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Happy
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RAIL TRAIL BRIDGE LIFTED IN PLACE

Cranes place 180-ft. span
over Northampton highway
on abutments supported by
Reinforced Earth as part of
E.T. & L. Corp. project

By Paul Fournier

As scores of people watched on a Sunday afternoon in late September, two cranes hoisted a 180-ft.-long steel bridge high into the air and placed it on tall abutments on either side of a major western Massachusetts highway. With that singular event, contractor E.T. & L. Corp. completed filling a gap in the popular Manhan Rail Trail, linking bike paths in Easthampton and Northampton, Mass.

The culmination of a long-anticipated project – 10 years in the planning – the actual bridge installation took just minutes according to E.T. & L. job superintendent Marco Ruffo.

“We started this job in October 2009, and were able to work through December due to mild weather when we closed down. We came back in April to finish the job,” said Ruffo. The Stow, Mass.-based contractor has a \$3.6-million contract with Mass. DOT to pave about 2½ miles of the 10-ft.-wide trail and construct two bridges – a small timber bridge across a brook, and the 180-ft. span across Route 10.

Known locally as Easthampton Road, Route 10 runs approximately 240 miles between New Haven, Conn., and Haverhill, N.H. Established in the early 1920s, this busy highway at one time was known as the New England Interstate Route.

Long Journey For Prefab Span

The new bridge over Route 10 makes travel safer for the many pedestrians, cyclers, in-line skaters, and in winter, cross-country skiers, who use the five-mile Manhan Rail Trail.

While the actual installation of the bridge over Route 10 took just a few minutes, preparation for the event took over a year.



Locke Crane's Grove and Bay Crane's Link Belt place Continental Pedestrian Truss Bridge on Reinforced Earth supported abutments for E.T. & L. Corp.'s Northampton job. (All photos courtesy of Colton Andrews of E.T. & L. Corp.)

I'll Huff and I'll Puff...

And blow your house down... and so he (the GOP, Tea Party, Angry America, etc.) did in the mid-term elections. This immediately brings to mind an “old saw,” “Be careful of what you ask for. You may get it.”

It has been a rough year on top of a rough year and it looks like another rough year ahead. The country is angry, upset, disenchanted, disillusioned, insulted, humiliated, embarrassed and anything and everything else you can think of or say.



Continued page 5 »

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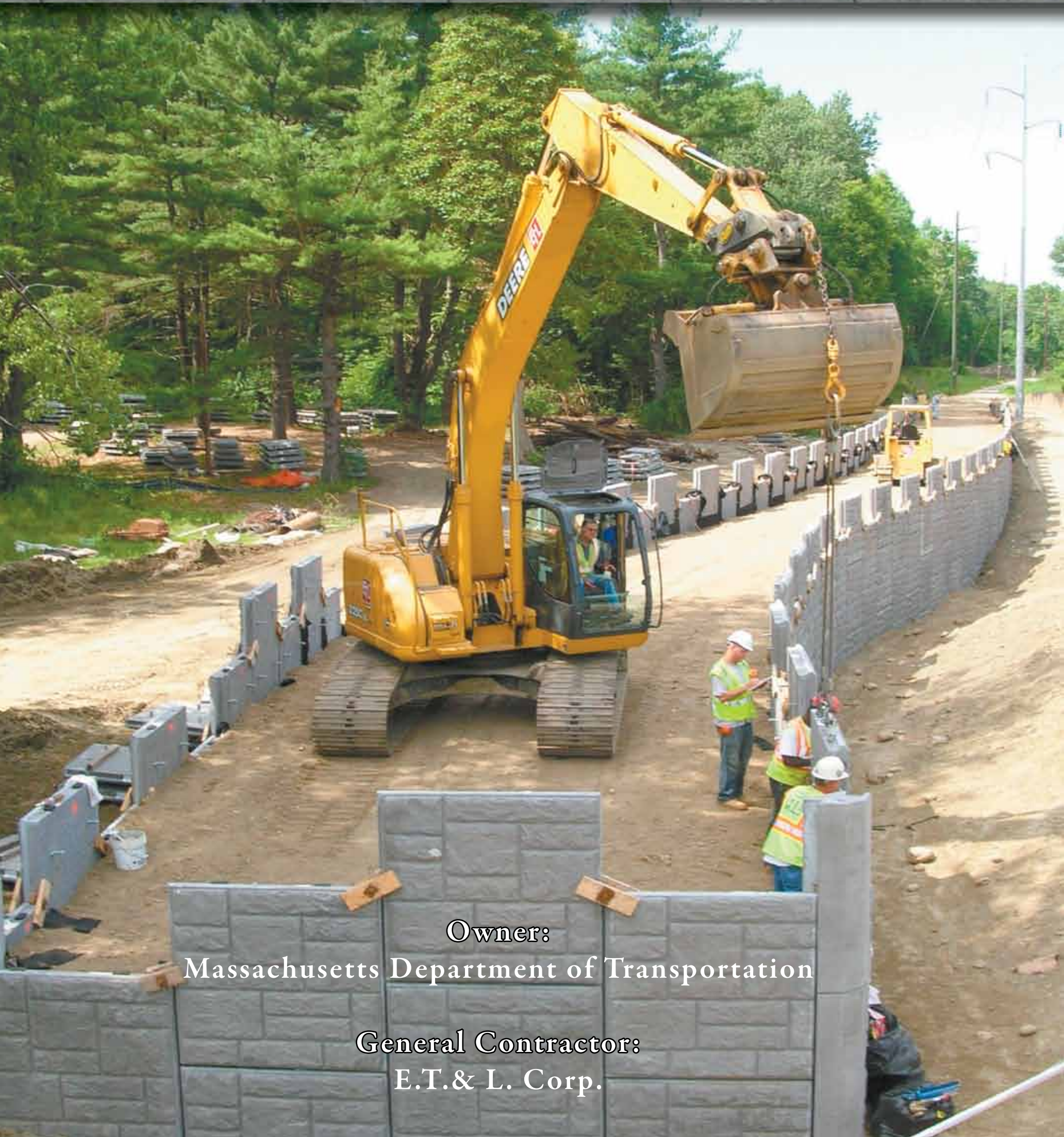
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Rail Trail Bridge

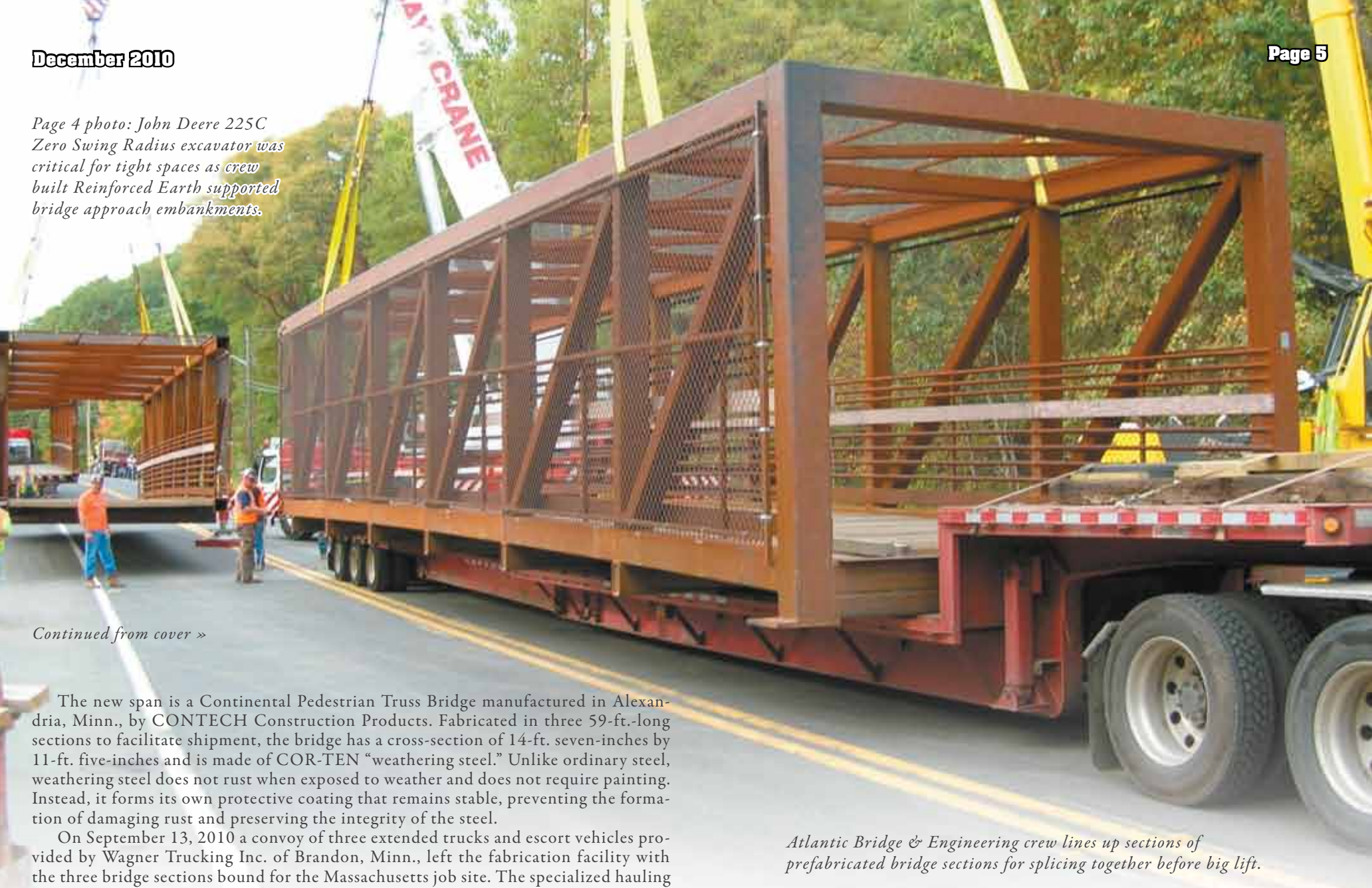
LIFTED IN PLACE



Owner:
Massachusetts Department of Transportation

General Contractor:
E.T.& L. Corp.

Page 4 photo: John Deere 225C Zero Swing Radius excavator was critical for tight spaces as crew built Reinforced Earth supported bridge approach embankments.



Continued from cover >

The new span is a Continental Pedestrian Truss Bridge manufactured in Alexandria, Minn., by CONTECH Construction Products. Fabricated in three 59-ft.-long sections to facilitate shipment, the bridge has a cross-section of 14-ft. seven-inches by 11-ft. five-inches and is made of COR-TEN "weathering steel." Unlike ordinary steel, weathering steel does not rust when exposed to weather and does not require painting. Instead, it forms its own protective coating that remains stable, preventing the formation of damaging rust and preserving the integrity of the steel.

On September 13, 2010 a convoy of three extended trucks and escort vehicles provided by Wagner Trucking Inc. of Brandon, Minn., left the fabrication facility with the three bridge sections bound for the Massachusetts job site. The specialized hauling company had to secure approvals and permits for the planned route of its oversized trucks from each state they passed through on the long haul from western Minnesota to western Massachusetts. They reached the job site on September 21.

When the convoy arrived, a crew of sub-contractor Atlantic Bridge & Engineering of Salisbury, Mass., began joining the three sections together with splice plates and high-strength bolts torqued to specifications.

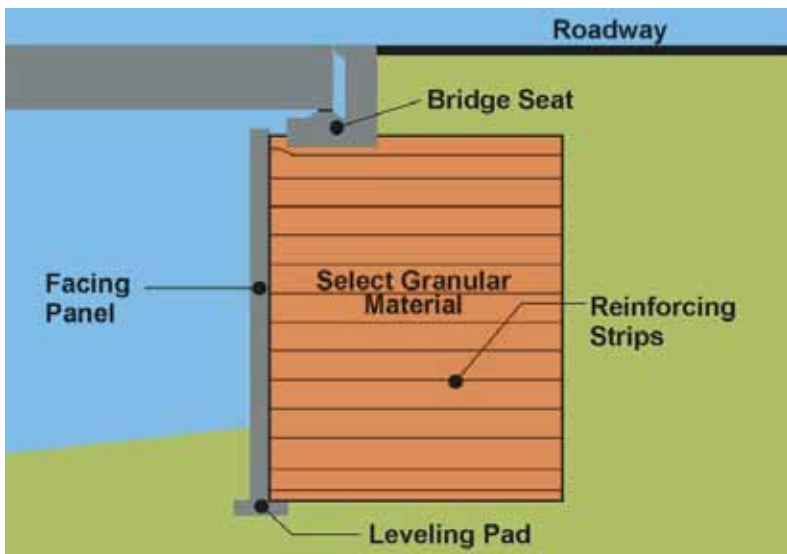
With the bridge assembled, the construction team set Sunday afternoon, September 26, as installation day.

Approaches Built With Reinforced Earth

Meanwhile, E.T.& L. had completed the bulk of site work and paving on the Manhan trail on either side of the bridge. This included lengthy inclined embankments for the bridge approaches that were built using a mechanically stabilized earth (MSE) system provided by The Reinforced Earth Company (RECo) of Vienna, Va.

RECo designed and provided technical assistance to E.T.& L. during construction of the MSE system, which utilizes pre-manufactured concrete panels and galvanized steel straps in conjunction with layers of compacted granular backfill. Fabricator W.E. Dailey Precast LLC of Shaftsbury, Vt., manufactured the wall panels and wall coping under license to RECo.

E.T.& L. workers assisted by a John Deere backhoe first placed a course of panels upright on a six-inch-thick unreinforced concrete leveling pad and temporarily braced the panels. Then the first lift of backfill was placed behind the panels and compacted. Next, the crew placed steel straps horizontally across the layer of backfill and bolted them to panels. The straps were not tied across to panels on both sides, but alternately bolted to one side then the other.



Schematic shows typical application of mechanically stabilized earth supported embankment at abutment bridge seat.

Atlantic Bridge & Engineering crew lines up sections of prefabricated bridge sections for splicing together before big lift.

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With onlookers safely behind cordon, Grove and Link-Belt cranes swing 70-ton bridge towards abutments.



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Each lift of backfill was placed to a compacted depth of 10 inches, while reinforcing straps were placed every third lift, for a vertical difference of 30 inches between each level. The sequence of placing and compacting lifts of backfill, followed by placement and bolting of straps to panels, continued until the desired elevation was reached.

According to Peter Anderson, P.E., northeast regional manager for RECo, steel straps varied between 10- to 23-ft. long, depending on the height of the walls, and resist earth pressures through pull-out resistance within the compacted soil.

Anderson said approximately 1,250 panels were required for the job, creating a total wall area of about 30,000 sq. ft. A typical panel measured five-ft. by seven-inches thick. Embankments supporting the 400-ft.-long north bridge approach and 360-ft.-long south bridge approach ascend from street elevation roughly 25-ft. to the top of the abutments.

Using The Right Machines

E.T.& L. job superintendent Roffo commented on the significance of using the right equipment for the MSE wall construction:

“The important machines in this operation were the John Deere 225C Zero Swing Radius track excavator,” he said. “This machine was critical for tight spaces where we did not have to worry about a swing counterweight of the excavator during precast concrete panel installation.

“Another machine was the John Deere 450G bulldozer, a small dozer for the gravel backfilling operations. Lastly the CAT IT28F front end loader was critical for panel transport to the crews,” Roffo said.

Crews completed the walls with the placement of precast concrete coping and face panels plus precast bridge seats for the abutments. The stage was now set for the bridge to be put in place.

Safe, Smooth And Quick

Atlantic Bridge & Engineering called for two hydraulic cranes to partner in the hoisting of the 180-ft., 70-ton bridge. Locke Crane provided a 240-ton Grove while Bay Crane supplied a 260-ton Link Belt for the double-pick. Coordination of the pick was extremely important because of the presence of 115,000-volt overhead power lines located just 22 ft. from the bridge’s final location.

With more than 100 onlookers cordoned a safe distance back, and this section of Route 10 detoured between 6 a.m. to 3 p.m., crews began final preparations for the pick.

The riggers connected four slings to each crane hook and positioned them to keep the load balanced and stable. Then the big cranes slowly swung the long structure and gently lowered it to the final resting place on the abutments. The pick was safe, smooth and quick.

“It was over in just five minutes,” said E.T.& L. job superintendent Roffo. Those crane operators were great! 🙌

Key personnel for the project include: for the Massachusetts Department of Transportation, resident engineer Ed Evans; for E.T.& L. Corp., general superintendents Jim Farese and John Ablondi, job superintendent Marco Ruffo and MSE wall forman Steve Rego.