Appendix J
Delmarva Power General Construction Best Management Practices and Construction Common Work Practices

Delmarva Power and Light (Delmarva Power) is committed to reducing its environmental footprint impacts. Throughout the construction of the Church to Steele Project, Delmarva Power and their contractors will meet or exceed permit requirements. The contractor is expected to be knowledgeable and aware of the Best Management Practices (BMPs) of the work being performed and the associated environmental risks. BMPs are generally defined as those practices available that provide the maximum protection to the environment while conducting your activities.

Communication and awareness are the keys to the environmental success of a Project.

This document is intended to reinforce the fact that everyone associated with this Project is responsible for environmental compliance. Even workers who have not been trained formally in environmental practices should know when they see activities that are environmentally destructive. Everyone is expected to comply with the formal rules and the written guidance governing environmental compliance. The contractor is responsible for adhering to all conditions identified in the permits related to the Project. The contractors are responsible for monitoring day-to-day compliance. Delmarva Power and an authorized third-party contractor will also monitor compliance.

The contractor shall take measures, as appropriate, to prevent pollution or environmental damage resulting from work within the ROW or Project area. This may include, but is not limited to activities including delivery and storage of equipment and materials, waste disposal, construction, and/or use of haul roads.

Typical BMPs are provided in this document. The contractor may propose to use practices that are not outlined here. These proposals are subject to approval by the on-site representative.

Every contractor employee is responsible for keeping the Project sites clean and environmentally sound.

The following areas of concern deserve attention every day while on the job:

- Anything that comes in contact with the Ground.
- Anything that comes in contact with natural Waters or Wetlands.
- Trash and Waste we create and how we handle and dispose of it.
- Storage and use of Materials and Chemicals we bring to the site.

D.1 Best Management Practices for Use in Work Areas

D.1.1 Stabilized Construction Entrance

Temporary construction entrances are important measures that can be implemented to protect the communities and public from unwarranted stones, mud, and dust on our roads and highways. A stone stabilized temporary construction entrance is a stabilized layer of large aggregate that is located at any point where traffic leaves a construction site and moves directly onto a public road or other paved area.

1. The entrance shall be maintained to prevent tracking or flowing of sediment onto existing pavement.

2. Soil and sediment or other extraneous material tracked onto existing pavement shall not be allowed to enter drainage facilities.

3. When necessary, wheels shall be cleaned or washed to remove sediment prior to entrance onto public rights-of-way. When washing is required, it shall be done on an area stabilized with stone and which drains into an approved sediment trapping device.

4. Additional wood chips material can be added in upland areas prior to entering the approach area of the stabilized construction entrance area to enhance the capacity of the entrance area and assist in the removal of debris from the vehicles or equipment. The entrance shall be maintained in a condition which will prevent tracking or flow of mud onto public rights-of-way. The contractor is responsible for immediately reporting any stabilized construction entrance that is not functioning properly.

5. All materials spilled, dropped, washed, or tracked from vehicles onto roadways or into storm drains must be removed immediately.

6. The contractor is responsible for reporting all occurrences of chunks of mud, rocks or debris that has been accidentally deposited on the public or private road way.

7. The contractor shall prevent displacement or migration of the rock surfacing. Significant depressions resulting from settlement or heavy equipment shall be repaired by the contractor, as directed by the Delmarva Power Representative.

8. If buildup of soil and sediment deter the function of the temporary construction entrance, the contractor shall immediately remove and dispose of the soil and sediment, and spread additional rocks to increase the capacity of the temporary construction entrance.

9. Periodically remove soil buildup from road surface and inspect after each rainfall.

10. Temporary construction entrances shall be repaired or replaced on the same day that the damage occurs. Damage to the temporary construction entrance resulting from the construction contractor's vehicles, equipment, or operations shall be repaired at the earliest opportunity. The Delmarva Power representative on site will make contact and request immediate repair of the damaged area.

11. When no longer required, temporary construction entrances shall be removed and disposed of in conformance with local regulations.

12. The adjacent ends of the geotextile fabric shall be overlapped a minimum length of one foot.

13. Geotextile fabric damaged during rock placement shall be repaired by placing a new piece of geotextile fabric over the damaged area. The piece of geotextile fabric shall be large enough to cover the damaged area and provide a minimum 18-inch overlap on all edges.

14. Stone - crushed aggregate (2 to 3 inches) shall be placed at least 6 inches deep over the length and width of the entrance. Rocks to be placed directly over the geotextile fabric shall be spread in the direction of traffic, longitudinally and along the alignment of the temporary construction entrance.

15. During the spreading of rocks, vehicles or equipment shall not be driven directly on the geotextile fabric. A layer of rocks a minimum 6 inches thick shall be placed between the geotextile fabric and the spreading equipment to prevent damage to the geotextile fabric.

16. All surface water flowing to or diverted toward construction entrances shall be piped under the entrance to maintain positive drainage. Pipe installed under the construction entrance shall be protected with a mountable berm. The pipe shall be sized according to the drainage, with the minimum diameter being 6 inches. Pipes shall be placed on top of geotextile fabric and a berm no less than 6 inches by 18 inches created on top of the pipe. Place pipe on top of geotextile fabric in streambed utilizing largest diameter that fits into the existing waterway channel without excavating. If multiple pipes are used, place at least 12 inches of aggregate between pipes.

D.1.2 Pulling Sites

1. The contractor will use high visibility fencing, barricades, and/or signage to prevent the public from entering work areas, including but not limited to:

    a. Equipment involved in partially completed work and active construction areas.

    b. Plastic fencing - 40-inches high “international orange” plastic (polyethylene) web fencing secured to wooden posts driven 18-inches on 6-foot centers shall be installed at all sites that will be left unattended at nights or weekends.

2. Conductoring / reconductoring in wetlands will be performed to the extent practical by pulling the conductors attached to ropes through wetlands and winching the lines from equipment situated on upland areas.

3. When necessary, equipment use will be matted to work site or restricted to the use of track vehicles or vehicles equipped with flotation tires. When necessary, mats will be used to minimize ground disturbance while vehicles are in a stationary position at the worksite.

D.1.3 Lay Down Area

1. There is no water service at the site. Water required for construction operations and personnel use must be provided by the contractor.

2. All temporary storage of materials shall be maintained in an orderly fashion that provides easy access for inventory.

3. Storage of fuels or other flammable substances stored at the lay down or marshalling areas must be contained in approved storage equipment or maintained in a containment area a minimum of 30 feet away from storage and office trailers.

4. All tools and equipment temporarily warehoused or deposited at the lay down area shall be maintained in an orderly fashion. All tools and equipment shall be stored in a safe manner and not impede planned traffic or pedestrian flow.

5. Temporary storage of heavy tools or equipment shall not be stored or placed directly on the ground. Efforts shall be maintained to insure that trailers, storage containers, equipment, and/or heavy tools will not sink into soft soils. Temporary cribbing, matting, or timbers shall be placed under bearing points to insure the ground remains stable and not rutted.

6. All contractors and subcontractors are responsible for knowing and complying with all local, state, and federal reporting and response requirements for releases or spills of oil, petroleum products, hazardous materials, or hazardous wastes. All contractors and subcontractors must ensure that spill prevention measures are in place during the course of work at the Project route. These include the following:

    a. Ensuring that all containers are closed at the end of each workday.

    b. Maintaining appropriate spill cleanup equipment near tanks and equipment that have potential for leaks.

    c. Following work and prior to startup, all contractors and subcontractors must ensure that valves, piping, and other fittings that contain or control liquid are closed to minimize risk of spills.

D.2 Best Management Practices for Waste Control

D.2.1 Waste Management

1. Collect and remove waste materials, debris, and rubbish from site at least weekly and legally dispose off-site.

2. Trash from materials packaging, employee lunch/meal breaks, etc. shall be policed daily.

3. All unused chemicals are the property of the contractor and must be removed from the site at the end of the job unless specific arrangements are made with Delmarva Power.

D.2.2 Sanitary Facilities

1. Provide and maintain required temporary sanitary facilities at the time of Project mobilization. Maintain in clean and sanitary condition.

2. Upon completion of construction, remove temporary sanitary facilities.

D.2.3 Equipment Maintenance

1. The best way to avoid problems that can contaminate streams or riparian areas is to maintain equipment regularly.

2. Maintenance will be a part of the daily routine. Inspect all vehicles and equipment daily to insure there no active oil leaks.

3. Clean up spilled or leaked material.

4. Place drip pans, plastic sheeting, or absorbent materials under parked equipment when not in use.

5. Caution will be taken not to allow the discharge of fluids such as crankcase oil, gasoline, diesel fuel, etc., into or near the wetlands.

D.2.4 Fueling

1. The contractor shall take measures, as appropriate, to prevent pollution resulting from a fuel or other flammable material spill.

2. There will be no fueling of vehicles, equipment, or tools within wetlands or wetland buffer areas.

3. All temporary fuel storage must meet or exceed regulatory guidelines.

4. All fuel tanks must be stored within a containment barrier capable of holding the aggregate amount of fuel temporarily stored within the barrier.

D.2.5 Storage

1. All contractors and subcontractors must provide Material Safety Data Sheets (MSDSs) for all chemicals being brought onsite. In accordance with the OSHA Hazard Communications standard, MSDSs must be maintained (by all contractors and subcontractors) onsite for any chemicals that could pose a health or physical threat to personnel, and all contractor personnel must be Hazard Communication trained. MSDS Sheets must be available for all products brought on the job site.

2. No hazardous materials may be brought onto the Project site unless necessary for contracted work.

3. All contractors and subcontractors must coordinate with the Delmarva Power representative for proper storage of flammable chemicals.

4. The following storage requirements apply to this Project:

    a. All materials stored onsite will be stored in a safe, neat, and orderly manner.

    b. All products will be kept in their original containers with the original manufacturer's label.

    c. If portions of the product need to be separated into smaller, more portable containers, these containers will also be labeled and dated to identify the product in the containers.

    d. If there is older product onsite, it needs to be used first.

    e. Always follow the manufacturer's recommendations for use, storage, and disposal of a product.

    f. When drums have been filled and designated for disposal, they will be separated, labeled, and stored in a designated containment area.

    g. Rags or clothing that have been used and are contaminated with oils, solvents, or any type of cleaner will be cleaned and reused or contained within a designated disposal container. Designated containers will be located at the staging site.

D.2.6 Housekeeping

1. Job site, lay down areas and marshalling areas shall be kept clean and orderly.

2. The following housekeeping requirements apply to this Project:

    a. All garbage has a proper place - improper disposal and/or littering will not be tolerated.

    b. Dumpsters will be placed on the site as needed, each designated for specific materials as follows:

        (1) Metal dumpsters (alloy and carbon steel).

(2) Wood dumpster.

(3) General garbage dumpster.

(4) Recycling dumpster (aluminum, glass, paper, plastic, cardboard).

D.2.7 Basic Erosion Control Measures

1. Delmarva Power is committed to protecting the environment and maintaining appropriate erosion control measures to prevent contamination of adjacent streams, wetlands, or waterways.

2. These general practices outlined are not intended to take the place of any criteria administered by local, state, or federal agencies. All construction activities must comply with all permits issued by any unit of government. All required permits for storm water and soil sediment controls mandated by construction activities will be specifically identified and addressed in accordance with the permit requirements. The basic erosion control measures are for projects that do not require a permit but may still impact soil conditions that temporary measures are required.

3. In addition, construction activities can expose soil to erosion caused by wind, rain, and snowmelt. Weather is difficult to predict but the use of proper control measures help minimize unforeseen impacts.

4. Use rice, straw, or hay bales whenever erosion action originates. Report all erosion sites to the on-site representative so the appropriate measures can be implemented as soon as possible.

D.3 Best Management Practices for Delmarva Power in Wetlands

D.3.1 Seasonal Considerations

1. When appropriate, scheduled construction and maintenance activities should be limited to the driest part of the year or when the ground is frozen. The dry season normally ranges from May through October and frozen ground is prevalent from November through February.

2. If an activity cannot be postponed due to an emergency situation (deteriorated structural equipment, storm damage, vandalism, system security, etc.), other precautionary measures, will be implemented.

D.3.2 Contractor Compliance

1. All contractors and subcontractors bidding work involving wetlands will commit to the rules and specifications of the BMPs before being awarded a contract by Delmarva Power.

D.3.3 ROW Maintenance

1. Vegetation control will be maintained on rights-of-way using selective herbicide treatment, or mowing, if required. Only those herbicides registered by the United States Environmental Protection Agency will be utilized.

2. Flotation tired-vehicles will be used to trim and remove trees. Their movements will be minimized in the work areas. Mats are not necessary in this instance since these vehicles are not stationary for long periods of time while working.

3. If work is within standing water in wetland areas, mats must be used for access.

4. Four wheel drive tractors will be used for mowing. When in wetland areas, dual wheel mounting and/or flotation ties on tractors will be used to minimize sinking in the wet soils.

5. Herbicide treatment will employ a track vehicle or large tired, four wheel drive tractor on which to mount the spraying equipment and transport the workers along the ROW. Very wet areas, including flooded woodlands and river bottoms, may be treated by helicopter or workers on foot.

6. All ruts caused by equipment will be repaired to the satisfaction of the Wetlands Management Coordinator.

D.3.4 Equipment Use

1. The use of construction equipment in wetlands and its buffers to construct and maintain Delmarva Power facilities should be minimized by accessing the work sites in an all-terrain vehicle or on foot.

2. Conductoring/reconductoring in wetlands will be performed to the extent practical by pulling the conductors attached to ropes through wetlands and winching the lines from equipment situated in upland areas.

3. Environmentally sensitive work areas will be matted or restricted to the use of low-impact vehicles. When necessary, mats will be used to minimize ground disturbance while vehicles are in a stationary position at the worksite.

4. The following guidelines are recommended when vehicle use in wetlands is necessary:

    a. Care will be taken to minimize disturbance to vegetation and the creation of ruts or other soil disturbance.

    b. When possible, vehicles will be parked in the work site overnight to minimize any additional disturbance from continued access to and from the work site.

    c. Caution will be taken not to allow the discharge of fluids such as crankcase oil, gasoline, diesel fuel, etc., into or near the wetlands.

    d. Work activities will be coordinated to minimize the amount of time travel is conducted in these sensitive areas.

D.3.5 Access Roads and Work Areas

1. Existing access roads along rights-of-way or to the work sites will be used, if possible. When use of an access road is not possible, travel over wetlands should be the shortest distance possible in order to avoid unnecessary adverse impacts.

2. All materials used to construct temporary access roads and work areas within the wetlands will be removed immediately following the completion of their use.

3. No filling will be allowed unless a permit authorizing such filling has been obtained and filling will occur in accordance with such permit.

4. Restoration activities will commence immediately after the work is complete and all temporary materials are removed, unless certain seasonal impacts would delay such activities.

D.3.6 Sediment Control, Soil Stabilization and Channel Flow

1. Minimum disturbance of the land surface and vegetation, fish and wildlife resources, and hydrologic conditions when conducting activities in a wetland area will be ensured.

2. The transport of sediments into wetlands, streams or other bodies of water will be avoided or minimized.

3. If excavation is required, backfilling will be to the pre-construction surface level using the excavated soil. If additional backfill is necessary, it will be clean material free of waste metal products, unsightly debris, toxic material, or any other deleterious substance. All excess fill or construction material or debris will be removed from the area and disposed of properly.

4. Immediately following regarding to pre-disturbance contours, the soils will be stabilized temporarily with seed and mulch in accordance with the Soil Erosion and Sediment Control Plan approved for the Project or as directed by the Wetlands Management Coordinator.

5. At no time will the normal or expected high flow of any surface or subsurface water, including streams, creeks, drainage areas (natural or man-made), etc., be impeded in any way during field operations unless previously approved or permitted by the appropriate regulatory agency.

6. Material which requires storage adjacent to wetlands will be kept upland at all times, in a manner that properly protects wetland areas.

D.3.7 Restoration

On completion of Delmarva Power activities, including the removal of any temporary material, final restoration will be accomplished in two phases. These phases consist of Grading and Stabilization, and Monitoring, described as follows:

1. Grading and Stabilization.

    a. Grading and stabilization of all disturbed wetland areas will be conducted immediately after removal of any equipment used to complete the activity.

    b. All disturbed wetlands requiring restoration will first be graded to pre-disturbance contours and stabilization with seed and mulch in accordance with the Soil Erosion and Sediment Control Plan approved for the project or as directed by the Wetlands Management Coordinator.

    Note:
    Should these restoration activities occur during a season which is inappropriate for seeding; only mulch will be used. Such areas will be properly restored with seed and new mulch applied at the next appropriate planting season. All soil erosion and sediment control measures installed prior to the disturbance of wetland soil will be maintained until complete stabilization in accomplished.

2. Monitoring.

    a. Each project will be evaluated on a case-by-case basis by the Wetlands Management Coordinator to determine if follow-up monitoring will be required.

D.3.8 Repair and Maintenance

1. Repair and/or maintenance of serviceable structures or fills will not result in a substantial deviation from the plans or specifications of the original structure or fill. Minor deviations due to changes in materials or construction techniques and necessary for repair and maintenance are permitted.

2. Repair and maintenance of any serviceable structure or fill will be performed so that there is no permanent loss of non-tidal wetlands in excess of non-tidal wetlands lost under the original construction or fill.

3. Restoration of any wetlands temporarily impacted by any repair and maintenance activity will commence immediately after the work is complete and all temporary materials are removed, unless certain seasonal impacts would delay such activities.

D.4 Best Management Practices for Delmarva Power in Access Roads

D.4.1 Access Roads

1. Existing access paths exist in many locations.

2. Access to each structure has been identified within the permitting documents.

3. Project ROW speed limit is 15 mph.

4. All ruts caused by equipment will be immediately repaired to the satisfaction of the on-site Delmarva Power representative.

5. Stay on the designated route.

6. The existing access paths and matted areas have been carefully selected and designed to minimize impacts to wetlands and environmentally sensitive areas.

7. Changes in matting location of access paths or alternate access roads must be approved by Delmarva Power prior to their installation or use.

8. When use of an access road is not possible, travel over wetlands should be the shortest distance possible in order to avoid unnecessary adverse impacts.

9. Matting is required when traversing all wetlands.

10. Very wet areas, including flooded woodlands and river bottoms, may be accessed only by workers on foot or by installing mats for any equipment to be used. Avoid the use of heavy equipment in wetlands areas and minimize soil and vegetation disturbance by using techniques such as composite or timber mats, geotextile fabric, and vehicles with low-pressure tires.

11. Unpaved roads or access paths used during wet weather construction can create a significant source of sediment if not maintained correctly. The contractor is responsible for installing and maintaining temporary measures to prevent sediment migration into wetland areas.

12. The first mitigation measure is to install wood chips on paths that are well traveled. Additional steps can include straw mulch or hay bales positioned to impede and filter any water sheeting from the traveled area.

13. All materials used to construct temporary access roads and work areas within the wetlands will be removed immediately following the completion of their use. At no time will the normal or expected high flow of any surface or subsurface water, including streams, creeks, drainage areas (natural or man-made), etc., be impeded in any way during field operations.

D.4.2 Private Property

1. Occasionally, access roads on private property will be used at some locations.

2. Traverse across private property requires additional attention and everyone needs to focus on protecting the residents, their private property, pets, livestock and privacy.

3. It may be necessary to improve the access road to ensure suitable passage for equipment, erosion control, and maintenance of proper drainage.

4. After the job is complete, the area must be restored to a condition equal or better than before project use.

D.5 Delmarva Power Best Management Practices Related to Streams, Channels, and Wetlands Crossings

As a contract requirement Delmarva Power at a minimum incorporates the BMPs of All Federal, State, Local and industry specific guidelines such as EPRI programs *(Best Management Practices (BMPs) Manual for Access Road Crossings of Wetlands and Waterbodies,* EPRI, Palo Alto, CA:2002.1005188). Delmarva Power maintains compliance conditions to adhere to Permit Requirement and Conditions.

The BMPs are selectively employed on a project by project and site by site basis with the ultimate goal of maximizing the protection and minimizing the duration of the impact to the environment.

D.5.1 Planning and Recommendations

1. Wherever practicable avoid crossings of streams, channels, and wetlands.

2. Fording of live streams with construction equipment shall be avoided at all times.

3. Temporary bridging must be installed at all water crossings. Normally, bridge construction causes the least disturbance to the waterway bed and banks when compared to the other access waterway crossings. Disturbance to the stream banks shall be kept to a minimum.

    a. Temporary bridges shall be constructed at or above the bank elevation to prevent the entrapment of floating materials and debris.
    b. Bridges must span the entire channel from top of bank to top of bank with adequate support for vehicles and equipment.
    c. No footing, pier, or bridge component is permitted within the stream or waterway.
    d. Stream banks shall not be disturbed. Bridge supporting structures shall be placed on stable soils to ensure bridge stability and not create stream bank instability.
    e. Any temporary bridge mats shall be installed such that neither the channel banks nor the stream bed are disturbed.

4. Temporary access bridges pose the least chance for interference with fish migration when compared to the other temporary access waterway crossings.

5. Construction, use, or removal of a temporary access bridge will not normally have any time of year restrictions since construction, use, or removal should not affect the stream or its banks, unless the bridge is built with a pier(s) in the water.

6. Build temporary water body crossings to withstand the weight and forces of the equipment utilized. Temporary bridges from bank to bank shall be installed for all temporary stream crossings without impedance to the natural water flow, not to restrict high flows, to maintain existing low flows, and to prevent the obstruction of movement by indigenous aquatic life.

7. Equipment shall cross streams only at suitably constructed permanent or temporary crossings.

8. Bridging is to be maintained and adjusted as needed during daily operations. Bridging shall be installed as close as possible to perpendicular line of the stream bed.

9. If stream or wetland access road crossings are necessary, then the number of crossings should be limited to as few as possible and should be carefully selected to minimize disturbance.

10. Because of the unique nature of individual crossings of Project locations, the physical characteristics, timing, weather and precipitation impacts of each crossing all need to be taken into consideration.

11. Every access is evaluated and planned to minimize disturbance and impact to the existing features.

12. Landscape features, soil type, erosion potential and landform stability must be included in the evaluation of the proposed crossings.

13. The presence or absence of species of concern, and the physical structure that serves as habitat for the present or dominant plants and animals must be considered in selecting the crossing area.

14. Existing access roads/crossings should be used unless their use or rehabilitation would be more damaging than establishing a new location. An existing crossing location should also not be used if continued use would result in damage to the stream or wetlands.

15. Recommendations should be realistic, practical, easily understood, and easily implemented.

16. The recommendations should have some flexibility to reflect possible changes in site conditions between plan development and plan implementation.

17. Delmarva Power strongly encourages selection of work and construction methods to utilize BMPs that maximize the protection of the environment.

18. Construction prints are provided recommending access points and proposed stream crossing when necessary.

19. Each structure or work location of the electric utility will be accessed by various equipment and methods and shall utilize the selected BMP to protect the current environmental impact conditions.

D.5.2 BMP Selection Process

1. Wherever practicable avoid crossings of streams and wetlands.

2. Assess alternative access paths or points to avoid crossings of stream and wetlands.

3. Assess alternative access of equipment or work methods to minimize the number of crossings of stream and wetlands during the construction process.

4. All construction, maintenance, installation, or removal activities should be completed as quickly as possible.

5. When crossings are required, Delmarva Power authorizes use of bridges that span the stream channels or wetlands. By spanning the stream or channel, the bridges have the least impact on the stream by keeping the equipment out of the water body by minimizing potential soil erosion and sedimentation issues.

6. The contractor shall not implement work practices or procedures that impede the aquatic flow.

7. The contractor shall insure that all precautions are taken to minimize the impact of the water quality of the crossing area.

8. The contractor is responsible for providing all matting. The contractor has the option to utilize matting from diverse sources and materials.

9. Timber bridges can be placed to span over small streams or channels with firm, stable banks. The contractor is responsible to determine the appropriate length and strength of the structure to meet the selected construction method. Timber bridging is available in sizes ranging from 16 to 80 feet.

10. Bridge must span greater than 8 feet beyond top of bank.

11. Do not extend bottom of bridge or accessories below the bottom of the stream or waterway banks.

12. No footing, pier, or bridge support is permitted in the stream or waterway.

D.5.3 Installation Activities

1. Do not excavate stream banks, place bridge supporting structures on stable soils to insure bridge stability and not create stream bank instability.

2. Use transition mats or similar materials for bridge approach do not use stone to build temporary ramps.

3. Crossing spans that exceed the potential of timber bridging or become economically challenging can be addressed using alternative materials such as aluminum, steel, or composites. Engineered structures are available in a great variety of styles, length, and strength.

4. A temporary bridge structure shall be constructed at or above the bank elevation to prevent the entrapment of floating materials and debris.

5. Abutments shall be placed parallel to, and on, stable banks.

6. No footing, pier, or bridge support will be permitted within the channel for waterways less than 8 feet wide.

7. Stringers shall either be logs, sawn timber, pre-stressed concrete beams, metal beams, or other approved materials.

8. Decking materials shall be of sufficient strength to support the anticipated load. All decking members shall be placed perpendicular to the stringers, butted tightly, and securely fastened to the stringers. Decking materials must be butted tightly to prevent any soil material tracked onto the bridge from falling into the waterway below.

9. Run planking (optional) shall be securely fastened to the length of the span. One run plank shall be provided for each track of the equipment wheels. Although run planks are optional, they may be necessary to properly distribute loads.

10. Curbs or fenders may be installed along the outer sides of the deck. Curbs or fenders are an option which will provide additional safety.

11. Bridges shall be securely anchored at only one end using steel cable or chain. Anchoring at only one end will prevent channel obstruction in the event that floodwaters float the bridge. Acceptable anchors are large trees, large boulders, or driven steel anchors. Anchoring shall be sufficient to prevent the bridge from floating downstream and possibly causing an obstruction to the flow.

D.5.4 Ongoing Bridge Use

1. All installed temporary crossings will be continuously monitored by Delmarva Power representatives to ensure that the bridge, streambed, and stream banks are maintained and not damaged.

2. Maintenance shall be performed, as needed to ensure that the structure complies with the standard and specifications. This shall include removal and disposal of any trapped sediment or debris. Sediment shall be disposed of outside of the flood plain and stabilized.

3. The Delmarva Power environmental scientist will continue to provide support and engage outside professional services for monitoring of the project.

4. The environmental inspector will work closely with the construction inspectors, the contractor, and Delmarva Power's staff and outside agencies to ensure that activities remain in full compliance with project permits and conditions.

5. The team of supporting personnel provides the appropriate monitoring and controls to insure Delmarva Power continues to maintain our commitment to maximize the protection of the environment and complete the required activities.

D.5.5 Bridge Removal Requirements

1. After all work is completed at the access point every effort shall be made to remove the temporary crossing at the earliest opportunity to minimize the duration of the environmental impact.

2. The maximum length of time that the temporary facilities remain in an impacted area should not extend beyond a reasonable expectation.

3. When the temporary bridge is no longer needed, all structures including abutments and other bridging materials shall be removed within 14 calendar days. In all cases, the bridge materials shall be removed within one year of installation.

4. Final clean-up shall consist of removal of the temporary bridge from the waterway, protection of banks from erosion, and removal of all construction materials. All removed materials shall be stored outside the waterway floodplain.

5. Removal of the bridge and clean up of the area shall be accomplished without construction equipment working in the waterway channel.

6. All areas disturbed during removal shall be stabilized within 14 calendar days of that disturbance in accordance with the Standards for "Critical Area Stabilization With Permanent Seeding."

D.6 Best Management Practices for Use and Design of Temporary Barriers

Barriers are utilized to reduce the amount of sediment transported into watersheds, streams, or wetlands due to runoff after rains. Construction methods incorporated by Delmarva Power are designed to protect the environment as much as possible during the construction period.

1. Clearing activities are restricted to removal of vegetation only above the surface. The existing root system will remain after the clearing process.

2. Barriers shall be placed as set forth as required by the Delmarva Power. The barriers are placed on the down slope side to impede the velocity flow of runoff. Occasionally barriers are placed along the outfall of travel paths that trap rainfall to minimize the sediment flow caused by the vehicular traffic. There may be multiple numbers of barriers on steeper slopes and long lengths.

3. No trenching is required; therefore, soil is not disturbed upon installation.

4. Temporary straw bale barrier installation:

    a. All straw bales shall be placed on the slope with the binding string or wire horizontally. By placing the bale in this method there is no binding contact to the ground; this is to reduce the potential of rotting or rust. This also allows the straw to wick moisture and stay intact for longer periods.

    b. Bales may be placed separately or in groups to channel flow and maximize the filtering capability.

    c. Straw bales to be free of noxious weed seeds.

    d. Straw may be from rice, hay, or wheat.

5. Biologs, compost socks, wattles, and silt socks installation includes:

    a. Biologs, compost socks, wattles, and silt socks consist of a tubular membrane filled with straw, wood mulch, clean rock, or similar material. They are easy to install and available in any length and several diameter thicknesses.

    b. The logs or socks shall be 12 inches in diameter and preferably biodegradable.

    c. The logs or socks should be used on slopes, along shorelines, in ditches, or areas with high sheet water flow. Mulch biologs/socks can be seeded.

    d. Once groundcover is established, any non-degradable geotextile fabric should be removed and the mulch may be spread over the site.

    e. Logs filled with stone or rock must be removed after use.

f. Once the filter sock is filled and put in place, it should be anchored to the slope. The preferred anchoring method is to drive stakes through the center of the sock at regular intervals; alternatively, stakes can be placed on the downstream side of the sock. The ends of the filter sock should be directed upslope, to prevent storm water from running around the end of the sock.

g. Biologs/socks should be staked to the ground to prevent rolling or shifting. Unlike silt fence, vehicles can drive over biologs on occasion; however, they lose their effectiveness after several passes.

h. Biologs/socks should be replaced when they become torn, flattened, or filled with sediment.