

EROSION AND SEDIMENT CONTROL

GENERAL

This plan is to provide information and guidance during site construction. Separate plans and orders have been issued for the improvement of the wetland area.

The requirements of the Order of Conditions shall supercede.

A rapid and well ordered construction process keyed toward establishing vegetation during optimum periods shall be the primary erosion control process utilized at this site.

Limiting the potential for runoff to concentrate and precluding the deposition of materials onto Great Road are also important.

TRACKING OF SEDIMENT ONTO GREAT ROAD

The existing parking lot is paved and it must be assumed that any earthen products reaching it will be transported to Great Road. Care must be taken not to have earthen materials reach the parking lot, and any materials tracked or dropped onto the parking lot shall be promptly removed.

Water-saturated materials shall be dewatered prior to leaving the site as described below.

Temporary construction entrances or tracking pads shall be installed between construction activities and pavements to remove earthen materials from tires.

Temporary roads comprised of gravel or stone shall be placed as necessary to insure that excessive rutting and generation of "mud" that could adhere to vehicle surfaces do not occur.

A broom or shovel shall be kept on site for removal of materials from pavements, and arrangements shall be made with a sweeping contractor to insure that pavements can be cleaned immediately if necessary.

PRESERVATION OF WETLANDS

Separate plans have been prepared under DEP# 85-1004 for the improvement of the wetlands

Stakes with flags shall be installed to designate the limit of work prior to the initiation of any clearing operations or excavations.

STORMCEPTORS

The catch basins in the existing parking lot contain manufactured devices called Stormceptors that provide for additional sediment and hydrocarbon removal beyond that accomplished by standard catch basins. These facilities shall be properly maintained at all times to insure they are operating at maximum efficiency, and they should not be utilized as a substitution for erosion control.

STABILIZATION OF UPLAND AREAS

Upland areas tributary to wetlands or pavements shall be maintained in an erosion resistant condition and be stabilized as soon as possible if they are necessarily disturbed for completion of site activity.

The contractor shall limit the extent of operations in such a way as to limit the upland area being disturbed at any period of time.

Upland areas shall not be left in an erosion prone condition for a period exceeding 14 days. They shall be stabilized as summarized below:

- * Areas covered with topsoil shall be seeded with an annual cover capable of stabilizing the area rapidly under the expected weather conditions. Buckwheat, white landino, clover and winter rye are possible materials, and 10 pounds of suitable seeds shall be kept on site.
- * Earthen slopes shall be tracked so grouser marks perpendicular to the slope are formed, and a silt fence or sand bag dike should be placed along the top of slopes with tributary areas that could cause concentration of runoff, to divert the runoff to erosion resistant areas.
- * Areas downhill of pavements that could be subject to concentrated flow shall be protected by diverting runoff to erosion resistant areas or to temporary settling basins. The basins should be appropriately sized and their discharges controlled so that erosion and transport of materials to sensitive areas will not result.

Limiting the concentration of runoff flowing across erosion prone areas is an important erosion control method.

CLEARING

Clearing shall be done as instructed by the Wetland Scientist. The disposal of all materials shall be conducted in a manner that will assure that invasive species will not be propagated on the site or elsewhere. The Wetland Scientist shall be consulted for guidance.

STRIPPING

Topsoil and other organic materials in the restoration area shall be removed from the site and disposed of in a manner that insures that invasive species will not be propagated elsewhere. The Wetland Scientist shall be consulted for guidance.

POND EXCAVATION-GRADING

The pond should be excavated during periods in which groundwater and flow in the excavated ditch along the northwesterly property line are expected to not pose problems.

If ledge or boulders that cannot be easily removed are encountered, the Engineer and Wetland Scientist shall be notified.

Materials shall be dewatered on site prior to transport, and water from the excavation shall be carefully controlled so that it does not flow to wetlands or areas not to be disturbed, or cause nuisance conditions. Water from the excavation shall not flow onto pavements.

DEWATERING

All materials shall be sufficiently dry prior to their removal from the site so that water does not leak from the vehicles transporting them.

If dewatering should be required, it shall be conducted by placing materials uphill of the existing basin so they drain into it, in an area enclosed by silt fence as shown on the detail.

The dewatering site shall be maintained in a manner that will insure that only a discharge to the basin results.

Dewatering water shall not be discharged to wetlands or pavements.

SITE GRADING

During all site grading operations, erosion barriers shall be placed between the area being altered and wetland resource areas including the new pond/wetlands.

Grading of the site shall be undertaken in a manner that will decrease the opportunity for concentrated runoff to flow across and from erosion prone surfaces.

The access road to the Carriage House slopes continuously down to the parking lot and care must be taken to limit runoff from the Carriage House roof and its parking lot from entering the driveway.

Areas around the wetland shall be graded as directed by the Wetlands Scientist and only when prompt stabilization can be expected.

RECHARGE SYSTEMS

The stormwater management system utilizes recharge works for a portion of stormwater control and these facilities must be protected from the entrance of products of erosion.

SAND BAG & STONE BAG CHECK DAMS

Burlap or porous plastic bags filled with sand can be utilized to divert runoff and porous bags filled with 3/8-inch stone can be utilized to filter runoff. The bags are most effective when filled to 75 percent capacity so that they are flexible and can better conform to the surface of the earth and each other.

Sand bags can serve as an effective method of diverting runoff whether utilized as one- and two-bag check dams or as a dike. Care must be taken in choosing the location of diversions to exclude areas that are not suitably erosion resistant. Care must be taken to insure that the bags are in full contact with the ground surface.

Stone bags should only be utilized for short term filtering as they can become clogged with products of erosion, and if overtopped, could result the concentration of runoff.

PERMANENT STABILIZATION OF SURFACES

The site work, including formation of the new wetland, shall be scheduled so that surfaces can be stabilized by vegetation during the optimum period for germination and growth.

Landscape surfaces tributary to pavement surfaces can result in materials that are washed onto the pavements being rapidly carried across the pavement and concentrated at a discharge point.

Pavements tributary to landscaped areas can result in concentrated runoff that could damage non-erosion resistant surfaces.

Topsoil has a high erosion potential.

COMPLETION OF PROJECT

The project will only be complete when all surfaces are erosion resistant, the Stormceptors are cleaned, and erosion barriers are removed.

STORMWATER MANAGEMENT SYSTEM OPERATION & MAINTENANCE

GENERAL

Stormwater is not discharged from the site and is recharged by naturally occurring permeable soils in the northwest corner of the property. The ability of this area to recharge runoff must be protected.

The existing onsite wetland area has been improved by removing invasive species and providing an area of open water. The wetland area is to be protected.

MAINTENANCE OF SURFACES

The proper maintenance of surfaces is a key element in the management of the stormwater system at this site.

Surfaces shall be maintained erosion resistant at all times.

The use of sand for pedestrian safety and safe vehicle movements during the winter months shall be kept to the minimum amount required.

Gross accumulations of sand shall be removed as soon as they are observed.

The parking lot and driveways shall be vacuum swept on a yearly basis and more often if required.

The site shall be kept litter free.

Landscape litter should be picked up and not allowed to enter any segment of the Stormwater Management Works, including dripline recharge trenches.

By maintaining surfaces so that materials are not carried to the stormwater management system will lessen the cost of maintaining the system and extend its life.

IMPROVED WETLAND

The maintenance of the improved wetland is covered by the plans, documents and Orders of Conditions issued under DEP# 85-1004.

OIL SAND AND GAS SEPARATOR

The first floor of the Carriage House has floor drains that flow to an oil and water separator with a discharge to a holding tank. The plan for these facilities describes their operation and maintenance.

STORMCEPTORS

Three Stormceptors have been installed in the front parking lot and they shall be maintained as required by the manufacturer. In general, they are maintained as described for catch basins.

CATCH BASINS

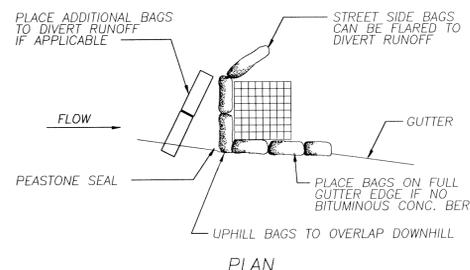
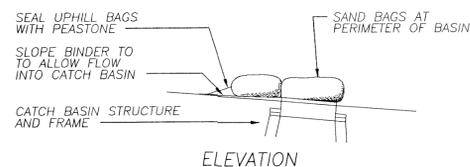
Catch basins shall be cleaned on an annual basis unless a more frequent basis is determined to be necessary. It is suggested that the house cleaning measures described under maintenance of surfaces should be utilized instead of additional cleaning.

Cleaning shall be by a licensed hauler.

Catch basin should be cleaned when the depth of sediment reaches 12 inches. The depth can be determined by lowering a dipstick through the grate and if the water level is less than 3 feet there is over a foot of sediment. The sumps have a depth of four feet below the outlet. When the dipstick is removed its surface should be observed for the presence of petroleum products. If any are present the catch basin shall be cleaned.

ILLICIT DISCHARGES

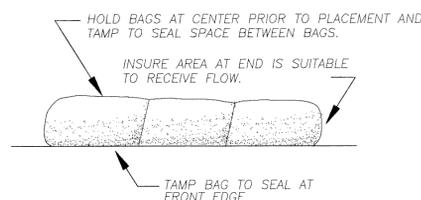
All businesses/residents shall be informed that only stormwater runoff shall enter the drainage system.



NOTE:
1. FRAMES SHALL BE SET LOW OR PAVEMENT ADDED AND REMOVED TO PROVIDE FLOW TO BASIN FROM BINDER COURSE.

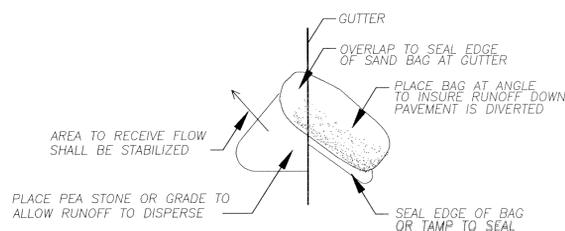
CATCH BASIN PROTECTION DETAIL

N.T.S.



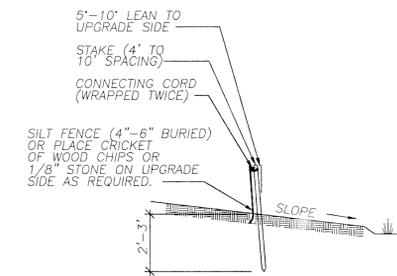
SAND BAG DIKE DETAIL

N.T.S.



SAND BAG CHECK DAM DETAIL

N.T.S.

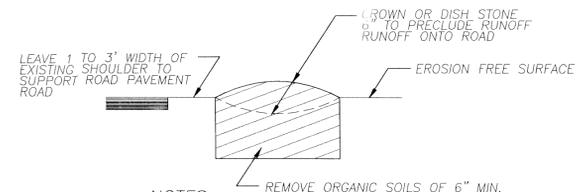


NOTES:

1. FENCES SHALL BE LOCATED AT LIMIT OF WORK, OR AS SHOWN ON PLANS.
2. PENETRATE OR "SNUG" GROUND WITH BOTTOM FOR ENTIRE LENGTH.
3. DO NOT INSTALL IN A MANNER WHICH WILL CONCENTRATE RUNOFF.
4. BACK FENCE WITH STAKED HAYBALES IN HIGH RISK AREAS.
5. MAINTAIN AND REMOVE FENCE AS REQUIRED.
6. REMOVE PRODUCTS OF EROSION FREQUENTLY.

EROSION CONTROL BARRIER DETAIL

N.T.S.



NOTES:

1. STONE SHALL BE 1-3" IN SIZE AND INSTALLED TO REMOVE AND ENTRAP MATERIALS FROM TIRES AND NOT BE TRANSPORTED TO ROAD.
2. STONE SHALL EXTEND ACROSS FULL WIDTH OF ENTRANCE AND BE OF SUFFICIENT LENGTH TO PRECLUDE MUD FROM REACHING ROAD.
3. STONE SHALL BE REPLACED AS REQUIRED TO INSURE MUD REMOVAL.

TEMPORARY CONSTRUCTION ENTRANCE

N.T.S.

EROSION & SEDIMENTATION CONTROL PLAN

107-115 GREAT ROAD WETHERBEE PLAZA
ACTON, MASSACHUSETTS

PREPARED FOR: WETHERBEE PLAZA, LLC
6 PROCTOR STREET
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DATE: SEPTEMBER 11, 2008

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Since 1967

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