

Baytown's Brownwood Subdivision and the Problems of Subsidence, 1958 - 1996

Lora S. Hubbard

LEE COLLEGE

The city of Baytown, located some twenty-five miles east of Houston, Texas, on the upper shores of Galveston Bay, fought long and hard to find solutions to the Brownwood subdivision's problems of subsidence, inundation by high tides, and hurricanes. First recognized as a problem in the early 1960s, subsidence continued at a rapid pace, and services to the neighborhood, such as roads, water, and sewers, became more and more costly for the city to maintain. Brownwood became neglected due to the city's reluctance to "pour money down a black hole."¹ City records showed that homes flooded on a

consistent basis, but a few residents maintained that their homes flooded only during the major hurricanes like Hurricane Carla in 1961 and Hurricane Alicia in 1983. Residents who delighted in living by Burnett, Crystal, and Scott Bays, were unwilling to give up their homes even though they experienced recurring floods. Once thought of as the "silk stocking district" of Baytown, Brownwood residents fought hard to keep their community. In the late 1970s and early 1980s a transient population moved in to take advantage of cheap rental rates offered by owners who had given up trying to live there. Twenty-two years between major hurricanes left

In the beginning, Brownwood played a role in Texas history and, in the end, went in the historical records as a case study for the effects of subsidence.

most residents, like many people along the Gulf Coast, with a laissez-faire attitude; it took a catastrophic disaster, in the form of Hurricane Alicia, to finally bring an end to the long controversy over Brownwood. In the beginning, Brownwood played a role in Texas history and, in the end, went in the historical records as a case study for the effects of subsidence.

A historical spot in Texas long before it became an upper middle-class, resi-

dential neighborhood of about four hundred and forty-eight homes, Brownwood is located on a peninsula by Burnett, Crystal, and Scott Bays, opposite the San Jacinto Monument where Texas won its independence. Indians originally chose the land because of its access to water which provided a good source of food. In the early 19th century, Nathaniel Lynch selected this land in the Mexican Land Grant and John Rundell built the first home there in 1837. Today hundreds of

This photograph, taken shortly after Hurricane Alicia hit the upper Texas coast in August of 1983, offers mute testimony to the wide spread destruction to be found in Baytown's Brownwood subdivision.

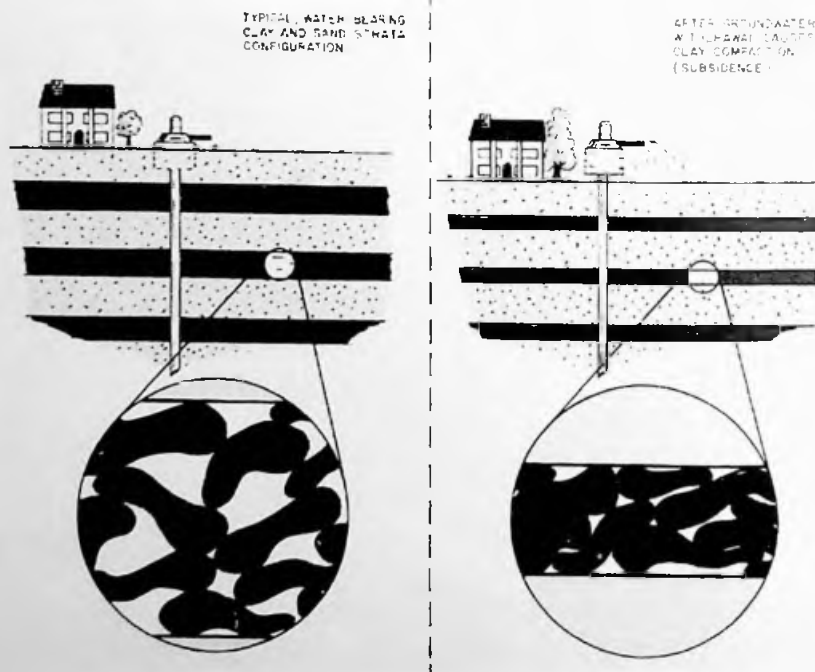
PHOTO COURTESY OF THE AUTHOR



acres of land, including some of Texas' most historic and valuable lands, have been permanently and irreversibly lost due to subsidence.²

Resulting from the heavy removal of oil and ground water, subsidence is defined as the sinking of the land surface. This natural action causes the numerous clay layers in the aquifer underlying the area to compact or "squeeze like a sponge" permanently and irreversibly (See Table, pages 38 & 39). People soon recognized the phenomenon of subsidence and began research on its causes. In August 1958, Mr. Eddie Gray submitted an extensive study on subsidence in the Baytown-LaPorte area as his thesis for a Master of Science Degree from Texas A&M University. Gray cites four causes for the rate of subsidence during the period between 1918 and 1958: "(a) pump-

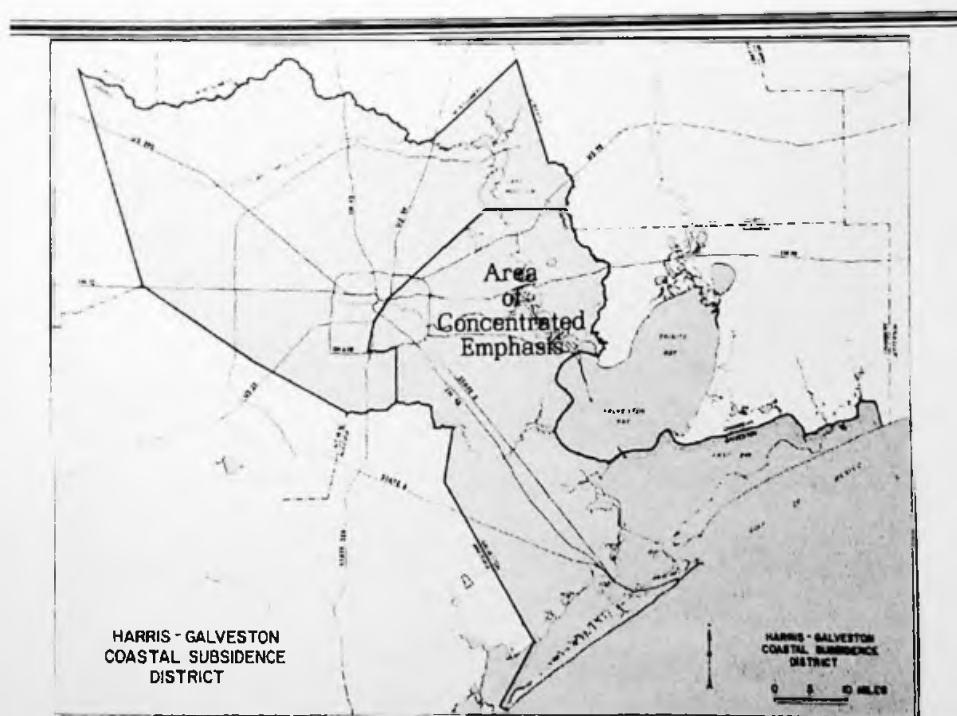
ing of water for industrial and domestic use; (b) pumping of oil, gas, water, and some sand (in early development of the field) from the Goose Creek oil field; (c) natural geologic forces causing the strata to compact and tilt toward the Gulf of Mexico; and (d) apparent subsidence resulting from a slow rise in sea-level." He dismisses the last two causes and goes on to state that, "[b]ecause of the very small amount of subsidence that would occur during the short time interval being studied, these two causes are not considered further in this thesis," and in conclusion states, "[t]he author believes that the large withdrawals of ground water from the Houston-Galveston region and more specifically from the Baytown-LaPorte area have caused most of the observed surface subsidence and surface faulting."³ The high demand for ground water between



The Houston Engineering and Scientific Society tracked the historical progression of subsidence in Brownwood and found that in 1943 subsidence levels had been about 1 1/2 feet; by 1983 this figure reached 8 to 10 feet.

1950 and 1980, due to area population growth and the needs of the petrochemical industries along the banks of the ship channel, continued for years. The Houston Engineering and Scientific Society tracked the historical progression of subsidence in Brownwood and found that in 1943 subsidence levels had been about one-and-a-half feet; by 1983 this figure reached eight to ten feet. The first significant assault was in 1961, when Hurricane Carla with its eighteen foot tidal surge, nearly demolished Brownwood. Four

hundred damaged or destroyed homes accounted for over \$7 million in property loss. Over the next two decades Brownwood continually undermined by subsidence sank more than eight feet. High tides or high winds meant flooding, and pumps worked continually to drain the water that flowed inside the "bowl." In July of 1972, the Civil Defense issued an evacuation warning to Brownwood residents because of high tides, and the Baytown City Council decided it was time to raise the elevation of the perimeter road



so that it would serve as a dike. The perimeter road, raised to about five feet, acted as a levee around much of Brownwood, but this action did not keep people from staying on or moving into the area. At this time, the city attempted the first buyout.⁴

Former U.S. Senator Lloyd Bentsen and former U.S. Representative Bob Eckhardt introduced legislation in 1974 to relocate the residents of about 400 of the most flood-prone homes and to turn the area into a federal park. The talk of turning Brownwood into a federal, state, or city park, would continue over the next ten years. Bentsen and Eckhardt wrestled

their multi-million dollar relocation bill through Congress, only to see it defeated by Baytown voters in the bond election of July 1979. Desperate for a solution, the Baytown City Council called for another bond election for the buyout in January 1980. Once again, the bond issue failed. The proposal would have raised \$7.6 million—the city's twenty percent—needed to help finance a U.S. Army Corps of Engineers project, with the federal government to pay the remaining eighty percent, at a cost of \$30.4 million. Concerned that two council members were property owners in Brownwood, the opponents to the bond issue perceived a conflict of inter-

The devastation left by Hurricane Alicia convinced many in Baytown that the Brownwood subdivision was beyond salvation.

PHOTO COURTESY OF THE AUTHOR



... people bought most of the properties at bargain prices after Hurricane Carla and knew they were buying trouble.

est. Steve Hebert, the most outspoken of the opponents, stated that people bought most of the properties at bargain prices after Hurricane Carla and knew they were buying trouble. The 1979 and 1980 bond issues, designed to save the government money in the cost of recurring flood insurance losses, proposed to save millions of dollars. Finally in June 1981, voters approved a bond issue. It provided \$1.1 million to improve sewer lines in the Brownwood area.⁵

In 1981, with the help from a new water treatment plant, Baytown finally acted to halt subsidence by switching from ground water withdrawal to surface water. Baytown reduced the pumping of ground water by 78.6 percent; this action, however, did not stop the weather. In August 1983, Hurricane Alicia destroyed about 300 homes in Brownwood. Alicia slammed into the Galveston area putting

Baytown on the Northeast or "dirty" side of the hurricane. Alicia packed sustained winds of ninety-six mph, with gusts of up to 127 mph. A ten-and-a-half foot tidal surge put water over the rooftops of most homes. In the wake of Alicia, debris and abandoned cars lay everywhere. Numerous homes ripped apart by high waters sat precariously, while only concrete foundations remained of others (See Photos, pages 37 & 40). These developments served as the last straw for city officials, who had done the best they knew how by supporting the relocation plan and curtailing usage of ground water. For more than twenty years, they fought Brownwood's problems; now it was time to prepare for the final confrontation between the residents and the city council.⁶

In September 1983, the city council passed a statute, called the Brownwood Ordinance, prohibiting the occupancy of Brownwood. City Manager Fritz Lanham announced that, "Due to the extent of damage and debris, raw sewage, dead fish, and contaminated water, our feeling is that quick action is needed to prohibit the reconstruction and habitation of structures in Brownwood."⁷ City Attorney Randy Strong stated that the city had broad legislative powers to protect public health and

FEMA offered homeowners . . . fair market value for land in the area less the amount paid by insurance on the homes. . . . Officials stressed that the amount offered homeowners "is not based on the replacement cost of the home, contents and land, but is the amount to which a knowledgeable buyer would agree to pay a seller after Hurricane Alicia."

safety. Baytown also could not afford to allow homeowners back into the subdivision or the entire city risked the loss of flood insurance certification.⁸

A buyout, offered by the Federal Emergency Management Agency (FEMA), gave residents of Brownwood a way out. FEMA offered homeowners, covered by National Flood Insurance, fair market value for land in the area less the amount paid by insurance on the homes. FEMA and the city of Baytown proposed to pay the remaining values of the properties. FEMA would pay eighty percent of the balance and the city of Baytown, the remaining twenty percent. Officials stressed that the amount offered homeowners "is not based on the replacement cost of the home, contents and land,

but is the amount to which a knowledgeable buyer would agree to pay a seller after Hurricane Alicia."⁹ Two-thirds of the residents took advantage of the offer in the amount of \$18 million. Still, seventy-nine homeowners held out. Some wanted to return to live in their homes, while others wanted a better price for their property. FEMA adamantly stated that the homes in the area, if rebuilt, would have to be sixteen feet above the ground in order to comply with federal regulations. City officials then developed a plan that would finally clean up the subdivision.¹⁰

The plan called for Baytown to acquire the remaining property and convert Brownwood into a multi-use leisure and recreational park. Opponents expressed concerns that if the area became a park it

The water damage line in this home in the Brownwood section of Baytown bears silent but compelling witness to the awesomeness of Hurricane Carla's flood tides.

PHOTO COURTESY OF THE BAYTOWN MUSEUM



would become a haven for “robbers, rapists and drug dealers” and it would be too costly. Prior to implementation, several lawsuits filed by the hold-out residents of Brownwood confronted the city of Baytown. Some residents claimed that they would fight city hall and live without flood insurance, if that were necessary to rebuild hurricane-damaged homes and avoid selling their property to the federal government at the offered price. In September 1983 twenty-five ex-Brownwood residents, banded together as “Wooster Township for Fair Equality,” filed a lawsuit against the city. The group decided to use the name “Wooster Township” to avoid negative connotations associated with “Brownwood.” They also said they did not want their group confused with the Brownwood Civic Association, which since the 1970s, had worked closely with the U.S. Army Corps of Engineers on a project to evacuate and relocate residents. Organizer of the movement, Roxanne Gillum, who owned three houses and four lots in Brownwood, made several suggestions concerning how the residents could continue to live in Brownwood. One was that the city could de-annex the subdivision, and residents could buy bottled water for drinking and cooking. In addition, residents would pay

for and install a desalinization plant for other water needs. Mrs. Gillum also stated that residents could install septic tanks for sewage. She did not, however, suggest sources for electricity, telephone service, or the maintenance of roads and pumps used to remove water collected in the “bowl.” The controversy continued over the Brownwood Ordinance while the residents began filing lawsuits against the city of Baytown.¹¹

On March 1, 1988, a case involving the Brownwood property owners centered on whether the city of Baytown had “deprived the landowners of the use of their property.”¹² The original “Brownwood Ordinance” passed in 1983 was rescinded in December, 1984. When Baytown did not restore water and sewer service to Brownwood homes, most property owners moved elsewhere. The suit claimed that the Brownwood Ordinance resulted in the taking of the plaintiff’s properties through “inverse condemnation.” Mrs. Gillum stated at the trial, that her home at 128 Bayshore Drive flooded during Hurricane Carla and in Hurricane Alicia, but at no other time to her knowledge. Yet, Fletcher Hickerson, Baytown’s Emergency Management Coordinator, testified that his records showed that Brownwood had twenty-six entries in his log pertaining to

Studies done on the old Brownwood subdivision revealed that the area . . . was worth turning into a nature center. The park would include active and passive recreational facilities, while, limiting access in some areas to protect wildlife such as cranes, herons, ducks and geese.

flooding and/or evacuation. Testimony involved several requests for restoration of water and sewage services to homes still standing. The city denied these requests for services because, as Lanham testified, "It would be an imprudent use of public money to install a new sewer and water system in Brownwood."¹³ Lanham contended that a new sewer and water system would serve a very small number of homes which the next hurricane could destroy. In 1983, city officials estimated it would cost \$4.5 million to

include active and passive recreational facilities, while, limiting access in some areas to protect wildlife such as cranes, herons, ducks and geese. While the city owns ninety-seven percent of all property in Brownwood, development of ten acres, either in one block or in small parcels, was all that was under consideration. In March 1995, the Baytown Nature Center received a big boost from the French Limited Company, owned in part by Arco. Arco, shown responsible for much of the dumping of industrial wastes at a disposal site near

By waiting for a disaster to strike, the residents of Brownwood only prolonged the inevitable relocation. Brownwood had sunk too far to reverse the damages left by subsidence.

replace the sewer and water system; but Lanham noted that, "[i]n recent years, only between \$7 million and \$8 million have been allocated in the municipal budget for water and sewer system maintenance for the entire city."¹⁴ On March 11, 1988, Judge Felix Salazar, Jr., of the 157th District Court, declared a mistrial after a seven-woman, five-man jury deadlocked; all sides expressed disappointment over the outcome. In the end, Mrs. Gillum took a \$80,000 settlement for her properties in Brownwood, ending the long process of trials. Although the trials were over, Baytown had only begun to develop plans to turn Brownwood into a park.¹⁵

Studies done on the old Brownwood subdivision revealed that the area, considered a popular place for fishing, picnicking and nature watching, was worth turning into a nature center. The park would

Crosby, followed a mandate to restore marsh wetlands in the area of their choice. The Environmental Protection Agency required French Limited to spend a considerable amount of money in marsh remediation. French Limited, under the orders of the federal EPA to clean up wetland marsh damaged or destroyed over a number of years through disposal activities, was to provide the money for the services. All the dumping conducted there was legal at the time. French Limited chose Baytown Nature Center as its site.¹⁶

The focus of the work was to create a new wildlife habitat and improve the current one. In May 1995, the U.S. Fish and Wildlife Service proposed to help the city in cleaning and restoring areas of Brownwood, and contributed about \$50,000 in services, including demolition of houses, removal of slabs and driveways,

construction of a wave barrier, establishment of a one-acre marsh at San Jacinto Point, and placement of necessary signs and traffic barriers. The funds protected and enhanced coastal habitats used by migratory birds, endangered species, and wetland inhabitants. The land, which required re-grading for proper elevation, now allows adequate tidal exchanges. Tidal motion brings in nutrients necessary to help create a flourishing wetland. In June 1995, when two channels leading from Burnett Bay and Crystal Bay opened in order to flood the land, water gushed into the former Brownwood subdivision, creating thirty acres of high-quality wetlands. Another thirty acres that include islands developed within the wetlands provides dry places for small mammals and birds. There are frequent sightings of pelicans, osprey, deer, and small alligators since the creation of the wetlands. The wetland habitat is becoming "one of the most active fishing areas" due to the marsh grass planted to attract shrimp. Wayne Gray, Chairman of the City Parks Board, pointed out that marsh grass planted between the low and high tide levels creates a kind of nursery for fish to lay their eggs. "When the eggs hatch," he noted, "tiny fish will swim into Crystal and Burnett Bays and attract larger fish to the area."¹⁷

Baytown currently seeks a position in the proposed Galveston Bay Loop, a tourist trail following the highways around the bay, and highlighting the area's environmental, historical, and cultural resources. In recent years, birdwatching has become a tourist industry that could pump millions of dollars into the Baytown area. Since Baytown lies on the migratory route,

with prime birdwatching locations like the Baytown Nature Center, the city could benefit financially. Increasing dramatically over the last several years, nature tourism is becoming the fastest growing trend in the travel industry.¹⁸

Passage of the bond issues in 1979 and 1980 would have saved the city of Baytown and several federal agencies millions of dollars; subsequent evacuation and relocation would have been orderly and timely. By waiting for a disaster to strike, the residents of Brownwood only prolonged the inevitable relocation. Brownwood had sunk too far to reverse the damages left by subsidence. The National Flood Insurance paid countless claims to homeowners who suffered numerous property losses. Brownwood's controversy became a battle between the city of Baytown, federal agencies and the residents. The battle waged over money. Some residents collected more than their share of countless insurance claims and some lost everything they owned. Numerous residents, overburdened by reoccurring floods, sold their homes for a great loss. The city, on the other hand, struggled with the decision to keep maintaining the services for a neighborhood that drained the financial resources of the entire city's budget. The eventual decision made by the city of Baytown and FEMA to refuse to allow residents to return to their homes, represented the most sensible decision for all concerned. Although the residents had lived in a beautiful historical place for some forty years, it was best to let nature reclaim the land.

End Notes

1. Allan C. Kimball, "Brownwood's 23-Year Fight Isn't Over Yet," *Houston Post*, 27 August 1984.
2. Jean Sheppard, Interview by Sterling Municipal Library Staff, Oral History Tape No. 62, 15 September 1983; Vertical File: "Subsidence," Sterling Municipal Library, Baytown, Texas, Pamphlet: *Subsidence: Mortal Threat to Houston-Gulf Coast*, Robert B. Merrifield, Councilman, City of Nassau Bay, December, 1974.
3. Eddie Gray, "The Geology, Ground Water, and Surface Subsidence of the Baytown-LaPorte Area, Harris County, Texas" (M.S. thesis, Agricultural and Mechanical College of Texas, 1958).
4. *Burnett, Crystal, and Scott Bays and Vicinity, Baytown, Texas*, U.S. Army Engineer District, Galveston Corps of Engineers, Galveston, Texas, Vol. 1, January, 1975, 52; Michael J. Ellis, *The Hurricane Almanac*, Hurricane Publications, September, 1987, 91; Kimball, "Brownwood's 23-Year Fight Isn't Over Yet," *Houston Post*, 27 August 1984; Dick Stanley, "Sea-Ravaged Subdivision, Brownwood Section of Baytown Battles Rising Tides, Sinking Land," *Houston Post*, 29 January 1980; Vertical File, "Subsidence," Sterling Municipal Library, Baytown, Texas, Pamphlet: *Focus on Subsidence*, The Subsidence District, April, 1993; Pamphlet: *Texas Water Resources: Stop the Sinking*, Texas Water Resources Institute, June, 1988; Pamphlet: *Subsidence Update: 1983 in Review*, Harris-Galveston Coastal Subsidence District, February, 1984; Pamphlet: *Subsidence '85*, Harris-Galveston Coastal Subsidence District, February, 1985; Pamphlet: *The Slide Rule*, Houston Engineering & Scientific Society, February, 1973.
5. Kimball, "Brownwood's 23-Year Fight Isn't Over Yet," *Houston Post*, 27 August 1984; Metro Bureau, "Baytown Voters Again Reject Brownwood Area Bond Issue," *Houston Post*, 9 January 1980; Wanda Orton, "Baytown Voters Turn Down Brownwood Project Again," *Baytown Sun*, 9 January 1980; Orton, "Brownwood Election Opposition Surfaces," *Baytown Sun*, 21 December 1979; Orton, "\$24 Million in Bond Issues Pass," 10 June 1981; Vertical File, "Subsidence," Sterling Municipal Library, Baytown, Texas, Pamphlet: *External Costs of Land Subsidence in the Houston-Baytown Area*, John P. Warren, 1975.
6. Michael Ellis, *The Hurricane Almanac*, Hurricane Publications, September, 1987, 91; Ken Grissom, "Hurricane Alicia Makes Mark With An Orderly Devastation," *Houston Post*, 19 August 1983; Tupper Hill, "Alicia Causes Extensive Damage; 6 Die," *Houston Post*, 19 August 1983; Susan Humphrey, "Tides Reach Up To 10 1/2 Feet at Brownwood," *Baytown Sun*, 21 August 1983; Pamela Lewis, "Storm Gone But Effects Can Linger For Long Time," *Houston Post*, 19 August 1983; Lisa Ocker, "Almost Total Devastation: Brownwood Aftermath A Messy Scene," *Baytown Sun*, 19 August 1983; Ocker, "Baytonians Weather Alicia's Winds, Water," *Baytown Sun*, 21 August 1983; Vertical File, "Subsidence," Sterling Municipal Library, Baytown, Texas, Pamphlet: *Subsidence Update: Alicia Finishes Brownwood?*, Harris-Galveston Coastal Subsidence District, October, 1983.
7. Ocker, "City Council Issues Bans For Brownwood," *Baytown Sun*, 26 August 1983.
8. Ocker, "Brownwood Tops Council's Agenda," *Baytown Sun*, 24 August 1983; Ocker, "City Council Issues Bans For Brownwood," *Baytown Sun*, 26 August 1983.
9. Lisa Ocker and David Byford, "FEMA To Meet With Brownwood Residents," *Baytown Sun*, 24 August 1983.
10. Ocker and Byford, "FEMA To Meet With Brownwood Residents," *Baytown Sun*, 24 August 1983; Ocker, "Group May Hire Lawyer," *Baytown Sun*, 21 September 1983.

11. Ocker, "Group May Hire Lawyer," *Baytown Sun*, 21 September 1983.
 12. Bruce Guynn, "Brownwood Property Use Argued Today," *Baytown Sun*, 1 March 1988. Ocker and Byford, "FEMA To Meet With Brownwood Residents," *Baytown Sun*, 24 August 1983. Ocker "Group May Hire Lawyer," *Baytown Sun*, 21 September 1983; Ocker, "Residents Mull Lawsuit Against City," *Baytown Sun*, 14 September 1983.
 13. Louise Shaw, "Brownwood Not Safe for Habitation, Hickerson Testifies," *Baytown Sun*, 6 March 1988.
 14. Guynn, "Health Concerns Cited For Brownwood," *Baytown Sun*, 4 March 1988.
 15. Guynn, "Brownwood Mistrial Declared," *Baytown Sun*, 11 March 1988; Guynn, "Brownwood Property Use Argued Today," *Baytown Sun*, 1 March 1988; Guynn, "Dykes Describes Brownwood After Alicia," *Baytown Sun*, 8 March 1988; Guynn, "Health Concerns Cited For Brownwood," *Baytown Sun*, 4 March 1988; Guynn, "Jurors Deadlocked...Mistrial Possible In Brownwood Property Case," *Baytown Sun*, 10 March 1988; Guynn, "Repairs Were Goal, Brownwood Property Owners Testify," *Baytown Sun*, 5 March 1988; Guynn, "Roxanne Gillum Testifies About 'Dream House,'" *Baytown Sun*, 2 March 1988; Guynn, "Second Week of Brownwood Trial Testimony Begins Today," *Baytown Sun*, 7 March 1988; Glenn Lewis, "Baytown Expected to Buy Up to 80 Flood-Prone Lots," *Houston Post*, 3 July 1984; Shaw, "Brownwood Not Safe for Habitation, Hickerson Testifies," *Baytown Sun*, 6 March 1988.
 16. Jane Howard, "City Bond Study Group To Consider Nature Center," *Baytown Sun*, 17 December 1990; Howard, "Nature Center Wins \$1 million," *Baytown Sun*, 25 March 1994.
 17. Howard, "Feds To Aid Nature Center Project," *Baytown Sun*, 26 May 1994; Christian Messa, "Bay Waters Return To Former Subdivision," *Baytown Sun*, 20 June 1995; Messa, "Nature Center Imports Greenery," *Baytown Sun*, 27 July 1995; Messa, "Nature Center Plans Detailed," *Baytown Sun*, 9 February 1996; Quote from, Messa, "Nature Center Imports Greenery," *Baytown Sun*, 27 July 1995.
 18. Messa, "Baytown Looks For A Spot On The Birdwatching Honor Roll," *Baytown Sun*, 11 September 1995.
-