

INTERNATIONAL BOUNDARY AND WATER COMMISSION

UNITED STATES AND MEXICO

Ciudad Juarez, Chihuahua
November 6, 1991

JOINT REPORT OF THE PRINCIPAL ENGINEERS RELATIVE TO
ESTABLISHING A RESTRICTED USE ZONE ON LANDS ADJACENT TO
THE MAIN CHANNEL OF THE RIO GRANDE IN THE VICINITY OF
BROWNSVILLE, TEXAS - MATAMOROS, TAMAULIPAS

To the Honorable Commissioners
International Boundary and Water Commission
United States and Mexico
El Paso, Texas and Ciudad Juarez, Chihuahua

Sirs:

In accordance with your instructions, we respectfully submit for your consideration this joint report which provides technical bases for establishing a restricted use zone within which the Commission may exercise its judgment on works that each country proposes to construct in the channel of the Rio Grande in the vicinity of Brownsville, Texas, and Matamoros, Tamaulipas, insofar as whether such works may cause obstruction or deflection of the normal or flood flows of this river in accordance with pertinent stipulations of the United States/Mexico Treaty to "Resolve Pending Boundary Differences and Maintain the Rio Grande and the Colorado River as the International Boundary," signed November 23, 1970, hereinafter "1970 Boundary Treaty."

BACKGROUND

We have observed interest in the United States and Mexico to recover lands in the floodplain of the Rio Grande to utilize these lands for urban development in the reach between Mile 55.2 (Km 88.8) and Mile 45.0 (Km 72.4), marked for reference from the mouth of the river at the Gulf of Mexico. A location map is enclosed as Exhibit A.

In this regard, we observed that Article IV, paragraph B(1), of the 1970 Boundary Treaty provides:

"Both in the main channel of the river and on adjacent lands to a distance on either side of the international boundary recommended by the Commission and approved by the two Governments, each Contracting State shall prohibit the construction of works in its territory which, in the judgment of the Commission, may cause deflection or obstruction of the normal flow of the river or of its flood flows."

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Accordingly, we have studied the hydraulic characteristics for the Rio Grande in the referenced reach with the objective of defining a zone along the United States and Mexican banks that could be maintained free of obstructions to allow the safe passage of the maximum flood agreed by the Commission for this reach of the river, and to prevent constructions in this reach of the river from causing potential obstructions or deflections to the normal or flood flows of the river. For the Mexican Section, hydraulic studies on this matter performed by the National Water Commission of Mexico were used as a basis for the analysis.

HYDRAULIC CHARACTERISTICS

Design Flow

The United States and Mexico in Minute No. 238, "Improvement of the International Flood Control Works of the Lower Rio Grande," dated September 10, 1970, in application of Article 6, of the United States/Mexico Treaty for "Utilization of Waters of the Colorado and Tijuana Rivers and of the Rio Grande," signed February 4, 1944, adopted criteria for control of floods in the study reach such that the design flow at Brownsville-Matamoros is 20,000 cfs (570 cms).

Channel Improvements

We observed that by virtue of Commission Minutes No. 212, "Improvement of the Channel of the Lower Rio Grande," dated December 22, 1961, and Minute No. 238, dated September 10, 1970, the United States and Mexico also carry out channel improvements in this reach to safely pass the design flow of 20,000 cfs (570 cms).

These improvement works provide for a vegetation management program limited to annual vegetation clearing along river banks beginning at the edge of low water where vegetation growth generally begins to the top of the high bank or a distance of 50.0 feet (15.2 meters) landward, as well as cleaning and material removal from the high banks each five years in the 34.5 mile (55.5 Kilometer) reach from Mile 62.5 (Km 100.6) to Mile 28.0 (Km 45.1), approximately. Finally, we observed that the Commission's practice, in applying Minute No. 212, is that for the areas cleared, all vegetation, including trees and underbrush, is removed to ground level, but is not stacked or burned.

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EXISTING WORKS

River Levees

We observed that the United States and Mexico, in the agreement effected by an exchange of diplomatic notes of October 21 and 31, 1932, adopted the International Boundary Commission's joint report, "Preliminary Report on the Flood Control Plans, Lower Rio Grande," dated September 3, 1932, authorizing each Section of the Commission to immediately construct, operate and maintain leveed floodways in each country taking into account that the channel of the river can only convey a small part of the river's flood flows through its delta. The location of existing river levees is shown on Exhibit A.

International Bridges

Three major international structures have been constructed in the floodplain in the study reach, two comprising the Gateway (Puerta Mexico) International Bridge at Mile 54.4 (Km 87.5) and one consisting of the international B&M Bridge at Mile 55.2 (Km 88.8), also shown in Exhibit A.

We examined the geometry of the Gateway (Puerta Mexico) International Bridge structure in more detail, observing that the northbound traffic structure, located at the downstream side, is the most critical from a hydraulic viewpoint. The northbound structure of this bridge is shown in the plan view and profile drawings in Exhibit B.

HYDRAULIC STUDIES PERFORMED

The results of hydraulic studies performed indicate that at present the water surface elevation for the design flow of 20,000 cfs (570 cms) is at 37.9 feet (11.6 meters) and the northbound structure of this bridge would have a clearance between that elevation and the low chord of the bridge of between 3.5 feet (1.1 meters) to 5.7 feet (1.7 meters).

At the same time, upon analyzing various floodplain widths within the study areas that would permit safe passage of the design flood of 20,000 cfs (570 cms) in fulfillment of provisions in Minute No. 238, and upon considering various distances to both sides of the river within which constructions in each country could cause increases in the design flood stage, we observed that the water elevation for the design flood would not increase at the northbound Gateway (Puerta Mexico) International Bridge structure if a floodplain zone is established in the area in question that would have the following characteristics:

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1. A minimum width of 2,300 feet (700 meters) in the river's floodplain in the reach between Mile 52.5 (Km 84.5) and Mile 45.0 (Km 72.4), to cover lands adjacent to the pilot channel of the river in both countries. This distance of 2,300 feet (700 meters) is perpendicular to the normal river flow at the centerline of the river which forms the international boundary.
2. A minimum width of 328 feet (100 meters) for the river's floodplain in the reach between the B&M Bridge at Mile 55.2 (Km 88.8) and Mile 52.7 (Km 84.8).
3. A variable distance of from 328 feet (100 meters) to 2,300 feet (700 meters) for the floodplain of the river in a transition zone located in the reach from Mile 52.7 (Km 84.8) and Mile 52.5 (Km 84.5).
4. And, consider further, that in the reach between Mile 52.5 (Km 84.5) and Mile 45.0 (Km 72.4) any construction should be located at a minimum distance of 300 feet (91.4 meters) from the centerline of the normal flow channel of the river. This is because of the river meanders, the pilot channel cannot always be located in the center of the floodplain.

RECOMMENDATIONS

Based on the foregoing considerations, we respectfully recommend:

1. That the Commission present for approval of both Governments a restricted use zone within the floodplain of the Rio Grande in the vicinity of Brownsville, Texas - Matamoros, Tamaulipas, between the B&M Bridge at Mile 55.2 (Km 88.8) and Mile 45.0 (Km 72.4) which will permit passage of a flood equivalent to 20,000 cfs (570 cms), within which any proposed construction of works would be subject to the judgment of the Commission as to whether such works may cause obstruction or deflection of the normal or flood flows of the Rio Grande in accordance with Article IV, paragraph B (1) of the 1970 Boundary Treaty.
2. That outside of this restricted use zone, proposed works not be subject to the Commission's judgment and that both governments may utilize their respective lands in accordance with laws in force in each country.

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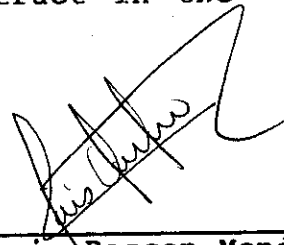
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3. That the boundaries of the referenced restricted use zone be those shown in the aerial photograph in Exhibit C, which for its delineation the following general criteria were considered:
- a) A width between Mile 52.5 (Km 84.5) and Mile 45.0 (Km 72.4) of at least 2,300 feet (700 meters), perpendicular to the river's normal flow in the centerline of the river which forms the international boundary. In this reach, a minimum distance of 300 feet (91.4 meters) from the centerline of the river to where works are constructed by either country was considered.
 - b) A width between River Mile 55.2 (Km 88.8) and River Mile 52.7 (Km 84.8) a minimum distance of at least 328 feet (100 meters) perpendicular to the river's normal flow in the centerline of the river which forms the international boundary.
 - c) A transition zone between Mile 52.7 (Km 84.8) and River Mile 52.5 (Km 84.5) of from 328 feet (100 meters) to 2,300 feet (700 meters) perpendicular to the river's normal flow in the centerline of the river which forms the international boundary.
4. That the delineation shown in the aerial photograph in Exhibit C of this Joint Report, be the one which the Commission uses as a basis for exercising its judgment regarding detailed projects that may be presented for its consideration on works that either of the two countries may propose to construct in the zone.

Respectfully submitted,



Conrad G. Keyes, Jr.
Principal Engineer
United States Section



Luis Antonio Rascon Mendoza
Principal Engineer
Mexican Section

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Minute No. 284

Ciudad Juarez, Chihuahua
January 18, 1991REHABILITATION OF THE WELLTON-MOHAWK BYPASS DRAIN
IN MEXICAN TERRITORY

The Commission met in the offices of the Mexican Section in Ciudad Juarez, Chihuahua at 10:00 a.m., on January 18, 1991, to consider the need to rehabilitate the extension of the Wellton-Mohawk Bypass Drain in Mexican territory and to revise operation and maintenance procedures adopted by the Commission in Minute No. 248, entitled "Recommendations for Extension of the Wellton-Mohawk Bypass Drain in Mexican Territory", dated June 10, 1975.

The Commissioners noted that Resolution No. 4 of Minute No. 248 indicates that Mexico will operate and maintain the bypass drain constructed in accordance to stipulations of that Minute under supervision of the Commission and at the expense of the United States.

The Mexican Commissioner observed that in the period that the bypass drain has been in operation, a sediment transport barrier has built in the approximately 35-mile (56 kilometer) long concrete lined canal's outlet at the Santa Clara Slough, resulting in a loss of conveyance capacity. The Mexican Commissioner proposed, and the United States Commissioner agreed, that rehabilitation of the bypass drain in its lower-most reach be undertaken as soon as possible.

The Commissioners reviewed, and found satisfactory, the Government of Mexico's rehabilitation plans consisting of: a) extension of the drain by excavating a 1,677 foot (510 meter) long and 23 foot (7 meter) wide earthen channel to prevent sediment accumulation transported in the drain; b) clearing and grubbing and silt removal in the concrete lined sections; c) maintenance of access roads; and d) repairs to the gates and other particular drain structures.

Accordingly, the Commissioners approved the following work schedule proposed by the Government of Mexico:

- 1) Construction of earthen channel. Dec. 1990 to Mar. 1991
- 2) Clearing, grubbing, silt removal, access road maintenance, repairs to particular structures upstream of outlet. Dec. 1990 to Mar. 1991

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The Commissioners reviewed the estimated costs of the rehabilitation project, which would be chargeable to the United States under the terms of Minute No. 248. The total estimated costs are \$160,000, United States currency, for construction and \$140,000, United States currency, for operation and maintenance of the constructed part. They agreed that the respective payments could be effected through the Mexican Section by United States Government transfer and in periods more frequent than those established in Minute No. 248.

The Commissioners agreed in the requirement that once the above referenced rehabilitation works are terminated, a periodic maintenance program should be placed in effect to assure the maintenance of the conveyance capacity of that drain to include the unlined reach to be constructed.

The Commissioners, based on the above considerations, agreed to submit the following resolutions for the approval of the two Governments:

1. The Government of Mexico, at United States Government expense, will carry out the rehabilitation of the Wellton-Mohawk Bypass Drain Extension in Mexico described hereinabove according to the approved work schedule and in accordance with laws in force in Mexico.
2. The Governments of the United States and Mexico, through the International Boundary and Water Commission, will administer the rehabilitation funds and the United States Section will transfer the corresponding funds to the Mexican Section in the following manner:
 - a) The expenditures made in Mexico in Mexican pesos will be converted to United States dollars based on the free "purchase" exchange rate established by the Banco de Mexico on the date that the respective construction contracts are awarded.
 - b) The Mexican Commissioner will provide information concerning the bid announcement package to the United States Commissioner to include specifications and catalog unit costs as well as work schedule, and based on this documentation, the United States Commissioner will obligate funds sufficient to cover the estimated costs of the proposed contract. The Mexican Commissioner will

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invite the United States Commissioner to be present when each contract is awarded.

- c) Personnel designated by each Commissioner will make joint weekly inspections of the work and shall report their observations and recommendations to the Principal Engineers of each Section.
 - d) The Mexican Commissioner will deliver to the United States Commissioner, as early as possible after the end of each month for the rehabilitation works, estimates of costs prepared by the appropriate agency of his Government of work performed for the previous month. Upon review and approval of such estimates of costs by the Commission, the United States Section, no later than 30 days after receipt of the estimates, will deliver to the Mexican Section a check in an amount corresponding to the work performed.
 - e) The Commission, upon completion of the rehabilitation of the bypass drain described above, shall make a joint inspection of the work performed, review the record of expenditures and make a final accounting of all United States funds utilized.
3. The Commission, upon completion of the rehabilitation of the bypass drain will develop through the respective Principal Engineers, a periodic maintenance program that would be performed in 1992 and in subsequent years: Such program should include: a) preventative maintenance of mechanical structures; b) sediment removal from the lined sections; c) maintenance of conveyance capacity of the system including the unlined channel; and d) a corresponding work schedule and inspections by engineers, designated by each Commissioner, at least every three months.
 4. For the annual maintenance work to be undertaken beginning in 1992, upon approval by the Commission of the referenced periodic maintenance program the United States Commissioner will arrange for transfer of the operation and maintenance funds to the Mexican Section in the following manner:

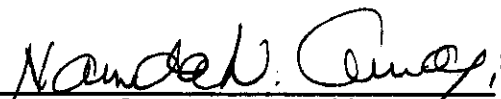
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- a) The expenditures made in Mexico in Mexican pesos will be converted to United States dollars based on the free "purchase" exchange rate established by the Banco de Mexico corresponding to the date the contracts are awarded, with the understanding that the duration of the contracts is not greater than 120 days.
- b) Beginning in 1991, the Mexican Commissioner, within 60 days before the end of each calendar year, will provide to the United States Commissioner an estimate of proposed operation and maintenance costs for the following year. The United States Commissioner in turn will obtain funds sufficient to cover the estimated costs during that year, and set aside funds in amounts corresponding to the monthly expenditures in the work schedule.
- c) The Mexican Commissioner will deliver to the United States Commissioner, as early as possible after the end of each month, cost estimates prepared by the appropriate agency of his Government of work performed for that period. Upon review and approval of such cost estimate by the Commission, the United States Commissioner, in a period not greater than 30 days after the U.S. Section receives the cost-estimate, will provide to the Mexican Commissioner a check in an amount corresponding to the cost of the work performed.


The meeting was adjourned.




Narendra N. Gunaji
United States Commissioner



J. Arturo Herrera Solis
Mexican Commissioner



Manuel B. Ybarra
United States Section
Secretary



Jose de Jesus Luevano Grano
Mexican Section
Secretary