



STREAM CROSSING – FORD

Georgia Guide Sheet No. GA-578GS1



Definition

A trail or travelway constructed of geotextile and stone, concrete or geocell across a stream to allow livestock or farm equipment to cross with minimal disturbance to the stream ecosystem.

General Information

Ford-type stream crossings should be considered only on streams with a bank height of 5 feet or less.

Stone stream crossings should be located in areas where the streambed is stable. The crossing should be installed perpendicular to the direction of the flow in the stream.

"Cattle only" crossings can be as narrow as 6 feet. Multi-use crossings for farm equipment may be as wide as 20 feet.

Installation

Entrance and exits to the stream crossing should be 5 horizontal to 1 vertical or flatter. The stream bed should be excavated so that the finished surface of the crossing is no higher than the stream bed upstream and downstream of the crossing. Crossings that are installed in free flowing streams should be completed from one side to the middle of the stream first. Then the other side completed. This will minimize disturbance to the stream ecosystem.

Diversions should be installed near the entrance and exit to the crossing so that surface water runoff does not enter the crossing.

The geotextile fabric is placed on the excavated surface prior to placing rock or geocell. The geotextile is held in place with anchoring pins. The geotextile used for this

application is typically a non-woven, non-heat bonded, and needle punched material; however, woven geotextile may be utilized. The class and grade of fabric will be determined by the designer as per manufacturer's recommendations.

Minimum Geotextile Requirements

REQUIREMENTS FOR GEOTEXTILE		
Property	Test Method	Minimum
Tensile Strength	Grab Test ASTM D 4632	180 lb.
Mullen Bursting	Diaphragm Test ASTM D 3786	320 psi
Puncture Test	ASTM D 4833	80 lb.

Properly sized rock is placed on the geotextile or used to fill geocell to the designed thickness. Larger sized riprap will be needed for higher velocity streams. Construction equipment should not operate directly on top of the geotextile surface while constructing the crossing.

Crossings used by cattle may need a 2-4 inch hoof contact zone, like crusher run, on top of the surfacing material to provide a smooth walking surface.

Concrete ford crossings may be used where failure of rock or geocell fords is anticipated. Concrete shall have a minimum compressive strength of 3,000 psi at 28 days. Concrete ford crossings shall have a minimum thickness of placed concrete of 5 inches with minimum reinforcement of 6-inch by 6-inch, 6 gauge welded wire fabric. The concrete slab shall be poured on a minimum 4-inch thick rock base, unless the foundation is otherwise acceptable.

The concrete will extend down into toe trenches that are 6 inch wide and 18 inch deep on the upstream and downstream edge of the crossing. The toe trenches will extend half way up the stream approaches.

A 3 foot wide and 18 inch thick rock rip-rap apron should be installed along the downstream edge of the concrete to dissipate velocity and provide head cut protection. The apron shall extend half way up the stream approaches. The apron may be omitted in low gradient streams where the design storm velocity is less than 5 feet per second.

Each side of the crossing should be fenced so the cattle will be restricted to the protective crossing surface, eliminating unrestricted access to the stream. Electrified hanging chains have proven to be an effective and minimal maintenance type fence used in conjunction with stream crossings.

Shade should be eliminated in the immediate vicinity of the crossing so that cattle will not have a tendency to loaf in the stream at the crossing location.

Operation and Maintenance

In order for the stream crossing to provide protection to the stream ecosystem, the riparian zone for the stream should be fenced, with cattle access only at the crossing.

Periodic inspection of the stream crossing will be required. Storm runoff may deposit debris at the crossing location which will need to be removed. The stone may occasionally need to be replaced. Fence repair and maintenance may be needed.

References

NRCS GA Conservation Practice Standard
Code-561, Heavy Use Area Protection
Code-578, Stream Crossing