Township of Winslow

Office of
PLANNING & ZONING
Winslow Township Municipal Complex

125 S. Route 73
Braddock, NJ 08037
Tel: (609) 567-0700
Fax: (609) 567-6340

Applicant;

On behalf of Winslow Township, enclosed are copies of the Winslow Township Ordinances Number 01-07* and 40-07 to Regulate, Manage and Control Stormwater within the Township.

Upon scheduling a date with the Township Engineering Firm Environmental Resolutions, Inc., Jeff Hanson, 856-235-7170 to have the soil test pits and soil permeability results witnessed, a letter must be provided indicating the depth of the test pit excavations along with a plan illustrating test pit locations, existing elevations and proposed bottom of basin elevations.

Should you have any questions please do not hesitate to contact this office 856 567-0700.

Thank you
Debbie Wells
Planning Board Secretary

* See Township Website for entire ordinance "Chapter 297 Stormwater Control"
www.winslowtownship.com

U:\test pitst.doc

ORDINANCE NO. 40-07

TOWNSHIP OF WINSLOW, NEW JERSEY

ORDINANCE OF THE TOWNSHIP OF WINSLOW, COUNTY OF CAMDEN, AND STATE OF NEW JERSEY, TO REGULATE, MANAGE AND CONTROL STORMWATER WITHIN THE TOWNSHIP OF WINSLOW

WHEREAS, under recent State legislation all municipalities in New Jersey are required to update their Stormwater Master Plans and adopt a Stormwater Control Ordinance that implements the Plan; and

WHEREAS, The Township Committee of the Township of Winslow, County of Camden and State of New Jersey adopted Ordinance No. 01-07 entitled, "An Ordinance to Regulate Control and Manage Stormwater within the Township of Winslow; and

WHEREAS, the Township Committee has deemed it in the best interest of the public health, safety and welfare to amend Ordinance No. 01-07 with regard to the soil testing requirements in connection with the design and construction of stormwater management facilities for development in Winslow Township.

NOW THEREFORE, be it Ordained by the Township Committee of the Township of Winslow, County of Camden, State of New Jersey, as follows:

SECTION 1. Chapter 297 of the Code of the Township of Winslow is hereby amended, revised and supplemented in the following manner:

297-37 Soils.

C. Methods for Assessing Soil Suitability for Infiltration Stormwater Management BMPs. The results of a subsurface investigation shall serve as the basis for the site selection and design of stormwater infiltration BMPs. The subsurface investigation shall include, but not be limited to, a series of soil test pits and soil permeability tests conducted in accordance with the following:

1. All soil test pits and soil permeability results shall be performed under the direct supervision of the Applicant's Professional Engineer and in addition be witnessed by the municipal engineer. All soil logs and permeability test data shall be accompanied by a certification by the Applicant's Professional Engineer. The results and location (horizontal and vertical) of all soil test pits and soil permeability tests, both passing and failing, shall be reported to Winslow Township.

2. During all subsurface investigations and soil test procedures, adequate safety measures shall be taken to prohibit unauthorized access to the excavations at all times. It is the responsibility of persons performing or witnessing subsurface investigations and soil permeability tests to comply with all applicable Federal, State and local laws and regulations governing occupational safety.

3. A minimum of two (2) soil test pits shall be excavated within the footprint of any proposed infiltration BMP to determine the suitability and distribution of soil types present at the site. Placement of the test pits shall be within twenty (20) feet of the basin perimeter, located along the longest axis bisecting the BMP. For BMPs larger than ten thousand (10,000) square feet in area, a minimum of one (1) additional soil test pit shall be conducted within each additional area of ten thousand (10,000) square feet. The additional test pit(s) shall be placed approximately equidistant to other test pits, so as to provide adequate characterization of the subsurface material. In all cases, where soil and or groundwater properties vary significantly, additional test pits shall be excavated in order to accurately characterize the subsurface conditions below the proposed infiltration BMP. Soil test pits shall extend to a minimum depth of eight (8) feet below the lowest elevation of the basin bottom or to a depth that is at least two (2) times the maximum potential water depth in the proposed infiltration BMP, whichever is greater.

   A soil test pit log shall be prepared for each soil test pit. The test pit log shall, at a minimum, provide the elevation of the existing ground surface, the depth and thickness (in inches) of each soil horizon or substratum, the dominant matrix or background and mottle colors using the Munsell system of classification for hue, value and chroma, the appropriate textural class as shown on the USDA textural triangle, the volume percentage of coarse fragments (larger than two (2) millimeters in diameter), the abundance, size, and contrast of mottles, the soil structure, soil consistence, and soil moisture condition, using standard USDA classification terminology for each of these soil properties. Soil test pit logs shall identify the presence of any soil horizon, substratum or other feature that exhibits an in-place permeability rate less than one (1) inch per hour.

4. Each soil test pit log shall report the depth to seasonally high water level, either perched or regional, and the static water level based upon the presence of soil mottles or other redoximorphic features, and observed seepage or saturation. Where redoxomorphic features including soil mottles resulting from soil saturation are present, they shall be interpreted to represent the depth to the seasonal high water table unless soil saturation or seepage is observed at a higher level. When the determination of the seasonally high water table shall be made in ground previously disturbed by excavation, direct

observation of the static water table during the months of January through April shall be the only method permitted.

5. Any soil horizon or substratum which exists immediately below a perched zone of saturation shall be deemed by rule to exhibit unacceptable permeability (less than one (1) inch per hour). The perched zone of saturation may be observed directly, inferred based upon soil morphology, or confirmed by performance of a hydraulic head test as defined at N.J.A.C. 7:9A-5.9.

6. Stormwater infiltration BMPs shall not be installed in soils that exhibit artesian groundwater conditions. A permeability test shall be conducted in all soils that immediately underlie a perched zone of saturation. Any zone of saturation which is present below a soil horizon which exhibits an in-place permeability of less than 0.2 inches per hour shall be considered an artesian zone of saturation unless a minimum one foot thick zone of unsaturated soil, free of mottling or other redoximorphic features and possessing a chroma of four or higher, exists immediately below the unsuitable soil.

7. A minimum of one (1) permeability test shall be performed at each soil test pit location. The soil permeability rate shall be determined using test methodology as prescribed in N.J.A.C. 7:9A-6.2 (Tube Permeameter Test), 6.5 (Pit Bailing Test) or 6.6 (Piezometer Test). When the tube permeameter test is used, a minimum of two replicate samples shall be taken and tested. Alternative permeability test procedures may be accepted by the approving authority provided the test procedure attains saturation of surrounding soils, accounts for hydraulic head effects on infiltration rates, provides a permeability rate with units expressed in inches per hour and is accompanied by a published source reference. Examples of suitable sources include hydrogeology, geotechnical or engineering text and design manuals, proceedings of American Society for Testing and Materials (ASTM) symposia, or peer-review journals. Neither a Soil Permeability Class Rating Test, as described in N.J.A.C. 7:9A-6.3, nor a Percolation Test, as described in N.J.A.C. 7:9A-6.4, are acceptable tests for establishing permeability values for the purpose of complying with this ordinance.

8. Soil permeability tests shall be conducted on the most hydraulically restrictive horizon or substratum to be left in place below the basin as follows. Where no soil replacement is proposed, the permeability tests shall be conducted on the most hydraulically restrictive horizon or substratum within four (4) feet of the lowest elevation of the basin bottom or to a depth equal to two (2) times the maximum potential water depth within the basin, whichever is greater. Where soil replacement is proposed, the permeability tests shall be conducted within the soil immediately below the depth of proposed soil replacement or within the most hydraulically restrictive horizon or substratum to a depth equal to

two (2) times the maximum potential water depth within the basin, whichever is greater. Permeability tests may be performed on the most hydraulically restrictive soil horizons or substrata at depths greater than those identified above based upon the discretion of the design or testing engineer. The tested infiltration rate should then be divided by two (2) to establish the soil's design permeability rate. Such division will provide a 100% safety factor to the tested rate.

9. The minimum acceptable "tested permeability rate" of any soil horizon or substratum shall be one (1) inch per hour. Soil materials that exhibit tested permeability rates slower than one (1) inch per hour shall be considered unsuitable for stormwater infiltration. The maximum reportable "tested permeability rate" of any soil horizon or substratum shall be no greater than twenty (20) inches per hour regardless of the rate attained in the test procedure.

10. After all construction activities have been completed on the development site and the finished grade has been established in the infiltration BMP, a minimum of one permeability test shall be conducted within the most hydraulically restrictive soil horizon or substratum below the as-built BMP to ensure the performance of the infiltration BMP is as designed. Hand tools and manual permeability test procedures shall be used for the purpose of confirming BMP performance. In addition, the infiltration BMP shall be flooded with water sufficient to demonstrate the performance of the BMP. Test results shall be certified to the municipal engineer.

11. A groundwater mounding analysis shall be provided for each stormwater infiltration BMP. The groundwater mounding analysis shall calculate the maximum height of the groundwater mound based upon the volume of the maximum design storm. The Applicant's Professional Engineer conducting the analysis shall provide the municipal engineer with the methodology and supporting documentation for the mounding analysis used and shall certify to Winslow Township, based upon the analysis, that the groundwater mound will not cause stormwater or groundwater to breakout to the land surface or cause adverse impact to adjacent surface water bodies, wetlands or subsurface structures including but not limited to basements and septic systems. If there is more than one infiltration BMP proposed, the model shall indicate if and how the mounds will interact. The mounding analysis shall be calculated using the most restrictive soil horizon that will remain in place within the explored aquifer thickness unless alternative analyses is authorized by the municipal engineer. The mounding analysis shall be accompanied by a cross section of the infiltration BMP and surrounding topography and the mound analysis shall extend out to the point(s) at which the mound intersects with the preexisting maximum water table elevation.

12. The applicant shall demonstrate that stormwater infiltration BMPs meet the seventy-two (72) hour drain time requirement established in Section V.B.1 of this ordinance.

13. Except as expressly noted within this document, all required soil tests shall be submitted with the Applicant's land development application to the Township. Such tests shall not be deferred until time of construction as this information is consider to be essential to evaluating the design of the stormwater management facility(s).

14. In addition to any other development review escrow that may be required, the Applicant shall pay an escrow fee of $2,500.00 in connection with its application for the purposes of the Municipal Engineer's review and approval of the soil testing under this Section.

SECTION 2. Except as this set forth in Section 1 above, the balance of Chapter 297 shall not affected by this Ordinance.

SECTION 3. All Ordinances or parts of Ordinances inconsistent with this Ordinance are hereby repealed to the extent of such inconsistency.

SECTION 4. If the provisions of any section, subsection, paragraph, subdivision or clause of this Ordinance shall be adjudged invalid by a court of competent jurisdiction, such order of judgment shall not affect or invalidate the remainder of any section, subdivision, paragraph or clause of this Ordinance.

SECTION 5. This Ordinance shall take affect immediately upon the following:

a) Certification by the Pinelands Commission in accordance with N.J.A.C. 7:50, Subchapter 3; and

b) Approval by the County Review Agency in accordance with N.J.S.A. 40:55-D-97.

INTRO: October 23, 2007

ADOPTED: NOV 2 0 2007

DEBORAH A. PUCHAKJIAN, RMC
TOWNSHIP CLERK

SUE ANN METZNER, MAYOR

T:\Debbie\WPDOCS\WINSLOW\ORDINANC\Test Pits.doc