



# FEMA & NYSOEM 4129-DR-NY Greenbook Guide to Environmental & Historic Preservation Compliance Disaster Recovery Operations



**Dear Applicant,**

The New York State Office of Emergency Management (NYSOEM) and the Federal Emergency Management Agency (FEMA) are here to assist communities in responding to and recovering from the damages of the federally-declared disaster. As you endeavor to repair and rebuild your communities, environmental and historic preservation concerns may be the last thing on your mind. We ask for you to join us in being stewards of the human environment and to use techniques for recovery construction and management that help avoid and minimize adverse impacts to environmental and cultural resources. Please familiarize yourself with the compliance requirements involved for federal disaster recovery grants. It is important that compliance needs are met to avoid potential loss of your project's eligibility for federal funding. A cooperative and informed process can help minimize delays in grant approval and help ensure that projects are implemented to achieve recovery goals and to protect natural and cultural resources.

## **What can you do for environmental & historic preservation stewardship and compliance, and to help expedite your project's approval?**

- 1. Obtain all necessary permits.** Applicants have the responsibility to obtain all applicable local, state and federal permits or other authorizations prior to construction. FEMA does not obtain permits. Permits such as a permit from U.S. Army Corps of Engineers (USACE) and/or New York State Department of Environmental Conservation (NYSDEC) for work in waterways and/or wetlands are the responsibility of the applicant. The "Permits" section of this Greenbook contains additional information on various types of permits and authorizations. It is recommended that applicants review the USACE, NYSDEC, NYSOEM and other agency websites for updated disaster-specific emergency permit and other recovery information. Emergency permits might not cover the scope of your project or a notification to the regulatory agency may be involved prior to construction. Please be aware that failure to obtain applicable permits may jeopardize federal funding. If you have existing permits for your proposed recovery project, please provide copies to your assigned NYSOEM/FEMA Project Specialists. FEMA can often expedite the federal agency environmental compliance review based upon existing permit documentation. Permits are not typically required for grant approval to occur if work has not been initiated, but permits are required to be obtained prior to construction. Applicants will be required to submit copies of acquired permits to NYSOEM/FEMA.
- 2. Adhere to permit conditions for implementing work** and also adhere to other conditions of FEMA's grant approval that may have resulted from environmental & historic preservation compliance consultations with resource agencies.
- 3. Provide clear and complete scope of work information** for your proposed project applications. Environmental & historic preservation compliance reviews may sometimes require more detailed information for assessing potential impacts to historic properties or environmental habitats. We appreciate your cooperation in working with our team to collect necessary supplemental information. Please include any available sketches or design plans for your proposed project. Please provide site information about any proposed temporary staging areas for your project.

4. **Provide background information** about environmental or cultural resources in your project area. We ask that you participate with the FEMA/NYSOEM Project Specialist Team in filling out the Special Considerations Questionnaire for your project(s). This questionnaire helps identify potential environmental and cultural resource concerns that will be evaluated during compliance reviews.
5. **Use Best Management Practices** during construction to minimize impacts to resources. Best Management Practices include soil erosion and sedimentation control, dust control, noise control and other protective measures, as well as green building methods and materials for sustainable practices.
6. **Identify urgent issues.** Notify your NYSOEM/FEMA Team if you have a recovery project that might involve adverse impacts to environmental/cultural resources and you urgently need to move forward with implementation prior to FEMA's award of grant money. It is important that the appropriate resource/regulatory agencies be engaged as soon as possible, before the construction/demolition work is started. If work is conducted prior to FEMA's environmental & historic preservation review of your project, and the project was not coordinated with resource or regulatory agencies before action was taken, federal funding of the project can potentially be jeopardized. It can be very challenging, and sometimes impossible by statute, for FEMA to consult with resource agencies after-the-fact. Examples of emergency/urgent recovery projects that might require you to conduct early notice to involved parties include emergency demolition of a known or potentially eligible historic structure such as a bridge or building, emergency streambank stabilization within a riparian corridor that has known endangered or threatened species habitat or relocation of a sewer line or other utility that may involve ground disturbing activities that could impact archaeological resources. In these cases, communications with applicable resource agencies and stakeholders, such as New York State Historic Preservation Office (NYSHPO), Tribal Historic Preservation Office (THPO), U.S. Fish & Wildlife Service (USFWS), National Oceanic & Atmospheric Administration (NOAA) - National Marine Fisheries Service (NMFS), USACE, NYSDEC and/or Adirondack Park Agency (APA) should be initiated as soon as possible, in addition to securing necessary permits before work is started. It is very important that you communicate with NYSOEM/FEMA when informal consultations have started so that your efforts are not duplicated by FEMA, and to maintain a coordinated and collaborative process. FEMA has legal responsibility for effects findings of the proposed grant projects it funds. The contacts for various resource and regulatory agency contacts are included in this Greenbook for your reference and use during emergency/urgent situations.

### **How are proposed disaster recovery grant projects reviewed by FEMA for environmental & historic preservation compliance?**

FEMA is required as a federal funding agency to conduct environmental and historic preservation reviews of proposed actions in accordance with laws, regulations, and executive orders. FEMA's environmental and cultural resource professionals conduct the necessary federal consultations and compliance reviews **prior** to grant approval. The types of agency consultations, reviews, and investigations are determined by the environmental and cultural resources in your project area, and based upon your project's potential to impact those resources. FEMA's compliance with some laws or executive orders may require consultations with other federal or state agencies, while compliance with other laws may require public notices or simply documentation of project effect. Field investigations, study research or environmental assessment reports might also be required for some projects with potential to adversely impact the human environment.

**Major laws and executive orders commonly involved with FEMA’s environmental review:**

National Environmental Policy Act, Endangered Species Act, National Historic Preservation Act, Coastal Zone Management Act, Rivers and Harbors Act, Coastal Barrier Resources Act, Resource Conservation and Recovery Act, Clean Water Act, Clean Air Act, Marine Mammal Protection Act, Magnuson-Stevens Fishery Conservation and Management Act, CERCLA (Superfund), Farmland Protection Policy Act, Migratory Bird Treaty Act, Bald and Golden Eagle Protection Act, Wild & Scenic Rivers Act, Executive Order 11990 Wetlands Protection, Executive Order 11988 Floodplain Management, Executive Order 12898 Environmental Justice and Executive Order 13112 Invasive Species.

**Consultations** generally involve FEMA sending correspondence/project information as a consultation package to resource agencies that manage or have oversight of those resources. The consultation package includes description of proposed action, project maps, photographs, an assessment of potential impacts, a description of proposed impact minimization measures to be incorporated into the project design and/or construction implementation (if any) and FEMA’s determination of potential effect on the subject resource(s).

Consultations can be informal or formal depending upon the extent of adverse impacts on the managed resources. Consultations may also involve phone or meeting discussions with resource agencies to arrive at an effects determination and to determine final conditions for project implementation. The goal of consultations is to obtain resource agency concurrence with FEMA’s effects determination and to collaboratively develop project conditions. The outcome of consultations is a coordinated project for protection of natural and cultural resources. The most common type of consultations that FEMA completes for environmental & historic preservation compliance reviews are:

- FEMA consultation with NYSHPO and/or THPO in accordance with the National Historic Preservation Act.
- FEMA consultation with USFWS in accordance with the Endangered Species Act, Migratory Bird Treaty Act, Bald and Gold Eagle Protection Act and/or Coastal Barrier Resources Act.
- FEMA consultation with NOAA NMFS in accordance with the Endangered Species Act, Magnuson-Stevens Fishery Conservation & Management Act, and/or the Marine Mammal Protection Act.

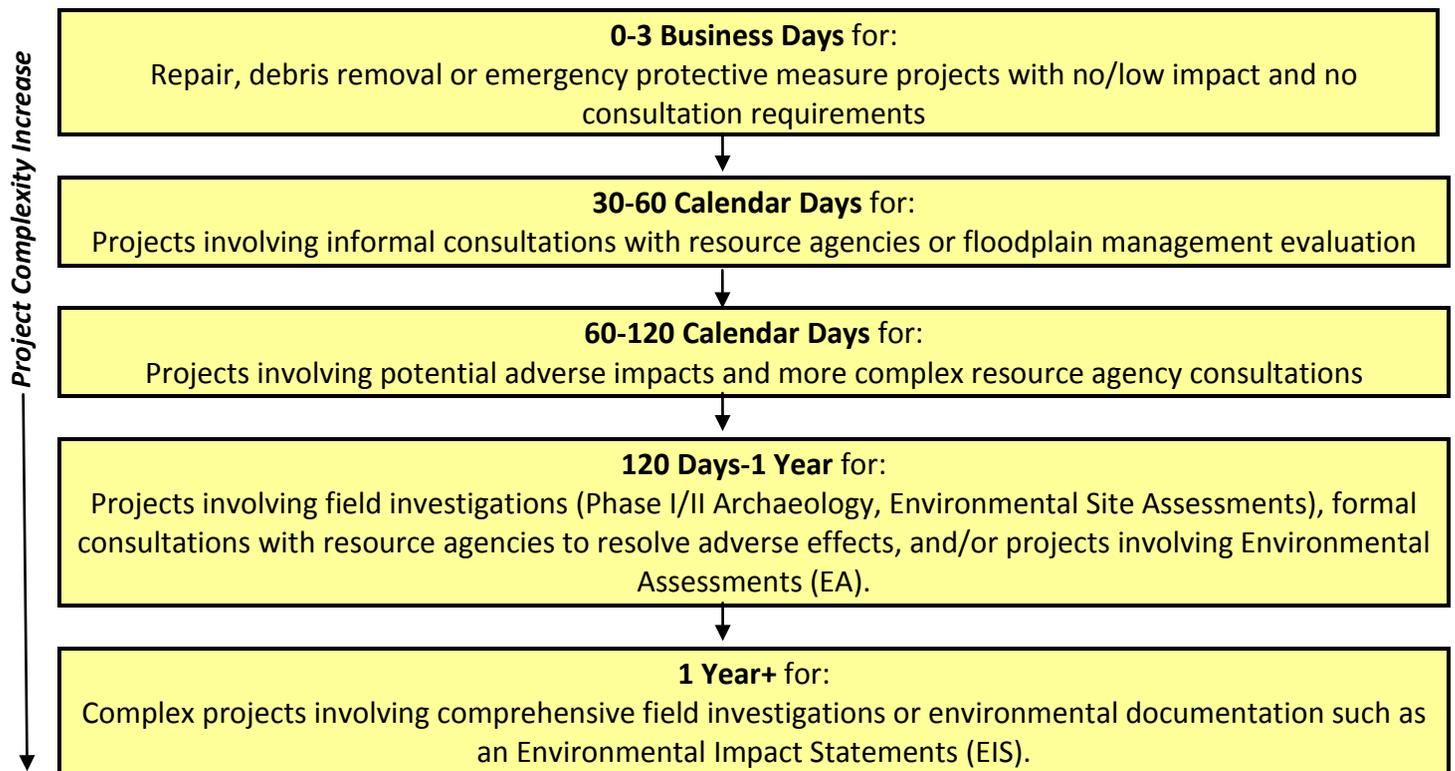
FEMA also consults and coordinates projects with other agencies such as the National Park Service (NPS), U.S. Department of Agriculture (USDA) - Natural Resources Conservation Service (NRCS), Environmental Protection Agency (EPA), and USACE. NYSOEM consults with New York State Department of State (NYSDOS)-Division of Coastal Resources and NYSDEC.

The **level of review** and **associated timeline** for federal environmental compliance varies by project type. Grant proposals that do not involve physical actions (i.e. overtime hours or minor mobile equipment purchases) typically receive automatic environmental compliance approval without the involvement of technical specialists.

Projects that involve minor repairs and are anticipated to have no adverse impact on the human environment, and don’t require any interagency consultations, are approved quickly by FEMA’s team. The goal for the disaster recovery team is to review and approve the compliance for these types of no-impact/low-impact projects within three (3) business days of receipt of a complete scope of work. Other projects may involve more complex special considerations, resource agency consultations, site investigations and/or environmental assessment documentation. The grant approval time is project

specific for these more complex reviews. If you have questions on timeline, please review with your assigned NYSOEM/FEMA Project Specialist Team. Our State and Federal Team is interested in improving the transparency of the environmental compliance process for grant applicants, including mutual understanding of review and approval timelines.

The general performance target for FEMA’s environmental & historic preservation compliance reviews from the time of receipt of complete scope of work information in our computer database is approximately up to:



FEMA’s environmental & historic preservation compliance reviews are streamlined. FEMA strives to expedite reviews as much as practicable to help get funding to your community for speedy recovery from a disaster incident. Most disaster recovery projects are statutorily or categorically exempt from compliance with the National Environmental Policy Act (NEPA); however, other federal laws, regulations and executive orders must be complied with as part of the process even if NEPA does not apply.

The consultations that FEMA conducts with resource agencies can sometimes result in the identification of mandatory project conditions. These conditions are conservation measures to limit the potential for adverse effects to the human environment which occur during construction. Conditions will be listed on your approved grant package. Examples of conditions are: use of best management practices to minimize sedimentation in a waterway, limitations on when construction can occur due to nesting shorebirds or spawning fish; avoidance of archaeologically sensitive areas during construction; or guidelines for restoring historic structures. If you have any questions concerning conditions, please discuss them with your assigned NYSOEM/FEMA Project Specialists.

**Applicants can work collaboratively with NYSOEM/FEMA to complete environmental and historic resource investigations:** If your applicant team has the capability and interest in undertaking some component of the federal environmental and historic preservation compliance process (i.e. Phase I

Archaeological Investigation or NEPA document preparation), and has available qualified professionals to conduct the work, please bring that interest to the attention of your assigned NYSOEM/FEMA Project Specialists as soon as practicable.

**Early notice and useful documentation:** It is important that roles & responsibilities are reviewed early in the process to avoid duplication of efforts and to coordinate requirements so that the investigations or assessments to be undertaken will meet federal standards. Applicants who have existing permits, approvals, plans and/or diagrams relating to their recovery project should provide copies of these documents to the NYSOEM/FEMA team. Applicants who have already coordinated with NYSHPO, because their project involved permits or approvals from another federal agency (e.g. USACE), should provide copies of all pertinent information to their NYSOEM/FEMA team. If your project requires an individual permit from USACE or other federal permit/authorization, and you plan to apply for a permit early on in disaster recovery, please bring that to the attention of your assigned NYSOEM/FEMA team. FEMA has the ability to work cooperatively with other federal agencies to avoid duplication of federal agency reviews and consultations.

This Greenbook is designed to provide general guidance for environmental and historic compliance, including contact information. It is not intended to be inclusive of all possible applicable laws, but attempts to list and discuss the requirements routinely encountered for this type of disaster recovery effort. To learn more about FEMA's Environmental Planning & Historic Preservation program visit: [www.fema.gov/environmental-planning-and-historic-preservation-program](http://www.fema.gov/environmental-planning-and-historic-preservation-program).

NYSOEM is the main point of contact for applicants and the public, oversees grant administration, and is committed to following all environmental laws and regulations in its disaster recovery operations under the Stafford Act.

**New York State Office of Emergency Management**

1220 Washington Avenue  
Building 22, Suite 101  
Albany, NY 12226-2251

Recovery Office Phone: 518 292-2293  
Recovery Office Fax: 518 322-4984  
[www.dhSES.ny.gov/](http://www.dhSES.ny.gov/)

The Greenbook includes the following four (4) sections:

1. **DEBRIS MANAGEMENT**
2. **PERMITS** – background on types of permits and points of contacts for resource and regulatory agencies
3. **SPECIAL CONSIDERATIONS** – tips on how to fill out the required Special Considerations Questionnaire for your project applications. Your NYSOEM/FEMA Project Specialist Team will help you fill out the questionnaire form.
4. **BEST MANAGEMENT PRACTICES** – tips on how to construct repair and reconstruction projects with protection measures for the environment. Web links for more information about preservation techniques for recovery of water damaged records and cultural collections, as well as green-building methods and materials.

## **DEBRIS MANAGEMENT**

Applicants are responsible for obtaining all necessary permits or clearances for debris management in accordance with local, state and federal laws and regulations. The NYSDEC oversees and regulates debris and hazardous waste management in conjunction with the Environmental Protection Agency. Check with your County and Municipal Government for local guidelines for proper debris and waste management practices in your area. Burning of debris and staging of debris in floodways or floodplains is discouraged. Open burning requires a permit from NYSDEC. FEMA's Public Assistance Debris Management Guide is available at [www.fema.gov/government/grant/pa/policy.shtm](http://www.fema.gov/government/grant/pa/policy.shtm). NYSDEC has storm debris management guidance available at: [www.dec.ny.gov/regulations/8751.html](http://www.dec.ny.gov/regulations/8751.html) and EPA has guidance available at [www.epa.gov/naturaldisasters/returnhomeadvisory.htm](http://www.epa.gov/naturaldisasters/returnhomeadvisory.htm).

For Information regarding Sanitation & Waste Management in NYS visit:

NYSDEC Solid Waste Management website at: [www.dec.ny.gov/chemical/292.html](http://www.dec.ny.gov/chemical/292.html)

NYSDEC Hazardous Waste Guidance website at: [www.dec.ny.gov/regulations/8489.html](http://www.dec.ny.gov/regulations/8489.html)

NYSDEC Solid Waste Guidance website at: [www.dec.ny.gov/regulations/8492.html](http://www.dec.ny.gov/regulations/8492.html)

NYSDEC Burning Advisory website at: [www.dec.ny.gov/chemical/58519.html](http://www.dec.ny.gov/chemical/58519.html)

NYSDEC Woody Debris Removal from Rivers & Streams: [www.dec.ny.gov/lands/92418.html](http://www.dec.ny.gov/lands/92418.html)

The public can notify NYSDEC of chemical and petroleum spills by calling the NYS Spill Hotline. Federal agencies can be notified by calling the National Response Center.

NYS Spill Hotline: 1-800-457-7362

National Response Center: 1-800-424-8802

### **► Special Notice for Woody Debris**

The Emerald Ash Borer (EAB) is an invasive insect that infects ash trees and is destructive to the State's forest and poses a concern for woody debris management. The USDA and the New York State Department of Agriculture and Markets (NYSDAM) have issued regulations to control the spread of this insect. Quarantine zones are established within many of the western and central New York counties involved with disaster recovery. The EAB Quarantine zone map is available at: [www.dec.ny.gov/animals/42674.html](http://www.dec.ny.gov/animals/42674.html).



**Emerald Ash Borer**

Woody debris to be managed in quarantine counties must either be chipped to a size of one inch or less in two dimensions or not be transported outside the quarantined counties in order to adhere with EO13112 Invasive Species. New York's order prohibits the movement of regulated articles beyond EAB quarantined counties without certification or compliance agreements issued by NYSDAM or USDA Animal and Plant Health Inspection Service (APHIS). The state order also restricts the movement of the regulated wood products into or through the quarantine district by requiring several provisions including, but not limited to documentation listing the origin and destination of shipments, and prohibiting transporters from unnecessarily stopping while traveling through the quarantine district. To procure compliance agreements and for general questions, applicants should refer to the following EAB websites:

NYSDEC EAB: [www.dec.ny.gov/animals/7253.html](http://www.dec.ny.gov/animals/7253.html)

NYSDAM Homepage: [www.agriculture.ny.gov/PI/eab.html](http://www.agriculture.ny.gov/PI/eab.html)

USDA-APHIS EAB: [www.aphis.usda.gov/plant\\_health/plant\\_pest\\_info/emerald\\_ash\\_b/](http://www.aphis.usda.gov/plant_health/plant_pest_info/emerald_ash_b/)

For Western New York intrastate transport, contact Jared Spokowsky of NYSDAM at (315) 374-8346.

For Eastern New York intrastate transport, contact Ethan Angell of NYSDAM at (518) 275-9489.

For interstate transport, contact the USDA-APHIS at (845) 883-6445.

## PERMITS

**Obtaining authorization/permits is the responsibility of the applicant** or person performing the work and must be done prior to initiating any site activity. Copies of permits and/or agency notifications should be submitted to NYSOEM/FEMA team. Funding may be denied or jeopardized if work was conducted without prior authorization/permits. The below is not an inclusive list of all permit types, but is intended to highlight some of the typical permits involved with environmental and historic resource protection. Applicants should include the disaster declaration number **FEMA-4129-DR-NY** on any of their state and federal permit applications to identify the project as an emergency or recovery priority. Please review your project's permit requirements carefully. Some projects may require both a USACE permit and a NYSDEC permit for work in waters/wetlands.

### U.S. Army Corps of Engineers (USACE)

**Placement of Dredged or Fill Material in US Waters:** Placement of any dredged or fill material in any waters of the United States is regulated by the USACE under Section 404 of the Clean Water Act. In addition, certain types of activities, such as land clearing using mechanized equipment and/or sidecasting in these waters would likely be regulated. **Waters of the U.S.** include essentially all surface waters such as all navigable waters and their tributaries, all interstate waters and their tributaries, all wetlands adjacent to these waters, and all impoundments of these waters. Note that it may include coastal waters, lakes, rivers, streams, and special aquatic sites (such as wetlands, coral reefs, seagrass beds, mud flats, tidal pools, and salt flats), as well as intermittent streams, natural drainage courses, and all wetlands regardless of their size if they meet applicable Federal criteria.

**Fill material** is defined as any material placed in an aquatic area that is used for the primary purpose of converting an aquatic area to dry land or changes the bottom elevation of the aquatic area. These materials include soil, rock, gravel, cement, debris, and structural materials.

**Work in US Navigable Waterways.** Dredging or construction activities in or over any navigable waterway of the US is regulated by the USACE under Section 10 of the Rivers and Harbors Act. This includes (a) any structure placed in or over the waterway, (b) any excavation or filling within the waterway, and (c) any work affecting the course, condition or capacity of the waterway. It can also include activities under the waterway.

The regulatory boundary for New York District USACE is found at:

[www.nan.usace.army.mil/Missions/Regulatory/Boundaries.aspx](http://www.nan.usace.army.mil/Missions/Regulatory/Boundaries.aspx).

The Districts have made available an emergency and regional general permit that will expedite implementation of most types of emergency disaster recovery activities. It is recommended that if an emergency or regional general permit does not cover your proposed action, you review available nationwide permits. If the emergency permit, regional general permit, or nationwide permits do not cover the action, contact USACE to initiate coordination of an individual permit. If you are unsure what permit might be required, contact USACE for guidance. It is important that permit requirements, such as notification(s), be fulfilled and documented and that documentation be submitted to NYSOEM/FEMA.

- **USACE Buffalo District** issued Regional Emergency Permit 99-000-1 (July 2, 2013) for disaster recovery projects in Broome, Chenango, Cortland, Herkimer, Madison, Oneida and Tioga Counties. For more information visit: [www.lrb.usace.army.mil/Missions/Regulatory/NYRegionalPermits.aspx](http://www.lrb.usace.army.mil/Missions/Regulatory/NYRegionalPermits.aspx). The Buffalo District Regulatory Branch Office can be reached at (718) 879-4330; fax (716) 879-4310; email: [LRB.Regulatory@usace.army.mil](mailto:LRB.Regulatory@usace.army.mil); 1776 Niagara Street, Buffalo, NY 14207. The Auburn Field

Permits continued...

Office can be reached at (315) 255-8090. For additional contact information go to:  
[www.lrb.usace.army.mil/Missions/Regulatory.aspx](http://www.lrb.usace.army.mil/Missions/Regulatory.aspx).

- **USACE New York District** issued a Public Notice on July 3, 2013 that Regional General Permit NYDGP-15 may be used for disaster recovery projects in June/July 2013 disaster. For more information visit:  
[www.nan.usace.army.mil/Portals/37/docs/regulatory/special\\_publicnotices/2013\\_00849\\_Public\\_notice.pdf](http://www.nan.usace.army.mil/Portals/37/docs/regulatory/special_publicnotices/2013_00849_Public_notice.pdf). For more information on NYDGP-15 go to:  
[www.nan.usace.army.mil/Missions/Regulatory/RegionalGeneralPermits.aspx](http://www.nan.usace.army.mil/Missions/Regulatory/RegionalGeneralPermits.aspx). Contacts for USACE NY District include the main office Western Permits Section at 917-790-8411; fax (212) 264-4260; email: [cenan.publicnotice@usace.army.mil](mailto:cenan.publicnotice@usace.army.mil); 26 Federal Plaza, Attn: Regulatory Branch, RM 1937; New York, NY 10278-0090. The USACE Upstate Regulatory Field Office can be reached at (518) 266-6350 (Permit Processing Team); (518) 266-6360 (Permits Compliance & Enforcement); fax (518) 266-6366; email: [cenan.rfo@usace.army.mil](mailto:cenan.rfo@usace.army.mil); ATTN: CENAN-OP-RU, Building 10, 3<sup>rd</sup> Floor North, 1 Buffington Street, Watervliet Arsenal, Watervliet, NY 12819-4000.

### **New York State Department of Environmental Conservation (NYSDEC)**

Activities in wetlands, waterways and floodplains are regulated by NYSDEC in accordance with the State's Environmental Conservation Law and its implementing regulations.

NYSDEC issued General Permit GP-0-13-005. This permit is available from June 28, 2013 to July 3, 2013. To download a copy, go to: [www.dec.ny.gov/docs/permits\\_ej\\_operations\\_pdf/gp013005prmt.pdf](http://www.dec.ny.gov/docs/permits_ej_operations_pdf/gp013005prmt.pdf). Please review the permit in its entirety to determine if your proposed project meets the permit's parameters, conditions, and time frame. If your project does not meet the permit criteria, additional permits may be required. For more information on storm recovery permits go to: [www.dec.ny.gov/permits/89343.html](http://www.dec.ny.gov/permits/89343.html). The website includes guidance on post-flood stream construction and information as to why dredging in streams does not prevent floods.

For more information visit: Freshwater Wetlands Permits: [www.dec.ny.gov/permits/6058.html](http://www.dec.ny.gov/permits/6058.html)  
Protection of Waters Program: [www.dec.ny.gov/permits/6042.html](http://www.dec.ny.gov/permits/6042.html)  
Water Quality Certifications (Clean Water Act Section 401): [www.dec.ny.gov/permits/6546.html](http://www.dec.ny.gov/permits/6546.html)  
NYSDEC Regional Permit Administrator points of contact are available at:  
[www.dec.ny.gov/about/39381.html](http://www.dec.ny.gov/about/39381.html).

### **Floodplain Management Permits**

If your project is located within the 100-Year Special Flood Hazard Area (SFHA) or 500-Year floodplain, your project may require a permit from your local floodplain management administrator. Floodplain permits or other approvals are most frequently required for new construction projects and projects potentially involving substantial repair, replacement or structural modification. Depending upon your community, elevation or floodproofing certificates for building construction or substantial improvement might be a component of your building permit process or may be a separate floodplain management permit/authorization. Contact your local government for more information. Projects undertaken or funded by any state agency, or on state land, must comply with the New York Code of Rules and Regulations, Title 6, Part 502: "Floodplain Management Criteria for State Projects." The State contact for Floodplain Management is the NYSDEC Division of Water, Bureau of Flood Protection and Dam Safety @ 518 402-8185. The NYSDEC website for more information is [www.dec.ny.gov/lands/24267.html](http://www.dec.ny.gov/lands/24267.html).

Permits continued...

### **Coastal Zone Management Consistency**

If your project is in a coastal zone and your project requires a federal permit from USACE or other federal authorization from a federal agency other than FEMA, your project may require submittal of a Federal Consistency Assessment Form to seek a consistency determination by the New York State Department of State (NYS DOS), Office of Communities and Waterfronts. Contact NYSDOS at (518) 474-6000; 99 Washington Avenue, Suite 1010, Albany, NY 12231-0001 or visit:

[www.nyswaterfronts.com/consistency\\_federal.asp](http://www.nyswaterfronts.com/consistency_federal.asp).

### **U.S. Coast Guard Bridge Administration**

New construction, reconstruction or modification of a bridge or causeway across navigable waterways of the U.S. may require a permit from the U.S. Coast Guard (USCG). The USCG authority is in accordance with Section 9 of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1946. The purpose of these Acts is to preserve the public right of navigation and to prevent interference with interstate and foreign commerce. A Bridge Permit Application Guide is available at:

[www.uscg.mil/hq/cg5/cg551/BPAG\\_Page.asp](http://www.uscg.mil/hq/cg5/cg551/BPAG_Page.asp) General information about USCG Bridge Administration is found at [www.uscg.mil/hq/cg5/cg551/](http://www.uscg.mil/hq/cg5/cg551/) including a link to District Bridge contacts.

### **State Pollution Discharge Elimination System (SPDES)**

New construction projects (new site development) can involve a requirement for a NYSDEC State Pollution Discharge Elimination System (SPDES) permit for construction and potentially facility operations due to potential site disturbance and for sedimentation and erosion control. For more information regarding SPDES go to: [www.dec.ny.gov/regs/4585.html#16213](http://www.dec.ny.gov/regs/4585.html#16213) and the website regarding the SPDES General Permit for Stormwater Discharges from Construction Activities at: [www.dec.ny.gov/chemical/43133.html](http://www.dec.ny.gov/chemical/43133.html).

### **State Environmental Quality Review Act (SEQR)**

The State Environmental Quality Review Act (SEQR) is the state equivalent of the federal National Environmental Policy Act. SEQR Environmental Assessment requirements are typically not required for repair activities, but can be required for projects involving new construction. Similar to permits, grantees/applicants are responsible for compliance with SEQR prior to construction, if applicable. For more information, including a SEQR Handbook, visit the NYSDEC website for SEQR: [www.dec.ny.gov/permits/357.html](http://www.dec.ny.gov/permits/357.html).

**Adirondack Park Agency (APA):** Activities within the boundaries of the Adirondack Park may require a permit from APA. For more information visit: [www.apa.state.ny.us/Regulations/index.html](http://www.apa.state.ny.us/Regulations/index.html).

### **National Emission Standards for Hazardous Air Pollutants (NESHAP) & Asbestos Law**

Applicants should familiarize themselves with New York State Asbestos Law to protect worker and public health when conducting recovery activities. For more information visit: <http://nycosh.org/index.php?page=Asbestos-Fact-Sheet-No-3>. If more than four homes are to be demolished in a community, the entity conducting the work must have a work plan approved by EPA in accordance with NESHAP. For more information go to: [www.epa.gov/sandy/pdf/R2asbestos.pdf](http://www.epa.gov/sandy/pdf/R2asbestos.pdf) and [www.epa.gov/compliance/monitoring/programs/caa/neshaps.html](http://www.epa.gov/compliance/monitoring/programs/caa/neshaps.html).

**New York City Watershed:** In Delaware County, New York City Department of Environmental Protection has enacted regulations to protect the New York City water supply and more information is available at: [www.nyc.gov/html/dep/html/watershed\\_protection/watershed\\_regulations.shtml](http://www.nyc.gov/html/dep/html/watershed_protection/watershed_regulations.shtml).

### Other Resource Agency Contacts

**NYSHPO:** Mr. John Bonafide or Mr. Eric Kuchar at (518) 237-8643; Peebles Island State Park, PO Box 189, Waterford, NY 12188-0189; <http://nysparks.com/historic-preservation/>

**THPOs:** Website with contacts for THPOs: [www.nathpo.org/map.html](http://www.nathpo.org/map.html) and directory for federally recognized tribes: [www.bia.gov/WhoWeAre/BIA/OIS/TribalGovernmentServices/TribalDirectory/](http://www.bia.gov/WhoWeAre/BIA/OIS/TribalGovernmentServices/TribalDirectory/). There is also a new Tribal Consultation Tool launched by Housing & Urban Development (HUD) that lists contact by Tribal Nation or county: [www.achp.gov/news\\_tribalconsulttool\\_20121207.html](http://www.achp.gov/news_tribalconsulttool_20121207.html).

**USFWS, New York, Field Office:** (607)753-9334; 3817 Luker Road, Cortland, NY 13045; [FW5ES\\_NYFO@fws.gov](mailto:FW5ES_NYFO@fws.gov); website: [www.fws.gov/northeast/nyfo/](http://www.fws.gov/northeast/nyfo/) and general ESA website: [www.fws.gov/endangered/](http://www.fws.gov/endangered/).

**NPS:** Mr. Charles Barszcz at 215-597-6482; 200 Chestnut Street, Rm. 260, Philadelphia, PA 19106; Regional office website: [www.nps.gov/nero/phila/](http://www.nps.gov/nero/phila/) and website for Wild & Scenic Rivers: [www.nps.gov/ncrc/rivers/](http://www.nps.gov/ncrc/rivers/).

**USDA-NRCS:** The Galleries of Syracuse, 441 South Salina Street, Suite 354, Syracuse, NY 13202-2450; [www.nrcs.usda.gov/wps/portal/nrcs/site/ny/home/](http://www.nrcs.usda.gov/wps/portal/nrcs/site/ny/home/).

**EPA Region 2:** Toll free at (877) 251-4574; 290 Broadway, New York, NY 10007-1866; Contacts by category at: [www2.epa.gov/home/forms/contact-epa](http://www2.epa.gov/home/forms/contact-epa) and main Region 2 website at: [www2.epa.gov/aboutepa/epa-region-2](http://www2.epa.gov/aboutepa/epa-region-2).

**NOAA-NMFS (EFH):** Ms. Diane Rusanowsky at (203) 882-6568; Milford Field Office, 212 Rodgers Avenue, Milford, CT 06460-6499; Milford Laboratory website: <http://mi.nefsc.noaa.gov> and NOAA website for Essential Fish Habitat (EFH) at [www.habitat.noaa.gov/protection/efh/index.html](http://www.habitat.noaa.gov/protection/efh/index.html).

**NOAA-NMFS (ESA):** Ms. Julie Crocker at (978) 282-8480 or Ms. Danielle Palmer at (978) 292-8468; 55 Great Republic Drive, Gloucester, MA 01930; Northeast Regional Office website at: <http://nero.noaa.gov/> and general ESA website: [www.nmfs.noaa.gov/pr/laws/esa/](http://www.nmfs.noaa.gov/pr/laws/esa/).

## **SPECIAL CONSIDERATIONS**

For the repair/recovery work for which you are requesting funding, the NYSOEM/FEMA Team uses a “Special Considerations” questionnaire to help evaluate what environmental and historic resources might be involved. Eight of the nine (9) questions are focused on environmental and historic preservation considerations. Question #1 is related to Insurance. They are summarized below for your information. Your NYSOEM/FEMA Project Specialists are trained to work with you during meetings and site visits to answer these questions. When in doubt, answer “unsure” and the NYSOEM/FEMA team will evaluate.

***Question 2: Is the damaged facility located within a floodplain or coastal high hazard area and/or does it have an impact on a floodplain or wetland?***

Answer “Yes” if your project may be located in any of the following landscapes or regulated areas:

**Floodplain:** land that may be submerged by floodwaters. FEMA evaluates activities with reference to the 100-year and 500-year floodplain of a given waterway. Flood Insurance Rate Maps (FIRMs) delineate floodplains and coastal high hazard areas. FIRMs can be viewed and downloaded from FEMA’s Map Service Center at <https://msc.fema.gov/>. Check the following website’s public state/county information for preliminary maps and other best available data: [www.rampp-team.com/](http://www.rampp-team.com/).

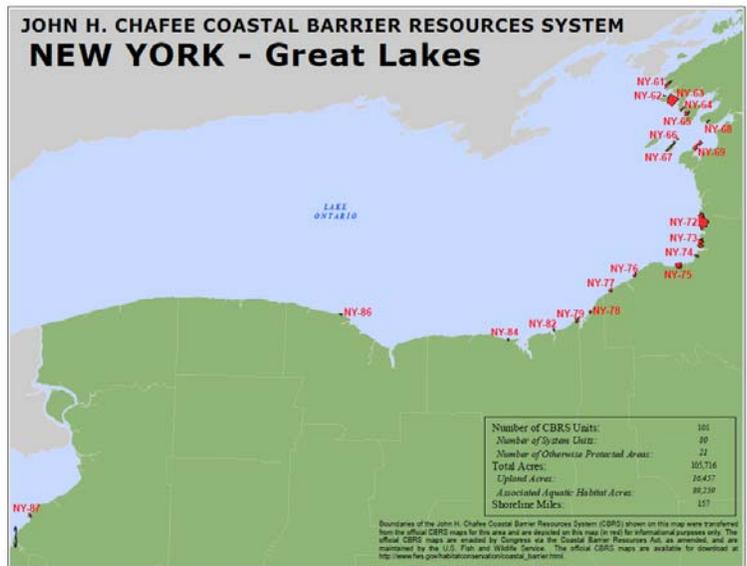
**Coastal High Hazard Area:** area of 100-year coastal flood and typically shown as “V” zone on FIRM.

**Wetland:** an area inundated or saturated by surface or ground water frequently enough to support a prevalence of vegetation or aquatic life typically adapted for life in saturated soil conditions. Wetlands include swamps, marshes, bogs, estuaries, tidal mud flats and similar areas. Two wetland mapping tools are available to assist the reviewer: USFWS Wetlands Mapper with National Wetlands Inventory (NWI) maps at [www.fws.gov/wetlands/Data/Mapper.html](http://www.fws.gov/wetlands/Data/Mapper.html) and NYSDEC wetlands mapping is available at: [www.dec.ny.gov/ismmaps/ERM/viewer.htm](http://www.dec.ny.gov/ismmaps/ERM/viewer.htm). USACE has no definitive maps of federally regulated wetlands or waterways. The NWI maps are published by the U.S. Fish and Wildlife Service, are based on aerial photography, and are not ground verified or necessarily consistent with the Corps of Engineers Wetland Delineation Manual. Also, due to their scale, many smaller wetlands are not identified on the NWI maps. Therefore, reviewers should not rely solely on online mapping websites. In most cases, a site inspection is the only definitive means of determining the presence or absence of wetlands, and extent of waters of the U.S. on a parcel. USACE recommends reviewers consult the following to evaluate the potential for wetlands or waterways to be present on a site: U.S. Geological Survey (USGS) quadrangle maps, the NWI maps and the County Soil Surveys. In general, positive waters of the U.S. indicators include wetland or waterway symbols on the U.S.G.S. maps, identified wetland types on the NWI maps, and hydric soils or soils with potential hydric inclusions found within the county soil surveys. If any of these indicators are within a project site, further field investigation is recommended to determine if regulated waterways exist and if there will be a need for a USACE and/or NYSDEC permit. Wetland indicators in the field include low lying topography with saturated soils and potentially visible standing water, wetland plants, high water marks on trees, wrack line in fences or ground vegetation with sedimentation deposited by waters that have receded.

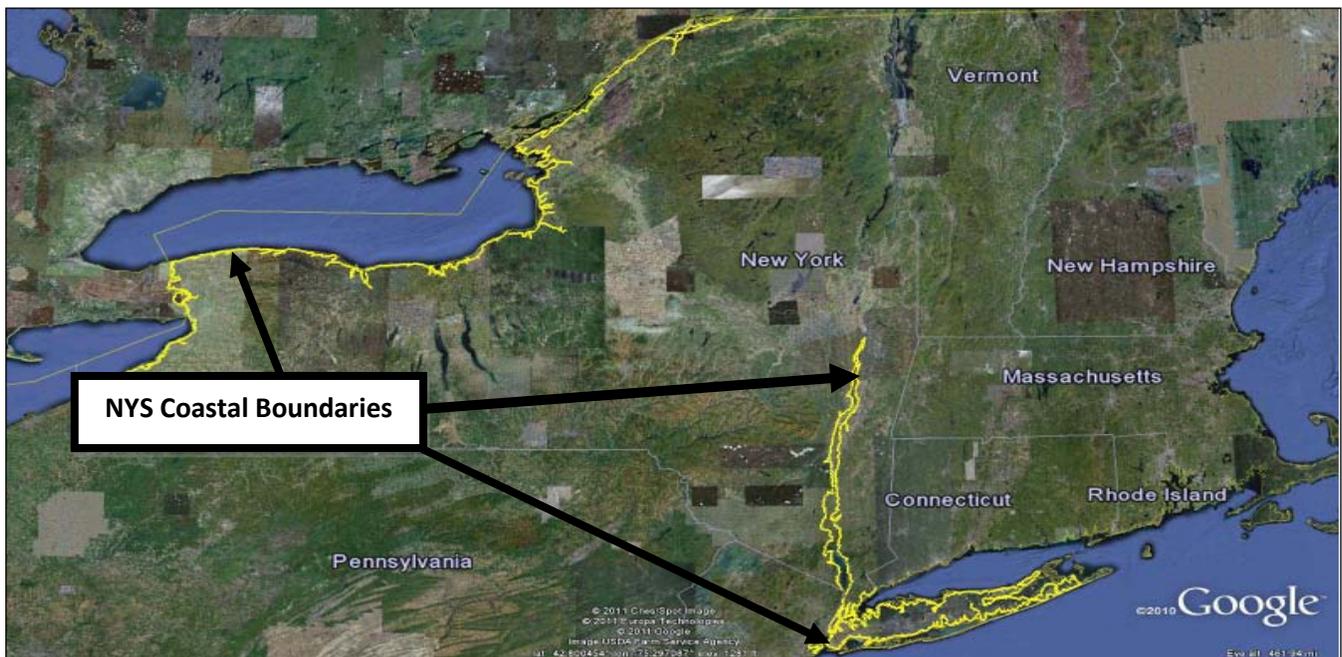
Special Considerations continued...

**Question 3: Is the damaged facility or item of work located within or adjacent to a Coastal Barrier Resource System Unit or an Otherwise Protected Area or Coastal Zone?**

Answer “Yes” if your project is located within/adjacent to any of the designated Coastal Barrier Resources System Units (CBRS) or Other Protected Area (OPA). Make sure to note the location of the structure and if known the date of construction. The Coastal Barrier Resources Act (CBRA) restricts investment of federal funding for projects within CBRS Units and OPA to only certain project types or exceptions. The US Fish and Wildlife Service maintains an online map of all CBRA units at: <http://www.fws.gov/cbra/>.



Answer “Yes” if your project is located within the New York State Coastal Zone. A map of NYS Coastal Zone Boundary is found at [http://appext20.dos.ny.gov/coastal\\_map\\_public/map.aspx](http://appext20.dos.ny.gov/coastal_map_public/map.aspx).



**Question 4: Will the proposed facility repairs/reconstruction change the pre-disaster condition (e.g. footprint, material, location, capacity, use, function)?**

**Question 5: Does the applicant have a hazard mitigation proposal or would the applicant like technical assistance for hazard mitigation?**

These two questions are both helpful for FEMA’s understanding of the scope of work. Projects involving changes to the pre-disaster condition can involve a higher level of environmental & historic preservation review.

*Special Considerations continued...*

Projects involving new ground disturbance are evaluated for potential impact to archaeological resources. Answer “**Yes**” if the project area is mapped as an archaeologically sensitive area and the proposed project involves any of the following activities in previously undisturbed soils: excavation, substantial ground compaction or staging of materials. Please describe the anticipated depth and footprint dimensions of any proposed ground disturbance in your project scope of work descriptions.

While formulating the scope of work for the repair of sustained damages to historic and potentially eligible historic properties; thoughtful consideration should be given to the following topics to help maintain the integrity of an historic property:

- “In- Kind” repair and/or replacement of materials and
- Sustaining the design, form, and workmanship.

The type of materials to be used can be very important for repair of historic structures. Please describe materials proposed for repair in appropriate detail in your scope of work, as well as number of units and location of any proposed renovations for historic structures.

Modification of wildlife and fisheries habitat is also evaluated when a new project footprint or a change in materials is proposed. New site construction can typically involve a higher level of National Environmental Policy Act (NEPA) documentation, such as an Environmental Assessment (EA).

**Question 6: Is the damaged facility on the National Register of Historic Places or the state historic listing? Is it older than fifty years? Are there more, similar buildings near the site?**

The National Historic Preservation Act (NHPA) requires that Federal agencies consider historic properties in their project planning and execution. Historic property means any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion in, the National Register of Historic Places maintained by the Secretary of the Interior. Any structure or facility that is 50 years or older could be eligible for listing in the National Register of Historic Places. Historic structures can be buildings, bridges, dams, culverts, landscapes, historic districts, battlegrounds, fences, walls, and more.

Answer “**Yes**” if the facility/site is listed in the National Register of Historic Places:

[www.nationalregisterofhistoricplaces.com/NY/state.html#pickem](http://www.nationalregisterofhistoricplaces.com/NY/state.html#pickem)

Answer “**Yes**” if the facility is listed as a National Landmark:

<http://www.nps.gov/history/nhl/designations/Lists/NY01.pdf>

Answer “**Yes**” if the facility appears to be at least 50 years old, If there is any reference to “old” buildings or other structures, or structures constructed of stone or brick masonry , the facility/site is located in an Historic District, the facility/site is located in a cemetery, the facility/site has any known tribal resources. The NYSHPO’s website offers an online interactive mapping resource helpful in locating historic properties and archaeologically sensitive areas <http://nysparks.state.ny.us/shpo/>



*Special Considerations continued...*

### **Cultural and Archaeological Resources**

Projects involving excavation outside the original footprint such as extending or upsizing a culvert, building a new bridge or repairing an old one, constructing a temporary road, laying down new utilities will require a historic review to ensure that archeological sites eligible for listing in the National Register of Historic Places are not impacted. Staging equipment and materials on undisturbed ground, armoring previously undisturbed stream banks, burial of debris, dredging activities in the nearshore or offshore, or any other activities which may impact previously undisturbed areas must be coordinated with the NYSOEM/FEMA Team.

**Question 7:** *Are there any pristine or undisturbed areas on, or near, the project site? Are there large tracts of forestland?*

**Question 8:** *Are there any hazardous materials at or adjacent to the damaged facility or item of work?*

Answer “Yes” if your project involves handling, transport, disposal, or storage of hazardous materials. If there are known contaminated sites adjacent to your property that could impact your project, please answer “Yes”. EPA has an online mapping tool that can be used to search for known contamination sites [www.epa.gov/emefdata/em4ef.home](http://www.epa.gov/emefdata/em4ef.home) or NYSDEC [www.dec.ny.gov/chemical/8437.html](http://www.dec.ny.gov/chemical/8437.html).

To report actual or potential spills or releases of oil or hazardous substances, immediately notify the NYSDEC 24 Hour Spill Hotline 1-800-457-7362 and the National Response Center at 1-800-424-8802.

**Question 9:** *Are there any other environmental or controversial issues associated with the damaged facility or item of work?*

Here is an opportunity to bring to your Project Specialist’s attention any other environmental/cultural resource concerns you are aware of for your project and/or site. Examples include environmental justice issues, potential for public controversy, new construction on prime or unique farmland, and contamination concerns when the possible contaminants are not legally defined as “hazardous” wastes. Environmental Justice (EJ) is the fair treatment and meaningful involvement of all people, regardless of race, ethnicity, culture, income or education level with respect to the development, implementation and enforcement of environmental laws, regulations and policies. EPA has an interactive EJView mapping tool available at: <http://epamap14.epa.gov/ejmap/entry.html> to assist with screening demographics for potential EJ communities and that also provides environmental data for the public, including facility level data.

To determine if the soils at your new construction/site development project area are potentially classified as prime or protected farmland, use the NRCS web soil survey at <http://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm> and soil data explorer to determine the land classification for your address and area of interest.

Answer “Yes” if your project involves woody debris removal and is located within the Emerald Ash Borer quarantine zones.

Also ensure that any temporary staging and final processing and/or disposal location (i.e. landfill permit number) is included in the scope of work for your project worksheet.

*Special Considerations continued...*

Answer “**Yes**” if your project may impact threatened and endangered species. Federally listed candidate (C), threatened (T), endangered (E), proposed (P), delisted (D) plant and animal species for the State of New York protected by the Endangered Species Act. For a listing of species by county go to: [www.fws.gov/northeast/nyfo/es/CoListCurrent.pdf](http://www.fws.gov/northeast/nyfo/es/CoListCurrent.pdf). An online tool is available through USFWS called IPac – Information, Planning and Conservation System at <http://ecos.fws.gov/ipac/> that can help reviewers identify if their proposed type of action and project location may affect listed species. Threatened and Endangered Wildlife and Fisheries Species known to occur within the disaster recovery area include: Indiana bat; Bog turtle; Karner blue butterfly; the following molluscs: Chittenango ovate amber snail, Clubshell, Dwarf wedgemussel and Rayed bean; and the following plants: American hart's-tongue fern, Eastern prairie fringed orchid and Northern monkshood.

The list of NYSDEC State Endangered, Threatened & Species of Special Concern protected as defined by 6 NYCRR § 182.2(g) and 193.3(b). For more information go to: [www.dec.ny.gov/animals/7494.html](http://www.dec.ny.gov/animals/7494.html). The protected native plants regulation at 6 NYCRR 193.3 established a list of protected plants classified as endangered, threatened, rare or exploitably vulnerable. For more information visit: [www.dec.ny.gov/animals/7135.html](http://www.dec.ny.gov/animals/7135.html).

Answer “**Yes**” if your project could impact Bald Eagle habitat or otherwise harm the Bald Eagle.

Answer “**Yes**” if your project is located in/adjacent to the Upper Delaware Wild & Scenic River or rivers listed on the Nationwide Rivers Inventory (NRI) and the proposed action may alter the free-flowing character of the river or otherwise diminish the outstanding resource value of the river corridor. The list of NRI river segments can be found at [www.nps.gov/ncrc/programs/rtca/nri/](http://www.nps.gov/ncrc/programs/rtca/nri/).

## Best Management Practices

Use of Best Management Practices (BMPs) during construction can make all the difference in avoiding and minimizing impacts to environmental or cultural resources. BMPs can include such measures as silt fences, staging heavy equipment on impervious cover, use of hand tools in sensitive landscapes, turbidity barriers and timing of work. If you are working in wetlands, waterways, threatened /endangered species habitats or other sensitive areas; conditions may be required for work to be compliant with local, state and federal laws, regulations, and executive orders.

There are many guides and technical resources available on BMPs and sustainable practices such as:

NYSDEC Construction Storm Water Toolbox: [www.dec.ny.gov/chemical/8694.html](http://www.dec.ny.gov/chemical/8694.html) and storm water Management Training Calendar & Online Training Materials: [www.dec.ny.gov/chemical/8699.html](http://www.dec.ny.gov/chemical/8699.html).

County Soil & Water Conservation Districts can be of technical assistance concerning water resource management: [www.nys-soilandwater.org/DisLawPPT/dislaw.html](http://www.nys-soilandwater.org/DisLawPPT/dislaw.html).

The USDA-NRCS has BMPs for streambank restoration and native plant material: [www.nrcs.usda.gov/wps/portal/nrcs/detail/national/ndcsmc/?cid=nrcs143\\_009158](http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/ndcsmc/?cid=nrcs143_009158) and for native plant material: <https://plants.usda.gov>. FEMA has available a stream restoration case study brochure at [www.fema.gov/pdf/about/regions/regionx/Engineering\\_With\\_Nature\\_Web.pdf](http://www.fema.gov/pdf/about/regions/regionx/Engineering_With_Nature_Web.pdf).

For information about sustainable building design and materials go to the U.S. Green Building Council website at: [www.usgbc.org](http://www.usgbc.org). The following websites have information regarding energy savings technology and programs: [www.nyserda.ny.gov/Energy-Efficiency-and-Renewable-Programs.aspx](http://www.nyserda.ny.gov/Energy-Efficiency-and-Renewable-Programs.aspx) and [www.energystar.gov/index.cfm?c=pt\\_univ.eeps\\_sites\\_nyserda](http://www.energystar.gov/index.cfm?c=pt_univ.eeps_sites_nyserda).

### Recovery of Historic Properties, Collections & Records

The Heritage Emergency National Task Force has numerous publications and tips posted online on recommended practices for cultural institutions to respond and recover from storm damages, including methodologies on salvaging collections. Online videos on handling wet books and paper records are posted online. For more information visit: [www.heritagepreservation.org/programs/taskfer.htm](http://www.heritagepreservation.org/programs/taskfer.htm).

As part of the recovery and rebuilding efforts, the NYSHPO has in its toolbox information and programs that can be of help for affected owners of historic buildings, from basic clean-up to rehabilitation. For more information go to: <http://nysparks.state.ny.us/shpo/>.

The New York State Archives has information available regarding recovery of records, photographs, books and other materials and tips for preparedness for disaster incidents at: [www.archives.nysed.gov/a/disaster/disaster\\_after.shtml](http://www.archives.nysed.gov/a/disaster/disaster_after.shtml).

The NPS has briefs on preservation at [www.nps.gov/tps/how-to-preserve/briefs.htm](http://www.nps.gov/tps/how-to-preserve/briefs.htm). FEMA also has available a Floodplain Management Bulletin on Historic Structures at [www.fema.gov/media-library/assets/documents/13411?id=3282](http://www.fema.gov/media-library/assets/documents/13411?id=3282).

The following website and link to a frequently asked questions document provide information to communities and homeowners on public environmental health concerns such as flood impacts on gardens and crops, spills, mold and other safety topics:

[www.governor.ny.gov/resources/storm](http://www.governor.ny.gov/resources/storm)

[www.health.ny.gov/environmental/emergency/weather/hurricane/faq/docs/faqs.pdf](http://www.health.ny.gov/environmental/emergency/weather/hurricane/faq/docs/faqs.pdf)

Occupational Safety & Health Administration has fact sheets available for cleanup activities to protect public and worker health: [www.osha.gov/pls/publications/publication.athruz?pType=Types&pID=2](http://www.osha.gov/pls/publications/publication.athruz?pType=Types&pID=2).

## **General Floodplain Cleanup Tips**

Working in or near a stream or waterway can have unintended adverse effects on the environment.

**Do not start work before notifying the Underground Facilities Protective Organization (UFPO).** Call before you dig to avoid any underground utilities that may be located in the area. Call 1-800-962-7962 or go to [www.digsafelynewyork.com/](http://www.digsafelynewyork.com/).

**Seek out expertise.** Stream work is technically demanding; the work you are doing, after all, is necessary because of the tremendous forces that floods develop. It is easy to make mistakes that may result in costly damage in future floods and hamper the health of your stream. Seek out the best design help you can find. USFWS, NRCS, NYSDEC and local Soil Conservation Districts are four likely sources. Similarly, the role of a skilled and observant equipment operator is critical.

**Do NOT cause more problems than you solve.** Many floods deposit gravel, trees, and other debris that block the stream channel and effectively create a dam. Such blockages create a risk of future flooding and must be removed. However, extensive work in the stream to clear away new gravel bars, dredge out the stream channel, or build makeshift dikes may increase the damage caused in future floods and cause greater loss of land through erosion.

**DO NOT get carried away with dredging.** The stream may have jumped its banks or changed its course during the last flood. Don't assume that a straighter or wider channel will solve these flooding problems. Dredging out a channel will result in greater damage in the long run, both in the immediate area and downstream. Widening the channel, straightening it, or removing large material will destabilize the streambed and increase the force and velocity of water moving through the channel. This can cause much greater erosion damage and also can cause much more material, including boulders and large cobble, to move around in the stream during high water. This material in turn can cause blockages at narrow points (such as culverts) and result in a great deal of rock being deposited by floodwaters. Stream dredging also disturbs fish habitat; increases water temperature, and can impair overall water quality, which may adversely affect public water systems using this stream for a raw water supply.

**Do your best to preserve stream bank vegetation.** Trees and shrubs along a stream can do more than almost any other single factor to limit flood damage and erosion. It will hold stream banks together, reducing the risk that the stream will dramatically change course and also reduce the amount of property torn away and shipped downstream by the flood. Vegetation will also slow the flood down, which reduces damage to property. Be extremely careful that your flood cleanup doesn't damage streamside trees and shrubs, and look into planting more vegetation to stabilize stream banks.

**Look carefully at unaffected stream areas.** It's only natural that floods draw your attention to damaged areas. It's important to consider, though, how undamaged areas endured the same amount of force as sites that "blew out." Natural stream features, such as channel meanders, an appropriate width and depth, and well-vegetated banks, all give a channel natural stability. Imitate or preserve these features in your work by maintaining meanders, stepping down contours with riffles over large rocks and re-vegetating stream banks among other techniques.

**Consider the owners of surrounding property.** The above points discuss some of the risks of improper flood repair. A straighter, wider channel also flushes the flood and flood debris on to downstream

property. The damage inflicted by improperly dredged out streams grows and grows as the flood moves downstream. Consider these downstream effects and consult with an expert before starting your post-flood stream work.

**Look for alternatives to riprap.** Riprap is a common means of stabilizing banks. It is effective or even necessary, but may have downsides. It can accelerate water velocities during floods, increasing damage immediately downstream or at the next bend. In addition it may increase the water temperature to levels that might be unhealthy for fish and other aquatic organisms. Alternative stabilization methods, such as planting with vegetation, can lessen its downsides.

**Do NOT remove gravel bars.** Cobble and gravel move quickly and in massive amounts during flood flows in some of New York's rivers and streams. Gravel bars accumulate quickly when the flood begins to drop, but they will move out quickly the next time water rises and do not necessarily cause future floods. On the other hand, they help streams maintain a deep channel that prevents or minimizes sediment, ice, and debris accumulations, all of which do cause flooding. Dangerous gravel accumulations must be removed, but keep in mind that they are symptoms of greater problems

**Limit in-stream work with heavy equipment as much as possible.** Working in a stream with heavy equipment can damage its bed and banks, and should be limited as much as possible. Adequate channel clearing can often be performed from a bridge or road without damage to banks or stream bottoms. When it is necessary to leave the road, plan your entry and exit routes to minimize damage to banks and vegetation.