New Orleans Field Visit

31 August 2024 08:30

Location 1: Bonnet Carre Spillway

- Bonnet Carre Spillway story video
- Flood control projet
- Big Flood: 1927
- 100 mile leeves built at end of 1800
- Strong leeves werebuilt by 1926
- 1927 27000 sq miles
- Leeve break
- 30% water goes to chaplier river****?
- Intakes sediments through the spillways and is later hauled by excavators.
- 1.25millon cubic feet/sec
- No ships allowed to anchor when the gates are open
- U.S army court engineers operates the str.
- 7000 wooden pins ×1000$ each (pines, because they have perfect weight) above concrete structure. 12 hrs to pull them all out.

- Animals haru leeve ma marera aaira hunchan
- When the tidal surf comes from the lake side it'll go to the river.

Settlement below the sea level

2nd location

- Upto 15ft from sealevel along the river(leeves)
- 5ft below the sea level generally, away from the natural leeves
- The whole city is planned such that the canals drains water from the city to the sea
- During hurricane lake water got into the city through all the canals, but now it's safer as the canals are gated.
- During Katrina most of the engineering weekness were exposed.
- 20ft leeve of the 14ft deep canal at the easter part collapsed and breached causing all the area to flood with salty water causing the healthy marsh to die.

- Storm surge walls

Location 2: 17th street canal

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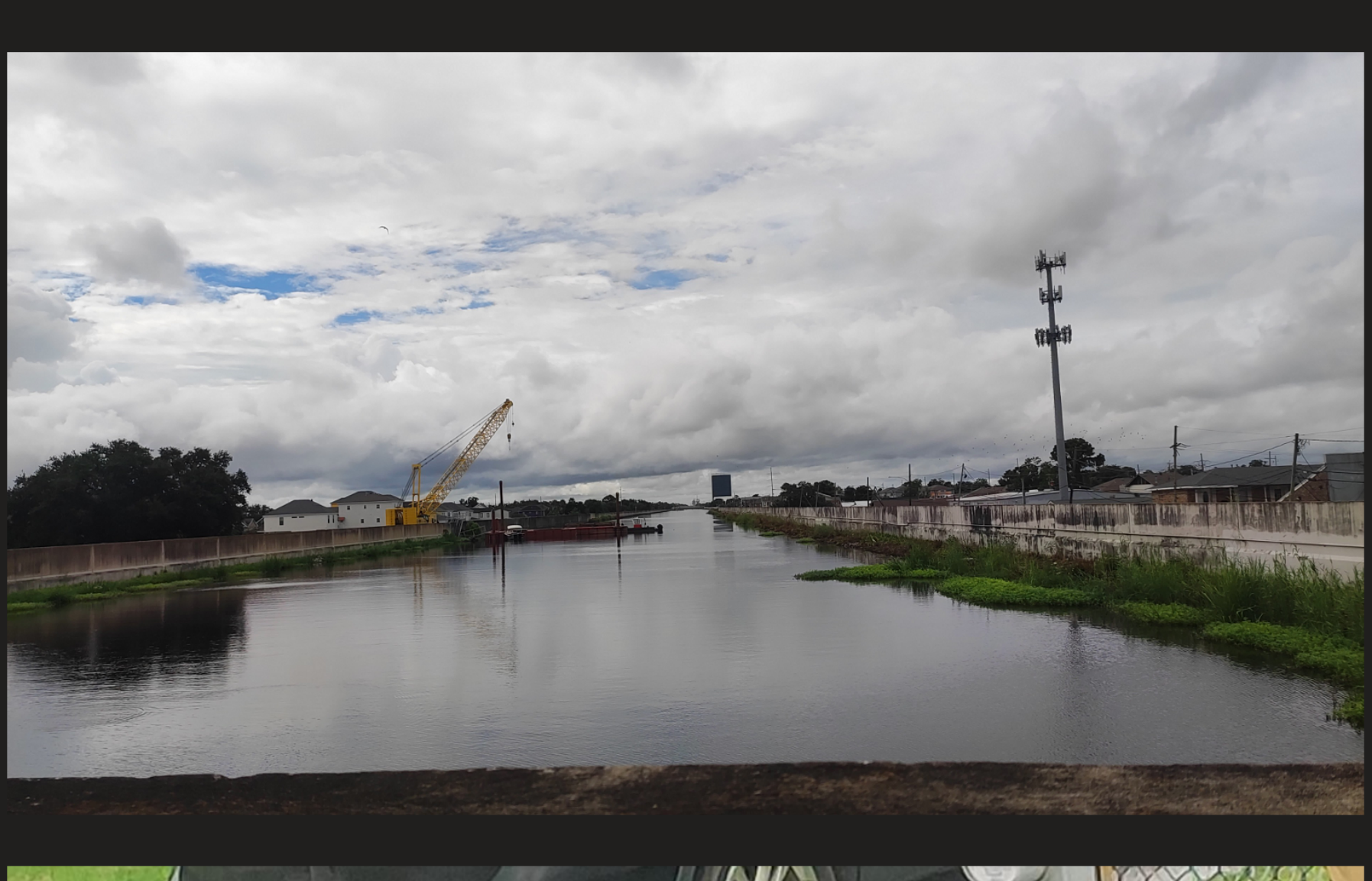
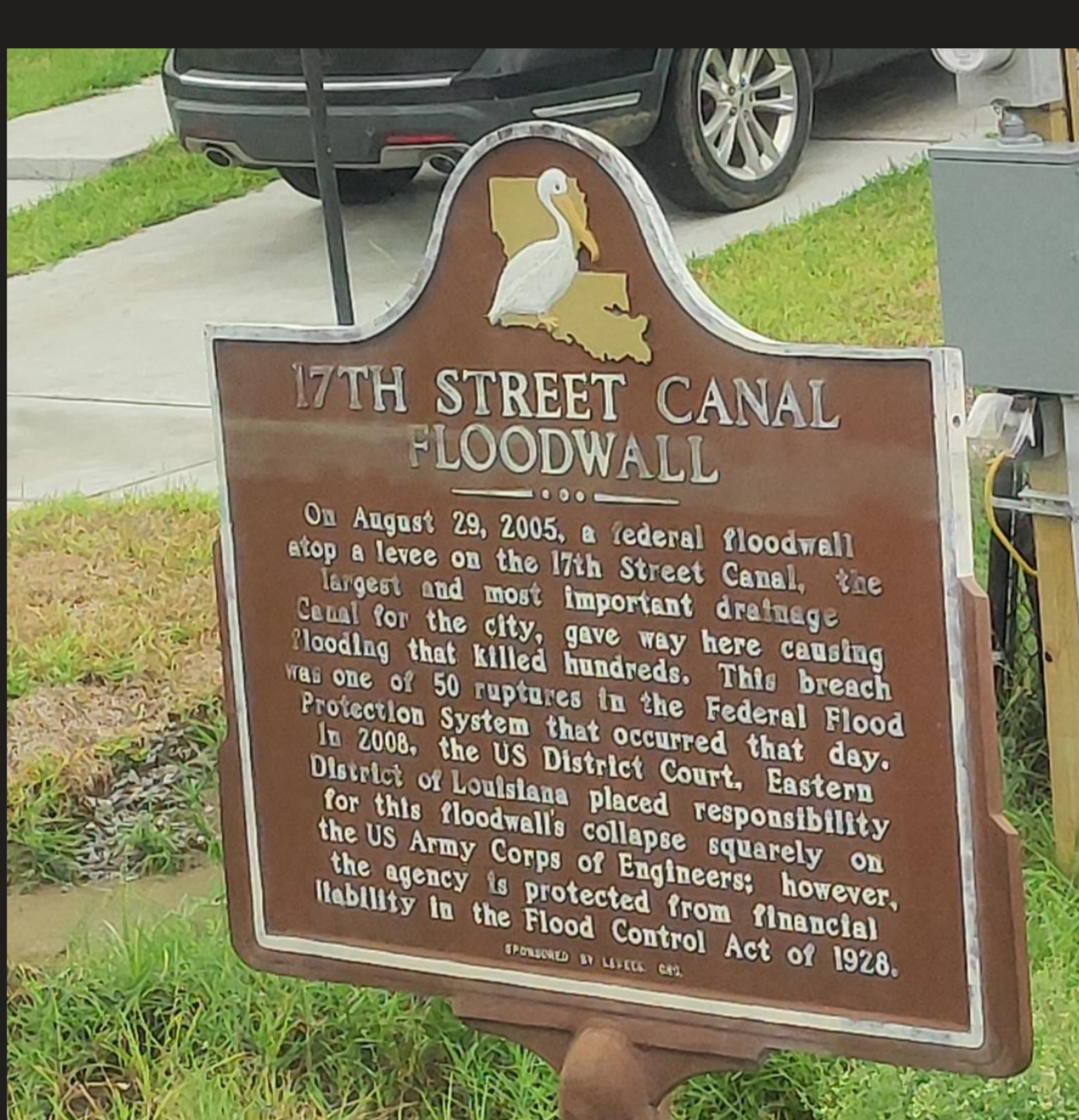
Settlements below the water level (sea level)





17TH STREET CANAL FLOODWALL

On August 29, 2005, a federal floodwall atop a levee on the 17th Street Canal, the largest and most important drainage Canal for the city, gave way here causing flooding that killed hundreds. This breach was one of 50 ruptures in the Federal Flood Protection System that occurred that day. In 2008, the US District Court, Eastern District of Louisiana placed responsibility for this floodwall's collapse squarely on the US Army Corps of Engineers; however, the agency is protected from financial liability in the Flood Control Act of 1928.

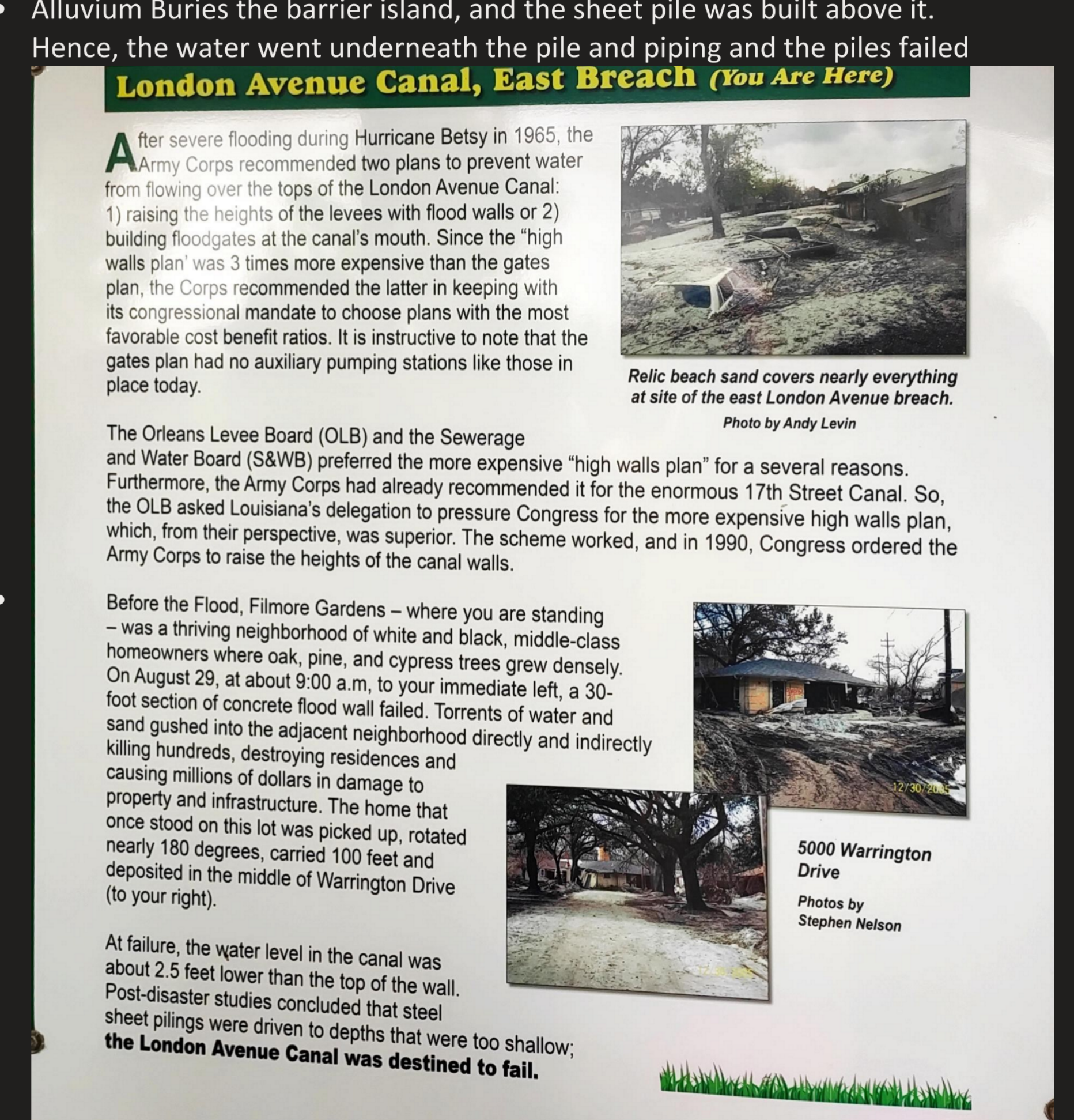
- Most of the land has subsided
- The land here is made out of peat and the lowering of GWT has let the peat to undergo settlement and hence the land is subsided--we can expect upto 90% volume reduction in peat soil)
- Houses made before has subsided and it is evident; however the new houses are not.

Location 3: City Park

- The hillock is made up of scraps from the canal
- Most of the water is remainant lf mississippi river.

Location 4: London Avenue Canal, West breach

- Alluvium Buries the barrier island, and the sheet pile was built above it. Hence, the water went underneath the pile and piping and the piles failed



London Avenue Canal, East Breach *(You Are Here)*

After severe flooding during Hurricane Betsy in 1965, the Army Corps recommended two plans to prevent water from flowing over the tops of the London Avenue Canal: 1) raising the heights of the levees with flood walls or 2) building floodgates at the canal's mouth. Since the "high walls plan' was 3 times more expensive than the gates plan, the Corps recommended the latter in keeping with its congressional mandate to choose plans with the most favorable cost benefit ratios. It is instructive to note that the gates plan had no auxiliary pumping stations like those in place today.

Relic beach sand covers nearly everything at site of the east London Avenue breach.

Photo by Andy Levin

The Orleans Levee Board (OLB) and the Sewerage and Water Board (S&WB) preferred the more expensive "high walls plan" for a several reasons. Furthermore, the Army Corps had already recommended it for the enormous 17th Street Canal. So, the OLB asked Louisiana's delegation to pressure Congress for the more expensive high walls plan, which, from their perspective, was superior. The scheme worked, and in 1990, Congress ordered the Army Corps to raise the heights of the canal walls.

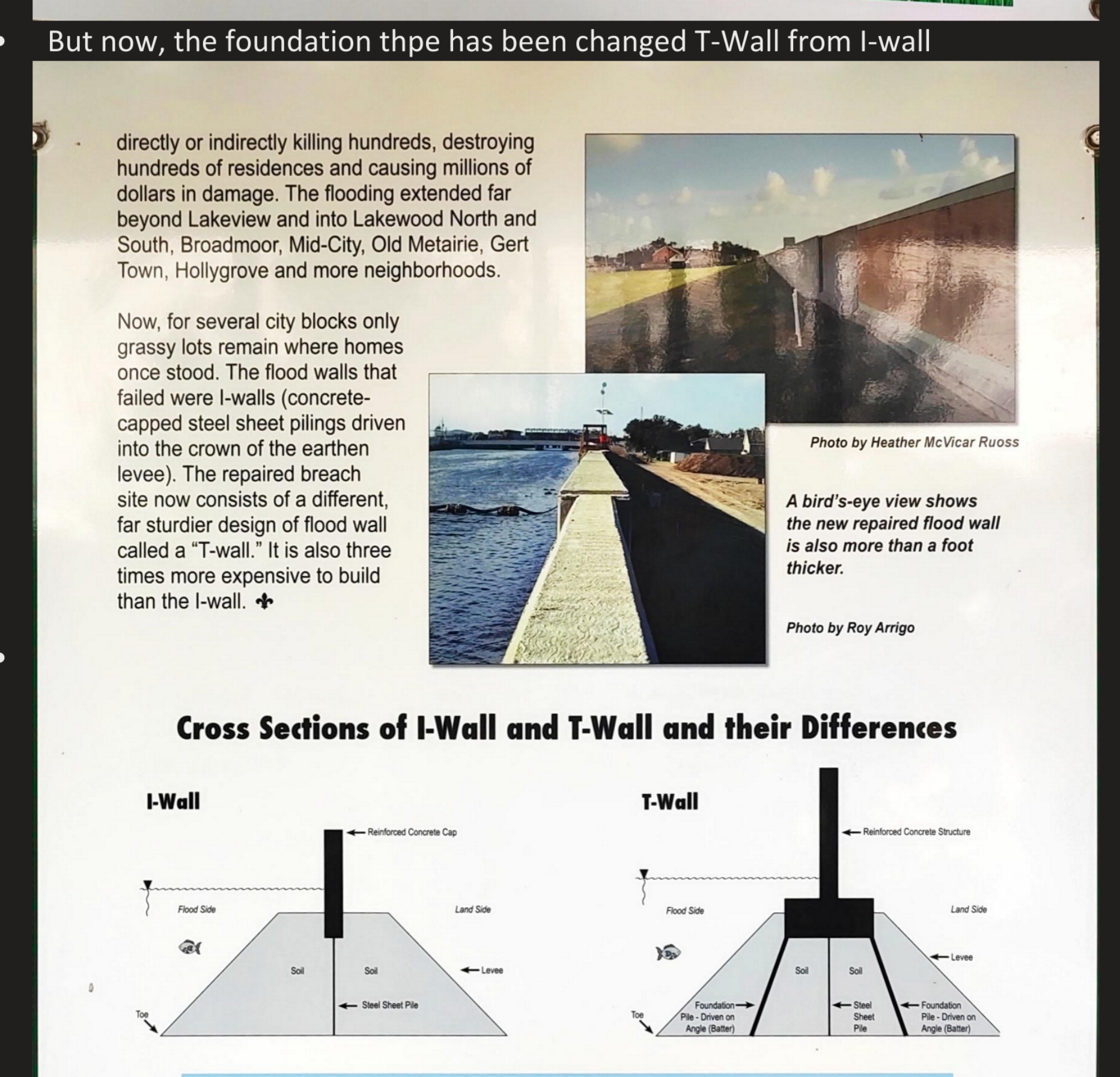
Before the Flood, Filmore Gardens – where you are standing – was a thriving neighborhood of white and black, middle-class homeowners where oak, pine, and cypress trees grew densely. On August 29, at about 9:00 a.m, to your immediate left, a 30-foot section of concrete flood wall failed. Torrents of water and sand gushed into the adjacent neighborhood directly and indirectly killing hundreds, destroying residences and causing millions of dollars in damage to property and infrastructure. The home that once stood on this lot was picked up, rotated nearly 180 degrees, carried 100 feet and deposited in the middle of Warrington Drive (to your right).

5000 Warrington Drive

Photos by Stephen Nelson

At failure, the water level in the canal was about 2.5 feet lower than the top of the wall. Post-disaster studies concluded that steel sheet pilings were driven to depths that were too shallow; **the London Avenue Canal was destined to fail.**

- But now, the foundation thpe has been changed T-Wall from I-wall



directly or indirectly killing hundreds, destroying hundreds of residences and causing millions of dollars in damage. The flooding extended far beyond Lakeview and into Lakewood North and South, Broadmoor, Mid-City, Old Metairie, Gert Town, Hollygrove and more neighborhoods.

Now, for several city blocks only grassy lots remain where homes once stood. The flood walls that failed were I-walls (concrete-capped steel sheet pilings driven into the crown of the earthen levee). The repaired breach site now consists of a different, far sturdier design of flood wall called a "T-wall." It is also three times more expensive to build than the I-wall. ✤

Photo by Heather McVicar Ruoss

A bird's-eye view shows the new repaired flood wall is also more than a foot thicker.

Photo by Roy Arrigo

Cross Sections of I-Wall and T-Wall and their Differences

The new T-wall can be easily differentiated because of its texture and color. The original I-walls were fire-blasted for more attractive design and painted pink. The T-wall is rough, unadorned concrete.

House that went through the flood

Location: 5

- Estuary with 2 openings in the east side to the Gulf of Mexico
- 5 rivers on the north drains here.
- It's a brakish lake
- Uniformly 14ft deep
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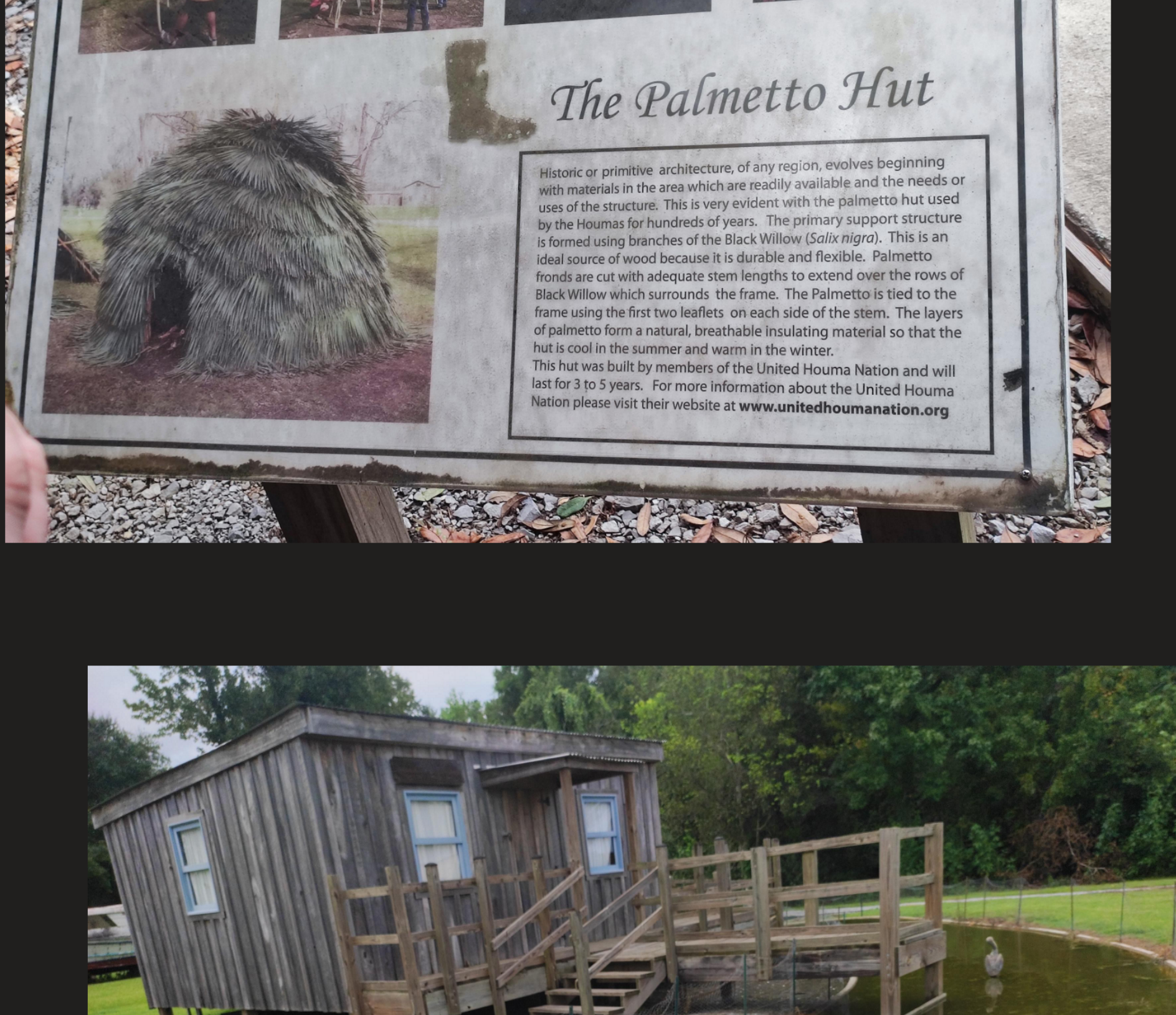
- It's a underutilized resource in the city
- In 1930's, the walls were built to break off the waves

Location: 6

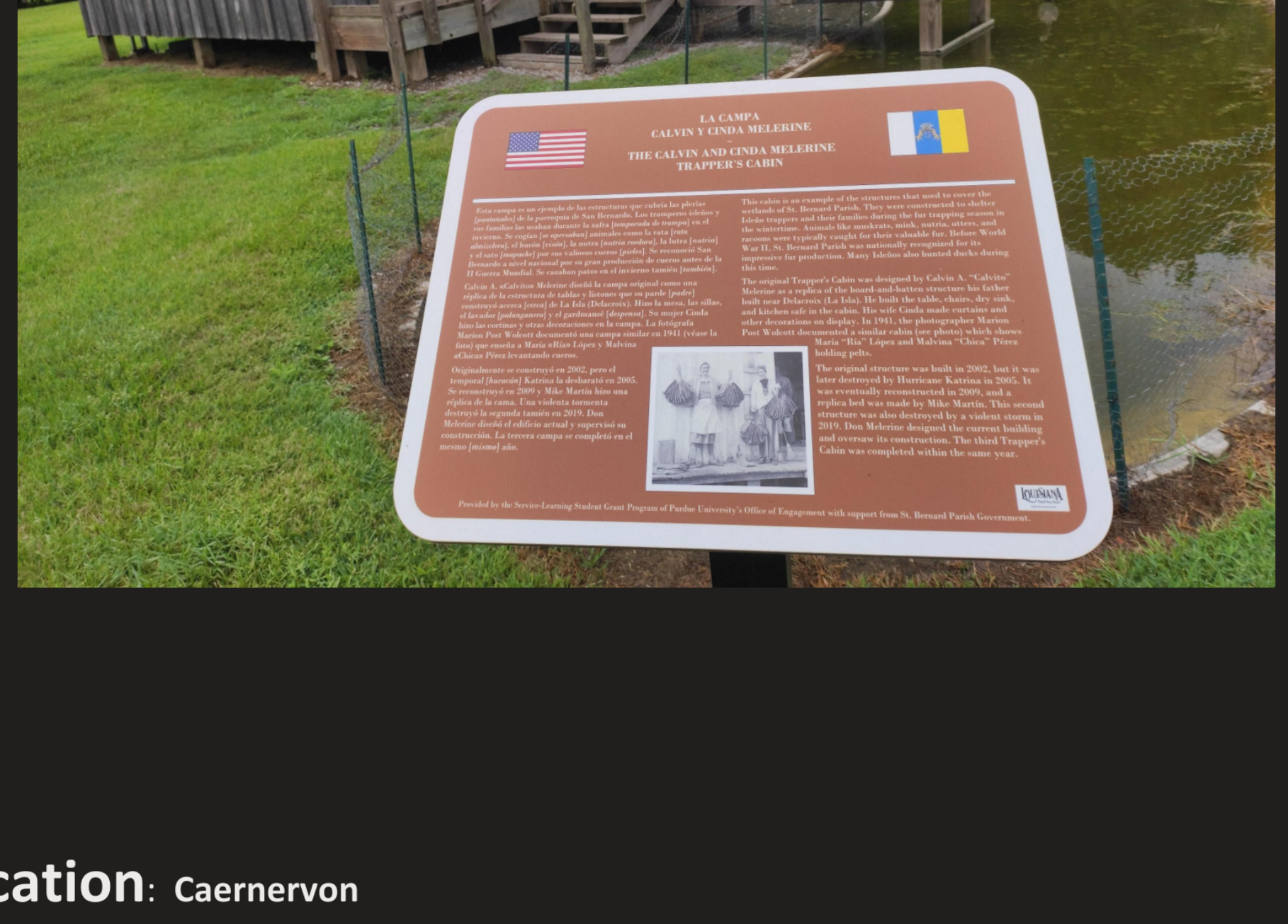
CYPRESS LOG



Early Mississippi River Delta Architecture

The Palmetto Hut

Historic or primitive architecture, of any region, evolves beginning with materials in the area which are readily available and the needs or uses of the structure. This is very evident with the palmetto hut used by the Houmas for hundreds of years. The primary support structure is formed using branches of the Black Willow (*Salix nigra*). This is an ideal source of wood because it is durable and flexible. Palmetto fronds are cut with adequate stem lengths to extend over the rows of Black Willow which surrounds the frame. The Palmetto is tied to the frame using the first two leaflets on each side of the stem. The layers of palmetto form a natural, breathable insulating material so that the hut is cool in the summer and warm in the winter.
This hut was built by members of the United Houma Nation and will last for 3 to 5 years. For more information about the United Houma Nation please visit their website at **www.unitedhoumanation.org**



LA CAMPA
CALVIN Y CINDA MELERINE
THE CALVIN AND CINDA MELERINE
TRAPPER'S CABIN

This cabin is an example of the structures that used to cover the wetlands of St. Bernard Parish. They were constructed to shelter Isleño trappers and their families during the fur trapping season in the wintertime. Animals like muskrats, mink, nutria, otters, and racoons were typically caught for their valuable fur. Before World War II, St. Bernard Parish was nationally recognized for its impressive fur production. Many Isleños also hunted ducks during this time.

The original Trapper's Cabin was designed by Calvin A. "Calvito" Melerine as a replica of the board-and-batten structure his father built near Delacroix (La Isla). He built the table, chairs, dry sink, and kitchen safe in the cabin. His wife Cinda made curtains and other decorations on display. In 1941, the photographer Marion Post Wolcott documented a similar cabin (see photo) which shows María "Ría" López and Malvina "Chica" Pérez holding pelts.

The original structure was built in 2002, but it was later destroyed by Hurricane Katrina in 2005. It was eventually reconstructed in 2009, and a replica bed was made by Mike Martin. This second structure was also destroyed by a violent storm in 2019. Don Melerine designed the current building and oversaw its construction. The third Trapper's Cabin was completed within the same year.

Provided by the Service-Learning Student Grant Program of Purdue University's Office of Engagement with support from St. Bernard Parish Government.

Location: Caernervon

- Mississippi river has many distributary channels and was working naturally but after the human intervention the leeves system started breaching.....
- This location is the fresh water diversion to provide nutrients to the marsh ecosystem and ecology; however, because of this the oysters farms didn't flourish, instead they depleted. Furthermore these water, coming from the river from the north, is bringing all the agricultural chemicals to the delta and this is very harmful for the ecosystem.
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- CPRA (coastal protection and restoration agency): sediment diversions built down the mississippi river.