Site-Specific Stream Crossing Reviews

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VIRGINIA DEPARTMENT OF ENVIRONMENTAL QUALITY

Site Specific Stream Crossing Reviews

- Each stream crossing is analyzed during ESC plan review
- Stream crossings can only be performed in dry conditions
  - Virginia does not allow crossings in the wet
- ESC measures for upland areas and at crossings work as a system to minimize and prevent erosion
- Proper placement and management of upland ESC controls are crucial
- Three ESC Minimum Standards specifically address stream crossings
- Nationwide 12 Permit

ESC MINIMUM STANDARDS SPECIFIC TO STREAM CROSSINGS

Minimum Standard 12:

"*When work in a live watercourse is performed, precautions shall be taken to minimize encroachment, control sediment transport and stabilize the work area to the greatest extent possible during constructions. Nonerodible material shall be used for the construction of causeways and cofferdams. Earthen fill may be used for these structures if armored by nonerodible cover materials.*"

ESC MINIMUM STANDARDS SPECIFIC TO STREAM CROSSINGS

Minimum Standard 13:

"When a live watercourse must be crossed by construction vehicles more than twice in any six-month period, a temporary vehicular stream crossing constructed of nonerodible material shall be provided."

ESC MINIMUM STANDARDS SPECIFIC TO STREAM CROSSINGS

Minimum Standard 15:

"The bed and banks of a watercourse shall be stabilized ***immediately*** *after work in the watercourse is completed."*

NATIONWIDE 12 PERMIT

- Each crossing is considered single and complete for linear utility projects
  - Crossing a single waterbody more than one time at separate and distant locations, or multiple waterbodies at separate and distant locations
- Avoid and minimize wetland and stream impacts
- Minimize soil disturbance
- Maintain normal downstream flows
  - Cannot restrict or impede the passage of normal or high flows

NATIONWIDE 12 PERMIT

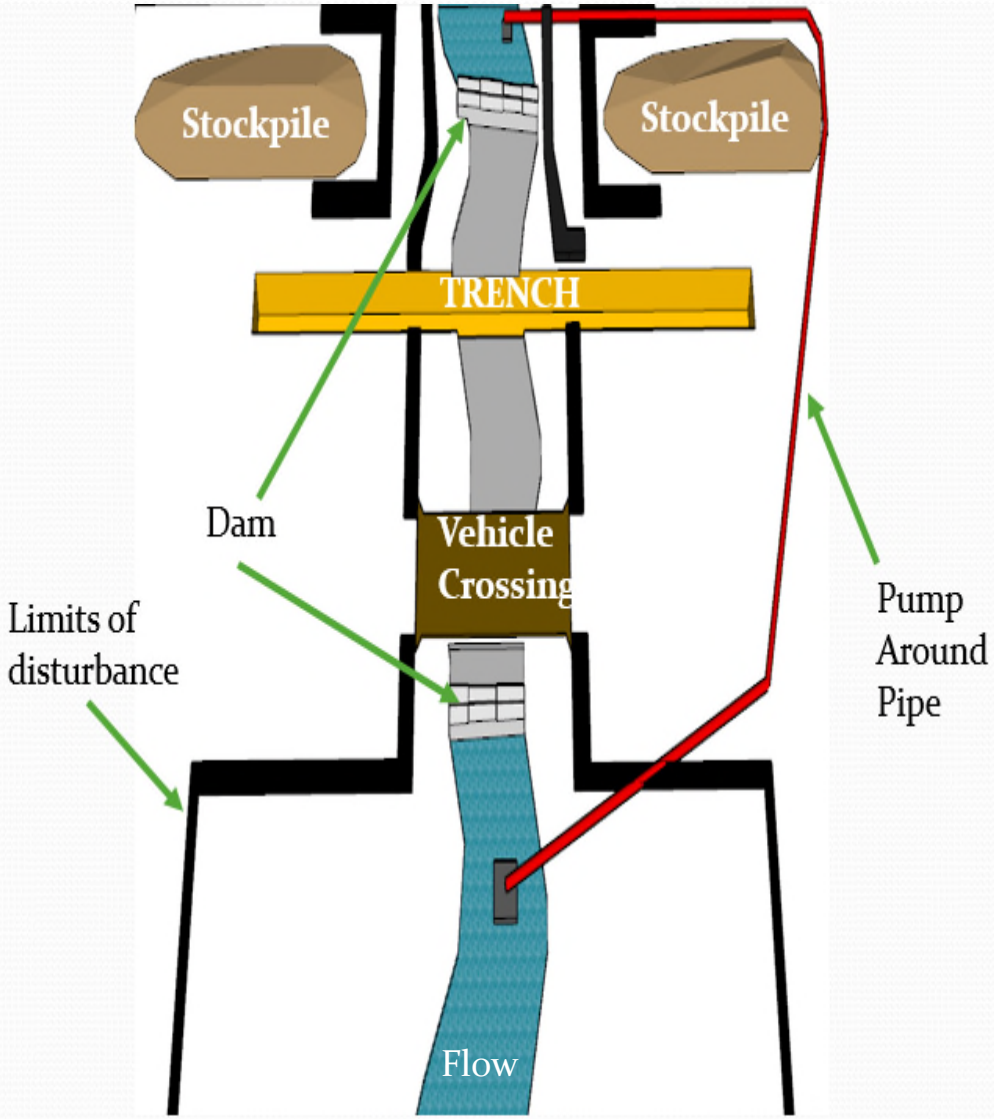
- Erosion and sediment controls must be used and maintained during construction
- Excavated material must be placed back into the trench to the original contour
- Areas returned to pre-construction elevations and revegetated
- Plant species listed by the most current Virginia DCR Invasive Alien Plant List cannot be used for re-vegetation

TYPES OF STREAM CROSSINGS

- Dam and Pump (aka – Pump Around)
- Flume
- Coffer Dam
- Horizontal Directional Drilling (HDD)

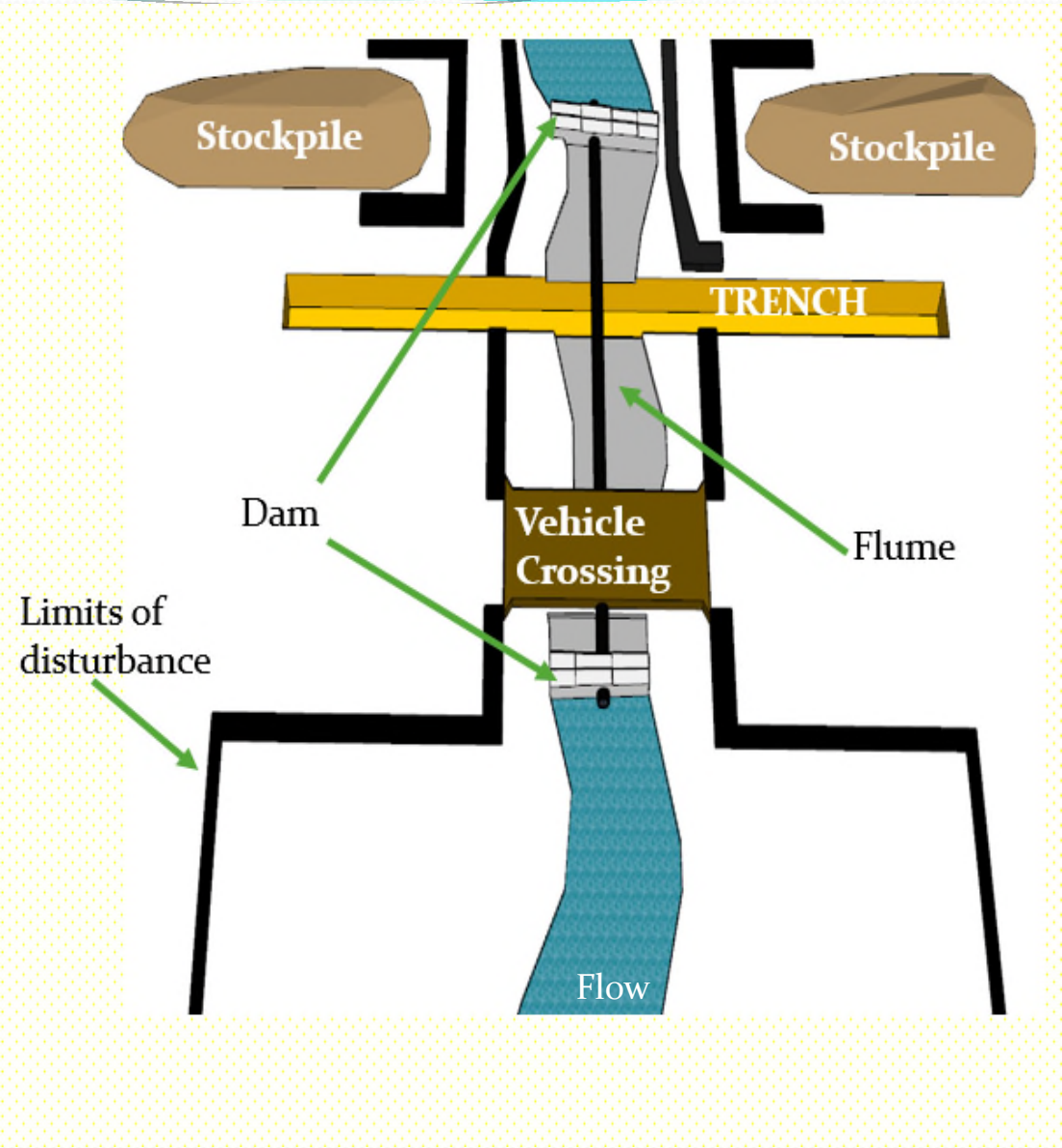
DAM AND PUMP

- Construct upstream and downstream dams
- Upstream water ponds
- Pump allows water to discharge downstream of work area



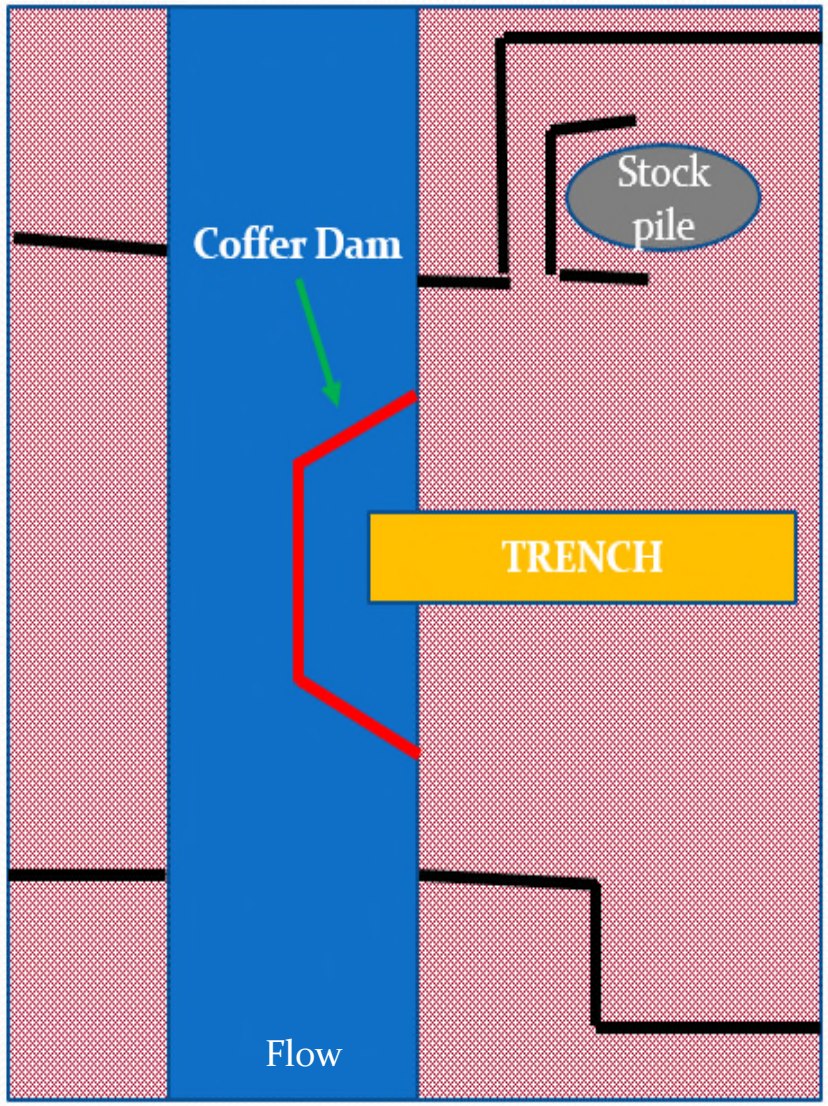
FLUME

- Construct upstream and downstream dams
- Stream flow directed through a pipe to discharge downstream of work area
- Trench dug under flume



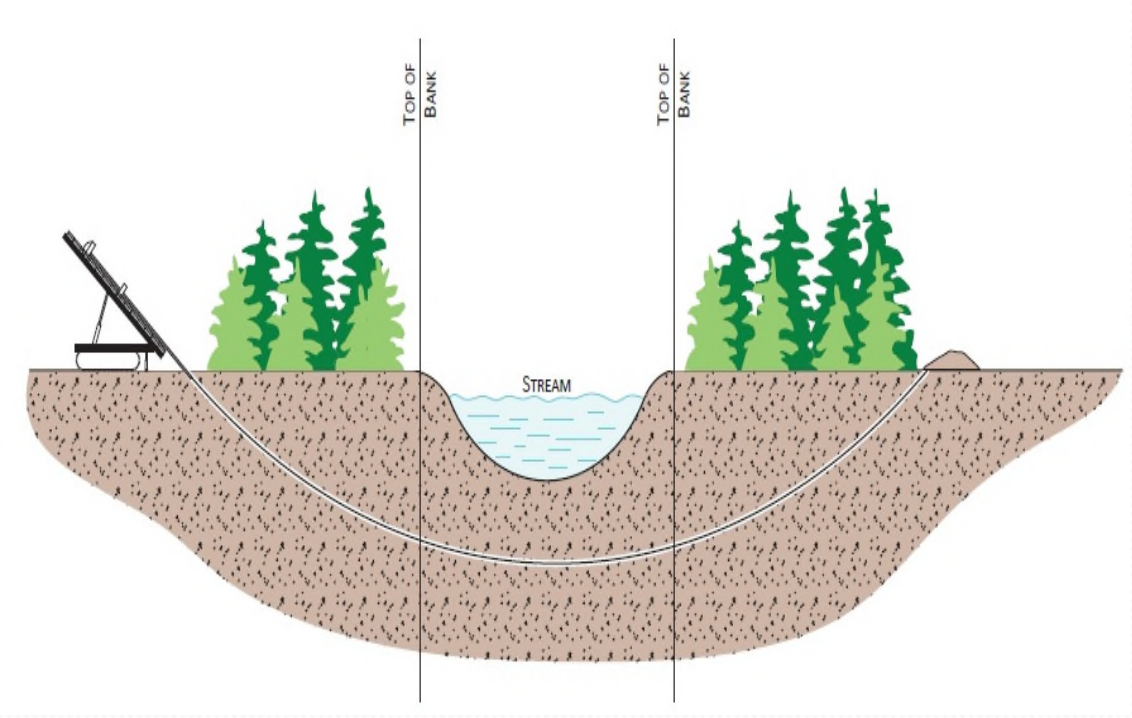
COFFER DAM

- Riprap or other non-erodible materials used to create semi-circle shaped dam in stream
- Dewater work area
- Install pipe in half of area
- Remove dam materials and repeat on opposite stream bank

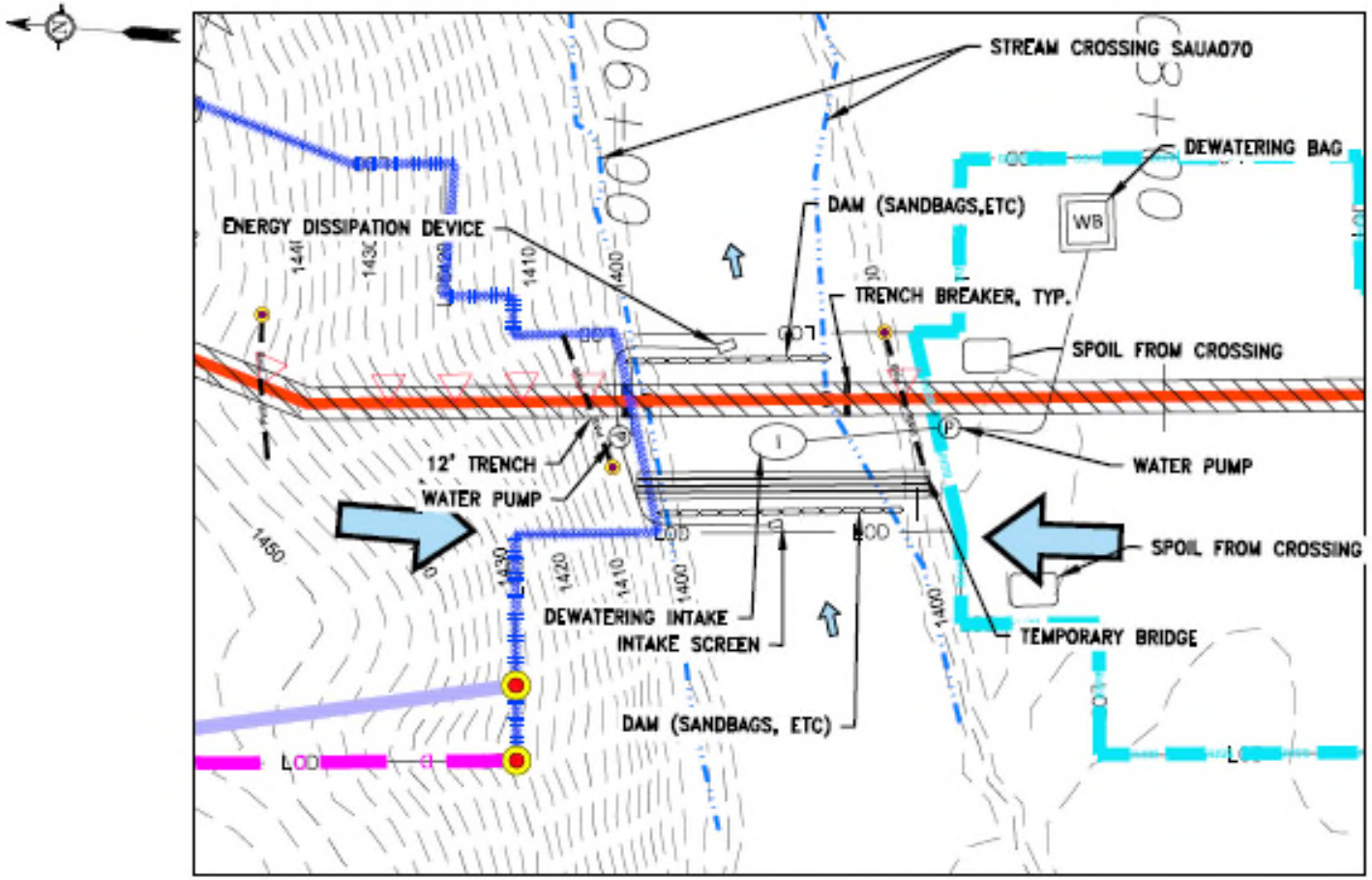


HORIZONTAL DIRECTIONAL DRILLING

- Trenchless method
- Pilot hole drilled in directional path under stream bed
- Pilot hole enlarged to diameter to facilitate pipe installation
- Work conducted in upland
- Borings from both sides to eventually meet

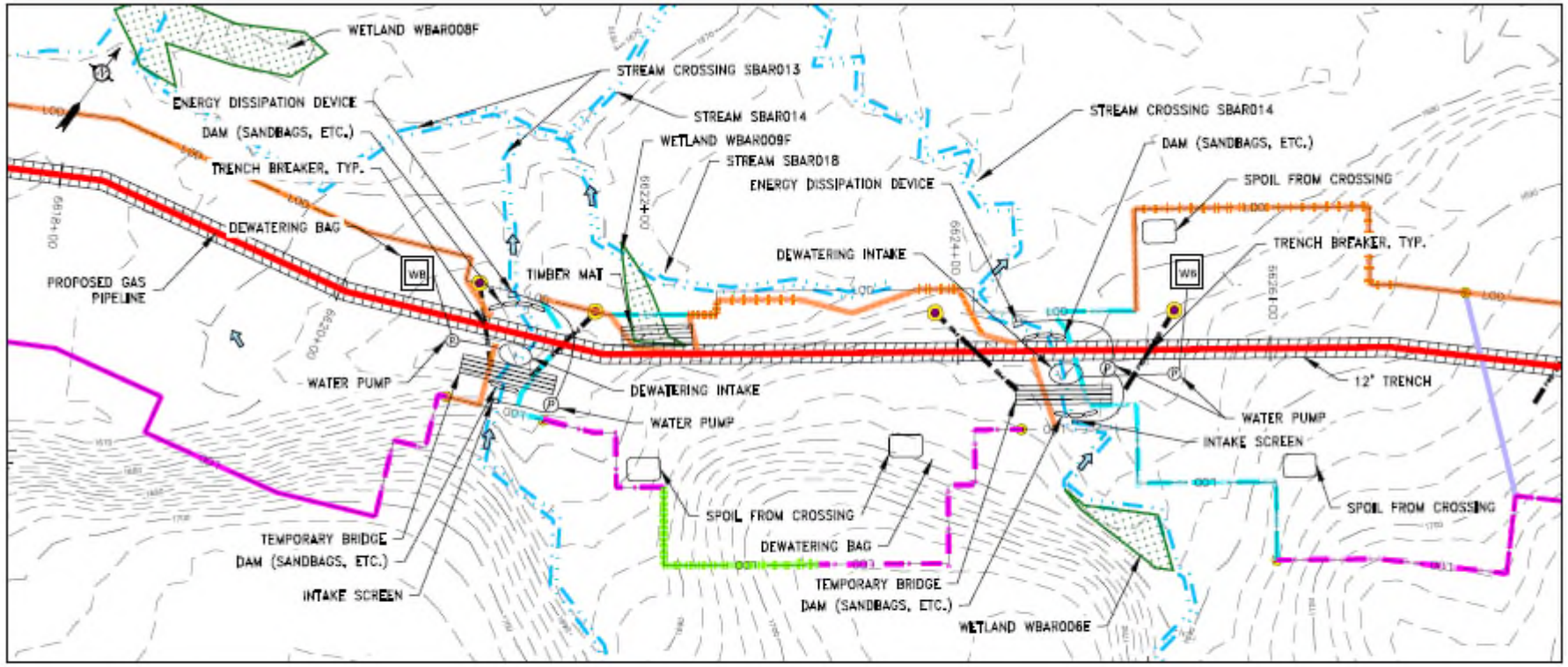


DRAFT Example
Middle River
Augusta County



PLAN VIEW
STREAM CROSSING - SAUA070

DRAFT Example
Bath County



PLAN VIEW STA:
6621+00 STREAM CROSSING: SBAR013
6624+50 STREAM CROSSING: SBAR014

LEGEND:

- EXISTING ROAD EDGE
- FENCE
- STREAM
- ACCESS ROAD
- PROPOSED GAS PIPELINE
- STORMWATER DIVERSION
- CROSS DRAIN
- PWB — PERMANENT WATER BAR
- LOD — LIMIT OF DISTURBANCE
- BSRF — BELTED SILT RETENTION FENCE (BSRF)
- 12" COMPOST FILTER SOCK
- 18" COMPOST FILTER SOCK
- 24" COMPOST FILTER SOCK
- DIVERSION OUTLET
- POUR POINT
- WATER PUMP
- TEMPORARY WATERBAR/SLOPE BREAKER
- UTILITY POLE
- SLOPE DIRECTION
- CONSTRUCTION ENTRANCE WITH DITCH CULVERT AS NEEDED
- GEOLOGICALLY SENSITIVE FEATURES
- SEEP
- SANDBAG
- TRENCH BREAKER
- INTAKE SCREEN
- ENERGY DISSIPATER
- DEWATERING INLET
- SPOILS FROM STREAM CROSSING
- TEMPORARY BRIDGE
- TIMBER MAT
- WETLAND

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North Fork
Roanoke River