



***Authorization of Professional Services  
Agreement for Lake Limestone Sterling C.  
Robertson Dam Hydrostatic Relief System  
Assessment and Stilling Basin Repairs***

***Presented by  
Brad Brunett***

***Central & Lower Basin Regional Manager***



# *Hydrostatic Pressure Relief System (HPRS)*

## What is the purpose of the HPRS?

- To provide drainage, prevent the development of excessive hydrostatic pressure and to improve spillway and embankment stability

## What components make up the HPRS?

- Service Spillway - underdrain system of perforated pipe drains with sand and gravel filters, 22 vertical sand drains, and 8 relief wells
- Embankments - internal drainage system with a horizontal sand blanket that routes internal seepage to either a rock toe drain exit (primarily in the East Embankment) or to a 10-inch perforated pipe connected to 7 additional 10-inch outlet pipes (only in the West Embankment)





# Brazos River Authority



Google Earth

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2000 ft





## ***Past HPRS Assessments & Inspection Findings***

- **Functioning as designed and in fair condition for 40-year age**
- **Additional assessment, maintenance, and repair/replacement work recommended**
  - **Debris/sediment removal from stilling basin cleanout drains**
  - **Replacement of missing cleanout drain covers**
  - **West embankment piping material deterioration and inaccessibility**
  - **Sediment build-up in piezometers**
  - **Fluctuating water levels in two piezometers**
  - **Lack of positive drainage in toe drain outlets and flow differences**
  - **Additional monitoring and access points needed**



# ***Recommend Engineering Contract with Stantec Consulting Services for HPRS Remediation***

- **Project Goal: repair and/or replace HPRS components to achieve an additional, minimum service life of 40 years**
- **Stantec selected through BRA Request for Proposal process**
- **Envision three phases for engineering services**
  - **Phase 1 – Initial Assessment to evaluate, test, develop, and compare alternatives for repair or replacement**
  - **Phase 2 – Design and Bidding**
  - **Phase 3 – Construction Services**



# ***Major Elements of Phase 1***

- **Topographic survey work**
- **Piezometer evaluation**
- **Geotechnical borings**
- **Laboratory testing**
- **Slope stability analysis**
- **Development & evaluation of repair/replacement alternatives**
- **Estimate life-cycle costs for alternatives**
- **Provide recommendations for repair and/or replacement**



## ***Financial Impacts***

- **Total project budget currently estimated at \$5.1 million**
- **\$779,000 contained in adopted BRA FY2021 budget**
- **\$860,000 for Phase 1 engineering services**



***“BE IT RESOLVED that the Board of Directors of the Brazos River Authority hereby authorizes the General Manager/CEO to negotiate and execute a contract with Stantec Consulting Services for engineering services associated with the assessment, subsequent design and bidding, and resulting construction activities, as required, to maintain and extend the service life of the Lake Limestone Sterling C. Robertson Dam hydrostatic pressure relief systems; and***





***BE IT FURTHER RESOLVED that the fee for engineering services associated with the initial assessment (Phase I) shall not exceed \$860,000 and engineering fees for subsequent phases of the project including design, bidding, and construction will be presented to the Brazos River Authority Board of Directors for future consideration.”***



Brazos River Authority



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