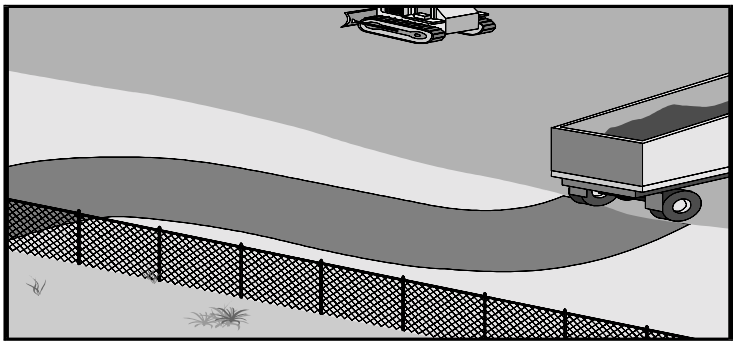
ACTIVITY: Construction Road Stabilization

TCP – 02



Targeted Constituents				
● Significant Benefit	◗ Partial Benefit	○ Low or Unknown Benefit		
● Sediment	○ Heavy Metals	○ Floatable Materials	○ Oxygen Demanding Substances	
○ Nutrients	○ Toxic Materials	○ Oil & Grease	○ Bacteria & Viruses	○ Construction Wastes

Implementation Requirements				
● High	◗ Medium	○ Low		
◗ Capital Costs	◗ O & M Costs	◗ Maintenance	◗ Suitability for Slopes >5%	○ Training

Description

Access roads, subdivision roads, parking areas, and other on-site vehicle transportation routes should be stabilized immediately after grading and frequently maintained to prevent erosion and control dust. This management practice is likely to create a significant reduction in sediment.

Suitable Applications

- Temporary construction traffic.
- Phased construction projects and off-site road access.
- Detour roads for local or temporary construction traffic.
- Construction during wet weather.
- Any construction roads that utilize a temporary stream crossing must be indicated and approved by the Tennessee Department of Environment and Conservation. Figures TCP-02-1 through 3 present illustrations of common temporary stream crossings.

Approach

- Road should follow topographic contours to reduce erosion of the roadway.
- The roadway slope should not exceed 15 percent.
- Gravel roads should be a minimum 6-inch (15.2-cm) thick, 2-3 inch (5.1-7.6 cm) coarse aggregate base applied immediately after grading, or as recommended by a soils engineer or erosion control specialist.
- Chemical stabilizers or water are usually required on gravel or dirt roads to prevent dust. No additional costs for dust control on construction roads should be required above that needed to meet local air quality requirements. (see Dust Control CP-17).

Maintenance

- Periodically apply additional aggregate on gravel roads.
- Active dirt construction roads are commonly watered three or more times per day during the dry season.
- Inspect weekly, and after each rain event.
- Repair any eroded areas immediately.

Limitations

- The roadway must be removed or paved when construction is complete.
- Certain chemical stabilization methods may cause stormwater or soil pollution and ARE NOT PERMITTED for use (see Dust Control CP-17).
- Management of construction traffic is subject to air quality control measures. Contact the local air quality management agency.
- Gravel construction roads are moderately expensive, but cost is often balanced by reductions in construction delay.

Additional Information

Areas which are graded for construction vehicle transport and parking purposes are especially susceptible to erosion and dust. The exposed soil surface is continually disturbed, leaving no opportunity for vegetative stabilization. Such areas also tend to collect and transport runoff waters along their surfaces. During wet weather, they often become muddy generating significant quantities of sediment that may eventually pollute nearby streams. Dirt roads can become unstable during wet weather rendering them unusable.

Efficient construction road stabilization not only reduces on-site erosion but can significantly speed on-site transit, avoid instances of immobilized machinery and delivery vehicles, and generally improve site efficiency and working conditions during adverse weather.

Installation/Application Criteria

Where feasible, alternative routes should be made for construction traffic; one for use in dry condition, the other for wet conditions which incorporate the measures listed for this BMP. Permanent roads and parking areas should be paved as soon as possible after grading. As an alternative where construction will be phased, the early application of gravel or chemical stabilization may solve potential erosion and stability problems. Temporary gravel roadway should be considered during the rainy season and/or on slopes greater than 5 percent.

When a gravel road is needed, apply a minimum 4-inch (10.2 cm) course of 2 to 4-inch (5.1- to 10.2-cm) crushed rock, gravel base, or crushed surfacing base course immediately after grading or the completion of utility installation within the right-of-way. Chemical stabilization may also be used upon compacted native sub-grade (see the Dust Control BMP CP-17). These chemical controls should be applied per the manufacturer's directions.

Roadways should be carefully graded to drain transversely. Provide drainage swales on each side of the roadway in the case of a crowned section, or one side in the case of

super-elevated section. Simple gravel berms without a trench can also be used.

Installed inlets should be protected to prevent sediment-laden water from entering the storm sewer system.

Primary References

California Storm Water Best Management Practice Handbooks, CDM et.al. for the California SWQTF, 1993.

Caltrans Storm Water Quality Handbooks, CDM et.al. for the California Department of Transportation, 1997.

Subordinate References

Best Management Practices and Erosion Control Manual for Construction Sites, Flood Control District of Maricopa County, Arizona, September 1992.

Manual of Standards of Erosion and Sediment Control Measures, Association of Bay Area Governments, June 1981.

Stormwater Management Water for the Puget Sound Basin, Washington State Department of Ecology, The Technical Manual – February 1992, Publication # 91-75.

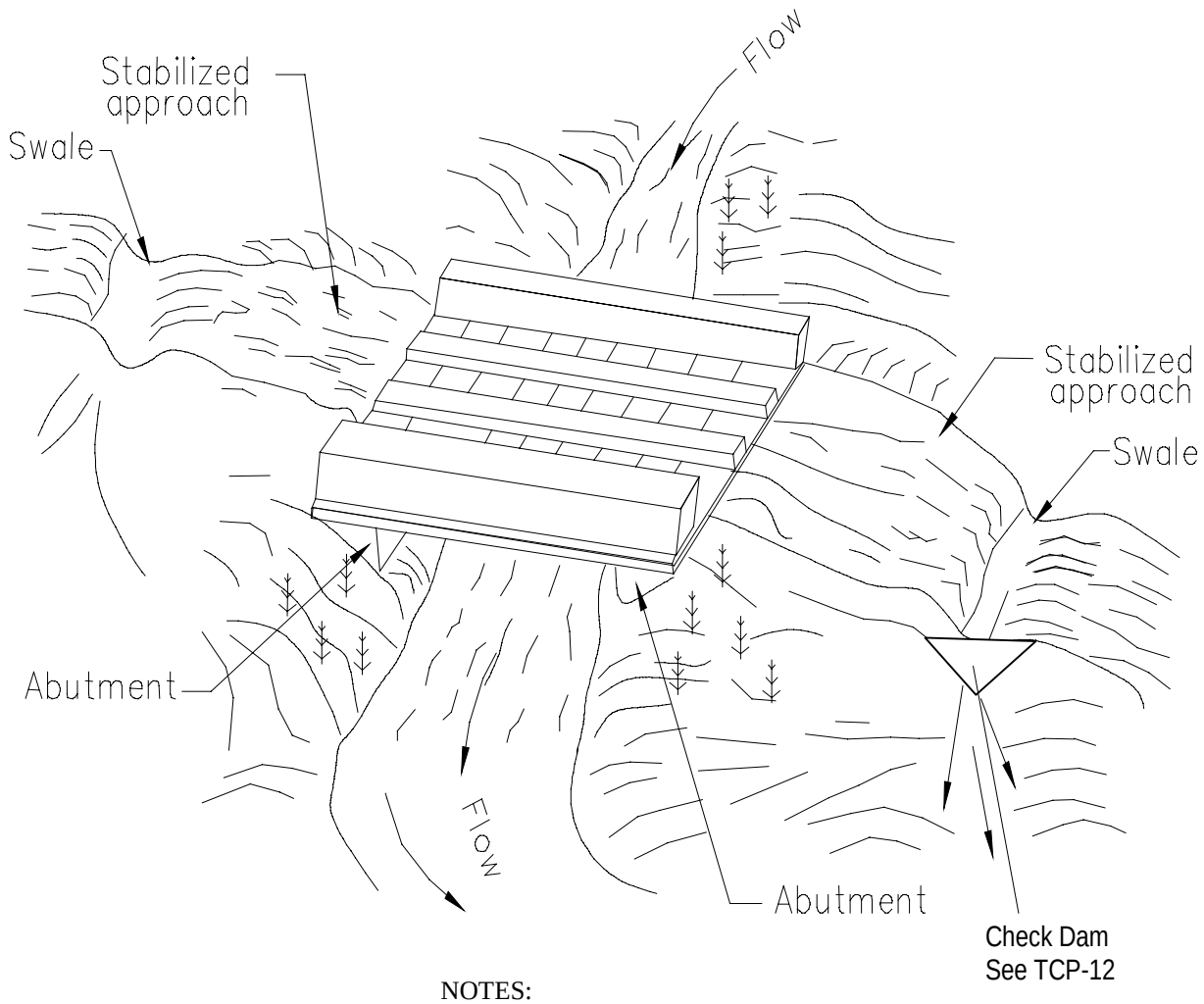
Tennessee Erosion and Sediment Control Handbook, Tennessee Department of Environment and Conservation, July 1992.

Virginia Erosion and Sedimentation Control Handbook, Virginia Department of Conservation and Recreation, Division of Soil and Water Conservation, 1991.

Water Quality Management Plan for the Lake Tahoe Region, Volume II, Handbook of Management Practices, Tahoe Regional Planning Agency – November 1988.

Inspection Checklist

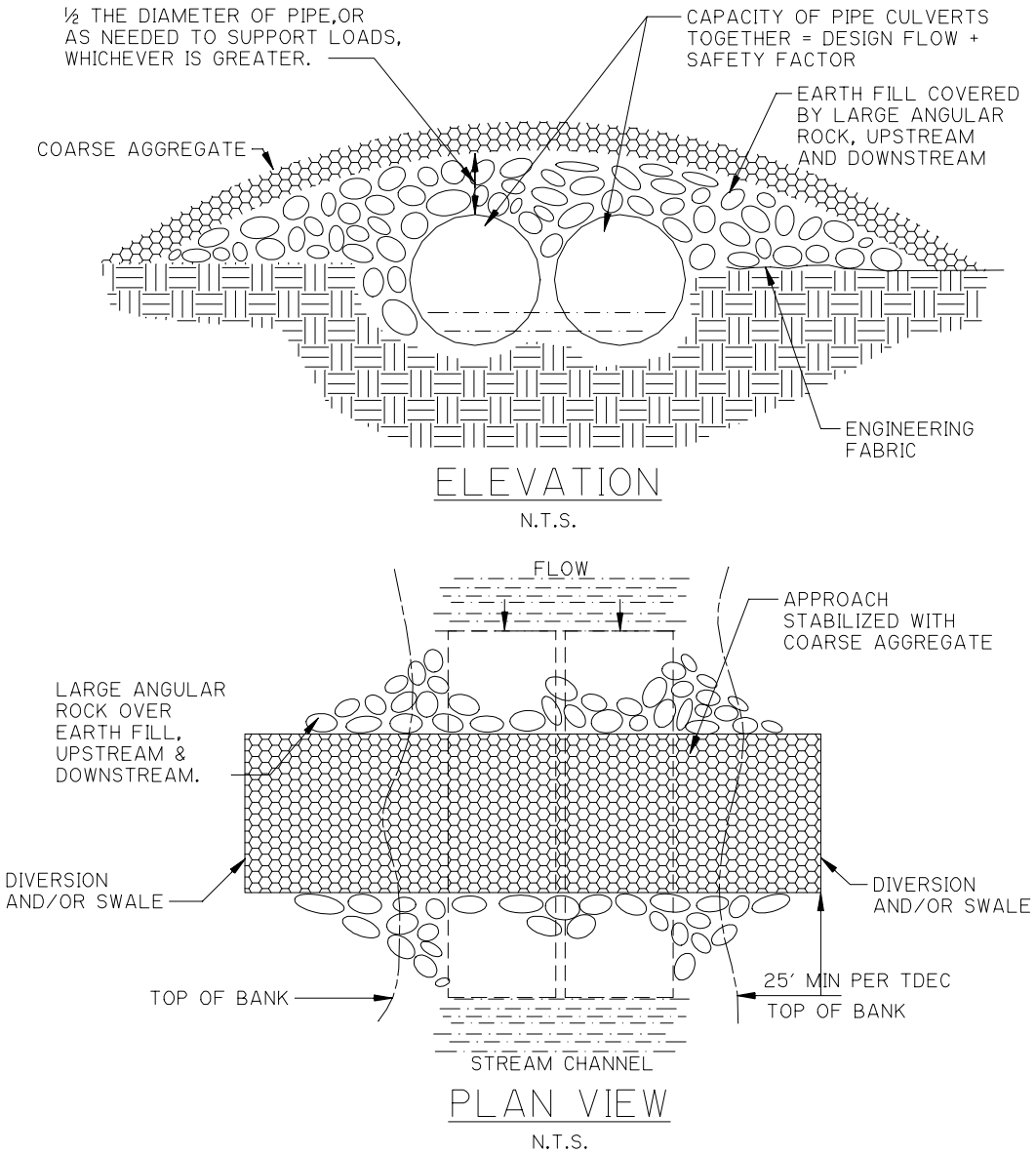
- Gravel roads are maintained so that mud and dirt are not tracked off-site.
- Dirt roads are "treated" to reduce dust problems.
- Dirt and gravel roads do not show signs of erosion including but not limited to rill and gully erosion.
- Any stream crossings were constructed and maintained as mandated by the appropriate general or individual permit from TDEC.



NOTES:

1. Surface flow of road diverted by swale and/or dike.
2. Temporary structure should be designed and inspected by a license structural engineer.
3. Temporary crossings should only be constructed after approval from TDEC.

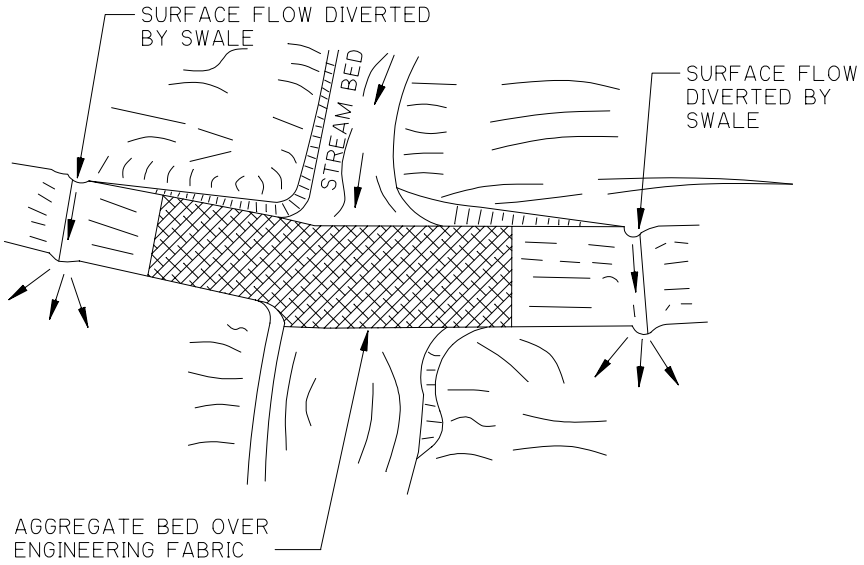
Figure TCP-02-1
Temporary Stream Crossing
N.T.S.



NOTES:

1. SURFACE FLOW OF ROAD DIVERTED BY SWALE AND/OR DIKE.
2. TEMPORARY STRUCTURE SHOULD BE DESIGNED AND INSPECTED BY A LICENSED STRUCTURAL ENGINEER.
3. TEMPORARY CROSSINGS SHOULD ONLY BE CONSTRUCTED AFTER APPROVAL FROM TDEC.

Figure TCP-02-2
Temporary Stream Crossing



AGGREGATE APPROACH
5:1 (H:V) MAXIMUM SLOPE ON ROAD

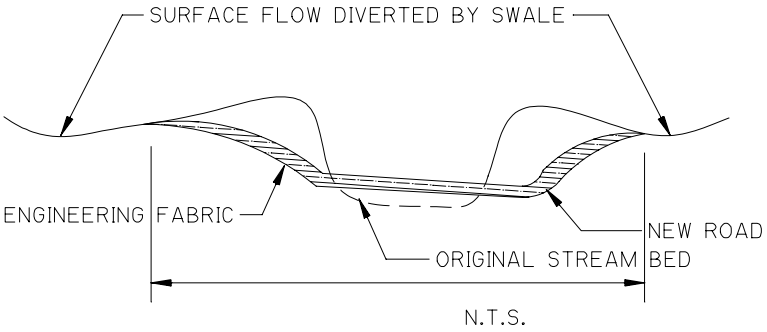


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Figure TCP-02-3
Temporary Storm Crossing