

NEW JERSEY SITE IMPROVEMENT ADVISORY BOARD

Resolution #98-2

Special Area Standards for Stormwater Management in the Township of Stafford, Ocean County

WHEREAS, proposed special area standards have been submitted to the Site Improvement Advisory Board for review pursuant to N.J.A.C. 5: 21-3.5 by the Township of Stafford, Ocean County; and

WHEREAS, the Site Improvement Advisory Board held informal hearings pursuant to N.J.A.C. 5:21-3.5(c) to review the proposed special area standards for infiltration and other stormwater management systems; and

WHEREAS, the New Jersey Department of Environmental Protection, in consultation with the United States Geological Survey, has recommended approval of the Stafford Township special area ordinance as a necessary and effective means to recharge and maintain groundwater flows to the Barnegat Bay; and

WHEREAS, the Department of Environmental Protection has maintained that loss of groundwater recharge and increased groundwater withdrawals, both related to new development, would eventually result in increased salinity in the groundwater and the Bay; and

WHEREAS, the Township of Stafford has agreed to apply for and to obtain a New Jersey Pollutant Discharge Elimination System (NJPDES) (N.J.A.C. 7:14A-7) general permit from the Department of Environmental Protection to allow stormwater infiltration systems to discharge into groundwater, and the Board expects that permit to be issued within 12 months; and

WHEREAS, the Township has agreed to assume responsibility to operate and maintain all stormwater infiltration systems on a proper and timely basis, and to replace these facilities as the need arises, including facilities located on property for which the municipality does not have fee simple ownership; and

WHEREAS, in reviewing the proposed special area standards, the Site Improvement Advisory Board has given consideration to those matters, to the extent applicable, as provided by N.J.A.C. 5:21-3.5(d), and has required the production of such documents and submissions as provided for by N.J.A.C. 5:21-3.5(e), and has examined the documents and submissions and taken such action as it has deemed necessary for its review of such documents and submissions; and

WHEREAS, pursuant to N.J.A.C. 5:21-3.5(i), the Site Improvement Advisory Board may approve or deny, in whole or in part, special area standards submitted for consideration by a municipality or municipalities; and

WHEREAS, the proposed special area standards are within the jurisdiction of the Site Improvement Advisory Board pursuant to N.J.S.A. 40:55D-40.4; and

WHEREAS, the Site Improvement Advisory Board finds that the modifications to N.J.A.C. 5:21-7 requested by the Township of Stafford and enumerated below meet the criteria for special area standards set forth at N.J.A.C. 5:21-3.5(k) as follows:

1. They are consistent with the Site Improvement Act.
2. They are reasonable and not unduly burdensome. The stormwater requirements provide uniform and reasonable guidelines for infiltration and other stormwater management practices.
3. They meet the needs of public health and safety, and will help the rapidly-growing Township to accommodate growth pressures and recharge groundwater critical to preserve water quality in the Banegat Bay.
4. They take into account existing infrastructure and surrounding development.

NOW, THEREFORE, BE IT RESOLVED that N.J.A.C. 5:21-7 shall be modified as follows for that portion of the Township of Stafford which lies to the east of the Garden State Parkway, as delineated on the map of the Stafford Township Special Area which is attached to this resolution as Appendix A, hereinafter referred to as the "special area."

1. N.J.A.C. 5:21-7 is modified to add a new subsection which requires the recharge of stormwater into the groundwater as follows:

"5:21-7.5A Special Area Infiltration Standards

- (a) Open-ended, underground infiltration systems shall be provided to handle stormwater runoff. They shall store the difference between the post-development and the pre-development runoff for the 100-year, 24-hour storm.
 - 1. Where high water table, soil permeability, or configuration of the site make infiltration impractical, the Township may approve a combination system or waive this requirement.
- (b) Where the soil infiltration rate is less than .50 inches per hour, then other methods of stormwater runoff control shall be used.
- (c) Where a combination system is permitted, it should be designed in accordance with the Stormwater and Nonpoint Source Pollution Control Best Management Practices Manual, published by the Department of Environmental Protection, December 1994. Preference should be given to measures such as surface infiltration basins, infiltration trenches, porous paving and piping, contour terraces, and swales in order to reduce the amount of water detained and then released to surface waters to the minimum practical. In designing the combination stormwater management system for a particular project, the existing physical site conditions shall be carefully considered. Slopes, depth to seasonal high water table relative to proposed grades, soil type, texture, and permeability of the watershed area and the site are all critical to the selection of a suitable combination of stormwater management techniques.
- (d) Where a combination system is used, it shall be designed to provide nonpoint source pollutant removal efficiencies equivalent to the underground system when evaluated in accordance with the Best Management Practices Manual.
- (e) Where detention is permitted by this special area standard, it shall be designed to store the difference between the post-development runoff and the pre-development runoff, less the amount infiltrated by the underground system and any appropriate credits for percolation and infiltration associated with any other measures employed in the system and the post-peak percolation credit. The discharge rate reductions required by N.J.A.C. 5:21-7.5(d)3 are not to be required in the special area. Detention and rate of discharge control shall not be required on any site where the discharge will be to tidal waters which includes:
 - 1. All water bodies named on the U.S. Geological Survey 7.5' topographic maps as "bays," "canals," "coves," "guts," "harbors," "inlets," "sounds," "thoroughfares," "channels;"

2. Any manmade lagoons and canals discharging into the water bodies listed above;
 3. All sections of the intracoastal waterway;
 4. All water courses not specifically identified in 1, 2, or 3 above that flow into the tidal water bodies listed above, upstream to the first bridge or culvert or upstream to the point where 100-year design flood exceeds the 100-year tidal elevation, whichever is closest to the mouth.
- (f) The stormwater management system, whether subsurface, surface, or a combination thereof, shall be designed to fully contain the design storm or to infiltrate it as required by this special area standard. All stormwater management systems shall be designed and maintained such that all runoff will be recharged and/or discharged within seventy-two (72) hours of the end of the storm event.
- (g) Discharge of runoff into lakes, ponds, reservoirs, and wetlands is discouraged as these sites have severely-limited ability to flush pollutants, owing to limited fresh-water flow and lack of tidal inundation.
- (h) Discharge, where required, shall be designed to ensure stability of the stream or other body of water into which discharge is made at a rate of discharge calculated for the full 100-year, 24-hour storm, without taking credit for amounts infiltrated, in order to limit the potential for downstream erosion.
- (i) The construction of any facility utilized to control on-site runoff or drainage shall be designed to create a natural and aesthetically-pleasing environment. Plants and soil native to the area shall be used for landscaping, to the maximum extent feasible. Special preference should be given to those species of trees and plants which have known pollutant-removal abilities. When other ornamental plants are used, they shall be types compatible with the natural environment.
- (j) Where depth to groundwater or other physical conditions preclude the use of subsurface or surface infiltration and recharge as required by this special area standard, then the applicant may request an exception. Any such request for an exception shall be accompanied by an engineering report explaining in detail why an exception is required and including all of the information required by this special area standard which demonstrate the maximum feasible degree of compliance with these requirements.
- (k) Subsurface infiltration systems shall be designed and constructed in accordance with the following requirements:
1. All inlets from which collected runoff is conveyed to a subsurface infiltration system shall be equipped with oil/grease and sediment separators designed in accordance with the standard detail, which is Appendix B to this special area

standard.

2. All subsurface infiltration systems shall conform to the detail for trench recharge systems, which is Appendix C to this special area standard, and shall conform to the following requirements:
 - i. Filter material shall cover the distribution lines and extend the full width of the trench or bed, shall not be less than twelve (12) inches deep beneath the bottom of the distribution line, and shall extend at least six (6) inches above the top of the line. The filter material shall be washed gravel, crushed stone, slag, or clean bank-run gravel ranging in size from one and one-half (1 1/2) to two and one-half (2 1/2) inches; free of fines, dust, ashes, or clay. If used in the calculations of storage capacity, the void volume of the stone shall be considered as forty percent (40%). The filter material shall be installed within an envelope of filter fabric of such mesh designed to inhibit migration of fines through the fabric. The fabric shall be installed along the sides and top of the trench. Fabric is not required on the bottom of the trench.
 - ii. Distribution lines shall be constructed true to line and grade with open joints or perforations, except that at least one (1) tight joint at each bend or other fitting shall be provided to prevent slippage. Bell-and-spigot pipe shall be laid with one-half-inch open joints at two-foot intervals, and the bottom of each joint shall contain a minimum of cement mortar to maintain an even flow line. For single-wall pipe only, distribution lines shall be wrapped with filter fabric such as mesh design to inhibit migration of fines through the fabric and into the filter material.
 - iii. Distribution lines shall not be laid at depths less than twenty-four (24) inches below finished grade. The bottom of the trench may be deepened to within two (2) feet of the seasonal high-water tables or bedrock.
 - iv. Excavation for disposal beds or trenches may be made by machinery, provided that the adjacent soil will not be compacted. No excavating machinery shall be permitted in the excavation. When an excavation is carried below the required depth, it shall be brought up to the proper elevation with filter material, as specified in this standard.
 - v. The infiltration basin shall be designed to provide a minimum three-foot separation between the bottom of the basin and the seasonal high-water table. There may be a lesser separation when it is demonstrated that the separation, either due to soil conditions or when considered in combination with other stormwater management techniques, is adequate to protect groundwater quality.

- vi. Recharge fields shall not be constructed over impervious ground formations where such formations are less than ten (10) feet below the finished ground surface.
 - vii. Recharge fields shall not be built up by fill to more than two (2) feet, unless an adequate grading plan has been approved. When recharge fields are built up by fill to a depth exceeding two (2) feet, the area of such fill shall extend at least twenty (20) feet beyond the limits of the recharge field, and the fill shall be of earth having a percolation value approximately equal to that of the ground over which the fill is placed. The percolation rates used for the design of a system infill shall be the volume found in the ground over which the fill is placed.
 - viii. When distribution lines must be laid with changes in either horizontal or vertical alignment, manholes must be installed at each changed alignment.
 - ix. The percolating area of recharge trenches and pits shall be considered as the total side area of the recharge system in square feet, except that any section of trench containing pipe laid with tight joints other than fittings as required in this resolution shall not be considered in determining the percolating areas. Bottom or top areas shall not be included.
 - x. Catch basin inlets or manholes shall be constructed at the end of each recharge trench and at intervals not to exceed six hundred (600) feet. Catch basins shall be perforated bottoms or sumps.
 - xi. Precast concrete leaching pits are permitted for use as subsurface recharge systems in site plans. When used, each pit shall include a manhole cover and frame to permit access.
 - xii. The overflow structure in the terminus manhole shall be removable to facilitate maintenance.
- (l) Responsibility for the operation and maintenance of underground stormwater recharge facilities and their associated collection systems, including periodic removal and disposal of accumulated particulate material and debris, shall be with the municipality. It shall include, but be limited to, the following:
- 1. Visual inspection of all system components at least twice each year;
 - 2. Vacuuming of all storm sewer inlets once every six months (frequency of vacuuming may be adjusted to once a year if first year maintenance records indicate that sediment and debris accumulation is insignificant);

3. Reverse flushing and vacuuming if system inspections indicate significant accumulation of sediment in the pipes; and
4. Periodic removal and disposal of other material and debris by the municipality shall be permitted by the owner or owners of any private property, with permanent arrangements that shall pass to any successive owner. If portions of the land are to be sold, legally binding arrangements shall be made to pass this authorization to successors in title."

2. N.J.A.C. 5:21-7.3(d) is modified to add an additional subsection 5 governing perforated pipe as follows:

"5:21-7.3(d)5. Perforated storm drain pipes shall be reinforced concrete pipe or high-density, corrugated polyethylene, smooth-interior pipe manufactured in accordance with AASHTO M-294. If perforated, reinforced concrete pipe or smooth polyethylene pipe is not readily available in the sizes required then, with the approval of the municipal engineer, smooth-wall or corrugated aluminum-alloy pipe may be used. All perforated pipe shall be perforated a full 360° around the circumference of the pipe."

3. N.J.A.C. 5:21-7.4(a) is modified to add an additional subsection (a)1, which specifies that all inlets shall include oil/grease and sediment separators as follows:

"5:21-7.4(a)1. All inlets shall be equipped with oil/grease and sediment separators."

4. N.J.A.C. 5:21-7.4(b) is modified to add an additional subsection (b)1, which specifies additional stormwater inlet requirements as follows:

"5:21-7.4(b)1. Inlets shall be located at all street low points, in yards and swales as required, and at intersections where necessary to eliminate rocker gutters. Gutter flow shall be limited to provide a maximum gutter flow surface of eight (8) feet in width."

5. N.J.A.C. 5:21-7.4(c) is modified to add an additional subsection (c)1 concerning manhole spacing as follows:

"5:21-7.4(c)1. Manholes shall be spaced as follows:"

Pipe Size (inches)	Manhole Spacing (feet)
15 or less	500
18 to 36	600
42 to 60	700
60+	700+

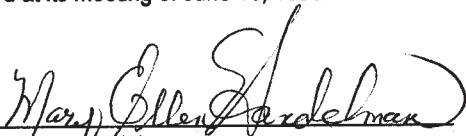
BE IT FURTHER RESOLVED that this resolution shall take effect 30 days following approval, and shall continue in effect unless and until modified, except that it shall expire and have no further effect on the 395th day after approval if the Department of Environmental Protection has not issued a NJPDES general permit to the Township of Stafford covering the operation and maintenance of the infiltration facilities required herein.

BE IT FURTHER RESOLVED that the governing body of the Township of Stafford shall file with the Site Improvement Advisory Board a copy of the ordinance adopting the special area and special area standards with respect to stormwater management within thirty (30) days of its final adoption.

APPROVED BY: The Site Improvement Advisory Board
DATE: June 16, 1998


Robert C. Kirkpatrick, Jr.
Chair

I HEREBY CERTIFY the foregoing to be a true copy of the Resolution adopted by the New Jersey Site Improvement Advisory Board at its meeting of June 16, 1998.

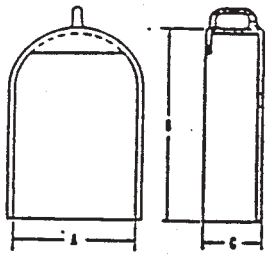

Mary Ellen Handelman
Secretary to the Board

STAFFORD CODE

BASIN WITH TRAP WHEN REQUIRED

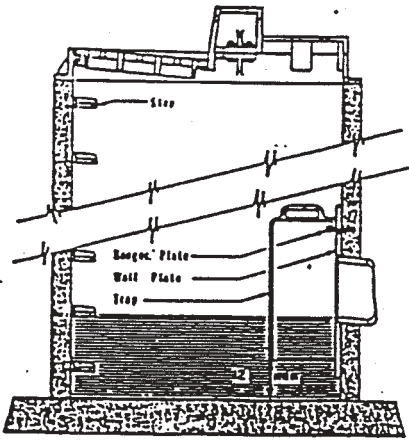
FIGURE 15

CATCH BASIN TRAPS



PATTERN NUMBERS	DIMENSIONS IN INCHES				PIPE SIZE
	A	B	C	D	
2563	15 3/4	26	7 1/2	5	12
2564	18	27	9	4	15
2565	20	27	10	3 1/2	18
2566	25 1/4	30	11 1/4	4 1/2	21

PATTERN NUMBERS ARE CAMPBELL FOUNDARY



TWO SEPARATE COATES OF APPROVED BLACK BITUMINUS WATERPROOFING APPLIED PER MANUFACTURES INSTRUCTIONS.

TYPICAL BASIN ASSEMBLY
DIMENSIONS TO VARY

TYPICAL TRAP ASSEMBLY WHERE INDICATED. DIMENSIONS WILL VARY AND BE DEPENDANT UPON THE DESIGN REQUIRED IN THE WASTE WATER MANAGEMENT SYSTEM. ALL INLETS TO FOLLOW STANDARD DESIGN REQUIRMENTS.

TOWNSHIP OF STAFFORD

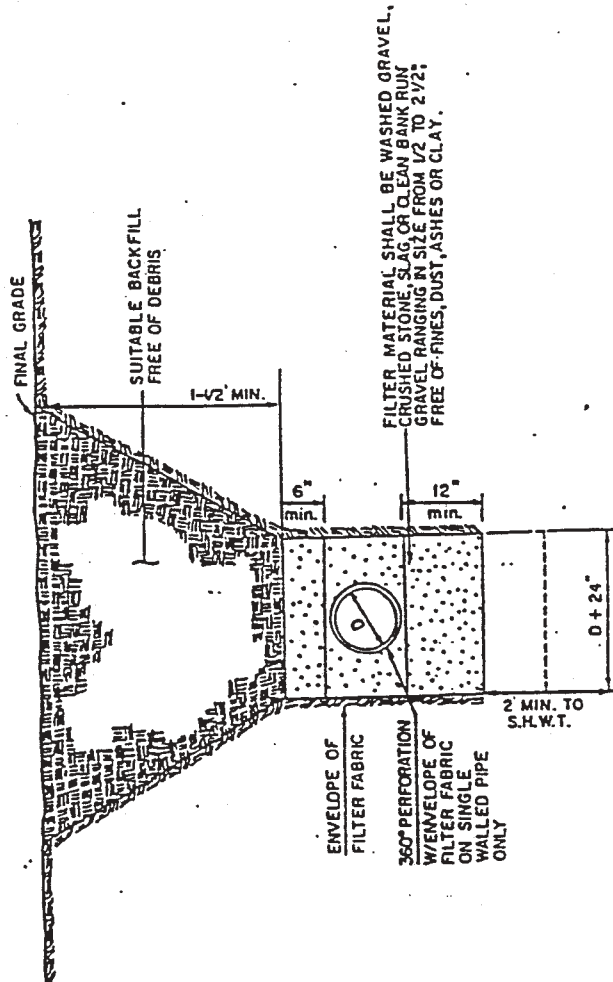


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REVISIONS	
ADOPTED: MARCH 7, 1989	

TRENCH RECHARGE SYSTEM

FIGURE 16



TRENCH DETAIL
SUBSURFACE RECHARGE
SYSTEM

TOWNSHIP OF STAFFORD



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REVISIONS

NO.	DESCRIPTION

ADOPTED: MARCH 7, 1989

