eConstruction Software Deployment on I-95 SB RRC

2019 VTCA Consultant Forum

Robert G. Ridgell, P.E., DBIA – VDOT Asst. District Construction Engineer
Carter Washington – Wagman Construction Manager
Project Fast Facts

- The project seeks to reduce I-95 congestion by:
  - Doubling I-95 southbound capacity in the Fredericksburg area between approx. MM135 to 129
  - dividing traffic into separate lanes for the Route 3 and Route 17 interchanges, and general purpose lanes
  - Adds three additional lanes of I-95 southbound in the existing I-95 median beginning just north of Route 17 and ending just south of Route 3, including new Rappahannock River Crossing
  - Includes interchange ramp modifications at Route 3 and Route 17
  - Replaces two existing structurally deficient SB and NB I-95 bridges over Route 17 and improves height restrictions on Route 17 under I-95
- Contract Value: $101.6 Million; Overall Budget $131,851,099.42
Project Challenges

- 4 Separate Bridge Plan Packages
- Multiple Roadway Plan Iterations
- Early Works Packages
- Complex Maintenance of Traffic Planning for busiest corridor in the Nation
- Compressed Schedule
- Approximately 5 mile long project area with off site field office
- Significant amount of night work
- 3 level of testing and inspection, Quality Control, Quality Assurance, Owner IV
Project Mitigations

- Communication, Communication, Communication
- Partnering
- Thorough Record Keeping
- Document Management
- Clear Workflows
- Field Staff Empowerment
Field Realities Inventing Necessity

- Hundreds of plan sheets
- Thousands of pages of Contract Documents
- QA/QC Manuals
- Specifications
- Special Provisions
- Manuals
- Etc...
I-95 SB Rappahannock River Crossing

- First VDOT project with a fully collaborative team on Plangrid (VDOT and DB)
  - VDOT Setup Project
  - Wagman purchased licenses
  - RFIs, Issue Tracking, Plan Markup all real-time and accessible to all field parties.
- Initial ROI on project $20,000+ in plotting and printing expenses
- Does not account for time savings and work efficiencies
- Reduction in document management personnel requirements
- Versioning puts the latest drawing at the user’s fingertips. You have to literally try to use the wrong plan sheets.
Why we went with Plangrid

- Prior experience on 29 Solutions Project
- A success story at Fall Hill Avenue
- “Field First” software design
  - Intuitive to field users
  - Mobile centric
- Real-time Cloud Collaboration
- Fully off-the-shelf ready no customization

- Training and Support
- Potential for Integrations
- Submittals Functionality
<table>
<thead>
<tr>
<th>Number</th>
<th>Title</th>
<th>Version Set</th>
<th>Tags</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.00</td>
<td>Project Bulletin Board</td>
<td>V2</td>
<td>Bulletin Board and Contact Update 1</td>
</tr>
<tr>
<td>0.01</td>
<td>Project Contacts and Subcontractors</td>
<td>V2</td>
<td>Bulletin Board and Contact Update 1</td>
</tr>
<tr>
<td>0.02</td>
<td>Corridor Aerial</td>
<td>V1</td>
<td>Preliminary Info</td>
</tr>
<tr>
<td>0.03</td>
<td>Submittal Log 12/13/2018</td>
<td>V2</td>
<td>Submittal Log 12/13/2018</td>
</tr>
<tr>
<td>1</td>
<td>TITLE SHEET</td>
<td>V2</td>
<td>RFC Plans</td>
</tr>
<tr>
<td>1A</td>
<td>LOCATION MAP</td>
<td>V2</td>
<td>RFC Plans</td>
</tr>
<tr>
<td>18(1)</td>
<td>INDEX OF SHEETS</td>
<td>V3</td>
<td>RFC Plans</td>
</tr>
<tr>
<td>18(2)</td>
<td>INDEX OF SHEETS</td>
<td>V2</td>
<td>RFC Plans</td>
</tr>
<tr>
<td>1C</td>
<td>PRELIMINARY RIGHT OF WAY DATA SHEET</td>
<td>V1</td>
<td>RFC Plans</td>
</tr>
<tr>
<td>1D</td>
<td>REVISION DATA SHEET</td>
<td>V9</td>
<td>RFC Plans - Rev3</td>
</tr>
<tr>
<td>1E</td>
<td>HYDROLOGIC DATA SHEET</td>
<td>V2</td>
<td>RFC Plans</td>
</tr>
<tr>
<td>1F(1)</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
See attached NCR #012.
## Owner DB Inspector Daily Work Report

**Created By:** Robert Ridgell  
**My Permissions:** Manage, Submit, Review  
**Last updated:** Jun 11, 2019

### New Report

<table>
<thead>
<tr>
<th>Report date</th>
<th>Status</th>
<th>Created by</th>
<th>Last updated</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jun 10, 2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Work (Night Operations)</td>
<td>Submitted</td>
<td>James Cuttone</td>
<td>Jun 13, 2019 at 02:01 AM</td>
</tr>
<tr>
<td>June 11, 2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Area 2, Area 3, Area 4, and 6004</td>
<td>Submitted</td>
<td>Jobe Kamp</td>
<td>Jun 12, 2019 at 09:51 AM</td>
</tr>
<tr>
<td>June 11, 2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>651 Bridge / Area 1</td>
<td>Submitted</td>
<td>James Cuttone</td>
<td>Jun 13, 2019 at 02:04 AM</td>
</tr>
<tr>
<td>June 11, 2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>651 Bridge / Causeway / Area 3 / Area 4</td>
<td>Submitted</td>
<td>James Cuttone</td>
<td>Jun 24, 2019 at 01:02 PM</td>
</tr>
<tr>
<td>June 19, 2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>651 Bridge / B604 Bridge / Earthwork / SWM</td>
<td>Submitted</td>
<td>James Cuttone</td>
<td>Jun 24, 2019 at 01:14 PM</td>
</tr>
<tr>
<td>June 20, 2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>651 Bridge</td>
<td>Submitted</td>
<td>James Cuttone</td>
<td>Jun 20, 2019 at 01:01 PM</td>
</tr>
<tr>
<td>June 17, 2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>651 Bridge / B604 Bridge / Earthwork / ClC</td>
<td>Submitted</td>
<td>James Cuttone</td>
<td>Jun 15, 2019 at 07:50 AM</td>
</tr>
<tr>
<td>June 13, 2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>651 Bridge</td>
<td>Submitted</td>
<td>James Cuttone</td>
<td>Jun 13, 2019 at 02:06 AM</td>
</tr>
<tr>
<td>June 12, 2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Inclement Weather</td>
<td>Submitted</td>
<td>James Cuttone</td>
<td>Jun 13, 2019 at 02:06 AM</td>
</tr>
<tr>
<td>June 11, 2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>651 Bridge / Area 1</td>
<td>Submitted</td>
<td>James Cuttone</td>
<td>Jun 13, 2019 at 02:04 AM</td>
</tr>
<tr>
<td>June 10, 2019</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No Work (Night Operations)</td>
<td>Submitted</td>
<td>James Cuttone</td>
<td>Jun 13, 2019 at 02:01 AM</td>
</tr>
</tbody>
</table>

532 reports  Showing 1-50  <  >
Weather
Rain: 0.0 inches

7:00 AM
Cloudy skies
Temperature: 74°F
Wind: 4mph, N
Humidity: 95%

12:00 PM
Partly Cloudy
Temperature: 86°F
Wind: 9mph, NE
Humidity: 65%

4:00 PM
Partly Cloudy
Temperature: 90°F
Wind: 10mph, NE
Humidity: 52%

Updated Jun 24, 2019 at 12:37 PM

Entry:
Thursday 6/20/2019
Project #: 0095-111-259,P101,R201,C501; 0095-089-741; 0095-089-751
(95 EB CD Lanes and Rappahannock River Crossing)

Design Build Contractor: Wagman

Inspector: James M. Cutone
Design Build Contractor: Wagman

- B651 Bridge
  (Abutment B)
  Contractor worked on constructing and installing wood forms for the integral backwall and wingwalls.

- B604 Bridge
  (Temporary Causeway Bridge)
  Contractor worked on backfilling the double wall abutments with #57 stone and compacted with a tamping plate.

- Area 3-
  Contractor worked in the following stations to allow for water to leave the graded area due to the high volume of water. This area was between Sta. 3568+00 to Sta. 3563+30.

- Area 4-
  (Earthwork)
  Contractor worked on placement of an embankment lift from approx. Sta. 3609+50 to Sta. 3610+50. Contractor is using stone dust for backfilling. This material is coming from the removal activity located at approx. Sta. 3610+50.
  Contractor worked on placing 21B stone from approx. Sta. 3623+00 to Sta. 3629+00 and from approx. Sta. 3621+00 to Sta. 3622+00. This is being placed for the acceleration and deceleration lanes of CE-6.

(SWM)
  Contractor poured inverts for the following structures: 25-4, 25-4T, 24-1, and in area 3 22-1.

*Skidmore Test*
RFI 0085 - RFI-WAG-082-PORTICO 05-ELECTRIC JUNCTION BOX RELOCATION

Request for Information

Status: Distributed

Question

As shown in the drawing sheet 371515 the Electrical Junction Box is to be installed outside of the wall and from there the conduit shall be run to the inside of the wall.

Portico Recommendation: To protect the area we recommend to install the electrical junction box inside of the wall not outside of the wall. For more information please see the marked drawing below. Please advise how to proceed.

Answer

JMT takes no exception to relocating the junction box inside the wall. The conduit shall pass under the wall foundation to be verified by the contractor.

RFI # 005_Electrical Junction Box Relocation I-95-CD Lanes.pdf (See page 2)
Expansion of Implementation During the Project

- Approximately 6-8 months into the project CADAC software currently implemented had become an issue.
- Submittals were getting hung or misfiled and amount of document controller was increasing. Submittals were getting stuck in workflow.
- CADAC costs were rising as well.
- Project Manager and DBPM discussed options of switching submittal workflow to Plangrid.
- VDOT and the Design-Builder agreed and implemented the shift.
  - Document controller moved all existing submittal files to Plangrid.
- Documents as submittals get approved and filed directly into the plangrid project and are immediately available to the field.
Tools of the Trade
Questions?