

582 Bridge Washing**Scope:**

Educate personnel in the proper way to clean and wash/flush bridges to provide preventative maintenance of the structure to maximize the life of the bridge. Standardization of the cleaning/washing/flushing operations and methods of preventative maintenance on the structure will facilitate quality of materials and workmanship in these efforts statewide.

Safety:

Operations of bridge cleaning/washing/flushing requires careful coordination of traffic control to protect the workforce and the traveling public. Personnel need to be careful to keep water-blast spray and back splash directed away from or otherwise shield, vehicular traffic/pedestrians or use a “spotter”. This work typically involves temporary traffic control, working around/near heavy equipment, working over water, fall hazards, and respiratory hazards. Refer to Section 2 – Safety and Section 3 - Traffic for all applicable health and safety plans.

Procedure:***Removal Winter Maintenance Sand/Debris from Bridges:***

Yearly removal of winter maintenance sand and other debris from bridges with exposed decks provides for better functioning bridge systems (drainage, expansion/contraction devices, etc.) as well as reducing the effect that chlorides on the deck contribute to the deterioration of concrete and steel surfaces.



Winter sand and other debris shall be removed annually in the spring from bridge roadway and curb surfaces and between faces of guardrail on approach roadway sections using either hand shovels, street brooms or loader & power brooms or both. This operation is **always** done prior to washing/flushing bridge operations to prevent the unnecessary spreading of this material into streams and bodies of water. Approximately 25 feet of approach sections shall be included for cleaning at each bridge site. Sand and debris removed shall be disposed of in accordance with Bureau of Maintenance & Operations policy titled “Placement of Inert Fill on Private Property.” Please note that these guidelines really cover policy for disposal first within MaineDOT right of way or on municipal lots prior to considering providing to private citizens.

Winter sand/debris lying underneath and behind approach guardrail should be cut to the shoulder cross slope grade and uniformly deposited/broadcast out beyond the shoulder break onto a grassy or shrubby side slope. Two methods are commonly employed to do this work as follows:

- Use of workmen and square-point shovels.
- Use of skidsteer, the skidsteer’s bucket is modified by extending and blocking off the ends such that winter sand can be pushed out onto the side slope underneath guardrails between posts.

Other methods may be acceptable that shed cross slope surface water more uniformly onto vegetative buffers such as grassy, mulched, or shrubby slopes.

If winter sand is used to fill embankment erosion holes or gullies immediately adjacent to bridges, then one or more of the following erosion control methods shall be used with a grass seed application:

- Mulch
- Erosion control blanket
- Silt fence

Winter sand and other debris lying on bridge seats and slope protection shall be removed with hand tools. Two methods of waste disposal are acceptable:

- Haul to an approved waste area off-site.
- Uniformly broadcast winter sand out onto adjacent, well established grassy/shrubby slopes provided drainage paths/ditches are not affected.

The above procedure for dispersion of winter sand underneath and behind guardrail out onto side slopes results in an almost identical condition that exists for non-guardrail sections of highways where the shoulder breaks. Rarely are any of these winter sand accumulations on side slopes

removed on an annual basis. No harm usually results in leaving these deposits. Often times, these accumulations are removed in subsequent rehabilitation or repaving projects. Recovery of winter sand underneath and behind guardrail would be very labor and equipment intensive and therefore very expensive.

Procedures for removal of sand and debris from bridges typically include:

- Set up traffic control at the bridge site providing access for the workforce to one side of the structure.
Remove winter sand/debris from bridge deck, joints, curbs, sidewalks, bridge seats, approaches, etc.
- Dispose of accumulated winter sand and debris.
- Reset traffic control to provide access to the other side of the structure.
- Remove winter sand/debris from components of bridge mentioned before.
- Dispose of accumulated winter sand and debris.
- Clean up work site and demobilize.

Typical equipment required for cleaning:

- Traffic control devices, as required.
- Square-point shovels.
- Skidsteer set up for cleaning operations.
- Power brooms
- Water for dust control

Water-Blast Cleaning/Flushing:

Yearly washing/flushing of bridges is intended to flush away remaining deposits of chlorides in concrete and steel surfaces and crevices to allow proper operation of drainage and expansion joints and to prevent corrosion.



Inaccessible portions of the following exposed deck bridge structures shall be thoroughly water-blast cleaned/flushed with fresh water to remove accumulations of salt-laden winter sand/debris:

- Truss bridges/bottom chords 1st priority
- Open grid decks 2nd priority
- Ferry service transfer bridges 3rd priority
- Bridges with open joints 4th priority

Bridge Transportation Operations Managers will establish actual priorities based on the above order while also considering the amount of winter salt applications at each bridge site.

Bridge washing includes flushing the scuppers and drainage system. Remove scupper gratings and downspout clean-out plugs to flush and snake trapped debris, as necessary. Areas such as underneath bridge rail posts, in rail components, joints, will also be water-blast cleaned/flushed when curbs, gutters, parapets, backwalls and bridge seats are water-blast cleaned.

Any washing/flushing of areas prone to bird infestations or nesting shall be done according to Section 4 - Environmental of this manual under “Bird Nests”.

Procedures for water-blast cleaning/flushing typically include:

- Set up traffic control at the bridge site providing access for the workforce to one side of the structure.
- Flush out bearing protection diaphragms
- Water-blast clean/flush all areas.
- Reset traffic control to provide access to the other side of the structure.
- Water-blast clean/flush all areas.
- Clean up area and demobilize work site.

Typical equipment required for water-blast cleaning/flushing:

- Traffic control devices, as required
- High-pressure water pump w/hoses
- Sewer Snake
- Water trailer
- Wheel barrow
- Brooms/shovels

Maine Department of Transportation Agreement for the Placement of Inert Fill

Whereas, the Maine Department of Transportation (MaineDOT) has inert fill material consisting of excess soil from roadside ditching and/or winter sand cleanup;

Whereas, _____ of _____, ME
Property Owner Name(s) Town/City

is/are property owner(s) (hereinafter referred to as "the Property Owner") of a parcel of land located as follows:

Telephone: _____,

Whereas, said parcel of land contains a site where the Property Owner has determined that inert fill material may legally be placed and the Property Owner desires that MaineDOT place the inert fill material on the above described property;

Whereas, the property owner hereby represents and certifies that he/she has full ownership and title to the site where the fill will be placed.

Whereas, the Property Owner will assume full control of, and responsibility for, the placement, erosion and sedimentation control and final stabilization of the material.

Now, therefore, MaineDOT and the Property Owner agree as follows:

- 1) MaineDOT, its employees, agents and contractors are authorized by the Property Owner to enter upon the above described property and to deposit inert fill material.
- 2) The Property Owner is solely responsible for designating a location to place the material that has all required permits or is not within one hundred (100) feet of any wetland, stream or other regulated natural resource.
- 3) The Property Owner is solely responsible for the delineation of any wetland/natural resource delineation that may be necessary.
- 4) The Property Owner is responsible for obtaining any applicable permits and ensuring that the use of the material is in compliance with all applicable federal, state and local statutes and regulations.
- 5) The Property Owner is responsible for erosion and sediment control, spreading, grading, leveling and permanent stabilization of the material.
- 6) The Property Owner shall ensure the material is not relocated to any site where inert fill may not legally be placed.
- 7) The Property Owner, its successors and assigns forever hereby release and discharge the MaineDOT from all claims, demands, regulatory enforcement actions and/or cause of actions that may arise from the deposit, presence or use by the property owner, of the ditching material and/or road sand, and agrees to indemnify and hold harmless MaineDOT from any such claims, demands, regulatory enforcement actions and/or cause of actions.
- 8) MaineDOT makes no representations or warranties as to the suitability or fitness of the inert materials for any particular purpose. This fill is likely to contain such items as: woody debris, pieces of pavement, glass, trash, weed seeds, and numerous other items that may contaminate the soils along the roadsides. Furthermore, rutting of the property is typical in the areas where the trucks must travel in order to dump the fill. MaineDOT assumes no liability for any and all claims which may arise as a result of the placement and/or use of such materials.

Special Conditions: _____

Agreement valid for the following calendar year(s) (i.e. 2007, 2008, etc...): _____

	<u>Printed Name</u>	<u>Signature</u>	<u>Date</u>
Property Owner	_____	_____	_____
Property Owner	_____	_____	_____
MaineDOT	_____	_____	_____

This form is to be completed and signed in duplicate, providing one original for the MaineDOT and a copy for the Property Owner(s)



STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

JAMES P. BROOKS
ACTING COMMISSIONER

May 20, 2011

Mr. Dwight Doughty
Department of Transportation
Augusta, ME 04333

RE: Discharge of Bridge Washing Waters

Dear Dwight:

This letter replaces the April 14, 1997 Department of Environmental Protection (DEP) memo from Michael Barden to Robert Ballew, Maine Department of Transportation (MDOT). Before further discussion, I would like to thank you, John Buxton and Jeff Naum of your staff for meeting with Phil Garwood on November 29, 2010 to discuss MDOT bridge maintenance and washing activities and procedures to minimize their adverse effects on Maine's stream environments.

It is my understanding that the MDOT annually conducts cleaning operations on roughly 1,200 bridges within the state of Maine to remove the winter load of sand, debris and de-icing chemicals. In addition to those maintained by MDOT, there are several hundred bridges maintained by municipalities. These cleaning and washing activities are considered necessary to prevent corrosion by the moisture and chloride content of the accumulated road sand and debris, as well as to prevent physical binding of the bridge joints. Corrosion of the structural steel components of the bridge as well as interference with expansion joints threatens the integrity of the bridges and therefore the safety of the bridge users. The materials being washed from the bridges, however, have the ability to cause adverse effects on the stream environments spanned by the bridges and the discharge of such pollutants is subject to regulation by the DEP under the Protection and Improvement of Waters, 38 MRSA § 413.

On December 9, 2010, you provided the DEP with an undated MDOT best management practice (BMP) document entitled "Bridge Cleaning and Washing", as well as Bridge Maintenance Standards BR 602.1 "Removal Winter Maintenance Sand/Debris from Bridges" and BR 602.2 "Water-Blast Cleaning/Flushing", which describe the procedures and guidelines for these activities.

From these documents and the discussion at the meeting, DEP makes the following conclusions:

- MDOT conducts mechanical cleaning activities on the bridges and approaches prior to any washing activities.

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- The debris collected by mechanical sweeping is disposed of in an environmentally appropriate manner, either off-site or in vegetated approaches or other areas where erosion is not likely to carry the material into surface water.
- Washing activities are conducted during spring high waters in order to maximize the ability of the streams to attenuate any materials washed off the bridges.
- No soaps or detergents are used.
- Mechanical cleaning is not sufficient to reach all of the sand and debris, so pressure washing is the only effective means to remove these materials from crevices and joints. Water also dissolves away more of the salts remaining on the surfaces.

Under 38 MRSA §413(1), a license is required of any person directly or indirectly discharging pollutants to waters of the State. Pollutant is broadly defined to include, among other things, chemicals, petroleum products or by-products, sand and dirt. Notwithstanding these provisions, however, the DEP has exercised discretion on whether to require licenses for particular discharges or types of discharges. Based upon the expectation that MDOT and its contractors will adhere to the described BMPs and standards, the DEP considers bridge cleaning and washing as activities not requiring a license due to their de minimus nature.

This discretion also applies to bridge washing activities conducted by municipalities and their contractors as long as the above BMPs and standards, or substantially similar BMPS and standards, are followed.

If these BMPs and standards are not followed the DEP may reconsider this decision, or proceed with formal enforcement for unlicensed discharges. We also request notification from MDOT of any significant changes to the BMPs and standards.

I would appreciate MDOT's assistance in making this letter available to municipalities through posting on your website or through other outreach activities.

If you have any questions regarding this matter, please feel free to contact me at 287-7700, brian.w.kavanah@maine.gov or Phil Garwood at 441-9034, phil.e.garwood@maine.gov.

Sincerely,



Brian Kavanah, Director
Division of Water Quality Management
Bureau of Land and Water Quality

Cc: Peter Coughlan, DOT, Maine Local Roads Center
Phil Garwood, DEP