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Stormwater Management for Greenwood Hills Bible Camp

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STORMWATER MANAGEMENT FOR GREENWOOD HILLS BIBLE CAMP

EROSION, MITIGATION, & NUISANCE FLOODING REDUCTION

Abigail Bartels & Caleb Hilton

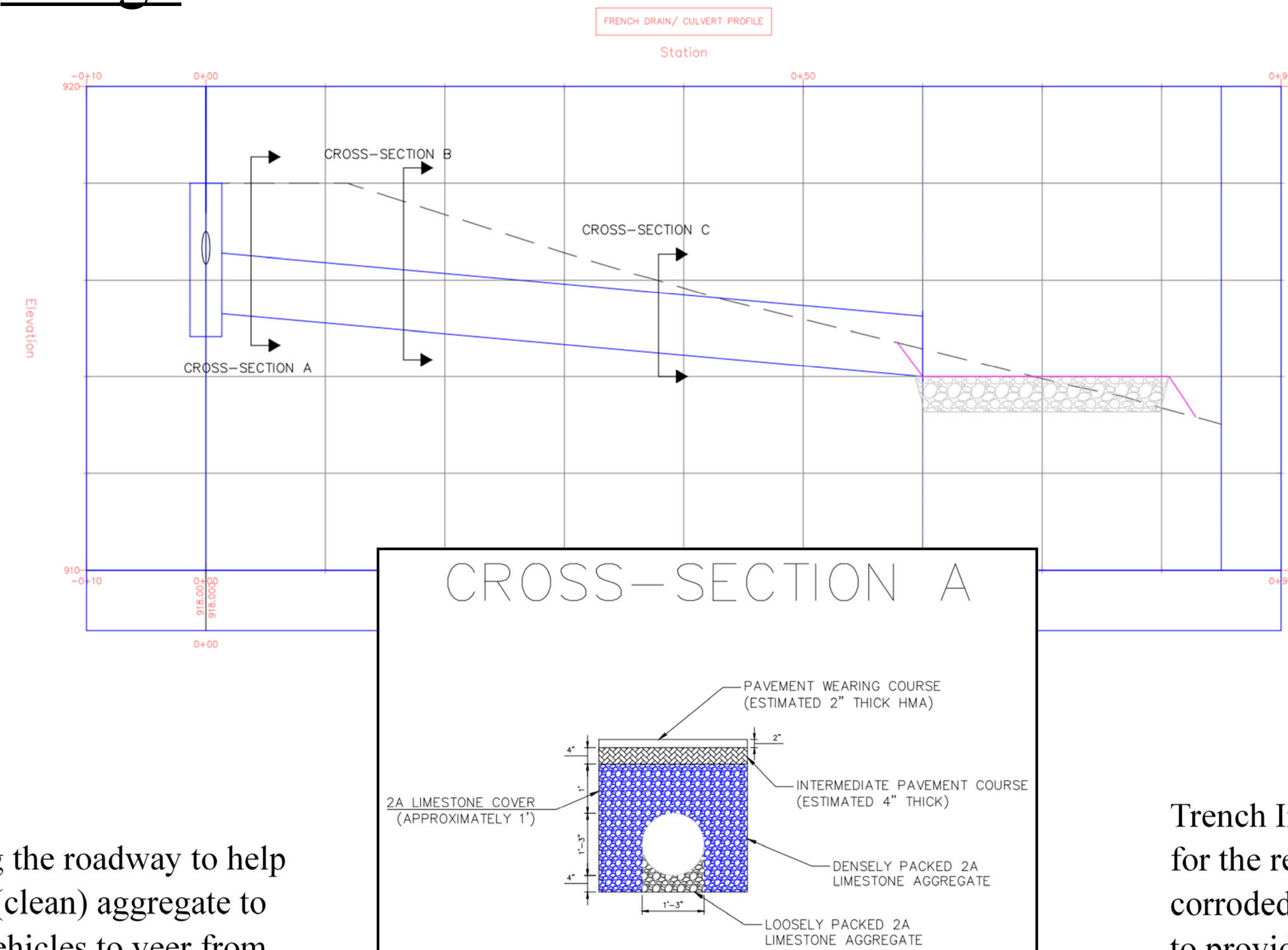
Problem Statement

The stormwater team addresses flooding and erosion issues. In the spring of 2022, the team analyzed erosion problems for Greenwood Hills Bible Camp near Chambersburg PA and designed a system to capture and divert the runoff that is causing erosion.

Specifications

The team's goal was to construct the system by the beginning of May. The budget was \$10,000. The client requested the team minimize costs to reserve funds for repaving the existing road.

Design



Results

The French drain and trench were successfully installed into the Greenwood Hills community. To minimize costs, the piping was manually perforated by the team. The drains connect to an inlet, then through a 15 inch culvert under the road, then to discharge. As seen below, during construction the trench continued to fill with water from a spring. In order to resolve this, the trench continued for 40 feet, allowing to gravity push the water away from the road and down into the basin area. Once the water was diverted below-grade, the installation of the trench could be completed.

Conclusions

The project was successfully completed and should minimize the flooding to the homeowners. The team believes that the French drain will adequately convey the stormwater and reduce erosion.

French Drain Installation—8" perforated PVC piping runs along the roadway to help with runoff and flooding issues. The piping was covered by 2B (clean) aggregate to allow for runoff to enter the pipe, this material also allows for vehicles to veer from oncoming traffic without damaging the pipe below.

Trench Installation—A 15" corrugated PVC pipe connected the French drain and trench system that allowed for the removal of water to prevent flooding in nearby houses. The team removed the previous inlet that was corroded and compacted with dirt. The geotextile was added to the portion of the trench that covered the road to provide support under the stone and help with settling.

Before

After



Before

During



After



Clients

Greenwood Hills Bible Camp
Greenwood Hills Neighborhood Association
Bruce Hulshizer, PE

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Caleb Hilton, Volunteer



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