USCG

FINDING OF NO SIGNIFICANT IMPACT

FOR

GALVESTON CAUSEWAY RAILROAD BRIDGE ALTERATION ACROSS
THE GULF INTRACOASTAL WATERWAY
GALVESTON COUNTY, TEXAS

This action has been thoroughly reviewed by the Coast Guard, and it has been determined, by the undersigned, that this project will have no significant effect on the human environment.

This Finding of No Significant Impact (FONSI) is based on the attached contractor prepared Environmental Assessment (EA), which has been independently evaluated by the Coast Guard and determined to adequately and accurately discuss the environmental issues and impacts of the proposed action and provides sufficient evidence and analysis for determining that an Environmental Impact Statement is not required. The Coast Guard takes full responsibility for the accuracy, scope and content of the attached Environmental Assessment

7/9/09		Bridge Management Specialist
Date	Environmental Reviewer	Title/Position

I have considered the information contained in the EA, which is the basis for this FONSI. Based on the information in the EA and this FONSI document, I agree that the proposed action as described above, and in the EA, will have no significant impact on the environment

7/13/09		Administrator, Bridge Program
Date	Responsible Official	Title/Position

United States Coast Guard

ENVIRONMENTAL ASSESSMENT

for

Galveston Causeway Railroad Bridge Alteration Across the Gulf Intracoastal Waterway in Galveston County, Texas

This USCG environmental assessment was prepared in accordance with Commandant's Manual Instruction M16475.1D and is in Compliance with the National Environmental Policy Act of 1969 (P.L. 91-190) and the Council of Environmental Quality Regulations dated 28 November 1978 (40 CFR Parts 1500-1508). It includes a consideration of impacts to historic properties pursuant to Section 106 of the National Historic Preservation Act, and impacts to public lands pursuant to Section 4(f) of the Department of Transportation Act.

This environmental assessment serves as a concise public document to briefly provide sufficient evidence and analysis for determining the need to prepare an environmental impact statement or a finding of no significant impact.

This environmental assessment concisely describes the proposed action, the need for the proposal, the alternatives, and the environmental impacts of the proposal and alternatives. This environmental assessment also contains a comparative analysis of the action and alternatives, a statement of the environmental significance of the preferred alternative, and a list of the agencies and persons consulted during EA preparation.

Date	*Preparer/Environmental Project Manager	Title/Position
6-23-09	William R Stoddard	URS Corporation Project Manager
7/9/09	**Environmental Reviewer	Bridge Management Specialist

In reaching my decision/recommendation on the USCG's proposed action, I have considered the information contained in this EA on the potential environmental impacts.

Date	Responsible Official	Title/Position
7/13/09	Hala Elgaaly	Administrator, Bridge Program

URS

GALVESTON CAUSEWAY RAILROAD BRIDGE ALTERATION ACROSS THE GULF INTRACOASTAL WATERWAY GALVESTON COUNTY, TEXAS

Final

ENVIRONMENTAL ASSESSMENT

Submitted Pursuant to:
Section 102(C) of the National Environmental Policy Act
Section 106 of the National Historic Preservation Act

Commandant, United States Coast Guard
Bridge Administration Division
2100 Second Street, S.W.
Washington, DC 20593-7581

June 2009

URS

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1.0 PURPOSE AND NEED FOR THE PROPOSED ACTION

This environmental assessment (EA) evaluates the potential for social, economic, and environmental impacts resulting from a United States Coast Guard (USCG) requirement to replace the Galveston Causeway Railroad Bridge in Galveston County, Texas. This assessment includes a consideration of impacts on historic properties under Section 106 of the Historic Preservation Act.

The Galveston Causeway Railroad Bridge crosses Galveston Bay from Virginia Point on the Texas mainland to Galveston Island (Figure 1). The causeway includes a rolling bascule bridge which is raised to allow for boat and barge traffic to pass under the causeway in the Gulf Intracoastal Waterway (GIWW). The existing bridge provides only 109.25 feet of horizontal clearance across the GIWW (Figure 2). Transit under this bridge is very treacherous and difficult when wind and tide coincide to interfere with safe steering. The Galveston Causeway Railroad Bridge has been identified by the USCG as the most difficult and dangerous bridge on the GIWW, citing ninety-nine reported allisions between commercial vessels and the causeway bridge between 1991 and 1999. The unsafe conditions of the bridge were emphasized as recently as January 2005 when a shrimp boat got its nets caught on the fendering system, capsizing the boat. Currents swamped the vessel, and one person was killed.

As a result of unsafe conditions, and in consensus with commercial waterway operators, the USCG determined the bridge to be an unreasonable obstruction to navigation pursuant to the Truman-Hobbs Act, (33 U.S.C. 511-523), and on June 18, 2001, the Commandant of the Coast Guard issued an Order to Alter (Appendix A) directing Galveston County to construct a new vertical lift bridge over the GIWW at mile 357.2. The order required the new bridge to have a minimum unobstructed horizontal clearance of 300 feet measured normal to the channel and a minimum of 73 feet vertical clearance above mean high water in the open position and 8 feet above mean high water in the closed position. Galveston County will be required to pay all local sponsor costs for bridge reconstruction. The U. S. government's participation in the cost of the project will be limited to approximately 98% for the design stage and to altering only those portions of the bridge necessary to remove the obstruction to navigation. Congress initially appropriated approximately $1.5 million to fund the alteration of the bridge and has added to the funding each year, such that current appropriated funds approximate $30,000,000.

2.0 VESSEL TRAFFIC CHARACTERISTICS

2.1 Sources of Vessel and Traffic Data

The Modjeski and Masters *Vessel Collision Risk Assessment with Truncated Fender System* Report from January 2006 provides the following vessel type and traffic data. Vessel traffic and navigation data was obtained from several sources that include the U.S. Army Corps of Engineers (COE), U.S. Coast Guard, the railroad bridge operator and vessel operator associations. A site-specific traffic past-the-point analysis was performed by the Waterborne Commerce Statistics Center (WCSC) of the COE at the location of the bridge at Modjeski and Master's request. The vessel traffic and commodity data published by COE in the *U.S. Army Corps of Engineers Waterborne Commerce Statistics Center Report: Part 3 – Waterways and Harbors on the Great Lakes* includes information on the freight tonnage by commodity and on number of vessel trips by direction of traffic, vessel type and actual draft for the section of the GIWW extending from Galveston to Corpus Christi, TX. The data generated by a past-the-point analysis at a specific location is more accurate and includes more detailed information such as barge sizes. The data from the various sources were related and used to verify and complement each other.

2.2 Commodities Carried

The majority of commodities transported by barge through the Galveston Causeway Bridges consist of petrochemicals. The COE Waterborne Commerce Statistics data for 2003, for example, indicates that out of 28.4 million tons transported between Galveston and Corpus Christi, TX, 11.7 million tons were petroleum and petroleum products and about 11.4 million tons were chemicals and related products. The total freight between Galveston and Corpus Christi, TX from 1984 to 2003 is shown in Table 1.

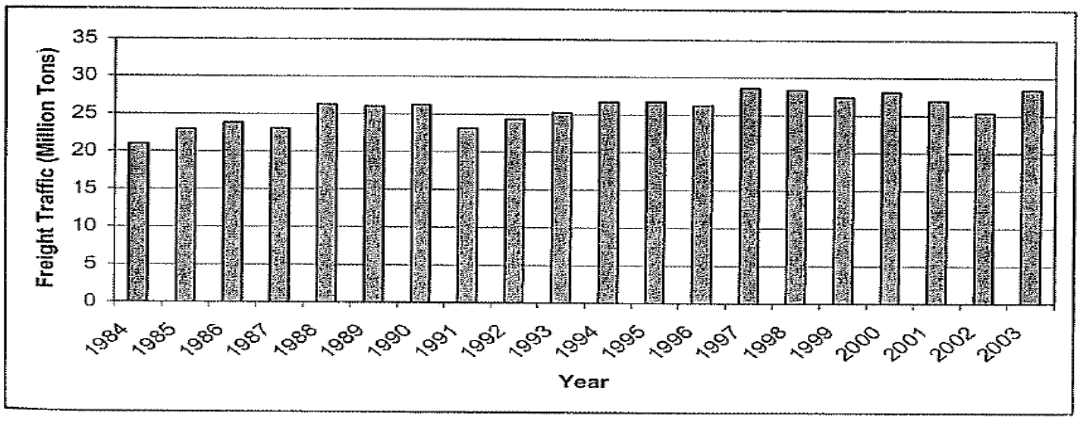


Table 1. Total Freight Traffic between Galveston and Corpus Christi, TX from 1984 to 2003 based on COE Waterborne Commerce Statistics Center Publications

The data in Table 1 shows an increasing trend in traffic until 1997 when it seems to level off.

2.3 Vessel Characteristics

The main types of traffic through the bridge include commercial and recreational vessels. The commercial traffic consists of hopper and tanker barge tows, shrimp boats, and other marine equipment. The hopper barges are commonly 35 feet wide by 195 feet long. The tanker barges include mostly 35 feet wide by 195 feet long barges and 54 feet wide by 295 feet long barges.

The recreational traffic is mixed with commercial barge tows. Characteristics of representative vessel types and sizes are included in Table 2.

Table 2. Characteristics of Representative Barge Types and Tow Sizes

Tow Size	Barge Description					Towboat		Tow Length Overall (ft)
	Width (ft)	Length (ft)	Draft Loaded (ft)	Draft Light (ft)	Total Length (ft)	Width (ft)	Length (ft)	
1W x 1L	35	195	9	2	195	22	56	251
1W x 2L	35	195	9	2	390	22	56	446
1W x 3L	35	195	9	2	585	26	66	446
1W x 4L	35	195	9	2	780	26	66	641
2W x 2L	35	195	9	2	390	26	66	456
2W x 3L	35	195	9	2	585	26	71	656
1W x 1L	54	298	9	2	298	26	71	369
1W x 2L	54	298	9	2	596	25	85	681
1W x 3L	54	298	9	2	894	25	85	979
2W x 1L	54	298	9	2	298	25	85	383

The tow sizes can range up to 108 feet wide and almost 1,000 feet long. Some large tanker tows consist of a 1,500 horsepower tug with three barges each being 54 feet wide and 298 feet long.

2.4 Number of Vessel Passages

To obtain more detailed information on the characteristics of the vessels that passed through the bridge, Modjeski and Masters asked the Waterborne Commerce Statistics Center in New Orleans to perform a site-specific vessel traffic past-the-point analysis at Mile 357.2 of the GIWW for the years 2000 through 2003. The data obtained were analyzed and reduced to barge groups based on their size, direction of traffic and loading condition. The vessel trip information derived is included in Table 3.

Table 3. Number of Barge Trips by Barge Group, Direction of Traffic and Loading Condition Based on Data from WCSC Past-the-Point Analysis

Year	Towboat and Barge Group	Westbound Traffic		Eastbound Traffic		Total
		Loaded	Light	Loaded	Light	
2000	Towboat	5160		5060		10220
	35' Wide Dry Cargo	584	1804	1992	439	4819
	35' Wide Tanker	2019	1792	2003	1768	7582
	54' Wide Tanker	2311	2664	3453	1597	10025
	Total No of Barges	4914	6260	7448	3804	22426
2001	Towboat	4550		4581		9131
	35' Wide Dry Cargo	449	1441	1675	324	3889
	35' Wide Tanker	1776	1689	1856	1607	6928
	54' Wide Tanker	2190	2783	3586	1437	9996
	Total No of Barges	4415	5913	7117	3368	20813
2002	Towboat	4777		4661		9438
	35' Wide Dry Cargo	451	1347	1493	303	3594
	35' Wide Tanker	1694	1691	1873	1534	6792
	54' Wide Tanker	2054	2208	2874	1435	8571
	Total Barges	4199	5246	6240	3272	18957
2003	Towboat	5202		5060		10262
	35' Wide Dry Cargo	649	1610	1952	363	4574
	351 Wide Tanker	1531	1901	2040	1437	6909
	54' Wide Tanker	2083	2400	3152	1382	9017
	Total No of Barges	4263	5911	7144	3182	20500

The estimated numbers of tow transits by barge group, direction and loading condition based on 2000 to 2003 data are shown in Table 4.

Table 4. Estimated Number of Tow Transits by Barge Group, Direction of Traffic and Loading Condition Based on 2000 to 2003 Data

	Westbound Traffic		Eastbound Traffic		Total
	Loaded	Light	Loaded	Light	
Tow w/35' W Barge	1160	1660	1870	1000	5690
Tow w/54' W Barge	1450	1680	2180	1000	6310
Total No of Tows	2610	3340	4050	2000	12000

2.5 Construction Effect on Marine Traffic

To maintain vessel traffic in the GIWW, the trenching operations would stop when traffic is passing the work area, and a standby pilot boat would assist traffic through the bridge during trenching operations. Two weeks prior to trenching across the GIWW, the contractor will be required to notify the USCG, Texas Waterway Operators Association and the Gulf Intracoastal Waterways Operators of the work schedule so that notice can be given to mariners.

3.0 ALTERNATIVES INCLUDING THE PROPOSED ACTION

3.1 Status of the Existing Bridge

The Galveston Causeway Railroad Bridge serves as the lone rail access connecting Galveston Island and mainland Texas. The bridge is owned by Galveston County and leased for operation to Burlington Northern & Santa Fe Railway Co. (BNSF), with CenterPoint Energy and the City of Galveston as additional lessees, and Gulf Coast Water Authority as a licensee of the bridge. The bridge is located approximately 200 yards northeast of the Interstate Highway 45 causeway and bridge now undergoing reconstruction.

The Galveston Causeway was first opened to traffic in 1912 and consisted of a 125-foot Scherzer rolling lift bascule span on concrete piers carrying two railroad tracks, one interurban track and a vehicular roadway. Filled sections of the causeway at each end were damaged by a hurricane in 1915. Temporary trestles were constructed to maintain traffic until the causeway could be repaired between 1917 and 1922. Repairs included the replacement of fill sections at each end with additional concrete arches (51 on the mainland side and 28 on the Galveston Island side).

The original causeway was the only access to the island until the 1930's when a parallel four lane highway bridge was constructed for vehicular traffic. In 1989, because of severe steelwork deterioration, BNSF replaced the Scherzer bascule draw span with a modern rolling bascule bridge with a single track span and grating roadway. Additional major repairs and maintenance have also been performed and include the cleaning and concreting of arch spans and the use of reinforced concrete sheet pile as riprap on piers to protect from scour.

The Galveston Causeway was listed in the National Register of Historic Places on December 12, 1976. It was necessary to change the character of the structure in 1989 by replacing the original 1912 Scherzer bascule draw span with a modern rolling bascule span; however, the character of the bridge as a historic structure was not affected by these changes.

The existing causeway carries two water lines serving the City of Galveston, an older 30-inch line owned by the City of Galveston in arch fill under the now closed roadway deck, and a new 36-inch line owned by the Gulf Coast Water Authority and carried on saddle-type supports down the middle of the causeway deck. Both lines pass under the existing navigation channel, with the 30-inch pipe buried in a trench on the south side of the bridge, while the 36-inch pipe is buried in a trench on the north side of the bridge. The location of these two lines is shown in Department of the Army Permit 21221 included with the Galveston District Corps of Engineers (COE) letter of response on the project dated April 19, 2005 (Appendix B).

3.2 Features of the Proposed New Bridge

To be in compliance with the Order to Alter from the Commandant of the USCG, a new lift bridge will be constructed which provides a 300-foot horizontal clearance, 73 feet of vertical clearance above mean high water in the open position, and 8 feet of vertical clearance above mean high water in the closed position. Preliminary plans for the new structure are shown in Appendix C. Meeting project specifications will necessitate the complete removal of the old bridge and piers, removal of 70 feet of arch span on each side of the old bridge, old dolphins and fender system, and the existing transmission towers on each side of the bridge.

The new lift bridge towers will be constructed to adjoin existing causeway piers (Piers 12/13 and Piers 14/15) outside of the 300-foot clearance area. A large concrete footing will be built to support each tower. New dolphins will be installed at the edge of the clear navigation area. The new lift bridge will be constructed off-site and loaded from the north side onto the new bridge pier and tower system at a location which places the new railroad track 24-feet 10-inches east of the existing track. The most likely location for bridge construction will be at one of the commercial sites along Harborside Drive in Galveston where channel access and docks are available. After new facilities are installed and the new bridge is operational, the existing bridge and adjacent spans will be removed.

Barges would be utilized for construction of the bridge. The number of barges used, size of the barges, period of time for use, docking locations and loading/unloading locations would be at the discretion of the contractor. However, the USCG would approve all activities and locations prior to construction.

The two waterlines serving the City of Galveston would be relocated to pass safely under the widened navigation channel. Plans are being evaluated to determine if both lines would be placed on the north side of the causeway or if the 36-inch line would be buried on the north side and the 30-inch line on the south side. Plans for the new water lines are being developed based upon considerations of cost and practicality for location (one on each side of causeway or both on the north side). New line(s) on the north side would be placed sufficiently far north to clear the existing buried 36-inch line and the proposed new sheet pile dolphins at the channel margins. Both lines would be laid in dredged trenches with enough cover to meet the Corps requirements that the pipelines be 25 feet below MLT within the 300-foot right-of-way (ROW) as recommended in the Corps of Engineers letter of response on the project dated April 19, 2005 (Appendix B). Efforts would be taken to minimize disturbance to the adjacent bay bottom during the dredging of the trenches. After pipe installation, any adjacent dredged material from creating the trenches would be used as backfill.

3.3 Demolition Plan for the Existing Bridge

The contractor(s) will be required to develop a demolition plan that will detail the methods proposed to remove the arch spans and bascule. Prior to implementation, this plan will be reviewed and approved by the USCG, Galveston County, and the COE. Galveston County will coordinate with the USCG and various resource agencies regarding any proposed deviations to the approved plan. Galveston County will ensure that the proposed deviations submitted to the resource agencies will allow sufficient time for review and comment.

Since the railroad bridge will remain in continuous use except for a small window while the new bridge is being put in place and made operational, demolition of the old bridgeworks will be done after the new bridge is operational. No explosive demolition will be allowed. This could compromise the new bridgework or damage existing concrete arches and their substructure adjacent to the new bridge. The old bridge will have to be removed by mechanical means only. Piers and pilings will be completely removed to accommodate the wishes of the COE to keep the 300-foot ROW for the GIWW clear for future expansion of this channel.

Barges and wooden mats will be placed beneath the arch slab during mechanical demolition to contain the concrete rubble. The arch spans will be demolished in small pieces by mechanical means. The barge will have adequate sidewalls to prevent debris from falling into the bay. Demolition will be accomplished primarily by saw cutting and by an excavator-mounted hydraulic ram. No debris will be allowed to fall into the bay. All debris will be transported offsite and recycled for use as roadway material or other suitable uses. The bascule span and its counterweight will be removed by floating the entire structure to an off-site storage area for further processing.

3.4 Alternatives to the Proposed Plan

The existing bridge has been deemed dangerous and unsafe by the USCG, therefore the “No Action” alternative would not be a reasonable course of action. The USCG is requiring the bridge removal, and failure to do so by Galveston County would be a violation of the Federal Order to Alter. Removal of all bridgework over a 300-foot width was required in this Order which will also allow the enlargement of the GIWW, should this be authorized in the future.

Performing the work at another location is not practicable. Only structures in the vicinity of the bridge will be removed. The remainder of the causeway with 105 arches and associated piers will continue to be used for railroad traffic. A new location would require the complete rebuilding of the causeway, including rerouting of land-based rail, and would have a vastly greater impact than the proposed new bridge.

4.0 AFFECTED ENVIRONMENT

The Galveston Causeway Railroad Bridge crosses coastal estuarine waters between Galveston Bay and West Bay in water depths ranging from 5 to 12 feet below mean low water except for the shallow shoreline area fronting Virginia Point and Galveston Island. The bay bottom in the vicinity of the bridge replacement is mixed mud and sand with shell hash and scatterings of dead oyster found on the bay floor. Normal macroinfauna for such areas consist of the ubiquitous polychaetes and small clams found throughout the estuary.

Bottom surveys by Powell et. al. (1997) show several small patch reefs associated with the bridge structure. These have not had a field verification to determine size, contiguity, or the extent of live oyster. The reefs are closed to harvesting by the Texas Department of Health. They are in a high salinity area and oyster production would not be expected on a regular basis although the reefs would still support a hard bottom benthic community commonly found associated with oyster reef.

The bay waters around the bridge are in a high-energy environment with high turbidity not conducive to the establishment of stands of wetland plants or submerged aquatic vegetation. Benthic algae would be abundant in the mud bottom and attached filamentous algae would be common on the oyster shell.

The waters of West Bay south of the railroad and highway bridges are shallow enough in areas to support tidal flats with a layer of oyster clumps covering many of these flats. These oysters cannot be harvested since they are in an area restricted for harvest by the Texas Department of Health. Several of the flats contain emergent islands resulting from dredged material disposal during maintenance of the GIWW in years past, although maintenance dredging of this section of the GIWW is not normally needed owing to high currents and self-maintenance.

North and South Deer Islands are found approximately two miles south of the causeway bridge. These provide habitat for a variety of shorebirds and colonial waterbirds including waders and open-water feeders, the diamondback terrapin (*Malaclemys terrapin*), and a variety of small crabs and shrimp within the sheltered shoreline waters of the two islands. North Deer Island is a prime nesting area with abundant brush and ground nesting cover. The island is suffering from severe erosion of the marshes on the south side which was rehabilitated in 1992 with rock revetment. Approximately 20 species are found each year nesting on the islands. Laughing gulls, white ibises, and double-crested cormorants nest by the thousands. Other species such as the great blue heron, royal tern and tricolored heron can be found nesting in the hundreds.

The endangered Brown Pelican (*Pelecanus occidentalis*) has nested on North Deer Island yearly from 1999 to 2003. Although no nesting activity was observed in the last two years during the Texas Colonial Waterbird Census, there is no reason to believe that nesting will not

begin again in the future. The breeding season for the brown pelican occurs from February to July. The brown pelican is also known to nest on Little Pelican Island approximately six miles northwest from the bridge location. This island is separated from the larger Pelican Island by the channel of the GIWW. Birds from both rookeries fish the waters of lower Galveston Bay, particularly in the wake of shrimp boats, and are regularly seen on structures associated with the railroad causeway. The brown pelican has shown remarkable recovery in recent years and could be removed from the endangered species list in the near future.

North of the bridge, the estuary opens up into Galveston Bay. Shoreline erosion at Virginia Point and along the back side of Galveston Island is severe, and a variety of structures have been put in place to prevent additional loss of land. On the island, sheltered areas created by protective structures, such as the space between the railroad and highway bridge, support small stands of emergent marsh. These areas are not in the impact area of the project.

The Houston Ship Channel enters at the eastern end of Galveston Island and provides tidal exchange with the Gulf of Mexico. Tidal inflow may also occur during severe storm washover of flats farther down the island. Salinities are high in the vicinity of the railroad bridge which allows use of the area by both estuarine finfish and crustaceans as well as species normally found in the nearshore open waters of the Gulf. In a summary of bay ecology Armstrong (1987) reported that trawl samples usually show that Atlantic croaker (*Micropogonias undulatus*) and bay anchovy (*Anchoa mitchilli*) are the dominant species in the bay. Other common species found in trawl samples by researchers include the star drum (*Stellifer lanceolatus*), spot (*Leiostomus xanthurus*), sand seatrout (*Cynoscion arenarius*), hardhead catfish (*Arius felis*), brown shrimp (*Penaeus aztecus*), white shrimp (*P. setiferus*), blue crab (*Callinectes sapidus*), and several other species more common in secondary bays or the fresher waters of Trinity Bay. Game fish like the spotted seatrout (*Cynoscion nebulosus*), red drum (*Sciaenops ocellatus*), southern flounder (Paralichthys lethostigma), and occasionally the young of Spanish mackerel (*Scomberomorus maculatus*) can be expected to migrate along the GIWW under the bridge but are seldom caught with nets. The sheepshead (*Archosargus probatocephalus*) and black drum (*Pogonias cromis*), which favor oyster reef and the structures supporting the bridge, would also be common to the work area. Motile young and adults of these finfish and crustaceans would be migrating to nursery or feeding areas, or feeding on benthic worms and crustaceans in the bay bottom.

There are five species of sea turtles found in the Gulf of Mexico and associated coastal waters consisting of the Kemp's ridley (*Lepidochelys kempi*), green (*Chelonia mydas*), loggerhead (*Caretta caretta*), leatherback (*Dermochelys coriacea*), and hawksbill (*Eretmochelys imbricata*) sea turtles. The Kemp's ridley, hawksbill, and leatherback sea turtles are federally listed as endangered; the green and loggerhead sea turtles are listed as threatened. There is no critical habitat for any of these species in the Galveston Bay estuary. Only Kemp's ridley, green, or

loggerhead seas turtles are likely to be found in the vicinity of the bridge replacement. They are not known to permanently inhabit Galveston Bay waters, but use the bay as a seasonal foraging area for small crabs as they make their way along the coast. Green sea turtles prefer the clearer, more southern coastal bays where seagrass is abundant; the loggerhead prefers nearshore waters off the coast, frequenting petroleum platforms and shrimping grounds. The presence of these two turtles would be intermittent and very rare due to human activity in the bay, high turbidity and muddy substrate, and little to no aquatic vegetation. The Kemp's ridley could be expected more often, primarily as juveniles. They tend to show an affinity for tidal passes and could be expected to travel in the GIWW in forays through the bay.

Atlantic bottlenose dolphins (*Tursiops truncatus*) are regularly seen in the Houston Ship Channel and associated inlet waters of Galveston Bay. They may constitute a "resident" population of about 40 dolphins with peak bay visits of dolphins from other Texas coastal areas in October and November. Dolphins could be expected in and around the waters in the vicinity of the railroad bridge foraging for fish or bowriding watercraft traveling along ship channels of the bay.

5.0 ENVIRONMENTAL CONSEQUENCES FROM THE PROPOSED ACTION

5.1 Primary Impacts from Bridge Construction

The Galveston Causeway Railroad Bridge will be replaced without the need to dredge access channels or discharge dredged material other than for trenching and backfill of the relocated pipelines under the new bridge span. Old pilings and piers will be removed mechanically using state of the art demolition and transport methods, which catch all debris and relocate it off-site to a non-sensitive area. Attention to detail in project design preserves as much of the original structures as is compatible with replacement of the new lift bridge, including the piers and substructure for adjacent arches.

Pile-driving and vibratory hammer equipment will create noises and substrate vibrations similar to those from causeway construction for IH-45. The possibility of noise impacts to colonial nesters on North Deer Island was considered during impact evaluation for the I-45 causeway. Due to the southeasterly prevailing winds in the area, it is anticipated that much of the noise disturbances arising from the proposed project would be directed to the north, away from north Deer Island. The island is far enough away from the work that sound pressure levels would dissipate from around a 100 decibels to about 58 decibels, the sound level produced by a babbling brook or murmur in a large business office and representative of a serene outdoor environment. In contrast, vessel traffic in the GIWW passing near the island would produce noise of about 66 decibels, or about twice as much noise as the bridge replacement work. Noise from the operational rail traffic is expected to be the same as current levels as there will be no increased traffic over the railroad bridge as a result of the project.

Similarly substrate vibrations would dissipate rapidly over about 700 feet and not reach North Deer Island. Any residual vibration would be completely lost in background vibrations from waves and surf hitting the island.

Air emissions from construction work will be short term and will not have any significant adverse impact on attainment of air quality standards in the area. The new bridge would improve air quality by permitting vessels to pass under the bridge against currents and winds without excess engine speed and emissions to maintain a position in the GIWW. Galveston is located in the Houston/Galveston area (HGA), which is designated as a severe nonattainment area for the 8-hour Ozone standard. The HGA is an attainment area for NO_x, CO, Lead, SO_2 and PM_{10} emission standards. The 1-hour ozone standard was revoked by the EPA as of June 15, 2005 for all Texas areas other than San Antonio area, however control requirements and significance thresholds under the 1-hour ozone standard are still applicable.

Construction activities associated with the new bridge will result in emissions of CO, VOC, NO_x, SO_x, and PM_{10}. Construction emissions are expected from several sources including the

following: cranes, work barges, generators, air compressors, man lifts, rough terrain forklifts, surfacing equipment, and heavy diesel trucks.

On-site construction equipment will be a source of combustion emissions. Heavy diesel trucks include dump trucks and other trucks that will be used to deliver and remove materials from the construction site. Primary emissions generated will include exhaust emissions from diesel engines while operating. Construction equipment used to complete the construction work will contribute emissions during the construction phase. All construction equipment will contribute to short-term air pollutants in the atmosphere.

Rail traffic should be unaffected throughout the construction of the new bridge, until the rail line is connected to the new bridge which is planned to take no more than one day and will be coordinated with the railroad. Since the rail traffic operations will not be affected, there will not be an increase of emissions. Trains will be able to run as normal and will not be required to stand by idling while construction activities occur.

Trenching and backfill for water lines will translocate sediments to the area adjacent to the trench and return them as soon as the work is completed. Suspended sediments from this type of work normally fall out within 12 to 24 hours without any discernible impact on plankton productivity. This work will remove the macroinfauna occupying the bay bottom at the work site. These are species with high fecundity and very short life cycles. They should become reestablished to pre-construction levels within four to six weeks after the bay bottom has reconsolidated. The smaller meiofauna and microfauna live in a turbid, anaerobic environment and should not be impacted by the movement of sediments. Any oyster shell removed in the vicinity of the work would become re-established at the time salinity is suitable for larval recruitment and post-settlement survival.

For comparison, the new Galveston causeway for IH 45 adjacent to the railroad causeway is undergoing complete reconstruction without any anticipated or realized direct environmental impacts of any significance. Similarly, there should be no impacts of concern associated with replacing the railroad bridge.

5.2 Secondary Impacts and Cumulative Impacts from the New Bridge

The new bridge would not provide a more efficient route for railroad traffic, so it should not cause an increase in rail traffic beyond what was planned with the existing, fully serviceable bascule bridge. The new bridge would provide a safer route for vessel traffic using the GIWW which would reduce danger, reduce the use of fuel to control vessels which must negotiate the existing bridge, and reduce delays when there are problems at the existing bridge.

There may be the possibility of relocating the old bridge from a storage site to open water for use as reef material under the Artificial Reef Program as recommended by the Texas Parks and Wildlife Department. This bridge is still serviceable and could be removed without dismantling, so it may have economic value as a bridge at some other location. Galveston County owns the bridge and will have to decide its disposition at the appropriate time. Revenue from sale of the bridge for reuse or recycling could be used to defray local sponsor costs.

Use of old pier rubble for oyster reef is possible if it is obtained in small pieces with little or no reinforcement bars to interfere with use on a public reef. Suitability for use and transportation to the nearest public reef would have to be determined once the contractor has decided how to dismantle old structures.

6.0 COORDINATION WITH FEDERAL AND STATE AGENCIES TO REDUCE SOCIAL, ENVIRONMENTAL, AND ECONOMIC EFFECTS

6.1 Compliance with the National Environmental Policy Act

Issuance of the Order to Alter for the Galveston Causeway Railroad Bridge is classified as a Major Federal Action which allocates federal funds; therefore, the USCG must meet the requirements of the National Environmental Policy Act (NEPA) and satisfy other environmental statutes and regulations of the Federal Government and the State of Texas as described below. All correspondence with these agencies is found in Appendix D.

NEPA requires the USCG to use an interdisciplinary approach to thoroughly analyze the environmental impacts of a proposed action, identify its unavoidable, adverse impacts, and discuss alternatives to the proposed action to reduce impacts and mitigate for losses. This environmental assessment has considered the impacts, alternatives, and impact-reducing measures for the bridge replacement. Based upon this assessment, the USCG will determine if any significant impacts would occur requiring the preparation of an environmental impact statement.

6.2 Compliance with the River and Harbors Act of 1899 and the Clean Water Act

The Galveston Causeway Railroad Bridge replacement would normally be authorized by a bridge permit from the USCG. Since the USCG is requiring the bridge replacement, and providing the majority of the funding, they will authorize the bridge removal directly upon approval of the plans and acceptance of the findings of the environmental assessment.

This bridge replacement project falls under the authority of Section 10 of the River and Harbors Act of 1899 and Section 404 of the Clean Water Act. The project is authorized under US Army COE Nationwide Permit 15 which authorizes USCG-approved bridges without pre-construction notification (PCN) and under Nationwide Permit 14, which authorizes linear transportation projects without PCN since bridge pier and dolphin construction affects less than 0.1 acre. Amendments to existing individual Section 10 permits to authorize the relocation of the two water lines will be needed (Department of the Army [DA] Permit 9736 issued to the City of Galveston for the 30-inch water line and DA permit 21221 issued to the Gulf Coast Water Authority for the 36-inch water line). The existing permits, which authorized trenching under the GIWW to lay the lines, were issued without objection by resource agencies. Similar methods of burying the pipelines will be employed for the bridge replacement. The water lines would be laid in new trenches and backfilled with the trench material as quickly as possible to prevent delays for vessel traffic using the GIWW. Trench construction would be the only discharge of dredged material.

The water line replacements will require Texas Commission on Environmental Quality (TCEQ) review for Section 401 Water Quality Certification. There are two configurations for routing the water lines; the first has a line on each side of the causeway, in separate trenches and the other runs both on the same side, in the same trench. Either configuration affects less than three acres of the bay bottom, which may qualify the project for Tier 1 certification, depending on whether TCEQ requires any special Best Management Practices (BMPs). Tier 1 certification would require no further review but would include any BMPs as conditions of the COE permit. The COE will provide the water line relocation permit amendment application package to TCEQ for review and certification.

The project location is in the continuously inundated navigable channel of the GIWW. No wetlands are affected by this project.

6.3 Compliance with Section 6 of the Historic Preservation Act

On December 12, 1976, the Galveston Causeway Railroad Bridge was listed in the National Register of Historic Places (NRHP). Because the proposed project will alter the original design of this historic bridge, the Coast Guard must comply with Section 106 of the National Historic Preservation Act, as amended, (NHPA) and section 2(b) of Executive Order 11593.

The USCG provided plans for the bridge replacement to the Texas State Historic Commission on February 2, 2005, and requested a review under Section 106 and concurrence that there would be no adverse effects. The Historic Preservation Office concluded in a letter of response dated February 8, 2005 that the proposed alterations to the 1915-22 Galveston Causeway will have no adverse effect on the resource, and will not alter its ability to convey its historic character and remain eligible for listing in the National Register of Historic Places. The final plans will be essentially those presented to the Texas Historical Commission on which this decision was based.

There are no public parks, designated recreation lands, or refuges in the vicinity of the bridge replacement site. The USCG has determined that there is no feasible or prudent alternative to replacing the old bridge with a wider, safer span. The detailed plans for the bridge will include construction measures to safely remove the old bridge and supports and install the new one with absolute minimum impact to adjacent arches and piers. Features of the construction plans to accomplish this include a requirement to use mechanical means only to remove the existing structures, placing the new supports between existing arches to preclude the removal of these structures, and an ordered sequence of construction that maintains GIWW traffic efficiently and safely while the work is being done. Operation of the railroad should not be affected for more than a day while the rail system is rerouted to the new bridge. After that, the old structures will be carefully dismantled and removed using modern, state-of-the-art removal equipment.

6.4 Compliance with the Endangered Species Act

The Coast Guard consulted with the U. S. Fish and Wildlife Service on March 23, 2005, concerning impacts to threatened or endangered species under Service jurisdiction, and on April 29, 2005, the Service concurred that the project is not likely to adversely affect any federally listed threatened or endangered species under Service jurisdiction, and is not likely to adversely modify any designated critical habitat.

The Coast Guard also consulted with the National Marine Fisheries Service on March 3, 2005, concerning impacts to threatened or endangered species under NOAA jurisdiction, and in letters dated March 31, 2005, and April 19, 2005, the Service concluded that the project is not likely to adversely affect listed species under its jurisdiction.

6.5 Compliance with Texas General Land Office Requirements for Consistency with the Coastal Zone Management Program and Right-of-Way Easements

The Coastal Resources Division of the Texas General Land Office was provided with plans and drawings for the bridge/water lines along with a finding that the project would be conducted in a manner consistent with the policies of the Texas Coastal Management Program (CMP). In letters of response dated July 16, 2007 and February 26, 2008, they determined that the proposed project will likely not have adverse impacts on coastal natural resource areas in the Texas coastal zone and were consistent with the CMP goals and policies.

The causeway and water lines are located on the submerged lands of Texas in State Tracts 86A and 104A. Ownership of the causeway and land under the causeway in addition to a 500-foot dredging easement on each side of the causeway was granted to Galveston County by the State of Texas in 1907. This was confirmed in a letter from the Texas General Land Office in a letter dated January 30, 1998. Within a half mile radius of the bridge (Figure 3), the only property owners are Galveston County and the State of Texas, managed through the General Land office.

6.6 Compliance with Executive Order 11988, Floodplain Management and DOT Order 5650.2

The project site is located in “Area of Undesignated Flood Hazard" which is defined as “A body of open water, such as a pond, lake, ocean, etc., located within a community's jurisdictional limits, that has no defined flood hazard." The coastline on either side of the Galveston Causeway Railroad Bridge is located within the 100-year floodplain (Special Flood Hazard Area). The island coast is zoned AE, with a base flood elevation of 12 feet. The AE zone is a 100-year flood zone where the base elevation has been determined. The mainland coastland is zoned V19, with a base flood elevation of 15 feet. The VE designation notes a 100-year flood zone with velocity hazard (wave action) and the base elevation has been determined. The

elevation of the top of the rail on the bridge and causeway is 17.25 feet, so it will not be inundated in a 100 year flood. Figure 4 is the Flood Insurance Rate Map (FIRM) from the Federal Emergency Management Agency (FEMA) for the City of Galveston, Texas, which includes the flood zone and the one per cent flood elevation (12 feet), as well as the existing bridge location (represented on the map as Benchmark AC6266).

USCG guidance for projects in floodplains defines the waterway as part of the floodplain. This bridge replacement project consists of piers and pilings in the floodplain which does not constitute an encroachment in the floodplain.

6.7 Compliance with the Essential Fish Habitat Provisions of the Magnuson-Stevens Fishery Conservation and Management Act

A Draft Environmental Assessment for the proposed work was sent to the National Marine Fisheries Service with a request for review to determine if there would be any impact to essential fish habitat for managed species having life stages in the Galveston Bay estuary. In a letter from the Service dated February 26, 2007, the Service had no comments to offer on the Draft Environmental Assessment.

6.8 Compliance with the Clean Air Act

Texas state regulation 30 TAC 101.30 addresses conformity of general federal actions to state implementation plans (SIPs). The purpose of the Texas conformity regulation is to implement the Federal Clean Air Act, §176(c) and regulations under 40 CFR Part 51, Subpart W, with respect to the conformity of general federal actions with the applicable state implementation plan (SIP). No federal agency is allowed to support or provide financial assistance for; license or permit; or approve any activity which does not conform to the Texas SIP. Guidelines for meeting state and federal conformity requirements to the SIP are outlined in 30 TAC 101.30.

According to the applicability requirements described in 30 TAC 101.30(c), conformity determinations for federal actions related to transportation plans, programs and projects developed, funded or approved under Title 23 USC or the Federal Transit Act must meet the procedures and criteria of state transportation conformity regulations, and the transportation conformity SIP, unless the project is exempted by the requirements of 30 TAC 101.30(c)(3). Conformity of general federal actions to SIPs is not required for actions that would result in an increase of emissions that is clearly de minimis (defined as follows).

- Routine maintenance and repair activities, including repair and maintenance of administrative sites, roads, and facilities;
- Routine, recurring transportation of material and personnel;

- Existing structures where future activities conducted will be similar in scope and operation to activities currently conducted at the existing structure; and
- Routine operation of facilities, mobile assets, and equipment.

Since routine rail traffic and routine marine traffic will be minimally affected by the bridge replacement and since the operation of the replacement bridge will be similar to the current operation, the project is not required to comply with conformity criteria of general federal actions to SIPs or state and federal criteria for transportation conformity.

6.9 Compliance with Structural Demolition and Disposal of Old Bridge Works

The Texas Parks and Wildlife Department (TPWD) in a letter dated March 14, 2005, found that the bridge proposal and demolition plan adhered to all provisions to minimize or eliminate potential damage to the marine environment in and around the demolition site and endangered species such as sea turtles and marine mammals.

TPWD also recommended that the old bridge works be donated to the Texas Parks and Wildlife Artificial Reef Program. Since the old bridge still has serviceable life, it could be sold as a useable bridge to help defray the costs of the new bridge replacement.

6.10 Compliance with Other Natural Resource and Socioeconomic Requirements

The Wild and Scenic Rivers Act and Migratory Bird Treaty Act will not apply to this project as there are no potential effects of this project to lands or natural resources protected by these regulations.

The project does not apply to Prime and Unique Farmlands as protected by the Farmland Protection Act.

The will be no net benefits or adverse effects to the socioeconomics of the bridge replacement project as the rail traffic will only be temporarily interrupted during the transfer of rail movement to the new bridge when completed. The project is being completed in order to provide safer navigation conditions on the GIWW.

7.0 LITERATURE CITED

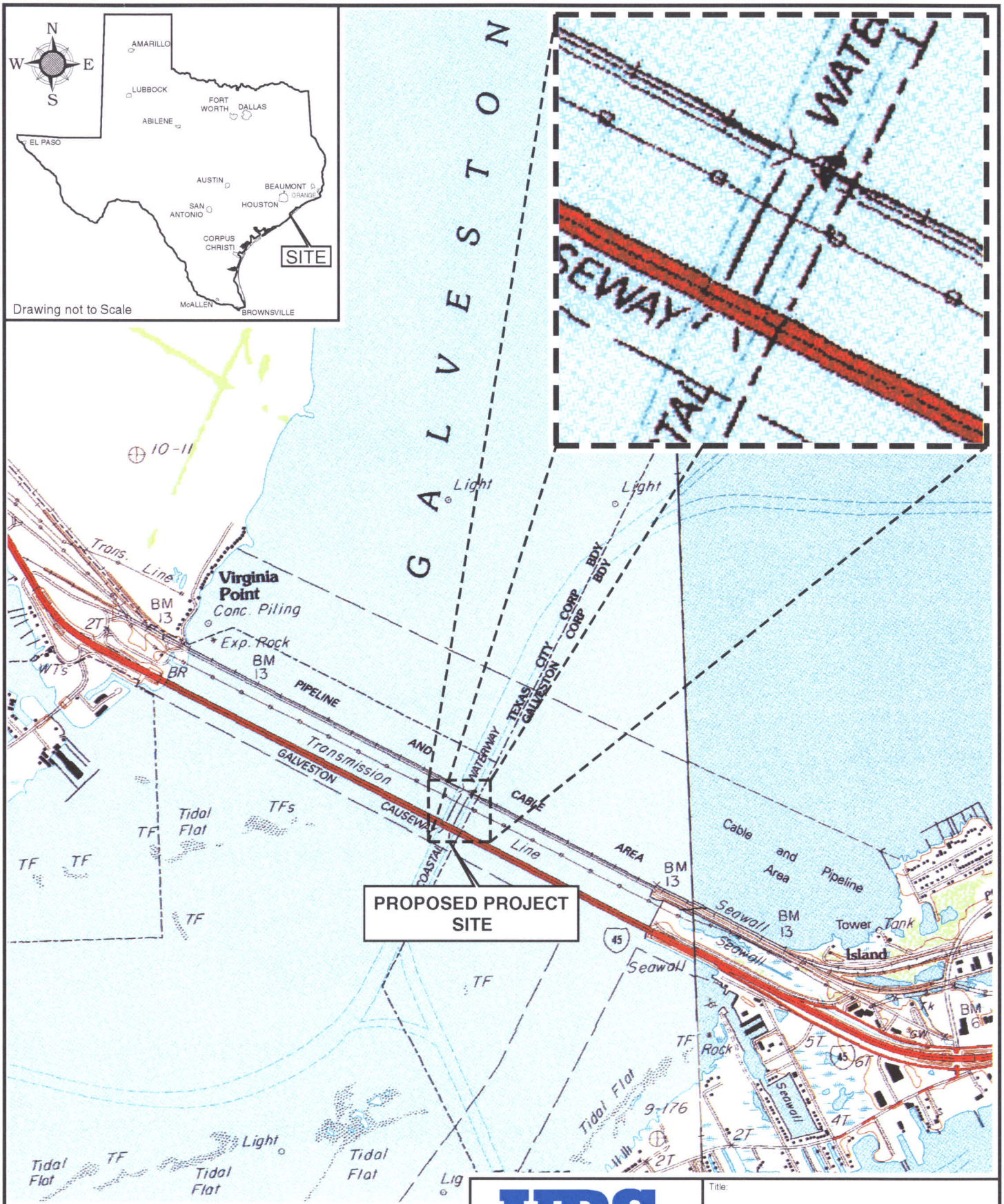
Armstrong, N. E. 1987. The ecology of open-bay bottoms of Texas: a community Profile. U. S. Fish Wild. Serv. Biol. Rep. 85(7.12). 104pp.

Powell, E.N., and J. Song, M. Ellis, and K Choi. 1997. Galveston Bay Oyster Reef Survey: Technical Reports Volume I. Galveston Bay National Estuary Program Report GBNEP-50. 179 pp.

Modjeski and Masters Consulting Engineers. January 2006. Vessel Collision Risk Assessment with Truncated Fender System. Galveston Causeway Railroad Bridge over the Intracoastal Waterway.

URS

FIGURES



Source: U.S.G.S. 7.5-MINUTE SERIES TOPOGRAPHIC MAPS. GALVESTON (#299442) AND VIRGINIA POINT (#299441) TEXAS QUADRANGLES. BOTH DATED 1994.

URS
9801 WESTHEIMER, SUITE 500
HOUSTON, TEXAS 77042
PH: (713) 914-6699
FAX: (713) 789-8404

Scale:	Drawn by:	Date:
AS SHOWN	NAB	14 Nov 06
	Chk'd by: BM	Date: 14 Nov 06

Title: **SITE VICINITY MAP**

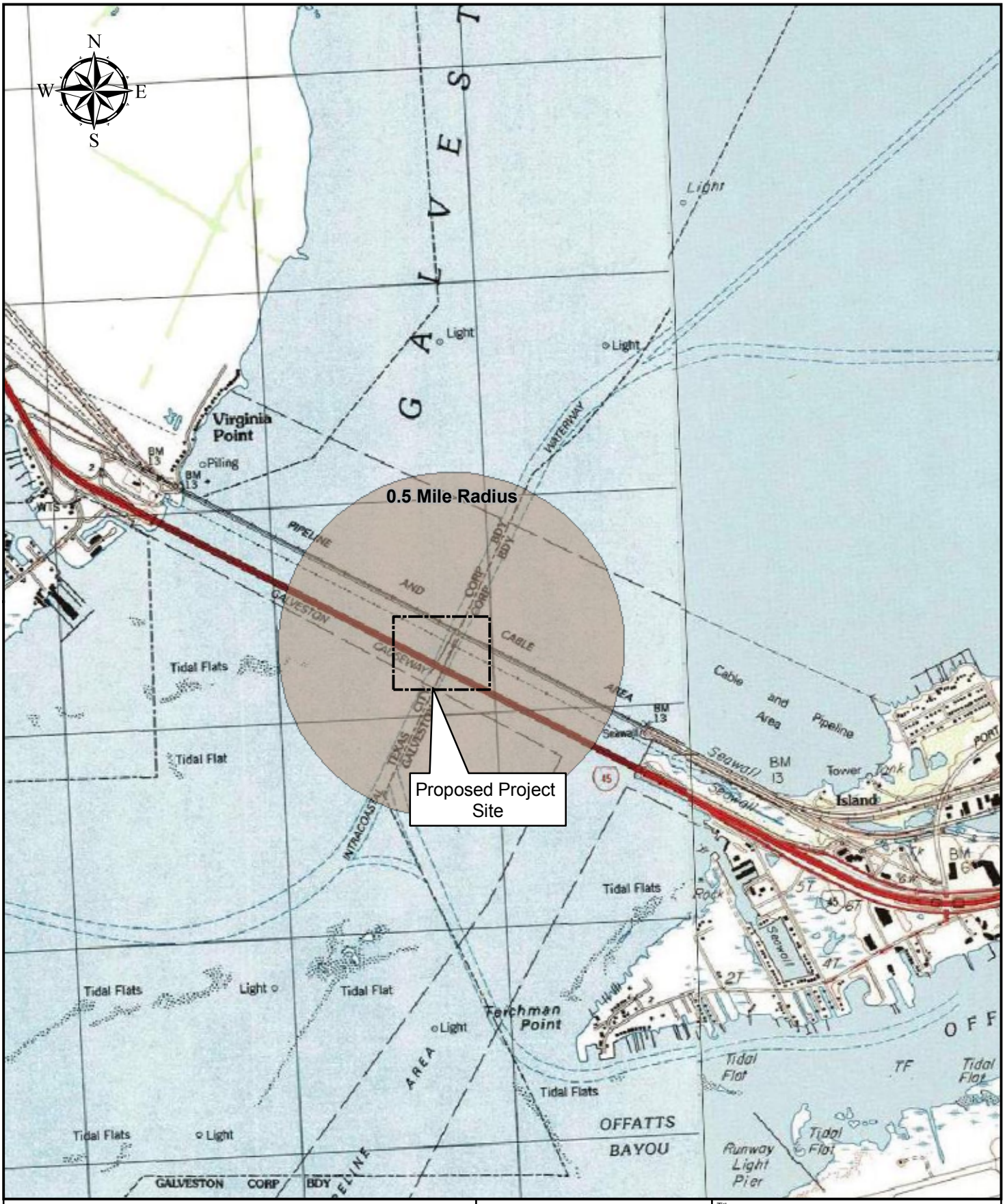
Project: GALVESTON CAUSEWAY RAILROAD BRIDGE REPLACEMENT
GALVESTON, GALVESTON COUNTY, TEXAS

Client: U.S. COAST GUARD

Project No.:	File Name:	Figure:
25009030.00002	SITE LOCATION MAP	1

File: K:\EP\25009030.GalvCauseway.Modj.05\Dwgs\Acad\Site Location Map – Railroad Bridge.dwg Layout: Site Location User: Norris Brown Plotted: Nov 14, 2006 – 10:57am

Figure 2
Existing Rolling Bascule Bridge Looking Westward



0 2,000 4,000 Feet

TEXAS STATE PLANE, SOUTH CENTRAL ZONE

SOURCE:
USGS 7.5-MINUTE SERIES TOPOGRAPHIC MAP

URS
9801 Westheimer Suite 101
Houston, TX 77042
Tel: 713.789.9801
Fax: 713.789.8404

Scale:	Drawn by:	Date:
As Shown	RR	04-09-09
	Chk'd by: BG	Date: 04-09-09

Title: SITE MAP

Project: GALVESTON CAUSEWAY RAILROAD BRIDGE REPLACEMENT
GALVESTON, GALVESTON COUNTY, TEXAS

Client: U.S. COAST GUARD

Project No.:	File Name:	Figure:
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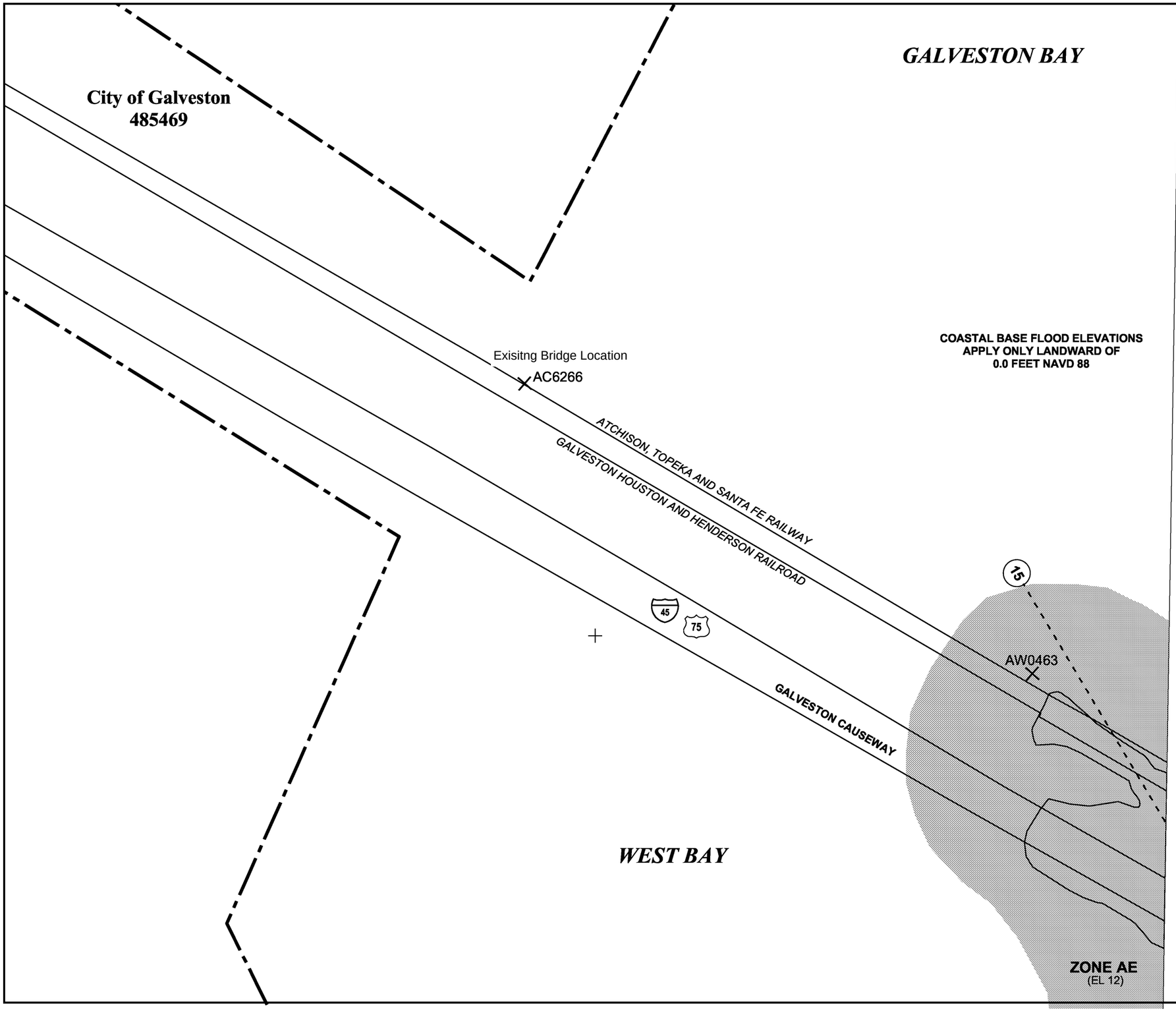


MAP SCALE 1" = 500'

50 0 500 1000 FEET

0 150 300 METE

NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0017 E

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
GALVESTON,
TEXAS
GALVESTON COUNTY

PANEL 17 OF 83

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
GALVESTON, CITY OF	485469	0017	E

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

MAP NUMBER
4854690017 E

MAP REVISED
DECEMBER 6, 2002

Federal Emergency Management Agency

Figure 4

Benchmark AC6266 is located on a pier of the existing Causeway Bridge

APPENDIX A

ORDER TO ALTER FROM THE COAST GUARD

U.S. Department of Transportation
United States Coast Guard

Commander
Eighth Coast Guard District

1222 Spruce Street
St. Louis, MO 63103
Staff Symbol: (obr)
Phone: 314-539-3900, x378
FAX: 314-539-3755

16592.2/357.2 GIW
July 12, 2001

Honorable James P. Yarbrough
County Judge
Galveston County
722 Moody, Suite 200
Galveston, TX 77550

Subj: GALVESTON CAUSEWAY RAILROAD BRIDGE, MILE 357.2 GULF INTRACOASTAL WATERWAY

Dear Judge Yarbrough:

The Commandant, U.S. Coast Guard has declared the subject bridge to be an unreasonable obstruction to navigation. Enclosed is the Order to Alter issued for the bridge.

When altered, the bridge must provide a horizontal clearance of no less than 300 feet measured normal to the navigation channel and a vertical clearance of no less than 73 feet above mean high water elevation when in the open position and 8.0 feet above mean high water in the closed position.

Mr. Jacob Patnaik, Chief Bridge Engineering Division for the Coast Guard will contact you in the near future concerning Truman-Hobbs program issues such as cost apportionment and the bridge alteration schedule. All other bridge issues concerning navigation, bridge lighting/marking, drawbridge operations, repairs and vessel collisions will continue to be the responsibility of the Commander, Eighth Coast Guard District (obc), New Orleans, Louisiana. These issues should be addressed to that office.

Sincerely,

ROGER K. WIEBUSCH
Bridge Administrator
By direction of the District Commander

Encl: Order to Alter

U.S. Department of Transportation
United States Coast Guard

Commandant
U. S. Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: G-OPT
Phone: (202) 267-0368

JUN 18 2001

ORDER TO ALTER

WHEREAS by an act of Congress approved June 21, 1940, known as the "Truman-Hobbs Act," as amended (33 U.S.C. 511-523), the Secretary of Transportation was authorized to order the alteration of certain bridges across the navigable waters of the United States which have been determined to be unreasonable obstructions to navigation;

AND WHEREAS, the Secretary of Transportation has delegated the authority of that act to the Commandant, U.S. Coast Guard, by Section 1.46(c)(3) of Title 49, Code of Federal Regulations;

AND WHEREAS, in conformity with the provisions of the Truman-Hobbs Act, notice was given to interested parties and a public hearing was held on August 30, 2000, at Galveston, Texas, for the purpose of obtaining testimony as to whether the Galveston Causeway Railroad Drawbridge is an unreasonable obstruction to the free navigation of the Gulf Intracoastal Waterway;

AND WHEREAS, after giving consideration to the testimony and the facts presented at the public hearing and to the investigations subsequently made, the Commandant has determined that the bridge, located across the Gulf Intracoastal Waterway, mile 357.2, near Galveston, Texas, is an unreasonable obstruction to navigation;

AND WHEREAS, Galveston County is the owner of the bridge;

NOW THEREFORE, the Commandant directs Galveston County to alter this bridge by constructing a vertical lift bridge on the same general alignment as the existing bridge subject to the following conditions:

1. The new lift span over the navigable channel shall provide a minimum unobstructed horizontal clearance of 300 feet measured normal to the channel. The lift span shall also afford at least 73 feet of vertical clearance above mean high water in the open position and a minimum of eight feet vertical clearance above mean high water in the closed position. These clearances are necessary for the reasonable needs of navigation.

2. No deviation from the approved clearances may be made either before or after completion of the structure unless the modification of said clearances has previously been submitted to and received the approval of the Commandant.

3. All actions undertaken by Galveston County pursuant to this Order must satisfy the requirements of all federal, state and local laws and regulations pertaining to the protection of the environment.

T. H. COLLINS
Vice Admiral, U.S. Coast Guard
Acting Commandant

APPENDIX B

COE LETTER OF RESPONSE

DEPARTMENT OF THE ARMY
GALVESTON DISTRICT, CORPS OF ENGINEERS
P.O. BOX 1229
GALVESTON, TEXAS 77553-1229

REPLY TO
ATTENTION OF:

April 19, 2005

Evaluation Section

SUBJECT: Response to request for information regarding the modification of the Galveston railroad bridge

United States Coast Guard
Office of Bridge Administration
Attn: Jacob Patnaik
2100 Second Street Northwest, Room 3500
Washington, D.C. 20001-1679

Dear Mr. Patnaik:

This is in reference to your email, dated March 4, 2005, requesting our input on replacement of a portion of the bascule span bridge with a vertical lift bridge spanning the Gulf Intracoastal Waterway (GIWW), in Galveston Bay, Galveston County, Texas.

Regarding your questions about clearance depth for removal of the existing bridge supports and fender system, we recommend that the existing bridge structures and fender pilings be removed in their entirety within the 300-foot right-of-way (ROW) of the new causeway bridge. If this is not possible, we recommend the structures be removed to a minimum depth of 25 feet below mean low tide within the 300-foot ROW. Removal of the existing structures within the 300-foot ROW will allow for future expansion of the GIWW. We would also recommend that structures to be removed outside of the 300-foot ROW in the vicinity of the project be removed or cutoff a minimum of 15 feet below the natural bottom.

A search of our records indicates at least three existing Department of the Army (DA) Permits for the water lines in the vicinity of the bridge. DA Permit 4257 was issued to the Board of Commissioners, the City of Galveston, on August 27, 1958, for the replacement of a 30-inch diameter water line beneath the GIWW. DA Permit 9736 was issued to the City of Galveston on September 25, 1973, to relocate approximately 200 feet of the 30-inch line at the GIWW crossing. Finally, DA Permit 21221 was issued to the Gulf Coast Water Authority on June 23, 1998, for the installation of a 36-inch diameter water line to service

HILL/dej/3133
CESWG-PE-RE

THOMAS-BOTELL
CESWG-PE-RE

the City of Galveston. The exact location of these pipelines would need to be verified, and presumably, the pipelines will need to be relocated if the bridge span replacement would impact pipelines. Any pipelines that need to be relocated will require modification to the existing DA Permits.

HRAMETZ
CESWG-OD-N

If you have questions regarding these issues or if we can be of further assistance, please contact Jeff Hill at 409-766-3133.

ANTHAMATTEN
CESWG-PE-RB

Sincerely,

NANNINGA
CESWG-PE-RE

Don Nanninga
Chief, Evaluation Section

DEPARTMENT OF THE ARMY PERMIT

Permittee: Galveston Water Authority

Permit No. 21221

Issuing Office: Galveston District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description: Install a new 36-inch pipeline on the Galveston railroad causeway in accordance with the attached plans, in five sheets, entitled "Galveston Water Supply Project". The pipeline will be laid on top of the causeway, along its length, 10 feet south of existing railroad tracks. Near the drawbridge, in the approximate center of the causeway, the pipeline will be displaced to the south, directed underneath the causeway and turned to the north between causeway pilings. The pipeline will be jetted into the substrate between pilings and proceed 75 feet to the north of the causeway. At this point the pipeline will turn to the east and be trenched in across the Gulf Intracoastal Waterway (GIWW). The GIWW crossing will be 170 feet with a minimum burial depth of 11 feet. The pipeline will then be returned to the railroad causeway, just as it left, by jetting between pilings under the causeway and the railroad tracks.

Project Location: The project is located on the Galveston railroad causeway, across Galveston Bay, in Galveston and Hitchcock, Galveston County, Texas.

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2001. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

[redacted] obtain the signature of the new owner in the space provided and forward a copy [redacted] of this authorization.

[redacted] certification has been issued for your project, you must comply with the conditions specified in the certification [redacted] permit. For your convenience, a copy of the certification is attached if it contains such conditions.

[redacted] from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or [redacted] in accordance with the terms and conditions of your permit.

Special Conditions:

1. The permittee will cease trenching operations when boat traffic passes through the drawbridge. Two weeks prior to trenching across the Gulf Intracoastal Waterway, the permittee will notify the U.S. Coast Guard, Texas Waterway Operators Association and the Gulf Intracoastal Waterways Operators of their work schedule. Additionally, the permittee will provide a standby pilot boat to assist traffic through the area during trenching operations.

2. Pier footings of the railroad causeway will be avoided as much as possible. All trenches cut in this area will be backfilled to pre-construction elevations within 90 days of trench excavation.

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

(X) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

( ) Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

[redacted] from any future modification, suspension, or revocation of this permit.

4. [redacted]. The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on information you provided.

5. [redacted]. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

A. L. Myers — 6/17/98

(PERMITTEE) *(DATE)*

GULF COAST WATER AUTHORITY

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

Robert W. Heinly — 23 JUN 1998

(DISTRICT ENGINEER) *(DATE)*

ROBERT W. HEINLY, LEADER
SOUTH EVALUATION UNIT
FOR COLONEL ERIC R. POTTS

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

(TRANSFEREE) *(DATE)*

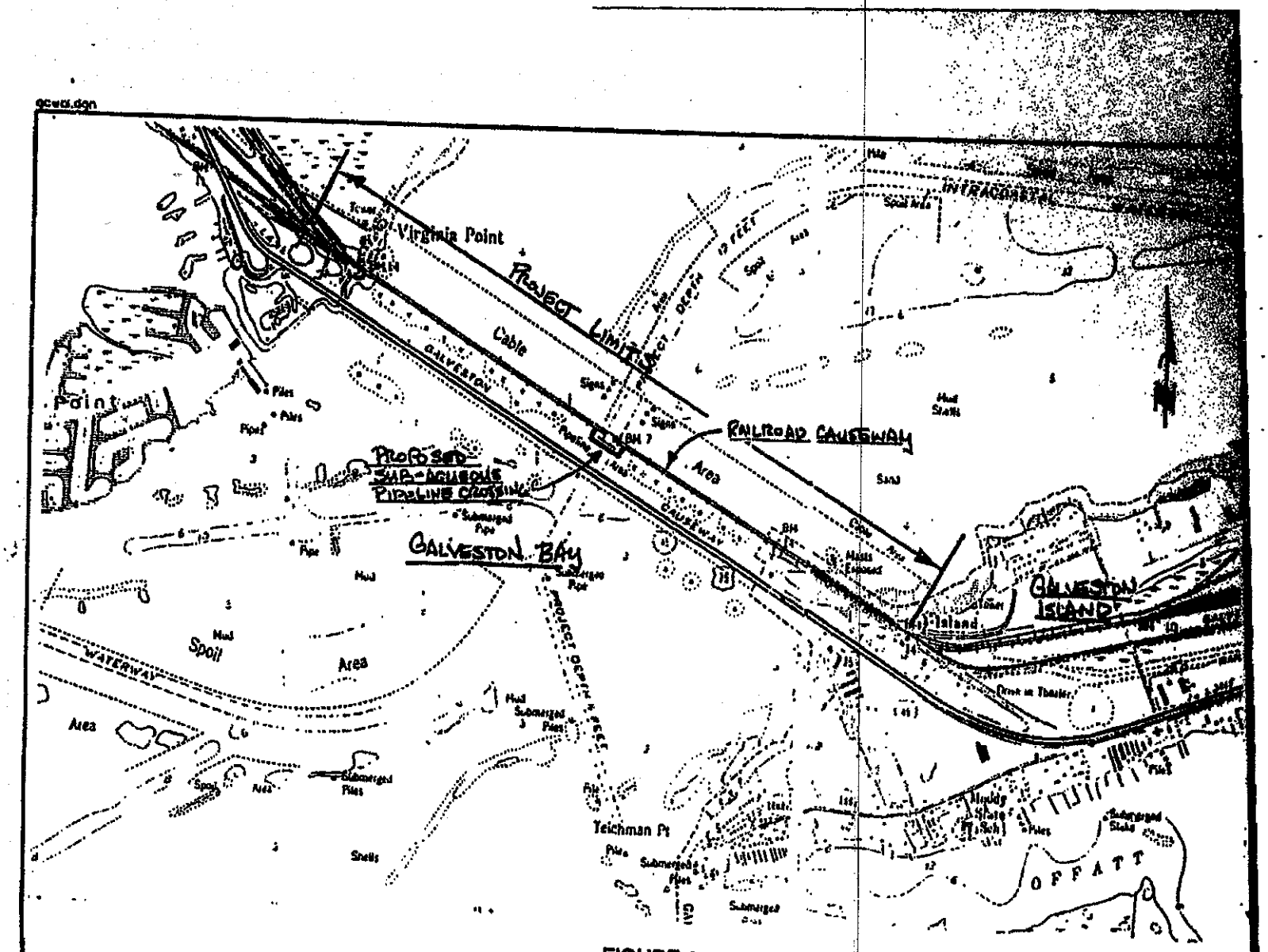
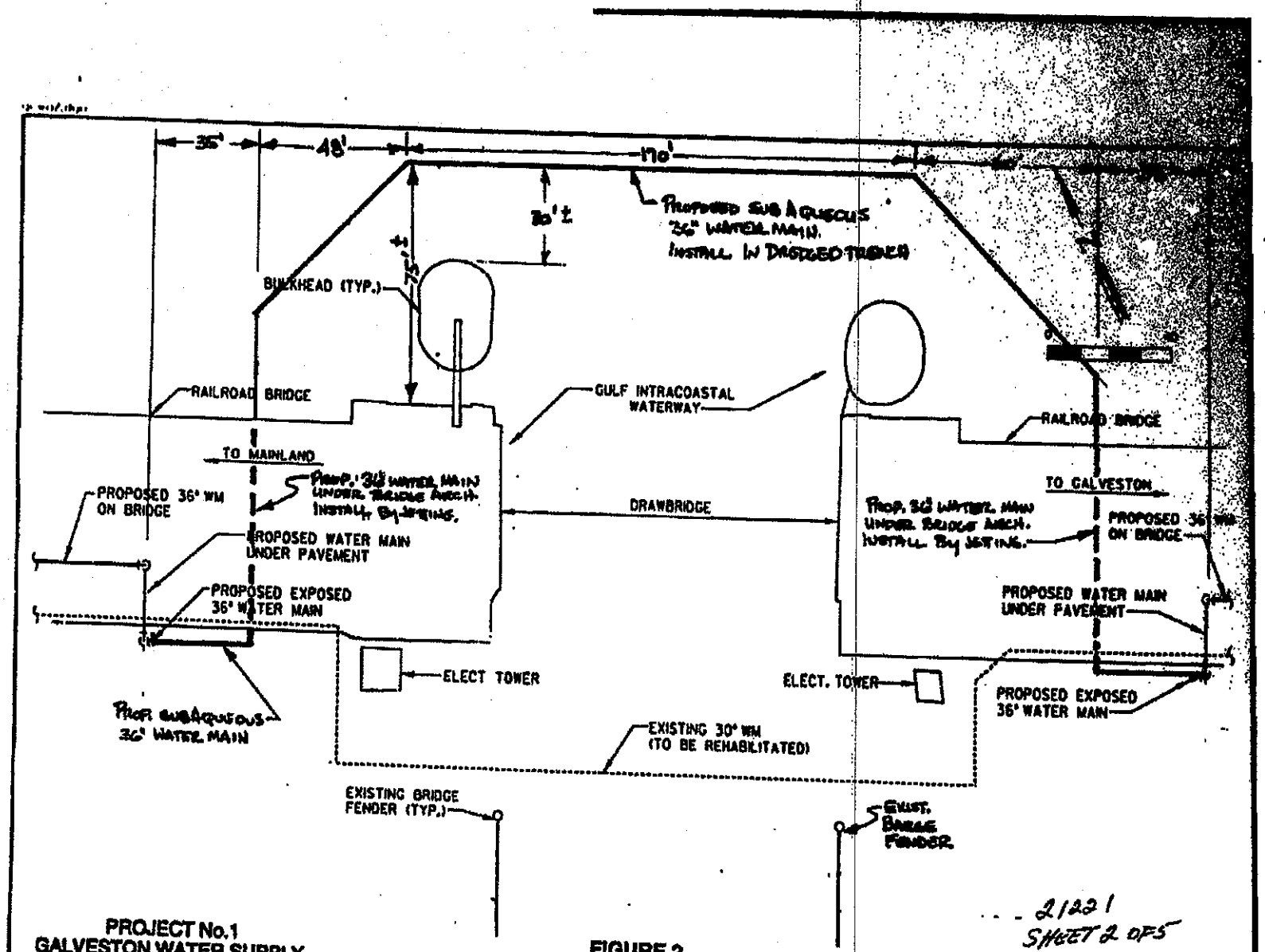


FIGURE 1
GALVESTON WATER SUPPLY PROJECT
GIWW PIPELINE CROSSING - LOCATION MAP
DEC. 1997

GULF COAST WATER AUTHORITY

21241
SHEET 105



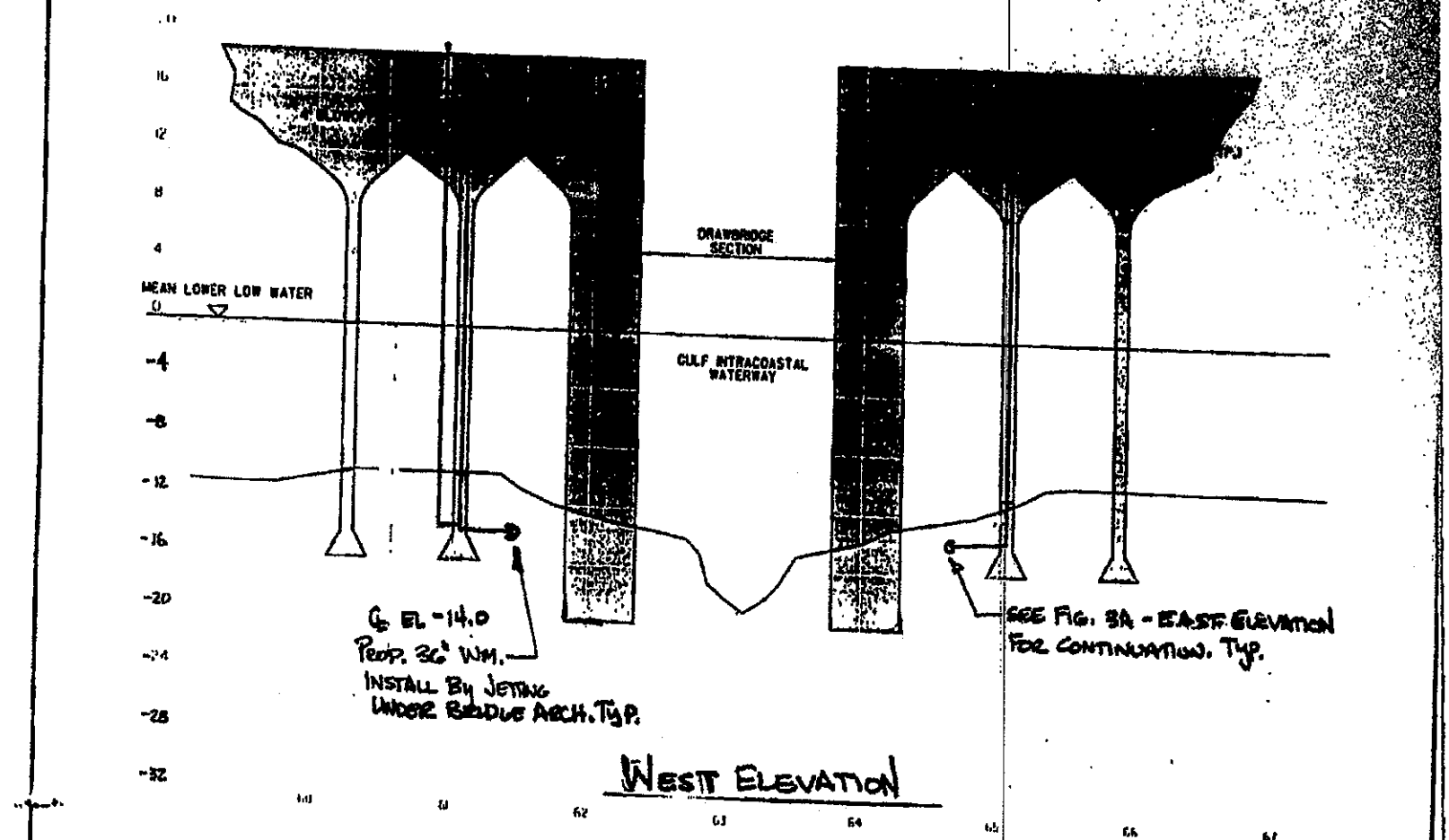
PROJECT No.1
GALVESTON WATER SUPPLY
TRANSMISSION MAIN

GULF COAST WATER AUTHORITY

FIGURE 2
GALVESTON WATER SUPPLY PROJECT
GIWW PIPELINE CROSSING - PLAN VIEW

21221
SHEET 2 OF 5

MAY 4, 1998



West Elevation

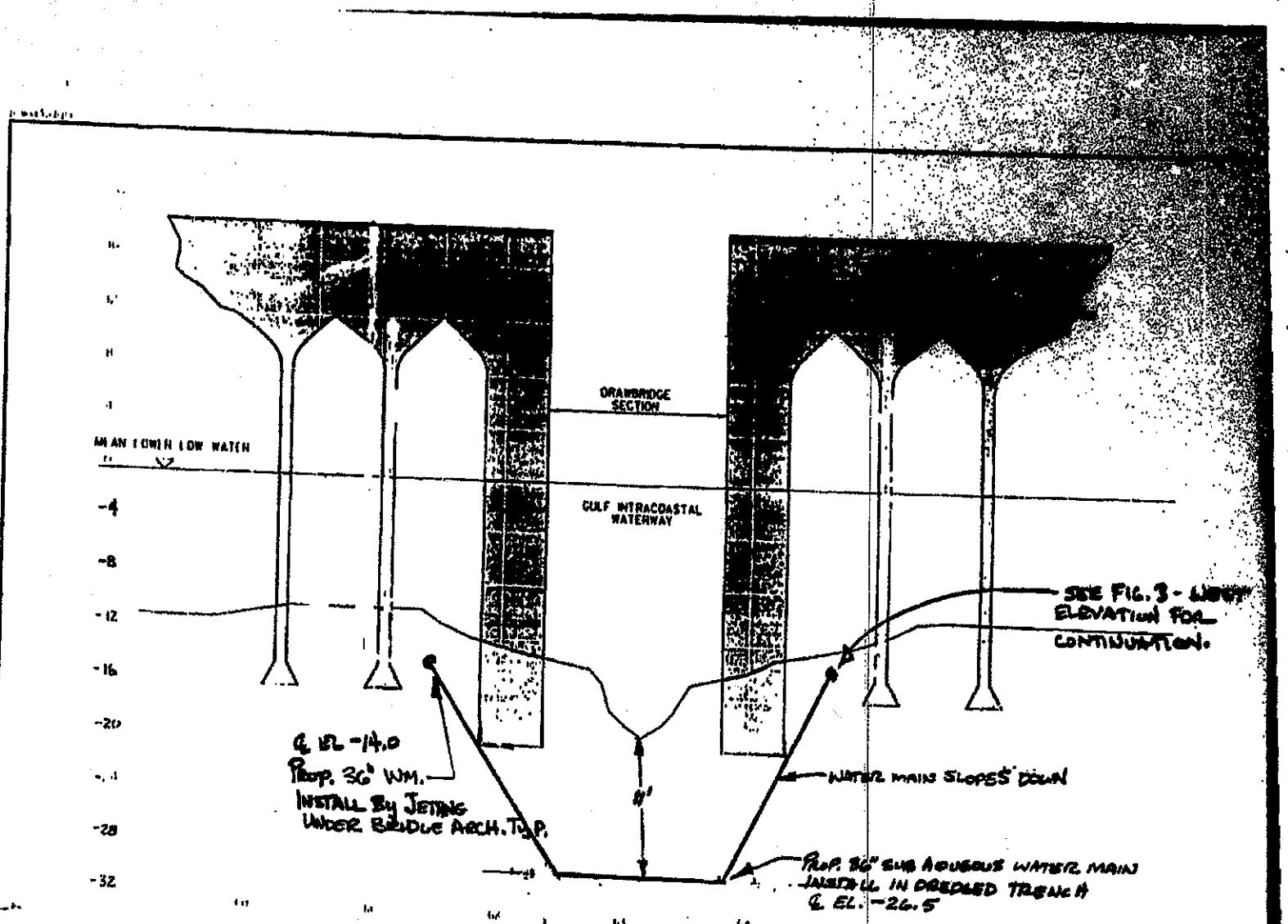
PROJECT No.1
GALVESTON WATER SUPPLY
TRANSMISSION MAIN

GULF COAST WATER AUTHORITY

FIGURE 3
GALVESTON WATER SUPPLY PROJECT
GIWW PIPELINE CROSSING - PROFILE VIEW

2/221
SHEET 3 OF 5

May 4, 1998



EAST ELEVATION

FIGURE 3A

GALVESTON WATER SUPPLY PROJECT

GIWW PIPELINE CROSSING - PROFILE VIEW

PROJECT No.1
GALVESTON WATER SUPPLY
TRANSMISSION MAIN

GULF COAST WATER AUTHORITY

2/22/
SHEET 4 OF 5

May 4, 1998

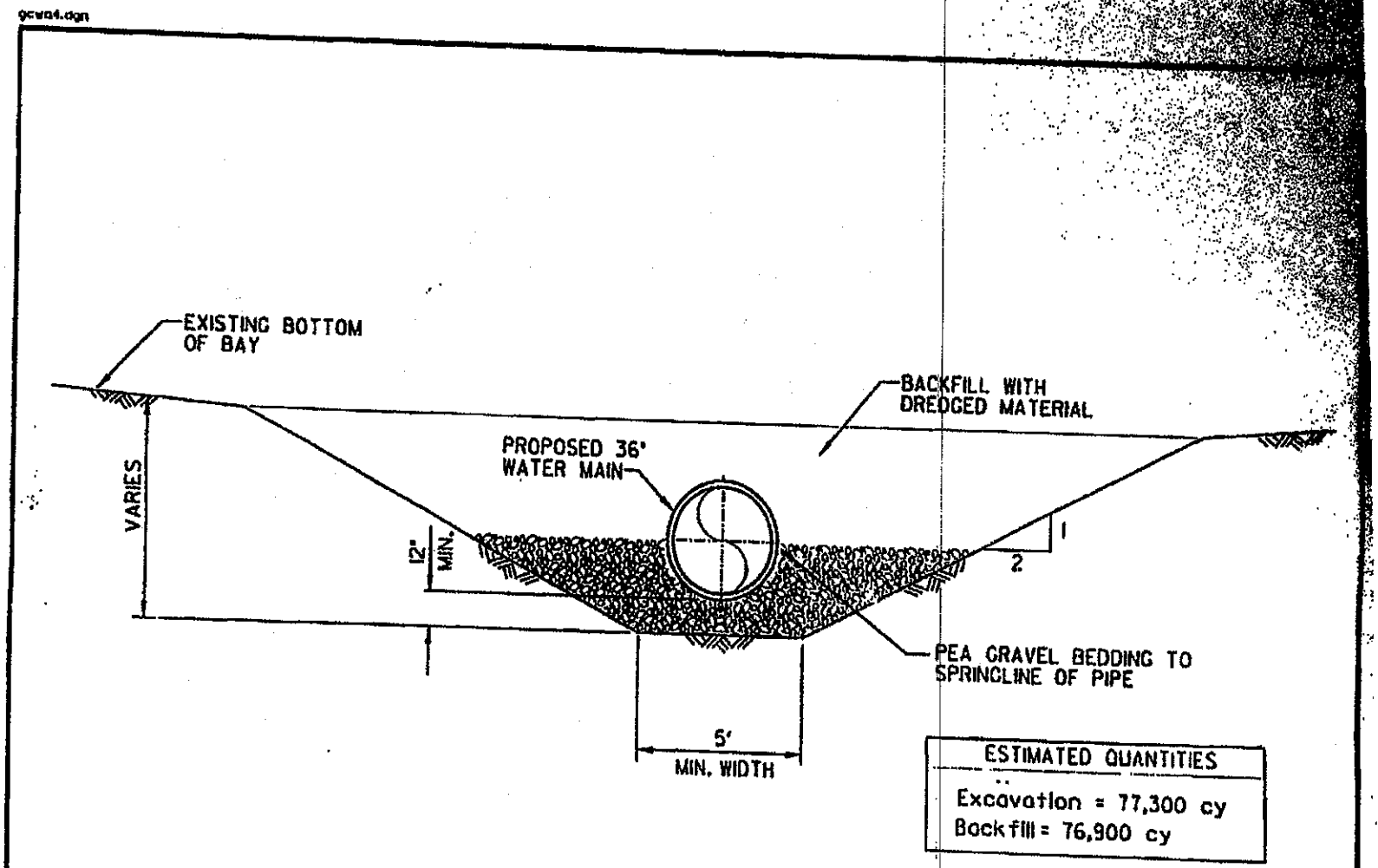


FIGURE 4
GALVESTON WATER SUPPLY PROJECT
GIWW PIPELINE CROSSING - TYPICAL SECTION
DEC. 1997

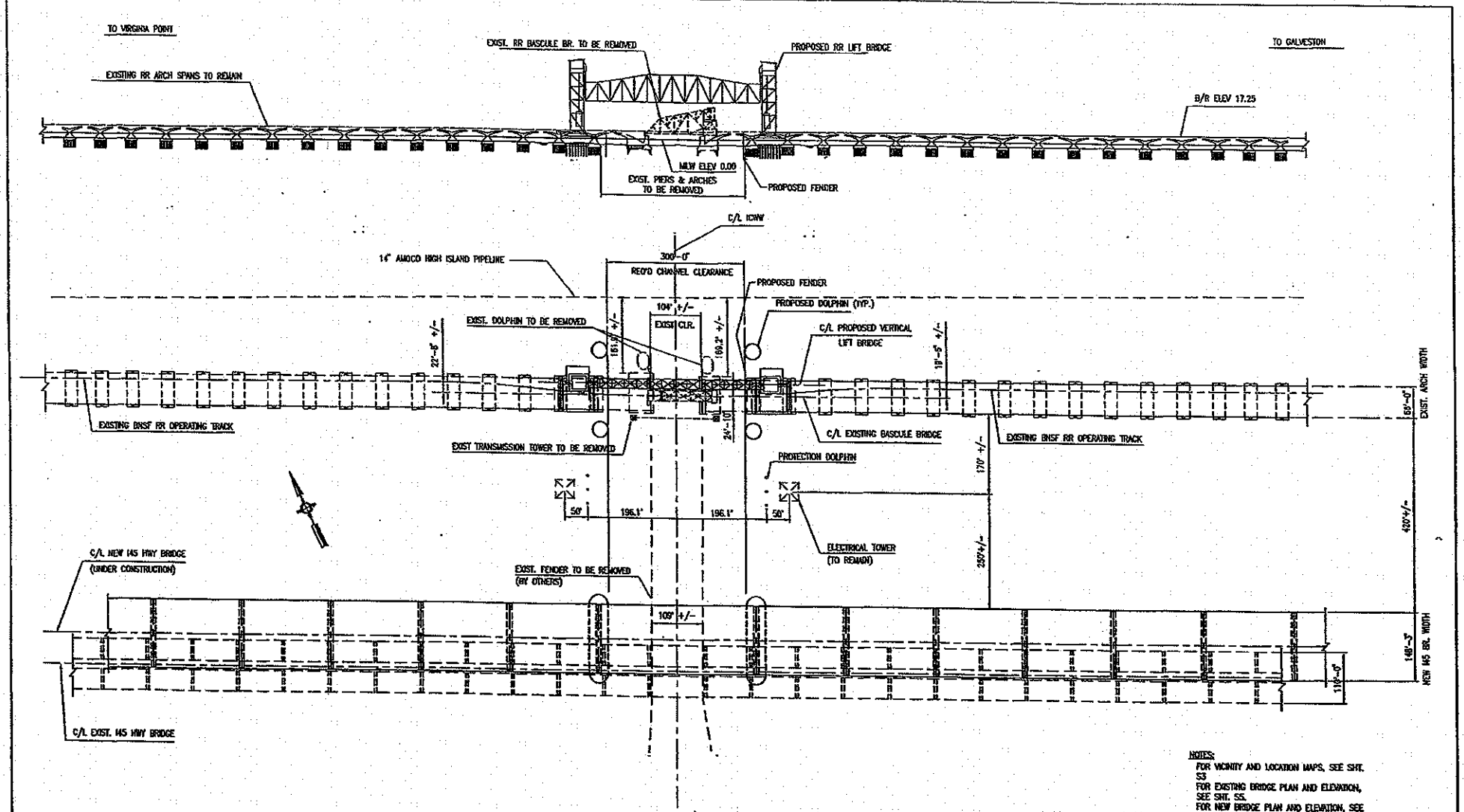
GULF COAST WATER AUTHORITY

21221
SHEET 3 OF 3

URS

APPENDIX C

PLANS FOR BRIDGE AND WATER LINE RELOCATIONS



NOTES:
FOR VICINITY AND LOCATION MAPS, SEE SHT. S3
FOR EXISTING BRIDGE PLAN AND ELEVATION, SEE SHT. S5.
FOR NEW BRIDGE PLAN AND ELEVATION, SEE SHT. S6.
WATER LINES ON THE STRUCTURE NOT SHOWN FOR CLARITY.

NO	DESCRIPTION	BY	CHK'D	DATE
9				
8				
7				
6				
5				
4				
3				
2				
1				

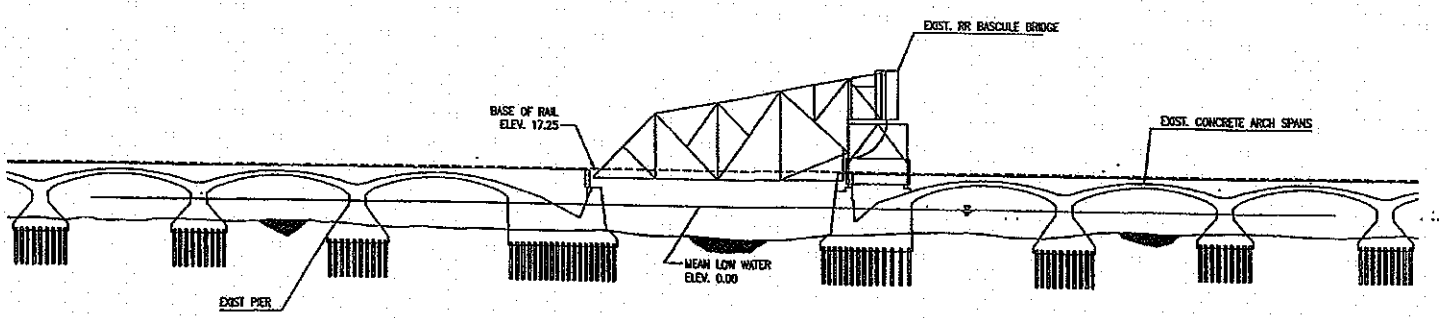
REVISIONS

MODJESKI and MASTERS INC.
Consulting Engineers

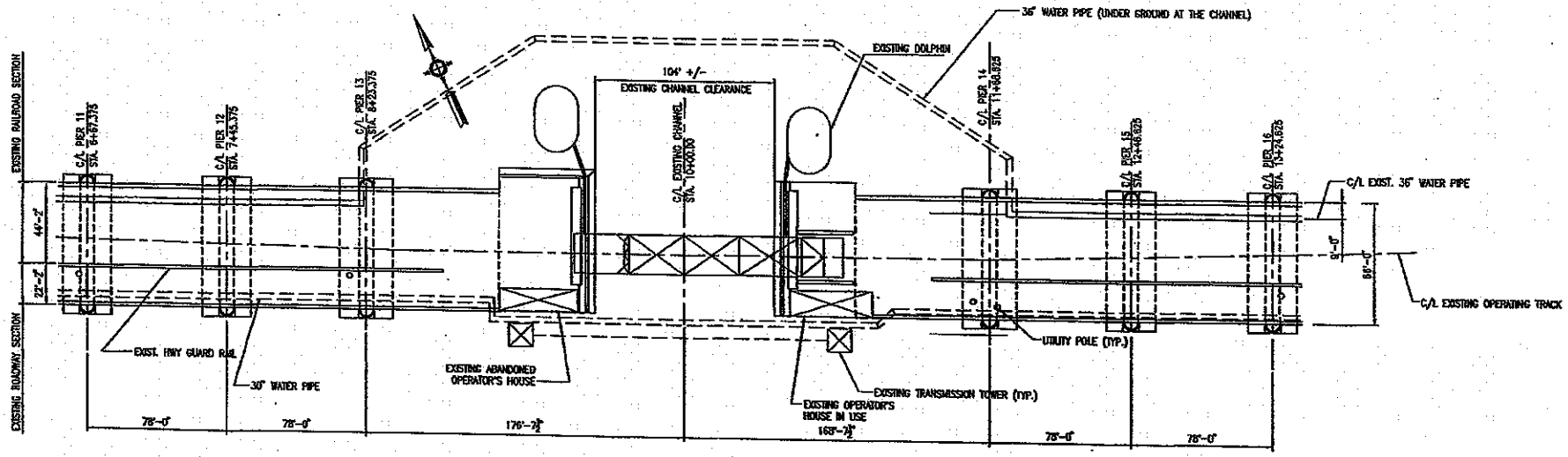
THE COUNTY OF GALVESTON
ALTERATION OF THE
GALVESTON CAUSEWAY RAILROAD BRIDGE
ICWW MILE 357.2, GALVESTON, TEXAS
GENERAL PLAN

OFFICE OF THE COUNTY ENGINEER
GALVESTON, TX
DESIGNED BY YO DRAWN BY PHR CHECKED BY MS DATE OCT. 2006
SCALE AS NOTED

DWG. NO. XXX-XX-XX SHEET S4 OF S29



ELEVATION
SCALE:1"=30'-0"



PLAN
SCALE:1"=30'-0"

NOTES:
FOR NEW BRIDGE PLAN AND ELEVATION, SEE SHT. S6

NO	DESCRIPTION	BY	CHK'D	DATE
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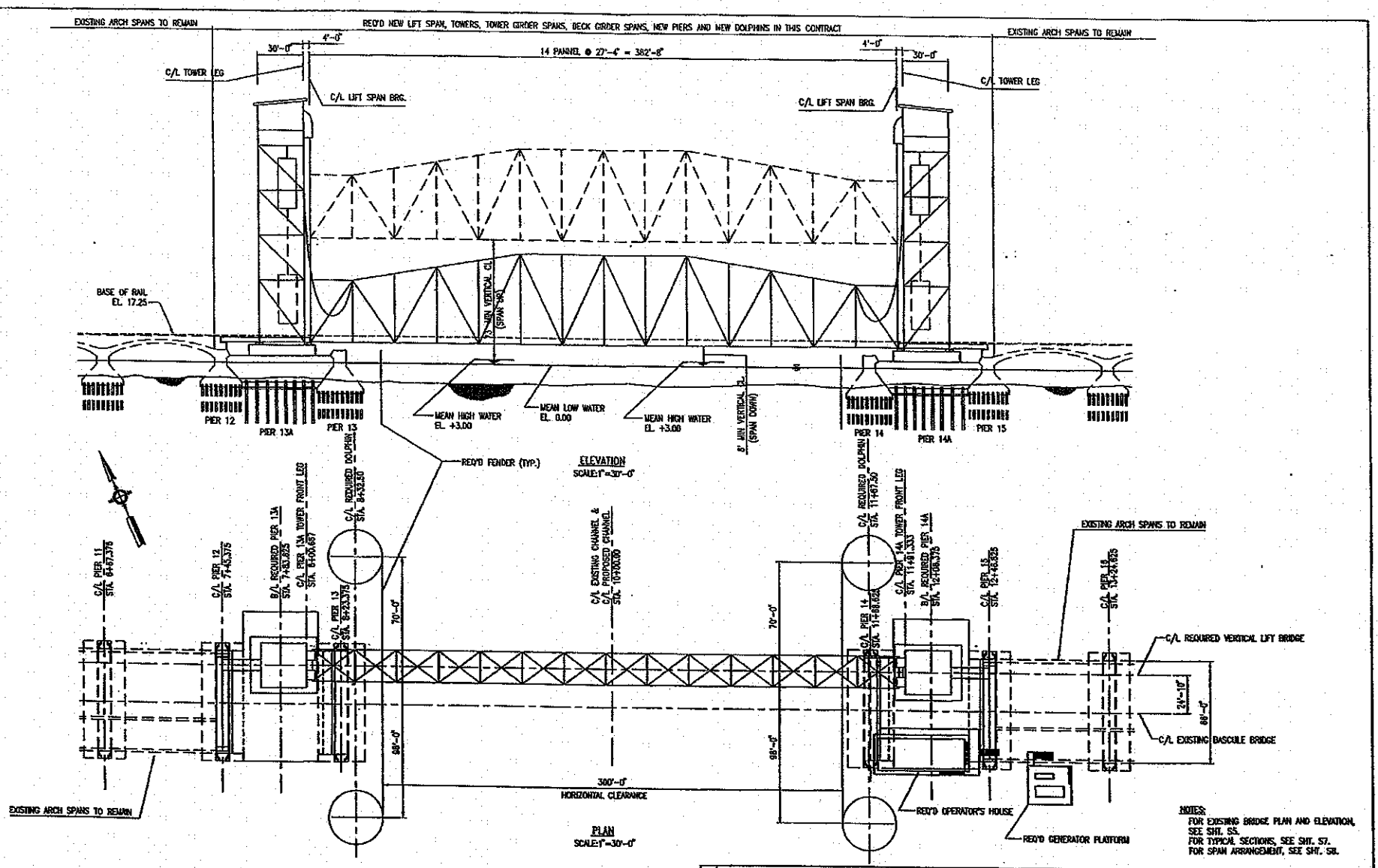
REVISIONS

MODJESKI and MASTERS INC.
Consulting Engineers

THE COUNTY OF GALVESTON
ALTERATION OF THE
GALVESTON CAUSEWAY RAILROAD BRIDGE
ICWW MILE 357.2, GALVESTON, TEXAS
EXISTING BRIDGE – PLAN AND ELEVATION

OFFICE OF THE COUNTY ENGINEER
GALVESTON, TX
DESIGNED BY GRD DRAWN BY PMR CHECKED BY YP SCALE AS NOTED
DATE OCT 2006

DWG. NO. XXX-XX-XX SHEET S5 OF S29



NOTES:
FOR EXISTING BRIDGE PLAN AND ELEVATION, SEE SHT. S5.
FOR TYPICAL SECTIONS, SEE SHT. S7.
FOR SPAN ARRANGEMENT, SEE SHT. S8.

NO	DESCRIPTION	BY	CHK'D	DATE
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7				
6				
5				
4				
3				
2				
1				

REVISIONS

MODJESKI and MASTERS INC.
Consulting Engineers

THE COUNTY OF GALVESTON
ALTERATION OF THE
GALVESTON CAUSEWAY RAILROAD BRIDGE
ICWW MILE 357.2, GALVESTON, TEXAS
PROPOSED BRIDGE -- PLAN AND ELEVATION

OFFICE OF THE COUNTY ENGINEER
GALVESTON, TX
DESIGNED BY XX, DRAWN BY XXX, CHECKED BY XXX
SCALE AS NOTED
DATE MAY, 2006

DWG. NO XXX-XX-XX SHEET S6 OF S29

APPENDIX D

CORRESPONDENCE WITH RESOURCE AGENCIES

U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: G-OPT
Phone: (202) 267-0368
Fax: (202) 267-4048
Email:

16591
February 2, 2005

Mr. Robert Brinkman
State Historic Preservation Office
Texas Historical Commission
1511 Colorado Street
Austin, TX 78701

Dear Mr. Brinkman:

I refer to our telephone conversations of January 27, 2005 and February1, 2005 concerning the Galveston Causeway Railroad Bridge in Galveston, Texas.

BACKGROUND:

The Galveston Causeway crosses Galveston Bay from Galveston Island to Virgin Point on the Texas mainland. The causeway is owned by the Galveston County with the BNSF railroad being operating lesee of the structure, with CenterPoint Energy and the City of Galveston as additional lessees, and Gulf Coast Water Authority as a licensee of the bridge. The Causeway is parallel to the Interstate-45 Bridge, and about 200 yards to the north east. It is the only rail access to Galveston Island. The new I-45 highway bridge is expected to be completed in 2007.

The present Galveston Causeway was first opened to traffic in 1912, replacing a permanent replacement for several earlier railroad bridges and a vehicle ferry from the mainland near Texas City. It was designed and built to carry two railroad tracks, one interurban rail track, and a vehicular roadway. A 30" water main was buried below the roadway to supply fresh water. A second potable water main was added to the causeway recently.

As originally constructed, the causeway consisted of a 125 feet Scherzer rolling lift draw span (providing 110 ft horizontal channel opening) with 14 reinforced concrete arches of 70 ft span on each side and approximately1.5 miles of fill contained by reinforced sheet piles.

In 1915, a severe storm heavily damaged the filled section of the causeway. Temporary trestles were constructed to maintain traffic and the causeway was reconstructed using 51 additional reinforced concrete arches of 60 ft span to replace the mainland filled approach and 28 arches of 60 ft span to reduce the length of the Galveston filled approach. Reconstruction was completed in 1922, leaving the basic configuration of the causeway as it is today. See Enclosure (1).

The roadway on the causeway bridge was a part of the original access road to Galveston Island, but has not been in use since 1954. In 1989, due to severe steelwork deterioration of the

Scherzer Bascule draw span, it was replaced with a modern rolling bascule bridge of equal span by the BNSF Railroad Company which carries a single track and a roadway, but supported from the opposite end of the channel and opening in the opposite direction.

Some major repair and maintenance work have been performed on the concrete approaches over the years. Portions of the all arch spans also have been cleaned and shotcreted over the many years. The reinforced concrete sheet piles which have been removed from the original fill sections were placed around all piers as riprap to protect from scour. Latest inspection indicates pier undermining to continue.

CURRENT PLAN OF ALTERATION:

The Galveston Causeway Railroad Bridge is the most difficult and dangerous bridge on the Gulf Intracoastal Waterway. Ninety- nine allisions have occurred between 1991 and 1999 between commercial vessels and the Galveston Causeway Railroad Bridge. Transit through this bridge is very treacherous and difficult especially when tide and wind coincide with each other. Taking all of these factors into account and the consensus of the commercial waterway operators, the Coast Guard determined the bridge opening is insufficient to allow safe navigation and thus declared this bridge to be an unreasonable obstruction to navigation. On June18, 2001, the Commandant of the Coast Guard issued an Order on the Galveston County to alter this bridge to provide 300 feet horizontal and 73 feet vertical opening under the Truman-Hobbs Act. Just recently, on January 20, 2005, a shrimp boat got its nets caught on the fendering system capsizing the boat. The swift currents then swamped the vessel immediately. There was one fatality in this incident. This incident has caused a major uproar and unrest among the navigation community who seek expeditious alteration.

Congress has recently appropriated about $1.5 million to begin the alteration of the bridge as soon as possible. Because of the limited available funds and the urgency of the alteration due to recent fatality, I am requesting your help to consider the following information and determine the Coast Guard's undertakings has no adverse effect on the Galveston Causeway and that an exemption to the Section 106 process be given.

The Galveston Causeway was listed in the National Register of Historic Places on December 12, 1976. Not withstanding this, the original 1912 Scherzer bascule draw span was replaced in 1989 with modern rolling bascule span without any Section 106 involvement. Now, to comply with the Coast Guard Commandant's Order to alter the existing bridge under the Truman Hobbs Act, the present bascule span, and one concrete arch of 70 ft span on each side of the bascule span would have to be completely removed and replaced with a vertical lift bridge. With this alteration a small longitudinal portion of the adjacent arch span also will be removed to erect the towers/piers of the vertical lift bridge as shown in Enclosure-(2). Additionally, only two abutments would be completely removed but the two piers which supported the arches will be left in place to protect the new vertical lift bridge as fenders. Thus, the alteration work proposed to be undertaken is very minimal compared to the total length of the causeway.

As can be seen from Enclosure (2), the proposed alteration of the causeway bridge has negligible effect on the historic character/value of the bridge. As shown in the drawing, the causeway

would be still left with 105 original concrete arches and associated piers (compared to the original 107 concrete arches) to portray the engineering features of the early Nineteenth Century without diminishing the integrity of property's location, design, setting, materials, workmanship, feeling, association, or use. As you can see, maximum care has been taken at a higher construction cost to even preserve a major portion of the two arches where the tower piers of the lift span are planned to be constructed. Additionally, the removal of the bascule span and the adjacent arches will be undertaken with utmost care and applying modern technology to surgically remove those portions which only needs to be removed. Further more, no blasting will be permitted to protect the existing concrete arches and their substructure from any potential harm/damage. Additionally, the new vertical span will be fabricated and assembled off site and floated into place. These efforts certainly would help to eliminate any detrimental exposure to the causeway from bridge construction activity. I firmly believe that the altered bridge when completed will not only enhance the historic significance of the Galveston Causeway Bridge but also to some extent extend the life of the causeway bridge.

RECOMMENDATION:

As per 36 CFR 800, I strongly believe and sincerely request the SHPO to concur with the Coast Guard's determination that this proposed undertaking has no adverse effect on the property and thus, exempt from the Section 106 process. If you need any additional information, please feel free to contact me at 202-267-1977. I would deeply appreciate your assistance.

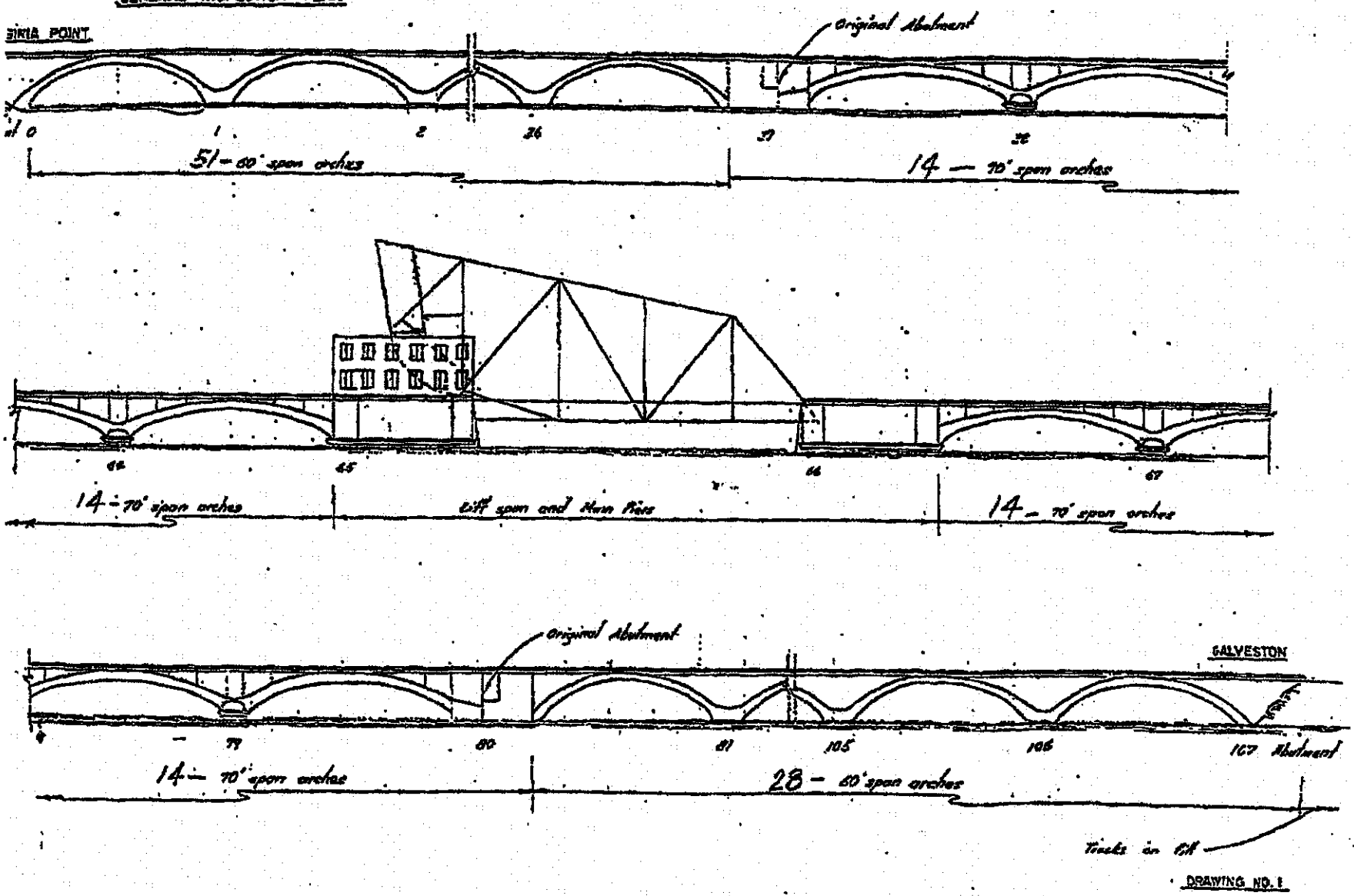
Sincerely,

JACOB PATNAIK
Chief, Engineering Division
Office of Bridge Administration
U. S. Coast Guard Headquarters
By direction of the Commandant

Encl: (1) Existing Galveston Causeway
(2) Proposed Alteration

GALVESTON BAY CAUSEWAY BRIDGE

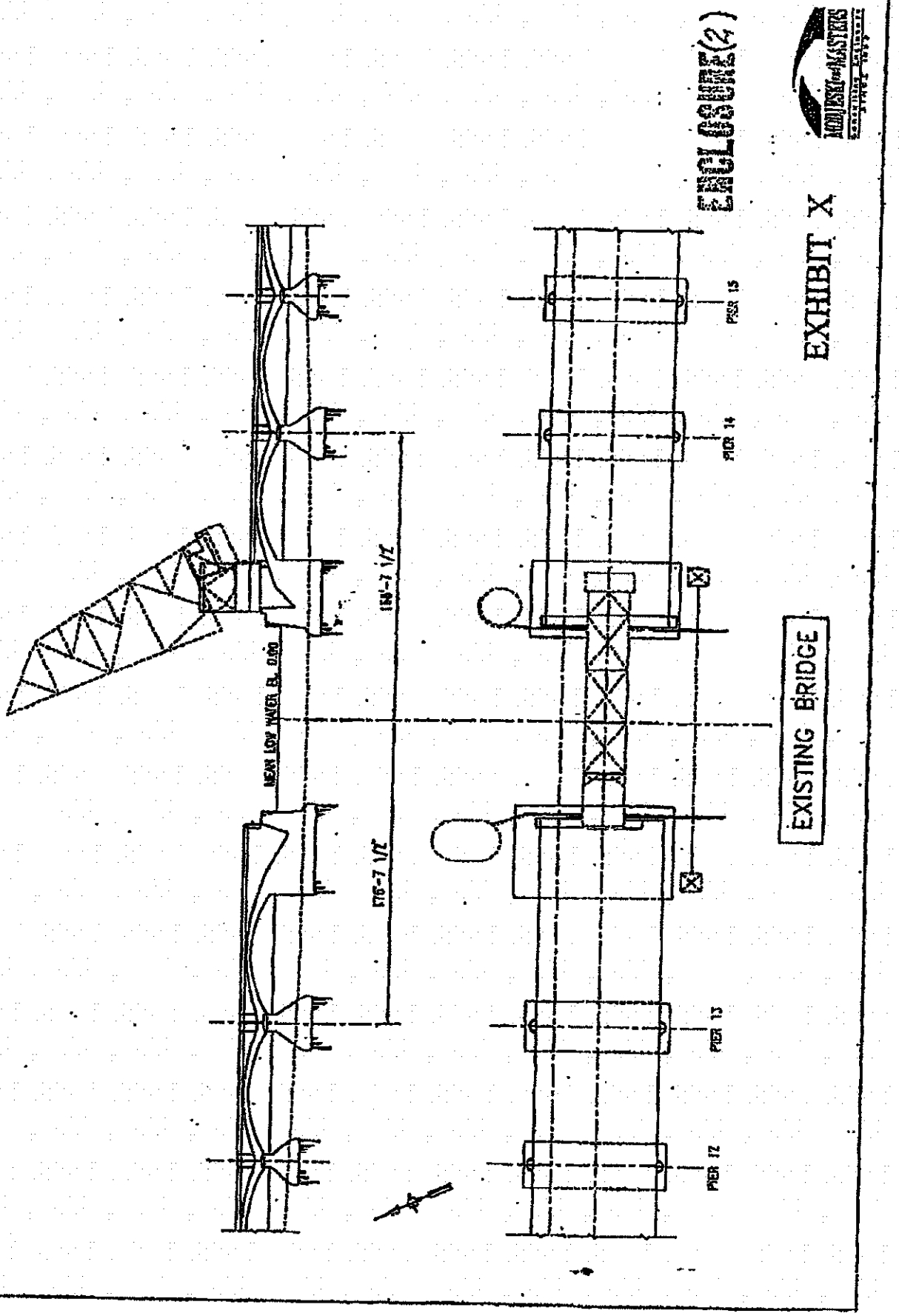
GENERAL INSPECTION PLAN



DRAWING NO. 1

ENCLOSURE(1)

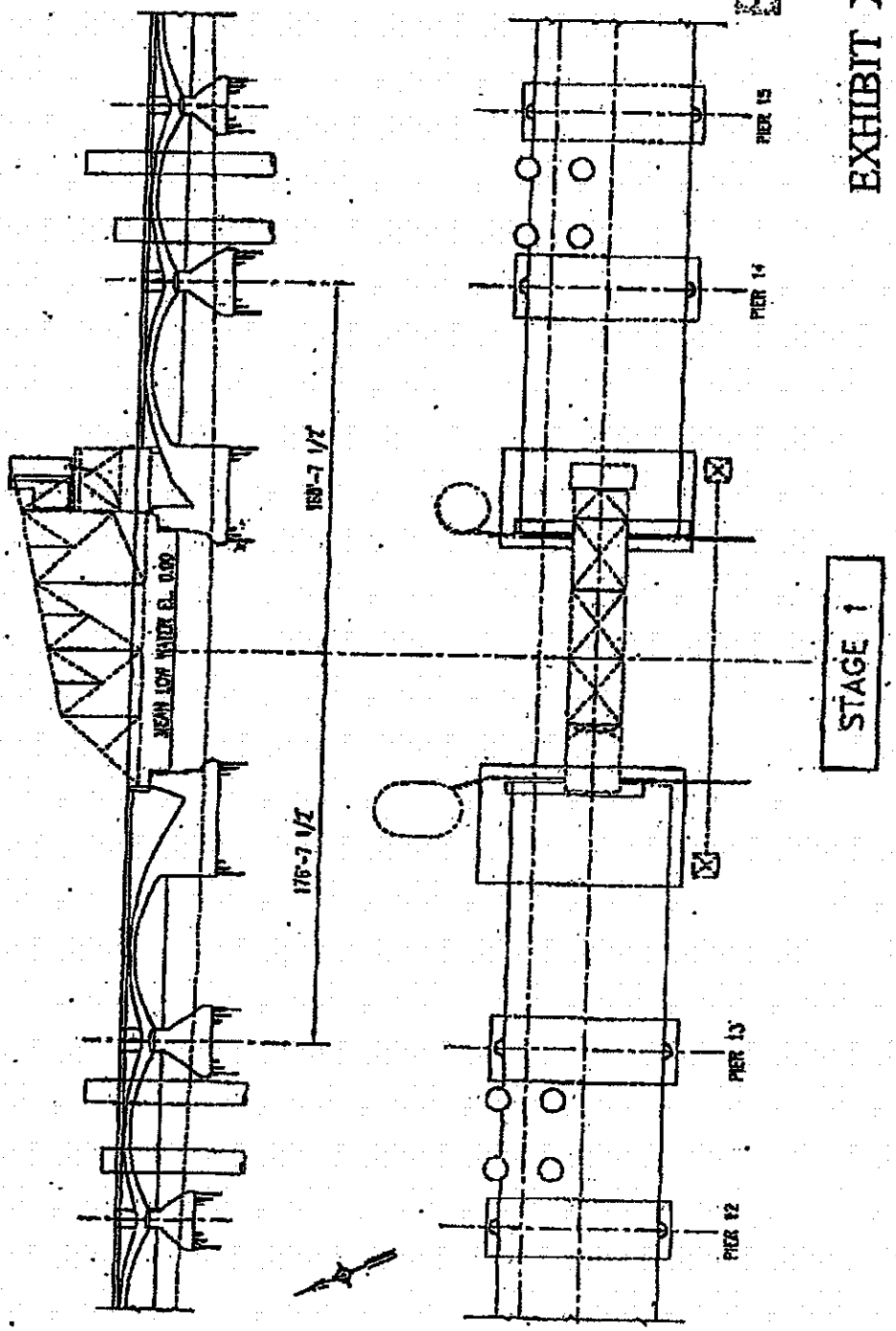
1/6


ENGLISH KNOLL (2)
EXHIBIT X
PIER 15
PIER 14
PIER 13
PIER 12
MEAN LOW WATER EL. 0.00
180-7 1/2"
176-7 1/2"
EXISTING BRIDGE

2/6

• INSTALL DRILL SHAFT FOUNDATIONS FOR TOWER PIERS

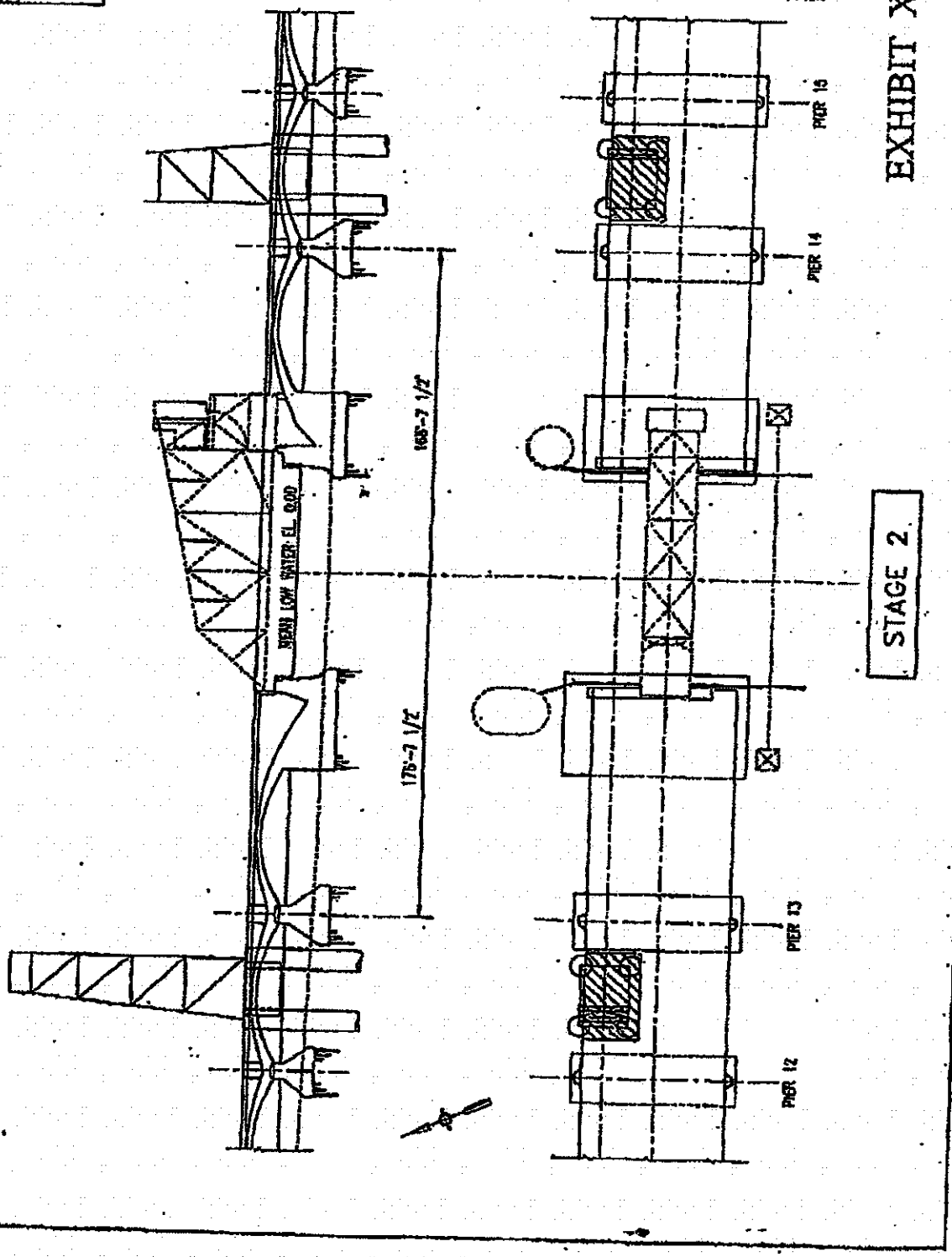
EXHIBIT X



3/6

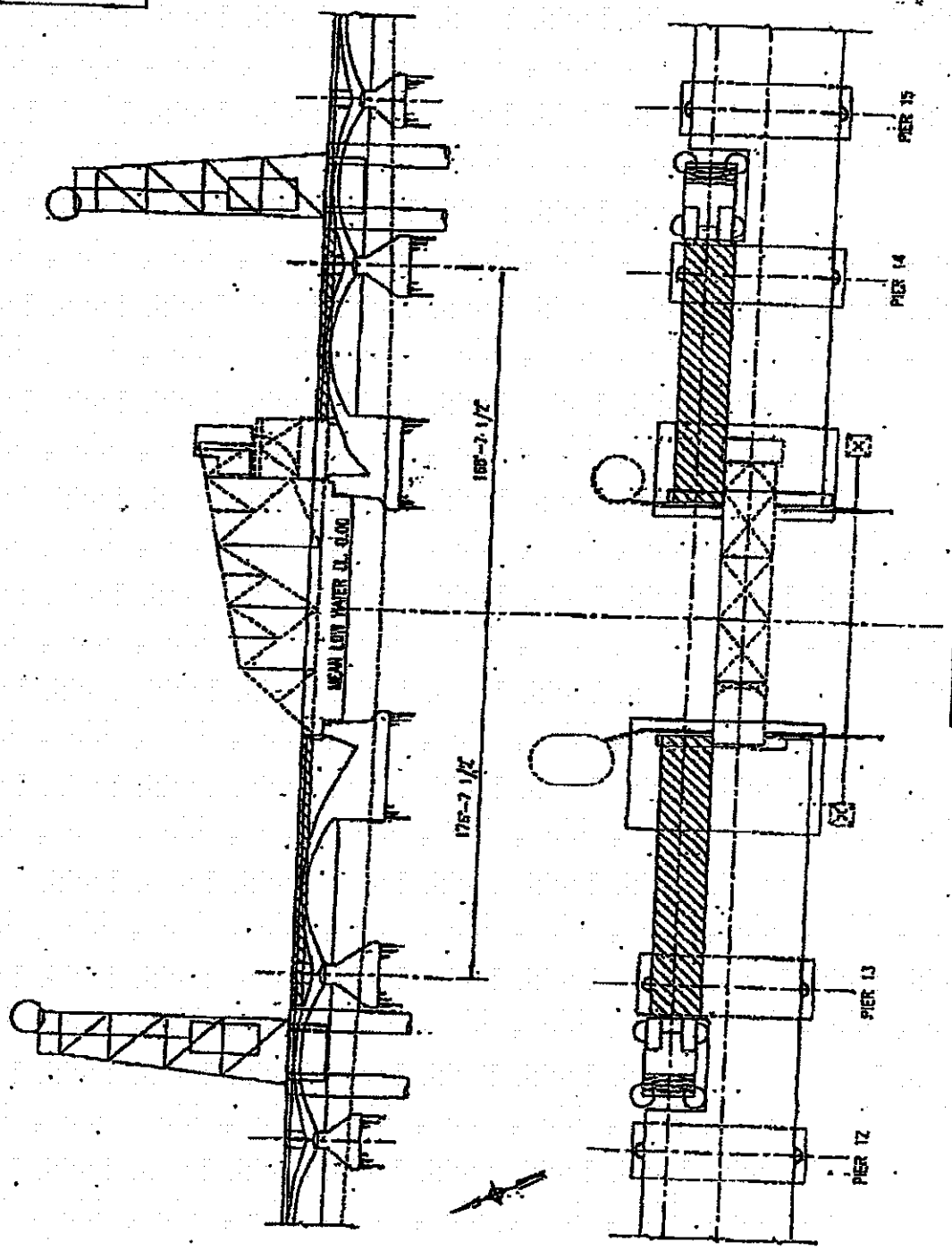
- REMOVE EXISTING RAIL BED AND ARCH AT TOWER PIERS
- CONSTRUCT TOWER PIER WEB WALLS
- ERECT LIFT TOWERS

EXHIBIT X



4/6

- ERECT TOWER MACHINERY
- ERECT COUNTERWEIGHT
- REMOVE EXISTING RAIL BED AND ARCHES BETWEEN TOWERS
- PREPARE NEW TRACK ALIGNMENT



STAGE 3

EXHIBIT X

5/6.

- FLOAT-OUT BASCULE
- FLOAT-IN SPAN
- TRANSFER RAIL TRAFFIC TO NE BRIDGE ALIGNMENT
- REMOVE REMAINING ARCH SPAN
- REMOVE EXISTING DOLPHINS

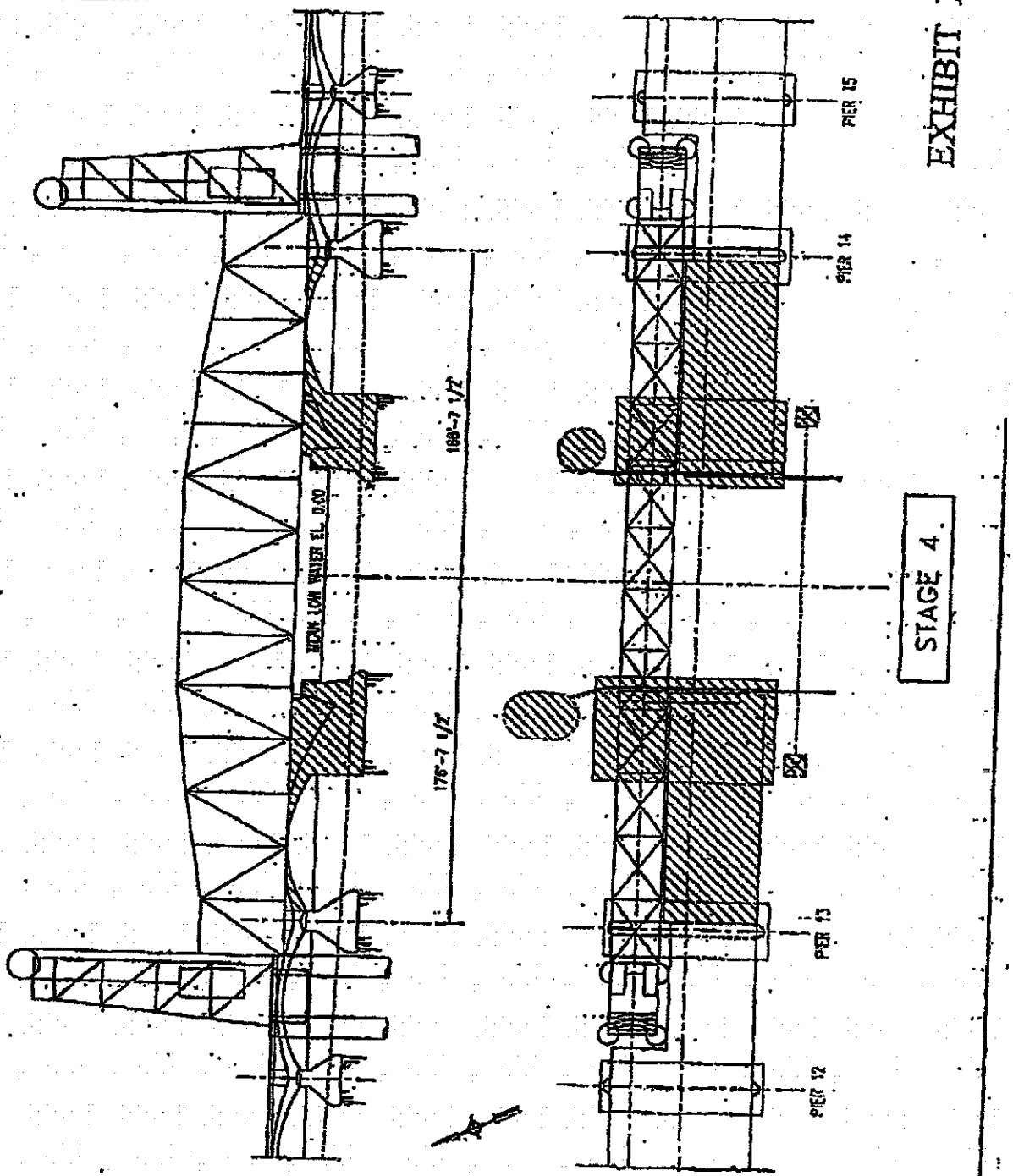


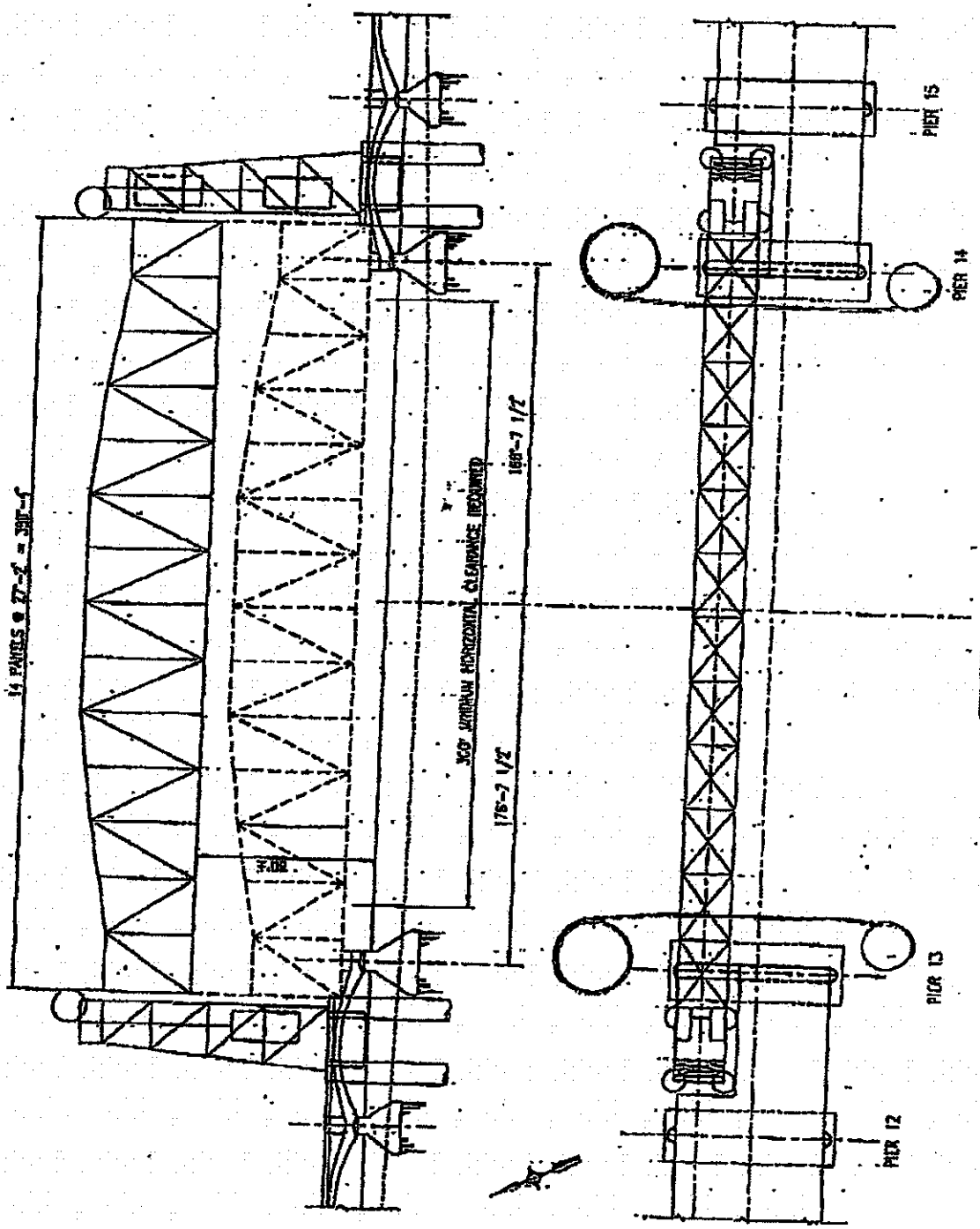
EXHIBIT X

STAGE 4

6/16

- MAKE SPAN OPERATIONAL
- INSTALL NEW DOLPHINS/FENDE

EXHIBIT X



STAGE 5

TEXAS HISTORICAL COMMISSION
The State Agency for Historic Preservation

RICK PERRY, GOVERNOR
JOHN L. NAU, III, CHAIRMAN
F. LAWRENCE OAKS, EXECUTIVE DIRECTOR

February 8, 2005

Jacob Patnaik
Chief, Engineering Division
Office of Bridge Administration
U.S. Coast Guard Headquarters
By direction of the Commandant

Re: Project review under Section 106 of the National Historic Preservation Act of 1966, proposed alterations to Galveston Causeway Railroad Bridge, Galveston County, Texas. (USCG)

Dear Mr. Patnaik:

Thank you for providing information regarding the above referenced project. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission.

The Galveston Causeway Railroad Bridge was listed in the National Register of Historic Places (NRHP) on December 12, 1976. Your letter of February 2, 2005, describes the proposed work to include replacement of the 1989 rolling bascule bridge, which had replaced the original bascule draw span, with a vertical lift bridge. Additionally, two of 107 original concrete arches and associated piers would be removed. We concur that the proposed alterations to the 1915-22 Galveston Causeway will have no adverse effect on the resource, and will not alter its ability to convey its historic character and remain eligible for listing in the National Register of Historic Places. No further consultation with our office is required, and the project may proceed.

Thank you for your participation in this federal review process. If you have any questions concerning this review or if we can be of further assistance, please contact Bob Brinkman at 512/463-8769.

Sincerely,

for: F. Lawerence Oaks
Executive Director, Texas Historical Commission

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Division of Ecological Services
17629 El Camino Real #211
Houston, Texas 77058-3051
281/286-8282 / (FAX) 281/488-5882

April 29, 2005

Jacob Painack
United States Coast Guard
2100 Second Street, S.W.
Washington, DC 20593-0001

Dear Mr. Painack:

This responds to your letter dated March 23, 2005, requesting our concurrence with the Coast Guard's determination that Galveston County's proposal to alter the Galveston Causeway Railroad Bridge across Galveston Bay in Galveston, Texas is not likely to adversely affect any threatened or endangered species.

The Galveston Causeway Railroad Bridge is the most difficult and dangerous bridge on the Gulf Intracoastal Waterway. Ninety-nine collisions of commercial vessels have occurred between 1991 and 1999, with a fatality accident occurring on January 20, 2005 when a shrimp boat's nets were caught on the foundering system and the boat capsized. On June 18, 2001 the Commandant of the Coast Guard issued an Order to Galveston County to alter this bridge to provide 300 feet horizontal and 73 feet vertical clearance under the Truman-Hobbs Act. The Galveston County and the Coast Guard are proposing the demolition of two plus bridge arches and their substructure using mechanical means only [redacted]

The Service concurs with the Coast Guard's determination that the project is not likely to adversely affect any federally listed threatened or endangered species under our jurisdiction, and is not likely to adversely modify any designated critical habitat. This concurrence is based on a review of the project information and Service files. If the project changes or additional information on the distribution of listed or proposed species becomes available, the project should be reanalyzed for effects not previously considered. The NOAA Fisheries Protected Resource Branch (David Bernhart, 727/551-5767) should be contacted for additional information on listed species under their jurisdiction.

If you have any questions, please contact Catherine Yeargan at 281/286-8282.

Sincerely,

Carlos H. Mendoza
Field Supervisor, Clear Lake ES Field Office

cc:
David Bernhart, NOAA Fisheries Protected Resources Division, St. Petersburg, Florida

TAKE PRIDE IN AMERICA

U.S. Department of Homeland Security

United States Coast Guard

Commandant
United States Coast Guard

2100 Second Street, S.W.
Washington, DC 20593-0001
Staff Symbol: G-OPT-3
Phone: (202) 267-1977
Fax: (202) 267-4046

16590
March 3, 2005

Mr. David Bernhart
Assistant, Regional Administrator
For Protective Resources
National Marine Fisheries Service
NOAA, South East Regional Office
9721 Executive Center Drive North
St. Petersburg, Florida 33702

Dear Mr. Bernhart:

As a part of our consultation with National Marine Fisheries Service (NMFS), the Coast Guard requesting your consideration of the following information and concurrence with our determination and belief that the Galveston County's undertakings to alter the Galveston Causeway Railroad Bridge across the Galveston Bay in Galveston, Texas, will not likely to adversely effect any threatened and endangered species in the Galveston Bay and the Gulf Intracostal Waterway:

CURRENT PLAN OF ALTERATION AND BRIDGE REMOVAL:

The Galveston Causeway Railroad Bridge as shown in Enclosure (1) is the most difficult and dangerous bridge on the Gulf Intracoastal Waterway (GWW). Ninety-nine allisions have occurred between 1991 and 1999 between commercial vessels and the Galveston Causeway Railroad Bridge. Transit through this bridge is very treacherous and difficult especially when tide and wind coincide with each other. Taking all of these factors into account and the consensus of the commercial waterway operators, the Coast Guard determined the bridge opening is insufficient to allow safe navigation and thus declared this bridge to be an unreasonable obstruction to navigation. On June 18, 2001, the Commandant of the Coast Guard issued an Order on the Galveston County to alter this bridge to provide 300 feet horizontal and 73 feet vertical opening under the Truman-Hobbs Act. Just recently, on January 20, 2005, a shrimp boat got its nets caught on the fendering system capsizing the boat. The swift currents then swamped the vessel immediately. There was one fatality in this incident. This incident has caused a major uproar and unrest among the navigation community who seek expeditious alteration.

To comply with the Coast Guard Commandant's Order to alter the existing single track RR Bascule Bridge under the Truman Hobbs Act, the present bascule span, and one concrete arch of 70 ft span on each side of the bascule span would have to be completely removed and replaced with a vertical lift bridge. With this alteration a small longitudinal portion of the adjacent arch span also will be removed to erect the towers and piers of the vertical lift bridge as shown in Enclosure (2). Additionally, only two abutments would be completely removed but the two piers

which supported the arches would be left in place to protect the new vertical lift bridge as fenders. Thus, the alteration work proposed to be undertaken is very minimal compared to the total length of the causeway. An appropriate environmental document is under preparation for the alteration of the Galveston Causeway Bridge. For this, Galveston County has retained a consultant. Total length of the project is about 350 feet.

As can be seen from Enclosure (2), the proposed alteration of the causeway bridge is not likely to have any adverse effect on the fish and wildlife. As shown in the drawing, the causeway would be still left with 105 original concrete arches and associated piers (compared to the original 107 concrete arches). As you can see, maximum care has been taken at a higher construction cost to even preserve a major portion of the two arches where the tower piers of the lift span are planned to be constructed. Additionally, the removal of the bascule span and the adjacent arches will be undertaken with utmost care and applying modern technology to surgically remove those portions which only needs to be removed. No blasting will be permitted to protect the existing concrete arches and their substructure from any potential harm/damage. The Galveston County and Coast Guard are proposing that the contractor perform the demolition of two + arches and their substructure using mechanical means only (no explosive demolition).

The contractor will be required to prepare his own demolition plan and have it reviewed and approved by the Coast Guard, Galveston County and the U.S. Army Corps of Engineers. Approval of any deviations between the demolition plan detailed by the contractor and Galveston County demolition plan in this application will require adequate time for review and comment by regulatory agencies and interested parties.

Within his demolition plan, the contractor may request the limited use of explosives for the removal of abutments and existing large bascule pier near the Gulf Intracoastal Waterway (GIWW). This work will be confined to the interior of a drained steel cofferdam and fully detailed within the contractor's demolition plan. This plan will include pertinent information regarding size, type, spacing, and confinement, etc. of charges as well as contractor's safety plan and measures to ensure no impacts to fish , wildlife or adjacent arches. Coordination, review and approval will be required with the Texas Parks and Wildlife Department (TPWD) and the NMFS as well as Galveston County, USCG, and USACOE. This approval process could take in excess of a year, and does not guarantee final approval of all or part of the contractor's demolition method. The existing footings and bascule piers would be removed to elevation -20 or to elevations as specified by the USACOE.

The arch spans will be demolished in small pieces by mechanical means. Barges and wooden mats will be placed beneath the arch slab during mechanical demolition to contain the concrete rubble created. The barge will have adequate sidewalls to prevent debris from falling into Galveston Bay. Demolition will be accomplished primarily by saw cutting and by an excavator-mounted hydraulic ram. No debris will be allowed to drop directly into Galveston Bay. The debris will be transported offsite for use as roadway material or other suitable use.

Similarly, the bascule span and its counterweight will be removed by either floating the whole thing in one piece, or by large manageable pieces lowered to a barge and transported to offsite for crushing or recycling as roadway material or other suitable use. No debris will be allowed to drop directly into Galveston Bay.

Barges would be utilized for construction of the bridge. The number of barges used, size of barges, period of time for use, docking locations and loading/unloading locations would be at the discretion of the contractor. However, the U. S. Coast Guard would approve all activities and locations prior to construction.

FOUNDATION COLUMNS

The piers supporting the towers of the vertical lift bridge would be constructed of large 10 ft. diameter drill shafts, one under each of the four tower legs. These drill shaft columns would be encased in steel casing from well above the normal water level to a point sufficiently deep in the bay bottom soils to engage stiff clays that preclude shaft sidewall collapse. The shafts would be excavated with a large diameter auger, and the excavated material placed in a hopper-barge for disposal off-site on land. No excavated material would be allowed to be deposited in Galveston Bay.

WATER MAINS

There are two existing water mains on the Galveston Causeway Railroad Bridge, an old 30" diameter line which is located on the south side of the bridge buried in arch fill under the now-closed roadway deck, and a new 36" diameter exposed line carried on saddle-type supports down the middle of the Causeway deck. The 30" diameter line is buried in a trench on the south side of the bridge to pass under the existing navigation channel, while the 36" diameter line is buried in a trench on the north side of the bridge to pass under the navigation channel. Both of the water lines must be relocated to pass safely under the proposed widened navigation channel. Present plans call for laying both new lines under the channel on the north side of the bridge, with the lines located sufficiently far enough north to clear the existing buried 36" line, and the proposed new sheet pile dolphins at the channel margins. Both lines would be laid in dredged trenches sufficiently deep to provide the required 10 ft. of cover to the channel bottom. Efforts would be taken to minimize disturbance to the adjacent bay bottom during the dredging of the trenches, and after pipe installation, the trenches would be backfilled with the on-site dredged material.

FENDER PROTECTION SYSTEM

It is anticipated that protective sheet pile dolphins would be placed on each side of the reconstructed bridge navigation span at the new widened channel margins. On the north side, the two dolphins will be 35 ft. in diameter placed about 30 ft. clear of the existing structure. On the south side, the two dolphins may be somewhat smaller, say 25 ft. in diameter, again placed about 30 ft. clear of the existing structure. A pile supported guide fender would extend between the

16590
March 3, 2005

north and south dolphins on each side of the channel, with the guide fender braced against existing piers 13 and 14 which would remain as part of the pier protection system.

Additionally, the new vertical span would be fabricated and assembled off site and floated into place. These efforts certainly would help to eliminate any detrimental exposure to the causeway and GIWW from bridge construction activity.

Proposed construction and removal methods have been evaluated and chosen based on absence of explosives thus, impacts are not likely to occur to any threatened and endangered species and minimal/no impacts to marine environment. No additional right-of-way would be required for the proposed facility.

Congress has recently appropriated about $1.5 million to begin the alteration of the bridge as soon as possible. Because of non use of blasting for removal of the existing bridge and removal would be performed by mechanical means only, I request your review and written concurrence with our determination that the project would have no adverse impact on any threatened or endangered species. A letter is requested regarding compliance with the Endangered Species Act of 1973 for our files. Should you need any further information concerning this project, please contact us at 202-267-1977.

Sincerely,

JACOB PATNAIK
Chief, Engineering Division (G-OPT-3)
U.S. Coast Guard
By direction of the Commandant

Enclosure: (1) Existing Galveston Causeway Bridge
(2) Proposed Alteration

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Ave. S.
St. Petersburg, FL 33701
(727) 824-5312, FAX (727) 824-5309
http://sero.nmfs.noaa.gov

MAR 31 2005 F/SER31:DLK

Mr. Jacob Patnaik
Chief, Engineering Division (G-OPT-3)
U.S. Coast Guard
2100 Second Street, S.W.
Washington, DC 20593-0001

Dear Mr. Patnaik:

This letter responds to the request for concurrence of "no effect" on protected species regarding the proposed removal and replacement of the Galveston Causeway Railroad Bridge across Galveston Bay, Galveston, Texas, received by NOAA's National Marine Fisheries Service (NMFS) on February 23, 2005, from the U.S. Coast Guard (USCG). The project requires section 7 consultation pursuant to the Endangered Species Act of 1973 (ESA). The NMFS consultation number for this project is I/SER/2005/00248; please refer to this number in future correspondence on this project.

The applicant proposes to remove the bascule span and one concrete arch of 70-ft span on each side of the bascule span, and replace it with a vertical lift bridge. Additionally, two abutments would be completely removed but the two piers that supported the arches will be left in place to serve as fenders. The removal of these portions of bridge and replacement with the vertical lift bridge are deemed necessary because the current configuration has posed a serious navigational hazard resulting in numerous accidents, and one mortality, over the years. The total length of the project will be about 350 feet.

ESA-listed species under NMFS' purview considered in this section 7 consultation include the green (*Chelonia mydas*), loggerhead (*Caretta caretta*), Kemp's ridley (*Lepidochelys kempii*), leatherback (*Dermochelys coriacea*), and hawksbill (*Eretmochelys imbricata*) sea turtles. These sea turtle species are known to occur in the Gulf of Mexico and may occur in the project area. The project area is not in critical habitat for any of these listed species; therefore, critical habitat will not be affected. No other ESA-listed species are expected to occur in the project area.

The project will not require blasting to remove portions of the existing structure. Demolition will be performed mechanically. It is possible that the contractor may request the limited use of explosives if later deemed necessary, but that such work would be limited to inside a protective steel cofferdam. Such a change to the demolition plan would require that detailed information regarding the blasting plan be submitted to NMFS for a new consultation.

Barges and wooden mats will be placed beneath the bridge portions being removed to contain any concrete rubble created. No debris will be allowed to fall into Galveston Bay. Construction will be performed from barges and the new vertical span will be fabricated and assembled offsite and then floated into place to minimize disturbance to the bay. The four foundation columns for the vertical lift bridge will be constructed of large 10-ft diameter drill shafts, one under each of the tower legs. The shafts will be encased in steel casing and will be excavated with a large diameter auger, with excavated material disposed of on land. During construction two existing water main lines will be relocated. Both new lines will be laid in dredged trenches on the channel bottom, with efforts made to minimize disturbance to the adjacent bay bottom during dredging. A fender protection system consisting of two protective sheet pile dolphins on each side of the bridge joined by a pile supported guide fender will also be constructed. Impacts to habitat potentially used by sea turtles will be insignificant and discountable, as the new construction will result in minimal, if any, change to the existing footprint of the bridge (per your phone conversation with NMFS staff on March 22, 2005). During construction activities, measures must be adopted to protect water quality, wildlife, and to ensure the protection of ESA-listed species and marine mammals. These conditions include provisions to: Educate the project personnel of the potential for the presence of protected species and the penalties for violating any laws protecting these species; ensure that siltation barriers and other construction-related objects are installed in a manner that will not entangle any protected species nor impede their ability to transit to important habitats; and monitor the area and take precautions to ensure that construction equipment and vessel operation will not create a threat to these species.

NMFS cannot concur with the "no effect" determination made by the USCG. Turtles can be affected by construction activities including vessel traffic and in-water work. However, NMFS believes the proposed action's effects on sea turtles will be insignificant because sea turtles will be able to avoid the slow moving construction equipment and the use of the construction guidelines detailed in the previous paragraph will provide added protections. NMFS believes that the proposed activity may affect, but is not likely to adversely affect, any ESA-listed species under our purview.

This concludes the USCG's consultation responsibilities under section 7 of the ESA. An environmental review document is under preparation for this project by the USCG. A new consultation must be initiated if there is a take, if new information reveals effects of the action to listed species or critical habitat in a manner or to an extent that was not previously considered; if the identified action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not previously considered; or if a new species is listed or critical habitat designated that may be affected by the identified action.

Incidental takes of marine mammals (listed or non-listed) are not authorized through the ESA section 7 process. If such takes may occur, an incidental take authorization under Marine Mammal Protection Act (MMPA) Section 101 (a)(5) is necessary. For more information regarding MMPA permitting procedures, contact Ken Hollingshead of our Headquarters' Protected Resources staff at (301) 713-2323.

You are also reminded, in addition to your protected species/critical habitat consultation requirements with NMFS' Protected Resources Division pursuant to section 7 of the ESA, prior to proceeding with the proposed action the action agency must also consult with NOAA Fisheries' Habitat Conservation Division (HCD) pursuant to the Magnuson-Stevens Fishery Conservation and Management Act's requirements for essential fish habitat (EFH) consultation. (16 U.S.C. 1855 (b)(2) and 50 CFR 600.905-600.930, subpart K). Consultation is not complete until EFH and ESA concerns have been addressed. If you have any questions about EFH consultation for this project, please contact Rusty Swafford, HCD, at (409) 766-3699.

We look forward to continued cooperation with you in conserving our endangered and threatened resources. If you have any questions, please contact Dennis Klemm, fishery biologist, at (727) 824-5312, or by e-mail at dennis.klemm@noaa.gov.

Sincerely yours,

Roy E. Crabtree, Ph.D.
Regional Administrator

Attachment

Cc: F/SER46 – R. Swafford; F/PR3
Ref: I/SER/2005/00248

File: 1514-22.H.USCG

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE
Southeast Regional Office
263 13th Ave. S.
St. Petersburg, FL 33701
(727) 824-5312, FAX (727) 824-5309
http://sero.nmfs.noaa.gov .

APR 19 2005 F/SER31:DLK

Mr. Jacob Patnaik
Chief, Engineering Division (G-OPT-3)
U.S. Coast Guard
2100 Second Street, S.W.
Washington, DC 20593-0001

Dear Mr. Patnaik:

Thank you for alerting me to the inconsistency in the March 31, 2005, section 7 consultation that we provided to you. The consultation letter inadvertently referenced the February 23, 2005, draft request and not the subsequent March 3, 2005, final consultation request sent to our Asst. Regional Administrator, David Bernhart. Other than the date sent, the only difference in the substance of the two letters is that the initial draft stated the Coast Guard's impact determination as being a "No Effect," whereas the subsequent, final letter included a determination of "Not Likely to Adversely Affect." The project details provided in the two versions of the letter remain the same. In our consultation we conclude that we do not concur with the "No Effect" determination, and that the project is "Not Likely to Adversely Affect" listed species under our purview. Although the final consultation request that you sent had a preliminary determination of "Not Likely to Adversely Affect" instead of the "No Effect" that we referenced, the final determination made by NMFS in the consultation letter was based upon the project information provided, which did not change between the drafts of your letters. Therefore, the final determination provided within the consultation letter is still valid.

Because the substance of the request letter and the consultation response remains the same, it is unnecessary to draft a new consultation letter with the minor corrections. Please attach this letter as an erratum to the final consultation letter signed on March 31, 2005, so that the details will be part of the record. We look forward to continued cooperation with you in conserving our endangered and threatened resources. If you have any questions, please contact Dennis Klemm, fishery biologist, at (727) 824-5312, or by e-mail at dennis.klemm@noaa.gov.

Sincerely yours,

Dennis L. Klemm
Fishery Biologist

Ref: I/SER/2005/00248
File: 1514-22.H..USCG

Coastal Coordination Council

P.O. Box 12873 ♦ Austin, Texas 78711-2873 ♦ (800) 998-4GLO ♦ FAX (512) 475-0680

February 26, 2008

Mr. Fred Werner
URS Corporation
9801 Westheimer Suite 500
Houston Texas 77042

Re: Galveston Causeway Railroad Bridge Replacement, Galveston County, Texas

Dear Mr. Werner:

Pursuant to Section 506.30 of 31 TAC of the Coastal Coordination Act, the project referenced above has been reviewed for consistency with the Texas Coastal Management Program (CMP).

The project was reviewed for impacts to coastal natural resource areas within the CMP boundary. No unavoidable adverse impacts were found. Therefore, this project is consistent with the CMP goals and policies.

Sincerely,

Tammy S. Brooks
Consistency Review Coordinator
Texas General Land Office

cc: Matthew Kimmel, COE
Manuel Freytes, GLO Field Service
GLO PSC Lower Coast

11881 Amendment #3
FILE 3.1.4

Texas General Land Office
Garry Mauro, Commissioner

Stephen F. Austin Building
1700 North Congress Avenue
Austin, Texas 78701-1495
(512) 463-5001

January 30, 1998

Anne S. Profilet
5246 Grape Street
Houston, Texas 77096-1309

Re: Galveston Water Supply Project
Right-of-way

Thank you your letter of January 22, 1998. I referred it to our survey department for them to verify ownership. They inform me that the State of Texas does not have jurisdiction over the right-of-way you described for the railroad causeway or the Intercoastal Waterway.

If you have any questions, or if I can be of further service to you, please give me a call at (512) 463-5207.

Sincerely,

Adolph Kremel
Asset Management/Permitting

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
NATIONAL MARINE FISHERIES SERVICE

Southeast Regional Office
263 13th Avenue S
St. Petersburg, Florida 33701-5511

February 26, 2007

Mr. Fredrick T. Werner
Environmental Project Coordinator
URS Corporation
9801 Westheimer, Suite 500
Houston, Texas 77042

Dear Mr. Werner:

The NOAA's National Marine Fisheries Service (NMFS) has reviewed Draft Environmental Assessment (DEA) for the Galveston Causeway Railroad Bridge Alteration Across the Gulf Intracoastal Waterway Galveston County, Texas, provided by your cover letter of January 29, 2007. The U.S. Coast Guard (USCG) has required the replacement of the railroad bridge pursuant to the Truman-Hobbs Act. As a result of unsafe conditions and consultation with commercial waterway operators, the USCG determined that the bridge was an unreasonable obstruction to navigation and the Commandant of the USCG issued an Order to Alter directing Galveston County to construct a new bridge over the Gulf Intracoastal Waterway.

According to the DEA no dredging will be required and no fill material will be placed in the bay from the bridge construction. Minor and temporary impacts to essential fish habitats will result from the replacement of a water pipeline, however these habitats are expected to recover soon after cessation of construction activities. Therefore, we have no comments to provide on the DEA. If we may be of further assistance, please contact Mr. Rusty Swafford of our Galveston Facility at (409) 766-3699.

Sincerely,

Miles M. Croom
Assistant Regional Administrator
Habitat Conservation Division

TEXAS PARKS & WILDLIFE

March 14, 2005

Mr. Jacob Patnaik
Chief Engineering Division (G-OPT-3)
U.S. Coast Guard
2100 Second Street, S.W.
Washington, D.C. 20593-0001

Dear Mr. Patnaik:

We have closely reviewed your Current Plan of Alteration and Bridge Removal of the Galveston Causeway Railroad Bridge (letter 16590 dated March 8, 2005). The Texas Parks and Wildlife Department finds your proposal and demolition plan suitable provided the contractor adheres to all provisions in the plan that minimize or eliminate potential damage to the marine environment in and around the demolition site, and potential harm to threatened or endangered species such as sea turtles and marine mammals.

Additionally, we encourage the U.S. Coast Guard to donate and deploy as reef material the existing steel lift bridge portion of the railroad causeway to the Texas Parks and Wildlife Artificial Reef Program (ARP). The APR staff will provide you with estimated costs of deployment and a preferred reef site for such deployment.

If you have questions regarding the ARP and its requirements, please contact:

Paul Hammerschmidt, Director
Artificial Reef Program
4200 Smith School Road
Austin, Tx 78744
Voice: (512) 389-4650
Fax: (512) 389-8177

Sincerely,

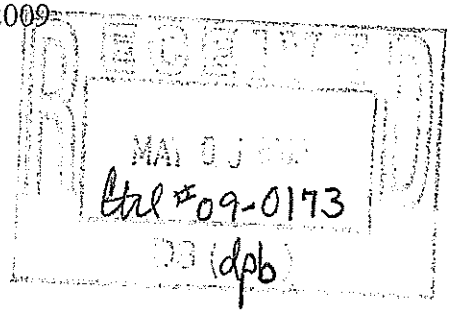
Larry McKinney, Ph.D.
Director of Coastal Fisheries

LDM:PH:dh

AMY 5/6

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

April 30, 2009



Mr. David Frank
Branch Chief
Bridge Administration
U.S. Coast Guard
500 Poydras St.
New Orleans, LA 70130-3310

Dear Mr. Frank:

We have received your April 28, 2009, letter requesting our evaluation of the potential environmental impacts which might result from the following project:

Bridge Replacement
Galveston County, Texas

In administering the sole source aquifer (SSA) program under Section 1424 of the Safe Drinking Water Act our Office performs evaluations of projects with federal financial assistance which are located over a designated sole source aquifer.

Based on the information provided, we have concluded that the project does not lie within the boundaries of a designated sole source aquifer and is thus not eligible for review under the SSA program.

If you did not include the Parish/County; a legal description; project location and the latitude and longitude if available, please do so in future Sole Source Aquifer correspondence. If you have any questions on this letter or the sole source aquifer program please contact me at (214) 665-7133.

Sincerely yours,

Michael Bechdol, Coordinator
Sole Source Aquifer Program
Ground Water/UIC Section

cc: Howard Fielding, LDEQ
Kelly Mills, TCEQ

URS

Resource Agency Correspondence

1. Letter from U. S. Coast Guard to Texas Historical Commission dated February 2, 2005
2. Response from Texas Historical Commission dated February 8, 2005
3. Letter from U. S. Department of the Interior, Fish and Wildlife Service, dated April 29, 2005
4. Letter from U. S. Coast Guard to National Marine Fisheries Service dated March 3, 2005
5. Response from the National Marine Fisheries Service dated March 31, 2005
6. Additional response from the National Marine Fisheries Service dated April 19, 2005
7. Letters of Response from the Texas Coastal Coordination Council dated July 16, 2007 and February 26, 2008
8. Letter from the Texas General Land Office dated January 30, 1998
9. Letter from the National Marine Fisheries Service dated February 26, 2007
10. Letter from the Texas Parks and Wildlife Department dated March 14, 2005
11. Letter from Region 6, US Environmental Protection Agency dated April 30, 2009