



Fred Hartman Bridge over Houston Ship Channel Baytown/Laport, Texas

## Is the look of a bridge rail design of concern to you as an engineer?

Though railing constitutes only 2 to 5 percent of the total cost of a bridge, it is of immense value to the citizens that will use that bridge everyday. No matter how magnificent the total bridge design, the visual appeal of the railing affects public acceptance. As a result an increasing number of bridge engineers across the nation choose **elliptical bridge rail**.

### Product

Tex-Tube Elliptical Bridge Rail

### Specifications

API 5L GRADE X52 PSL2 TYPE E  
4-7/8" x 8" x .188" (various lengths)  
12.94 lbs/ft  
Radii to 16'

### Some Current Rail Types

TxDOT HT Rail (TL5)  
TXDOT T401 & C402 Rail (TL3)  
PennDOT HT Rail (TL5)  
FDOT Special Rail (TL4)

### Contact

GSI Highway Products  
gsihighway.com  
elliptisafe.com  
(972) 225-1660  
sales@gsihighway.com

Elliptical railing has been used on highway bridges for over 50 years, and it's still the **right choice**. Texas, Pennsylvania, Florida, and Maryland among other states currently use elliptical tube in NCHRP 350 Test Level 3 (TL3) and Test Level 5 (TL5) bridge rail applications, and in MASH evaluation. Florida DOT has used it to retrofit many of the older concrete bridges throughout the state.

It can be seen on signature projects like the Fred Hartman Bridge over the Houston Ship Channel in Texas, the Woodrow Wilson Bridge outside of Washington D.C., and the **Santiago Calatrava Bridge** on IH30 over the Trinity River in Dallas, Texas. It will soon see use on the Harbor Bridge Project in Corpus Christi, Texas (Flatiron/ Dragados, LLC) and the Ship Channel Bridge (HCTRA) in Houston.

Elliptical railing is one of those **most commonly used** by TxDOT. The reason is simple - among it's many advantages, it provides an open and eye-pleasing design!

And it is **crashworthy**. The elliptical shape<sup>1</sup> provides increased resistance to bending in the long axis, offering the strength of 6-inch pipe with the appearance of four. Field experience in Texas has shown the

elliptical rail performing ideally under tremendous impact. A mill-rolled mating splice tube is available as well, with a **superior** fit that has held up in crashes beyond DOT expectations.<sup>2</sup>

The lack of consistency in the "squashed" shape has hindered DOT adoption of elliptical rail in the past, but what GSI offers is mill-rolled elliptical tube that provides superior **consistency** in shape and splice tube fit, **Elliptisafe™**.

GSI is the master distributor for mill-rolled elliptical tube produced by the **TEX-TUBE** of Houston. **TEX-TUBE's** elliptical shape is continuously produced off the mill to the API 5LX (52) specification thus having a higher strength-to-weight ratio than standard round pipe. This strength-to-weight ratio produces an elliptical pipe weighing 12.94 pounds per foot compared to 18.97 pounds per foot of a "squashed" standard schedule 40 round pipe. This allows for **reduced material costs** and easier field handling, thus stretching valuable tax dollars.

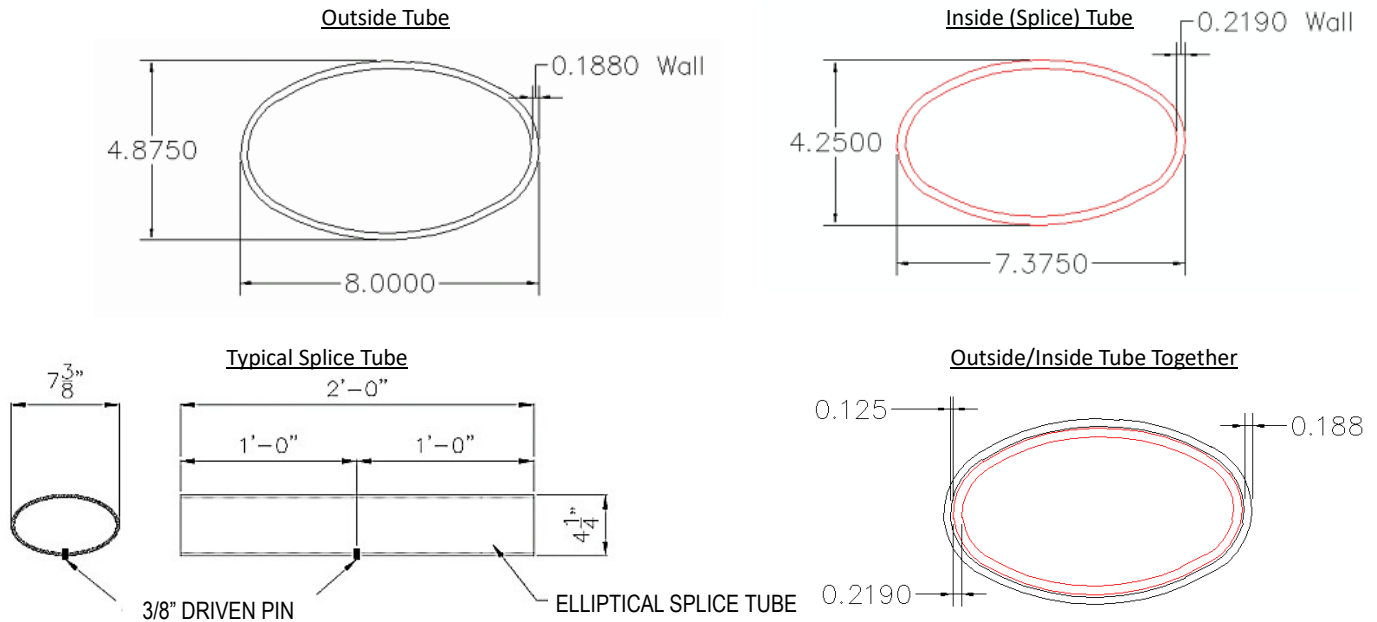
**GSI's Elliptisafe™ is the best answer to your state's bridge rail needs.**

<sup>1</sup>. Dr. Dean Alberson, former Assistant Director, TTI

<sup>2</sup>. Mark Bloshock, former Bridge Engineer, TxDOT

## TEX-TUBE Elliptical Tube for Bridge Rail - Electrical Resistance Welded Pipe (ERW)

TEX-TUBE bridge rail is produced in continuous hot rolled lengths from the tube mill in an elliptical shape in accordance with the chemical, mechanical, and testing requirements of **API 5L GRADE X52 PSL2 TYPE E**.



### Specifications

- API 5L GRADE X52 PSL2 TYPE E welded pipe, except continuous
- Tube: 12.94 lbs/ft
- Splice: 13.6 lbs/ft
- 52,000 psi min yield strength
- 66,000 psi min tensile strength

### Chemical Composition, max %

C	Mn	P	S	Ti
.22	1.40	.025	.015	.04

### Dimensions

- Rail Tube: 4-7/8" x 8" x .188"
- Splice: 4-1/4" x 7-3/8" x 2' x .219"
- Stocked in lengths 30' to 50'
- Custom lengths available
- 10 pieces per bundle
- Minimum radius: 16'

## Tube Fabrication Details

Elliptical Tube & Elliptical Sleeve Member		
8" x 4-7/8" Ellipse	Elliptical Sleeve Member	
Material	Material	Thickness
6" Dia Std Pipe ASTM-A53 E or S Gr B	ASTM-A53 Gr B	0.353"
	A36 or A500 Gr B	0.339"
	API-5LX52	0.224"
<b>GSI:</b> 6-5/8" O.D. Pipe x 0.188" API-5LX52	ASTM-A53 Gr B	0.339"
	A36 or A500 Gr B	0.325"
	API-5LX52	0.219"

GSI (outlined in orange) uses a schedule, thickness, and smaller diameter that allows for the least amount of weight.



GSI Highway Products is the United States master distributor for **TEX-TUBE** elliptical tube for bridge rail applications, **Elliptisafe™**.

GSI has been serving the highway, bridge, and utility construction markets since 1970. We are located in Hutchins, near Dallas, Texas.

### For more information and pricing

GSI Highway Products  
720 West Wintergreen Road  
Hutchins, Texas 75141  
(972) 225-1660  
[sales@gsihighway.com](mailto:sales@gsihighway.com)  
[elliptisafe.com](http://elliptisafe.com)