



# **EIT Tendons** **What, How & Why**

**Coplay-Northampton Bridge  
Showcase  
Oct. 24, 2018**

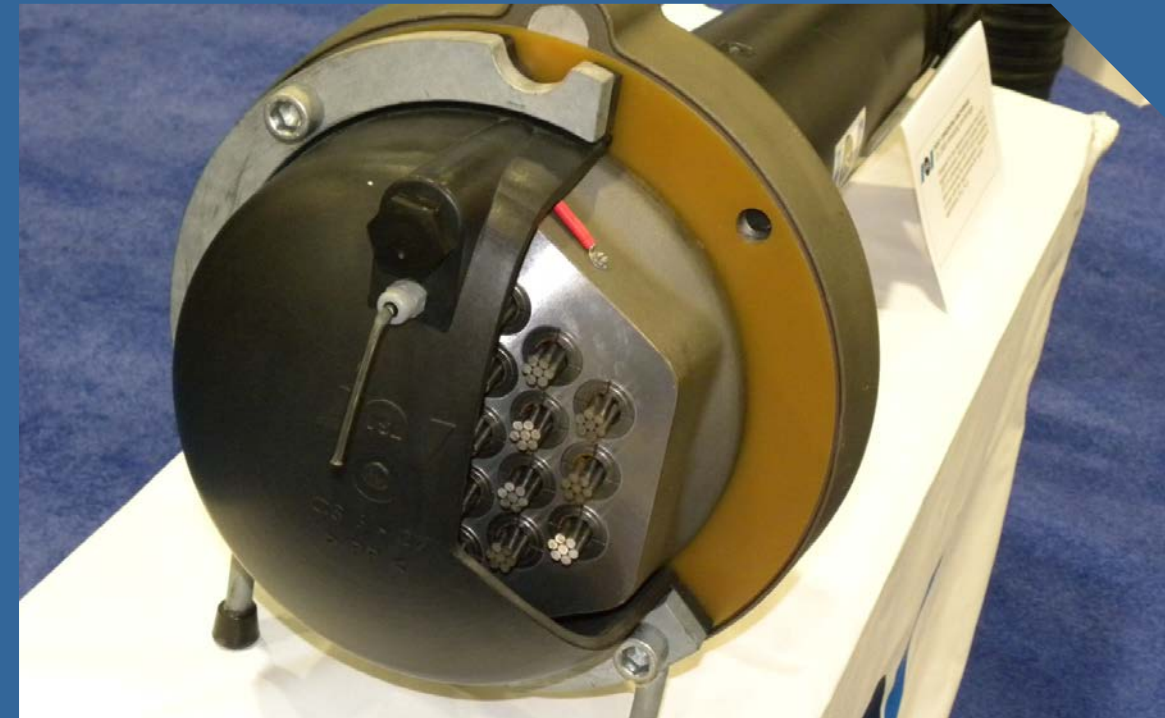
***Reggie Holt***  
**Federal Highway Administration**





# What is an Electrically Isolated Tendon (EIT)?

Electrically Isolated Tendon (EIT) - PT tendon in which the prestressing steel is electrically isolated from the surrounding concrete over the entire tendon length, including the anchorages.



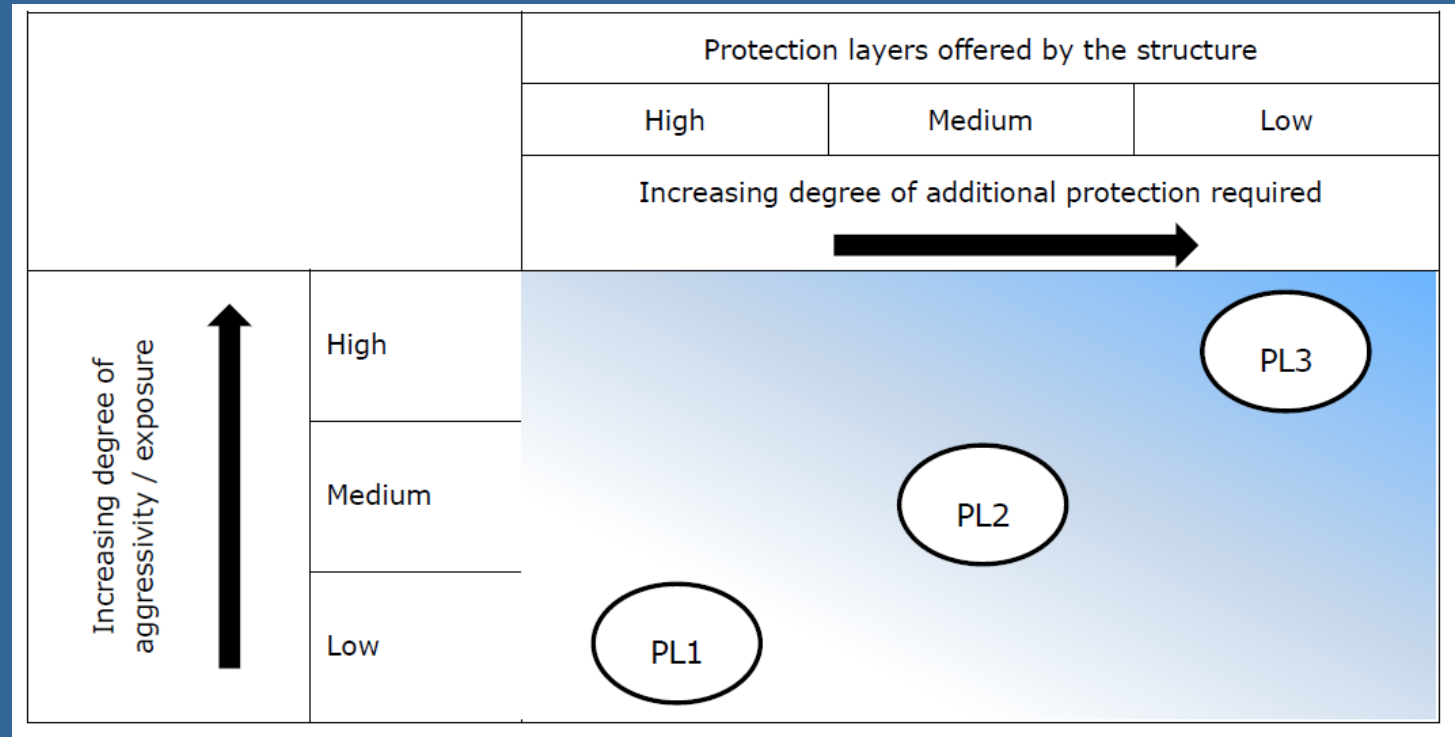
Courtesy of VSL international





# What is an Electrically Isolated Tendon (EIT)?

PL-3 = Electrically Isolated Tendons (PTI / ASBI M50 & fib Bulletin 33)



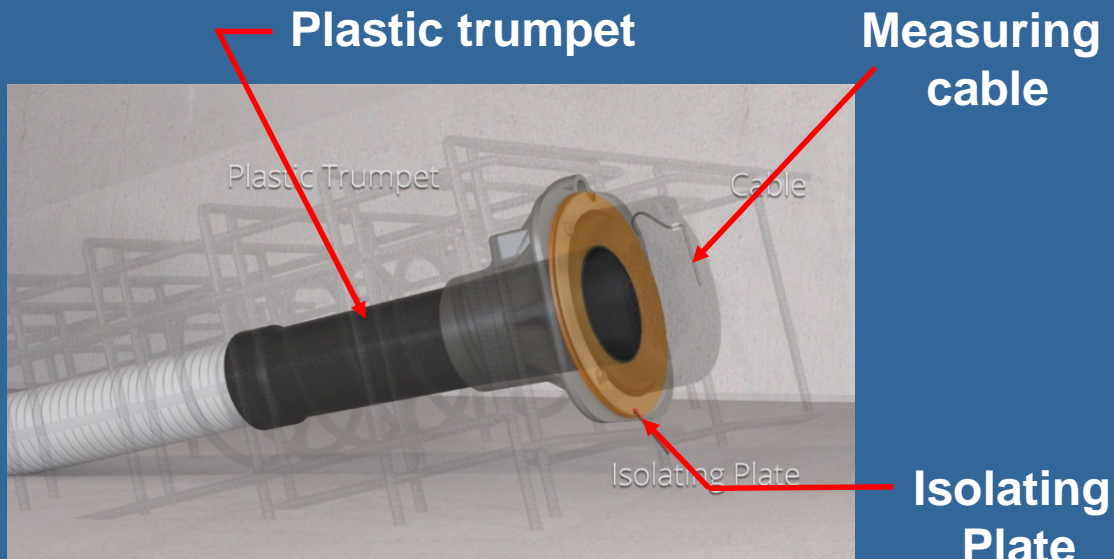
fib Bulletin No. 33





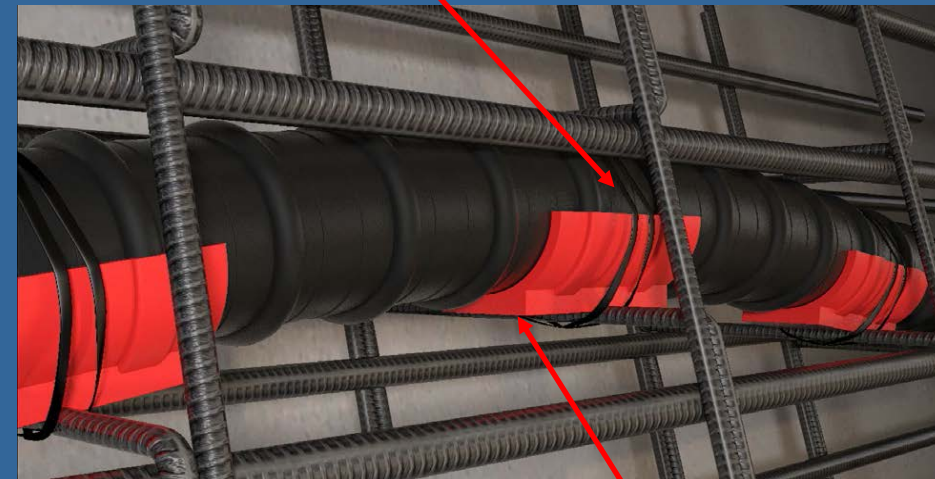
# What are the unique components & details of EIT

- PTI / ASBI M50 defines PL-3 as PL-2 plus electrical isolation of tendon.



**PL-3 (EIT) Anchorage**

Plastic tying wire



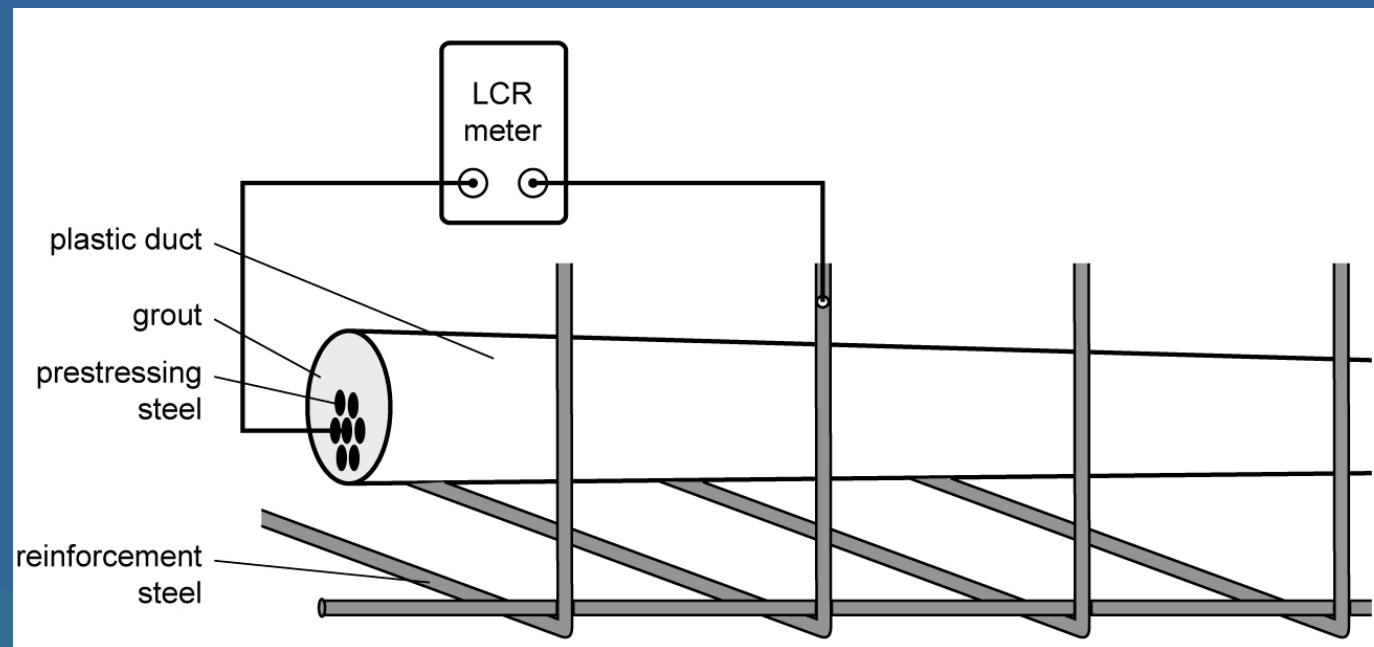
**Plastic 1/2 shells**





# How is tendon isolation / encapsulation verified?

- EIT can assess the quality of the encapsulation of the tendon through measuring the resistance between the PT strands and reinforcing steel.





# How is tendon isolation / encapsulation verified?



In-span anchorage



LCR Meter



End-span anchorage





## Why use Electrically Isolated Tendons?

- Allows verification of PT tendon encapsulation
- Provides enhanced durability - highest PT tendon level of protection (PL-3)
- Can provide non-destructive condition assessment over time (owner preference)
- Provides protection from stray current corrosion





## Why use Electrically Isolated Tendons?

- Increases standard of care for PT tendon component storage, handling and installation.







## Why is FHWA deploying EIT technology?

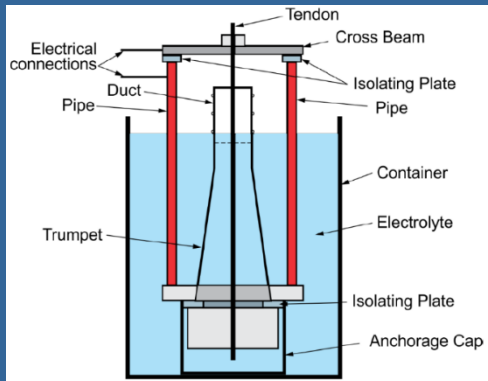
- Is a shelf ready technology
- Has a long and successful track record in Europe
- Requires only minimal changes to current state-of-practice (PL-2 → PL-3)
- Provides meaningful and easily interpretable data
- Provides measurable construction QC on PT encapsulation  
→ strong incentive to improve workmanship



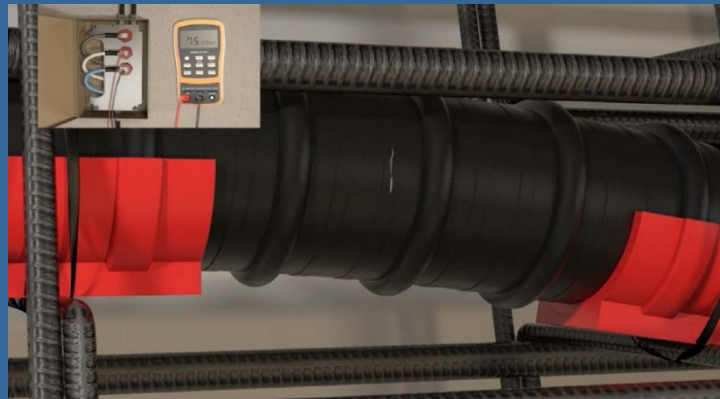


## Next Steps to advance EIT technology

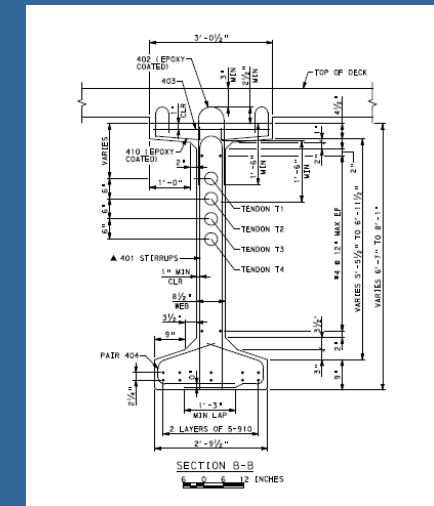
- PL-3 System qualification testing (under PTI / ASBI M50 review)
- Education and outreach (videos\*, guidance documents)
- Demonstration projects (3 selected – PA, TX, & CA)



System Qualification



Education and Outreach



Demonstration Projects





## FHWA Viewpoint

- FHWA's deployment and promotion of the EIT technology should NOT be interpreted as a loss of confidence in the current state of practice for PT construction. Properly installed and grouted tendons using the current state of practice (PL-2) will provide a robust and long-lasting PT system.





**Thank you for your time!**

**QUESTIONS?**

**Reggie Holt, FHWA**  
**reggie.holt@dot.gov**

