

Augustine North Section 10 Omega Arch

Stafford County, VA



Geopier elements supporting structure



Completed structure

Project Description: In order to connect two parcels of land at a new development a stream crossing was needed. A concrete arch was chosen since it met both the flow and the concerns of environmental impact on the stream. The single arch system is approximately 120 long by 24 feet wide by 10 feet high, and utilizes reinforced soil wing walls. Since the entire area was in a fill the loads on the concrete footings were relatively high at approximately 50 kips per lineal foot. This required relatively large footings which encroached into the stream channel. In order to reduce the footing size and still control, settlement Geopier elements were chosen since they reduced the footing size by 25%. The project was approved by VDOT. For scour protection, riprap sized for the soil conditions and flow were used to cover the footings and stream bank.

THE GEOPIER ADVANTAGE

- Geopier Reinforcement allowed all project footings to be designed for 7 ksf bearing pressure.
- The savings in footing concrete resulted in a net project savings and allowed the arch width to be narrower since the footings did not encroach on the stream.
- The use of Geopier elements controlled the differential settlement between the two arch footings to less than 1 inch.

Owner: Augustine Homes, LLC, Fredericksburg, VA

Developer: Development Consulting Services, Fredericksburg, VA

Geotechnical Engineer: ECS, Ltd., Fredericksburg, VA

Concrete Arch Supplier: Rotondo Precast, Fredericksburg, VA

GeoStructures, Inc.
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