**GRS-IBS SECTION**

**Beam Set**
- Supported Directly on Bearing Bed

**Facing Elements**
- Frictionally Connected – Top Three Courses Pinned and Grouted

**Jointless**
- Continuous Pavement

**Integrated Approach**
- Geotextile Wrapped Layers at Beams to Form Smooth Transition

**Bearing Bed Reinforcement**
- Load Shedding Layers Spaced at ≤ 6 in.

**Scour Protection (Rip Rap)**
- If Crossing a Water Way

**GRS Abutment**
- Reinforcement Spacing ≤ 12 in.

**Reinforced Soil Foundation**
- Encapsulated with Geotextile

GRS-IBS Structures
Midland County Road Commission

[Logo: Midland County Road Commission]
Midland CRC
7 GRS-IBS bridges built – More planned

- 2016 Construction
  - West River at Black River
  - Jefferson at Herner Drain
  - Castor at NB Carroll Cr.

- 2017 Construction
  - Poseyville at Jo Drain
  - Shaffer at Bliss Cr.
  - 9 Mile at SB Carroll Cr.
  - 9 Mile at NB Carroll Cr.

- Future
  - 4 more bridges in various states of design, planned for next 2 years.
West River at Black Creek

25 mile detour for entire west side of Sanford Lake
West River at Black Creek
West River at Black Creek

4 weeks - closure to open, $550,000 contractor built
Jefferson at Herner Drain

$240,000 built by MCRC forces (includes labor, materials, and equip. rental)
Jefferson at Herner Drain
Jefferson at Herner Drain

Treated Glu-Lam /Stress-Lam Timber Superstructure
Castor at NB Carroll Creek

$210,000 built by MCRC forces (includes labor, materials, and equip. rental)
Castor at NB Carroll Creek

DEQ
Golden Bridge
Poseyville at Jo Drain
Poseyville at Jo Drain

$440,000 - Contractor built in 4 weeks
9 Mile at SB Carroll Creek
9 Mile at SB Carroll Creek

Let the rains come again – No impact to partially constructed abutments.
Water went down, back to work. Only loss was time.
9 Mile at SB Carroll Creek

$435,000 - Contractor built in 5 weeks
9 Mile at NB Carroll Creek

$435,000 - Contractor built in 4 weeks
Shaffer at Bliss Creek
Shaffer at Bliss Creek

Note – added floating debris protection

$500,000 - Contractor built in 4 weeks
Marco Island, Florida
Hurricane Tested
Lifespan Technology

- Grant Soy Bean Assoc. $10,000
- Peak Strain Gage
- Manual Reset
Load Testing
Data Collection

- Known Truck Data w/ Actual Strain Data vs. AASHTO Calc’d Strain
- Refines Distribution Factors that can be applied to Standard Trucks
Findings

- 3 Bridges Analyzed in 2017
- In all cases: Actual Data allowed for increase or elimination of Limits
- Significant improvement to System
- More options for Farmers and Trucking