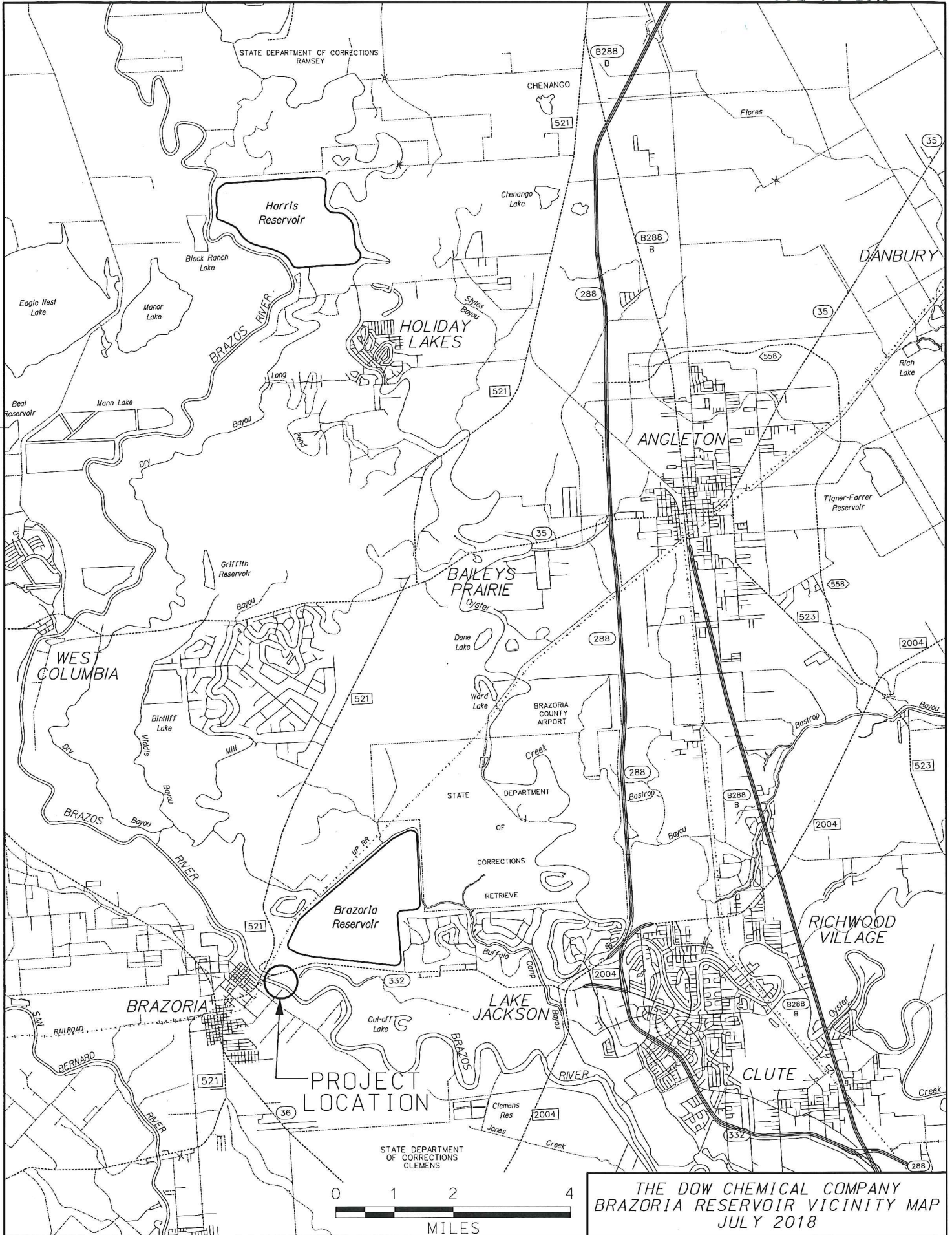


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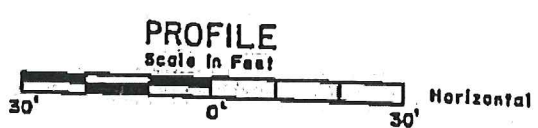
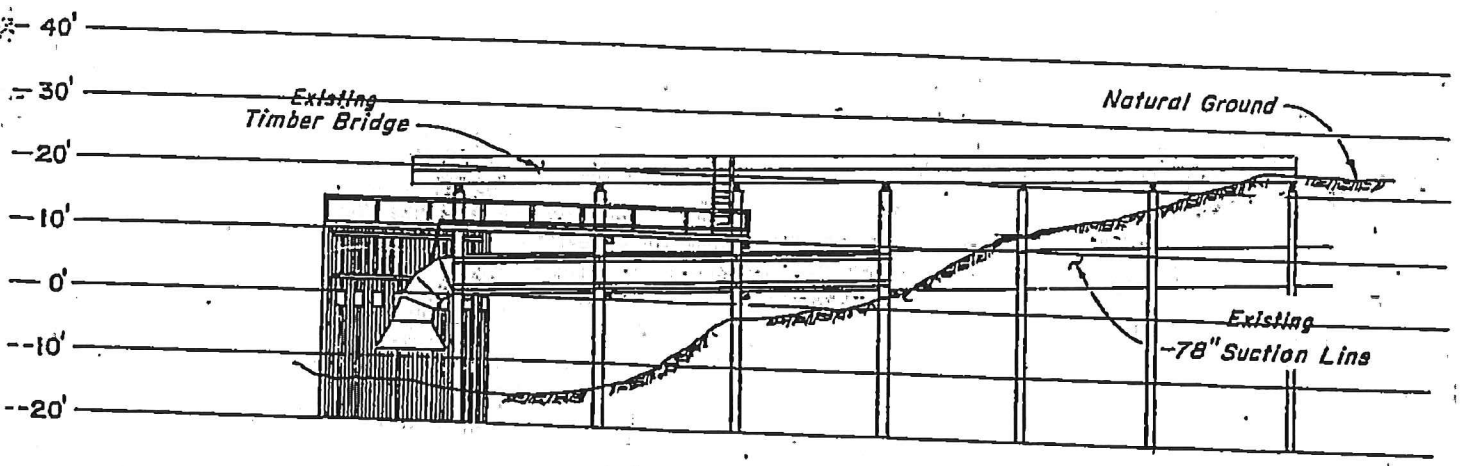
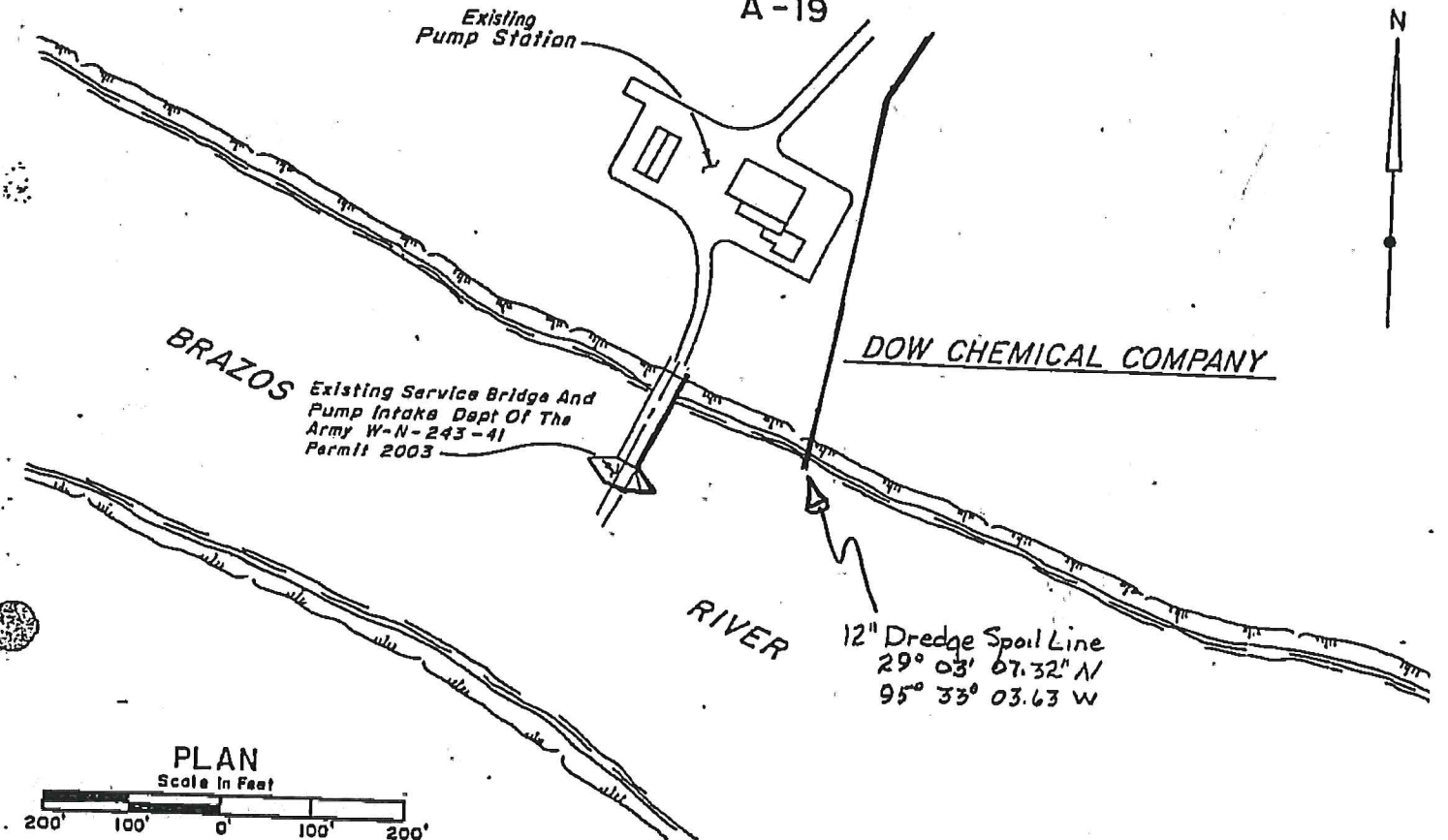


THE DOW CHEMICAL COMPANY  
 BRAZORIA RESERVOIR VICINITY MAP  
 JULY 2018

JUL 19 2018

# BRAZORIA COUNTY, TEXAS

## STEPHEN F. AUSTIN A-19



UPDATED: 7-16-18

PROPOSED DISCHARGE IN BRAZOS RIVE  
DETAIL MAP  
BRAZORIA COUNTY, TEXAS



JUL 19 2018

**Proposed Dredging Project for Brazoria Reservoir****1. Background**

This permit renewal request is to allow dredging and discharge to the Brazos River of sediment from the Brazoria Reservoir sedimentation basin. A 12-inch pipeline was constructed and installed under the USACE Permit 17698 and has been used to discharge dredged materials. Since 1986, a long history of dredging under USACE Permit Number 17698(1-5) has occurred. The sediment dredging is required to maintain storage capacity in the reservoir. The sediment has been accumulated over time when water from the Brazos River is pumped into the reservoir for use at the Dow facility near Freeport, other industrial facilities in the Brazosport area and surrounding communities that are served by another user, the Brazosport Water Authority. No chemicals or additives are used in the reservoir.

**2. Sediment Removal**

Dow proposes to use a portable dredge to remove sediment from the basin. The size of the dredge will be determined by the contract dredge company based on equipment availability. Sediment removal projects are needed about once every 5 to 10 years, depending on the amount of sediment carried by the river.

**3. Rate of Sediment Discharge**

The amount of sediment to be discharged each week will be determined by the daily river level and the total river suspended load during the previous week. The discharge increment into the river will be set according to the following formula:

$$X = 0.03(T)$$

Where X = allowable sediment discharge for the current week in tons.

T = previous weeks' total river suspended load in tons.

According to the USGS (United States Geographical Survey), the river is carrying the most load of suspended solids during the rainy months of spring and fall. The most productive time to dredge would be in April, May or June. When the river is carrying higher flows and three percent additional sediment would not add stress to the system. The river has been reported to have a naturally occurring silt load variation of almost 600 percent from one month to another (USGS). As a contingency, Dow plans to review the river level and will not discharge when the river level is below 70 percent of the previous week's average level.

**4. Point of Discharge into the River**

Sediment discharge into the river will be located such that it will enter the silt load carried near the river bank.

**5. Monitoring and Recordkeeping**

Records will be kept of daily measurements of river level and suspended solids percentage. Sediment discharge rates will be determined by comparison of characteristic pump curves with operational head data. Log sheets will be kept to record actual dredge operation times. All calculations and measurements will be kept on file in accordance with Dow's records retention guidelines and any agency requirements.

**6. Historical dredging at Brazoria, 2001 – 105,520- 168,000 CY. The original dredging was January through June 1987 with a total of 463,678 CY. No other historical dredging data were found due to Dow's record retention guidelines.****7. The updated project plan is to dredge and to discharge from 100K-300K cubic yards (CY) of sediment.**