

## Construction Materials Bureau

### Staff

Total: 107 FTE

Bureau Director:

Mladen Gagulic

State Construction Engineer:

Douglas Bonneau, P.E.



The Construction and Materials Bureau consist of:

- Construction
- Materials & Certification
- Geotechnical
- E-Construction

Construction	Materials	Geotechnical	E-Construction
<ul style="list-style-type: none"> <li>• Provide construction oversight on most federal aid highway and railroad infrastructure projects.</li> <li>• All facets of Contract administration: Timely and Accurate contractor payments, env. permits, Davis-Bacon wage rates, site and traveling public safety.</li> <li>• Ensure compliance with FHWA/VT Stewardship and Oversight agreement.</li> </ul>	<ul style="list-style-type: none"> <li>• The function of the Materials and Certification Section is to ensure only quality materials are incorporated into the work</li> </ul>	<ul style="list-style-type: none"> <li>• To provide foundation recommendations for all highway structures, pavements, soil embankments, and rock slopes</li> </ul>	<ul style="list-style-type: none"> <li>• Supporting existing Agency practice, programs, and applications, while continuing to pursue and implement new technologies that align with the overall e-Construction effort, foster collaboration and create more <i>efficient</i> business process.</li> </ul>

## Construction & Materials Bureau - Overview

### Construction Section – Douglas Bonneau, P.E., Construction Engineer

- **Provide construction oversight** of most capital improvement projects of contractors work
  - 50-80 Contracts per year
  - Oversee different type of contracts such as: DBB, DB, CMGC, ID/IQ, etc.
  - \$180 - \$200 million in Contractor payments
- **Resources** used to perform construction oversight:
  - 70 FT VTrans State employees
  - 5 – 6 Temporary employees
  - 80 – 100 Consultant seasonal employees

# Construction & Materials Bureau - Overview

## Construction Section – Douglas Bonneau, P.E., Construction Engineer

- **Major Projects** under construction
  - Colchester NH 028 – 1(31)
    - Project is on schedule to be completed in 2026





# Construction & Materials Bureau - Overview

## Construction Section – Douglas Bonneau, P.E., Construction Engineer

- **Major Projects** under construction
  - Hartford (Quechee Gorge)
    - Project scheduled to be completed in 2026



# Materials & Certification Section - Nick Van Den Berg, P.E., Materials Manager

- **To ensure only quality** materials are incorporated into the work.
  - Majority of acceptance testing is performed at our **AASHTO accredited** laboratory in Berlin, VT.
  - Maintain the Agency **Quality Assurance Program** (QAP) in accordance with 23 CFR 637, including the Material Acceptance Program
  - The Independent Assurance Program provides an independent, **unbiased** evaluation of the Material Acceptance Program
  - About **\$50 million** worth of materials are incorporated into VTrans projects annually
  - There are **20 asphalt** plants, **17 concrete** plants and **5 precast** plants approved to supply materials to our projects
  - About **80 aggregate sources** are approved to supply materials

## Construction & Materials Bureau - Overview

# Materials & Certification Section - Nick Van Den Berg, P.E., Materials Manager

- **Resources** used to perform materials testing:
  - 24 Full Time VTrans State employees
  - 2-3 seasonal Temporary employees
  - ~10 Consultant seasonal employees
- **In 2023** we tested materials representing:
  - **377,445** Ton of Hot Mix Asphalt
  - Used approximately **57,000** Ton of Recycled Asphalt Pavement
  - Inspected **36** projects with pre-cast concrete elements



## Construction & Materials Bureau - Overview

# Materials & Certification Section - Nick Van Den Berg, P.E., Materials Manager

- Since 2022 we have championed research of and developed specifications for many recycled materials and manufacturing by-products, including;
  - **Ground-glass pozzolan** – can replace regular cement and reduce carbon impact
  - **Manufactured Topsoil** – eliminates the need to strip natural topsoil
  - **Processed glass aggregate** – replaces virgin sand in unbound applications



## Construction & Materials Bureau - Overview

### Geotechnical Section – Callie Ewald, P.E., Geotechnical Manager

- To provide **foundation recommendations** for all highway structures, pavements, soil embankments, and rock slopes
  - **Site characterization**, including field inspection of **drilling** activities, laboratory soil strength testing, and instrumentation installation
  - Geotechnical design of shallow and deep foundations for bridges, walls, and pavements, and **slope stability** analysis and design
  - **Emergency technical response** to voids, landslides, and rockfalls (in high demand during flood events)
  - **Bedrock** compressive strength testing and visual foundation inspection, technical support of the **aggregate** source program



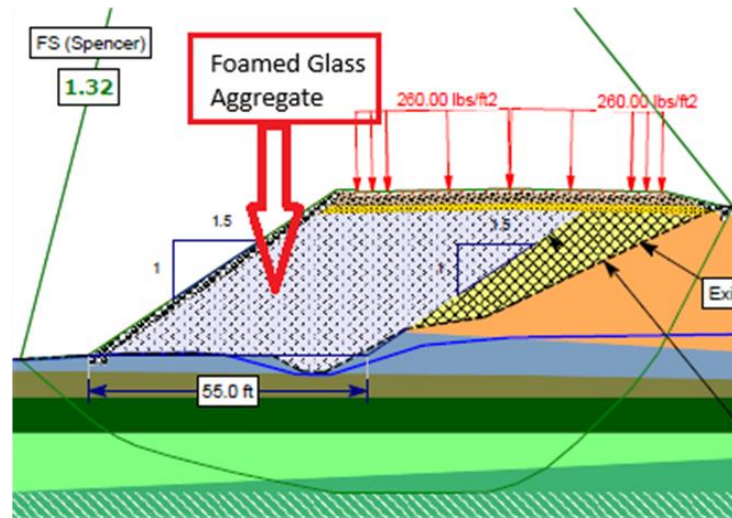
# Construction & Materials Bureau - Overview

## Geotechnical Section – Callie Ewald, P.E., Geotechnical Manager

- **Resources :**

- 8 VTrans State employees (6 engineers and 2 geologists)
- 6 On-call consultant retainer contracts

- **Project Examples:**



**Colchester, Route 2 over I-89:** Poor soils led to the need for a lightweight embankment material to reduce settlement and improve stability. Utilized **Foamed Glass Aggregate**, which is recycled glass powder – 10 times lighter than traditional aggregate!



# Construction & Materials Bureau - Overview

## Geotechnical Section – Callie Ewald, P.E., Geotechnical Manager



**Plainfield, Route 2:** Performed subsurface borings, installed instrumentation, developed geotechnical recommendations to stabilize slope and Route 2



**Fairlee, I-91:** Large rockfall in February of 2024 that required immediate technical response and emergency repairs

## Construction & Materials Bureau - Overview

### e - Construction Section – Molly Perrigo, e-Construction Manager

- **Supporting** existing Agency practice, programs, and applications, while continuing to pursue and implement **new technologies** that align with the overall e-Construction effort, foster collaboration and create more **efficient** business process.
  - **Electronically** capturing construction data, **electronic** submission of all construction documentation
  - Increased use of **mobile devices**
  - Increased **automation** of document review & approval
  - Essential use of **electronic signatures** by all parties, **secure** document and workflow management accessible to **all stakeholders on any device**



## Construction & Materials Bureau - Overview

### e - Construction Section - Molly Perrigo, e-Construction Manager

- **Resources** used :
  - 4 FT VTrans State employees
  - 2 Consultant
  - **2018-2023** we:
    - Designed and managed rollout of Estimate and e-Contracting modules in new Construction Management System (CMS)
    - 2021-2024: Nearly 200 contracts awarded in CMS worth over \$850 million
- **In 2024** we:
  - Managed rollout of Construction and Materials modules in CMS
  - Approved design of Civil Rights module and Mobile application (eFieldBook) – Coming in 2025

Construction & Materials Bureau - Overview  
Thank you

Questions?