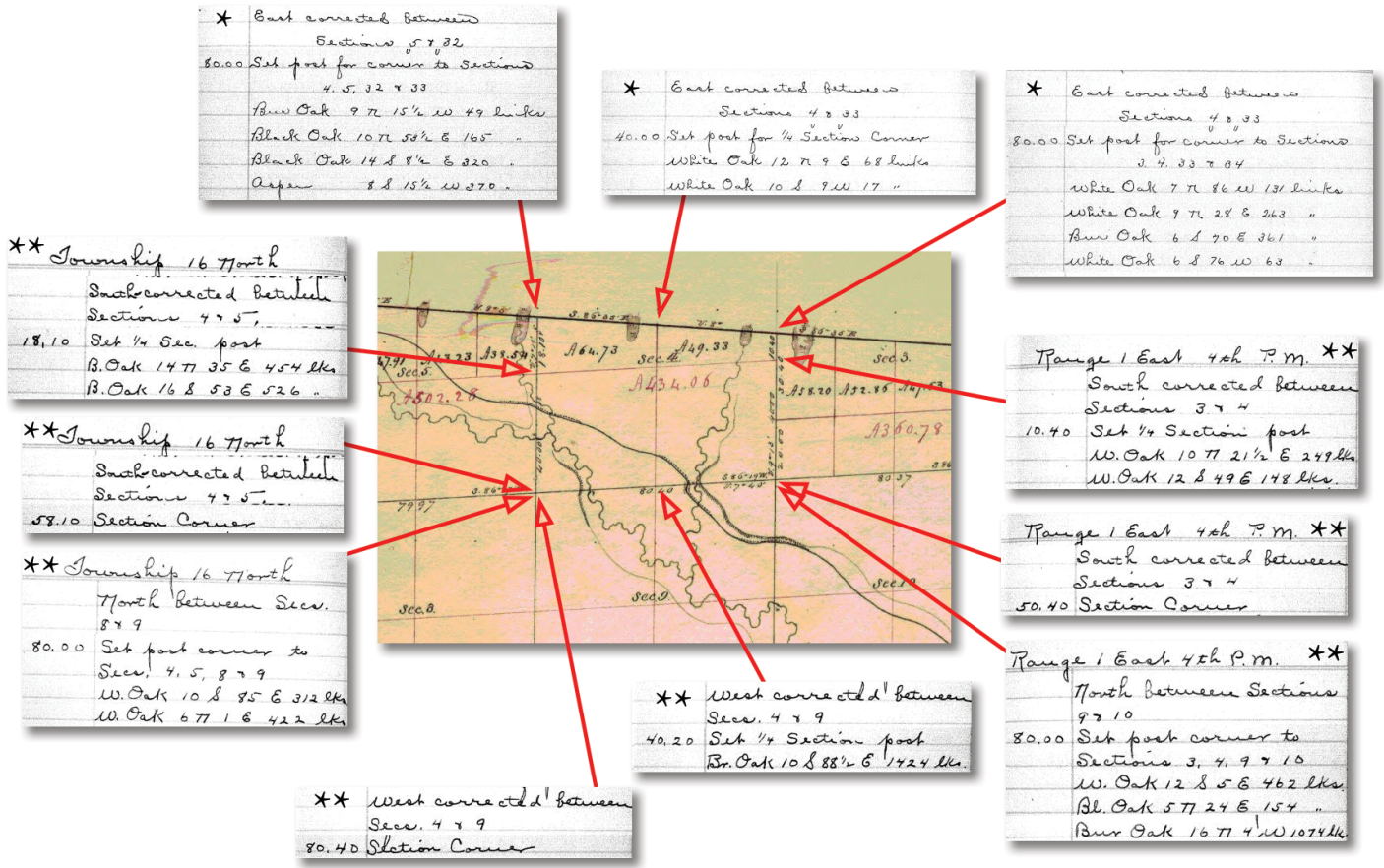✳✳ From exterior survey of Township 16 N, Range 1 E, 1851
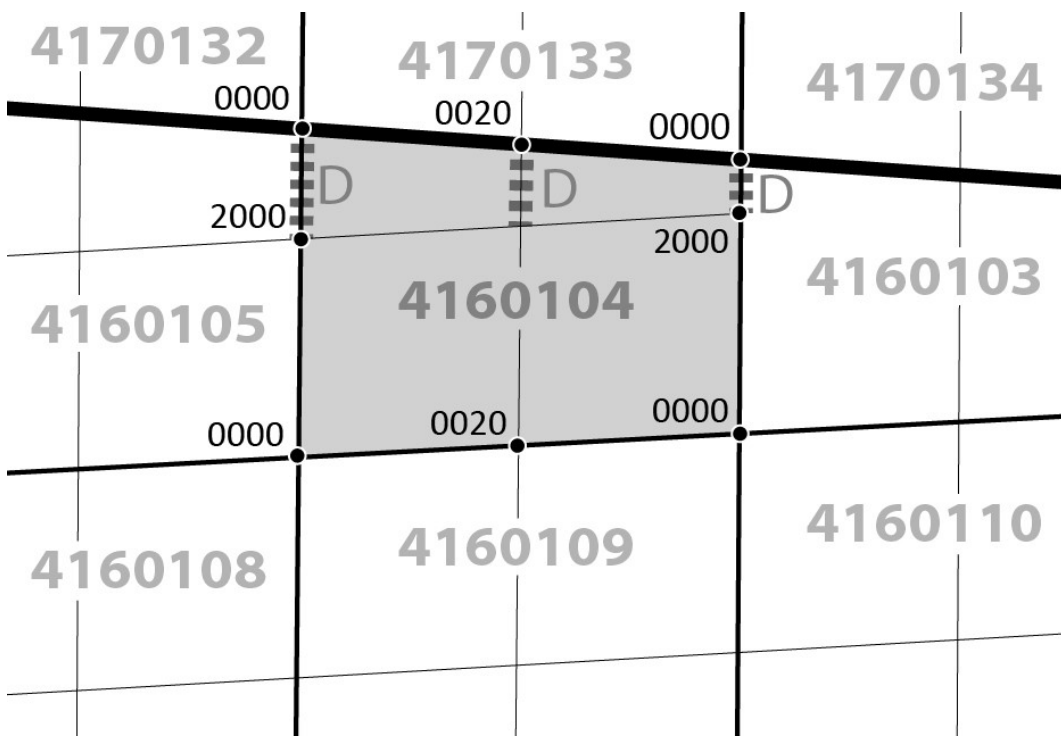
Fig. 9. Excess on West

Township 22 N, Range 9 E, Section 7 (Portage County)

✱ From exterior survey of Township 22 N, Range 8 E, 1851
✱✱ From interior survey of Township 22 N, Range 9 E, 1851
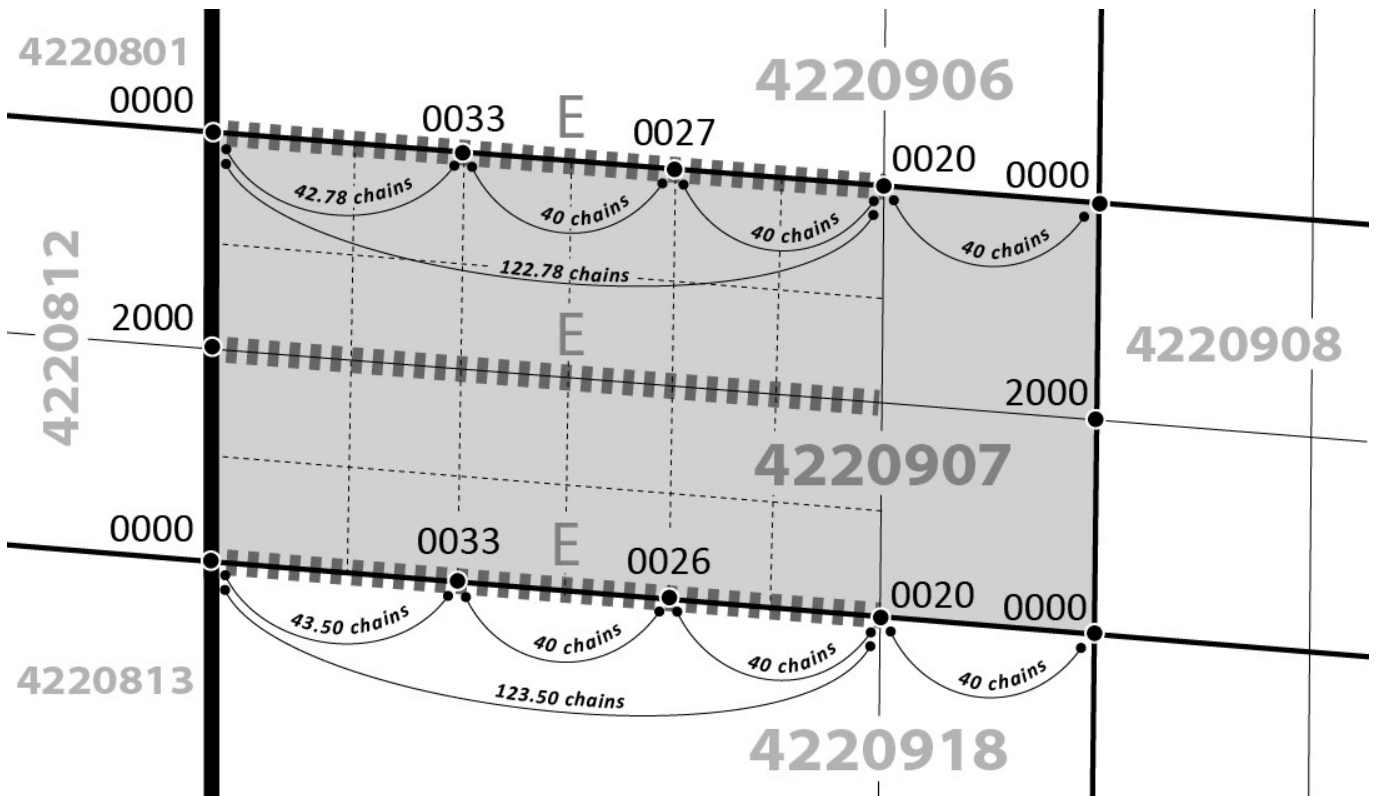
Section greater than a mile in length east-west

Fig. 10. Meander Corner, Water Feature Intersecting Section Lines
Township 43 N, Range 14 W, Section 27 (Douglas County)
Meander corner rules applied

○ Meander corners – set at intersections of water body and section lines
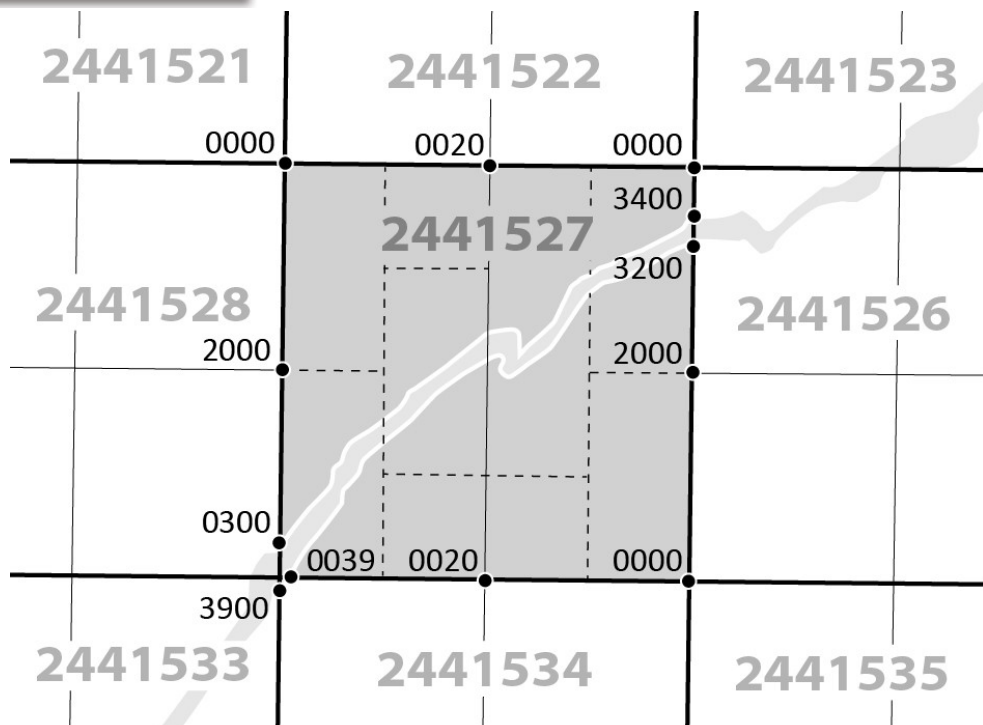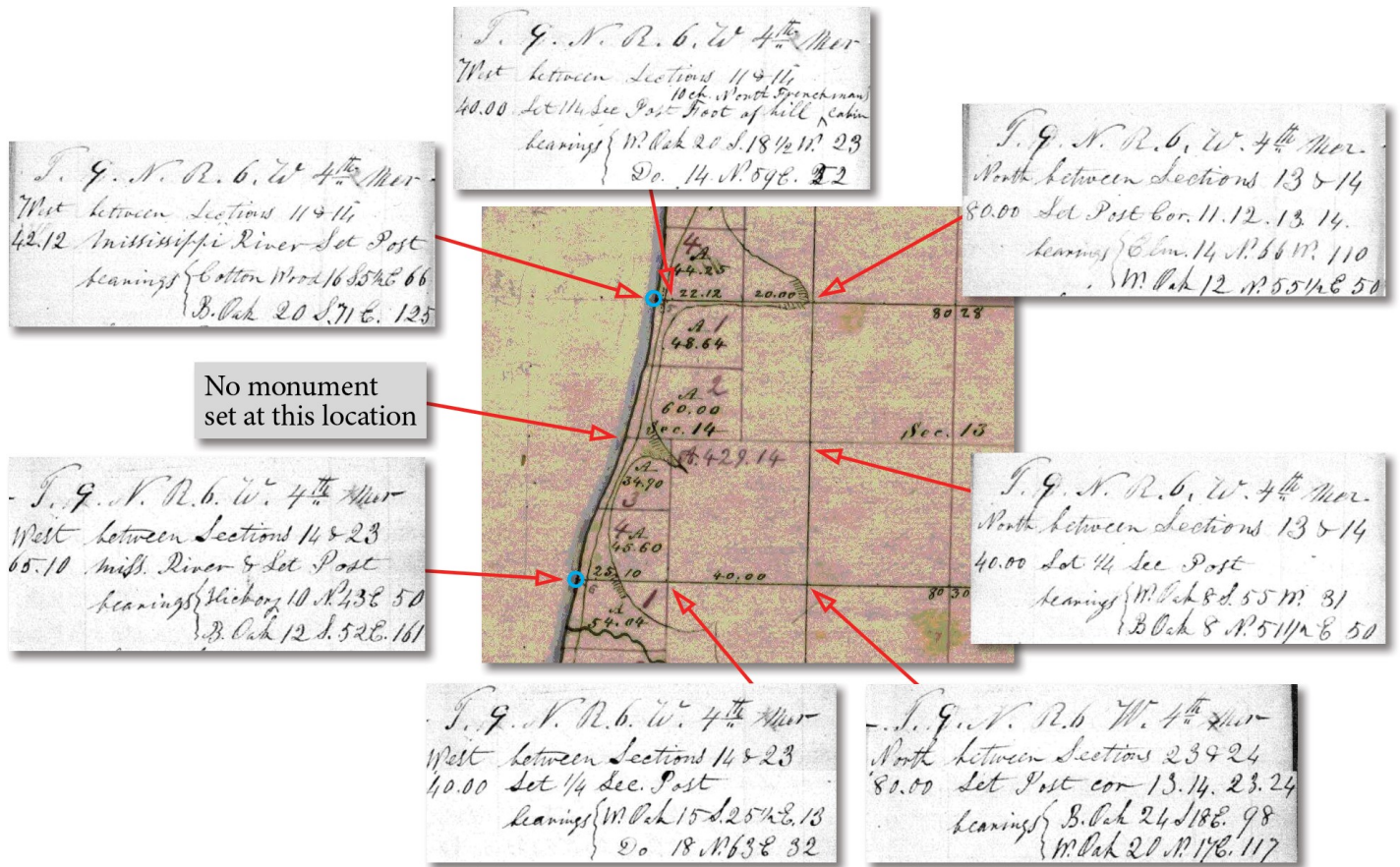
Fig. 11. Meander Corner, State Boundary in Open Water
Township 9 N, Range 6 W, Section 14 (Crawford County)
Meander corner rules applied

○ Meander corners – set at intersection of water body and section lines

No monument set at this location