974 CMR 4.00 INDUSTRIAL PERFORMANCE STANDARDS

Section

4.01: Industrial Performance Standards

(1) The Devens Enterprise Commission (DEC) was created and empowered by St. 1993, c. 498, § 11, to carry out the purpose and intent of the Devens Reuse Plan, Zoning By-laws, and subsequent development regulations pursuant thereto. The Plan and By-1Laws were passed by three simultaneous Town Meetings in the municipalities of Ayer, Harvard and Shirley on December 7, 1994. In achieving its specific mission as the regulatory and permitting authority within the Devens Enterprise Zone, and in generally protecting the health, safety and welfare, the Commission may legitimately exercise its right to protect the public, as well as other occupants and users within the DEZ, from nuisance conditions.

The intent of 974 CMR 4.00 is to preclude or significantly mitigate nuisance conditions by means of

(a) providing a complaint mechanism for parties impacted by potential violations and

(b) in certain circumstances where the potential impacts are likely to impact receptors beyond the perimeter of the DEZ, providing review criteria for the consideration of permit applications requiring site plan approval.

(3) It is recognized that occupants of the Devens Enterprise Zone (DEZ) could generate conditions from their operational activities which could cause nuisance to abutters within the DEZ ("Internal Receptors") or to community residents from the towns of Ayer, Harvard and Shirley ("External Receptors"). There are also unique sensitive receptors such as the Harvard University-Smithsonian Observatory and the Harvard University Radio Telescope on the same site on Oak Hill in the Town of Harvard ("Special External Receptors"). The subject areas of impact include Noise and Vibration, Air Quality, Odors, and Emissions, Lighting and Astrophysical Compatibility and Electromagnetic Interference. Impacts on Internal Receptors are referred to as "Internal Impacts," and impacts on External Receptors or Special External Receptors are referred to as "External Impacts." Internal Receptors, External Receptors and Special External Receptors are referred to collectively as "Receptors."

(4) The performance standards to follow are established as a mechanism for accepting and acting locally upon complaints to the DEC that are filed by impacted users or receptors and in certain circumstances where the potential impacts are likely to impact receptors beyond the perimeter of the DEZ, providing review criteria for the consideration of permit applications requiring site plan approval. In addition there are certain instances where the enforcement process may be significantly enhanced by requiring pertinent data at the time of a request for a building permit, such as with electromagnetic interference, or where further enforcement referral might be to a pre-emptive or higher jurisdiction, such as with air quality.

(5) In order to preclude nuisance conditions to the greatest degree possible, regulatory standards are established herein with which every occupant of the DEZ must comply. In addition, 974 CMR 4.00 establishes a process for requiring effective mitigations of conditions found to be in violation.

4.02: Air Quality, Odor and Emissions

(1) Overview. The intent of 974 CMR 4.02 is to preclude or significantly mitigate conditions that could cause nuisance impacts to area residents and businesses or other users within the Devens Enterprise Zone (DEZ).

4.02 continued

While it is the intent of 974 CMR 4.02 to provide a local complaint mechanism in regard to air quality, odors and emissions, it is also recognized that many businesses at Devens will be required to obtain a Massachusetts Department of Environmental Protection (MADEP) air quality permit, due to the pre-emptive or higher jurisdictional structure of the Commonwealth, when something is explicitly regulated. This is also in acknowledgment of the stringency of Massachusetts air quality laws and regulations (310 CMR 6.00 through 8.00). It is anticipated that this circumstance will preclude many potential difficulties in this area of impact. For more detail, refer to 974 CMR 4.02(2).

For the preceding reasons, there shall be two distinct courses of action for the DEC to follow, in regard to addressing complaints in this area of impact and enforcing resolution of them:

(a) Case One -- Where a MADEP air quality permit has been issued.

(b) Case Two -- Where a MADEP air quality permit has not been issued.

(2) Complaint & Enforcement Process.

(a) In cases where a MADEP permit has already been issued and a complaint filed against that user, the process shall be as follows. The Building Inspector or other duly authorized DEC official shall investigate the complaint and determine that the possible violator does possess a MADEP permit. When this fact has been ascertained, the inspection official shall then determine, to the best of his or her knowledge, and in consultation with MADEP, if the potential violator is in likely violation of the MADEP permit and shall then inform MADEP of the likely violation. Once this process has occurred, MADEP enforcement shall be sought by the DEC inspection official.

(b) In cases where a MADEP permit has not been issued previously, the DEC inspection official shall respond to the complaint and investigate the validity of the alleged nuisance being attributed to the potential violator. Then, the DEC inspection official shall determine, to the best of his or her knowledge, and in consultation with MADEP, if a state permit is required and shall refer the case to the Commonwealth in such instances. If it is determined that a MADEP permit is not required, or if one is needed but not yet obtained, then appropriate mitigation measures may then be established at the local DEC level, as a means of controlling nuisance conditions.

(c) In instances where a MADEP permit is not involved and mitigations will be established by DEC officials, the process shall be as follows. Potential violators will be given 30 days in which to respond to a complaint or otherwise provide reasonable confirmation to the DEC inspection official, that the problem did not exist or has been eliminated. If probable cause is determined, a second 30 day time period will be granted in which to correct the interference or to demonstrate that good faith efforts have been initiated to correct the objectionable circumstances. If such efforts are not initiated, the violator may be subject to remedies in the Devens Zoning By-Laws, including levying or fines, requirements to post performance guarantees, permit reconsideration by the DEC or legal action. Emergency nuisance conditions may, at the discretion of the DEC inspection official, require more expeditious remediation.

(3) Air Quality Standards. No party owning, leasing or otherwise controlling a potential source of air emissions within the Devens Enterprise Zone (DEZ) may at any time exceed the air quality, odor, and emissions standards established in 310 CMR 6.00 through 8.00 (Department of Environmental Protection (MADEP)). Specifically, the DEC shall have the authority to review any use, person or activity operating within the DEZ with regard to the following concerns:

(a) Visible Emissions

(b) Open Burning

(c) Dust, Odor, Construction, and Demolition

(4) Internal Impacts. No party owning, leasing or otherwise controlling a potential source of odor within the Devens Enterprise Zone (DEZ), shall permit emissions therefrom which cause or contribute to a condition of air pollution within DEZ.

(5) External Impacts. No party owning, leasing or otherwise controlling a potential source of odor within the Devens Enterprise Zone (DEZ), shall permit emissions therefrom which cause or contribute to a condition of air pollution beyond the perimeter boundary of DEZ.

4.03: Electromagnetic Interference

(1) Overview. The purpose of 974 CMR 4.03 is to preclude or significantly mitigate conditions (emanating either from direct electromagnetic radiation at any point in the frequency spectrum, or indirectly from electric power distribution lines), that could cause interference to any Internal, External or Special External Receptor. More detailed definitions of interference sources and potential receptors follow in 974 CMR 4.03(2)

While it is the intent of 974 CMR 4.03 to provide a local complaint mechanism for receptors that might be experiencing interference, it is recognized that with EMI, it is uniquely difficult from a technical perspective to attribute such interference to a particular point source. For this reason, the complaint mechanism is supplemented and enhanced by a process which attempts to minimize or preclude potential EMI issues by requiring an applicant for site plan approval of a facility that may cause potential EMI interference to a Special Receptor to demonstrate the unlikelihood of such interference or that proper mitigation measures will be taken as a condition of permit issuance.

(2) Complaint and Enforcement Process. Upon receipt of an interference complaint from a receptor, the Building Inspector or other duly authorized Devens Enterprise Commission (DEC) official shall respond to said complaint and attempt, by means of circumstantial and field investigative evidence, to attribute the EMI to a point source. Where such attempts fail to reliably identify a point source and where the pattern of interference is judged by the inspector to be of a repeated and pronounced nature, then the inspection official may, at his or her discretion and with the concurrence of the Land Use Administrator, acquire necessary technical expertise to increase the likelihood of reliably attributing the EMI to a particular user. Should the user be identified beyond reasonable doubt as the source of interference, then the user may be required to reimburse the DEC for the cost of using the services of this technical consulting expertise.

Once there is reasonable certainty of the interference source, the violator shall be subject to provide reasonable mitigation measures that essentially resolve the difficulty.

Potential violators will be given 30 days in which to respond to a complaint or otherwise provide reasonable confirmation to the Building Inspector or other duly authorized DEC official, that the problem did not exist or has been eliminated. If probable cause is determined, a second 30 day time period will be granted in which to correct the interference or to demonstrate that good faith efforts have been initiated. If such efforts are not initiated, the violator may be subject to remedies in the Devens Zoning By-laws, including levying of fines, requirements to post performance guarantees, permit reconsideration by the DEC or legal action. Emergency nuisance conditions may, at the discretion of the DEC inspection official, require more expeditious remediation.

(3) EMI Standards.

(a) Internal Impacts. No party owning, leasing, controlling or otherwise occupying a facility within the DEZ shall be allowed to cause pronounced, multiple patterns of nuisance to or interference with any Internal Receptor, either as a result of direct radiation or by means of the power distribution system. Direct, or electromagnetic radiation (EMI), shall be defined as interference from any licensed or unlicensed sources involving communications, broadcasting, radar, electric processing or business equipment emanating from within the DEZ. An Internal Receptor in 974 CMR 4.03(3)(a) shall be defined as any electric or electronic receiving, entertainment or convenience device within the DEZ, which can be significantly impacted by DEZ-based disturbances.

As a supplement and enhancement to the preceding complaint process, the EMI performance standards generally require that the inspection official attempt to preclude or minimize potential interference to the maximum possible degree to Internal Receptors at the beginning of the process, or the building permit application stage. Accordingly, the following procedure is described. Prior to the issuance of a building or occupancy permit, the applicant proposing the construction or use of a potentially interfering facility, as generally defined in the preceding paragraph, shall be required to demonstrate the unlikelihood of interference, or that proper mitigation measures will be taken as a condition of permit issuance.

4.03: continued

(b) External Impacts. No party owning, leasing, controlling or otherwise occupying a facility within the DEZ shall be allowed to cause pronounced, multiple patterns of nuisance to or interference with any External Receptor or Special External Receptor, either as a result of direct radiation or by means of the power distribution system. Direct, or electromagnetic radiation (EMI), shall be defined as interference from any licensed or unlicensed sources involving communications, broadcasting, radar, electric processing or business equipment emanating from within the DEZ outside of the perimeter boundaries of DEZ. An External Receptor or Special External Receptor in 974 CMR 4.03(3)(b) shall be defined as any electric or electronic receiving, entertainment or convenience device located outside the perimeter boundary of the DEZ, which can be significantly impacted by DEZ-based disturbances.

Special consideration shall be given to interference to the radio telescope operated by Harvard University and the Smithsonian Institution and located on Oak Hill on Pinnacle Road in the Town of Harvard. Interference with the 1400-1720 MHZ band utilized by the radio telescope shall be strictly prohibited. Strong radiation at any points outside of this frequency range that could cause significant disturbance in the radio telescope on more than one occasion and may require appropriate mitigation measures in the form of filtration devices or avoidance of directly interfering radiation patterns.

As a supplement and enhancement to the preceding complaint process, the EMI performance standards generally require that the inspection official attempt to preclude or minimize potential interference to the maximum possible degree to Special External Receptors at the beginning of the process, or the site plan approval stage. Accordingly, the following procedure is described. Prior to the issuance of a site plan approval, the applicant proposing the construction or use of a potentially interfering facility causing potential EMI interference to any Special External Receptor, shall be required to demonstrate the unlikelihood of interference, or that proper mitigation measures will be taken.

(c) License Requirements. All facilities within the DEZ requiring applicable federal licensing shall be further obligated to pursue compliance with the Regulations and Procedures of the National Telecommunications and Information Agency (NTIA) and the licensing requirements of the Federal Communications Commission (FCC).

4.04: Illumination and Astrophysical Compatibility

(1) Overview. The intent of 974 CMR 4.04 is to preclude or significantly mitigate conditions that could cause nuisance impacts to area residents and businesses or other users within the Devens Enterprise Zone (DEZ).

It is recognized that the collective impact of illumination associated with all future uses and improvements in the Devens Enterprise Zone potentially could have an impact upon the surrounding communities in general, and the Harvard-Smithsonian Astrophysical Observatory on Oak Hill in the Town of Harvard. In order to preclude any negative impacts, it is necessary to regulate the overall illumination level emanating from the Devens Enterprise Zone (DEZ) in the night sky. Said levels can be reasonably controlled by means of standards and criteria controlling light sources; illumination levels and types; reflective surfaces; signs; and the external lighting of building, landscaping, travel ways and parking lots. At the same time, it is necessary to assure that public safety concerns will be fully satisfied for night time activity within the DEZ.

While it is the intent of 974 CMR 4.04 to provide a local complaint mechanism in regard to illumination and astrophysical compatibility issues, it is also recognized that most interference problems can be precluded by addressing such concerns at the time of application for site plan approval with respect to facilities in proximity to the perimeter boundary of the DEZ or at the time of application for a building permit with respect to facilities that have the potential of exceeding the performance standards within the DEZ. Applicant/owners and engineers and architects should be made familiar with the standards to follow, as a supplement and enhancement to the complaint process, in order to incorporate them into the earliest stages of their project design process.

Should a complaint emanate, however, after a facility is established at Devens, then the procedures in 974 CMR 4.04(2) shall apply.

4.04: continued

(2) Complaint and Enforcement Process.

(a) Upon receipt of an interference complaint from a receptor, the Building Inspector or other duly authorized Devens Enterprise Commission (DEC) official shall respond to said complaint and attempt, by means of circumstantial and field investigative evidence, to attribute the illumination interference to a point source. Where such attempts fail to reliably identify a point source and where the pattern of interference is judged by the inspector to be of a repeated and pronounced nature, then the inspection official may, at his or her discretion and with the concurrence of the Land Use Administrator, acquire necessary technical expertise to increase the likelihood of reliably attributing the illumination interference to a particular user. Should the user be identified beyond reasonable doubt as the source of interference, then the user may be required to reimburse the DEC for the cost of using the services of this technical consulting expertise.

Once there is reasonable certainty of the nuisance source, the violator shall be subject to provide reasonable mitigation measures that essentially resolve the difficulty. Refer to 974 CMR 4.04(2)(b) for a description of procedures relative to enforcement.

(b) Potential violators will be given 30 days in which to respond to a complaint or otherwise provide reasonable confirmation to the Building Inspector or other duly authorized DEC official, that the problem did not exist or has been eliminated. If probable cause is determined, a second 30 day time period will be granted in which to correct the nuisance or to demonstrate that good faith efforts have been initiated. If such efforts are not initiated, the violator may be subject to remedies in the Devens Zoning By-laws, including levying of fines, requirements to post performance guarantees, permit reconsideration by the DEC or legal action. Emergency nuisance conditions may, at the discretion of the DEC inspection official, require more expeditious remediation.

(3) Illumination Standards - Internal Impacts.

(a) Types of Fixtures.

(b) Fixed Focus Luminaries. Pole-mounted (typically used for parking areas, streets and roadways, and pedestrian areas); or Wall-mounted ("wall packs") shall meet the Illuminating Engineering Society (IES) criteria for "sharp cutoff" luminaries; candlepower per 1000 lamp lumens shall not exceed 25 candelas at an angle of 90 degrees above nadir, and 100 candelas at an angle of 80 degrees above nadir. Mounting height of these units may not exceed 30' above the ground plane.

(c) Variable Focus Luminaries (typically used for athletic fields and large trailer-storage, intermodal operations yards; i.e., large open areas that must be lighted solely from the perimeter due to function):

Fixtures must, by a combination of aiming and shielding, permit no more than 100 candelas per 1,000 lamp lumens to be emitted above a line that is struck through the lamp center and extends at an angle of 80 degrees relative to nadir after the luminaries are in their finally-focused position. Mounting height of these units may not exceed 50' above the ground plane.

(d) Sources. High-pressure sodium lamps are not permitted.

(e) Light Levels. Refer to the *Illuminating Engineering Society Lighting Handbook/ Reference & Application* (8th edition, 1993), Chapter 24 for appropriate lighting levels for parking lots and street/roadways. No street or roadway is to be classified higher than "Collector -- Residential"; see Figure 24-8 (Collector - Residential is considered highest from the viewpoint of pedestrian night time safety requirements). All parking areas are to be considered "Low" activity areas (See Figure 24-23). Although these *Recommended Average Maintained Illuminance Values* are minimum recommendations from the I.E.S., they are to be considered target values for Devens, and may not be exceeded by more than 25%.

(f) Pavement Finishes. All finish surfaces on paved areas (parking areas, storage yards, streets, and roadways) shall be black asphalt with dark aggregate, or other surfaces of no greater reflectance.

(g) Landscape Lighting. No uplighting of landscaping shall be permitted. Further, any pole or tree-mounted landscape lighting fixtures shall meet the Illumination Engineering Society (IES) criteria for "sharp cutoff" luminaries; candlepower per 1000 lamp lumens shall not exceed 25 candelas at an angle of 90 degrees above nadir, and 100 candelas at an angle of 80 degrees above nadir.

4.04: continued

(h) Building Facade Floodlighting. No building floodlighting is permitted. The sole exception to this shall be structures which serve a clear public purpose within the DEZ and are significant visual focal points in terms of architecture and/or siting context; examples include government buildings, visitors centers, designated historic monuments and similar uses. Use of Downlighting fixtures shall be strongly encouraged in such instances; however when it is impractical to illuminate from the top of a structure, uplighting may be considered, subject to the following conditions; average illumination shall be restricted to 20 footlamberts and shall be further required to be turned off as early as possible when the facility is not in active use, or no later than 11:00 p.m.; whichever is the earlier.

(i) Sign Lighting (All sign, billboard, advertising, and/or identity lighting) Illuminated signs may not occupy more than 3% of the building facade on which they are mounted.

1. Front lighted: all front-lighted signs shall be lighted from the top, and aimed and/or shielded so that no more than 100 candelas per 1,000 lamp lumens are emitted above a line that is struck through the lamp center and extends at an angle of 80 degrees relative to nadir after the luminaries are in their finally-focused position.
2. Internally- and rear-lighted signs: On signs with a surface area larger than ten sq. ft. no surface luminances on or around the signs shall exceed 30 footlamberts, and no exposed lamps may be used. On signs that are composed primarily of letter-forms, only the letter-forms may be illuminated – no luminous backgrounds are permitted.

No illuminated portion of any non-building-mounted illuminated sign may exceed a height of 20' above the ground plan.

(j) Operational Controls. Unless a building maintains an evening or night operation, other than security personnel, all general parking lot lighting and identity signage lighting shall be turned off as early as possible when the facility is not in active use, or no later than 11:00 p.m., whichever is the earlier. Minimal site and limited-area parking lighting may be operated beyond those hours with illumination for security purposes, but should be confined to as small an area as possible. This area may include some spaces for overnight parking among personnel who are traveling for the firm.

(k) Exceptions:

1. Temporary holiday lighting.
2. Owner-operated lighting within a privately-owned residential lot line, provided that it complies with the requirements under 974 CMR 4.04(3)(g).

As a supplement and enhancement to the preceding complaint process, the illumination performance standards might require that the inspection official attempt to preclude or minimize potential interference to the maximum possible degree at the beginning of the process, or the building permit application stage. Accordingly, the following process is described. Prior to the issuance of a building or occupancy permit, the applicant proposing the construction or use of a potentially nuisance generating facility, as generally defined by the Illumination Standards, shall be required to demonstrate the unlikelihood of non-compliance with such Standards, or that proper mitigation measures will be taken as a condition of permit issuance.

(4) Illumination Standards - External Impacts. The same Illumination Standards apply to all users within the DEZ. However, with respect to facilities and improvements located within 500 feet of the perimeter boundary of the DEZ which may give rise to particular concerns by External Receptors, the applicant for site plan approval for such facilities or improvements shall demonstrate anticipated compliance with 974 CMR 4.04(3).

4.05: Noise and Vibration

(1) Overview. The purpose of 974 CMR 4.05 is to preclude or significantly mitigate conditions that could cause nuisance to any receptor within or without the Devens Enterprise Zone (DEZ). More detailed definitions of interference sources and potential receptors follow in 974 CMR 4.05(3)

4.05: continued

While it is the intent of 974 CMR 4.05 to provide a local complaint mechanism for receptors that might be experiencing nuisance from the generation of noise or vibration, it is recognized that complaints can often be minimized by identifying and acting upon potential problems before they become contentious. For this reason, the complaint mechanism is supplemented and enhanced by a process described below which attempts to minimize or preclude potential noise and vibration issues at the time of application for site plan approval with respect to facilities in proximity to the perimeter boundary of the DEZ or at the time of application for a building permit with respect to facilities that have the potential of exceeding the performance standards within the DEZ.

(2) Complaint and Enforcement Process.

(a) Upon receipt of a noise or vibration complaint from a receptor, the Building Inspector or other duly authorized Devens Enterprise Commission (DEC) official shall respond to said complaint and attempt, by means of circumstantial and field investigative evidence, to attribute the potential nuisance to a point source. Where such attempts fail to reliably identify a point source and where the pattern of interference is judged by the inspector to be of a repeated and pronounced nature, then the inspection official may, at his or her discretion and with the concurrence of the Land Use Administrator, require the likely violator to engage technical expertise for the purpose of documenting noise and vibration conditions at strategic locations.

Once there is reasonable certainty of the interference source, the violator shall be subject to providing reasonable mitigation measures that essentially resolve the difficulty. Refer to 974 CMR 4.05(2)(b) for a description of procedures relative to enforcement.

(b) Potential violators will be given 30 days in which to respond to a complaint or otherwise provide reasonable confirmation to the Building Inspector or other duly authorized DEC official, that the problem did not exist or has been eliminated. If probable cause is determined, a second 30 day time period will be granted in which to correct the nuisance or to demonstrate that good faith efforts have been initiated. If such efforts are not initiated, the violator may be subject to remedies in the Devens Zoning By-laws, including levying of fines, requirements to post performance guarantees, permit reconsideration by the DEC or legal action. Emergency nuisance conditions may, at the discretion of the DEC inspection official, require more expeditious remediation.

(3) Noise Limits and Standards - Internal and External Impacts. No party owning, leasing, controlling or otherwise occupying a facility within the (DEZ) shall be allowed to cause pronounced, multiple patterns of noise or vibration nuisance to or interference with any receptor.

No party owning, leasing or otherwise controlling a facility within the DEZ shall be allowed to:

(a) Produce a broadband sound pressure level which exceeds an existing background sound pressure level by the following margins:

1. 5 dBA as measured at any residential property line or receptor within the DEZ;
2. 10 dBA as measured at any commercial or industrial property line or receptor within the DEZ;
3. 5dBA as measured at any DEZ perimeter boundary abutting a residential External Receptor;
4. 10 dBA as measured at any DEZ perimeter boundary abutting a commercial or industrial External Receptor.

(b) Produce a broadband sound pressure level which exceeds the following levels:

1. 45 dBA Nighttime/55 dBA Daytime, as measured at any residential property line or receptor within the DEZ;
2. 60 dBA as measured at any commercial or industrial property line or receptor within the DEZ;
3. 45 dBA Nighttime/55 dBA Daytime, as measured at any DEZ perimeter boundary abutting a residential External Receptor;
4. 60 dBA as measured at any DEZ perimeter boundary abutting any commercial or industrial External Receptor.

(c) Produce a “pure tone” condition. (definition to follow)

(d) Produce “impulsive” noise in excess of decibel limits and durations established herein (definition to follow);

4.05: continued

1. Background sound pressure level is defined as the A-weighted sound pressure level that is exceeded 90% of the quietest one-hour time interval during the equipment operating hours.
2. Residential receptors shall be defined to included Churches (During hours of service), Nursing Homes, Hospitals, Rest Homes, Schools, Day Care centers, and any property in use as a residence.
3. Daytime hours are 7:00 A.M.. to 6:00 P.M. weekdays. Nighttime hours are all other times, including legal holidays.
4. All sound pressure level measurements are to be performed with slow sound level meter response.
5. All complaints regarding perceived noise violations shall be directed to the Devens Building Inspector, or other duly authorized DEC Official. Upon investigation, said official shall work to identify the source. Any facility found to be in violation shall measure the existing background sound pressure level, and mitigate the problem as soon as it is reasonably possible. Measurement may include, but not be limited to establishing existing background sound levels, or noise modeling. Mitigation may include, but not be limited to the following: Constructing appropriate housing for building systems, adding mufflers, or other devices to engines used exclusively for handling material on site; or adaptation of any other noise control devices and procedures for noise producing equipment and activities. All expenses incurred for on-site mitigation measures shall be the responsibility of the facility found to be in violation.
6. All measured noise readings and mitigation efforts shall correspond to the time of day for which the complaint was reported.
7. A "pure-tone" is sound concentrated in a narrow frequency range, and is perceived as a humming, buzzing, whirring, or other such distinctive continuous sound. Pure-tone sound is often produced by industrial equipment such as fans, blowers, grinders, and transformers. A pure-tone condition is defined to exist when the sound pressure level in a one-third octave band exceeds the sound pressure levels in both adjacent one-third octave bands, and if the average amount exceeded in both adjacent bands is greater than the following:

1/3 Octave Band mid Frequency adjacent (Hz)	Amount by which the average of both adjacent bands is exceeded	1/3 Octave Band mid Frequency (Hz)	Amount by which the average of both bands is exceeded
100	16	1250	4
125	14	1600	4
160	12	2000	3
200	11	2500	3
250	9	3150	3
315	8	4000	3
400	7	5000	4
500	6	6300	4
630	6	8000	5
800	5	10000	6
1000	4		

8. "Impulsive" noises are sounds which occur intermittently rather than continuously. Impulsive noise may exceed existing background sound levels for a cumulative duration of not more than one minute within any given one hour period, and subject to the following limits: 10 dBA as measured at any residential property line or receptor, or 15 dBA as measured by any commercial/industrial property line or receptor. Impulsive noise, as measured at any residential receptor shall only be allowed to occur during normal daytime hours. Readings for impulsive noise shall be recorded with fast sound level meter response.

4.05: continued

9. Equipment employed in landscape and open space maintenance, or any construction related activity shall be kept in good repair so as to minimize noise and vibration beyond the DEZ perimeter. In all cases, such equipment shall meet or exceed industry standards for noise muffling.

10. All terms not defined herein shall be understood to comply with those definitions established by the American Noise Standards Institute (ANSI).

(4) Vibration Limits and Standards.

(a) No party owning, leasing or otherwise controlling a facility within the DEZ shall be allowed to:

1. Produce vibration which exceeds the combine-axis one-third octave band vibration accelerations of ANSI §3.29, Guide to the evaluation of human exposure to vibration in buildings. (Table one, as read in (meters/second)).

2. Produce sound levels in the 31.5 Hz octave band, and in lower bands, that exceed 65dB.

(b) Exceptions: The above performance standards shall not apply to noise and vibration emitted during and associated with the following:

1. Parades, public gatherings, sporting or special short duration events for which permits have been issued, provided that said parades, public gatherings, sporting or special events within the DEZ do not cause noise in an adjacent community;

2. Emergency, police, fire and ambulance vehicles;

3. Police, fire, and civil and national defense activities;

4. Maintenance equipment such as lawn mowers and power saws between the hours of 7:00 a.m. and 8:00 p.m.

5. Temporary construction activity associated with a permitted facility, operating within normal daytime hours.

(5) Internal Impacts. As a supplement and enhancement to the complaint process, the noise and vibration performance standards might require that the inspection official attempt to preclude or minimize potential nuisance to the maximum possible degree to Internal Receptors at the beginning of the process, or the building permit application stage. Accordingly, the following process is described. Prior to the issuance of a building or occupancy permit, the applicant proposing the construction or use of a potentially nuisance generating facility, as defined by the applicable "Noise Limits and Standards" set forth in 974 CMR 4.05(3), with potential to impact only Internal Receptors, shall be required to demonstrate the unlikelihood of non-compliance with such Noise Limits and Standards, or that proper mitigation measures will be taken as a condition of permit issuance.

(6) External Impacts. As a supplement and enhancement to the complaint process, the noise and vibration performance standards as they apply to External Receptors require procedures at the site plan approval stage to preclude or minimize potential nuisance to the maximum possible degree. Accordingly, the following process is described. Prior to the issuance of site plan approval of any potentially nuisance generating facility as defined by the applicable Noise Limits and Standards set forth in 974 CMR 4.05(3), with potential to impact any External Receptor and located within 500 feet of any perimeter boundary of the DEZ, the applicant shall be required to demonstrate the unlikelihood of non-compliance with such Noise Limits and Standards at or beyond the perimeter of the DEZ, or that proper mitigation measures will be taken as a condition of site plan approval.

4.06: Wetlands Protection

(1) DEC Powers. Under St. 1993, c. 498, § 11 the DEC has full powers to enforce M.G.L. c. 131, § 40A: *Wetlands Protection Act* and 310 CMR 10.00: *Wetlands Protection*.

(2) Purpose. To protect the wetlands and water resources in Devens and adjoining land areas by controlling activities likely to have a significant or cumulative effect on wetland functional values, including but not limited to:

(a) public and private water supply protection;

(b) groundwater supply protection;

4.06: continued

(c) flood control;
(d) storm damage prevention;
(e) pollution prevention;
(f) fisheries protection;
(g) wildlife habitat protection;
(h) erosion prevention and sedimentation control.

(3) Resource Areas include any:
(a) freshwater wetlands;
(b) marshes;
(c) wet meadows;
(d) bogs;
(e) swamps;
(f) vernal pool habitat;
(g) banks;
(h) reservoirs;
(i) lakes;
(j) ponds of any size;
(k) rivers, streams, and creeks;
(l) lands under water bodies; and
(m) lands subject to flooding or inundation by ground or surface water (collectively protected as "Resource Areas").

(4) When Permits are Required. No person shall remove, fill, dredge, build upon, degrade, discharge into, or otherwise alter Resource Areas except as permitted by the DEC or as exempted by 974 CMR 4.06. Permits are required when activities are conducted within Resource Areas or within 100 feet of Resource Areas. Lands within 100 feet of Resource Areas are presumed important (By-laws, Article XII Section C.1) to the protection of Resources Areas because activities undertaken in close proximity to resource areas have a high likelihood of adverse impact on the Resource.

The By-laws do not permit any alteration of natural vegetation or substrate within 25 feet of a Resource Area or the location of any building within 50 feet of a Resource Area except that the construction of recreational facilities (bikeways, trails, docks, *etc*.), roads, streets, rail sidings, aboveground or underground public utilities and infrastructure, detention basins or drainage structures, measures undertaken for the remediation of contaminated soils or groundwater, or removal of solid waste is allowed within these setbacks. Any exceptions shall implement all controls necessary to minimize adverse impacts to Resource Areas.

(5) When Permits are not Required.
(a) Maintaining, repairing, or replacing an existing and lawfully located structure or facility used in the service of the public to provide electric, gas, water, telephone, or telecommunication services, provided that written notice has been given to the DEC prior to the commencement of work and there are adequate (as determined by the DEC) measures to protect the Resource Areas during the maintenance, repair, or replacement activities. This exemption does not apply to substantial changes to or enlargement of such structures or facilities. An Applicant claiming that work to remove, fill, dredge or alter a Resource Area does not require the filing of a Notice of Intent has the burden of establishing that the work is not subject to Regulation under M.G.L. c. 131, § 40. In such cases, the Applicant may be required to file a Request for Determination of Applicability with the DEC.
(b) Emergency projects necessary for the protection of the health and safety of the public, as per 310 CMR 10.06(1): provided that:
1. The work is performed or supervised by MassDevelopment.
2. Notice, oral or written, has been given to the DEC prior to or within 24 hours of the commencement of work. Such notice shall specify why the project is necessary for the protection of public health and safety.
3. The Director certifies the work as an emergency project. The certification shall include a description of the work which is to be allowed.
4. The work is performed only for the time and place certified by the Director for limited purposes to abate the emergency; and

4.06: continued

5. A permit application shall be filed with the DEC within 21 days of commencement of an emergency unless the project has been completed by this time.

(6) Applications for Permits.

(a) Applications to perform activities affecting Resource Areas (Notices of Intent) and decisions to allow such activities (Orders of Conditions) are subject to Level Two review. The issuance of a Certificate of Compliance is a Level One permit.

(b) Applications shall include a description of proposed activities and their effects on Resource Areas. No activity shall commence without receiving and complying with a permit issued pursuant to 974 CMR 4.06.

(c) Applicants seeking a Request for Determination (RFD) as to whether a Notice of Intent (NOI) is required shall submit their application simultaneously to the DEC and the DEP Central Regional Office. The Director shall review the RFD and issue a Determination within 21 days of the submission of the application. A positive Determination requires an Applicant to file an NOI. If the application for an RFD is incomplete, a positive Determination shall be rendered. Any Determination by the DEC Director is valid only upon ratification by the DEC at a public meeting. The DEC may ratify, modify or disapprove the Director's decision. A negative Determination shall be valid for three years, provided the project is not changed within that period.

(d) A NOI is required to fill, dredge, or alter any wetlands or land within 100 feet of a wetlands or water body. An NOI shall include:

1. Owners' and Applicants' names, date of application, scale;
2. North arrow;
3. Size of total lot, size of altered or impacted areas, calculations based on accurate measurements and certified by a Professional Engineer;
4. Assessors map and lot (if available) and a list of abutters, certified if possible;
5. Stamp and seal of engineer and other professionals preparing the plan;
6. Existing contours at two foot intervals (or as specified by the Director);
7. Proposed contours and amount of fill or material removed;
8. Location and specifications of any retention structures or other improvements;
9. Existing drainage patterns and proposed alterations;
10. Boundaries of all waterbodies, wetlands, and buffer areas (buffers as defined in the By-laws, Article XII, Section C.1);
11. 100-year floodplain;
12. Top and toe of bank;
13. Identification of indigenous upland and wetland vegetation;
14. Limit of work ("construction envelope");
15. Erosion and sedimentation plan showing the details and location of all temporary erosion control;
16. All existing and proposed below-ground alterations and structures, including drainage structures and systems, septic systems, wells, storage tanks, *etc*.;
17. Distance of leaching facilities to wetlands, water course, and waterbodies;
18. Drainage easements and ways;
19. Wetland Replication plans (if replication is required) including, but not be limited to, design, construction and monitoring consistent with the *Massachusetts DEP Wetland Replication Guidelines*, March 2002;
20. Required forms and fees;
21. Details on impacts on habitats of state-listed species (if any);
22. A written request to extend the time in which the DEC must render a decision (to accommodate the DEC required 30-day town comment period) shall be filed with the application;
23. A certified list of all abutters and property owners within 300 feet of the boundaries of the site upon which the work is to be performed;
24. Any other material specified by the Director.

4.06: continued

(e) Public hearings will be advertised, noticed, and held as required by the By-laws and 974 CMR 1.04: *Level One Review*. Applicant shall stake or flag the edge of wetlands on the project site at least five days prior to the hearing. The DEC, after public hearing, shall determine whether the impacts on the area on which the proposed work is to be done are significant to public or private water supply, to the groundwater supply, to flood control, to storm damage prevention, to prevention of pollution, to the protection of wildlife habitat, to erosion and sedimentation control or to the protection of fisheries, and shall by written order within 21 days of such hearing impose such conditions as will contribute to the protection of the Resources.

(f) All work shall be done in accordance with the orders issued by the DEC. No work may commence until the final order and plans have been recorded in the Registry of Deeds and proof of such recordation has been submitted to the DEC and a sign identifying the project with the MADEP file number has been posted on site in a location visible from the nearest public way.

(g) The DEC may require that the performance and observance of the conditions imposed be secured wholly or in part by either:

1. A proper bond or deposit of money or other instrument acceptable to the Director as specified in 974 CMR 1.13: *Performance Guarantees*; or
2. A conservation restriction, easement, or other covenant enforceable in a court of law, executed and duly recorded by the owner of record, running with the land to the benefit of the DEC or a non-profit organization, the principal purpose of which is the conservation of open space.

4.07: Earth Removal

(1) Removal of earth shall be performed only incidentally to an approved site plan, approved subdivision plan, or other approval from the DEC.

(2) Prior to commencement of excavation, Applicant shall demonstrate, to the satisfaction of DEC staff, compliance with *Devens Soil Management Policy and Devens UXO Protocol and Procedures*, revised August 2006.

(3) Material associated with the lawful construction of a building, structure, street or driveway, way, sidewalk, path utilities, or other appurtenance incidental to any building, structure or street shall not be removed from Devens without the prior approval of the DEC. Any Applicant requesting removal of material from Devens shall provide the following information to the DEC: the proposed volume of material being removed, hours and days of removal, operation, duration, volume of trucks, transportation routes, dust control, sedimentation and erosion controls, and restoration measures to be taken, and any additional information the DEC may require.

(4) Earth removal not associated with the lawful construction of a building, structure, street or driveway, way, sidewalk, path, utilities, or other appurtenance incidental to any building, structure or street shall not be permitted within 200' of any Resource Area.

(5) All original topsoil shall be stockpiled on the site and spread on the final slopes. No original topsoil, including loam, may be removed from the site unless written permission is given by the Director.

(6) Hours of earth removal shall be limited and no work shall take place prior to 7:00 A.M., after 7:00 P.M., or on Sundays or Federal and State holidays.

(7) All structures and processing equipment shall be set back a minimum of 1000 feet from a building which either existed or for which a building permit has been issued at the time the earth removal is commenced and a minimum of 250 feet from all lot lines.

(8) The operation shall comply with all applicable Federal and State air pollution control laws and regulations. Dust shall be controlled so that there are no visible emissions or deposits present at the property boundary.

4.07: continued

(9) The disposition of boulders, tree stumps, and unsuitable materials shall be shown on the applicable plans.

(10) Erosion, siltation, and dust shall be controlled during earth removal through measures including temporary slope stabilization, installation of ground covers, seeding if required by the Director, and street sweeping of adjacent public and private ways.

(11) Devices to muffle equipment noise, landscape earth berms, screen planting, decorative screen walls or other barriers or devices shall be installed as necessary to achieve compliance with Devens Industrial Performance Standards.

(12) Reclamation Standards for Earth Removal. Within three months after the completion of the work, the Applicant shall restore the area affected; said area shall be covered with vegetation suitable to prevent erosion and with soils suitable to sustain such vegetation, except for exposed rock ledge.

(a) No area shall be left in such a condition that erosion of the area after completion of the work may result in water pollution by silt or other deleterious substances.

(b) The area shall be left in such shape and condition that material will not wash, block or obstruct drainage ways.

(c) Unless the area is intended to serve as an approved pond for recreation or other purposes, the area shall be left as free draining as practicable.

(d) The topography of the land shall be left so that water draining from the site leaves the property at the original, natural drainage points and in the natural proportions of flow.

(e) Unless otherwise allowed in writing by the Director, all disturbed areas not developed shall be spread with original topsoil or strippings, if any, to a minimum four-inch depth, and reseeded. Trees shall be planted in compliance with 974 CMR 3.00: *Site Plan*.

(13) The removal of soil, loam, sand, gravel or any other mineral substances within four feet of the high groundwater table elevation (as determined by test pits, monitoring wells, or other methods acceptable to the DEC) is not permitted, unless the substances removed are re-deposited within 45 days of removal on-site to achieve a final grading greater than four feet above the seasonal high water mark, except for excavations for the construction of building foundations or the installation of utility works, or wetland restoration work conducted in accordance with a valid Order of Conditions issued pursuant to M.G.L. c. 131, § 40.

4.08: Stormwater Management

(1) Objectives.

(a) To replicate natural conditions of infiltration, evapotranspiration, and runoff. In typical natural conditions, approximately 50% of stormwater infiltrates, 40% leaves land through evapotranspiration, and 10% leaves the land as runoff.

(b) To promote decentralized stormwater management systems modeled after natural hydrologic features and infiltration practices that facilitate local groundwater recharge [Low-Impact Development (LID) techniques].

(c) To promote water conservation and efficiency through stormwater capture, treatment and reuse.

(2) General Provisions.

(a) The stormwater design standards and criteria shall apply to all projects under DEC review.

(b) All Applications, regardless of whether the project is subject to the Wetlands Protection Act or not, shall design the stormwater management system in compliance with the *Massachusetts DEP Stormwater Management Standards*, January, 2008, (SMS) and the *Massachusetts Stormwater Handbook*, February 2008, (Handbook). The Applicant shall submit a completed and endorsed Stormwater Management Form that indicates compliance with the SMS, in addition to any supporting calculations indicating compliance with the required standards – http://www.mass.gov/dep/water/laws/policies.htm#storm.

(c) Stormwater management systems shall comply with the following:

1. The Handbook which includes the SMS, Stormwater Best Management Practices, Documenting Compliance, Stormwater Report Checklist and TSS Removal Calculation Sheet.

4.08: continued

2. Devens Stormwater Pollution Prevention Plan (Stormwater Plan).
3. Devens Water Resources Protection Report.
4. The Design Standards and Criteria outlined in 974 CMR 4.08(3).

(d) Where there is a conflict between the requirements set forth below and the Handbook and/or Plan, the Plan and the requirements in 974 CMR 4.08(2)(c)1. through 4. shall govern.

1. There shall be no negative impact from stormwater runoff on abutting properties and to any public or private water supply or designated potential future supply.

2. Irrigation water shall be derived from detained treated stormwater (stormwater harvesting), or roof drainage to the maximum extent feasible. On-site cisterns may be installed to store water for irrigation.

3. For all stormwater improvements, drainage calculations shall be prepared by the Applicant's Engineer in accordance with the SMS requirements and shall include design criteria, pre- and post-development drainage areas, and other information to verify the size and effectiveness of the proposed stormwater management technique. "Pre-development" drainage areas shall be considered to be "green fields", regardless of any development or improvements on the site at the time of application. Calculations shall be made separately for each drainage facility, showing its location, the total upstream drainage area, the underlying soil types and the flow paths for the times of concentration, the design runoff, facility size, slope, and capacity and velocity of water through all the site drainage system.

4. Proposed activity that will temporarily or permanently disturb any land area at or below the elevation of the 100-year floodplain shall be avoided to the maximum extent feasible, unless there are exceptional circumstances where such areas cannot be avoided. Under such circumstances, the Applicant shall demonstrate, to the satisfaction of the DEC, that there shall be no temporary or permanent loss of flood storage area. For any areas within the 100-year floodplain where the DEC authorizes disturbance, temporary stabilization measures shall be implemented at all times, until permanent stabilization is achieved. No construction laydown areas or equipment shall be stored within the 100-year floodplain without emergency removal/relocation measures in place and approved by the DEC.

5. Recharge may not be required for land designated as an Area of Concern, if, according to the Base Closure Team in accordance with Base Realignment and Closure Act requirements, recharge will negatively impact ongoing environmental remediation.

6. All projects, including flood management and culvert replacement projects, shall incorporate LID techniques for stormwater management to the maximum extent feasible. For projects proposing traditional closed drainage systems, the Applicant shall demonstrate to the satisfaction of the DEC why LID stormwater management design methods are not feasible. For LID stormwater controls not referenced in 974 CMR 4.08 or the Handbook, or for which pollutant removal rates have not been provided, the effectiveness and pollutant removal of the structural control must be documented through prior studies, literature reviews, or other means and a stormwater management system.

In addition to LID controls outlined in this section (974 CMR 4.08) or the Handbook, flood management and culvert replacement projects shall assess, and to the maximum extent feasible implement, stream daylighting[1] and improved channel connectivity[2].

(3) Design Standards and Criteria. All stormwater management systems shall meet the following:

(a) Biofiltration basins shall be the preferred method to reduce curbing, piping and structures and provide additional overland treatment and recharge. They shall be designed in accordance with the Handbook, in addition to the following:

1. Any low-flow outlets shall be designed to prevent clogging.

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[1] "Stream daylighting" means the practice of exposing some or all of a previously buried river, stream, and/or stormwater drainage and restoring the watercourse to a more natural condition.

[2] "Channel connectivity" means the degree to which hydrologic components of a river system or watershed are joined, or connected, by various transport mechanisms including streams, non-tidal wetlands, riparian buffers, or underground aquifers.

4.08: continued

2. For bioretention cells, abutting pavement, that are designed to capture sheet flow, the edge of pavement shall be reinforced to ensure the integrity of pavement is maintained (curb stops, stone, turf, landscape timbers, plantings or other acceptable methods or combination thereof.)

(b) All projects shall manage all stormwater on-site, unless granted an exemption by the DEC that this requirement is not feasible.

1. If a project is granted an exemption under 974 CMR 4.08(3)(b), all stormwater runoff from the site must satisfy the requirements of 974 CMR 3.04(4)(b) before being discharged to the Devens Municipal Separate Storm Sewer System (MS4).

2. If a project is granted an exemption in accordance with 974 CMR 4.08(3)(b)1., the developer of the project shall propose a Mitigation Project to be implemented as a component of project approval, and the DEC will publicize the project's annual Total Suspended Solids (TSS) removal worksheets on the DEC's website. A "mitigation project" shall mean an infrastructure project designed to mitigate adverse water quality impacts from a previously completed project, or from an area which has no stormwater treatment and management facilities, by improving the quality of stormwater runoff on-site or at an off-site location.

(c) In addition to compliance with the SMS, the postdevelopment peak rate of stormwater discharge off-site shall not be greater than the predevelopment peak rate of stormwater discharge for the 2, 10, 25, 50 and 100-year storm events from any point of discharge on the site. In accordance with 974 CMR 4.08(2)(d)3., predevelopment peak rate calculations shall reflect the "green field" site condition, regardless of any existing development or impervious coverage on the site at the time of application.

(d) There shall be no stormwater structures and/or point source discharges within 25 feet of the boundaries of any Resource Area, unless the Applicant can demonstrate no adverse impact to the Resource Area.

(e) Side slopes above the design water level shall be 3:1 (horizontal to vertical) or flatter and conform to the slope of the existing topography without abrupt or unnatural breaks in slope, unless otherwise permitted under 974 CMR 4.08(4).

(f) Banks of wet ponds, swales not within maintained landscaped areas (such as lawns or parking lots), and other channels shall be vegetated with native woody plant material within ten feet of the high water elevation and with herbaceous plant material at the edge of the pond at the high water elevation. Trees shall not be planted on fill embankments.

(g) Shelves below the design water level (as described in the Stormwater Plan) shall be vegetated with hydrophytic native plant species at a density needed to establish full coverage by the next growing season. Plant plugs or pre-vegetated coir-mesh blankets or carpets are recommended materials.

(h) Recommended post-construction erosion control methods include geotextile and /or biodegradable erosion control fabrics staked or anchored to the slope, with loose weave to allow vegetative cover to be established. Vegetative cover shall consist of native woody plant species installed as live brush or nursery stock, or native grasses.

(i) Stormwater management systems shall be designed to meet an average annual pollutant removal equivalent to 90% of the average annual load of Total Suspended Solids (TSS) related to the total post-construction impervious area on the site AND 60% of the average annual load of Total Phosphorus (TP) related to the total post-construction area on the site[3].

1. Average annual pollutant removal requirements in 974 CMR 4.08(3)(h) are achieved through one of the following methods:

a. Installing BMPs that meet the pollutant removal percentages developed consistent with EPA Region 1's BMP Accounting and Tracking Tool (2016) or other BMP performance evaluation tool provided by EPA Region 1, where available. If EPA Region 1 tools do not address the planned or installed BMP performance, then any federally or State-approved design guidance or performance standards (*e.g.* the Handbook) may be used to calculate BMP Performance;

b. Retaining the volume of runoff equivalent to, or greater than, one inch multiplied by the total post-construction impervious surface on the development site;

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[3] Pollutant removal is calculated based on average annual loading and not on the basis of any individual storm event.

4.08: continued

c. Meeting a combination of retention and treatment that achieves the above standards; or

d. Utilizing off-site mitigation in accordance with 974 CMR 4.08(3)(b) that meets the above standards within the same USGS HUC12 as the development site.

2. Maintenance and redevelopment activities related to existing roads, including repaving, drainage infrastructure improvements, adding shoulder, or correcting intersections shall be exempt from other requirements in this part. Projects of this nature should consider options to improve any existing conditions by incorporating LID techniques or other stormwater best management practices and include in the construction permit application process a narrative describing that investigation's conclusions and chosen results when possible. Any road construction that increases the impervious surface by more than a single lane width will not be covered under this exemption and shall be subject to all requirements in 974 CMR 4.08.(3)(h).

(j) To support compliance with the MS4 Permit, all BMPs must be optimized for the removal of phosphorus. The justification and design of such BMPs must also include a methodology for assessing BMP performance. Pollutant removal shall be consistent with EPA Region 1's evaluation tool.

(4) Design Standards and Criteria for Detention/Retention/Recharge Basins. The design of stormwater and infiltration basins and associated structures shall:

(a) Minimize basin size to 5,000 square feet per basin or less (by using smaller catchment areas and/or alternative stormwater management design methods) and minimize disturbance to natural or reestablished vegetated areas to the maximum extent feasible. If a basin exceeds 5,000 square feet, the Applicant shall demonstrate to the satisfaction of the DEC why a smaller size is not feasible. If a basin is a constructed stormwater wetland, it may exceed 5,000 square feet upon approval by the DEC. Constructed stormwater wetlands shall be designed in compliance with the SMS.

(b) Be located in naturally occurring low spots. Layout of the basins shall complement the natural topographic movement of the site [*see* 974 CMR 3.08(4): *Figure D*] Rigid basin layout [*see* 974 CMR 3.08(5): *Figure E*] shall be avoided in all instances, unless the basin's layout complements the overall design concept of the Site Plan.

(c) Utilize banks steeper than 3:1 (horizontal to vertical) only to tie into headwall/outfall structures. Banks steeper than 3:1 shall transition to slopes of less than 3:1 as quickly as possible to minimize areas of potential erosion. Specific post-construction erosion control methods shall be detailed to ensure temporary and permanent stabilization of such areas will be achieved. Rip-rap/trap rock solutions shall not be acceptable, except as water dissipaters below storm water outfalls or as channel liners for steep swales.

(d) Have an emergency outlet to accommodate storm flows in excess of the 100-year storm event. A minimum one foot freeboard distance shall be established between the 100-year flood elevation and the top of embankment.

(e) Design basins/infiltration structures using the Natural Resource Conservation Service TR-20 methodology in accordance with the SMS.

(f) Locate the floor of all basins/infiltration structure/swales a minimum of four feet above the high groundwater elevation. High groundwater testing shall be conducted before the basin design at the proposed location of each basin in compliance with 310 CMR 15.103: *Soil Profile*), or reliable data pursuant thereto shall be provided.

(g) Conduct a falling head soil permeability test in retention/infiltration basins before the basin design in all basins and infiltration structures. Soil with a percolation rate of two minutes per inch or faster can be used to confirm the first NRCS Hydrologic Soil Group A with a Texture Class of Sand and an infiltration rate of 8.27 inches per hour from the Rawls, *et.al*. table in the SMS. To use infiltration rates faster than 8.27 inches per hour, use 50% of the infiltration rate obtained from the falling head soil permeability test.

(h) Conduct percolation tests in detention basins before the basin design and shall be conducted in compliance with 310 CMR 15.105.

(i) Include fencing and/or screening of stormwater detention/retention basins if the DEC determines that safety or appearance require such measures.

4.08: continued

(5) Design Standards and Criteria for Certain Structural LID Techniques.

(a) Vegetated Roofs. Shall comply with the Handbook and the *DEC Policy for Construction of Vegetated Roofs* dated August 2011.

1. For the purposes of stormwater management system design, the area of roof covered by vegetation may be considered pervious and subtracted from the total proposed impervious area.
2. Vegetated Roofs within the Viewshed Overlay district shall comply with 974 CMR 3.04(8)(i)5. and 6.
3. Landscaping plans for projects incorporating vegetated roofs and/or walls shall show the design and location of vegetated roofs and walls.

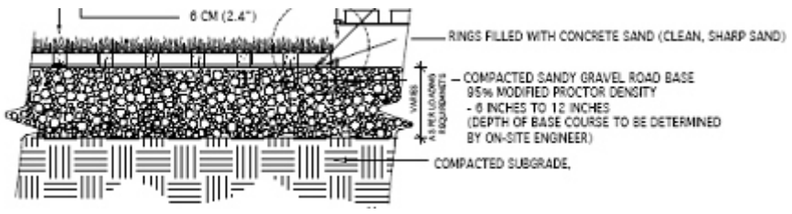
(b) Permeable Paving (Porous Asphalt, Paving Stones and Pervious Concrete). May be used where the underlying soils have a permeability of at least 0.3" per hour, but shall not be used on high-traffic/high speed areas or on stormwater "hotspots" with high pollutant loads. Permeable paving shall meet the SMS specifications (or alternatives approved by the DEC), in addition to the following:

1. Lined on the sides with a nonwoven geotextile fabric to prevent influx of fines (no liner on bottom).
2. A gravel trench surrounding the edge of the pavement connecting to the stone reservoir below the surface of the pavement may be required as a backup in the event of surface clogs.
3. Installed by a qualified contractor with experience in permeable paving installation.
4. Specification layer depths required by the SMS may be increased based on volume storage requirements

(c) Additional Requirements for Pervious Concrete.

1. Top Layer: six inches of pervious concrete placed in two three-inch courses.
2. Second Layer: four-inch course consisting of 1⅓" crushed stone (structural support).
3. Third Layer: 14 inches of open graded "bank run gravel" (Reservoir base).
4. Fourth Layer: six inches of ⅜" crushed gravel (Capillary barrier).

(d) Reinforced Turf Parking/Emergency Access. May be constructed where the underlying soils have a permeability of at least 0.3" per hour, but shall not be used on high-traffic/high-speed area or on stormwater "hotspots" with high pollutant loads. Turf parking shall be designed to meet the SMS and the following specifications:



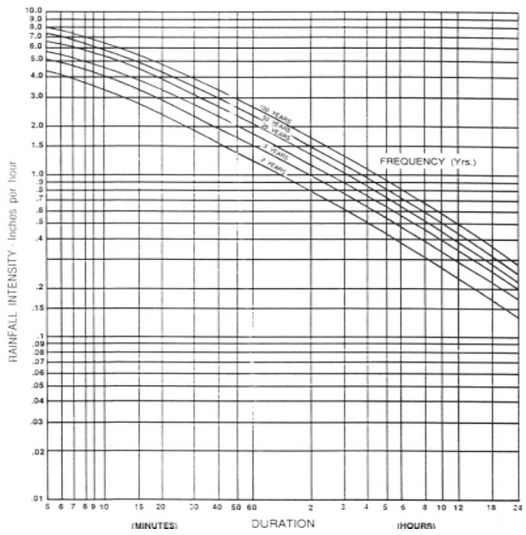
* Alternative comparable reinforcement methods will be considered by the DEC on a case-by-case basis.

(6) Closed Drainage Systems.

(a) LID swale systems shall be utilized in parking lots not subject to truck traffic, truck and container storage, and other railroad related vehicles/equipment, to the maximum extent feasible.

(b) Closed Drainage Systems (CDS) and swales shall be designed to accommodate the 25-year storm event based on the Rational Method without surcharging. The CDS shall be designed in accordance with the SMS. Intensity/duration/frequency curves for the Worcester area, as presented in *Technical Paper 40 of the National Weather Service,* and the *Massachusetts Hydrology Handbook for Conservation Commissioners*, March 2002, shall be used in the drainage design calculations. The minimum time of concentration shall be five minutes.

4.08: continued



Intensity - Duration - Frequency Curve
for Worcester, MA

(c) All drainage structures shall be constructed of precast concrete.
(d) Catch basins shall have oil traps and provide a four-foot sump.
(e) Details for all drainage structures shall be provided.
(f) Flow capacities shall be calculated, using two feet per second (fps) minimum velocity and ten fps maximum velocity under a two-to-25-year design storm event. The designer shall account for partial pipe flow capacities, if applicable to the design.
(g) Catch basin to catch basin connections are prohibited in paved areas.
(h) Subsurface infiltration systems are considered closed drainage systems and shall at a minimum meet an 80% TSS removal rate prior to infiltration to reduce maintenance and potential for system failure and replacement.

(7) Monitoring and Maintenance of Stormwater Facilities. An Operation and Maintenance Plan (O&M Plan) for stormwater management systems is required at the time of application for all projects. The O&M Plan shall be designed to ensure compliance with 314 CMR 4.00: *Massachusetts Surface Water Quality Standards*, the Stormwater Plan and the DEC annual stormwater reporting form requirements. The O&M Plan shall be shown on the site plan(s) and shall include at a minimum the following:

(a) The name(s) of the owner(s) for all components of the system.
(b) A statement that the Applicant is responsible for the operation and maintenance of the entire on-site system, including emergency repairs.
(c) If applicable, a statement providing stormwater management easements to the DEC as necessary for access for facility inspections and maintenance, and preservation of stormwater runoff conveyance, infiltration, and detention areas and facilities, including flood routes for the 100-year storm event. The purpose of each easement shall be specified in the maintenance agreement signed by the property owner.
(d) An O&M Inspection and Maintenance Schedule which shall include:
1. Parking Lot Sweeping: with mechanized cleaning equipment on an annual basis.
2. Catch Basin Cleaning: Catch Basins and Infiltration Chambers shall be inspected on a bi-annual basis. Any sediment accumulations in excess of half of the unit's sump depth shall be removed. Material shall be removed by a licensed contractor, who shall be responsible for disposing of the material off-site in a manner consistent with all local, state and federal regulations.
3. Infiltration Swales: Ensure proper establishment of full vegetative cover. Swale embankments and side slopes must be properly maintained to ensure long-term stability. Annual and seasonal inspections are required to ensure a healthy groundcover is maintained to avoid erosion and promote infiltration. Bare spots shall be repaired and planted with native ground cover material. Saplings and large shrubs shall be removed to maintain integrity of the swale. Level spreader shall be inspected seasonally to remove any buildup of sediment and ensure proper drainage flows.

4.08: continued

4. Detention/Retention Basin Inspection and Maintenance: Wet and dry basins shall be inspected annually to ensure inlets and outlets remain unobstructed. Inlets and outlets and forebays shall also be inspected for potential sediment, erosion, cracking, tree growth, damage to the emergency spillway and erosion within the basin and on within the banks. Upper side slopes, embankment and emergency spillway shall be mowed annually. Any tree saplings shall be removed. Accumulated sediment shall be removed as necessary and at least once every ten years. Bare spots shall be repaired and planted with native ground cover material.

5. Biofiltration Systems: Quarterly inspections for accumulated sediment shall be performed. Debris, sediment accumulation, erosion shall be removed/repaired at least twice a year. Any dead or damaged plantings shall be replaced. All invasive species shall be removed on an annual basis. Re-mulch any void areas by hand. Native grasses and plants shall be maintained by hand without the use of fertilizers and limited use of organic herbicides. Trimming of surrounding grasses shall be restricted to a minimum of five inches. When cation exchange capacity of soil media decreases, the soil media shall be replaced to prevent contaminants from reaching the groundwater.

6. Sediment Trap/Oil-water Separator: Shall be inspected annually for sediment and debris accumulation. Any sediment accumulations in excess of half of the unit's sump depth shall be removed. Material shall be removed by a licensed contractor, who shall be responsible for disposing of the material off-site in a manner consistent with all regulations.

7. Sub-surface Infiltration Systems: Shall be inspected annually for proper function and sediment accumulation. Accumulations of sediment and/or materials that negatively impact the infiltration capacity of the system shall be removed.

8. Constructed Stormwater Wetlands: In the first three years after construction, Applicants shall inspect the constructed stormwater wetlands twice a year during both the growing and non-growing seasons. After three years such inspections shall occur on a periodic basis. During these inspections, the following information shall be recorded:

a. The types and distribution of the dominant wetland plants in the marsh;

b. The presence and distribution of planted wetland species;

c. The presence and distribution of invasive wetland species (invasives shall be removed);

d. Indications that other species are replacing the planted wetland species;

e. Percentage of standing water that is unvegetated (excluding the deep water cells which are not suitable for emergent plant growth);

f. The maximum elevation and the vegetative condition in this zone, if the design elevation of the normal pool is being maintained for wetlands with extended zones;

g. Stability of the original depth zones and the micro-topographic features; and

h. Accumulation of sediment in the forebay and micropool; and survival rate of plants (cells with dead plants must be replanted). Sediment forebays must be cleaned annually.

(e) Applicants shall submit annual stormwater monitoring and maintenance reports to the DEC addressing inspection and maintenance of the BMPs. The reports shall include:

1. Descriptions of the condition of the BMPs;
2. Descriptions of maintenance performed; and
3. Receipts for maintenance performed.

For ease of reporting, the DEC and MassDevelopment have created standard annual reporting templates for use by all Applicants. Failure to submit the required annual report is a violation of the Unified Permit.

(f) The O&M Plan must be signed by the owner and must include a provision that the transfer of responsibilities is understood by future owners.

4.09: Water Resource Protection Overlay Districts (WRPs)

(1) Purpose.

(a) To protect the ground and surface water resources in Devens and abutting communities in order promote health, safety and general welfare;

(b) To promote statewide goals for surface water quality in the Nashua River Basin; and

(c) To prevent the temporary or permanent contamination of soils, surface water, and ground water on Devens.

NON-TEXT PAGE

4.09: continued

(2) General Requirements. Projects located in the WRPs shall utilize those BMPs most appropriate to the site conditions, with consideration given to the level of protection needed in the particular WRP. Provision of appropriate BMPs will further the goals of pollutant reduction of total suspended solids, petroleum hydrocarbons, lead, zinc, copper, and total nitrogen and other non-point source pollution. The BMPs and other protective measures for each WRP increase progressively from the Watershed WRP, to the Aquifer WRP, to the Zone II WRP. The Zone II Requirements include those for the Watershed and Aquifer WRP, while the Aquifer WRP includes the Watershed WRP Requirements:

(a) Watershed WRP Requirements:

1. All projects in the Watershed WRP shall comply with the By-laws (Article XI), the SMS, the Devens Water Resources Protection Report, November 1994 and the Stormwater Plan, including, but not limited to Water Conservation Measures, Storage and Application of Deicing Materials, Transportation of Hazardous Materials and Waste, Hazardous Waste and Materials, Storage Tanks, Radioactive Materials and Medical/Research Wastes.

2. Water conserving plumbing fixtures (EPA Water Sense labeled or equivalent) shall be utilized for all projects to the maximum extent feasible. Such fixtures shall meet the Massachusetts Plumbing Code (248 CMR).

3. Facilities that store or propose aboveground storage of oil in quantities greater than 1,320 gallons, and/or in any container greater than 660 gallons in capacity, and/or underground storage of oil greater than 42,000 gallons, are regulated under 40 CFR 112 and are required to develop a site-specific Spill Pollution Prevention Control and Countermeasure Plan (SPCC) that meets the requirements of 40 CFR 112 and the Devens Master SPCC Plan, dated February 27, 2001 http://www.devensec.com/forms/spill_prevention_report. pdf. Devens also has a Comprehensive Emergency Management (CEM) Plan to address preparedness, response, mitigation and recovery for man-caused emergency situations and natural disasters. Within the CEM Plan is a Hazardous Materials Emergency Plan. SPCCs shall be consistent with the CEM Plan and Hazardous Materials Emergency Plan. Facilities that are regulated under 40 CFR 112 may also be subject to the Facility Response Plan requirements set forth in, 40 CFR 112.20.

4. Pesticide applications shall not be used unless there are no other means of controlling pests. Organic fertilizers shall be used in place of chemical applications to the maximum extent feasible. Projects that propose pesticide applications on more than one acre of land shall prepare an Integrated Pest Management (IPM) Plan in accordance with the Massachusetts Department of Food and Agriculture Pesticide Bureau IPM Kit for Building Managers http://www.mass.gov/agr/pesticides/publications/docs/IPM_kit_for_bldg_mgrs.pdf. Such plan shall be submitted to the DEC as part of a Unified Permit Application. Fertilizer and pesticide application amounts shall be based on soil testing. Blanket fertilizer and pesticide applications shall be prohibited.

5. The use of motorized off-road recreational vehicles shall be prohibited within the DREZ.

6. Any facility subject to 310 CMR 30.660: *Groundwater Protection* that receives Hazardous Waste after July 26, 1982 shall monitor for specific constituents, in accordance with 310 CMR 30.662: *Required Programs*.

(b) Aquifer WRP Requirements. In addition to compliance with the Watershed WRP requirements, projects in the Aquifer WRP shall:

1. Provide a Hazardous Material Spill Response Plan that lists methods for the interception and isolation of potential spills of hazardous materials for review and approval by the DEC as part of a Unified Permit Application. Clean-up of spills shall be completed in accordance with the Hazardous Material Spill Response Plan or as specified in the Devens Spill Prevention Control and Countermeasure Plan.

2. Include a list of all Hazardous Materials proposed to be used on-site (type, quantity, location and method of storage).

4.09: continued

3. Maintain the high level of water quality at Devens and within the Aquifer WRP. A Groundwater Quality Monitoring Plan (GWQMP) shall be developed for industrial projects and/or uses involving the handling, treatment, storage, or generation of hazardous waste as defined under 310 CMR 30.000: *Hazardous Waste* in excess of those quantities allowed for a Very Small Quantity Generator. The GWQMP shall be prepared by a Licensed Site Professional, Professional Engineer or Certified Professional Geologist or Hydrogeologist experienced in groundwater flow and contaminant fate and transport and comply with 310 CMR 30.663: *General Groundwater Monitoring Requirements*. The GWQMP shall include the following information as a minimum:

a. The overall hydrogeological profile of the project site and the area in general;

b. The groundwater flow direction and elevations through the areas of disturbance within the project site;

c. Location of up-and down-gradient monitoring wells;

d. Sampling objectives;

e. Sampling collection and analysis summary;

f. Chain of custody and quality control/quality assurance procedures for testing;

g. Sampling frequency; and

h. Pollutant-testing parameters and methods of testing. Pollutant-testing parameters in accordance with 310 CMR 30.664: *Detection Monitoring Program* and shall include as a minimum, EPA Priority Pollutants, total petroleum hydrocarbons (as required by ASTM D3328-78), metals (lead, zinc, copper), oil and grease, pH, and other pollutants consistent with the activities associated with the proposed use required to ensure that the development will not degrade water quality as determined by State and Federal drinking water quality standards.

i. Monitoring well drilling details in accordance with the MA DEP Standard References for Monitoring Wells, Part I (DEP Publication#WSC-310-91)

j. Compliance monitoring program in accordance with 310 CMR 30.671: *Compliance Monitoring Program*.

4. Ensure post-development volume of discharge shall not exceed the pre-development volume of discharge for the two and ten year storm events as required by the SMS. Stormwater recharge shall maintain or exceed pre-developed levels of recharge for the two year storm event. In the absence of hydrogeologic analysis, stormwater systems that have been designed to recharge for the two-year storm event will be presumed to have met this criterion. If the site geology is unsuitable (for example, glacial till), the Applicant shall consider other stormwater infiltration BMP's to meet this requirement. If none prove feasible, this requirement may be waived by the DEC, based on provision of sufficient data by the Applicant.

(c) Zone II WRP Requirements. In addition to compliance with the Watershed WRP and Aquifer WRP Requirements, projects located in the Zone II WRP shall also comply with the following:

1. Utilize BMP's to comply with the SMS requirements for total suspended solids, petroleum hydrocarbons, lead, zinc, copper and nitrogen removal rates from runoff prior to groundwater recharging and/or stormwater discharging from the site. Water quality evaluations shall be based on a two-year storm event. Biofiltration systems for stormwater pollution mitigation are required to the maximum extent feasible.

2. All projects that propose to utilize Hazardous Materials totaling 50 gallons liquid volume or 25 pounds dry weight or more in a calendar year shall register with the Devens Fire Department as required by 974 CMR 4.09(5).

3. Treatment or disposal works for wastewater (other than sanitary sewage) subject to 314 CMR 5.00 are prohibited. This includes, but is not limited to, treatment or disposal works related to activities under the Standard Industrial Classification (SIC) Codes set forth in 310 CMR 15.004(6) (Title 5), except the following:

a. the replacement or repair of an existing system(s) that will not result in a design capacity greater than the design capacity of the existing system(s); and

b. treatment works approved by the MA DEP designed for the treatment of contaminated ground or surface waters and operated in compliance with 314 CMR 5.05(3) or (13); and

c. publicly owned treatment works,

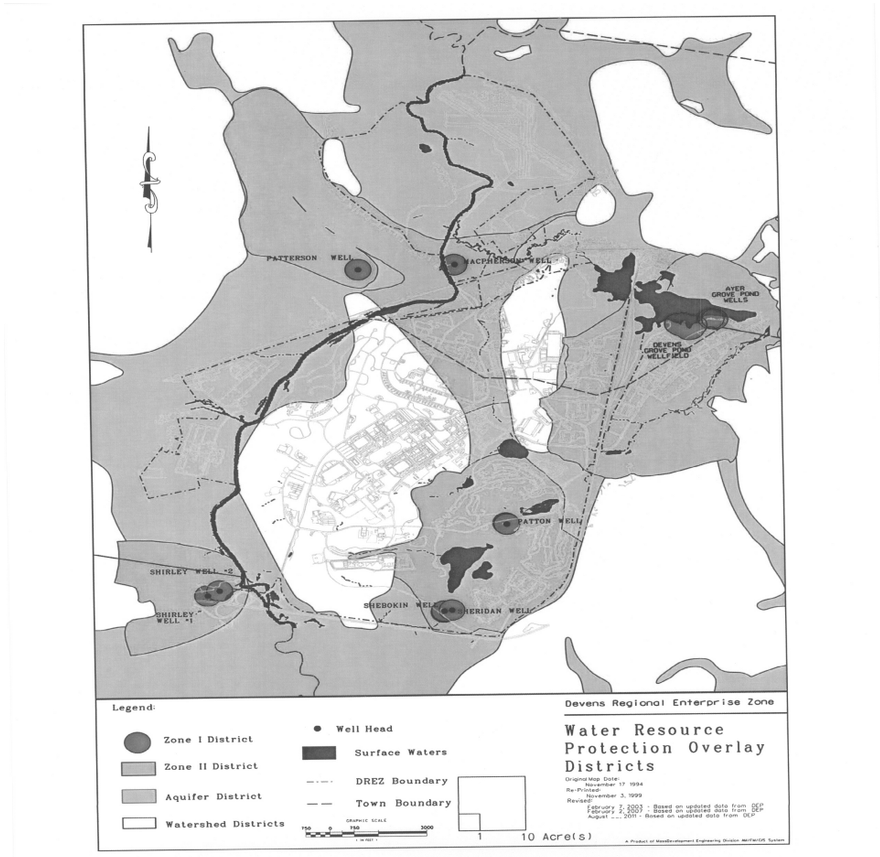
4. Commercial fertilizer storage and animal manure storage is prohibited unless such storage is within a structure designed to prevent the generation and escape of contaminated runoff and leachate.

4.09: continued

5. Storage of sludge and septage, as defined in 310 CMR 32.05: *Definitions*, is prohibited unless such storage is in compliance with 310 CMR 32.30: *Requirements for Any Storage of Sludge or Septage* and 32.31: *Additional Requirements for Long-Term Storage of Sludge or Septage*.

(3) WRP Map. Zone II, Aquifer and Watershed WRP boundaries are shown on the map entitled: *Devens Regional Enterprise Zone Water Resources Protection Overlay Districts*. Prepared by MassDevelopment Engineering Division, in consultation with the DEC and the MA DEP, dated November 17, 1994. (974 CMR 4.09: *Figure 1*).

Figure 1: Water Resource Protection Overlay Districts Map



(4) Redefinition/Redelineation of WRP District Boundaries. If the location of the district boundary in relation to a particular parcel is in doubt, resolution of boundary disputes shall be through the DEC. The burden of proof shall be upon the Applicant to show in which WRP the land should be located. The Applicant shall submit documentation certified by an Engineer, hydrologist, geologist, or soil scientist (as appropriate) to demonstrate more accurately the boundaries of the district with respect to the Applicant's land. This analysis shall include testing as needed to demonstrate the correct classification of the land in question.

(5) Control of Hazardous Waste and Materials in WRP's.

(a) Applicability: The requirements in 974 CMR 4.09(5)(b) apply to hazardous material which is defined for purposes of 974 CMR 4.09(4) as a product, waste or combination of substances which because of its quantity, concentration, or physical, chemical, toxic, radioactive or infectious characteristics may reasonably pose a significant, actual, or potential hazard to human health, safety, welfare, or the environment when improperly treated, stored, transported, used, disposed of, or otherwise managed. Hazardous materials include, without limitation, synthetic organic chemicals, petroleum products, heavy metals, radioactive or infectious materials, and all substances defined as "toxic" or "hazardous" under M.G.L. chs. 21C and 21E using the Massachusetts Oil and Hazardous Material List (310 CMR 30.000: *Hazardous Waste* and 310 CMR 40.000: *Massachusetts Contingency Plan*).

(b) Hazardous Material Requirements and Restrictions in WRP's: Unless otherwise stated, the following requirements and restrictions apply to all WRP's:

4.09: continued

1. Other than that which is allowed by state or federal laws, regulations, and/or permits, the discharge of hazardous materials within any WRP is prohibited. This prohibition includes, but is not limited to, discharges of hazardous materials to exposed and unsaturated soils; wetlands; surface water resources; ground water; sanitary sewers; storm drains; floor drains and sinks which discharge to the environment; and septic systems.

2. The sale and/or use of septic system additives or cleaners not specifically allowed by MA DEP (310 CMR 15.027: *Prohibition of Septic System Additives* and 15.028: *Soil Absorption System Restoration*) is prohibited.

3. Aboveground storage of hazardous materials shall be in product-tight containers, in an orderly manner, with wastes stored separately from unused materials, and on an impervious surface. Outdoor storage shall be designed to contain spills of not less than 110% of the volume stored and prevent any flow of product to exposed soils or outside drains, and shall be protected from the elements, accidental damage, and vandalism. Indoor storage shall be designed (via a berm or other means of secondary containment) to prevent any flow of product to exposed soils, floor drains, or outside drains. All storage shall be in accordance with 527 CMR 9.00: *Tanks and Containers*.

4. All Hazardous material storage areas shall be clearly delineated and signs shall be posted noting the dedicated nature of the area. Containers of all non-waste hazardous materials shall be labeled with the name of the product or chemical, a listing of the physical and health hazards associated with it, and target organ effects from exposure. Containers of hazardous wastes shall also be labeled as a "Hazardous Waste," with the name of the waste (*e.g.*, "Waste Oil"), Hazardous Waste Generator ID#, and the date the container began accumulating waste also being noted on the container.

5. The installation of new underground storage containers for Hazardous materials other than for chemicals used in the treatment of a public drinking water source is prohibited in all Zone II WRPs.

(c) Registration of Hazardous Materials in WRPs.

1. Every owner or operator of a facility (including municipal, state and federal) which uses hazardous materials totaling 50 gallons liquid volume or 25 pounds dry weight or more in a calendar year and which is located within a Zone II WRP shall register with the Devens Fire Department on or before March 1, 2002 and every three years thereafter. A registration fee shall be paid to the Devens Fire Department at the time of registration and/or renewal.

2. Existing and future underground storage tanks for Hazardous materials shall be registered with the Devens Fire Department in accordance with the requirements of 310 CMR 40.000: *Massachusetts Contingency Plan*. Any underground heating oil storage tank which does not meet the standards in 527 CMR for new and replacement tanks and is 15 years or older and is located within a Zone II WRP shall be removed and replaced or upgraded, to meet current standards, within five years from December 9, 2011, or sooner if directed by the Devens Fire Department. Registration requirements shall be established by the Devens Fire Department in accord with 310 CMR 30.00: *Hazardous Waste* and 310 CMR 40.00: *Massachusetts Contingency Plan*.

3. Updating of Registration:

a. If, during or after the registration period, a change in ownership and/or occupancy of a business occurs, an updated registration shall be submitted to the Devens Fire Department within 30 days of the change. Registration is not transferable between past and future owners of a business and/or occupants of a facility.

b. If any of the following activities occur during or after the registration period, the corresponding information in the business registration package shall be highlighted and corrected at the time of registration renewal:

i. remodeling, operating changes, or expansion of an existing facility which would modify the type or quantity of hazardous materials managed;

ii. changes in the location or method of use, storage, manufacture or handling of hazardous materials in any facility; and/or

iii. addition of new hazardous materials meeting the threshold quantity listed above which are not anticipated in the registration.

4. Facility Closure. In the event that a facility permanently ceases operations during its registration period, the owner or operator of the facility shall notify the Devens Fire Department in writing at least 30 days before the closure.

4.09: continued

(d) Exclusions. The following materials, activities, and facilities are not within the scope of 974 CMR 4.00:

1. Household waste including garbage, trash, and domestic sanitary sewage.
2. Wastes generated from the growing of agricultural crops and the raising of animals, including manure which is returned to the soil as fertilizer.
3. The labeling of hazardous materials which are or will be exposed for sale at retail establishments.
4. Treatment, Storage, and Disposal Facilities as defined by 310 CMR 30.000: *Hazardous Waste*.
5. Large Quantity Generators of hazardous wastes as defined by 310 CMR 30.000: *Hazardous Waste*.
6. Facilities that file Tier II reports as defined by SARA Title III.

(e) Emergencies.

1. Notification. In case of a spill and/or loss of hazardous material at or above the "reportable quantity," [as defined in 310 CMR 40.000: *Massachusetts Contingency Plan*] the owner/operator must report the spill or loss to the Devens Fire Department and MA DEP's Emergency Response Section within two hours of the incident in accordance with 310 CMR 40.0000: *Massachusetts Contingency Plan*.
2. Planning. The following precautions shall be taken by all facilities subject to the registration and reporting requirements set forth in 974 CMR 4.09(5)(e)1.:
   a. A map of the facility layout showing Hazardous Material storage areas and all means of egress, along with any additional details as specified by the Devens Fire Department shall be posted at one or more on-site locations. The posting location(s) shall be specified during registration.
   b. Materials Safety Data Sheets shall be kept on file at all times at an on-site location, and must be readily available during routine inspections and in the event of an emergency.
   c. Facilities shall provide adequate and reasonable employee training programs to ensure the proper use, storage, transportation and handling of hazardous materials.
   d. Facilities shall provide emergency spill containment kits on site and in accessible areas and all employees shall be trained in their use.

(6) Storage of Fuel, Combustible and Flammable Liquids, as Defined by 42 U.S.C. §§ 6901 through 6922i, M.G.L. c. 148, and 527 CMR 9.00: *Tanks and Containers*.

(a) Storage of flammable, combustible and explosive material shall be in accordance with the DEC Licensing and Registering the Storage of Flammables, Combustibles and Explosives Requirements, Policies and Procedures. A license for the storage of flammable or combustible fluids in quantities in excess of those allowed under 527 CMR 14.03: *Storage* shall be obtained from the DEC.

(b) In accordance with 527 CMR 6.08(b), propane gas stored in excess of 2,000 gal. also requires a license. Storage of Explosives may also require a license in accordance with 527 CMR 13.00: *Explosives*.

(c) All license applications are subject to a Level 2 Review under 974 CMR 1.04: *Level One Review* and require a public hearing. State form FP-2A on the MA Department of Fire Services website shall accompany the DEC Level 2 Permit Application. Devens Fire Department sign off on the License application is required prior to submittal to the DEC.

(d) A separate permit for storage of flammable or combustible fluids is also required from the Devens Fire Department and must also accompany the License Application.

(e) The license shall be plainly posted on the premises.

(f) A parcel of land may only have one license for the storage of flammable or combustible fluids.

(g) If the conditions, capacities or restrictions authorized by a license change, an amended license shall be obtained. A new Level 2 application shall be submitted to the DEC and a new public hearing is required. If granted, the amended license supersedes and replaces the old license, and will show the aggregate total capacities allowed under the grant. A Certificate of Registration (State Form FP-5) shall be filed with the DEC by the license holder or occupant of licensed land annually, before April 30th. This registration signifies that a license is in use and currently being exercised. A Certificate of Registration is considered a Level 1 Review (Administrative Approval). If a registration is not applied for and issued annually by May 30th, it may be viewed as cessation and cause for review and termination of the license. A registration shall be posted on the premises in a way in which it is visible.

4.09: continued

(7) Storage, Transportation and Handling of Radioactive Materials and Medical/Research Wastes in Accordance with 42 U.S.C. §§ 2011 through 2296, M.G.L. chs. 111H and 94 B, and 105 CMR 120.00: *Massachusetts Regulations for the Control of Radiation (MRCR)*: Reserved.

(8) Floor drains in accordance with applicable state (310 CMR 27.00: *Underground Water Source Protection* underground injection control) regulations and applicable federal laws and regulations, no floor drain(s) shall discharge to the ground, a leaching structure, or septic system in any facility. All floor drains shall connect to the sanitary sewer. All existing facilities with floor drains shall comply with 974 CMR 8.08: *Facilities with Existing Floor Drains*.

(9) Use of Pesticides and Herbicides in Accordance with M.G.L. c. 128 § 64, 330 CMR *15.00: The State Environmental Code, Title 5: Standard Requirements for the Siting, Construction, Inspection, Upgrade and Expansion of On-site Sewage Treatment and Disposal Systems and for the Trans-port and Disposal of Septage*: Reserved.

(10) Penalties. Failure to comply with provisions of 974 CMR 4.00 may result in enforcement action (974 CMR 1.14: *Enforcement*).

4.10: Renewable Energy Facility Requirements (REFs)

(1) Purpose.
(a) Promote renewable energy facilities at Devens in order to:
1. Reduce reliance on non-renewable energy sources,
2. Reduce greenhouse gases, and
3. Improve air quality.
(b) Promote public health and further the sustainable redevelopment.

(2) Permitted Uses. For purposes of 974 CMR 4.10, REFs include only free-standing solar photovoltaic (PV) and solar thermal facilities and building-integrated wind and/or solar facilities.
(a) PV and solar thermal REFs are permitted in all zoning districts except Open Space and Recreation.
(b) Building-integrated wind and/or PV REFs are permitted in all zoning districts.

(3) General Requirements. REFs shall comply with the pertinent subsections of 974 CMR 1.13: *Performance Guarantees* 974 CMR 3.02 through 3.04, 974 CMR 4.00, and 974 CMR 6.00: *Signs* and the requirements set forth in 974 CMR 4.10(3)(a) through (e).
(a) All utility connections shall be underground. Electrical facilities for utility interconnections may be above-ground only if required by the utility provider.
(b) REFs and associated structures shall be screened to the maximum extent feasible using a combination of topography, vegetation, clustering and any other methods acceptable to the DEC.
(c) Signs on a REF or at the site of the REF shall comply with 974 CMR 6.00: *Signs* and identify the owner and provide a 24-hour emergency contact phone number. REF's shall not be used for advertising purposes.
(d) REFs shall comply with 780 CMR: *Board of Building Regulations and Standards*.
(e) For all REFs the Applicant shall provide:
1. Evidence of liability insurance in an amount and duration, sufficient to cover loss or damage to persons and property caused by the REF.
2. Authorization from MassDevelopment (Devens Utilities) for an interconnected customer-owned generator. Off-grid systems are exempt from this requirement.
3. A letter of approval from the Devens Public Safety Officer/Fire Chief.
4. A handbook for operating and maintaining the REF, safe access to the REF in accordance with the requirements of the Devens Public Safety Officer, and the REF stormwater management system. Maintenance shall include, but not be limited to, measures to ensure the paint is in good repair, the structure is well-maintained, and the site is secure.
5. A letter signed by an Engineer certifying that the REF complies with all local, state and federal laws and regulations.

4.10: continued

6. One or three line electrical diagram detailing the associated components, and electrical interconnection methods, with all National Electrical Code compliant disconnects and overcurrent devices.

7. Performance guarantees for removal of REF's and restoration of the site in the event of catastrophic failure, collapse, or other destruction of all or part of the REF which renders the REF obsolete and/or inoperable. The Director may review the guarantees periodically and require additional surety to be posted. The DEC may waive this requirement for municipally or state-owned facilities. REF performance guarantees shall comply with 974 CMR 1.13: *Performance Guarantees*.

(4) Decommissioning. For purposes of 974 CMR 4.10 "decommissioned" shall mean the Applicant has stopped operating and/or maintaining the REF.

(a) In the event the Applicant has decided to stop operating the REF and has notified the DEC by certified mail of the proposed date of discontinued operations and plans for removal of the REF and associated facilities, the Applicant shall.

1. Physically remove from the site no more than 150 days after the date operations were discontinued, all REF's and associated apparatus, structures, equipment, security barriers and transmission lines and

2. Restore and fully stabilize the site to the satisfaction of the DEC. The DEC may allow the landscaping or designated below-grade foundations to remain in order to minimize erosion and disruption to vegetation, and

3. Dispose of all solid and hazardous waste in accordance with local and state waste disposal regulations.

(b) In the event the DEC determines that a REF has not been operating and/or maintained for at least one year and the Applicant has not notified the DEC as required by 974 CMR 4.10(4)(a), The DEC and/or MassDevelopment may enter the REF site and perform the removal at the Applicant's expense.

(5) Requirements Specific to Certain REFs.

(a) Applicants for Ground-Mounted REFs shall provide:

1. Site Plan(s) and details of the PV installation stamped by an Engineer showing the proposed layout of the entire system and any potential shading from nearby structures/vegetation.

2. Documentation/details of the major system components to be used, including the PV panels, mounting system, and inverter;

3. Name, address, and contact information for proposed system installer;

4. Documentation of actual or prospective access and control of the project site;

5. All means of shutting down the PV installation shall be clearly marked. The Applicant shall identify a responsible person for public inquiries throughout the life of the REF.

(b) Applicants for Building-Integrated REFs shall provide:

1. Documentation signed and/or stamped by an Engineer, demonstrating that the building is structurally sufficient to support the permanent installation of the proposed REF(s). At a minimum, there should be an analysis that addresses weight, vibration, wind load, and snow load.

2. Elevation drawings of the building with the proposed REF(s) installed, viewed from north, south, east, and west (if systems are visible from the road and/or abutting properties).

3. Building schematic detailing point(s) of connection and associated attachment methods/supports for the proposed REF(s).

4. Specification sheets for the proposed REF(s)(inverters, controllers, disconnects, *etc*.).

5. Design approval letter from MassDevelopment.

(6) Ground-mounted Wind Energy REFs: (Reserved)

4.11: Greenhouse Gas Mitigation

(1) Purpose. To promote:
(a) Development that furthers the State's policy of reducing greenhouse gas emissions and is consistent with Compliance with the Executive Office of Energy and Environmental Affairs 2008 Notice of Project Change for Devens;
(b) Improved air quality in a non-attainment zone; and
(c) Sustainable redevelopment goals of the Devens Reuse Plan and Bylaws.

(2) General Requirements.
(a) Applicants for projects requiring Level 2 review shall join the Devens Eco-Efficiency Center and demonstrate compliance with EcoStar Standard 24 - Climate Change Mitigation;
(b) Projects that:
1. generate 2,000 or more average daily trips (adt); or
2. generate1,000, or more adt and involve construct150 or more parking spaces; or
3. involve construction of 300 or more parking spaces shall comply with 780 CMR 120AA: *Stretch Energy Code*; and
(c) Projects that require a MassDEP Air Quality Permit shall have a roof for which at least 30% shall be vegetated, which vegetated portion shall comply with the DEC's *Policy for Construction of Vegetated Roofs*, dated August 2011.

REGULATORY AUTHORITY

974 CMR 4.00: St. 1993, c. 498.