

BLM Riparian Land Surveys

Josh Alexander
Acting Chief Cadastral Surveyor

Bureau of Land Management, Montana



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A history of surveys is outlined in the field notes. The plot represents the proposed recovery of a portion of the east boundary of section 10, sections 11, 16, 18, 19, 21, 23, 24, and 27, the adjacent riparian lands of the Missouri River, the Missouri River, downstream, through sections 10, 11, 16, 18, 19, 21, 23, 24, 25, 26, and 27, designed to restore the eastern of their true original location according to the best available evidence. The acquisition of sections 10, 11, 16, 18, 19, 21, 23, and 24, the survey of the present boundary and the stream courses of the present left bank of the Missouri River, upstream, through sections 10, 11, 16, 18, 19, 21, 23, 24, 25, 26, and 27, the south of section 10, section 11, the left bank and riparian lands of the left bank of an abandoned channel of the Missouri River, upstream, through sections 10, 11, 16, 18, 19, 21, and 23, the inter-river traverse of the right bank of an abandoned channel of the Missouri River, downstream, through sections 10, 11, 16, 18, 19, 21, 23, 24, and 27, the inter-river traverse of the left bank of the Missouri River, upstream, through sections 10, 11, 16, 18, 19, 21, 23, 24, and 27, certain double of traverse lines, the left bank and right bank of a partial channel of the Missouri River, in front of section 21, the left bank of section 21, the Missouri River, in front of section 22, 23, and 24, certain portion lines and section lines, Township 27 North, Range 31 East, Principal Meridian, Montana.

Event as indicated herein, the plattee and acreage shown in the plat recorded May 13, 1928, and May 10, 1929, the plat recorded July 17, 1932, the supplemental plat approved October 8, 1931, April 8, 1935, October 2, 1935, June 20, 1937, August 10, 1940 and July 18, 1952.

Lot areas affected by erosion are shown as ten foot buffer, including both area consisting and 10' set-back area.

Survey conducted by Joshua P. Alexander and Pat D. Olson, District Surveyor, on September 3, 2006 pursuant to contract instrument dated August 10, 2005, and the supplemental special instructions dated August 9, 2005 for survey No. 100, Montana.

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
Billings, Montana

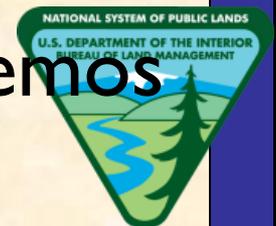
This plat is strictly conformable to the approved field notes, and the survey, having been carefully checked in accordance with the requirements set out in the regulations of the Bureau, is hereby certified.

For the Director

Chief Cadastral Surveyor, for Montana

Objectives

- Standard for Indian lands
- Basic principles for why rivers move
- Effect river movement has on surface and subsurface title
- Reading a BLM river resurvey plat
- Re-adjudicating leases with updated official plat
- Weight of an official record/plat
- Application of past Cadastral Survey memos
- Survey Status



Indian Lands

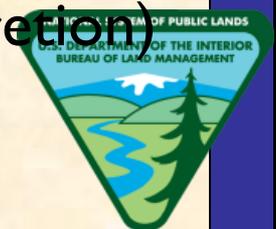
- The Act of April, 1864 (13 Stat. 41; Rev. Stat. 2115; 25 U.S.C. 176), provides that whenever it becomes necessary to survey any Indian or other reservations, or any lands, the same shall be surveyed under the direction and control of the BLM and as nearly as may be in conformity to the rules and regulations under which other public lands are surveyed.



General River Mechanics

why rivers move?

- Force of the river is typically on the outside of river bends
- Just like driving around a curve too fast; you feel like you are being pushed to the outside of the curve. The force of the river is being exerted on the outer banks of the river (erosion).
- As a river curves, the velocity slows down on the inside of the curve
- As the river slows, it loses its ability to carry sediment and suspended sediment settles to the river floor (accretion)
- Confinement of the river is a major factor in bank erosion
- Deposition of soil on the inside bends of rivers (accretion) begins to confine the river to the outer banks





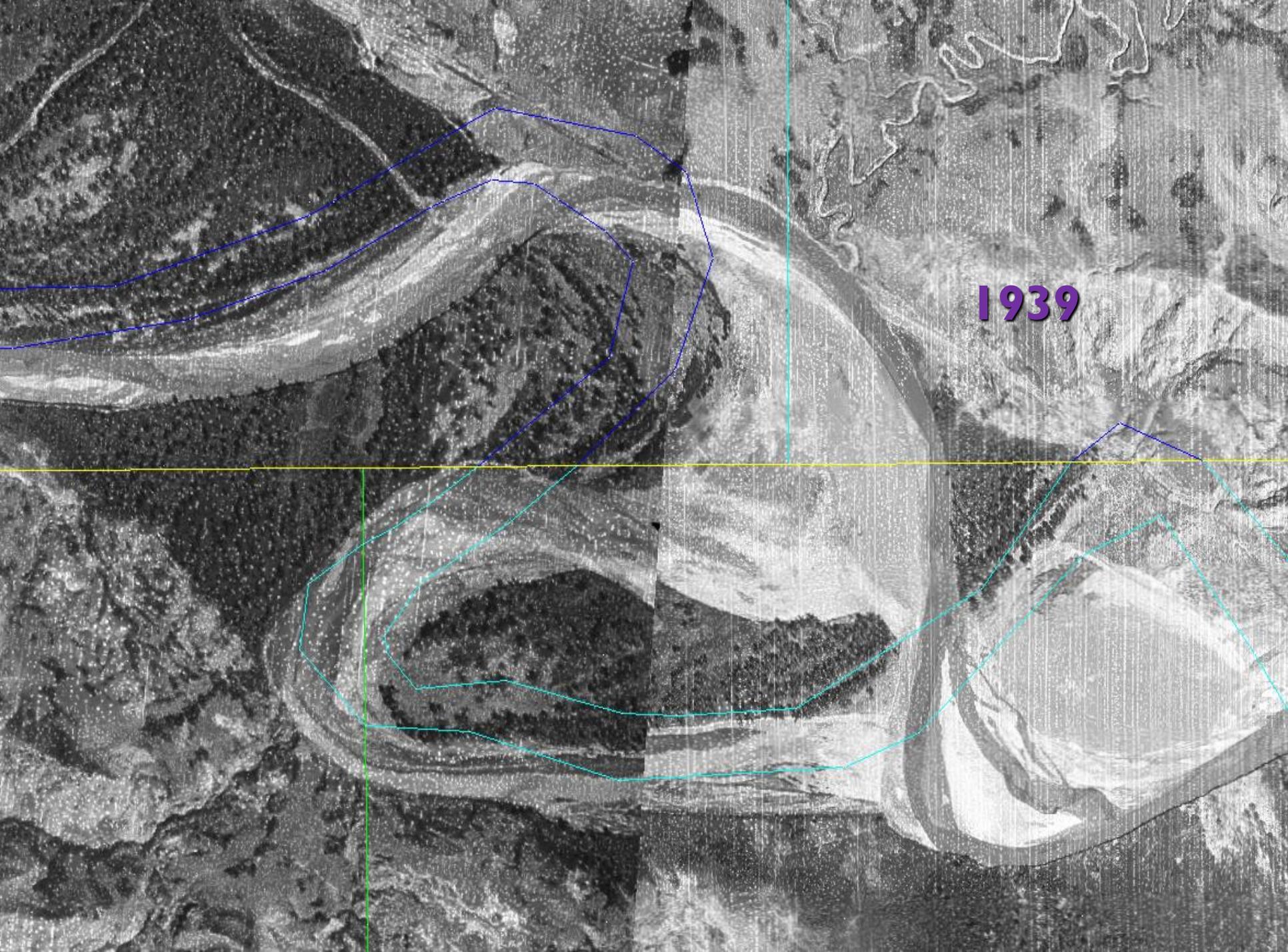
Little Missouri River Example

2010

Can we tell how the river moved here?



1939



Can you see the abandoned channel now?



2010

Erosion defined

- “Grain-by-grain removal of soil from the banks or bed of a stream or lake by the action of water” Manual of Surveying Instructions, 2009, 8-110
- “To wear away by the action of water, wind, or other elements. The gradual eating away of the soil by the operation of currents or tides” Black’s Law Dictionary Sixth Edition
- “In riparian law, the washing away of land by the sea or a river’s flow. Usually considered as an imperceptible action, the rate of erosion may be quite rapid in total effect and may be distinguished from avulsion by the absence of identifiable upland between the former and new channels” Glossary of BLM Surveying and Mapping Terms 1980

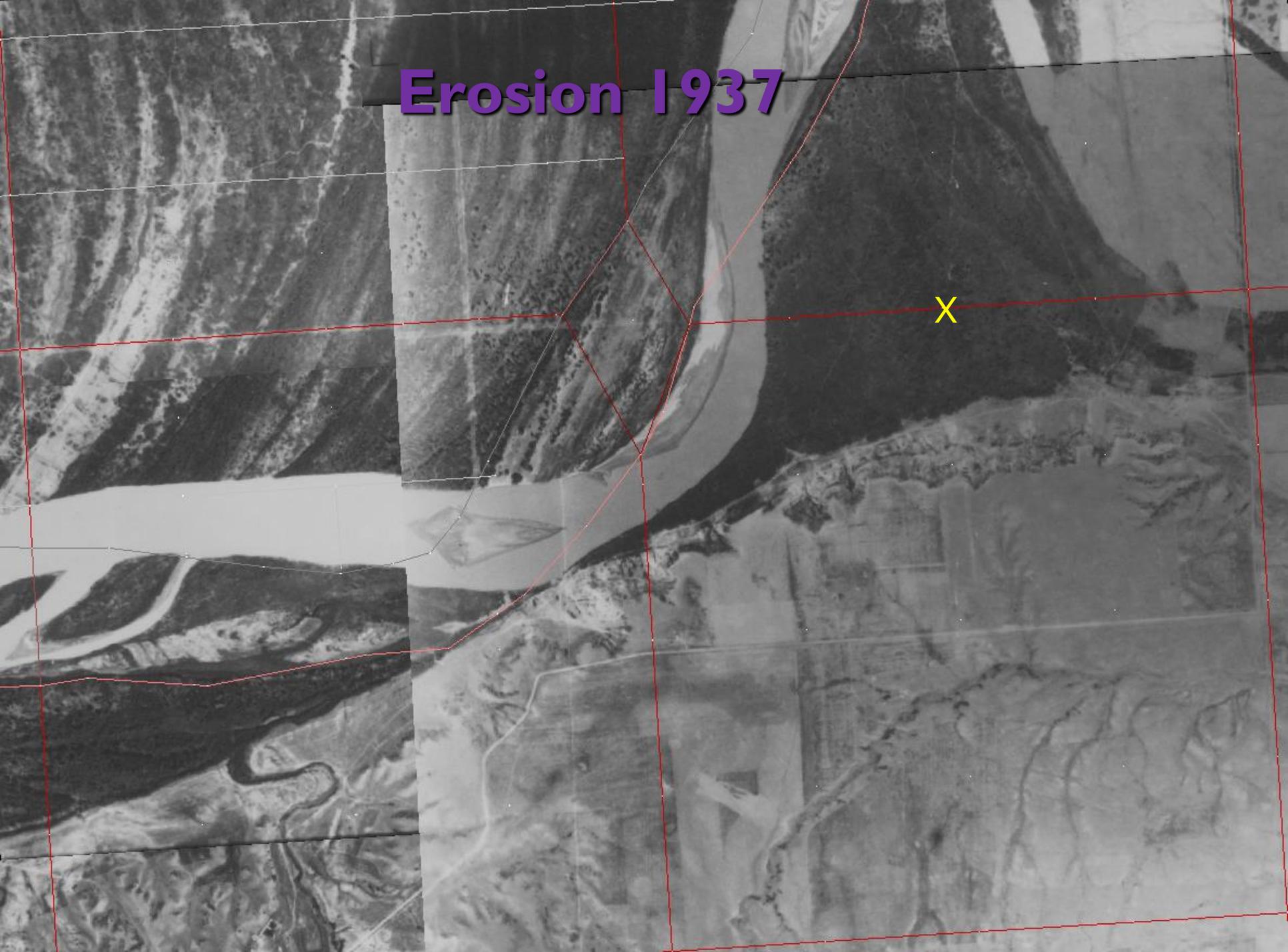


Legal Effects of Erosion

- “The legal effect of erosion under Federal jurisdiction and under nearly all State jurisdictions is that an upland owner loses title to eroded land.” Manual of Surveying Instructions, 2009, 8-110
- “Because the eroded land has ceased to exist, the rights to that land, the soil and geographic extent, ceases to exist.” Manual of Surveying Instructions, 2009, 8-111



Erosion 1937



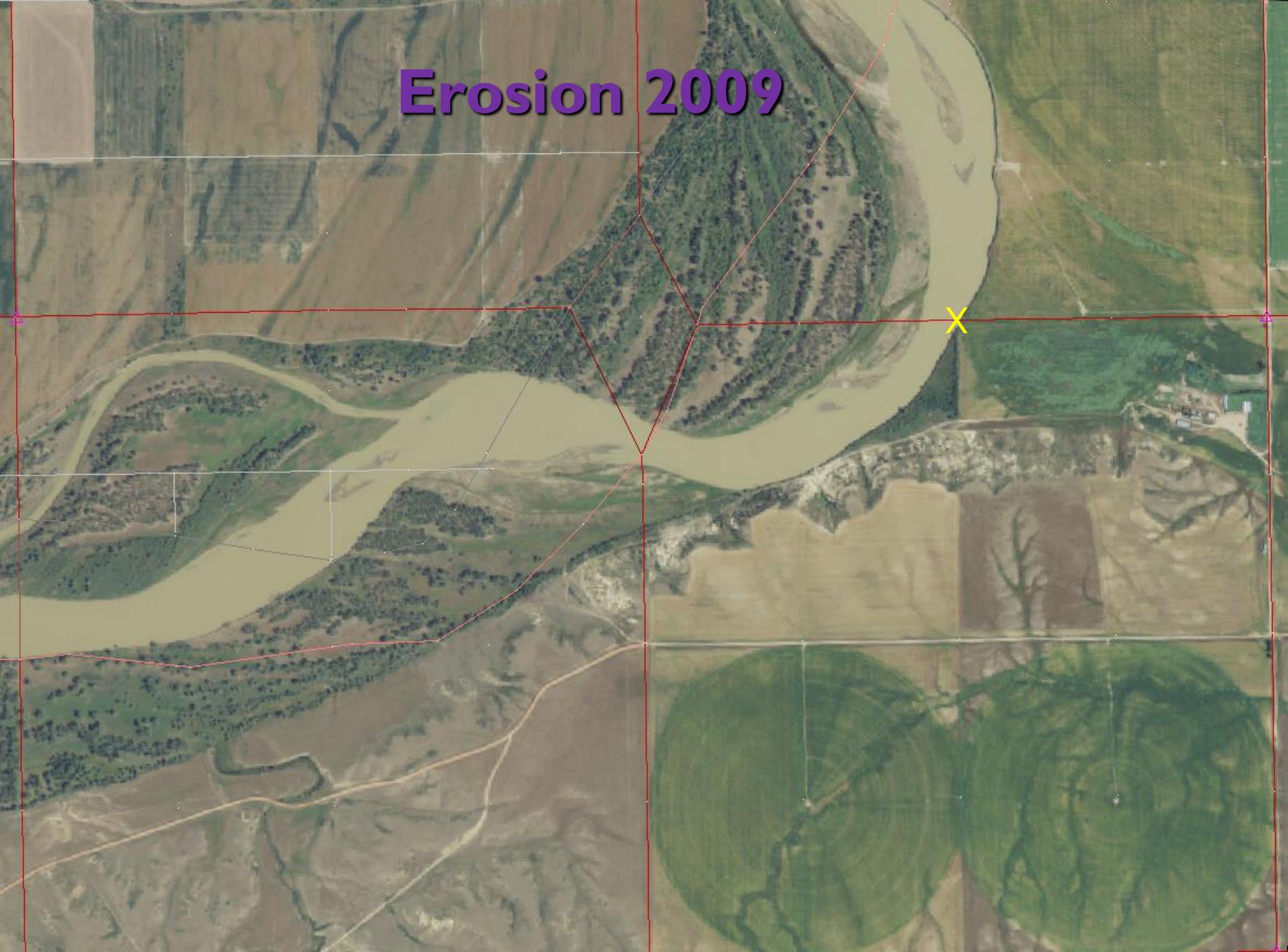
Erosion 1956



Erosion 1982



Erosion 2009



Found ¼ Corner

2012-05-13 17:37Z
Lat: 47° 39' 39.1956" N
Lon: 102° 58' 57.1332" W

- ¼ Sec. Cor. of Secs. 1 and 12, T148N R97W, ND
- Originally set in 1905, 5" above ground
- Recovered 2011, 24" below ground
- 29" of deposition in 106 years
- Originally 550' from river in original survey

TOWNSHIP 152 NORTH, RANGE 100 WEST, OF THE FIFTH PRINCIPAL MERIDIAN, NORTH DAKOTA

SUPPLEMENTAL PLAT

Sheet 1 of 2

Reading Erosion on a Plat

This plat, in 2 sheets, of sections 2, 3, 4, 5, and 10 showing the amended lottings, is based upon the plat approved March 30, 1901 and United States Army Corps of Engineers Segment Maps BB and DD approved August 6, 1953, Township 152 North, Range 100 West, Fifth Principal Meridian, North Dakota.

This supplemental plat was prepared for the purpose of delineating the boundaries of Public Domain oil and gas interests and determining the acreage of the areas that were affected by the movement of the Missouri River prior to the artificial flooding of Lake Sakakawea.

The bearings and distances on lines of record surveys are from the plat accepted March 30, 1901. The record distances were converted from chains and reported the nearest tenth of a foot. Data shown in parentheses are derived from the United States Army Corps of Engineers Segment Maps.

The bearings and distances of the United States Army Corps of Engineers Segment Map meanders and partition lines were developed by digitizing after being georeferenced to the Geodetic Coordinate Data Base (GCDB). All lots were individually georeferenced to avoid distortion and recreate the most accurate location of the Missouri River prior to the artificial flooding of Lake Sakakawea.

Public Domain Lots affected by erosion as shown on the United States Army Corps of Engineers Segment Maps are shown on this plat as two parts: Part "a" denoting land area remaining and part "b" denoting eroded area.

In areas where accretion has attached to Public Domain lots as shown on the United States Army Corps of Engineers Segment Maps, a new lot will be created by this supplemental plat. In areas where the United States Army Corps of Engineers Segment Maps did not divide the accretion between Public Domain lots, the accretion was divided by the proportionate shoreline method.

Plat prepared by Blaise J. Lodermeier, Cadastral Surveyor, beginning November 5, 2013 and completed November 26, 2013, pursuant to special instructions dated October 30, 2013 and assignment instructions dated October 30, 2013, for Group No. 92, North Dakota.

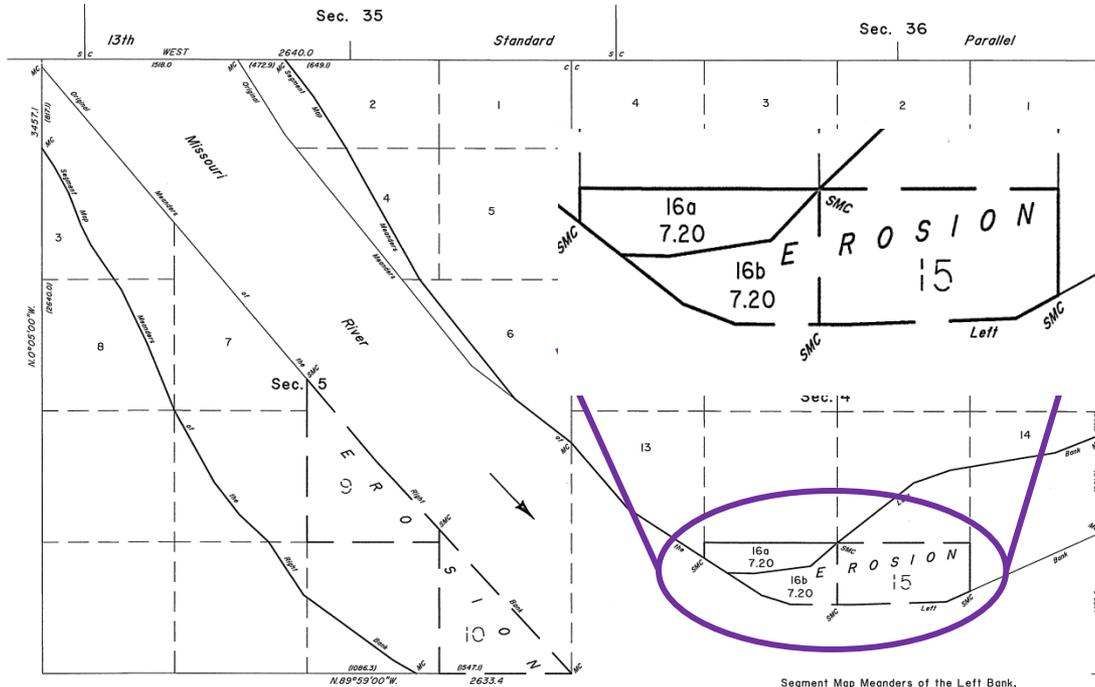
UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Billings, Montana *November 26, 2013*

This plat, showing amended lottings, is based upon official records and, having been correctly prepared in accordance with the requirements of law and the regulations of this Bureau, is hereby accepted.

For the Director

James D. Clapp
Chief Cadastral Surveyor for North Dakota



Segment Map Meanders of the Left Bank, downstream, through Sec. 4

Segment Map Meanders of the Right Bank, downstream, through Sec. 5

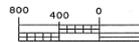
From the MC of Sec. 5 and 8,
S. 23°46'40"E. 204.1
S. 28°31'50"E. 315.4
S. 20°31'30"E. 352.8
S. 26°36'20"E. 219.2
S. 34°04'50"E. 540.6
S. 25°32'40"E. 593.2
S. 22°03'40"E. 739.2
S. 28°49'30"E. 829.3
S. 37°36'30"E. 399.2
S. 46°40'50"E. 405.5
S. 33°12'10"E. 634.3
S. 53°35'40"E. 1106.0
S. 59°48'30"E. 266.3
At end of course, the MC of sec. 5 and 8.

Segment M, downstream
From the MC of the 13th on the 13th
S. 37°06'1".
S. 32°11'1".
S. 28°58'1".
S. 39°15'1".
At end of the Orig. Continue, 1
S. 52°00'1".
At end of sec. 4 on

Sec.	Subdivision	Original Acreage
4	Lot 15	17.70
5	Lot 9	22.00
5	Lot 10	20.00

Areas of Federal Interest Lands Completely Destroyed By Erosion

Sec.	Subdivision	Original Acreage
4	Lot 15	17.70
5	Lot 9	22.00
5	Lot 10	20.00



Rapid Erosion is Still Erosion

- Rapid Erosion/Accretion is not the same legal significance as Avulsion (Nebraska v. Iowa)
- Rapid Erosion to one bank will likely cause Rapid Accretion to the other bank
- Rapid Erosion/Accretion is treated the same as slower paced erosion/accretion
- Rapid Erosion/Accretion is still the same removal and deposition of soil grain by grain
- No identifiable upland is left in the path of Rapid Erosion





Nebraska v. Iowa, 143 U.S. 359 (1892)

quote

- “....Whenever it impinges with direct attack upon the bank at a bend of the stream, and that bank is of the loose sand obtaining in the valley of the Missouri, it is not strange that the abrasion and washing away is rapid and great. Frequently, where above the loose substratum of sand there is a deposit of comparatively solid soil, the washing out of the underlying sand causes an instantaneous fall of quite a length and breadth of the superstratum of soil into the river; so that it may, in one sense of the term, be said, that the diminution of the banks is not gradual and imperceptible, but sudden and visible. Notwithstanding this, two things must be borne in mind, familiar to all dwellers on the banks of the Missouri River, and disclosed by testimony: that, while there may be an instantaneous and obvious dropping into the river of quite a portion of its banks, such portion is not carried down the stream as a solid and compact mass, but disintegrates and separates into particles of earth borne onward by the flowing water....”



Accretion defined

- “Grain-by-grain deposit of soil along the bank or bed of a stream or a lakeshore by the action of the water” Manual of Surveying Instructions, 2009, 8-108
- “The act of growing to a thing; usually applied to the gradual and imperceptible accumulation of land by natural causes, as out of the sea or a river” Black’s Law Dictionary Sixth Edition
- “Derived from the Latin word *accrescere* which means to grow or increase, it is the gradual and imperceptible addition of soil or other material by the natural processes of water-borne sedimentation or by the actions or currents against shores or banks. Accretion is the washing up of sand, silt or soil so as to form firm ground, called alluvion. In common practice the terms alluvion and accretion have been used interchangeably. Usually however, alluvion means the deposit itself while accretion usually denotes the act.” Glossary of BLM Surveying and Mapping Terms 1980



Legal Effects of Accretion

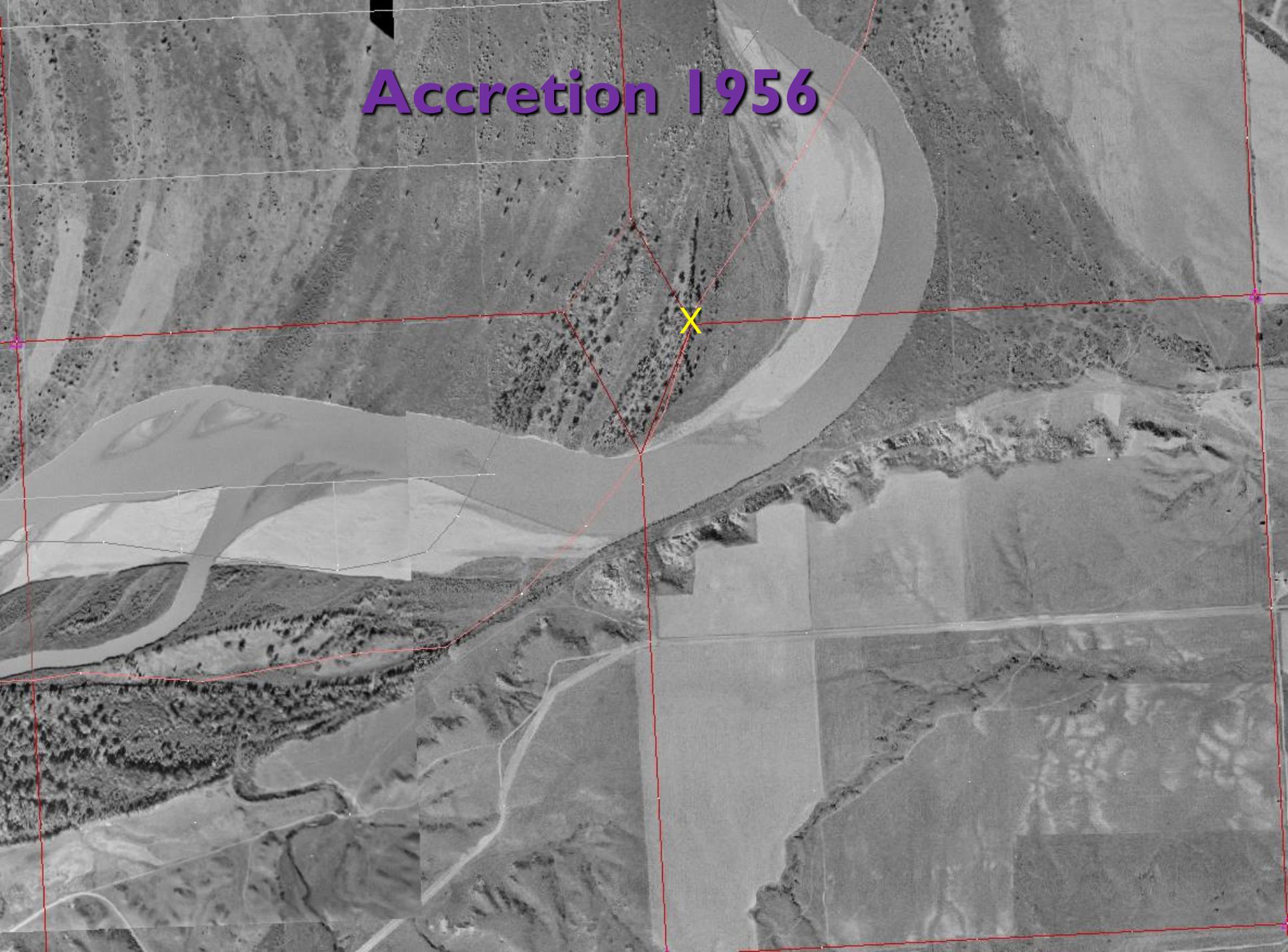
- “The legal effect of accretion under Federal jurisdiction and in nearly all State jurisdictions is that an owner may keep accretions that attach to his or her lands.” Manual of Surveying Instructions, 2009, 8-108
- Multiple court case references cited in the Manual imply that a landowner bordering on an ambulatory riparian boundary gains the accretions that form and attach in front of their property
- Check State Law



Accretion 1937



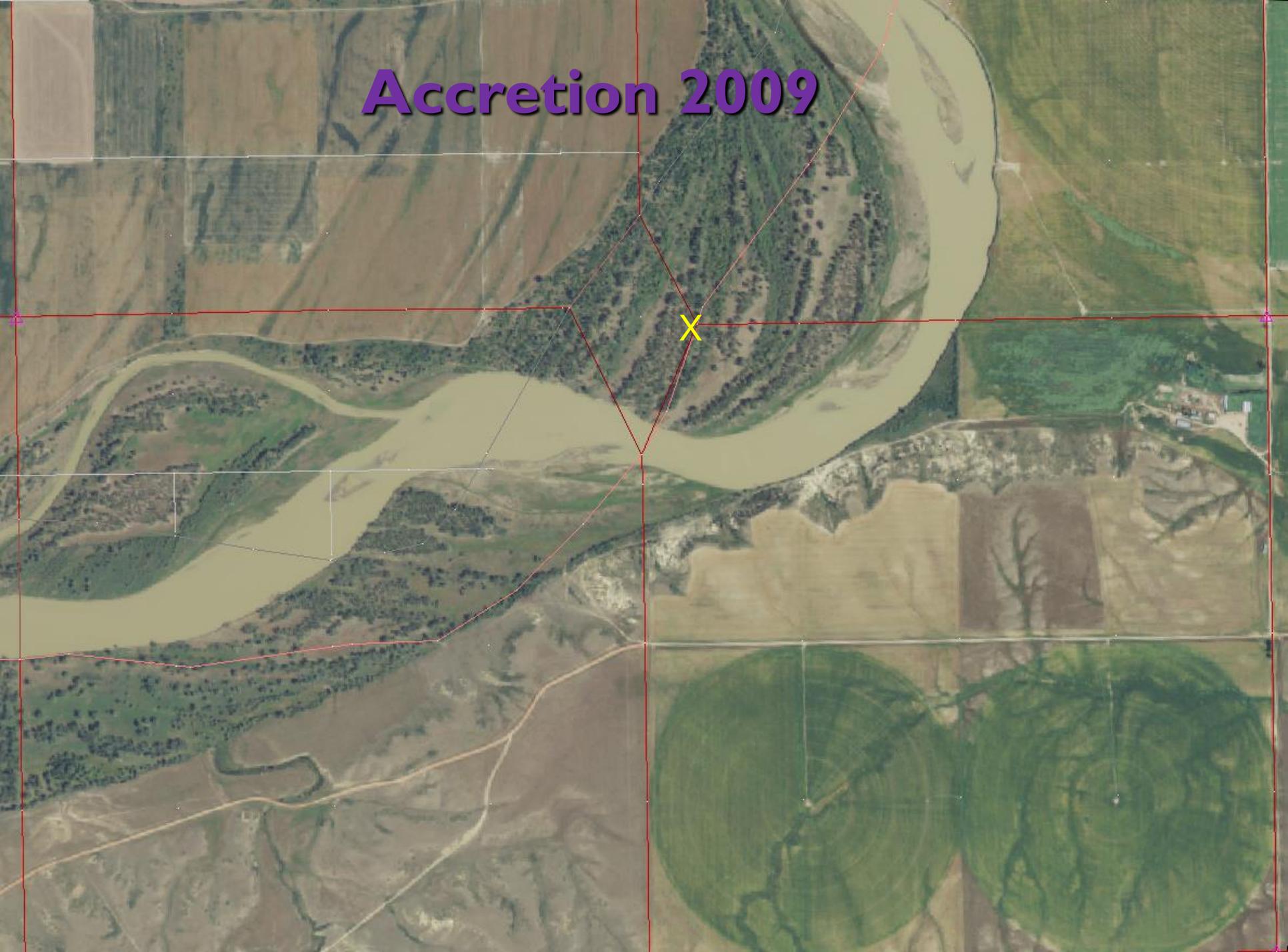
Accretion 1956



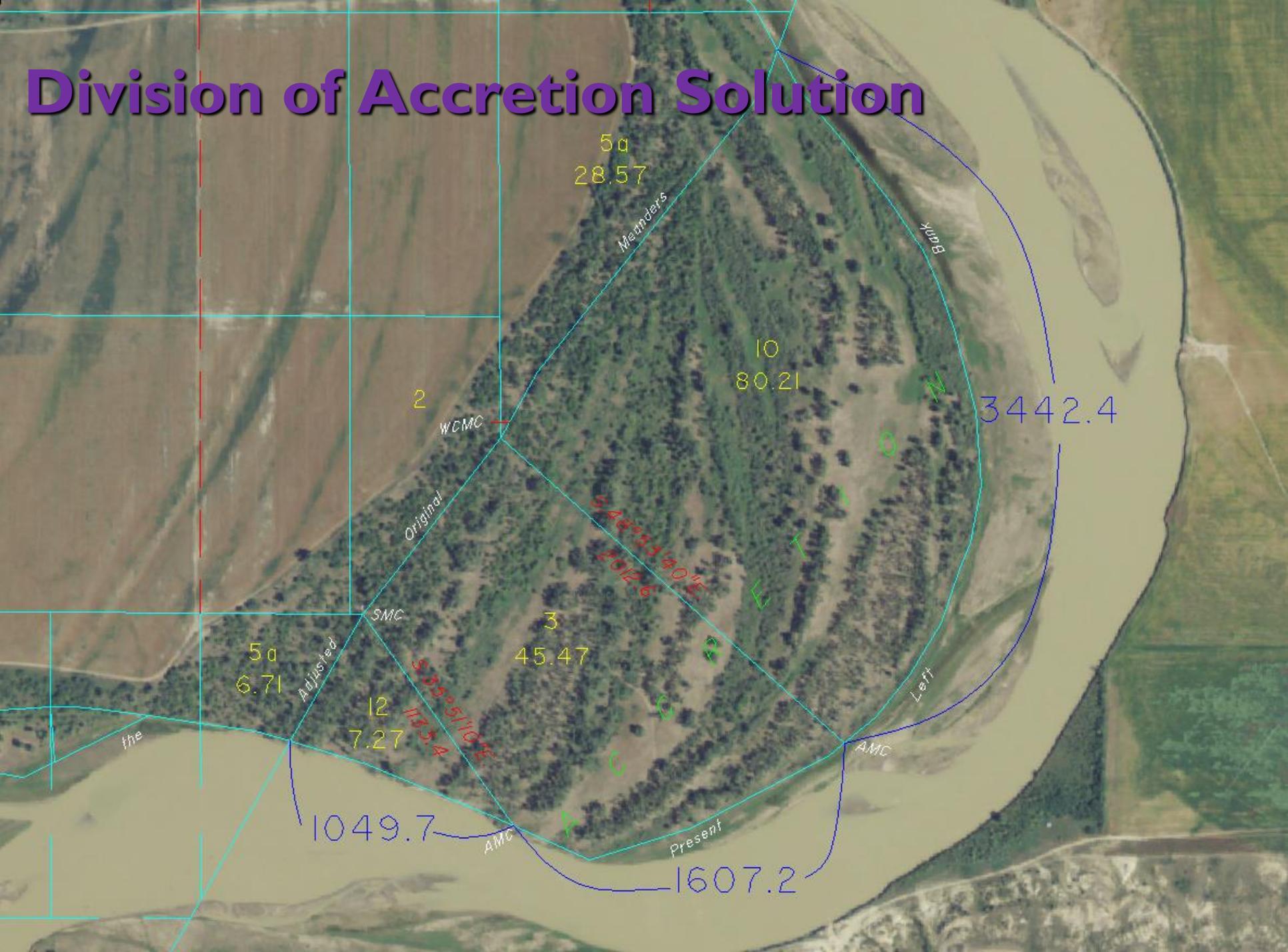
Accretion 1982



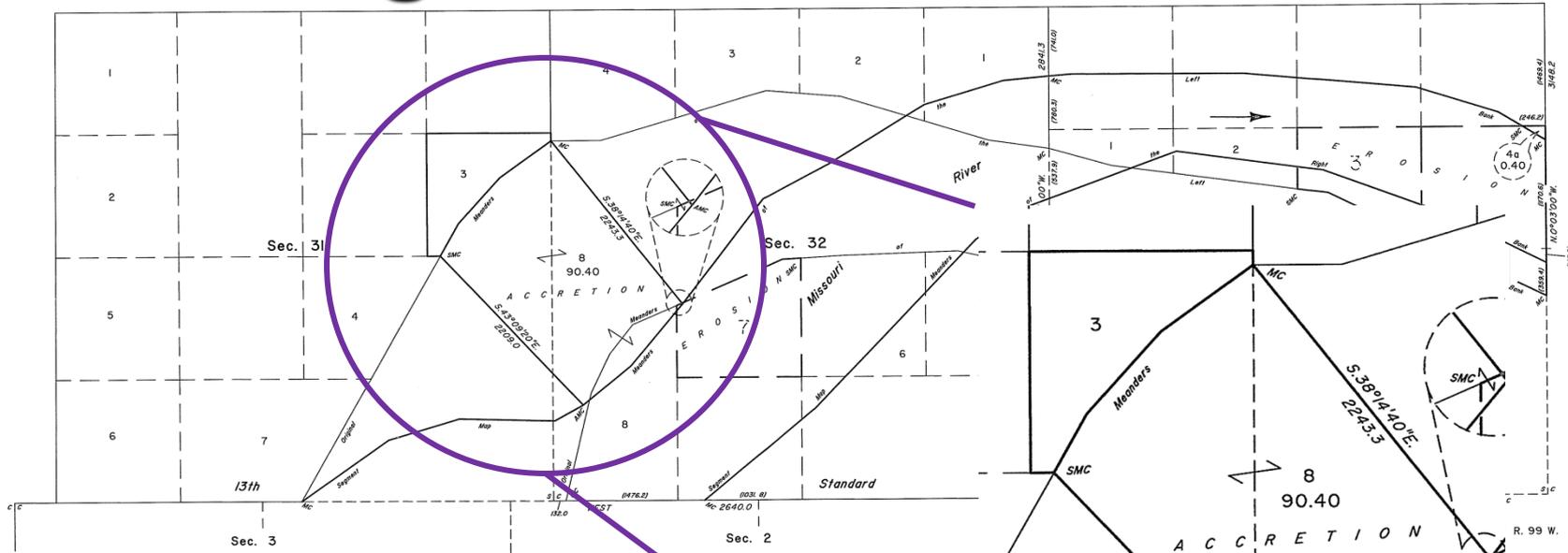
Accretion 2009



Division of Accretion Solution



Reading Accretion on a Plat



Segment Map Meanders of the Left Bank, downstream, through Sec. 31

From the original MC bet. secs. 3 and 31, on the 13th Standard Parallel.
 N. 54°46'30"E. 1132.7
 N. 73°18'50"E. 794.4
 S. 88°35'40"E. 1015.7
 N. 60°53'00"E. 344.5

At end of course, the AMC of sec. 31, on a line dividing the accretion in front of lots 3 and 4 of sec. 31.
 N. 50°25'50"E. 653.2

N. 39°47'40"E. 866.5

At end of course, the AMC of secs. 31 and 32, on a line dividing the accretion in front of lot 3 of sec. 31 and lot 4 of sec. 32.

Segment Map Meanders of the Left Bank, downstream, through Sec. 32

From the AMC of secs. 31 and 32, on a line dividing the accretion in front of lot 3 of sec. 31 and lot 4 of sec. 32.
 N. 37°21'00"E. 1414.9
 N. 62°02'10"E. 783.2
 N. 58°13'20"E. 1206.7
 At 980.8, intersect the Original Meanders.
 N. 73°06'40"E. 875.5
 N. 84°55'20"E. 485.8
 At end of course, the MC of secs. 32 and 33.

Segment Map Meanders of the Left Bank, downstream, through Sec. 33

From the MC bet. secs. 32 and 33.
 N. 84°55'20"E. 250.5
 S. 89°44'50"E. 1815.2
 S. 84°44'20"E. 1843.4
 S. 72°41'50"E. 911.6
 S. 58°46'30"E. 586.9
 At 298.8, the SMC of sec. 33, on the E-W center line of the NE1/4 of sec. 33.
 At end of course, the MC of secs. 33 and 34.

Segment Map Meanders of the Right Bank, downstream,

From the MC Parallel.
 N. 50°08'50"
 N. 43°31'50"
 At 2298.6,
 N. 58°23'26"
 N. 63°50'00"
 At end of course, the intersection with the line bet. secs. 33 and 34.

Segment Map Meanders of the Right Bank, downstream, through Sec. 33

From the intersection with the line bet. secs. 32 and 33.
 N. 69°50'00"E. 1441.6
 S. 82°09'00"E. 1560.4
 S. 69°43'50"E. 1409.6
 S. 63°24'40"E. 1178.3
 At end of course, the intersection with the line bet. secs. 33 and 34.

Acreage Table for Original Subdivisions				
Sec.	Subdivision	Original Acreage	Remaining Land "a"	Eroded Land "b"
33	Lot 4	45.60	0.40	45.20



Billings, Montana February 13, 2014

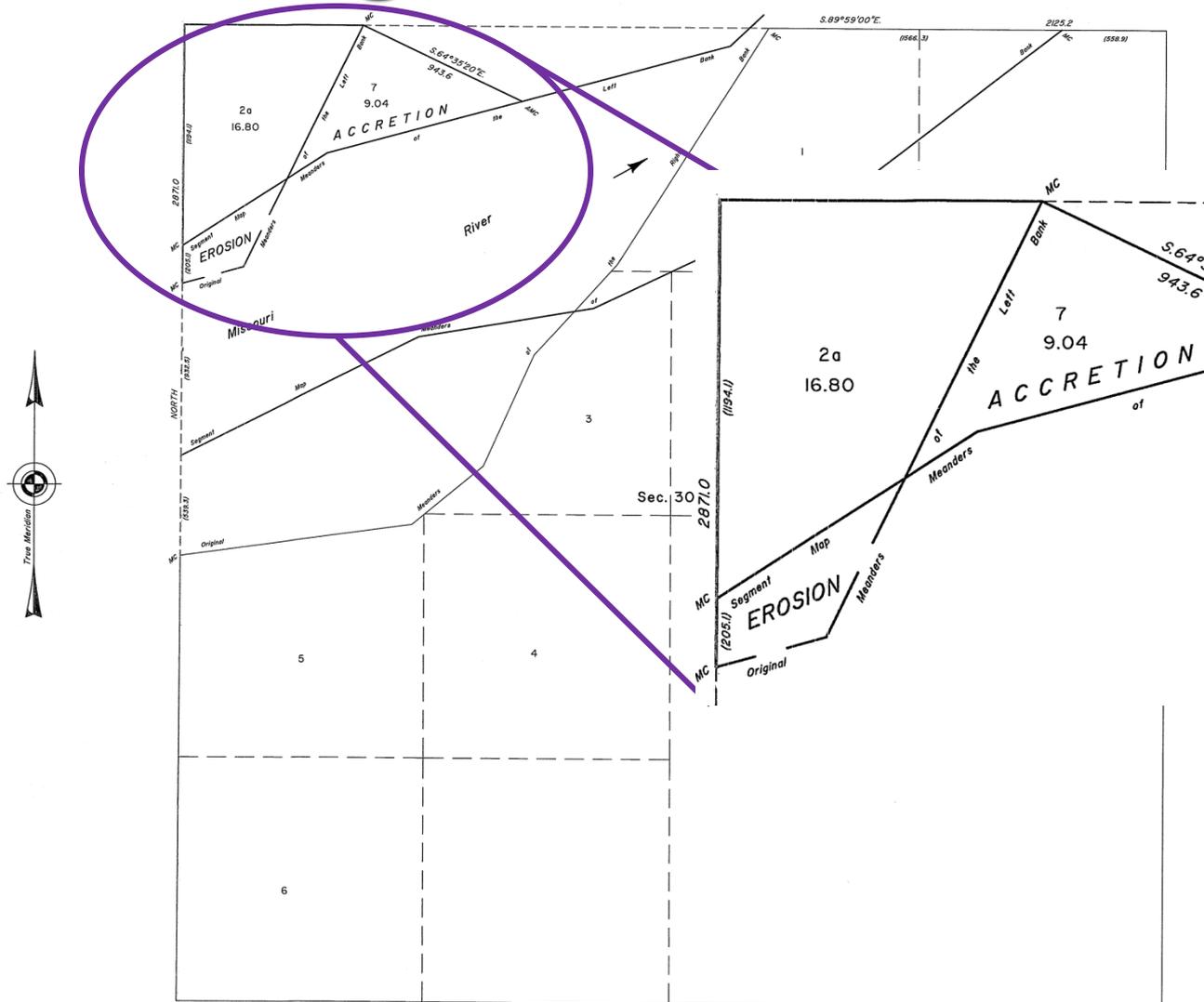
This plat, showing amended lottings, is based upon the official records and, having been correctly prepared in accordance with the requirements of law and the regulations of this Bureau, is hereby accepted.

For the Director
Joshua F. Alexander

Chief Cadastral Surveyor for North Dakota

TOWNSHIP 153 NORTH, RANGE 101 WEST, OF THE FIFTH PRINCIPAL MERIDIAN, NORTH DAKOTA

Reading Accretion/Erosion on a Plat



Meanders of the Left Bank, through Sec. 30 of secs. 25 and 30, of the Tp. 153 N. 101 W. 5th P.M., intersect the Original course, the AMC of sec. 30, on a line dividing in front of 7 of sec. 19 and lot 2 of 30. Meanders of the Right Bank, through Sec. 30, intersect with the line bet. secs. 25 and 30, of the W. 1/2 of the Tp. 153 N. 101 W. 5th P.M., intersect the Original course, the MC of sec. 30.

Acreeage Table for Original Subdivisions

Sec.	Subdivision	Original Acreeage	Remaining Land "a"	Eroded Land "b"
30	Lot 2	19.30	16.80	2.50

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Billings, Montana *December 23, 2013*

This plat, showing amended lottings, is based upon the official records and, having been correctly prepared in accordance with the requirements of law and the regulations of this Bureau, is hereby accepted.

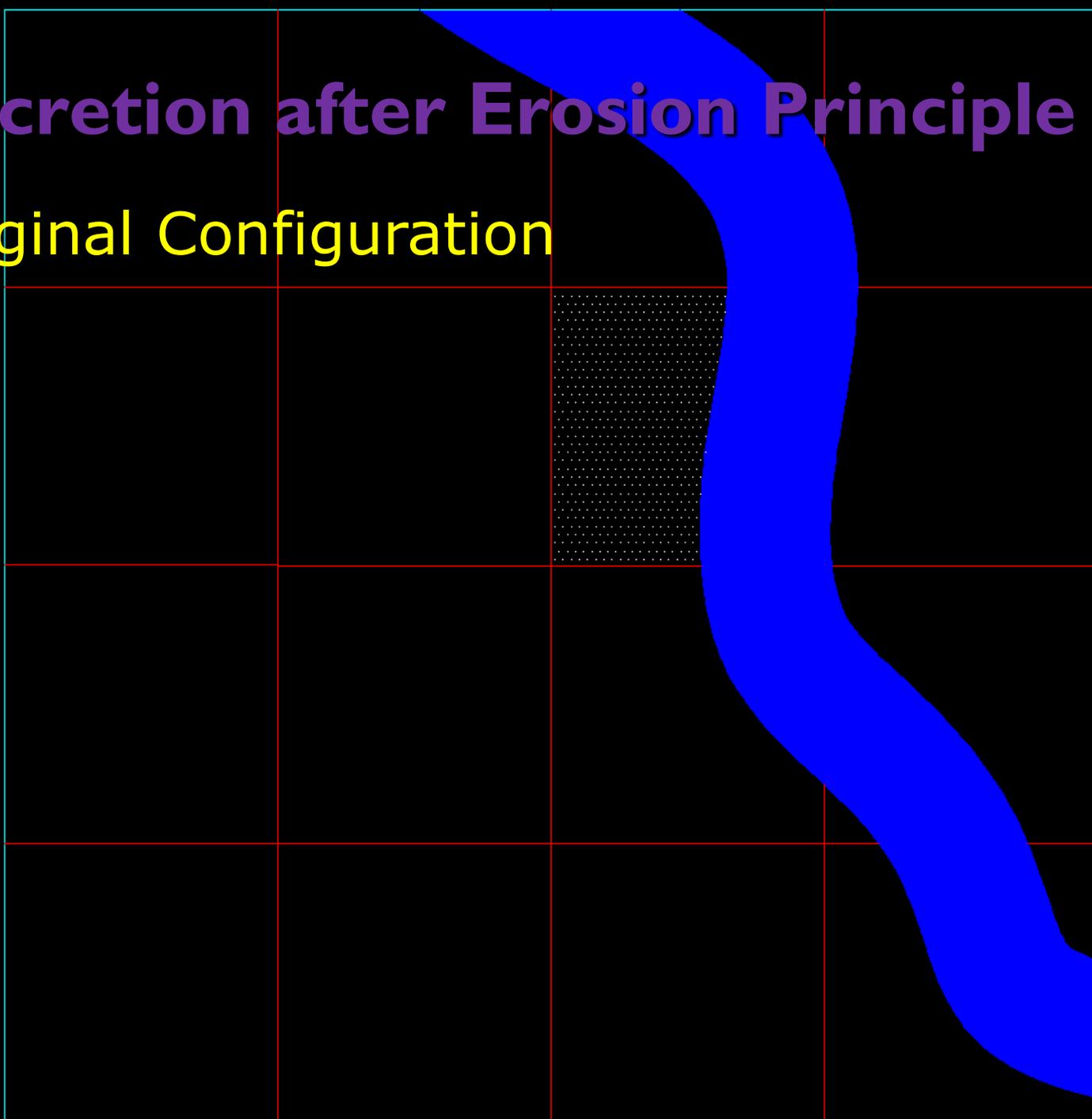
For the Director

Joshua F. Alexander
Chief Cadastral Surveyor for North Dakota
Acting



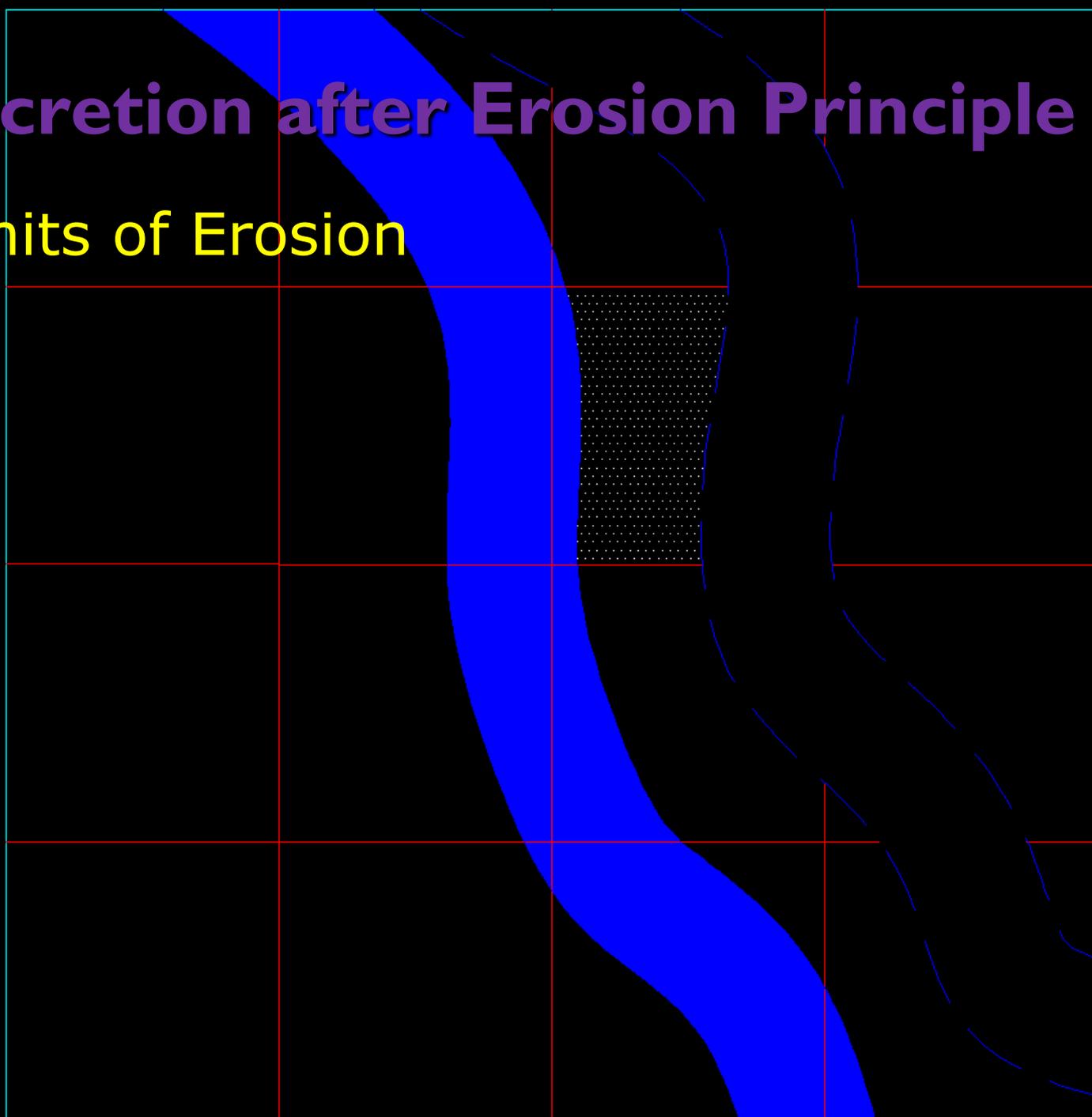
Accretion after Erosion Principle

Original Configuration



Accretion after Erosion Principle

Limits of Erosion

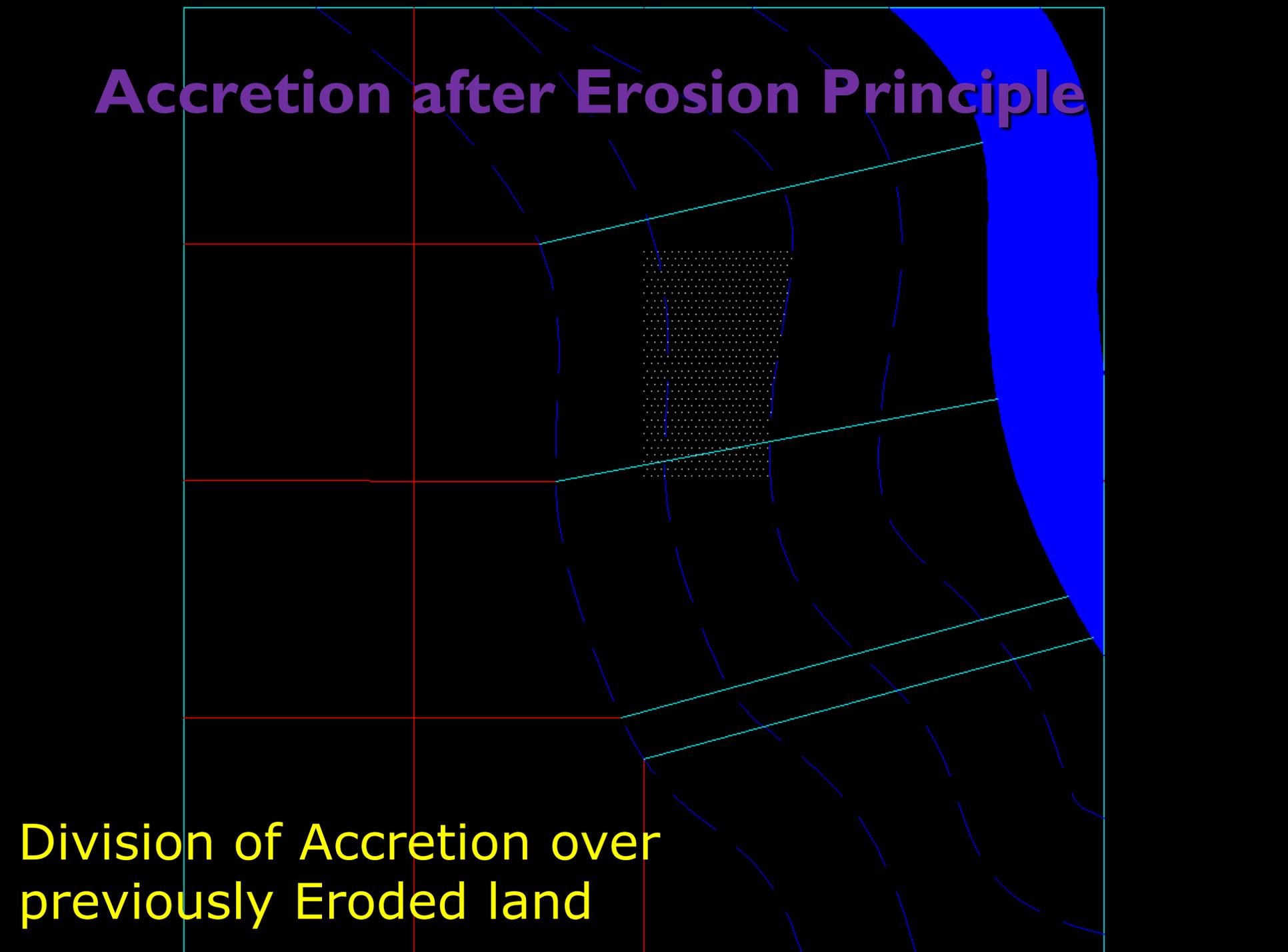


Accretion after Erosion Principle

Accretion after Erosion



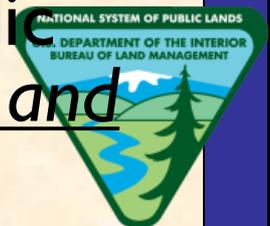
Accretion after Erosion Principle

The diagram shows a blue curved line representing the original boundary of a piece of land. A red grid represents the original land parcels. A blue shaded area represents the accretion. A hatched area represents the division of accretion over previously eroded land.

Division of Accretion over
previously Eroded land

Avulsion defined

- “The sudden and perceptible change in channel of a channel of a boundary stream with a new channel and remaining “fast” land between...”
Manual of Surveying Instructions, 2009, 8-81
- “...sudden change in the bed or course of a stream.” Black’s Law Dictionary Sixth Edition
- “A river’s sudden change in flow alignment out from it’s previous left and right banks to a new channel, leaving an identifiable upland area between the abandoned channel and the new channel. The new flow alignment will generally be a shortcut in length because of hydraulic considerations.” Glossary of BLM Surveying and Mapping Terms 1980



Legal Effects of Avulsion

- Land boundaries formed by riverbanks, between the limits of avulsion, are legally fixed at the position when no water flowed through the former (abandoned) channel



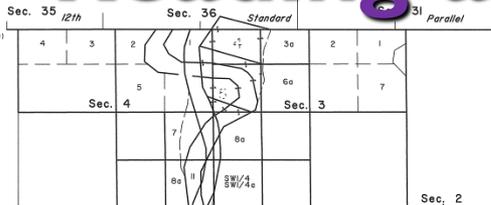


TOWNSHIP 148 NORTH, RANGE 97 WEST, OF THE FIFTH PRINCIPAL MERIDIAN, NORTH DAKOTA

INDEX MAP OF THE FIFTH PRINCIPAL MERIDIAN, DIVISION OF SECTIONS, AND SURVEY

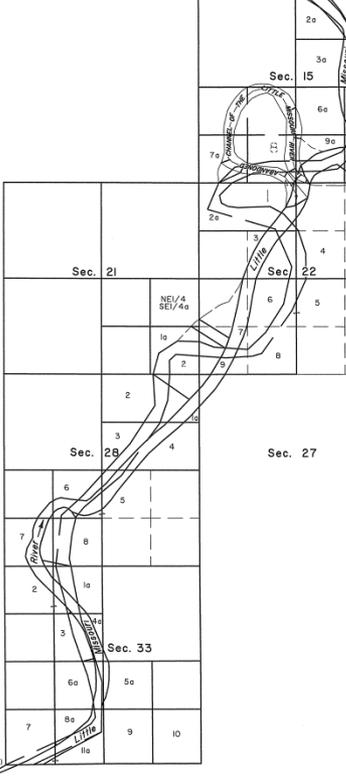
Reading an Avulsion on a Plat

Latitude: 47°40'57.390" N
Longitude: 103°05'30.720" W
NAD83(COR96) (Epoch: 2002.0000)



A history of surveys is contained in the field notes.

This plat represents the dependent resurvey of a portion of the 12th Standard Parallel, through Ranges 96 and 97 West, a portion of the south boundary, a portion of the subdivision lines, and the adjusted original meanders of the former left and right banks of the Little Missouri River, through sections 3, 4, 9, 10, 15, 21, 22, 28, and 33 designed to restore the corners in their true original locations according to the best available evidence, the subdivision of certain sections, and the survey of the meanders of the present left and right banks of the Little Missouri River, through sections 3, 4, 9, 10, 15, 21, 22, 28, and 33, the limits of erosion in sections 3, 4, 9, 15, 21 and 22, the left and right banks and medial



Latitude: 47°35'17.037" N
Longitude: 103°05'25.118" W
NAD83(COR96) (Epoch: 2002.0000)



TOWNSHIP 148 NORTH, RANGE 97 WEST, OF THE FIFTH PRINCIPAL MERIDIAN, NORTH DAKOTA

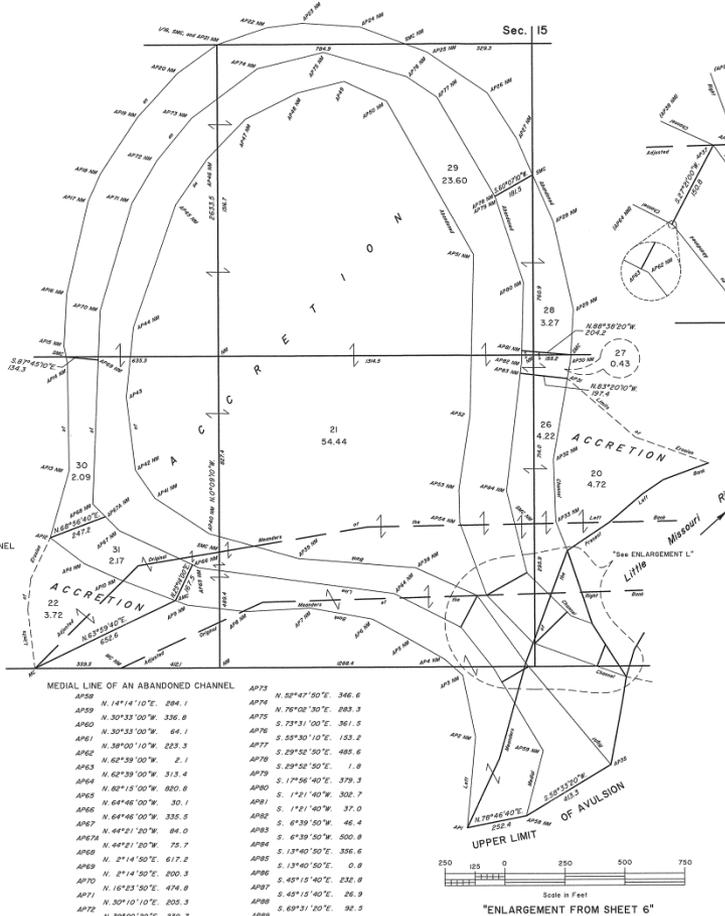
LEFT BANK OF AN ABANDONED CHANNEL

- AP1 N. 51°08'50"W. 385.9
- AP2 N. 11°21'50"W. 265.3
- AP4 N. 47°45'10"W. 99.0
- AP5 N. 59°58'20"W. 165.0
- AP6 N. 61°00'20"W. 183.1
- AP7 N. 39°00'50"W. 262.6
- AP8 N. 83°29'20"W. 245.0
- AP9 N. 68°51'40"W. 54.2
- AMC 215 N. 68°51'40"W. 251.5
- AP10 N. 63°34'30"W. 156.6
- AP11 N. 52°28'00"W. 179.7
- AP12 N. 13°39'20"W. 295.1
- AP13 N. 07°48'20"W. 453.3
- AP14 N. 11°20'50"W. 26.0
- SMC 215 N. 11°20'50"W. 45.2
- AP15 N. 31°02'30"W. 252.1
- AP16 N. 13°01'20"W. 401.2
- AP17 N. 23°41'20"W. 107.5
- AP18 N. 33°04'10"W. 284.2
- AP19 N. 41°58'30"W. 250.2
- AP20 N. 53°53'50"W. 204.1
- AP21B1/11 N. 70°59'20"W. 219.5
- AP22 N. 62°54'40"W. 149.7
- AP24 S. 60°00'40"E. 241.6
- AP25 S. 60°00'10"E. 296.1
- AP26 S. 63°30'10"E. 306.4
- AP27 S. 32°22'50"E. 232.0
- SMC 216 S. 23°16'10"E. 165.1
- AP28 S. 23°16'10"E. 219.7
- AP29 S. 14°30'30"E. 377.2
- SMC 216 S. 37°21'10"W. 190.8
- AP30 S. 37°21'10"W. 26.5
- AP31 S. 07°42'50"W. 75.9
- AP32 S. 07°42'50"W. 346.1
- AP33 S. 21°00'40"E. 251.8
- AP34 S. 21°04'20"E. 132.8

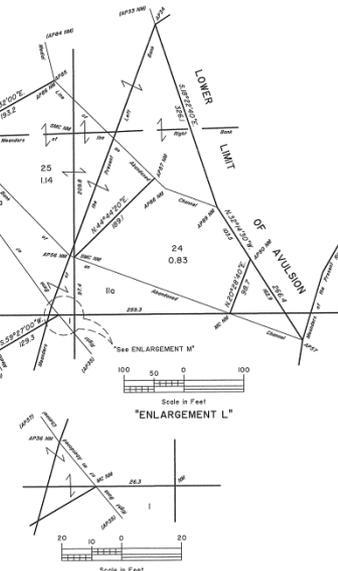
RIGHT BANK OF AN ABANDONED CHANNEL

- AP35 N. 39°59'40"W. 539.0
- MC 31802C N. 39°59'40"W. 19.4
- AP36 N. 59°15'00"W. 349.4
- AP37 N. 65°15'10"W. 283.3
- AP38 N. 65°18'50"W. 490.0
- AP39 N. 74°13'20"W. 386.4
- AP40 N. 66°21'40"W. 272.8
- AP41 N. 84°12'00"W. 143.9
- AP42 N. 67°31'00"W. 311.2
- AP43 N. 57°46'10"E. 299.4
- AP44 N. 18°14'10"E. 549.6
- AP45 N. 34°19'20"E. 228.7
- AP46 N. 43°34'50"E. 234.2
- AP47 N. 62°49'40"E. 247.2
- AP48 N. 76°19'40"E. 190.0
- AP49 S. 64°48'20"E. 150.6
- AP50 S. 29°06'00"E. 743.2
- AP51 S. 17°21'30"W. 679.4
- AP52 S. 07°22'50"W. 319.0
- AP53 S. 17°17'00"W. 139.9
- AP54 S. 19°58'50"E. 327.1
- AP55 S. 43°52'10"E. 279.3
- AP56 S. 69°31'20"E. 7.6
- SMC 215 S. 69°31'20"E. 277.1
- MC 31802C S. 69°31'20"E. 129.6
- AP57

DEPENDENT RESURVEY, SUBDIVISION OF SECTIONS, AND SURVEY



Sheet 7 of 11



New Acreage Table for Original Subdivisions Outside SX				
Sec.	Subdivision	New Acreage	Remaining Land "Y"	Graded Land "Z"
15	Lot 1	0.60	0.29	0.31
15	Lot 2	9.48	0.45	9.03

UNITED STATES DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

Billings, Montana *May 23, 2012*

This plat is strictly conformable to the approved field notes, and the survey, having been correctly executed in accordance with the requirements of law and the regulations of this Bureau, is hereby accepted.

For the Director

James D. Cliff
Chief Cadastral Surveyor for North Dakota

Reading an Avulsion on a Plat cont.

TOWNSHIP 148 NORTH RANGE 97 WEST OF THE 5th PRINCIPAL MERIDIAN, NORTH DAKOTA
DUNN COUNTY 025

STATUS OF PUBLIC DOMAIN
LAND AND MINERAL TITLES

MT SUPPL
Sec 15

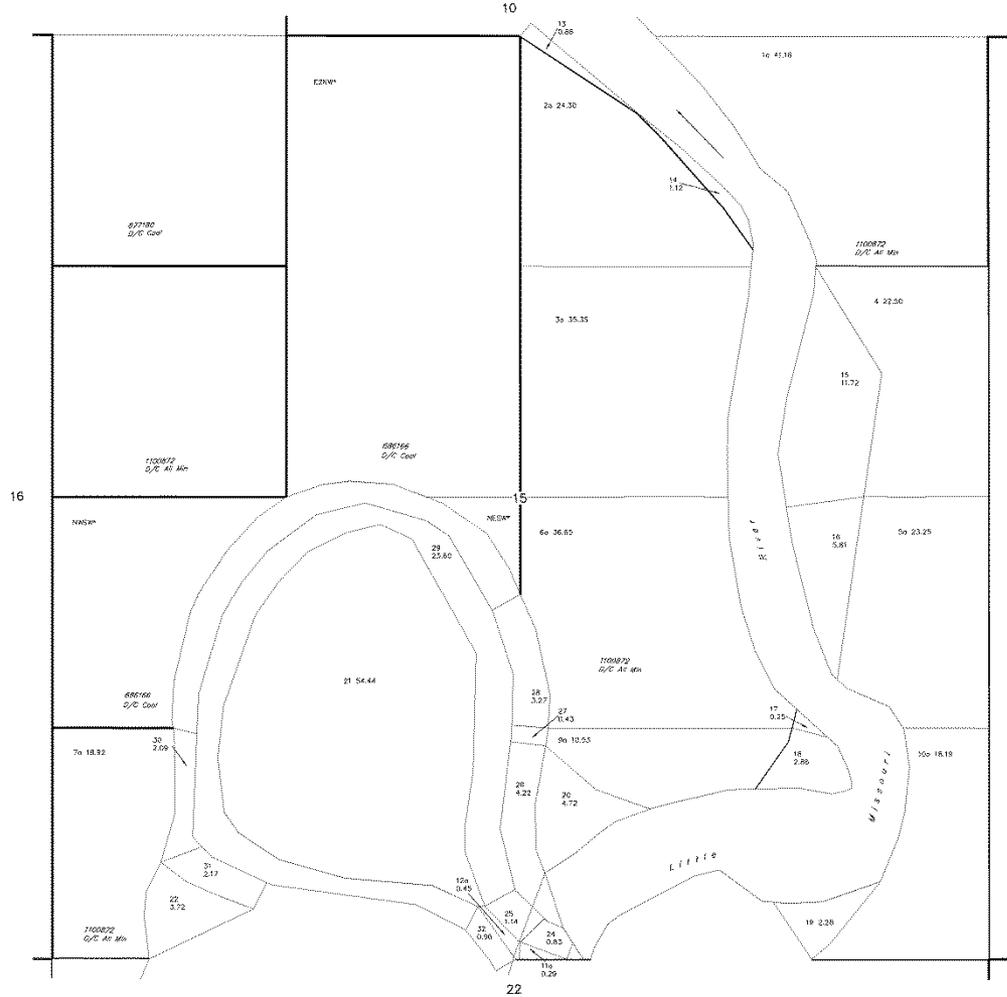
FOR ORDERS AFFECTING DISPOSAL OR USE OF
UNIDENTIFIED LANDS WITHIN ANY FOR CLASSIFICATION,
MINERALS, WATER AND/OR OTHER PUBLIC PURPOSES,
REFER TO INDEX OF MISCELLANEOUS DOCUMENTS.

NDM 8728 (98.5) Access Into Riverbed
Stays 1 thru 4, 9, 10, 12, 15, 21, 22, 23,
28, 33

NDM 57079 (99.0) Little Missouri Riverbed
Litigation
Stays 1 thru 4, 9, 10, 12, 15, 21, 22, 28,
32, 33

NDM 104416 (99.0) Resurvey Documentation
* Indicates original area storages that do not
reflect the movement of the river as based on
the latest survey.

Let areas affected by erosion are shown with
an "a" denoting land area remaining.



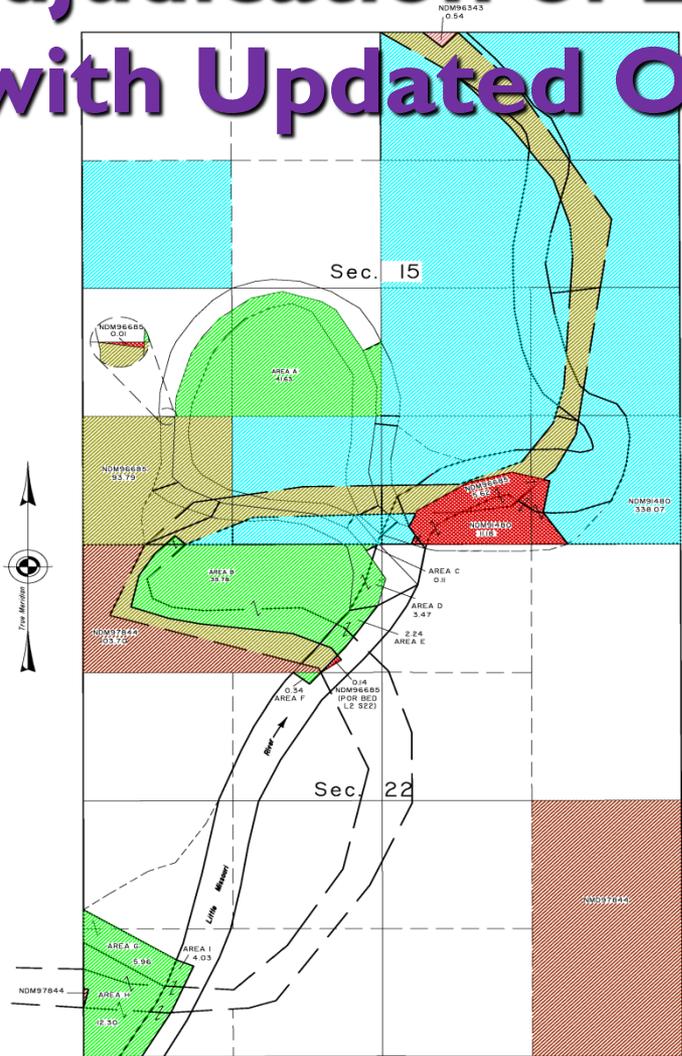
WARNING STATEMENT
This plat is the Bureau's Record of Title and should be used
only as a general guide of the recorded survey data. It
cannot be used to reflect the changes which have been
affected by natural movements of water or other factors of water
power. In the additional sheets to this survey instrument.

CURRENT TO		No. 5	
7-15-2013	PLS-CBR	MM	T. 148 N.
		DC	R. 97 W.

Re-adjudication of Existing Leases with Updated Official Plat

T. 148 N. R. 97 W. OF THE 5TH PRINCIPAL MERIDIAN, NORTH DAKOTA

(CONTINUED FROM PREVIOUS PLAT) N. 1025, D. 1011



DESCRIPTIONS OF AREAS
 AREA A: A portion of lots 21, 27, 28, and 29 of sec. 15.
 AREA B: A portion of lot 10 of sec. 22.
 AREA C: A portion of lot 32 of sec. 15.
 AREA D: A portion of lot 11 of sec. 22.
 AREA E: A portion of the bed riparian to lot 10 of sec. 22.
 AREA F: A portion of the bed riparian to lot 2 of sec. 22.
 AREA G: A portion of lot 3 of sec. 21.
 AREA H: A portion of lot 4 of sec. 21.
 AREA I: A portion of the bed riparian to lots 3 and 4 of sec. 21.

AREAS TO REMOVE FROM EXISTING LEASES

NDM91480	=	11.18
NDM96685	=	5.62
NDM96685	=	0.14
NDM96685	=	0.01
TOTAL		= 16.95

FEDERAL O&G INTERESTS IN CA

NDM96343	=	0.54
NDM91480	=	338.07
NDM96685	=	93.79
NDM97844	=	103.70

NEW AREAS TO LEASE:

AREA A	=	41.63
AREA B	=	35.78
AREA C	=	0.11
AREA D	=	3.47
AREA E	=	2.24
AREA F	=	0.34
AREA G	=	5.96
AREA H	=	12.30
AREA I	=	4.03

TOTAL Fed. O&G Interest in CA = 641.96
 TOTAL CA AREA = 1260.00

UNITED STATES DEPARTMENT OF THE INTERIOR
 BUREAU OF LAND MANAGEMENT

Billings, Montana

This diagram, showing acreage delineations between existing oil and gas leases and the official survey plat accepted May 23, 2012, having been correctly prepared, is hereby approved.

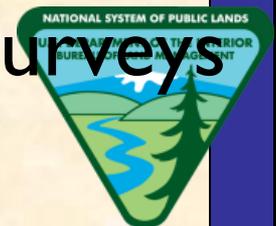


Chief Cadastral Surveyor for North Dakota



Federal Survey Authorities

- 25 U.S.C. 398e: On certain Indian land, oil and gas lease upon Indian land, to be described by the legal subdivisions if surveyed; if unsurveyed to be surveyed by the Government at the expense of the applicant in accordance with rules and regulations to be prescribed by the SOI; and the lands leased shall be conformed to and taken in accordance with the legal subdivisions of such surveys; deposits to cover expense of surveys shall be made



Federal Survey Authorities cont.

- 25 CFR 211.25: Leases for oil and gas, coal and all other minerals, shall be described by legal subdivisions
- Multiple others that reference legal subdivisions



IBIA Case Language

- 53 IBIA 231, (2011); “See 22 IBIA 240, 247 (1992) (“The Board [holds] that the results of the BLM survey are binding on Departmental officials unless and until the survey is altered by a subsequent BLM survey or by a court of competent jurisdiction”).”



Past Cadastral Survey Memos

2

Lot 2, Section 14, T. 152 N., R. 104 W., 5th PM, ND

Lot 2, of section 14, has been affected by the lateral movement of the Missouri River. All of Lot 2 has eroded away.

Lot 3, Section 14, T. 152 N., R. 104 W., 5th PM, ND

Lot 3, of section 14, has been affected by the lateral movement of the Missouri River. All of Lot 3 has eroded away.

Lot 1, Section 15, T. 152 N., R. 104 W., 5th PM, ND

Lot 1, of section 15, has been affected by the lateral movement of the Missouri River. All of Lot 1 has eroded away.

Lot 2, Section 15, T. 152 N., R. 104 W., 5th PM, ND

Lot 2, of section 15, has been affected by the lateral movement of the Missouri River. All of Lot 2 has eroded away.

Lot 4, Section 20, T. 152 N., R. 104 W., 5th PM, ND

Lot 4, of section 20, has been affected by the lateral movement of the Missouri River. All of Lot 4 has eroded away.

Lot 7, Section 21, T. 152 N., R. 104 W., 5th PM, ND

Lot 7, of section 21, has been affected by the lateral movement of the Missouri River. Approximately 99 percent of Lot 1 has eroded away.

Lot 3, Section 22, T. 152 N., R. 104 W., 5th PM, ND

Lot 3, of section 22, has been affected by the lateral movement of the Yellowstone River. All of Lot 3 has eroded away.

Lot 4, Section 22, T. 152 N., R. 104 W., 5th PM, ND

Lot 4, of section 22, has been affected by the lateral movement of the Yellowstone River. All of Lot 4 has eroded away.

Lot 1, Section 23, T. 152 N., R. 104 W., 5th PM, ND

Lot 4, Section 20, T. 152 N., R. 104 W., 5th PM, ND

Lot 4, of section 20, has been affected by the lateral movement of the Missouri River. All of Lot 4 has eroded away.

Lot 7, Section 21, T. 152 N., R. 104 W., 5th PM, ND

Lot 7, of section 21, has been affected by the lateral movement of the Missouri River. Approximately 99 percent of Lot 1 has eroded away.

3

Lot 3, Section 27, T. 152 N., R. 104 W., 5th PM, ND

Lot 3, of section 27, has been affected by the lateral movement of the Yellowstone River. All of Lot 3 has eroded away.

The above determination is based solely on the review of the 1902 official surveys overlaid onto the 1995 aerial photograph from the internet site, terraserver.microsoft.com.

As in all riparian boundaries along changing rivers, a dependent resurvey today could bring out additional facts that would change our opinion in this case. Any appreciable amount of change along river boundaries would require a dependent resurvey to properly identify the boundaries and areas of the remaining Federal lands.

If you have any further questions, please contact Marvin Montoya at ext. 5124.

The above determination is based solely on the review of the 1902 official surveys overlaid onto the 1995 aerial photograph from the internet site, terraserver.microsoft.com.

As in all riparian boundaries along changing rivers, a dependent resurvey today could bring out additional facts that would change our opinion in this case. Any appreciable amount of change along river boundaries would require a dependent resurvey to properly identify the boundaries and areas of the remaining Federal lands.

68218

Past Cadastral Survey Memos

- Have no authority to effect change on official land descriptions
- No administrative procedure or case file was performed to substantiate these cursory opinions
- Public was not given the opportunity to comment on divesting title to Federal property
- Have been discontinued



BLM Survey Status

BLM Cadastral Survey Activity 2011-Present

Updated: 10/3/14

Field Surveys

Note: All Federal O&G Interests in Township affected by River Movement Unless Specified

T. 147 N., R. 95 W., 5th PM, ND	In Review
T. 147 N., R. 97 W., 5th PM, ND	Officially Filed
T. 148 N., R. 95 W., 5th PM, ND	Field Complete
T. 148 N., R. 96 W., 5th PM, ND	Review Complete
T. 148 N., R. 97 W., 5th PM, ND	West Portion Officially Filed- East Portion Plat Accepted
T. 149 N., R. 96 W., 5th PM, ND	Plat Accepted
T. 149 N., R. 97 W., 5th PM, ND	Plat Accepted

The aforementioned 7 Tps. complete a 35 mile stretch of the Little Missouri River

T. 22 N., R. 59 E., PMM, MT; Sec. 30	Field Complete
T. 26 N., R. 58 E., PMM, MT; Secs. 1, 2, 3	Field Complete
T. 27 N., R. 58 E., PMM, MT; Secs. 26, 27, 34, 35	Field Complete
T. 33 N., R. 56 E., PMM, MT; Sec. 7	Field Work Fall of 2014
T. 27 N., R. 53 E., PMM, MT; Sec. 3; River bed	Field Work Fall of 2014

Supplemental Plats

Note: All Public Domain O&G Interests in Township affected by River Movement Only- not Acquired Interests or non-Riparian PD Interests

T. 151 N., R. 94 W., 5th PM, ND	Plat Acceptance Pending
T. 152 N., R. 93 W., 5th PM, ND	Officially Filed
T. 152 N., R. 99 W., 5th PM, ND	Officially Filed
T. 152 N., R. 100 W., 5th PM, ND	Officially Filed
T. 153 N., R. 93 W., 5th PM, ND	Officially Filed
T. 153 N., R. 94 W., 5th PM, ND	Officially Filed
T. 153 N., R. 98 W., 5th PM, ND	Officially Filed
T. 153 N., R. 99 W., 5th PM, ND	Officially Filed
T. 153 N., R. 100 W., 5th PM, ND	Officially Filed
T. 153 N., R. 101 W., 5th PM, ND	Officially Filed
T. 153 N., R. 102 W., 5th PM, ND	Plat Acceptance Pending
T. 154 N., R. 94 W., 5th PM, ND	Officially Filed
T. 154 N., R. 95 W., 5th PM, ND	Protested
T. 154 N., R. 96 W., 5th PM, ND	Protested
T. 154 N., R. 97 W., 5th PM, ND	Protested
T. 154 N., R. 98 W., 5th PM, ND	Protested
T. 154 N., R. 100 W., 5th PM, ND	Officially Filed
T. 154 N., R. 101 W., 5th PM, ND	Officially Filed



Contact

Josh Alexander
Acting Chief Cadastral Surveyor
BLM Montana and the Dakota's
(406) 896-5123

