

E368 Comment: (WI Pork Producers). NR 151.095(3)(c)3. This does not allow for the value of time spent by the owner or operator. This is dramatically different than the allowances in NR 155.16(1)(c)5(d) and (e), p. 73, lines 12-26 and p. 74, lines 1-6. It appears that staff time is much more highly valued and compensated for than producer time is.

Response: In the rural setting, these costs are incurred by the county staff and supported by DATCP with funding under ATCP 50. In the urban setting, these costs are incurred by the municipality that is conducting the project, and consequently a source of support (chapter NR 155) is appropriate.

E369 Comment: (DATCP) NR 151.095(3)(e)2d. This section that references the TRM grants and cost-share eligibility is confusing and should be clarified.

Response: We think this language is clear.

E370 Comment: (WI Pork Producers) NR 151.095(3)(e)2.d., Note. The 300 animal unit and the 20 percent expansion cutoff appear arbitrary and without foundation.

Response: 300 animal units is consistent with a regulatory threshold used in the Clean Water Act to depict smaller operations.

E371 Comment: (DATCP) NR 151.095(4)(b)3f. An offer of cost sharing in this notification process is essential but including a signed cost-share agreement is not possible in many instances.

Response: We agree and modified the rule. An offer of cost share will still be required, but it does not have to be in the form of a signed cost-share agreement.

E372 Comment: (farmer) Two brothers who each own a farm could each run a 200 animal unit operation and could each double in size, if they were farming in partnership. But they will be penalized under these rules because they operate under 1 tax number, not 2, and would only be able to increase their operation by 20%. If you add more partners, you make the deal more complicated.

Response: This rule does not dictate whether or not an expansion can occur or what size it can be. Any landowner or group of landowners/operators can expand any amount as long as all federal, state and local laws are met. This rule does require that the performance standards be met, regardless of the size of the operation or expansion. This rule also requires that cost sharing be provided as a condition of compliance for small operations and small expansions, but not for large operations over 1,000 a.u. or large expansions (see previous comment on this issue). The issue is not who can expand or how much they can expand, but who is required to pay for it.

NR 151.095(7) Coordination

E373 Comment E356 (WLWCA/WALCE, several counties) and response regarding coordination provisions apply to this section.

NR 151.095(8) Variances

E374 Comment E358 (WLWCA/WALCE, several counties) and response regarding language clarifications apply to this section.

NR 151.096 Department review of local livestock operation ordinances and regulations

E375 Comment: (DATCP) The proposed procedures in this section should be redrafted to broaden the scope of the review and more clearly describe the process our agencies will use when reviewing and approving these ordinances.

Response: Taking into account the Attorney General's letter on the scope of s. 92.15, Stats., the scope of review has been broadened, but it has also been more clearly defined to help local units of government understand which ordinances are subject to review. The procedures DATCP and DNR will follow when reviewing ordinances can be more clearly described in a memorandum of understanding between the agencies.

E376 Comment: (LCD) Local units of government should maintain control of ordinance language. Department review would be welcomed, but we would oppose department approval. We question the DNR's statutory authority to approve these ordinances.

Response: The authority is in s. 92.15, Stats. Under s. 92.15, Stats., a local unit of government may enact livestock regulations that exceed the performance standards, prohibitions, conservation practices and technical standards only if the local unit of government demonstrates that the more stringent regulations are needed to achieve water quality standards and the local unit of government receives approval from the department or DATCP.

E377 Comment: (WI Agri-Service Assn., WI Pork Producers, WPVGA, WI State Cranberry Growers) DATCP's and the DNR's process for reviewing and approving local livestock ordinances needs to be codified. DNR should have authority over livestock ordinances that originate from urban towns and municipalities. DATCP should have authority over all other ordinances.

Response: The department has included a procedure in the proposed regulations for the submittal and review of livestock ordinances. The statutory provisions in s. 92.15, Stats., do not make any distinction between regulations from urban towns and municipalities versus rural areas.

E378 Comment: (WI Pork Producers) NR 151.096(2)(a), P. 37, Lines 11-15 -- This does not appear to allow for public input by those affected by the proposed local ordinances.

Response: The procedures established in 151.096 are in addition to the procedures required at the local level for enacting ordinances and do not eliminate any public participation procedures at the local level.

F NR 151, Subchapter III, Non-Agricultural Performance Standards

General

F1 Comment: (WI Pork Producers) Implement standards to control storm water runoff in developments.

F2 Comment: (146 individuals) We applaud implementation of stormwater control standards and recommend that standards be more tightly defined and developed.

F3 Comment: (WISPIRG, environmental groups) We support developer requirements so that stormwater stays on site and does not enter existing waterways.

F4 Comment: (individual) Strong subdivision stormwater runoff rules are needed to control the proliferation of farmland being subdivided into residential development.

F5 Comment: (WI Env. Dec). We support NR 151.11 and 151.12 with some modifications.

F6 Comment: (WLWCA/WALCE, several counties) We strongly support the proposed non-agricultural performance standards, especially the infiltration performance standard, but we do have some suggestions for improvements or clarifications.

F7 Comment: (CWC) The rules require developers to design construction projects to ensure that storm water stays on site. We support the adoption of these standards and would vigorously oppose any attempt to modify them.

Response: We appreciate the support for the rules. The rules encourage the use of devices that keep the storm water on individual lots rather than discharging it to waters of the state. However, we have reduced the number of source areas that need to infiltrate runoff. The change is protective of groundwater and the long-term operation of the devices. The rules never required a developer to keep all storm water on site.

F8 Comment: (engineering firm) I have been working with Roger Bannerman (DNR) to implement a stormwater management program for a residential development in Cross Plains. The runoff chain includes grass swales, a wet pond, and an infiltration basin. The object is to reduce suspended solids and contaminants in runoff water as well as reduce the total volume of runoff. I understand that DNR plans to monitor the discharge from this site over the next several years. The techniques we have implemented are experimental and there is currently not enough empirical data to know: a) how to design practices to meet NR 151, b) how to build storm water features to meet the proposed code, and c) what the long-term maintenance issues are. NR 151 will implement standards that science cannot back up. DNR needs to study the issues further in the field, especially infiltration, prior to adopting new rules.

Response: While it is true that DNR will be monitoring this site, the reason is not because we don't know how these systems operate. Instead, it is desirable to have Wisconsin sites monitored so that we have

local results to report. We will also be able to monitor the parameters most important to the state, and we will have control over how the data is collected. Many states are encouraging, and some are requiring infiltration, so there is experience with these devices in other soils and other climate conditions. The treatment train concept that was implemented at Cross Plains is also an established approach to storm water management. While there is a good deal of literature and contacts nationally on the design of infiltration practices, the state is in the process of developing state technical standards, to save the designer the effort of finding those sources. These standards should be completed about the same time as the rules are promulgated.

F9 Comment: (individual) It is unclear in rules NR 151, NR 152, and NR 216 how the construction site erosion standards and post-construction storm water management standards apply to the construction and post-construction runoff from agricultural structures such as buildings and concrete feedlots.

Response: We have included an exemption for nonpoint sources from agricultural facilities and practices to be in conformance with s. 281.16, Stats. However, federally, construction of agricultural buildings is considered a point source and will be addressed under NR 216.

F10 Comment: (RPC) Because of the site-by-site requirements, infiltration facilities and /or small detention facilities will be placed within each development and redevelopment site. The effectiveness of these facilities as a component of the watershed-wide storm water management system will be unknown, since no system planning would be involved. The long-term maintenance costs are not quantified, but can be substantial. These costs will have to be borne by local governments or the maintenance will be ineffective. History has shown that property owner associations and private interests are not effective operation and maintenance options for such facilities. The site-by-site approach is not cost-effective, nor practical.

F11 Comment: (MMSD) The permitting process through NR 216 must be flexible. The rules should allow for watershed approaches to the post-construction and developed urban area performance standards. A watershed focus is an essential component of intergovernmental cooperation and cost-effective solutions. Allowing only site-based or separate municipal approaches to compliance will result in a proliferation of maintenance-intensive facilities and duplicative expenditures.

Response: We agree. It is desirable for a municipality to develop an overall stormwater management plan that addresses existing and future loads in the watershed. Permitted municipalities under NR 216 will be required to have a stormwater management program. However, these rules cannot mandate that other municipalities have plans or adopt ordinances to implement the plan. We have not prohibited municipalities from using a watershed approach and developing a stormwater management plan/ordinance to address meeting the performance standards and hopefully municipalities will realize that having a program in place will be more manageable, practical and cost-effective. Many municipalities are already writing such plans.

F12 Comment: (Dept. of Commerce) NR 151.13-NR 151.15. What is the statutory basis for these sections — s. 281.16, Wis. Stats.? If not, why is it included in this chapter? Wouldn't this be more appropriately located in ch. 216 — it seems more relevant to Phase II or the groundwater law and not s. 281.16.

Response: Developed urban areas are a clear source of nonpoint pollution and under the statute DNR was to develop performance standards to address nonpoint sources of pollution. This is why we have performance standards for developed urban areas. NR 151.15 addresses how we will implement and enforce the performance standards. During the first public comment period we heard that we needed to identify how the urban performance standards will be implemented. This section cross-references the implementation codes for these standards for reader clarity.

F13 Comment: (MMSD) Application of the non-agricultural performance standards through NR 216 permits will leave many small communities out of the enforcement process. Although this factor does not affect the MMSD service area, from a statewide perspective, it is an important limitation.

Response: The construction and post-construction performance standards will be applied equally statewide. The developed urban area standard has different levels of control based on the contribution. The more densely populated areas will have permits and will be required to achieve higher levels of

control. The smaller communities will still have pollution prevention requirements for education and leaf and grass clipping management where appropriate. Only unincorporated communities with less than 1000 people per square mile will not be addressed by a performance standard. If DNR deems them a significant contributor, perhaps because of their proximity to a sensitive water resource or the mix of land use, they can be issued a permit and will then have to meet the stricter pollutant reduction requirements.

F14 Comment: (MMSD) We support the inclusion of performance standards for developed urban areas, because nonpoint problems in urban areas cannot be resolved solely through regulating new development. The proposed post-construction performance standards make appropriate distinctions between "greenfield" and redeveloping areas that reflect their differing circumstances. If the performance standards prove to be overly burdensome for redevelopment, we would recommend that the legislature consider some form of cost-sharing program as it has deemed appropriate for agriculture.

Response: We will pass this comment on to the legislature since they have set the limitation on cost-sharing for non-agricultural performance standards.

F15 Comment: (city) While we concur with the goals of the Clean Water Act and have taken a proactive approach to storm water management since 1982, we object to the mandates contained in the proposed rule changes. Communities that must implement these rules must somehow pay for these programs, passing the costs on to local taxpayers. Some examples:

(1.) All development disturbing 5 acres or more (1 acre in 2003) must submit a storm water management plan. Many small communities do not have the staff available to review all such plans. A consultant will have to be retained to do this work.

Response: This requirement is also a federal requirement and will be imposed on permitted municipalities even without NR 151, under Phase II. Permitted municipalities must develop a stormwater program, which is frequently an ordinance, that requires the community to control runoff from new development. Under the NR 216 permit the stormwater management plan will be submitted to the DNR, but for permitted municipalities it will also be reviewed locally. We acknowledge that there will be a cost associated with this effort.

(2.) NR 151 mandates the implementation of fertilizer standards that include soil testing. It will be up to the local communities to inform and regulate the larger industrial customers of these new standards. Many small communities do not have staff available for these activities.

Response: A municipality is not required by NR 151 to inform or regulate private landowners. They are only required to take care of their own properties using a plan for better nutrient management. DNR will be responsible for enforcing the requirement on private individuals. We reworded this section to make it less confusing. We have information and education (I&E) requirements that include proper use of lawn and garden fertilizers and pesticides in the information a municipality provides to residents.

(3.) Very few communities have the resources to conduct an ongoing information and education program (using DNR literature). If the community undertakes to do mailings, the substantial staff and mailing costs will be passed on to all the property owners of a community).

Response: We believe there are a number of low cost means for dissemination of I&E materials. They can be included in other mailings, distributed at fairs or events, through the schools, as articles in local papers, etc. If through an I&E effort a community reduces pollution sources then there will be a long term cost savings to the community.

(4.) The leaf collection mandate is unrealistic, especially for rural and some suburban areas. Our city has at least 50% of city streets without curb and gutter. Most of the lots are an acre or more in size. How are the owners of a 5-acre lot supposed to rake all their leaves to the street? It is an unrealistic requirement. How will the city collect the leaves out of the ditch? Unlike curb and gutter areas, where the leaves can be raked into the street and swept up, collecting leaves from 60 miles of ditches will be hard work.

Response: We never intended to make communities force home owners to bring these leaves to the street for pick-up if they have large lots where leaves are often not raked up or are composted. The requirement in the code is that the community develop a public education program and if there are appropriate

activities that a municipality can undertake to make the program a success, in the area of leaf management and grass clippings, that the municipality take on those activities. This can be very specific to the community's needs and capabilities. We have adjusted the wording to indicate that the municipality must have appropriate leaf collection.

(5.) The mandate to detect and eliminate illicit discharges from the storm sewer systems can be a very time-consuming task and will be a great burden to a small community. If a sample at an outfall comes back positive, then it must be traced through the system. Many samples will need to be taken not to mention the television of the storm sewers to determine the source of the discharge. This will be very difficult in areas where there are rural and urban systems combined. It will be a large cost to a small community.

Response: There are a number of ways illicit discharges can be detected, and they don't involve monitoring in every case. In rural/urban areas it may be easy to see a flow under dry weather conditions and where the flow is coming from. Most detections will not require televising the storm sewer.

F16 Comment: (city) We object to the mandate to use SLAMM for pollutant loading for small sites. SLAMM is designed for large areas and does not accurately model individual sites of 5 acres or less. It is also very complicated to run and it is a burden on smaller consulting firms or the local community that does not have the staff or time to get to know this model well enough to obtain accurate results.

Response: SLAMM is not mandated under NR 151. When a municipal storm water permit is issued it will recommend that SLAMM, or an equivalent model be used to assess the nonpoint source loads from certain basins in the municipality. SLAMM is a good planning tool and can be used on drainage areas of varying size. To say that it is not accurate when used on a small development site is not true. It can be used on any size site and can model the loads before and after BMPs are constructed. SLAMM has recently been put in a Windows format and is more user friendly than earlier versions. This model will continue to be improved and training is available.

F17 Comment: (co. public works dept.) The DNR wanted to cool the water coming off the streets. There are lots of silly things like that in the rule. We should be talking about subtleties in these rules.

Response: Early in the discussions there was an interest in addressing thermal impacts of urban nonpoint sources of pollution. This was not pursued and does not show up in the rules other than as a secondary benefit of the infiltration performance standard. See comment below.

F18 Comment: (TU) As a trout angler, I am very concerned about the effects of thermal pollution on streams due to runoff from streets, driveways and roofs. Requiring infiltration standards for new developments not only addresses this issue, but also helps replenish groundwater supplies. Buffers of 100 feet around new development will also help reduce the impact from runoff on developed areas.

Response: The infiltration standard will greatly reduce the volume of runoff reaching surface waters which will address to some extent thermal pollution concerns. We do not have a performance standard specifically for thermal impacts because we did not feel we had enough data to establish or calculate the standard. We will continue to monitor streams and may in the future develop models to help the designer address this important issue. The buffer width is less than 100 feet but is greater than the current 35 foot shoreland management vegetative buffer width and will apply in more than just unincorporated areas.

F19 Comment: (citizens group) The City of Two Rivers intends to construct a retention pond to contain runoff from present and future development of an industrial park. We find it objectionable that the pollution containing road, parking lot and industrial runoff will be running through people's property then into a stream used for fish spawning, fishing, swimming, boating, etc. Even under perfect weather conditions with no accidents to cause overflow, soggy wetlands are formed downslope of the ponds. It appears that no notices, hearings, or permits are required, and no plans for regulation have been published. We urge you to implement the strongest rules to keep industrial runoff on site.

Response: For future developments of this nature the developer will be required to meet the performance standards, including sediment reduction, peak flow control, volume control through infiltration and buffers if close to a surface water. These developments will continue to need permit coverage as they do

now. If they do not meet the performance standards or maintain their BMPs, they may be subject to enforcement, as occurred in this case. The performance standards were designed to achieve water quality standards and cannot address local flooding issues. Runoff will still leave a site, but it should be cleaner and in a controlled manner to limit the impacts to downstream property owners and the receiving stream. Discharge of runoff to a neighbor's property must be controlled through local ordinances or the courts.

F20 Comment: (co. plan dept.) The county's goal is to become a "designated community," authorized to administer DNR's and Commerce's storm water and erosion control programs. By developing local expertise and providing seamless, local permitting services, erosion control and storm water management will be more effective, and program administration costs lower. We want a concerted effort to ensure as much commonality as possible between programs. DNR should review and justify differences (definitions of words/phrases, information required of permit applicants, reporting, inspection and documentation requirements) to make local administration of programs easier and more understandable to our citizens. **Response:** We agree with the goal of having local authorities administer state stormwater permits. DNR has ultimate responsibility to implement the federal regulations and has, through a Memorandum of Agreement, transferred that authority to Commerce to implement our NR 216 permits for commercial sites as an EPA "qualifying" agency. As long as Commerce's rules stay consistent with ours, the transfer of authority can continue to work and Commerce can issue permits for commercial sites. This is our effort to avoid dual regulation. Details listed in the comment would best be handled in an MOA between the two agencies or in the paperwork currently being used to implement the programs, not in this rule.

F21 Comment: (MEG) While this draft has done a better job of integrating and cross-referencing to other provisions, greater integration is needed to ensure coordination between various existing programs that already address certain aspects of nonpoint runoff. For example, NR 151.12(7) that establishes urban buffers contains a note that other regulations, such as ch. 30 and chs. NR 115, 117 and 118 may apply. However, the standards in NR 151 are not consistent with those regulations. There should be greater integration between NR 151 and NR 216, so that the municipalities and developers within municipalities are not forced to compare and apply standards from two different chapters.

Response: Our responsibility is to address nonpoint source pollution and we should not and cannot exceed that authority. We attempt to avoid conflict with other codes so that an individual can meet all the requirements at a given site. We also cannot exempt someone from meeting another code simply because they are in compliance with ours, which is why we cross-reference other codes. We found one inconsistency with NR 115, which we corrected.

F22 Comment: (housing industry) NR 151 should not be adopted until DNR storm water rules coordinate with Dept. of Commerce's construction erosion control rules or property owners will be doubly regulated.

Response: Through an memorandum of agreement with Commerce we are striving to avoid dual regulation. Proposed rules will be evaluated in the future for compliance with NR 151 performance standards and changes made accordingly. Commerce currently regulates commercial construction sites and 1 and 2 family housing sites. DNR regulates non-commercial construction sites, and subdivision, utility and road construction that disturb 5 or more acres.

F23 Comment: (engineering/survey firm) Reviewing 2 current residential developments using the requirements and design standards outlined, I found that the additional area required to meet the new standards along with related construction costs could increase lot prices by as much as 10%, which would be passed on to the consumer. This is a huge financial impact for implementing practices that have not been adequately studied or proven to be reliable.

Response: The comment is not accompanied by the assumptions used in the calculations. We received comments from the City of Madison with clear assumptions that show similar results. Their calculations were based on adding the infiltration requirement at the end of the other practices, and do not consider conservation design, source controls, or mixing single family with multi-family units to accommodate the performance standards without losing lots or increasing the cost. We modified this performance standard to include a 1% cap for residential and 2% for non-residential development. No site will have to set aside

as much land as the original proposal although most development will still be able to meet the goal. Land commitment can be reduced when performance standards are combined in a given practice.

F24 Comment: (RPC) The non-agricultural performance standards will discourage development within existing urban areas provided with, or readily provided with, public utilities and other urban services. The detention and infiltration practices are relatively easy to accomplish on large "green field" sites and rural locations using large-lot development, but will be very costly and difficult to implement in small-lot development situations, promoting low-density development and working against "smart growth." We note the improvements that eliminate or modify requirements that would have restrained redevelopment and in-fill development, specifically 1) reducing control of total suspended solids from redevelopment areas from 80% to 40%, 2) exempting post-construction redevelopment sites and in-fill development sites of less than 5 acres from the previous peak discharge and infiltration requirements, and exempting in-fill development sites less than 5 acres from the riparian buffer requirements.

F25 Comment: (city public works dept.) NR151.12(4)(b). This standard includes a proposed exemption for redevelopment, with the equal or lesser amount of parking/roadway as the existing site. We concur with this exemption, but recommend that it be expanded to include all redevelopment, or that the requirement be reduced to 20%, so traditional street sweeping could be reasonably expected to meet this requirement. Redevelopment should be encouraged. As the cost of redevelopment is already significantly higher than new construction on farmland, this portion of the code provides an incentive for sprawl.

Response: While we have reduced the requirements for this kind of development, the remaining requirements can still be met. Traditional street sweeping will reduce TSS by 20%, high efficiency street sweepers can attain the 40% level of control. Structural BMPs are also available with levels of control ranging from 15% to 80%. Combinations of practices can be used to attain the 40% control. Therefore, it is technically feasible to attain the 40% reduction on in-fill or redevelopment sites. If a site cannot achieve this goal there must be justification why it was not met, and it must be demonstrated that the goal was met to the maximum extent practicable. MEP should allow for this kind of development to occur. The costs associated with a 40% level of pollutant control are fairly insignificant when compared to the overall costs of a redevelopment project. In addition, controls are more economically feasible during redevelopment instead of retrofitting existing structures. With the promulgation of NR 151, new development will need to meet even stricter standards (80% reduction) than the 40% for redevelopment. This eliminates any potential economic incentive for new construction based on storm water management costs. Currently, other incentives such as lower tax rates provide a much greater incentive for sprawl.

F26 Comment: (co. lake spec.) We support the non-agricultural performance standards but feel there is inadequate implementation and enforcement provisions. Implementing the performance standards through DNR permitting requirements for urban areas does not provide nonpoint source pollution control in rural (non-agricultural) areas.

Response: The rules provide for implementation of the construction and post-construction performance standards in both urban and rural non-agricultural development areas. While this will be applied statewide through the NR 216 permit program, it is desirable to have local governments provide enforcement through ordinances, which is more likely to happen in urban areas than in rural communities. Some counties have already taken responsibility for controlling development in rural, unincorporated areas.

Specific Comments on Subchapter III

F27 Comment: (WLWCA/WALCE, several counties) Clarify that local water resource maps may be used to determine applicability if they are more accurate than USGS maps (i.e. GIS maps).

Response: USGS topographic maps and county soil survey maps are accessible and objective sources for developers to determine when they need to meet this requirement. Some counties have created GIS layers from topographic maps, and through orthophotos and field verification, have updated those maps. The concern we have is the local decision to identify a stream as perennial or intermittent. We also developed GIS maps at the state level based on the USGS 7.5 minute topographic maps (available through DNR's website: www.dnr.state.wi.us). While we appreciate the clarity and accessibility of local maps, we indicate that only third party maps, such as the USGS maps, be used for this determination.

F28 Comment: (Dept. of Commerce) NR 151.10. The purpose statement should be amended—it is still impossible to achieve. These performance standards are intended to reduce runoff pollution in order to advance toward the achievement of water quality standards.

Response: The purpose statement conforms to the statutory directive in s. 281.16(2)(a), Stats.

NR 151.11 Construction Site Performance Standard

NR 151.11(1) Applicability

F29 Comment: (individual) The applicability of this performance standard should be expanded to cover minimum requirements for construction sites set forth in s. 281.33, Stats., to be consistent with the model ordinance for erosion control sites (see comment under NR 152 concerning this issue). The requirements for work on sites smaller than 5 (1) acre could be less than the requirements for the larger sites.

Response: We did not add this extra applicability criteria because the development of performance standards occurred under s. 281.16 rather than 281.33. We added language in the model ordinance that will allow local governments to add in this applicability if they so choose.

F30 Comment: (co. plan dept.) NR 151.11(1)(a) and NR 151.11(1)(c) The 5- and 1- acre threshold is too high and a far cry from the "4,000 square feet, 400 cubic yards, 300 feet..." standard in S07(1) of the previous model ordinance and state statute 281.33(3). Return to the old standards. Local units of government need the ability to close the gap between the current erosion control required under the 1-and 2-family UDC erosion control rules and the 5-acre minimum of the current DNR or Dept. of Commerce programs. If you have ever had to explain to a contractor or upset neighboring landowner that a construction site where a residence is being built generally requires erosion control while a site of equal size nearby where a store is being built does not, you understand our concern.

Response: We do not agree. See the response to the previous comment.

F31 Comment: (APWA, public works dept.) NR 151.11(1m) should be expanded to include underground utility construction in a public right of way. It is impractical to comply with these provisions for utility construction in pavement, as there is no way to infiltrate runoff. Use of BMPs (e.g., silt fences, inlet protection, street sweeping) are practical and acceptable means to control suspended solids. It is unclear how DNR will identify the percentage of sediment reduction loading for this type of construction, as it is impractical to "model" or monitor the runoff from utility trenchwork in paved roadways. Add an exemption as Par. c to NR 151.11(1m): "c. Underground utilities including storm sewers, water main, sanitary sewers, natural gas lines, telecommunication cables and electrical lines and related appurtenances (e.g., manholes, hydrants) constructed in the pavement section of a highway or roadway."

Response: We cannot exempt this work from meeting the construction performance standards because utility construction can result in serious erosion and sediment runoff. We agree that the installation of underground utilities should not require the area to meet the post-construction standards and have made this exemption in NR 151.12.

F32 Comment: (public works dept.) NR 151.11(1)(a). A revision should be made that addresses construction on a site where there are no contracts or contractors with the work performed by the local governmental agency. Many cities construct a majority of public works improvements, generally underground utility installation in public rights of way, using in-house personnel and equipment.

Response: We revised this section. Standards will be met on the effective date unless there already is a contract signed or bids advertised. This situation would be subject to the performance standards as soon as the rule goes into effect.

F33 Comment: (Dept. of Commerce) NR 151.11(1)(a). Although it is common drafting practice, what is meant by "the effective date of this chapter", since in reality each individual rule has an effective date associated with it which may over time vary throughout the code.

Response: After the rule is promulgated, the term "effective date" will be removed and the reviser of statutes will insert an actual date. This language is only used during the draft stage.

F34 Comment: (WAL) Urban redevelopment sites are exempt from many provisions of these rules. Recognizing that it may not be possible to comply in all cases, the rules should at least recommend these practices to the Maximum Extent Practicable, and make cost sharing available.

Response: A redevelopment site is only required to meet the 40% total suspended solids reduction goal, and if it can't, there must be justification why it can't, and reduce the TSS to the maximum extent practicable. Redevelopment is exempt but not precluded from any buffer requirement based on concerns that it would discourage redevelopment and encourage urban sprawl. Our grant programs do not allow us to cost share new development, only address existing problems.

NR 151.11(2) Responsible Party

F35 Comment: (MEG) It is unclear whether the definition of a responsible party intends to address the situations of land contract holders and lessees, or if it is intended to deal with a contractors or other agents of the landowner.

Response: This was written to allow the department to take action against anyone causing a permit violation. It could be any of the people identified in the comment.

F36 Comment: (26 housing indus. reps.) The phrase "other person" should be removed—it's too vague.

Response: This section has been rewritten so that it encompasses any person performing services to meet the performance standards. See the response to the previous comment.

NR 151.11(3) Requirements

F37a Comment: (Dept. of Commerce) NR 151.11(3)(b). The statement "shall reduce sediment carried in runoff that enters waters of the state or enters a separate storm sewer connecting to waters of the state to the MEP" is more accurate than the purpose statement. It identifies what's required and could be used in other areas of the rule.

F37b Does this performance requirement need to be in some type of context? As written, a person will be held accountable/responsible even in the event of 100-year storms. Does a person need to design and construct practices under a given condition? The note after par. (c) does not provide sufficient guidance.

Response: We believe the reader will realize that the items under NR 151.11(3)(b), listed as (1) and (2) are part of the sentence and must be considered in its entirety. Together (1) and (2) provide the context for the rain event as average annual. Currently there is no note after par. (c).

F38 Comment: This section appears to establish 2 requirements: 1) a written plan and 2) BMPs. If the intent is to impose a plan and an implementation of that same plan, then the code needs to say so.

Response: We brought "develop and implement" to the front of the sentence to clarify this intent.

F39 Comment: (WLWCA/WALCE, several counties) Clarify the performance standard to read: "To the maximum extent practicable, reduce the average annual sediment load carried by runoff by 80 percent, as compared to no sediment or erosion controls throughout the duration of the construction project." The current language does not meet the department's own definition of a performance standard.

Response: We agree that this needs to be clearer and we modified the wording in this section.

F40 Comment: (APWA) The requirements in NR 151.11(3)(b)1, NR 151.12(4)(a) and NR 151.24(3)(a) will mean that mini-detention basins will be placed all over the watershed. A planning approach is better for achieving the goals of this proposed rule and should be the desired approach when the community is operating a NR 216 permit.

Response: We agree that municipal planning on a watershed basis will provide the best approach to meeting the performance standards. See the response to previous comments on this issue.

F41 Comment: (Engineering/survey firm) The goal of 80% reduction by design and reduction to the maximum extent possible needs to be clarified. Maximum extent may be higher or lower than the 80% standard which creates confusion and conflicts for reviewing agencies.

Response: We made it clearer that if you meet the 80% reduction you need not go any further.

F42 Comment: (co. plan dept.) There is no available standard methodology to calculate the 80% figure. Dane County has a spreadsheet available on their web site to calculate soil loss in tons-per-acre as a tool for those evaluating BMPs as part of their erosion control program. The DNR could provide some computer based model to localities and plan developers so we could all agree at least on methodology.

Response: The Dane County spreadsheet can be used where the soils are the same as Dane County's or the spreadsheet can be modified to reflect the county's soil type. DNR will be working on a matrix that incorporates the concepts of the USLE or a more recent version, RUSLE II, that will include values for construction sites as part of a technical standard. The technical standard will make it easier for the developer to know what is expected. DNR is also working with DOT to develop a technical matrix for road construction that may be easily modified for commercial/industrial/residential development as well.

F43 Comment: (CWC) We support the 80% reduction goal, but achieving it is hampered by two exemptions that should be eliminated—1) requiring the use of BMPs to the MEP, and 2) a loophole for construction sites that are not going to meet the 80% sediment reduction goal.

Response: Although we believe the 80% reduction is achievable in most cases, we need a process that acknowledges sites where it cannot be met and what is needed to achieve it. This is why we included MEP and a justification for when the 80% cannot be met. DNR will review the justification and either concur or require additional effort.

F44 Comment: (public works dept.) NR151.11(3)(b). There are some fairness issues with 80% reduction from all sites. A site with steep slopes constructed in the summer could reasonably reach 80% reduction, versus no controls, and still have a high rate of erosion compared to a reasonably flat site constructed in the fall. The reverse is also true—it will be difficult for a flat site with all clay constructed in the fall to meet an 80% reduction, although the rate of loss from the site in tons/acre/year may be very low.

Response: True, an 80% reduction could mean 6 tons/acre/year of erosion under one condition while under another it could be only 2 tons/acre/year depending on soils and slopes. The alternative is to set a uniform statewide rate which could lead to excessive costs on some sites and no control on other sites. In the interest of developing a statewide performance standard, we set a percent reduction. The standard of 80% reduction provides a reference for "maximum extent practicable". As for the second point, it will not be more difficult for a flat site to meet an 80% reduction over a sloped site. Many BMPs can achieve at least an 80% reduction in suspended solids whether the site is flat or sloped. For example, on a 3:1 and 6:1 slope, 2 tons/acre of mulch can be expected to reduce erosion rates by almost 86% for a silt loam soil. The load coming from the 3:1 slope will be higher at 9 tons/acre/year while the 6:1 slope will be around 7 tons/acre/year. For a flat site, if the developer has used the basic technology at the site (a sediment basin/trap and erosion control practices) they will not have to do more. At these sites we would like to see seed and mulch as soon as an area is not under active disturbance.

F45 Comment: (Dept. of Commerce) NR 151.11(3)(b)1. The language should be revised to state that "A plan shall be developed and implemented so that, by design, the installation achieves that reduction of the average annual sediment load carried in runoff by 80%, as compared with no sediment or erosion controls throughout the duration of the construction project."

Response: We revised this section. See earlier comments.

F46 Comment: (Dept. of Commerce) NR 151.11(3)(b)1 should be stated as a note: Erosion and sediment control BMPs may be used alone or in combination. Credit toward meeting the sediment reduction goal may be given for limiting the duration or area, or both, of land disturbing construction activity.

Response: This information is substantive and was added to the rule.

F47 Comment: (Dept. of Commerce) NR 151.11(3)(b)3.c. This statement should be revised to say: "Preventing sediment in excess of the 80% reduction standard from entering a separate storm sewer."

Response: We clarified the language to better reflect the need for inlet protection, not an increase in the sediment reduction goal.

F48 Comment: (Dept. of Commerce) NR 151.11(3)(c) What does "where appropriate" mean? Begin with "Except as included in the BMP installation, the use, storage and disposal of chemicals..."

Response: We've dropped "where appropriate".

F49 Comment: (APWA) NR 151.11(4) should be changed as follows: "The BMPs needed to comply with this section may be located on or off the construction site but shall be installed before runoff enters waters of the state or for runoff that entered a separate storm sewer, before the storm sewer discharges to waters of the state." This allows for a regional detention pond to serve as the BMP to meet the goal. Allowing runoff to enter a separate storm sewer to be conveyed to a treatment facility may prove the best technique for controlling polluted runoff. The owner of the separate storm sewer system and the developer of the property should decide this.

Response: We do not agree with the additional wording. We ended the sentence with "but shall be installed before runoff enters waters of the state". Regional facilities work well for post-construction pollutant control but during construction it is best to keep the sediment on site using erosion control techniques and local sediment control structures. We added a note to this effect. We do not want to encourage directing construction sediment to post-construction ponds because the high load would likely fill the post-construction basins and require more frequent clean-out.

NR 151.12 Post-Construction Performance Standard

F50 Comment: (MEG) As part of the urban performance standards workgroup, we argued that post-construction storm water management within urban areas should not discourage redevelopment and in-fill within urban areas. We also believe two further clarifications ought to be made. First, the definition of in-fill in NR 151.02(13) should be crafted more narrowly so that it only applies to undeveloped areas of land located within existing urban sewer service areas or similar measure of urbanization.

Response: This definition has been clarified and more narrowly defined.

(Comment cont'd.) Second, we do not believe it is appropriate to require the full array of post-construction storm water management to be applied to lots less than an acre. This situation could arise where a permit is required under s. 30.19 for grading more than 10,000 square feet on the bank of a navigable water. Such a site is required to comply with construction site performance standards under NR 151.11, as it should. However, NR 151.12(2) automatically includes all such sites in the post-construction standards. We do not believe that it is necessary or appropriate for lots smaller than one acre to comply with the full panoply of post-construction storm water management requirements.

Response: The rule has been revised so that the smallest site included will be no less than 1 acre by 2003.

F51 Comment: (RPC) The requirements to reduce peak runoff rates and volume of flow for all development sites with one acre or more of disturbed land area do not appear to be what is intended in state statute. S. 281.16(2) requires that performance standards be designed to achieve water quality standards by limiting nonpoint source water pollution. The requirement for quantity control appears to have no basis in the law. While there are cases where flow rates and volume should be controlled, the only way to determine the need and level of such control is through watershed and sub-watershed flood land and storm water management planning. These matters should be left to local planning and implementation efforts and not prescribed by the state on a uniform basis. Such prescription can be particularly problematic in areas such as the greater Milwaukee area where there are sanitary sewer backups into basements, which are due in part to infiltration into sanitary sewers. Requirements relating to storm water flow rates and volumes cannot be directly linked to nonpoint source pollution control on a generic basis. Requirements to reduce storm water runoff rates and volumes should be limited to areas where the need for such measure has been determined based on site-specific analysis.

Response: The peak flow rate is a water quality requirement tied to the bankfull condition. The bank is relatively stable and is defined by the stream over a period of years. When the flow exceeds the bank, soils are eroded and deposit as sediment in the stream. This standard is intended to prevent that unstable and sediment-laden condition from happening. Designs for higher storm events are frequently used by local municipalities to control flooding. These standards do not address that issue, although we would encourage municipalities to continue to control these storms.

While the infiltration standard is written as a volume reduction, the intent is water-quality based--to reduce pollutants, control erosion, and provide groundwater recharge so that the base flow in streams fed by groundwater may return to historic levels. Base flow levels have a dramatic effect on the quality of a stream. Sediment reduction prior to infiltration will reduce pollutants in storm water because many pollutants are attached to the particles. However, there are a number of pollutants that can only be reduced through the chemical and biological interactions that occur in soil. Bacteria, metals and many organic chemicals are trapped in the upper layers of soil through filtration, sorption and biodegradation. These pollutants cannot be removed in detention basins or other settling devices alone.

F52 Comment: (public works dept.) NR 151.12 will result in a longer time period to review building permit applications and storm water management plans to ensure compliance with the requirements.

Response: NR 151.12 requires that storm water management plans be developed, but it does not require a specific level of review of those plans. We do not propose to change the 14-working day waiting period to allow the review of a project covered by a NR 216 construction permit that requires a storm water management plan. We will continue to screen projects and select a subset for more thorough review.

F53 Comment: (individual) The City of Merrill had no storm water design filed before the dam removal on Prairie River.

Response: If the dam removal does not increase the amount of connected imperviousness at the site, there would be no requirement to meet the post-construction performance standards. Most dam removals result in far less imperviousness than the original condition. These rules would not address this situation.

NR 151.12(2) Applicability

F54 Comment: (co. plan dept.) We would like to retain the ability of a municipality to implement a storm water management program on a timetable according to its needs and administrative ability, as provided for in the previous model ordinance. This 2-year delay would keep localities from implementing a storm water ordinance even after EPA's March 10, 2003 Storm Water Phase II deadline.

Response: While the 2-year delay does not keep a municipality from imposing more restrictive requirements or shortening the time frame for implementation on the local level, we recognize the difficulty in having a state requirement that is different than the local requirement. We feel the 2-year delay is necessary for the majority of the state to adjust to the changes and to allow DNR time to develop important technical standards that will help implement the performance standards.

F55 Comment: (26 housing indus. reps.) Current language limits the ability to redevelop and promotes sprawl. Revise: (a) A redevelopment post-construction site with ~~no increase in exposed parking lots or roads~~ more than an increase of 50% connected imperviousness. Add: (e) An in-fill development area disturbing less than 5 acres.

Response: Redevelopment sites that increase the impervious area should not be given a blanket exemption from the post-construction standards. Granting exemptions, such as for redevelopment sites that don't increase the imperviousness by more than 50%, would result in very few existing developed areas having to implement designs or practices to improve or maintain water quality. While we may not expect to get the same level of control from developed areas, we believe that redevelopment areas that increase the impervious areas beyond the current condition should be making efforts toward mitigating the pollutants that come from these areas. This is an opportunity to include practices to the maximum extent practicable. If they cannot meet the requirements, then they need to justify it in writing.

F56 Comment: (engineering/survey co., 29 reps. of housing indus.) The newly added section requiring storm water plans for sites that involve more than 10,000 sq. ft. of land disturbance if the site is "on the bank" of a navigable water was never discussed by the technical advisory group that developed this rule. The cost, land use implications and negative environmental impacts of this requirement have not been explored and could potentially affect the affordability of housing.

Response: The application of these standards to sites of 10,000 sq. ft. along the bank of a navigable body of water was removed from the rule.

F57 Comments F35 (MEG) and F36 (housing industry) regarding the definition of responsible party apply to NR 151.12(2).

NR 151.12(3) Storm Water Management Plan

F58 Comment: (Dept. of Commerce) NR 151.12(3) Who checks the storm water management plan? Should the requirements for this plan be included in the draft?

Response: There is no requirement that all storm water management plans be reviewed. DNR has authority to review plans regulated under ch. NR 216. For projects regulated by Dept. of Commerce or administered by DOT, these agencies would determine the required level of review. The note following the requirement provides an example of a plan from NR 216, but other formats can be used.

NR 151.12(4) Total Suspended Solids

F59 Comment F37b (Dept. of Commerce) regarding requirements for total suspended solids applies to this section.

(Comment F58 cont'd.) The requirement for TSS doesn't address the flat site. The occurrence of a flat site is frequent enough to require the rule to address it rather than include the consideration as one of MEP. There should be a minimum runoff load that would be acceptable from the site in addition to the 80% reduction. This would compensate for the sites that aren't required to comply with the 80%.

Response: Flat sites generally do not have as much sediment runoff nor pose as great a water quality concern. Establishment of a lower threshold has been considered, however, the Department believes that establishing technical standards to direct BMP selection and implementation under these conditions is more appropriate than to set a concentration or other numeric standard by rule for this situation. We believe that there should be a minimum level of BMP implementation even for areas that have flat slopes and that using the approach of implementing BMPs to the maximum extent practicable allows flexibility to implement a minimum level of erosion and/or sediment control measures under these conditions.

(Comment cont'd.) Where is the baseline is for the measurement? Current practices allow a suspended solids reduction of approximately 50% from a roof if an owner replaces a shingle roof with clay tile. Is that considered a BMP? Or is that considered to be part of the baseline from which to begin calculating the 80% reduction? If a city starts street sweeping before the rules are in effect, is that the baseline or considered a BMP? In 20 years, will street sweeping be the norm and not considered a BMP?

Response: The baseline, as stated in the code, is in comparison to no runoff management controls. There are various measures, practices, etc. that can be used as BMPs and development of technical standards would be better suited to address these distinctions such as whether credit should be given for materials used on a roof. For street sweeping, the baseline would be as compared to no street sweeping measures. Street sweeping is a BMP and communities that already do street sweeping should not be penalized.

F60 Comment: (builder's assn., 27 housing indus. reps.) The relationship between the 2 parts of the suspended solids reduction goal "to the maximum extent practicable," and to "80 percent by design," needs to be clarified. The rule should clearly state that no property owner would be required to exceed an 80 percent standard, and the MEP standard is for sites that cannot achieve 80 percent reduction. Any additional uses of the term " maximum extent practicable" should be deleted from the text of the rule.

Response: We agree and revised the language.

F61 Comment F40 (APWA) regarding planning approaches applies to NR 151.12(4)(a).

NR 151.12(5) Peak Discharge

F62 Comment: (city eng. dept.) The exception for post-construction sites where development does not increase the existing surface elevation within the downstream receiving water by more than 0.1 inch for the 2-year, 24-hour storm event is too restrictive. An exception should be made if the increase is less than 0.05 foot (about ½ inch). I do not think that HEC-2 is capable of calculating water surface elevations to the thousandth of a foot (necessary to prove that the increase is <0.1 inch).

Response: We disagree that allowing each individual development to increase the 2-year, 24-hour flood profile by more than 0.1 of a inch is acceptable. There may be several more developments in the area that could raise the flood rates/profile whereby the cumulative affects of small increases by each development can result in significant bank erosion to streams and shoreline erosion to smaller lakes. It may be that HEC-2 and other hydraulic models are generally unable to measure increases lower than 0.01 foot. Until an alternative justification method is available, the designer must indicate that no increase occurs due to the project, using the sensitivity available from a hydraulic model such as HEC-2.

F63 Comment: (LCD) NR 151.12(5)(a) requires that storm water facilities be designed to attenuate the 2-yr., 24-hr. storm. A more widely accepted and technically sound approach is to require post-developed discharge rates be held at or below pre-developed discharge rates for a series of storm events, including the 2, 10, 25, 50 and 100-year, 24-hour storm events.

Response: There are many municipalities that require runoff from several storm events to remain below existing conditions to control flooding. The Department does not have the authority to control flooding or flood volumes in these rules—only water quality. Municipalities have authority to develop ordinances to control flooding at the local level and we would encourage them to include those other storm events in their ordinances. The 2-yr., 24-hr. event is to control erosion under the bank full condition.

F64 Comment: (26 housing indus. reps.) Under Table 2, make the following changes to the respective Hydrologic Soil Group—Runoff Curve Number: A-67; B-78; C-85; and D-89. The proposed curve numbers (55, 68, 77, and 80) are unreasonable and extremely difficult to meet and would contribute to urban sprawl by inefficiently using an unnecessary amount of land.

Response: The runoff curve numbers are conservative for a reason—to identify a condition better than the cropland condition so control will be better than it was under the row crop. We modified the numbers somewhat while still providing a better level of protection than existing conditions. We recognize that using these numbers will increase the amount of land needed. However, the peak flow rate requirement will likely be met in a detention pond or swale that is already sized to handle the 80% sediment reduction control and/or other peak flow rate requirements of the local government. Controlling the 2-yr., 24-hr. event will not result in dedication of more land but rather an adjustment in the outlet control structure.

F65 Comment: (APWA) In NR 151.12(5)(b)1, the increase for surface water elevation should not be 0.1 of an inch, but 0.01 of a foot.

Response: We deliberated this and, because the engineering community seems more comfortable using 0.01 of a foot, we went back to that way of presenting the requirement.

F66 Comment: (RPC) NR 151.12(5)(b)1 sets an unnecessarily stringent limitation on possible water surface elevation changes during a 2-year storm. Lands draining directly to a lake should be exempted from meeting the 2-year storm control requirement, as they were under the original version of the proposed rule. The performance standard should also be revised to call for the peak rate from a site to be maintained at, or below, the existing rate whenever possible, but to allow an increase of no more than a given percentage of the peak under existing conditions (a maximum increase of 5% would be reasonable).

Response: See the response to comment F62. Since we use the term maximum extent practicable for this requirement, there is sufficient flexibility if a slight increase is warranted in a specific situation.

F67 Comment: (WLWCA/WALCE, several counties) Clarify that the TR-55 publication date is 1986. Computerized versions of the program are widespread, always changing and irrelevant to the code.

Response: We added this date to the reference to TR-55.

F68 Comment: (WLWCA/WALCE, several counties) This performance standard should also apply where increased runoff may cause gully erosion (velocities beyond channel stability) in downstream conveyance systems, such as grassed waterways. For this application, the 10-yr., 24-hr. peaks should also be controlled. This is a chronic problem for farmers downstream from urbanizing areas.

Response: We originally included the 10-yr., 24-hr. event because of the concern for downstream receiving systems handling the flow safely, whether there are pipes or swale drainage. But because this is

a water quantity issue and should not be included in this set of rules, we removed it from the performance standards. This issue can still be addressed locally by an ordinance.

F69 Comment: (engineer/land surveyor) What is MEP? Does each plan reviewer get to determine this? If you have excess land, do you have to do more? It could be very arbitrary. Does it change from county to county or municipality to municipality or from project to project?

Response: Maximum extent practicable is defined in the definition section. In practical terms it is proposed by the site designer when submitting the Notice of Intent for a permit and it is reviewed either locally or at the state, if resources allow. It will be different from project to project and this is a good thing. For pollution to be controlled from developing sites the designer must take into account local conditions, including soils, slopes, time of year, BMPs available, etc. Over time, a particular designer will become more experienced and comfortable with selecting BMPs and will be able to generalize certain categories of conditions to speed up the process.

NR.151.12(6) Infiltration Performance Standard

F70 Comment: (individual, 2 env. orgs., TU) We support infiltration standards that require developers to design their projects so that storm water stays on site instead of rushing into nearby waterways.

Response: The standard is not intended to keep all the water on site. It is set at a level that will more closely approximate pre-development conditions and as such will provide better base flow to the stream and reduce erosive conditions. The concern about water quantity cannot be met with these rules.

F71 Comment: (9 concrete companies) Infiltration and elimination of volume from new sites needs more testing before a blanket requirement is carved in stone.

Response: The infiltration requirement was modified to address some source areas and not others, such as roads and most parking lots. We added a cap to reduce the amount of land required to meet the standard for some land uses. This should reduce many of the concerns about long term maintenance, groundwater contamination and site restrictions or cost. These practices are used in other states now and a good deal of information is available. Technical standards will be written to support the performance standards to make it clear what situations are best suited to infiltration and how to achieve compliance.

F72 Comment: (Engineering/survey firm) What efforts will be required when infiltration practices are not allowed? The rules state that infiltration shall not be allowed where groundwater or bedrock exist within 5 feet of the surface or when soils have less than 10% fines.

Response: When conditions are not right for infiltration, and those are identified as exclusions and exemptions in the code, the performance standard does not have to be met. We modified the code to made this clearer. The separation distance has been modified based on the source area being infiltrated. We also added a note under exclusions to clarify that this means don't infiltrate.

F73 Comment: (RPC) Prescribing infiltration will result in an increase of basement backups in the greater Milwaukee area and an increased bypassing of sanitary sewage.

Response: The performance standard only applies to new development where new sanitary and storm sewers or swales will likely be constructed. Infiltration in areas away from the foundations and sanitary laterals will decrease the possibility of bypassing. If infiltration would raise the groundwater table, it would be a very localized effect. We exempted redevelopment and areas of high groundwater from meeting the infiltration performance standard. Most of the bypassing in Milwaukee is from existing development. This performance standard will not make that situation worse.

F74 Comment: (WLWCA/WALCE, several counties) The performance standard should read: "To the maximum extent practicable, maintain 90 percent pre-development average annual infiltration volume for residential land uses and 70 percent for all other urban land uses." This would reflect where the 3 methods came from. Current language does not meet the department's own definition of a performance standard.

Response: We agree. This is a better way to present the standard.

F75 Comment: (concrete pipe, 9 concrete companies) We are aware that federal regulations call for these changes to the Wisconsin codes, but we do not feel that the statement "attempt to maintain pre-development runoff conditions" should be part of a Clean Water Act and definitely should not be used in an area like Wisconsin, which has poor success with infiltration techniques.

(WCA) If you think infiltration is a good idea, you should present it to the public (with a system that works well in Wisconsin) as a separate issue rather than slipping it into the Clean Water Act as a federal requirement.

F76 Comment: (WI Concrete Pipe Assn.) The Clean Water Act, a program meant to clean up the storm waters going into our lakes and streams, should not be used as a mandate to require recharging of our groundwater by infiltration. Of the hundreds of pages of the CWA, you have taken the one line "Attempt to maintain pre-development runoff conditions," and address only the quantity of water leaving one acre from new development of 1.5 miles for highway construction. This sentence means quality of water leaving the property, not quantity. Your assumption that all water leaving an acre of new development or 1.5 miles of highway construction is bad water will eventually cost taxpayers many unwarranted dollars.

Response: Maintaining pre-development runoff conditions has many water quality benefits and meets the intent of s 281.16, Stats. The performance standards is a state statutory requirement that is separate (though related to) implementation of the Phase II federal stormwater rules. The confusion is that the performance standards will be enforced through the stormwater permit program, a federally mandated program. In Wisconsin groundwater is considered a water of the state and worthy of protection, unlike in the federal requirements. Groundwater contributes much of the base flow in streams. Emulating pre-development conditions will maintain base flow, which is directly related to stream water quality.

While the standard is written as a volume of water, infiltration is a water quality practice. It is a means to reduce pollutants and otherwise improve the quality of runoff through adsorption, trapping, bacterial degradation and cooling. Infiltration through soil traps pollutants that wouldn't have been captured in a settling basin. The biological activity and ion exchange in the soil also reduces certain contaminants that wouldn't be removed otherwise. Volume, if unchecked, can cause erosive conditions that lead to stream sedimentation such as when the bankfull condition is exceeded frequently. Finally, recharge of the groundwater has a direct affect on the water quality of a stream by increasing or maintaining the base flow, thus supporting fish and aquatic species.

There are few studies on infiltration devices that treat stormwater in Wisconsin. The study most often quoted is from Maryland where the success rate was very low due to poor siting, no pretreatment, and no upslope stabilization. These concerns will be addressed in the technical standard for infiltration BMPs so that Wisconsin does not make the same mistakes.

F77 Comment: (Dept. of Commerce) This subsection does not establish any type of performance standard. Infiltration to the MEP is not measurable. The subsection seems to indicate a solution to achieve groundwater recharge that is beyond the scope and authority of the enabling statutes, s. 281.16, Stats.

Response: See response to comment F75. We made some changes to this performance standard.

F78 Comment: (city eng. dept.) The infiltration goals are too aggressive. It is going to be very difficult and very costly for the development community to meet these requirements--cut them in half. We hope the department is planning an aggressive education program on infiltration practices for engineers, developers and the general public. Property owners become very concerned with standing water near their property and do not understand the benefits of infiltration, thinking only of the pesky insects that breed in these areas.

Response: We agree that for some areas these goals are very aggressive. We increased the number of exemptions and exclusions for locations where infiltration is not feasible, appropriate, safe or practical. The remaining locations should be able to meet the standard. We established a cap on the maximum area new development would need to set aside for BMPs to meet the standard. In many cases this area will be incorporated into other requirements such as flood or sediment control. Source area control may be incorporated on-site as part of the landscaping plan. Education will be very important both for the landowner and municipal staff. This performance standard will require developers and reviewers to view site development differently. It will take time to affect a change and education is critical to the process.

F79 Comment: (builder's assn., 27 housing indus. reps.) This standard should be removed from the rule and developed separately. Infiltration systems have a high failure rate, the standard does not specify alternative methods when infiltration is not used, and the regulation has the potential for creating groundwater pollution.

F80 Comment: (public works dept.) If it is recognized that infiltration practices diminish in effectiveness over time, what happens when they fail? Are new wetlands created as a result? Will property owners be faced with other restrictions due to wetlands on their properties?

Response: This standard is an integral part of counteracting the effects of development. While there have been studies that show infiltration devices fail, those studies have also identified the reasons for the failure. We learned from those studies that sometimes infiltration should not be encouraged; that some land uses will have a greater chance of causing groundwater contamination; and that the natural infiltrative capacity of the site should be preserved as much as possible. The performance standards reflect the lessons learned and do not require infiltration where it is inappropriate. This performance standard and the technical standards under development will guide the designer to a successful use of infiltration practices. We modified the wording to make it clear that certain areas are prohibited from meeting the standard while other areas are not required to meet the performance standard.

During the development of the infiltration technical standard, the team will make every effort to identify the conditions under which infiltration devices can be successful. The performance standard now states that the infiltration capacity of the soils must be at least 0.6 inches/hr. or the infiltration requirement does not need to be met. Maintenance will still be a requirement, and the infiltration rate may go up and down at times, depending on the success of the vegetation, but proper maintenance should prevent them from failing or becoming wetlands. The wetland code recognizes that stormwater devices may take on wetland amenities if not maintained. If they are built and maintained as treatment units they will not be designated wetlands. If they are neglected and take on wetland attributes they can be deemed wetlands and subject to wetland regulation.

F81 Comment: (consultant) You still have to follow NR 151 even though you have a ch. 30 permit. If you comply with one regulation, you have problems with another. Often low areas have tighter areas than upper areas. Using 4-8% is fine, but you may not have a place to infiltrate in low areas due to soil type.

Response: We modified the infiltration performance standard to address tighter soils and the area needed to meet the standard. The ch. 30 conditions and these standards should be compatible. If they are not, then MEP will allow the flexibility to avoid conflict.

F82 Comment: (WLWCA/WALCE, several counties) The criteria in the code that mandates where infiltration BMPs are prohibited is best addressed in the development of infiltration BMP technical standards, not this rule (also applies to transportation projects).

Response: While a technical standard will have detail on when, where, why and how a practice will be installed, it is still important in the code to identify where the performance standard applies.

(Comment cont'd.) Some examples: 1. Roof runoff – we believe it is not possible to classify the quality of rooftop runoff by what is made or sold under the roof. Broad exclusions from the infiltration performance standards are not appropriate.

Response: The land use does have an affect on the potential for contamination in the stormwater. In areas of heavy industry, the smoke stacks are contributing particulate material that may be laden with toxic materials. While some roofs may not be contaminated within that land use we felt it best to exclude the entire category because of the high risk potential.

(Comment cont'd.) 2. Five feet groundwater separation distance – we believe this is unrealistic and unnecessary for "clean water" infiltration, such as roof top runoff;

Response: This has been changed. Now only the higher risk source areas will include this separation and the lesser risky source areas will only need to meet a 3-foot separation distance.

(Comment cont'd.) 3. Soils with <10 percent fines – this is overly simplistic and does not explain to what depth, for what practice, for what water, etc.;

Response: We provided more of a description for this category, such as what percent fines and for what depth. The intent is to apply the performance standard only to a site that will have sufficient fines to treat the stormwater.

(Comment cont'd.) 4. Chloride exemption – this will act as an incentive to use salt on all paved surfaces.

Response: While we don't believe this would have been an incentive to use salt, we restricted the exemption to source areas that would pose the biggest problems because of salt usage.

F83 Comment: (LCD) The 3 different criteria to meet this standard are very unclear. Infiltration practices are probably the most exciting part of the code and are long overdue in urban areas. We're way behind on the technical standards. I realize that's why you have details in the code, but you're essentially trying to write technical standards into administrative code.

F84 Comment: (consultant) There are no engineering/technical standards, nothing that tells me and my colleagues to do this. You can have a huge industrial site where water comes from 4 acres of rooftop and runs across 10 feet of grass or into a ditch, and you no longer have connected imperviousness. As a village engineer, I would say that under this situation you're increasing runoff, but DNR is saying with these rules that it's not connected imperviousness and that the infiltration requirement does not apply. You need to have the infiltration standard written by engineers who actually design something that will make sense and work for everyone involved. There's no benefit to reducing connected imperviousness. You still have to infiltrate runoff. You can reduce connected imperviousness from 40% to 20%—that does a great deal for the environment, but the builder doesn't get credit for it. You still need to find ways to infiltrate roadways. (also applies to transportation infiltration performance standards).

Response: We revised the infiltration performance standard to a percent reduction for residential and non-residential development, which is more appropriate to a performance standard. We included a design storm method for calculating the volume to infiltrate. This should make it easier for engineers to use. We also included a cap, which will make it easier for developers and municipal officials to understand. We still want to encourage minimizing the amount of impervious area and we will need to define in a technical standard what is connected imperviousness and what is not and how a developer should get credit for this. However, we will not be able to infiltrate all runoff, nor should we. We specifically eliminated infiltrating highways because the risk of groundwater contamination was believed greater than the risk from this volume of water reaching the surface waters. The infiltration technical standard team continues to meet and will likely have standards ready for the public prior to the effective date of the post-construction performance standard (2 years after the effective date of the rule).

F85 Comment: (LCC) We accept the premise that infiltration needs to be addressed in the non-agricultural performance standards, but have some concerns with the present format. Based on site exemption criteria listed in the rules and referencing infiltration feasibility criteria from the Center for Watershed Protection, an analysis of how this standard would apply to Dane County was completed. Approximately 69% of the county land area would be exempt from doing any infiltration and most new construction would be exempt from the rule.

Response: We modified the standard to encourage clean water to be infiltrated from certain source areas in most areas of the state, from some source areas to a lesser degree and not at all from some source areas. We will continue to have some areas that are excluded or exempted for practical reasons or to protect the groundwater. Perhaps as this performance standard gains wider acceptance and scientific data better identifies the risks from some source areas, we will be able to encourage infiltration in more areas.

F86 Comment: (Dept. of Commerce) NR 151.12(6)(d)1 Exclusions. The requirement states that "No person may use BMPs to implement this subsection in any of the following:" The excluded sites could negate the need to comply with the infiltration standard. Along the same line, if a site is ½ type D and ½ type A soils, will the owner be required to comply with the infiltration standard? What about BMPs that substitute for infiltration, like reuse? Could a site meet the requirement by implementing that option?

Response: In the excluded or exempted locations, the infiltration performance standard will not be met. If part of the site can meet the standard then it should. Identifying the area on the site where infiltration is most feasible should be part of site planning since the practice may only be needed in that one area.

Substitutes for infiltrating runoff need to meet the intent of the performance standard in terms of equivalent pollutant removal, groundwater recharge or volume reduction to prevent downstream erosion. If reuse meets those goals it can be credited.

(Comment cont'd.) Based on 5 feet of suitable soil, there are approximately 21 million acres or 57% of Wisconsin's soils that will be prohibited from or not be required to infiltrate storm water. Does this exclusion negate the impact of the infiltration standard?

Response: We modified the separation distance for certain ("cleaner") source areas. If we can increase the amount of runoff that is infiltrated, then we may be able to significantly improve water quality. The limitation on suitable sites will not negate the impact, just reduce its effect in some areas. This performance standard is a risk assessment. If it is safer to continue directing runoff to a stream, even though it may be causing an environmental problem, than to direct it toward a drinking water supply, we need to protect the water supply over the surface water resource.

F87 Comment: (eng./land surveyor) Many projects will fall into the exclusions for BMP technology for karst features/high water table and wells. What does an excluded area require if BMPs cannot be used to infiltrate? Are grassed swales excluded? Do we need storm sewer and paved ditches? Do detention ponds require liners? According to Dept. of Commerce's analysis of state soils maps for the EIS for Comm 83, more than 50% of the state will fall under this exclusion.

Response: We are taking a step in the right direction by increasing the number of areas where infiltration will be encouraged. In other areas we will not prevent natural infiltration or minimal infiltration through devices not designed to infiltrate, such as swales and pond bottoms. This will still be a tremendous improvement over the present trend. We reworded the section to make this and other points clearer. The separation distance in the exclusions was modified to include more areas.

F88 Comment: (LCC) The standard says that infiltration practices will only take up to 8% of the site for non-residential sites. This does not include the land necessary to meet the other standards in NR 151. Land will also be required to meet water quality and quantity standards.

Response: The amount of land that needs to be set aside for infiltration was reduced. We set a cap of 1% for residential and 2% for non-residential development. In many cases, meeting this performance standard will not take more land than developers currently set aside for flood control. The areas do not have to be additive and exclusive. Sediment reduction, peak rate control and infiltration can be accomplished in the same area with only a minor change in the design. If roofs are directed to lawns the overall volume to the final device is reduced. If the sediment control structure is used as pretreatment to infiltration it can be downsized and the 80% reduction of sediment can still be achieved in the combination of the two structures. Peak runoff control can also be accomplished in the same space. The designer will need to be a little more creative in the combination of goals and practices.

F89 Comment: (city public works dept.) NR151.12(6)(a). This standard could have a significant impact on future residential developments in the state. The denser the development, the greater the amount of area that will be required to meet the infiltration requirement. The code provides an incentive to engage in larger rural style development that takes a greater amount of land per capita. For developers who decide to proceed with more responsible land use development, the proposed code will increase lot prices by almost 10%. This increase puts into question the ability to realistically proceed with affordable new housing developments. Two examples are given to illustrate the point (listed below).

Response: The amount of land dedicated to infiltration is dependent on the amount of impervious land. We set a cap that will require only one percent of the land be set aside even for the densest development. This should take away any perceived advantage to lower density development and allow municipalities to continue to encourage responsible growth.

The maintenance of devices is an issue with all structural controls, both for water quality and peak flow control. Stormwater detention ponds are poorly maintained in many communities, reducing their effectiveness. The requirements outlined in NR 151.12 are attempts to minimize potential maintenance problems, but a maintenance program is still an essential part of continued practice effectiveness.

The intent of NR 151 is to ensure that developments safeguard water resources by meeting environmental controls. A planned subdivision prior to NR 151 would have had 50 houses and may now only have 45 due to water quality controls and infiltration requirements. If not for NR 151, the subdivision would have 50 homes with no water quality controls, thus having a significant impact on the environment.

Contamination of groundwater through infiltration is a concern, which is why the standard was modified to encourage the infiltration of only cleaner water. Infiltration on smaller scales where the absorptive, chemical, and biological processes of the soil are not overwhelmed provides little risk of groundwater contamination. Examples would be on-site practices such as swales, rain gardens and bio-retention.

(Comment cont'd.) Example 1: Large-lot development (Medium density residential, ¼ acre lots, 102.4 acres in drainage basin, hydrologic soil group B). Using the WI Stormwater Manual's guidance on sizing retention basins to trap 80 % of TSS, 0.82 acres would have to be set aside for the pond surface area. Factoring a 30-foot buffer area, the total area for pretreatment adds up to 1.35 acres. Calculating the infiltration volume using the values in Table 3 in NR 151.12(6), 1.96 acre-foot volume is required and using the equation in the same subsection, 1.32 acre-foot volume would be needed for infiltration. Using the smaller requirement (1.32 acre-ft.), the land requirement is 2.62 acres. Adding the buffer areas results in a total of 3.53 acres for the infiltration area. Combining the pretreatment and the infiltration requirements results in 4.88 acres of total area which is 1.81 acres larger than the 3.07 acres currently meeting the City's detention requirement—a 59% increase in area. The impacts of this additional area is a reduction in lots available to the developer by about 6.5 lots. At current prices of \$40,000 - \$50,000 per lot, this has a net impact of almost \$300,000 to be distributed to the other homes, increasing lot costs by approximately \$1,400.

Response: Not long ago municipalities did not require a developer to set aside land to control peak flows. Now it is common practice in many municipalities and is an assumed component of any design. The developer no longer thinks of those 3 acres as land and profit lost, but simply the cost of development, just as building certain size streets and sidewalks are a necessity in a subdivision. The developer has learned to accommodate these requirements because they serve a greater good. Water quality control, a requirement that will result in a greater good, has not reached the same level of acceptance, but in time it will. We need to take a holistic approach to development and factor in the costs associated with reduced infiltration to the aquifer, increased surface runoff, and increased pollutant loads if we don't control the problem at its source.

With Example 1, we established a cap that would require no more than 1% of the area be set aside for infiltration. With these changes the area needed for detention (1.35 acres) and infiltration (1.02 acres) will now come under the land the city asks the developer to set aside for flood control (3.07 acres) and there will be no net increase in cost. In addition, there are several other scenarios such as source area controls like rain gardens that could be implemented to reduce the total size of a regional infiltration facility. More innovative designs can reduce the amount of land required. In addition, developers can charge more for lots adjacent to storm water controls because of the amenity provided by a water feature.

(Comment cont'd.) (city public works dept.) Example 2: Compact development (Single family residential, 1/7 acre lots, 106 acres in drainage basin, hydrologic soil group B). Using the same process as in Example 1, the pre-treatment area with buffer totals 1.65 acres. When the infiltration requirement is calculated from both the table and the equation, the equation method results in a higher infiltration requirement, which is 5.56 acres factoring in the buffer requirement. As the infiltration area must be taken off-line during the winter months, an additional channel system must be provided around the infiltration area, which results in an additional 1.37 acres. The total area amounts to 8.58 acres which is an increase of 5.18 acres or a 252% increase over existing dedication requirements for storm water management. This increase results in the loss of 29 lots. The average selling price of these lots is \$41,000 for a net impact of \$1,189,000 to be redistributed across the remaining 300 lots, adding approximately \$3,963.33 or 9.6% to lot prices.

Response: Example 2 uses a series of worst case scenarios. There are other approaches that can be utilized to reduce the land area required for storm water management. For example, the infiltration also does not need to be combined into one large regional facility. Source controls such as rain gardens could be employed and the

total impervious area can be reduced with narrower streets and other design modifications. To maintain the same number of homes a development could include both large and small lots and single family as well as multi-family residential. See comment above regarding cost savings from 1% cap.

F90 Comment: (engineering/survey firm) To ensure that infiltration areas are maintained, most municipalities will require that these areas are dedicated to the public. Local municipalities will then experience financial hardships when many of these systems fail and the municipality is held responsible for reconstruction and maintenance costs.

Response: With the change to encourage only "cleaner" storm water to be infiltrated, more runoff will be kept on site with fewer regional ponds for a municipality to operate and maintain. If a municipality takes future responsibility for a device, it should also determine how future costs will be apportioned before accepting the responsibility. Some municipalities may set up a fee-in-lieu-of provision or a stormwater utility to cover future maintenance costs. If these devices are maintained they will be less likely to fail.

F91 Comment: (city public works dept.) The long-term maintenance costs are not discussed anywhere in the economic analysis. If, as past experience indicates, 3 of 5 of these devices fail in the first five years and the typical cost to repair a basin remain between \$10,000 and \$20,000, the cost to the communities where these devices exist would be significant and should be addressed by DNR. It is likely that many communities would not maintain the devices and the goal of infiltration would not be met in any way.

Response: It is in everyone's best interest to locate these devices in areas where they will be successful and where maintenance will not be prohibitively expensive. The technical standard to address construction and operation of these devices is being developed and will cover issues the performance standard could not, such as siting and proper construction to minimize the number of devices that fail. Maintenance will still be required as it is with all stormwater management practices. These costs may be borne by the landowner or the municipality in the case of a regional device. With the variety of infiltration devices available the cost estimate would be in the range of very few dollars for landscape maintenance to re-engineering the soils if the device clogs. The rule revision encourages more on-site practices with reduced maintenance requirements. See response to previous comment regarding failing devices.

F92 Comment: (LCC) The standard as proposed appears to have a significant amount of costs that would pertain to a very limited area and have questionable effects on achieving its intended purpose of groundwater recharge and decreased storm water runoff volumes. We suggest that the infiltration component be modified to the following: All downspouts, driveways and other impervious areas shall be directed to pervious areas unless infeasible. This would increase public awareness of the need for infiltration, develop solutions that can be readily implemented and maintained and increase acceptance from the regulated community that infiltration BMPs can and indeed do work.

Response: We agree with this intent and have modified the standard to begin with the concept suggested in the comment. However, we also feel that residential streets and even pervious areas can also be included. A final step is to include some portion of commercial parking lots since they represent such a large amount of the impervious area in this land use. The performance standard will be presented as a percent of pre-development infiltrative capacity, but we have included a cap (maximum area dedicated to infiltration) and have restricted the practice to reasonably permeable soils. We believe this more closely resembles the performance standard proposed in the comment with conditions that define feasibility.

F93 Comment: (MMSD, city, APWA) Many communities in the southeastern portion of Wisconsin have type C and D soils that make infiltration expensive and extremely difficult to achieve.

F94 Comment: (APWA) Trying to create infiltration through these soils will result in creating swamps, breeding grounds for mosquitoes and wet years that are of no environmental (and esthetic) value. The size of the infiltration basins, coupled with the requirement to reduce pollutant loading by 80% mean the ponds will get so large they become impractical or the pond does not meet the pollutant reduction goals

Response: We disagree that infiltration cannot occur on C soils, however, we modified the standard to exempt any site that cannot achieve at least 0.6 inches/hour of infiltration. This may eliminate a number of sites with C soils. Research has shown that the risk of clogging goes up as the infiltration rate goes

down, and 0.6 inches/hour has been identified in the literature as a reasonable rate. Type C soils can have a reasonable permeability rate when care is taken not to destroy the soil structure during construction or if the soil structure is restored through deep tilling practices or deep rooted plants are grown for a few years. The capacity is more dependent on the soil structure than on the soil classification.

F95 Comment: (APWA) Attempts at providing infiltration basins will result in these basins plugging while trying to achieve pollutant reduction goals (suspended solids).

Response: The modification to the performance standard will require infiltration of the cleaner storm water. Clogging should not be as big an issue. If regional devices are used, pretreatment is a necessary feature to remove some of the suspended solids that would cause plugging. The technical standard will provide information on how this can be done effectively. While in some cases the infiltration standard can also meet the standard to reduce TSS, this is not the primary reason to include infiltration.

F96 Comment: (11 concrete industry reps., WCA) The WI Construction Site Handbook/DNR Storm Water Manual points out that over half of the trenches in North America fail within five years of installation from clogging—infiltration trenches do not perform well in cold climates and clog to the point of failure and the ground freezes up in winter.

F97 Comment: (engineering/survey firm). The implementation of new rules requiring design practices that are not proven to be reliable seems unreasonable. The only studies that I am aware of that looked at infiltration basins and their reliability were done in Maryland. The results of those studies showed that 3 out of 5 basins failed within 5 years.

Response: Infiltration basins should not be on-line during the construction phase, nor do they need to operate in the winter when the ground is frozen. They are appropriate post-construction devices for use in Wisconsin during April through October, when most of our rains occur. The study on clogging was very limited to Maryland where the success rate was very low due to poor siting, no pretreatment, and no upslope stabilization. We do not intend to make those same mistakes in Wisconsin. The technical standard will cover these concerns.

F98 Comment: (city) We object to mandating infiltration as a BMP. Infiltration is a very good BMP in warmer climates where frost is not a major component of the climate. In Wisconsin, the soil has frost in it anywhere from 4 to 6 months of the year making infiltration very difficult.

Response: If the site is not conducive to infiltration because of tight soils it will most likely test below the 0.6 inches/hour and will not need to meet the requirement. Infiltration is not required during frozen ground conditions.

F99 Comment: (city) Any type of infiltration basin or trench that is to be constructed must be accomplished with precision. Nothing can be driven on it or even walked on or the soil becomes too compacted and the BMP does not work properly. This method of construction does not lend itself to the type of development that is seen in southeast Wisconsin due to the relatively short construction season.

Response: Taking care not to use heavy equipment on the area of the development where the infiltration device will be located is a matter of education. Frequently developers leave wooded areas or wetlands intact during the construction phase. It is not an impossible request to ask that an area be protected. These sites can be walked on. Their soil structure can also be restored with post-construction techniques.

F100 Comment: (city) DNR recognizes that infiltration will fail and mandates it anyway. "Infiltration practices are expected to diminish in effectiveness over time. It is better to rely on multiple practices in series as opposed to one practice to maintain long term infiltration." It seems like a bad idea and bad public policy to mandate anything that is destined to fail. DNR cannot take the attitude that something should be tried until it fails and then the rules will be changed again. The communities that have to comply with these rules need something they can meet and enforce consistently and realistically. The infiltration standard is not realistic.

Response: We agree that the wording is misleading to the reader and have eliminated it. By diminished effectiveness we meant that the permeability rate may be cut in half over the life of the device. We did not mean to imply that they would diminish to the point of failure. This reduction can be taken into account

during design to reduce the impact of this phenomenon and to size the device so that it continues to infiltrate at an acceptable rate.

F101 Comment: (WSPE) Infiltration trenches and basins do not work in the winter months and are not suitable for many Wisconsin soils, rock and wet areas. Infiltration must have pre-treatment to keep solids from plugging the system. If we must pre-treat, why infiltrate?

Response: Infiltration offers additional benefits beyond sediment reduction in the stormwater. 1) It reduces the volume of water reaching nearby streams, flows which can have erosive rates. 2) By entering the groundwater system rather than the surface water system the flow can increase the base flow in the stream which can have a dramatic impact on the water quality of the stream. 3) And finally, treatment of stormwater through soil adds cooling, filtration, trapping and biological activity to the methods of pollutant removal. Many pollutants cannot be removed through settling alone. Pretreatment typically provides only sediment reduction through settling. Pretreatment is primarily needed to maintain the infiltration capacity of the device.

F102 Comment: (WSPE) Your infiltration system requirements designed for a 2-year storm have little effect on downstream erosion and damage when compared to a planned detention system designed for 10- or 20-year storms which do not freeze shut, clogging up for the spring thaw.

Response: Designing for the 10- or 20-year event is to prevent downstream flooding, which certainly causes a good deal of damage if not handled properly. The statute mandating these performance standards does not give DNR the authority to control flooding although a municipality is not precluded from adding those restrictions in a local ordinance. The inclusion of maintaining or lowering the 2-year, 24-hour peak flow rate is not based on flood or volume control, but on limiting streambank erosion. The 2-year, 24-hour event is generally believed to be the bankfull condition that when exceeded can result in excessive streambank erosion. Maintaining or lowering the frequency at which stream flow in the bankfull condition will help to limit erosion in streams that would otherwise worsen with increased flow rates during these conditions.

F103 Comment: (RPC) NR 151.12(6)(b). The term "drainage area" should be more specifically defined.

F104 Comment: (Dept. of Commerce) The infiltration of no more than 0.5 inches per storm event from any one area is a peculiar way to address the design standards. If a designer can show that more than 0.5 inches from one area is available for a substantial number of storm events during the year, shouldn't the design be permitted to reflect that availability? Why was 0.5 inches chosen? We believe that more investigation should be made prior to implementation of this prohibition.

Response: This language was deleted. This is better dealt with in the technical standard.

F105 Comment: (LCC) There is no supporting documentation as to why the numeric standards were chosen. If these limits are followed, will base flow be protected in streams? The limits don't seem to follow any methodology that is currently being used by the professional community.

Response: We know that by increasing imperviousness by as little as 10%, the streams in the area degrade. One reason that is frequently overlooked is the reduction in areas for infiltration. The goal of this performance standard is to emulate the pre-development condition as closely as is economically and technically feasible. The performance standard includes a cap to reduce the economic impacts of the standard. This standard works together with the other performance standards to achieve the water quality standards. Every stream is different and would require extensive monitoring and modeling to identify the critical point at which base flow drops below acceptable levels. That level of analysis is not yet being practiced by any professional community and we are not asking that it be done here.

F106 Comment: (Dept. of Commerce) NR 151.12(6)(c) There are no performance standards contained with this "pretreatment" requirement. How does one determine if "little" pretreatment is good enough? The standard needs to include the amount of pretreatment for oil and grease. Is it a visible sheen? Is it 15 mg/L? What about other constituents? When is pretreatment required for contaminants other than grease and oil? This is another requirement that isn't ready to be implemented by several DNR officials across the state. There is too much room for interpretation.

Response: With the modifications to the performance standard, pre-treatment will only be required when infiltrating runoff from commercial parking lots. The purpose for pre-treatment has been better defined. The technical standard team is working to better define this in the technical standard for each BMP. This requirement will vary with land use, potential pollutants and the site constraints. The rule is not the place to describe this complexity. Areas that have an infiltration and pre-treatment requirements also have to reduce total suspended solids by 80%. A designer would have this standard to fall back on as a possible pre-treatment objective. Pre-treatment may be most critical to prevent clogging, so the solids reduction may be dictated more by the clogging potential than the possible groundwater contamination.

F107 Comment: (RPC) NR 151.12(6)(d) excludes "areas with less than 5-foot separation distance from groundwater." The groundwater condition for which the separation applies needs to be stated more specifically (e.g. seasonal high groundwater level).

Response: Yes, it should be seasonal high groundwater. The change has been made.

F108 Comment: (APWA) In NR 151.12(6)(d)1.f, the distance from municipal wells should be 1,000 feet consistent with many wellhead protection provisions for municipal wells and rules for siting storm water ponds.

Response: According to NR 812.08 private wells cannot be installed within a 100-foot radius of stormwater infiltration basins. Public wells must have a 400-foot separation from stormwater drainage ponds (NR 811.16). To be consistent with these codes we are using these two values. There are wellhead protection areas for some of the wells in the state and we would advise local officials to take this into consideration when siting infiltration devices.

F109 Comment: (Dept. of Commerce) NR 151.12(6)1, 2, 3. The rules need to place performance limitations that affect groundwater and surface water quality with the addition of criteria for the infiltration BMPs to meet, such as:

1. Designed to reduce contaminants to the NR 140 standards at the point of standards application.

Response: This limitation is already discussed in NR 151.12(7)(e).

2. Designed and installed to prohibit ponding on a site in excess of 8 inches on parking lots and other paved walkways.

3. Designed and installed to prohibit ponding on a site to the point of entering a building at grade level.

Response: This is a safety rather than a water quality issue. These concerns are best handled under considerations in the technical standard.

4. Maintained to continue operation within design parameters.

Response: This should be a given and will be explained in the technical standard.

F110 Comment: (Dept. of Commerce) NR 151.12(6)(f). There are problems associated with currently accepted installation practices. When the A horizon is removed and a storm water BMP is installed, the capability of the soil to reduce bacteria and other contaminants may be greatly reduced. This risk should be addressed prior to implementation of these rules, or the environmental impact could be devastating.

Response: The performance standard did not assume that the A horizon would always be in place. Surface infiltration devices will likely be vegetated. The site is prepared for vegetation by replacing the topsoil and perhaps even tilling in compost to enhance the infiltration capability and plant growth. Subsurface structures will be dependent on the soils below the structure and may need additional pre-treatment if the soils below the device are lacking in structure, organic content, cationic exchange capacity or other parameters indicative of pollutant removal capability.

F111 Comment: (city public works dept.) We have concerns regarding the possibility of contaminated storm water being directed toward the groundwater, and possible violations of NR 140. DNR appears to have taken some steps toward addressing this concern by allowing a bypass for chloride contaminated runoff, but this requires additional land dedication and construction costs.

Response: Modifications to the performance standard eliminated the need to bypass, because arterial roads in residential areas and all roads in industrial, commercial and institutional areas were eliminated from the requirement. The remaining source areas that will be infiltrated are considered cleaner sources and will not carry the heavy pollutant load, including chlorides.

F112 Comment: (builder's assn.) This regulation has the potential for creating groundwater pollution.

Response: By exclusions and exemptions the standard addresses the known potential contaminant sources and methods to protect the groundwater. The standard is focused on infiltration where it is environmentally safe. If this can't be achieved, then the runoff should continue to go to the surface water. Currently storm water does run overland, often from highly contaminated sites, without any pre-treatment or engineered devices. The potential for groundwater contamination exists with present practices.

F113 Comment: (engineering/survey firm) NR 151 conflicts with NR 140. Implementing infiltration practices increase the risk of groundwater contamination. What studies have been completed by the DNR to establish guidelines so developers will not be held liable if NR 140 rules are violated while trying to comply with NR 151?

Response: NR 151.12(7)(e) identifies how NR 140 and NR 151 interact. If groundwater contamination from a device seems imminent, then the operator must make every attempt to discontinue engineered infiltration and they would be released from the infiltration requirement.

F114 Comment: (RPC) Even with the requirements for pre-treatment and the exclusions established in NR 151, the potential for groundwater pollution is too great given 1) the limited data available on both the effectiveness of pre-treatment systems and the movement of pollutants within the soil column, and 2) the opportunity for transmission of dissolved pollutants directly to the groundwater. It is impractical to expect storm water management systems to be actively operated to reliably enable diversion of runoff containing chloride de-icers away from infiltration facilities. The note to NR 151.12(6)(c) recognizes that "it is desirable to infiltrate the cleanest runoff to meet the infiltration standard" and implies that the infiltration standard is intended to achieve groundwater recharge, augment low flows, preserve the temperature regime of coldwater streams and maintain pre-development site hydrology through runoff volume reduction rather than control of nonpoint source pollution. To avoid trading a reduction in surface water pollution for an increase in groundwater pollution, infiltration should be limited to runoff from pervious areas and rooftops, where appropriate, and that the performance standards be revised to reflect that limitation. The requirement for infiltration should be limited to areas where it is determined, based on site-specific analyses, to be needed to meet the water use objectives, such as in the case of a coldwater fishery drainage area.

Response: Studies have analyzed pollutants in storm water based on their individual concentrations and mobility and assessed the potential risk to groundwater. Dissolved fractions are more problematic and chlorides posed an obvious threat. However, infiltration has many benefits, which we have listed in the rule. It is still a practice that results in significant pollution reduction. Its water quality benefits are very real if located safely. We recognize the concern that only the cleanest water be infiltrated and changed the performance standard to remove arterial residential streets and all commercial, industrial and institutional streets and most parking lots from the infiltration requirement. The primary focus of the new standard is roofs, pervious areas, residential driveways, sidewalks and feeder/collector streets.

NR 151.12(7) Buffers

F115 Comment: (golf course) I support NR 151 in principle but strongly suggest the use of research data from respected institutions to set guidelines, limits, and setback requirements. The proposed limits have inconsistencies with scientific research and seem to lean toward a reactionary position.

Response: We are aware and have attempted to incorporate, where appropriate, the information provided by university scientists. Research on turf management is not being disputed. It does not however, provide the entire picture or all the possibilities available to a property owner. Native vegetation has many advantages not provided by high maintenance turf grass, such as wet weather and drought tolerance and bank stability. The rules do not preclude the use of turf grass in buffers in developing areas. The rules encourage the use of native vegetation because of its additional benefits and asks that developers

think outside the box to improve the quality of our lakes and streams. The rules language was modified to reflect the importance of vegetation that is weather tolerant and provides bank stability.

F116 Comment: (WAL) Urban buffer areas should be 75 feet for lakes and ORW/ERW waters. Lakes receive, store, and recycle sediment and nutrients. They do not cleanse themselves as a river might. Lakes deserve the highest standard of protection.

Response: Buffer widths for lakes, streams and wetlands are all at 50 feet. The distance was not selected for any particular water resource attribute, but rather to stay consistent with existing DNR programs such as Shoreland Management and yet raising the bar a bit. Shoreland zoning requires a vegetative buffer for only 35 feet and structures are set back 75 feet. While research on buffers shows variance in effective widths, 50 feet as a starting width is frequently reported. Thirty five feet is not as protective. The 75-foot width for ORWs and ERWs was a decision made by our Natural Resources Board. County and municipal ordinances that go beyond the 35 foot buffer width can still be in effect with these rules in place. Since we are setting a statewide standard, we did not feel we could go as far as some ordinances. Many incorporated areas have no restrictions placed on them. Fifty feet will be considered a hardship.

F117 Comment: (city eng. dept.) We disagree with the 50-75 foot wide buffer requirement adjacent to wetlands. This will be overly prohibitive for developers and designers. A 10-foot wide buffer would be more appropriate for wetlands.

Response: The reason for the wide buffer around wetlands is that the runoff volume directed to the wetland will increase significantly when the surrounding area is developed. For the wetland to maintain its integrity, it needs the protection from increased flows and pollutants provided by a buffer area. We realize that the buffer requirement asks a developer to set aside a desirable development area, but the benefits of buffers are numerous and cannot be overlooked. Larger buffers are needed in the urban setting because once land is developed it cannot easily be restored to natural vegetation. Wetlands are frequently changed from a diverse population of wetland species to a monoculture of cattails or reed canary grass after the drainage area is developed. There are numerous buildings on the edge of lakes, wetlands and streams that cannot be moved as the water moves or the flows increase and the wetland or lake needs to expand to handle that flow. Instead, great efforts and resources are directed to continually reinforce and protect these structures. Impervious areas should not be built close to water bodies and this point is best made during the construction phase rather than later when a stream must be channelized because it is threatening property. Many states are attempting to restore buffers along streams where development has already occurred in order to restore the stream's water and aesthetic qualities. These efforts are very expensive. Staying back from lakes, wetlands and streams in the first place is the best policy. The buffer width of 50 – 75 feet is consistent with those for other surface waterbodies.

Wetlands have long been viewed as natural pollutant devices not warranting buffers, but monitoring has shown a decline in urbanized wetlands that are not protected from pollutant loads such as suspended sediment, nutrients, and metals. Maintaining a 50 – 75 foot buffer will help limit the amount of pollutants entering the wetland and provide habitat for wetland species. A 10-foot buffer is not sufficient to meet water quality goals and has limited ancillary benefits.

F118 Comment: (APWA) This section should not apply to development on property platted prior to code adoption or the state will be "taking" this property and will need to compensate the property owners.

Response: The Wisconsin Supreme Court ruled that land use regulations are "takings" only when they render an entire property useless for all practical purposes (Zealy vs. City of Waukesha, 201 Wis. 2d. 365(1996)). The code requirement for up to 75-foot buffers will rarely, if ever, render an entire property, defined by the court as a whole parcel, useless. The code should not give rise to takings claims.

F119 Comment: (UW Hort. Dept.). NR 151.12(7)(c). Language referring to native vegetation being preferable to short-rooted vegetation such as Kentucky blue grass does not make sense.

1) Studies indicate well maintained turf prevents approximately 100% sediment loss which can be a primary means of phosphorus loss. Typical sediment loss from cropland can be 4 tons/acre/year. Studies indicate a typical turf will lose approximately 0.24 lb. N and 0.32 lb. P/acre/year while cropland loses 32

lb. N and 10 lb. P/acre/year. Prairies lose about 1-1.5 lb. N and P/acre/year. Only forests lose less N and P than turf, about 0.06 lb. N/acre/year.

2) Surface cover, not root depth, dictates runoff allowed and turf prevents almost all runoff because it has dense cover aboveground. There are more plants per square foot in a turf stand than in an unmowed prairie. Most turfgrasses used in Wisconsin have average rooting depths of 6 inches.

3) There are no data suggesting native plants are better environmental filters than turfgrasses. Data suggest unmowed prairie sites have greater losses of nitrate and phosphate than do mowed turfgrasses.

4) Data are lacking on the width of buffer strips required to achieve any given level of runoff prevention and filtration.

5) The extensive network of roots in a turf stand can withstand tremendous forces of water without washing away and combined with the dense turf cover, may actually resist water action better than unmowed "native" plant stands.

6) Unmowed native vegetation can attract and harbor pests and present a visibility hazard in urban environments.

7) There is little precise information identifying which species are native versus non-native. The geographic area for "native" would have to be defined. Will this conflict with the "non-native" species list currently being developed by DNR?

8) Native plants often cannot be readily obtained.

9) Even if native plants can be found, their establishment and maintenance will be difficult because:

a. Seed and transplants tend to be extremely expensive. Taxpayer money will have to support this cost which is not figured into the rules.

b. Seeding rates are not well determined.

c. Seed mixes are not well determined. There can be competition between plants of different species which can result in domination of one species, an effect which negates the benefit of providing "wildlife" habitat as wildlife diversity is typically enhanced by diverse vegetation.

d. Establishment methods are difficult and ill-defined. Even when appropriate species are identified, nondesirable plants (weeds) readily emerge during the establishment phase and often must be removed. The logical way to do this is with herbicides, though most herbicides will kill at least some of the desirable species, resulting in a stand of low diversity.

e. Management can often fail. "Native" stands of prairie need to be burned regularly to sustain desirable species and prevent weeds, including woody plants, from eventually dominating the stand. The UW prairie at Arlington has been overrun with Canada thistle. Burning requires permits and personnel. It often is not allowed in urban areas. Periodic mowing does not replace burning.

f. The new non-native and invasive species weed laws being developed by the DNR will add many species to the list. These will have to be controlled. In a vast, "native" plant setting, this will be impossible to perform.

g. The areas identified by DNR for buffer strips in this section of the rules are by and large not "natural" environments. The soil was either brought in from another location or has been extensively disturbed by construction. The microclimate will likely be different than that under which native plants flourished 300 years ago—pedestrian traffic, automobile exhaust, radiant heat waves from concrete, etc.

Response: We are aware that turf can achieve many of the goals of a buffer standard and are not disputing the findings of the research on turf grass. Nutrient export is only one of the issues related to a buffer standard. Bank stability is also a concern. The ability of turf to withstand the erosive conditions of storms and high water levels is less than that for longer rooted plants and trees. Vegetation other than turf provides habitat, shading, and biodiversity, all of which are desirable features next to a water body. This can be woody vegetation and does not always need to be grasses. What is planted in the buffer is dependent on the situation. The code does not specify the type of vegetation. An existing vegetated site can be left as is to provide the buffer. The code also encourages the planting of non-aggressive species so that the buffer does not become a source of weeds that choke out native vegetation.

This performance standard does not prevent someone from planting turf grasses in the buffer area. However, as we said in the note, this is least desirable because of its limitations. Other vegetation provides additional benefits. There is also a danger in planting and maintaining a lawn to which the owner will be continually adding nutrients and pesticides to keep a uniform look. These products can, because of the proximity to the resource, wash into the waterbody. While the establishment of native

vegetation takes longer than turf and some fertilizer and pesticide application is necessary for that establishment, the maintenance will be much less in later years. Native plantings can be mowed, although typically it is not with the frequency needed for turf grass. Turf will also need to be watered if the weather conditions are not favorable, unlike the native plantings, which are more drought resistant. There are more nurseries specializing in native plantings and publications to help the shoreland property owner see the advantages of a native landscape over the traditional lawn. In the note we added information on the benefits of native plants rather than refer to the root lengths.

The research on turf grass was based on a well established, well maintained lawn. The amount of runoff is low. However, this is not the common condition of lawns in many parts of a municipality. Typical lawns are less cared for and result in greater runoff and pollutants than the UW plots. Also, turf lawns are high maintenance. The cost is much greater than for a prairie or native grass. They require continual resources to maintain in a good condition. Some of the comments reflect lack of knowledge or experience with native vegetation. (Native does not mean it must be prairie plantings. It can be low maintenance grasses similar to mixes used in buffers in the rural setting, or woody vegetation which provides shading.) Education will certainly need to be a part of this performance standard until the population becomes comfortable with the alternatives to a monoculture such as Kentucky bluegrass.

F120 Comment: (turf company/WI Landscape Fed.) Research from Dr. Kussow shows phosphate in runoff from cornfields averaged 10 lb./acre/year while turf areas averaged 0.016 lb. phosphate/acre/year. Also, native grasses and bushes are the poorest choice because they do not create a dense carpet and thick root system. Native plants are typically "bunch" type plants that leave large percentages of the soil open and vulnerable to erosion and unchecked leaching.

Response: A dense carpet is not the only way to prevent erosive conditions. Forests also have open areas, but they have the lowest rate of erosion and leaching. The ability of the plant to anchor the soil determines whether a streambank will slough off in a storm event or not. In addition, when undercutting occurs in a stream, the longer roots of native species will protect against this action while turf can only protect the first 6 inches. There are many reasons to encourage landowners close to water bodies to plant vegetation other than lawns. In a DNR study of new lawns, the infiltration rates were found to be similar to the driveway. It took 3-7 years for the infiltration capacity to return. Longer rooted vegetation can re-establish the soil structure in a much shorter time, returning the development to its original infiltrative capability. Thick, surface roots cannot achieve this to the same level. The longer roots also help the plant withstand drought and flood conditions. Due to conditions and methods employed, the research conducted by Dr. Kussow is applicable to golf course turf, however, it is not applicable in a buffer application. Native grasses develop a much more dense and deep root system than turf. The majority of native plants have more biomass below ground than above ground. Native plants provide comparable ground covers to turf while not needing to be heavily managed. Due to the shallow rooting depth of most turf grasses, groundwater leaching is more likely to occur on turf than deep-rooted prairie plants.

F121 Comment: (golf course manager) The proposal to disqualify bluegrass as an acceptable buffer strip species is disturbing. This proposal goes against scientific evidence and would require drastic alteration to many golf holes throughout the state. According to the May/June edition of "Field Notes" published by Audubon Cooperative Sanctuary, "Dense turfgrass can be an excellent filter for pollutants." RISE says that "agricultural extension agents recommend grass buffer strips around cropland and feedlots to reduce runoff and keep nutrients from entering waterways."

Response: The grass buffers in agricultural settings are not maintained the same as a golf course turf. They are allowed to grow up and are infrequently mowed. Very little fertilizer and herbicide is applied and they are not irrigated regularly. Their function is different than a lawn grass and yes they do achieve reductions in nutrients from the crop land upgradient to them. Highly manicured lawns require intensive care and attention, as well as expenditures of fertilizer, water and pesticides. There are good alternatives to turf grass and these alternatives need to be encouraged. The note in NR 151 does not mandate or require the use of certain vegetation over others. By definition, Kentucky blue grass is a cool season, moderate to fine textured, shallow rooted, perennial grass that spreads by rhizomes producing dense sod under favorable conditions. These conditions include soil type, climate, and pH. Other grasses such as fescues and bent grasses have deeper root systems than Kentucky blue grass. The DNR has not claimed

that Kentucky blue grass is unfit for a buffer strip, just that other vegetation is preferable due to lower maintenance, better adaptation to fluctuating water conditions, and the ancillary benefits of habitat creation that can be obtained with vegetation other than Kentucky blue grass. The standard does not prevent a landowner from using turf grass in the buffer area but there are alternatives.

F122 Comment: (golf course manager, lawn care co., golf course super.) Discouraging Kentucky Bluegrass due to its shallow rooting nature seems off base. Root development is directly related to the care and height of the grass plant, so if allowed to grow, the plant will deeply root. Kentucky Blue has a very vigorous rhizome root system that is proven very good at reducing sediment runoff and excellent in resisting washout during floods.

Response: While this may be true, this is not how lawns are typically maintained. They are frequently mowed to very short lengths and fertilized and irrigated regularly, all of which discourages deep root formation. The description of Kentucky blue grass is that it is a short rooted grass. It's potential to grow long roots, even if left unmowed is still limited. See the responses to previous comments.

F123 Comment: (golf course super., WI Golf Course Super. Assn.) Buffer strips of turf grass around ponds and lakes have been in place on many golf courses for some time. What scientific data does DNR have that suggests Kentucky bluegrass would not work in a buffer strip area.

F124 Comment: (lawn care business) Why would Kentucky bluegrass be unfit for use in a buffer strip?

F125 Comment: (golf course super.) Kentucky bluegrass is not a shallow rooted species.

F126 Comment: (WI Sod Producers Assn.) Listing Kentucky bluegrass as an undesirable option sets a bad tone for a predominantly Kentucky bluegrass sod industry that does a great job at controlling erosion with its product (also applies to Trans. buffer stand.).

F127 Comment: (WGCSA) It is unacceptable to note that Kentucky bluegrass is a short-rooted vegetation and is less desirable than native vegetation. Studies show that turf-type grasses are very effective in reducing sediment runoff and have very dense rooting to resist washing away during heavy rainfall events.

Response: See comments and responses above. The suggestion that Kentucky bluegrass is least desirable was based more on the attributes of long rooted plants for environmental diversity, low maintenance, tolerance, and streambank stabilization than for filtering or sediment control. A note serves only to encourage readers to consider other options and does not prevent use of Kentucky bluegrass in a buffer.

F128 Comment: (Milw. Co.) Is this a proposed rule to improve storm water runoff quality or implement vegetative preference? It appears prejudiced in favor of "native vegetation" when in urban areas any vegetation that works, native or not, should be considered.

Response: Native vegetation provides many amenities that a monoculture such as a Kentucky bluegrass lawn cannot have. Many of these amenities enhance the natural setting, improve habitat, reduce erosive conditions, trap pollutants and create diversity. This standard does not prevent the use of short rooted species of grass, it only encourages the use of alternatives. See comments above.

F129 Comment: (individual) Turf cut 1 inch high and soaked with chemicals is not a buffer no matter what golf course people tell you.

Response: We are concerned about the use of lawns as buffers and have indicated our desire to have vegetation that can provide for bank stability, maintenance of fish habitat and filtering of pollutants from upslope overland flow areas in the buffer. Lawns mowed to 1-inch and using heavy applications of chemical fertilizers will have a hard time meeting this requirement. However, we have not prohibited the planting of turf grass in the buffer.

F130 Comment: (individual) I support natural filtering systems immediately downslope of new development and road construction.

Response: We appreciate your support for this performance standard.

F131 Comment: (Milw. Co.) Our Storm Water Management Policy endorses the use of buffers and our updated LWRM plan has buffers as a key element. However, the buffer widths specified in the proposed

rule are unreasonable and unattainable in many urban circumstances. Does it not seem odd that they are the same as those specified for rural areas? There is a provision for "exception," but this is a case where the exceptions will be the norm. There must be a better way to approach this in the urban environment.

F132 Comment: (WLWCA/WALCE, several counties, co. lake spec.) Make the applicability of the "buffer" performance standard consistent with the agricultural "water quality corridor" standard.

Response: Once a structure is built in an urban setting, no management change can improve that environment. In a rural setting a farmer can stop cropping and allow native vegetation to take over. We won't tear down a building when we realize that a stream needs to move within its floodplain or when the fishing is depleted. Providing a buffer at the time of development is the only way to address these concerns. The mechanisms of pollutant transport (sheet flow, shallow concentrated flow, and channelized flow) are the same in urban or rural settings, therefore, the operational requirements of a buffer are similar. We agree that ideal buffer conditions are rarely encountered in urban watersheds where runoff quickly becomes concentrated from impervious areas and requires additional space to disperse the flow and regain a sheet flow condition. The department examined both water quality needs and social-economic impacts in determining buffer widths. These buffers will be subject to very strong pressure from the impervious areas draining to them and need to be substantial to protect the stream. The comment has not indicated why these widths are unreasonable or unattainable. Traditionally developers have not been restricted from these areas and there needs to be a shift in the way we look at the area close to a water body just as we are shifting in our thinking about developing wetlands and tearing down forests for subdivisions. Protection of the water resources within the boundaries of a new development will in the long run enhance the value of the property.

F133 Comment: (Co. Ext., LCD) You have different buffer area standards for lakes and wetlands than in the other rules. Inconsistent standards mean more difficulty administering the rules.

Response: The buffer standard is different for the urban setting for the reasons identified in previous responses.

F134 Comment: (lawn care co., 4 individuals) The most onerous requirement in these rules is for buffer strips in areas that adjoin "waters of the state," including residences that have more than 5 acres of land and abut a pond or stream.

Response: Research has shown that streams continue to degrade in urban settings and that we need to provide treatment and protection wherever possible. The buffer requirement recognizes that the most sensitive area for a stream or lake is the shoreline. If nothing is done in this area the quality of the water on which these homes are built will degrade. To protect the water quality, and in turn the value of the property now and in the future, a buffer area and the other performance standards are necessary.

F135 Comment F27 (WLWCA/WALCE, several counties) regarding water resource maps applies to the buffer performance standard.

F136 Comment: (golf course supervisor) It does not make sense to require buffers in non-agricultural areas where there is already turf or other vegetation to be more than twice as large as agricultural areas where there is none a good portion of the time.

Response: See above comment. There is not always turf or vegetation at an urban site. It is for this reason that we want impervious areas back from the water resource by a set buffer width. If the area is in vegetation then the standard has been met and there should be no concern on the part of the developer.

F137 Comment: (Dept. of Commerce) This subsection seems to be a solution and not a performance standard. The prescriptive language should be removed and placed within a technical standard. Performance language should replace the current proposed language.

Response: While this standard may read more like a prescriptive performance standard it is still a performance standard. This is the best format to convey the need for an area along the streambank or shoreline that provides the benefits of treatment, habitat, aesthetics and protection.

F138 Comment: (WI Env. Dec, 2 individuals) Increase the buffer area requirement for Outstanding and Exceptional Resource Waters from 75 to 150 feet. We believe that the quality of these waterways merits a precautionary approach to regulation of land-disturbing activities in their watersheds. Increasing the minimum buffer standards for these irreplaceable natural resources provides an important added degree of protection. DNR should consider extending the 75-foot requirement for vegetative buffers applicable to ORWs and ERWs to 150 feet given the high quality of these water resources.

F139 Comment: (CWC) We support the requirement for mandatory use of riparian vegetative buffers from 50 to 100 feet applicable to all new developments.

Response: The buffer width was greater in the first draft of the rules. The Natural Resources Board requested that we not exceed 75 feet for any buffer width so as to be consistent with other DNR programs.

F140 Comment: (WI Env. Dec, CWC, 3 individuals) NR 151.12(7)(2)(d)(4) We oppose the loophole that allows construction within the buffer zones as long as the runoff is engineered to flow away from the waterway. It was never discussed in the advisory workgroup and did not appear in the draft provided to the advisory group members. All construction should be subject to the buffer zone requirements regardless of the drainage patterns of the site. A more appropriate process would require that exemptions to the buffer standards be applied for on a case-by-case basis. DNR should eliminate this loophole in the final rules package—it has the potential to seriously compromise the ability for water bodies to achieve Clean Water Act goals and failure to remove it means the rules will fall short of the legislative mandates.

Response: If runoff is directed to another location for treatment, the resource would still be protected. The other performance standards would still have to be met for that development, including sediment control, peak flow rate reduction and infiltration. The concern was for areas where the site was compromised because of other features that required protecting, such as historical or cultural sites, endangered resources, or other water bodies or structures. The exemption allows the flow to be channelized to another location so that it does not flow into the water resource without the protection of a buffer. At that other location treatment must occur before the flow is discharged. This meets the requirements for achieving water quality, but we lose the additional benefits of habitat and aesthetics. These are outside the mandate of the statute.

F141 Comment: (wastewater utility) We support the requirement for vegetated buffers although we believe the 50 foot distance to be inadequate and recommend that the distance be increased.

Response: We have a greater separation for ORWs and ERWs. The 50 foot buffer reflects the permanence of urban development. If we determine that this is inadequate for other streams, lakes and wetlands, we can develop a targeted performance standard in a future rule revision process.

F142 Comment E134 (WAL) regarding inconsistent language in the purpose for buffer requirements between urban and rural applies to the buffer performance standard.

F143 Comment F116 (WAL) regarding 75 foot urban buffers for lakes and ORW/ERW waters applies to the buffer performance standard.

F144 Comment: (WAL) Exemptions — Add lakes to the list of sites where the DNR can require other conditions be met to protect water quality.

Response: We can appreciate the concern lake advocates have for this resource. When setting a statewide policy, however, we need to recognize the variety of resources and protect the most sensitive with the widest buffer. To gain general acceptance of the standards, we set the buffer above what shoreland management requires in unincorporated areas, which may be much more than currently required in incorporated areas. We still feel this is a valuable first step in protecting all our resources. However, if a particular lake does require additional protection, the rules allow the department to establish targeted performance standards.

F145 Comment: (individuals) Buffers in suburban and urban areas should be at least 100 feet (also applies to transportation buffers).

Response: The Natural Resources Board reduced the ORW and ERW buffer width from 100 feet to 75 feet to be consistent with shoreland management setbacks for structures.

NR 151.12(8) Fueling and vehicle maintenance areas

F146 Comment: (WLWCA/WALCE, several counties) Clarify that is it not feasible to require fueling station runoff treatment BEFORE final site stabilization.

Response: The organization of the rule places this requirement clearly in the section that governs construction sites after final stabilization. NR 151.12 (1)(a) defines post-construction and makes the subsequent performance standards applicable to this definition.

F147 Comment: (APWA) This requirement should be discussed with the potable water section of the DNR to ensure that this requirement will not negatively impact groundwater drinking water supplies.

Response: Section NR 151.12(5)(c)8 (current code numbering) was developed by DNR's Bureau of Drinking and Ground Water.

NR 151.13 Developed Urban Area Performance Standard

F148 Comment: (Turf co.) We support the educational program outlined in NR 151.13. We are concerned that a great deal of misinformation has been disseminated regarding the actual sources of urban phosphorus in storm water. We are working with other members of the specialty fertilizer industry through RISE to develop information on consumer BMPs to address this issue. We and RISE offer to work with the state on these educational programs or be of other assistance.

Response: We welcome discussions on future educational programs.

F149 Comment: (UW Hort. Dept.) Throughout the rules statements exist to the effect that "education" will be provided by the department or municipality to educate landowners and managers on proper fertility and related practices. Neither the DNR nor DATCP have the requisite staff or expertise to conduct such training. UWEX exists primarily to provide such training.

Response: We have had a close working and contractual relationship with UWEX since 1985 to develop and deliver nonpoint source educational materials and training. Most of the existing educational documents distributed through the Priority Watershed Program were developed through the UWEX system. We fully intend to continue to use their expertise to provide this information to municipalities. We cannot mandate that the UW provide us with this material but we have revised the language in the rule to indicate that DNR will identify appropriate educational materials.

(Comment cont'd.) Subsection 4(a)—Municipalities are not in the business of providing public education programs. These types of programs require experts in the areas; these experts are not typically on municipal payrolls. Proper disposal of grass clipping tends to be an issue with homeowners living on small urban lots of less than ½ acre. Larger areas do not collect the clippings when mowing.

Response: We in no way intended to force collecting of grass clippings where that is not currently being done. Any educational program would need to address these different situations. There are other options such as mulching and composting that would keep the grass on the lawn. The language in the code was written in a general way to include various activities and municipal cooperation where appropriate. We recognize municipalities do not have staff to develop these materials. We hope to be able to identify for them information that is already available that they can fashion to fit their situation. We have modified the language in the code.

(Comment cont'd.) Subsections (b) and (c)—Municipalities do not have the expertise to provide the intensely specific information on proper use of lawn and garden fertilizers and pesticides discussed in this section. There are many issues surrounding the verbiage requiring fertilizer applications to be based on soil tests and IPM plans (discussed under NR 151.14).

Response: The IPM requirement was deleted from NR 151.14, but kept as a component of the informational and educational requirements for developed urban areas (NR 151.13). DATCP has authority over pesticide regulation and has indicated that it will include IPM requirements in ATCP 29.