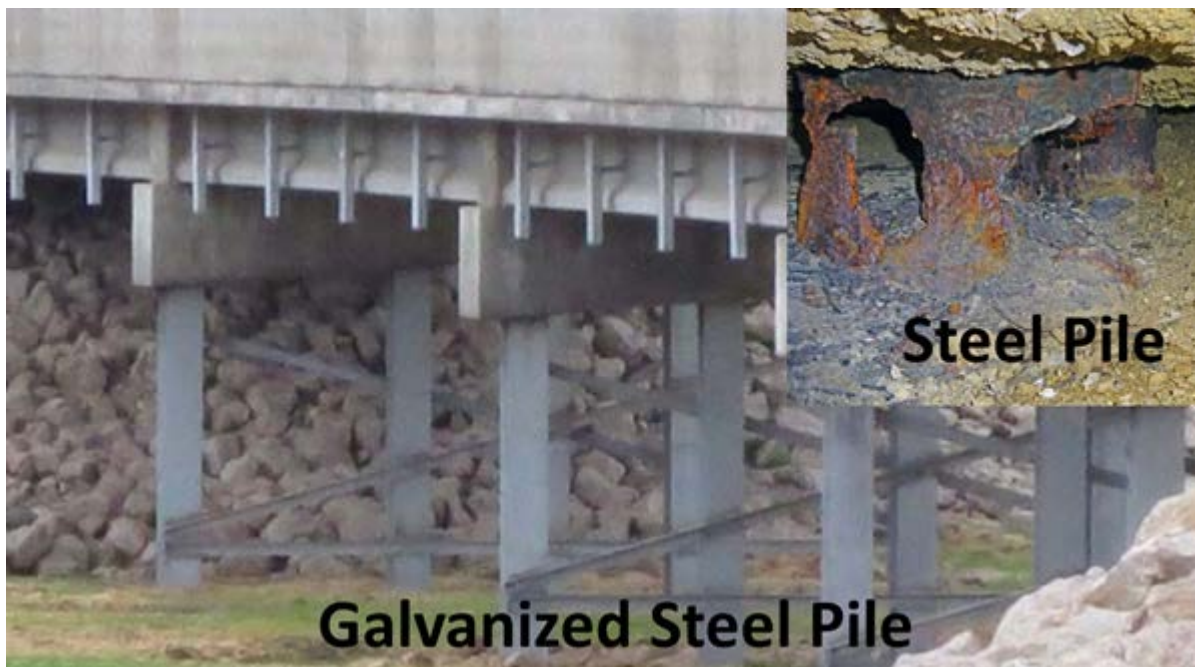


Galvanized Steel Pilings



Description

Piling is a critical element of a bridge foundation and deterioration may occur to these in as little as 20 years. One of the challenges related to this deterioration is that these areas are difficult to access for inspection and repair because the material is underground or partially embedded in concrete. Currently, there is a backlog of 700 bridges needing pile coating, 300 of these have section loss including 80 where the deterioration has advanced enough to cause weight restrictions. Additionally, repair and painting is necessary multiple times during the life of the structure. This all adds up to impacts to customers in the of form closures for work or bridge loading weight restrictions.

Benefit

By designing and constructing bridges with Galvanized Steel Pilings, instead of traditional steel piles, there is a potential \$4.5 million savings based on a sample size of 700 bridges (\$25,000 per bridge for bridges that currently need pile maintenance). This savings occurs in the form of saved future costs related to maintenance and painting of traditional steel pile. Although there is a minimal initial cost increase (For an average bridge it adds \$9,000, a 1% increase.), the benefits and life-cycle cost savings far outweigh this minor initial impact. In most environments, galvanized steel pile is maintenance free for at least 75 years, and reduces inspection time and frequency. Eliminating future maintenance needs also minimizes impacts to traffic and maximizes safety for workers and the travelling public.

For More Information Contact:

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Additional photos can be seen by accessing the Innovations Challenge SharePoint page at: <http://sharepoint/systemdelivery/TP/Documents/InnovationsChallenge.aspx>.

2015 Innovations Challenge – Galvanized Piling

Cost Savings (See Appendix A):

- Galvanizing Cost (\$9000 per bridge):

$$= (\text{Galvanizing Cost/foot of pile})(\text{Average length of piling/bridge})(\text{No. of bridges})$$

$$= (\$10/\text{linear foot})(900 \text{ feet})(700 \text{ bridges}) = \$6,300,000$$

- Future Painting Cost (\$8400 per bridge) (no inflation assumed):

$$= (\text{Surface Prep and Painting Cost/bent})(\text{Avg. of 2 bents per bridge})(\text{No. of bridges})$$

$$= (\$2200 + \$2000)(2 \text{ bents})(400 \text{ bridges}) = \$3,360,000$$

- Future Repair Cost (\$25,000 per bridge)(no inflation assumed):

$$= (\text{Avg. Cost per Bridge})(\text{No. of bridges}) = (\$25,000)(300 \text{ bridges}) = \$7,500,000$$

- Total Potential Savings:**

$$= (\text{Future Painting Cost}) + (\text{Future Repair Cost}) - (\text{Galvanizing Cost})$$

$$= (\$3,360,000) + (\$7,500,000) - (\$6,300,000) = \$4,560,000$$

\$4.5 million in potential savings (\$25,000 per bridge)