

## “Riparian Boundaries In Texas”

presented by

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### I. Introduction.

This final paper shifts focus from the Texas shoreline to Texas rivers. The Texas Parks and Wildlife Department reports there are fifteen rivers and an additional 3,700 named streams that flow through thousands of miles of Texas land.<sup>1</sup> As described in greater detail below, the State of Texas owns the “beds” of navigable rivers and streams, but most of the land lying along Texas rivers and streams, *i.e.*, *riparian* land, is privately owned. This paper summarizes the current Texas law governing how to survey the boundary line between state-owned riverbeds and the abutting private land.<sup>2</sup>

The most recent Texas Supreme Court opinion on the subject is *Brainard v. State*, 12 S.W.3d 6 (Tex. 1999), which established riparian boundaries along both sides of approximately thirty miles of the Canadian River in the Panhandle. This paper relies heavily on Justice Hankinson’s comprehensive, unanimous opinion for the Court in *Brainard*.<sup>3</sup> In *Brainard*, the Texas Supreme Court reaffirmed that the boundaries between state-owned riverbeds and privately-owned riparian land lie along the banks of rivers on a line called the “gradient boundary.” 12 S.W.3d at 15-16. Thus, in Texas, the gradient boundary marks the line between state-owned and private land along rivers, in the same manner as mean higher tide or mean higher high tide lines mark that boundary on the seashore.

The critical aspects of Texas riparian boundary law may be broken down into the following subtopics, each of which will be discussed below:

- (1) What is the state’s “riverbed?”
- (2) Where are the river’s “banks” that mark the boundary of the riverbed?
- (3) Marking riparian boundaries—the “gradient boundary.”
- (4) The ever-changing boundary—erosion, accretion, reliction.
- (5) Artificial, or man-induced, erosion, accretion, or reliction
- (6) Changes that do not shift the boundary—avulsion and subsidence.

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<sup>1</sup>See the Department’s website, *Texas River Guide*: <http://www.tpwd.state.tx.us/texaswater/rivers/>.

<sup>2</sup>Riparian boundaries ordinarily are surveyed by licensed state land surveyors, who are licensed to survey land in which the state or the Texas Permanent School Fund has an interest, as well as to file field notes in the Texas General Land Office. Tex. Occ. Code §§ 1071.002(5), 1071.354 & 1071.355 (Vernon 2004).

<sup>3</sup>The author was one of the lawyers who represented the riparian landowners in *Brainard*. He briefed and argued the case for the landowners in the Supreme Court of Texas. The author also submitted *amicus* briefs to the Supreme Court on behalf of King Ranch in *John G. and Marie Stella Kenedy Memorial Foundation v. Dewhurst*, 90 S.W.3d 268 (Tex. 2002).

## II. The State's Riverbed.

The State of Texas owns the beds of navigable rivers and streams. TEX. PARKS & WILD. CODE § 1.011(c) (Vernon 2002); *Brainard*, 12 S.W.3d at 15 n.3. The Texas Supreme Court has held that the lands underlying navigable waters are “held in trust by the state for the use and benefit of all the people.” *State v. Bradford*, 50 S.W.2d 1065, 1069 (Tex. 1932). The question whether a stream is navigable, for state law purposes, is often resolved by the “30 Foot Statute,” which provides that a navigable stream is “a stream which retains an average width of 30 feet from the mouth up.” TEX. NAT. RES. CODE § 21.001(3) (Vernon 2001); *Brainard*, 12 S.W.3d at 16 n.4. It is unlawful for a survey to cross a navigable stream in Texas since the bed of the stream belongs to the state. TEX. NAT. RES. CODE § 21.012 (Vernon 2001).<sup>4</sup>

In *Brainard*, the Texas Supreme Court defined the features of the state's riverbed by quoting from prior judicial opinions as follows:

The bed of a stream is that portion of its soil which is alternatively covered and left bare as there may be an increase or diminution in the supply of water, and which is adequate to contain it at its average and mean stage during an entire year, without reference to the extra freshets of the winter or spring or the extreme drouths of the summer or autumn.

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When we speak of the bed we include all of the area which is kept practically bare of vegetation by the wash of the waters of the river from year to year in their onward course, although parts of it are left dry for months at a time, and we exclude the lateral valleys which have the characteristics of relatively fast land and usually are covered by upland grasses and vegetation, although temporarily overflowed in exceptional instances when the river is at flood.

*Brainard*, 12 S.W.3d at 16-17.<sup>5</sup> These definitions establish that the state's riverbed does not include broad expanses of land sometimes referred to as the river's floodplain, or the river's valley, which is inundated only during flood events.

Otherwise, the definitions are not very precise, and it may become important to locate the boundaries of a state-owned riverbed on the surface of the earth. It is common for boundary descriptions in legal documents to include calls such as “to the river,” “to the banks of the river,” “along the river,” “following the bank of the river,” “with the meanders of the river,” or something similar. Such descriptions establish the gradient boundary

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<sup>4</sup>The “30 Foot Statute” and the additional language prohibiting surveys from crossing navigable streams were enacted by the Republic of Texas in 1837, and those statutes have remained part of Texas law since that time. See Act approved Dec. 14, 1837, § 42, reprinted in 1 H.P.N. Gammel, THE LAWS OF TEXAS 1822-1897 at 1404, 1418 (Austin, Gammel Book Co. 1898). In parts of the state, however, early surveyors did not get the message and the state conveyed into private hands some patents and deeds of acquittance that crossed and therefore encompassed riverbeds. The Legislature validated certain of these early conveyances by the “Small Act,” codified at TEX. REV. CIV. STAT. ANN. arts. 5414a & 5414a-1 (Vernon 1962). See *State v. Bradford*, 50 S.W.2d at 1071-80 (holding, *inter alia*, that the Legislature has power to grant riverbed land into private ownership). As a result, there is private ownership of riverbed land in some places in the state.

On the Small Act and related issues, see generally 3 Fred A. Lange & Aloysius A. Leopold, TEXAS PRACTICE: LAND TITLES AND TITLE EXAMINATION § 176 (West 2d ed. 1992); Kenneth Roberts, *Title and Boundary Problems Relating to Riverbeds*, 36 TEXAS L. REV. 299, 304-06 (1958). For an excellent summary of the history and derivation of Texas riparian and littoral law, see Shannon H. Ratliff, *Shoreline Boundaries, Part I: Legal Principles*, Texas Coastal Law Conference, May 19-20, 2005.

<sup>5</sup>Both quotations came from *Oklahoma v. Texas*, 260 U.S. 606, 631-32 (1924). The Texas Supreme Court earlier had quoted the first paragraph in *Motl v. Boyd*, 286 S.W. 458, 467 (Tex. 1926).

between the state's riverbed and privately owned land, which boundary will lie on and along the river's banks, as the physical boundary of the property being described.<sup>6</sup> As the Texas Supreme Court stated in *Brainard*, the precise definition of a particular river's bed is that land lying between properly marked gradient boundary lines along both sides of the river. *Brainard*, 12 S.W.3d at 16.

Modern land use often creates other reasons for marking the boundary between the state's riverbed and private riparian lands. For example, the mineral estate under riverbeds and channels belongs to the Permanent School Fund. TEX. NAT. RES. CODE §§ 11.041(a)(1), 51.011 (Vernon 2001). The Commissioner of the General Land Office leases riverbeds for oil and gas development. See TEX. NAT. RES. CODE § 52.071 (Vernon 2001).<sup>7</sup> Mineral lessees need to know the boundaries of their leasehold. It is not a good idea for the state's lessee to drill wells on private riparian lands, or for riparians' lessees to drill wells in the riverbed.

As another example, the state can and will sue riparian landowners for damages and injunctive relief for trespassing on the state's riverbed. See, e.g., *State v. Riemer*, 94 S.W.3d 103, 104-05 (Tex. App.—Amarillo 2002, no pet.). One factor that precipitated the *Brainard* litigation was extensive public recreational use for hunting, exploring, and camping of the wide expanse of land up and down the Canadian River the state claimed as its riverbed. The riparian owners argued that the state's riverbed was only twenty to fifty feet wide and that the public was trespassing on privately-owned land. Since the boundary was disputed, the riparians were unable to obtain assistance from law enforcement.

### III. The Boundary Banks of the River

Rivers may have more than one set of banks. There are the bluffs at the edge of a river's valley. There are flood banks, or vestiges of banks left as floods pushed out over a river's flood plain and then receded. There are the water-washed banks that serve to confine the flow of the river's water at its ordinary and mean stage.

The basic dispute in *Brainard* turned on which set of banks were the proper banks for marking the boundary between public and private ownership along the Canadian. The state contended that the proper banks for marking the boundary were the "historic" banks of the Canadian, formed when floods coursed down the river before 1965, when the federal and state governments dammed the river approximately fourteen miles upstream. The state's legal argument (discussed in greater detail below) was that manmade changes induced in the river, such as changes wrought by the construction of a dam upstream, could not divest the state of title to land. The riparians contended the proper banks for confining the state's riverbeds were those that *currently* confined the waters of the river during its ordinary stages of flow, not flood banks lying in the flood plain that had never been water-washed after the dam was closed except perhaps very rarely during extremely heavy rains.

In *Brainard* and earlier cases, the Texas Supreme Court adopted the following definition of the proper bank along which the gradient boundary lies:

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<sup>6</sup>See, e.g., *Stover v. Gilbert*, 247 S.W. 841, 843 (Tex. 1923); *Allen v. Morales*, 665 S.W.2d 851, 852-53 (Tex. App.—Fort Worth 1984, no writ.). Meander lines depicted on a survey "are not run as boundaries of the tract surveyed . . . the purpose of meander lines being merely for the benefit of the Government in ascertaining the quantity of land in the survey for which it requires payment." *McCombs v. McKaughan*, 195 S.W.2d 194, 199 (Tex. Civ. App.—Beaumont 1946, writ ref'd).

<sup>7</sup>See generally 3 Fred A. Lange & Aloysius A. Leopold, *supra* n. 4 at § 175 pp. 287-88; Comment, 31 TEXAS L. REV. 312, 320 (1953) (stating "[p]resent leases of these beds by the School Land Board do not contain an exact description of the land covered; instead a map of the present bed is attached with brackets shown on the river to show the area included. The lease reads that the state leases its interests within these lines.")

. . . the water-washed and relatively permanent elevation or acclivity at the outer line of the river bed which separates the bed from the adjacent upland, whether valley or hill, and serves to confine the waters within the bed and to preserve the course of the river . . . .

*Brainard*, 12 S.W.3d at 16.<sup>8</sup>

#### IV. The Gradient Boundary

##### A. Historical Development of the Gradient Boundary.

The concept of the gradient boundary was developed during litigation in the United States Supreme Court to mark the boundary between Texas and Oklahoma on the Red River. See *Oklahoma v. Texas*, 260 U.S. 606 (1923) (opinion); 261 U.S. 340 (1923) (partial decree setting out orders for marking the boundary); 265 U.S. 493 (1924) (report of boundary commissioners); 265 U.S. 500 (1924) (decree approving report of boundary commissioners).<sup>9</sup> The “father” of the gradient boundary was Colonel Arthur A. Stiles, a distinguished civil engineer employed by the State of Texas during the *Oklahoma v. Texas* litigation. The United States Supreme Court appointed Colonel Stiles as one of the boundary commissioners for that litigation. Years later, Stiles published an important article describing the proper method for marking the gradient boundary. Arthur A. Stiles, *The Gradient-Boundary—the Line Between Texas and Oklahoma Along the Red River*, 30 TEXAS L. REV. 305 (1952) (hereinafter the “Stiles Article”). The gradient boundary is sometimes referred to as the “Stiles method.”

In *Oklahoma v. Texas*, the federal Supreme Court held that under the governing historical treaty between the United States and Spain, the boundary of Texas lies along the south bank of the Red River, not in the middle of the river as claimed by Texas. 256 U.S. 70 (1921). The Court then adopted Stiles’ gradient boundary as the proper procedure for marking the Texas boundary along the Red River’s south bank. When the Texas Supreme Court later needed to determine how to mark boundary lines between the state’s riverbeds and private riparian lands, it adopted the gradient boundary from *Oklahoma v. Texas*, a decision it has since reaffirmed several times. See *Brainard*, 12 S.W.3d at 15-16.<sup>10</sup>

##### B. Marking the Gradient Boundary.

The literature provides several descriptions of how to mark the gradient boundary.<sup>11</sup> They may be summarized as follows:

► **Step (1):** The original elevation of the boundary is marked on the lowest qualified bank in the vicinity, called the “key bank,” at the point on that bank halfway between the low water level, when the flowing water first reaches the bank, and the high water level, when the

<sup>8</sup>Again quoting *Oklahoma v. Texas*, 260 U.S. at 631-32.

<sup>9</sup>There is a brief history of the boundary dispute between Texas and Oklahoma that gave rise to *Oklahoma v. Texas* in John W. Hammett, *The Oklahoma-Texas Boundary Dispute*, 26 OKLA. BAR J. 1858 (1955).

<sup>10</sup>See *Maufrais v. State*, 180 S.W.2d 144, 147-48 (Tex. 1944); *Diversion Lake Club v. Heath*, 86 S.W.2d 441, 446 (Tex. 1935); *Motl v. Boyd*, 286 S.W. 458, 467-68 (Tex. 1926). In the forward to the Stiles Article, Justice Graham B. Smedley of the Texas Supreme Court wrote that the gradient boundary “was adopted by the Supreme Court of Texas in *Motl v. Boyd*, and has been applied in later decisions as the law of Texas for marking the line between public and private ownership along streams, the beds of which are owned by the state.” Stiles Article pp. 305-06.

<sup>11</sup>See, e.g., *Brainard*, 12 S.W.3d at 26; *Oklahoma v. Texas*, 265 U.S. at 496-97; Stiles Article at 315-21; Wallace Hawkins, *Title to River Beds in Texas and Their Boundaries*, 7 TEXAS L.REV. 493, 503-05 (1929).

flowing water just reaches the top of that bank without overflowing it. Colonel Stiles referred to this point on the key bank as a bench mark. Stiles Article pp. 317.

► **Step (2):** At the elevation of the bench mark, the boundary line then follows the gradient (or rate of fall) of the flowing water in the river. It is helpful to imagine a plane lying at the bench-marked elevation that declines in elevation at the same rate as the fall of the flowing water in the river. The boundary line lies along the edge of that imaginary plane as the plane intersects banks and other features along the side of the river. *Id.*<sup>12</sup>

Colonel Stiles provided the following helpful illustration of the gradient boundary by focusing on the rare occasion when the water in the river will be flowing at the exact same elevation as the benchmark on the key bank:

When the surface of the flowing water in the river and the elevation of the boundary coincide, the boundary is on the ground at the feather-edge of the water, and stakes driven there will mark the perfect gradient and the perfect boundary—hence the name, “gradient boundary.”

Stiles Article p. 310. Stiles also summarized: “In short, the height and position of the gradient boundary are fixed by the bank of the river; the grade is fixed by the surface of the water in the river; and the course is fixed by the topography along the river.” *Id.* Accordingly, the actual level of the water in the river at any given time has no effect on the gradient boundary. The water establishes only the rate of fall of the boundary. The boundary’s elevation is fixed at the bench mark, which is the midpoint of the lowest qualified, or key, bank.

Step (1), locating the key bank, is the most difficult and demanding part of a gradient boundary survey. It requires training and experience beyond that of most land surveyors. As Colonel Stiles wrote:

Finding the one correct bank in the vicinity that locates the gradient boundary upon the ground is no casual undertaking. If this bank is wrong, the whole boundary is wrong on both sides of the river. Once established, the gradient boundary permits no subsequent “corrections” or “adjustments” in the line. The boundary is either right or it is wrong in the first instance, depending on the correctness of this one lowest bank which is the basis of the gradient boundary.

Stiles Article p. 315.

Stiles provided the following guidance for selecting the key bank:

The bank intended is water-washed and relatively permanent. \* \* \*

The bank being looked for is at the outer line of the river bed. In almost every case it is an accretion bank, and, although both sides of the river should be examined, it is seldom an erosion or “cut bank.” As a rule the bank will be found on the side of the river where accretion is generally in progress. Of any two banks otherwise equally fulfilling the requirements of the court, the lower bank must be accepted as correct. This series of positive eliminations lead but downward and ultimately to the lowest qualified bank in the vicinity, the bank being sought.

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<sup>12</sup>See *Brainard*, 12 S.W.3d at 26-27.

Stiles Article pp. 316-17.<sup>13</sup> One author has stated “the gradient boundary is a low boundary, giving a maximum amount of land to riparian owners and a minimum amount to the state.”<sup>14</sup> Flood banks are not proper banks for marking the gradient boundary. *Brainard*, 12 S.W.3d at 26.

To Stiles, gradient boundary surveying meant “hard work on foot on the river.” Stiles Article p. 316. Stiles taught that surveyors could find the key bank only by “close study in walking the banks, not by inspection from a distance, from the air, from across the river, or from a few isolated places most easily reached in an automobile.” *Id.* Stiles warned:

No intelligent idea of the river can be had from survey diagrams, aerial photographs, or contour sketches made from them and examined in some office. Such procedure results in superficial knowledge, false impressions, wrong conclusions, and bad work.

*Id.*

After the surveyor selects the key bank and marks the midpoint elevation (the “bench mark”), Stiles described the process for extending the gradient boundary up or down river as follows:

The level is the only surveying instrument with which the gradient boundary can be located upon the ground. The boundary line cannot be projected. It goes where the level leads; the surveyor follows. The level gives him little discretion and no choice in locating the boundary. To a marked degree, the correct location of the boundary is beyond surmise, doubt, approximation, or bias. Each stake set on the gradient boundary represents a separate operation in surveying. Every stake is independent of every other stake. Hence, there are no circuits to be closed, nothing to be balanced, and no random or trial lines to be run.

Stiles Article p. 311.

The elevation established by the surveyor’s level likely will encounter different topographical features as it is located along the river’s bank. Stiles wrote: “The boundary bank is an erosion bank here; an accretion bank there; and a transverse slope yonder. The boundary bank is determined by the relative height of the bank, not by its form, condition, or name.” Stiles Article p. 313; see *Brainard*, 12 S.W.3d at 26.

As the topography of the river changes from place to place, the surveyor may need to identify a closer key bank and determine again the river’s rate of fall. In *Oklahoma v. Texas*, the United States Supreme Court noted with approval that the gradients utilized by the boundary commissioners “were not unbroken lines arbitrarily projected from one end of the Big Bend Area [of the Red River] to the other, but were broken lines adjusted to prevailing levels in relatively short sections.” 265 U.S. at 497-98. Stiles’ article states that the gradient boundary should be located on one side of the river at a time. Stiles Article p. 320.

After the gradient boundary is staked at various points along the river, “the line may be meandered in the usual way with the usual instruments.” Stiles Article p. 320. The final judgment entered in *Brainard*, which the Texas Supreme Court affirmed as marking the correct gradient boundary, contained over sixty single-spaced pages of courses and distances along both sides of the Canadian River in the surveyed area.<sup>15</sup>

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<sup>13</sup>Stiles provides the heights of qualified banks and their midpoint “bench marks” for locations on several rivers. The banks range from 2.2 to 3.22 feet, with the benchmarks being at elevations half of the bank heights and therefore ranging from 1.1 to 1.6 feet. Stiles Article p. 317 n. 4.

<sup>14</sup>Kenneth Roberts, *supra* n. 4 at 310.

<sup>15</sup>See Final Judgment in Cause No. 6,354, filed April 1, 1996, in the 100<sup>th</sup> District Court, Collingsworth County, Texas.

