Table 5-1: BMP Summary Table

BMP Type	Application(s)	Description	Limitations/Notes
Minimization of access road width	Avoid/minimize overall impacts	Construction access roads in cross-country settings can create significant disturbances. Keeping the width of such roads to 15-20 feet will generally allow for safe passage of heavy equipment while minimizing physical impacts to soils and vegetation.	Uneven topography can provide challenges that require additional material. Pull-offs need to be provided at regular intervals to allow construction vehicles to travel in opposite directions, which will effectively double the width of roads in certain areas.
Swamp/timber mats, plywood sheets, AlturnaMATS®	Wetland/stream crossings	Timber mats are typically 12" x12" timbers bolted connected together to form single mats; usually 6-8 feet wide and 16-20 feet long; used for wetland crossings in order to minimize rutting caused by heavy machinery. Plywood sheets can be lain down in succession to allow for small vehicles with rubber tires or rubberized tracks to pass through wetlands with minimal damage. AlturnaMats are light-weight, easy to handle, half-inch thick polyethylene slip-resistant ground protection devices. They are available in dimensions up to 4 feet by 8 feet and generally weigh less than 100 pounds, therefore can be moved without heavy machinery.	Timber mats need to be installed using heavy machinery and their availability can be limited for large projects. Plywood sheets are only to be used for very small vehicles. AlturnaMats will only work for smaller to moderately-sized mechanical equipment.
Poled fords	Stream crossings	Used for perpendicular crossings with shallow water depths, stable stream bottoms, and if an historic access road exists or the crossing is at a narrow reach of the stream/wetland.	Poled fords should not be used to cross previously undisturbed streams and banks.
Rubberized tracks, wide tires, lightweight equipment, low ground pressure equipment	Minimize rutting and soil compaction	Equipment with rubberized tracks spreads the weight of vehicle equipment over a much larger surface, reducing ground pressure and enabling the vehicle to move more freely through wet, unstable substrates. Reduces rutting, soil scarification, and soil compaction in sensitive areas. For work within sensitive areas, such as wetlands, increasing the width of tires will increase traveling surface area and therefore reduce the amount of ground pressure exerted by the equipment. Reduces rutting and soil compaction as improves maneuvering of the vehicle. Impacts can be lessened by reducing the size of equipment used. This will reduce the amount of pressure to the travel surface as well as the necessary width of access ways and staging areas. Smaller, lighter equipment will minimize soil compaction, rutting, and overall disturbance. Using equipment that reduces the pressure it exerts on the ground can minimize impacts to sensitive areas. Equipment with a ground pressure of less than 3 pounds per square inch (psi) for work in wetlands/sensitive areas can help minimize soil compaction and rutting.	Rubberized tracks are not be compatible with certain pieces of machinery. Wide tires may be costly and will require a wider travel surface area. Lightweight vehicles may only work for select elements of construction that don't require larger, heavy equipment.
Long-reach excavators	Minimization of bank and aquatic habitat disturbance	These have buckets attached to a long arm, increasing the reaching ability of the equipment, allowing the equipment to be situated farther away from work, minimizing travel distance through undisturbed or unstable soils. Long-reach excavators can preclude the need to drive into a sensitive area to perform work if a stable staging area can be provided close by.	These vehicles generally require very long swing radii for the arms, which could necessitate additional and significant tree clearing in non-target remedial areas.
Straw-based materials for erosion control (e.g. hay bales, straw bales, straw wattles)	Erosion control; mulch for exposed soils	Hay bales are generally used for erosion control purposes. When used to protect areas from erosion, they are intended to slow the velocity of flows and trap sediments behind them, preventing siltation of sensitive areas; most specifically downgradient areas with open and/or flowing water. Straw bales are often favored over hay bales for use as erosion control barriers and mulch because they are composed of the dried stalks left over after a grain is harvested and they do not contain the plant's seeds. Therefore, they will not spread growth of unwanted species. Straw wattles are constructed from a biodegradable netting sock stuffed with straw and are used as an erosion control device at unstable sites. Since they are biodegradable, they may also be left in place once construction is complete.	Hay bales can be difficult to install under frozen conditions, and can generally only be used for 6-12 months before needing replacement. Straw bales are generally more expensive than hay bales and availability can be limited in the Northeast. Straw wattles are not generally intended for steep slopes, but rather, to stabilize low to moderate grades where there is a broad area of disturbance – they are not recommended for slopes greater than 3%. All these materials may be a hindrance to small animal movement.
Silt fencing	Erosion control	Silt fencing is constructed of a permeable geotextile fabric secured by wooden stakes driven into the ground. It is installed as a temporary barrier to mark the limits of work and to prevent sediments from flowing into an unprotected and/or sensitive area from a disturbed site. Silt fence can also be used as a temporary barrier to keep small wildlife out of a work area. Once work is	Silt fences pose a serious long-term obstacle to movement of smaller, more sensitive wildlife, as the material degrades very slowly. Frozen or rocky ground makes installation

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		complete and soils are stabilized, silt fence materials (i.e., geotextile fabric and wooden stakes) should be removed and properly disposed off-site.	difficult.
Sheet piling, coffer dams, port-a-dams, silt curtains	In-water activities; siltation control; trench wall/bank stabilization	In-water activities require protection against sediments and debris from entering the water body. This is best achieved by installing in-water barriers surrounding the work area. Sheet piling, coffer dams (often sand-filled sacks), or silt curtains can provide a means of filtering sediments out of the water and can also serve as the limits of work, prohibiting aquatic organisms from entering the area. All barriers should be removed as soon as work activities are complete, as they can impede flows and limit aquatic animal movement.	All these devices fare poorly in waters with substantial velocity, unless they can be installed parallel to the flow. Port-a Dams are not usable in greater than 8' of water, and sand bag coffer dams do not work well in water greater than 2-4' in depth.
Erosion control blankets	Soil stabilization	Erosion control blankets are generally composed of biodegradable or synthetic materials. These blankets are used as a temporary or permanent aid to prevent erosion, stabilize soils, and protect seeds from foragers while vegetation is re-colonizing.	Erosion control blankets are not recommended for very steep (i.e. greater than 15%) slopes or on rocky soils.
Temporary swales and sediment basins	Stormwater management	Used to control stormwater and/or to dewater excavation areas. Swales usually consist of a ditch lined with rip rap, trap rock, erosion control blankets, or other materials and are used to intercept, redirect, and convey surface flows in order to prevent erosion prior to discharge. Temporary sediment basins allow sediment in runoff to be filtered out before water is released into wetlands or other unprotected and/or sensitive areas.	Adequate bottom stabilization of swales is needed to prevent scouring. Sediment basins need to be adequately sized based on expected rain events and contributing drainage area.
Coffer dams	Stream flow diversion	Coffer dams placed in a stream channel parallel to flows allow for diversion of flows such that one portion of the channel can be dewatered so stream bottom sediments may be removed.	Usually need to be used in conjunction with pumps to keep groundwater from discharging into the dried portion of the streambed/work area.
Water bars and check dams	Stormwater management	These measures control water velocities into and within temporary stormwater swales. Water bars are linear features constructed across an access way to redirect water flow off of the road surface to prevent erosion. They consist of a shallow trench just upgradient of a short berm and are installed at a downward sloping angle across the road. Check dams are typically constructed of rip rap or other stone material, while short-term check dams can be constructed of staked hay bales. These structures are placed across a swale to reduce velocities.	Water bars can impede vehicular movement and must be routinely maintained. Temporary check dams should be inspected at least once per week and within 24 hours of the end of heavy precipitation events.