

INTERAGENCY AGREEMENT

FOR

COORDINATION OF

STORMWATER MANAGEMENT AND

SOIL EROSION CONTROLS

BETWEEN THE

NEW JERSEY DEPARTMENT OF ENVIRONMENTAL PROTECTION

AND THE

NEW JERSEY DEPARTMENT OF AGRICULTURE
STATE SOIL CONSERVATION COMMITTEE

DECEMBER 1990

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Purpose

This Agreement provides a framework for stormwater management and soil erosion control project review and approval that reflects express goals of: (1) minimizing development impacts to natural resources to the maximum extent practicable; (2) addressing water quality management as close to the source as practicable; (3) controlling potential offsite erosion from stormwater drainage; (4) expediting project approvals and (5) avoiding potentially conflicting and/or duplicating requirements or regulations.

Applicability

The State Soil Conservation Committee of the Department of Agriculture, and the 16 Soil Conservation Districts which operate under State Committee guidance, are charged under State law with the implementation of soil erosion and sediment controls and related stormwater management controls on virtually all land disturbance activities in the state. The Department of Environmental Protection through its land use, water quality, stormwater and resource management programs is charged with pursuit and/or maintenance of fishable, swimmable waters, protection of wetlands and stream corridor ecosystem integrity and ensuring that flood hazards are mitigated to the maximum extent practicable. Both agencies have a common mission of protecting the public safety and welfare while also implementing responsible government through consistent and coordinated standards and expedited procedures. The following points of agreement address potential operational conflicts and establish a common understanding regarding stormwater management and soil erosion and sediment control.

The Department of Environmental Protection and State Soil Conservation Committee of the Department Of Agriculture agree to the principles, procedures and responsibilities that follow; recognize the statutory authorities and limitations of both agencies; and do not intend this Memorandum of Agreement to expand or limit respective statutory powers in any way.

Points of Agreement

Section 1 - Stormwater Runoff Impact on Erosion Control

Stormwater runoff is that portion of precipitation that returns to water bodies over the surface of the ground. The amount of stormwater runoff in a given area is a function of several factors, including but not limited to: the amount and intensity of precipitation, soil texture, vegetative cover and slope. When development modifies drainage patterns or replaces the natural landscape with impervious surfaces, more likely than not, there can be increases in runoff volume and velocity. Unless properly managed, stormwater runoff can adversely affect the environment through; increased flood damages, increased erosion and sedimentation, increased waterway storm surges, destruction of vegetation, impaired water quality, increased turbidity,

decreased aquatic productivity, and reduced groundwater quality and supply. This agreement establishes technical criteria for balanced consideration and resolution of these potential vectors of adverse impact and addresses measures to limit potential off-site erosion from stormwater drainage.

Section 2 - Stormwater Management Systems Design

In general, stormwater management systems should be designed to use best available technology to protect environmentally sensitive areas, maintain stable physical diversity of water ways, minimize increased stormwater runoff, promote natural infiltration, simulate natural drainage systems, minimize off-site discharge of pollutants to ground and surface water, and ensure, regardless of location, that stormwater outlets are stable and non-erosive.

Section 3 - Consideration for Soil Erosion and Sediment Controls in Wetland Areas

In general, physical soil erosion and sediment control measures should be installed out of wetland areas. This means that stormwater management detention or retention basins should generally not be constructed in wetlands areas except as provided in section 5 of this agreement and when consistent with wetlands and stream encroachment regulations. The objective is to maintain wetland and stream corridor integrity to the maximum extent feasible.

Section 4 - Utilization of Natural Drainage Techniques

Where off-site stability can be demonstrated utilizing techniques that simulate natural drainage systems, such techniques are encouraged. These include flow through natural vegetation where feasible, grassed channels, filter fabrics and rip-rap stabilization or other acceptable means as prescribed in the "Standards for Soil Erosion and Sediment Control in New Jersey," as promulgated by the State Soil Conservation Committee pursuant to NJSA 4:24-42.

Section 5 - Criteria for Demonstrating Off-Site Stability for Stormwater Discharges

Technical criteria for demonstrating off-site stability include consideration of proximity to a defined waterway, site topography (slope), soil texture, vegetative cover and other factors. Where the potential for erosive forces from stormwater runoff exceeds the threshold of acceptability as defined below, the development plan shall provide for the construction of a stabilized channel or installation of a conduit to a stable condition. The methods of handling stormwater drainage from development sites shall be in accordance with the following criteria and site conditions:

A. Condition Where There Is No Well Defined Waterway Below the Point of Discharge

Where there is no receiving waterway or channel, channel stability cannot be demonstrated by the allowable velocity method because no determination can be made predicting where the flows will concentrate. A land-form not previously subjected to concentrated water flow will become unstable. Where offsite stability cannot be demonstrated the following alternatives may be utilized.

(1) Where water velocities are non erosive:

- a. Retain pre-existing runoff characteristics. Do not increase the amount and rate of runoff for the development and do not concentrate flows.
- b. Maintain stormwater discharges at non-erosive levels. Where there is no well defined channel, no sandy condition, no trees or brush to substantially concentrate the flows and it can be reasonably assumed that the flow will disperse over a broad area, the combinations of velocities, slopes, and soils in Table # 1 below are considered stable for a ten year design storm.

Table # 1
Non Erosive Water Velocities from Point Discharges for Various Soils and Slopes

(Short Reaches of 300 Feet or less)

<u>Soil Type</u>	<u>Vegetated</u>		<u>Bare</u>	
	<u>Velocity</u> <u>(fps)</u>	<u>Slope</u> <u>(%)</u>	<u>Velocity</u> <u>(fps)</u>	<u>Slope</u> <u>(%)</u>
Sandy loam	2.1	1.7	1.75	1.2
Silt loam	2.4	2.3	2.0	1.5
Sandy clay loam	3.0	3.5	2.5	2.4
Clay loam	3.6	5.0	3.0	3.5
Graded loam to gravel	4.5	7.8	3.75	5.5

(Note: The following conditions shall apply when using the parameters in this table.)

- i. The reliability of this model is limited to 10 cfs or less for the twenty-five (25) year storm.
- ii. Perennial erosion resistant vegetation shall be present in vegetated areas.
- iii. Flow over the outlet area shall be less than 0.5 cfs/ft.: Designers shall not design excessive widths which will cause flows to concentrate.

- iv. To dissipate the energy of the water flow and to maintain the structural integrity of the outlet structure, measures are installed at the conduit outlet to disperse the flow such as preformed scour holes, impact basins or plunge pools. Level spreaders are not considered to be an acceptable design.
- v. Topography shows a broad uniform outlet area and there are no trees or substantial woody growth to cause concentration of flows.
- vi. Peak discharge velocities do not exceed 2 fps from a 10 year storm event discharging into flat wetlands.
- vii. Flows are intermittent and do not exceed 24 hours per rainfall event.

(2) Where water velocities are erosive:

- a. Reduce peak flows from the pipe outlet to match the predevelopment peak flows at the point of discharge for the 2 and 10 year storm event. This method is a stop gap measure, since the peak flows will be extended over a longer period of time. This will increase the saturation of the soil thereby possibly killing existing vegetation and loosening the soil to an eroding condition. Drawings must be submitted with the erosion control plan showing the predeveloped drainage condition for the proposed point of discharge along with the time of concentration flow path.
- b. Construct a channel or install a pipe to a stable condition (i.e. flat marsh, pond, lake, sizeable body of water, pit, etc.)

B. Condition Where There is a Direct Discharge to Wetlands

Where development and site conditions require construction of a channel or installation of a pipe in wetlands, transition areas (buffers) or other water area to achieve a stable condition, DEP approval pursuant to the Freshwater Wetlands Protection Act, Flood Hazard Area Control Act, Waterfront Development Act, and CAFRA will be required, where applicable.

DEP permits require that runoff be treated for water quality control prior to discharge to wetlands or water bodies.

Conveyance of stormwater runoff to a stable condition in wetlands may be achieved by one or more of the following methods. They are listed in order of DEP preference.

- (1) For concentrated flows of 10 cfs or less for the 25 year storm, the criteria in Table #1 may be used for short reaches of 300 feet or less. These criteria can be applied only if the area receiving the discharge has the following conditions.
 - a. No trees or brush are present to concentrate flows.
 - b. The soil does not consist of cohesionless sand.
 - c. Flows over the outlet area are less than 0.5 cfs/ft width.
 - d. Peak discharge velocities do not exceed 2 fps from a 10 year storm event discharging into nonsloping wetlands.
 - e. Flows are intermittent and do not exceed 24 hours per rainfall event.

(NOTE: For slopes less than 1.2% in forested wetlands without cohesionless sand and no more than 300 feet in length, direct discharge is permitted provided the flows are less than 10 cfs for a 25 year storm event and the discharge is no greater than 2 fps for a 10 year storm in the final section of the pipe.)

- (2) For concentrated flows greater than 10 cfs for a 25 year storm event, the following procedures may be utilized according to the Standards for Soil Erosion and Sediment Control. They are listed in order of DEP preference for DEP acceptability.
 - a. Use a detention basin (not located in the wetland) to bring the peak flow (Q) for the 2 and 10 year storm to the predevelopment peak flow (Q) at the point of discharge. If this cannot be accomplished go to b.

- b. Pipe the stormwater runoff to a stable condition through the wetlands in an impervious trench. The pipe trench should be compacted and filled with impervious material instead of the classic stone filled trench. Anti-seep collars are required.

The designer is encouraged to determine if conduit outlet protection is required or provide means to eliminate the need for same.

- i. Filter blocks (grassed pavers) are encouraged where conduit outlet protection may be needed and the discharge flows are intermittent. The calculated D50 size of the required stone should be equal to or less than the thickness of the filter blocks and the pavement block should be installed in a staggered pattern. Filter fabric should be used instead of a sand filter.
 - ii. Employ impact basins, drop-in-grade structures, plunge pools or scour holes at the bottom of the sloping topography and/or before the edge of flat wetlands.
- c. Install a low maintenance vegetated waterway to a stable condition in accordance with the Standards for Soil Erosion and Sediment Control. This shall be utilized only for intermittent flows with a duration of 24 hours or less.
 - d. Install a nonprotected earthen channel to a stable condition according to the Standards for Soil Erosion and Sediment Control.
 - e. Install gabions and riprap channels to a stable condition in accordance with the Standards for Soil Erosion and Sediment Control.

(NOTE: Practices c,d,e may not be accepted by NJDEP unless the applicant can demonstrate that no other feasible alternative exists.)

C. Condition Where There Is A Direct Discharge to a Well Defined Waterway

This is a condition where the peak design discharge has made the transition from the end of the conduit apron to the waterway. Offsite stability can be demonstrated by the following alternatives.

- (1) Design post development peak flows to be less than or equal to the predevelopment peak flows for the two and ten year storm at the point of discharge. If the downstream condition is already eroding, then the condition shall not be aggravated by increasing velocities.
- (2) Limit velocity of peak flows from the two and ten year frequency storms to values allowed in the Standard for Grassed Waterway (4.3) and the Standard for Channel Stabilization (4.6) in "Standards for Soil Erosion and Sedimentation Control," promulgated by the SSCC. Maximum allowable velocities for a bare condition are stipulated in Table 4.6-1 of such standard. If the waterway is to be grass lined then the allowable velocities are as stipulated in the Standard for Grassed Waterway. For new grassed waterways, the design must be based on E retardance condition for velocity.
- (3) Provide channel protection as follows if the downstream waterway is unstable for post development flows:
 - a. Provide vegetative protection in accordance with the Standard for Grassed Waterway where flows will be present for 24 hours or less per rainfall event.
 - b. Provide armor protection in accord with applicable Standards where flows exceed a. above. Maximum allowable velocities cited in the standards may not be exceeded.

(Note: Apply corrective measures when the drainage area substantially increases and discharges to a point. The downstream area may not be able to handle the increased runoff volume.)

Section 6 - Infiltration Devices

The practice of infiltration is desirable where feasible. While the DEP accepts infiltration devices for Stormwater Management, because of the potential for ultimate failure the Standards for Soil Erosion and Sediment Control promulgated by the SSCC do not recognize such installations as an acceptable means to demonstrate offsite stability. Where such practices are utilized, a back up design which assures offsite stability will be required by the soil conservation district for soil erosion control plan certification.

Section 7 - Maintenance of Stormwater Facilities

Maintenance is an integral component of effective stormwater management and soil erosion and sediment control programs. To be approved, projects shall include designation of a responsible party for maintenance and satisfactory demonstration that sufficient resources are committed to the maintenance of the stormwater management facilities.

Section 8 - Implementation By Respective Approval Agencies

The appropriate agencies of DEP, including Division of Coastal Resources; Bureau of Coastal Regulation, Bureau of Inland Regulation, Dam Safety Section; Division of Fish, Game and Wildlife and other appropriate units of DEP which are responsible for development project review and approval shall utilize the foregoing criteria in their respective review and approval procedures. They will also advise applicants that measures to assure soil erosion and sediment control, and channel stability for those purposes, will be required by the appropriate soil conservation districts. The soil conservation districts shall also use the foregoing criteria in their review of soil erosion and sediment controls and implementation of the Soil Conservation Act and shall advise applicants of approvals required by DEP pursuant to applicable regulations and requirements.

Section 9 - Resolution of Conflicts - Interagency Contacts

In the event of apparent conflicts in criteria and program objectives, telephone contact will be initiated between appropriate DEP and soil conservation district staff by the respective agency recognizing the existence of such conflict.

Section 10 - Exchange of Directories - Respective Agency Personnel

A listing of key program personnel with responsibilities and telephone numbers indicated shall be exchanged and updated as appropriate. Such exchange shall be coordinated by the State Soil Conservation Committee. Where resolution cannot be achieved via telephone contact, a meeting of appropriate personnel may be arranged on a site specific basis.

Section 11 - Project Approvals Conditioned Upon SCD Certification

Permits issued by the Department of Environmental Protection for projects involving land disturbance exceeding 5,000 sq. ft. shall be conditioned upon receipt of a soil erosion control plan certified by the respective soil conservation district pursuant to Chapter 251, PL 1975.

Section 12 - Acid Soil Mitigation - Monitoring by SCD

As necessary, the Soil Conservation District will monitor all acid soil mitigation for stream encroachment permits. A project report of compliance will not be issued by the SCD until completion of appropriate acid soil mitigation measures. Any non-compliance with the acid soil mitigation plan will be reported to New Jersey Department of Environmental Protection.

Section 13 - Distribution of Documents

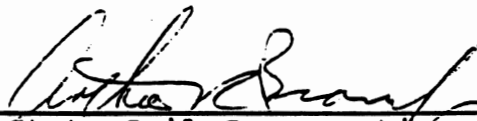
This agreement shall be distributed to appropriate personnel in each agency along with sufficient copies of respective program documents, not to exceed 50 copies, furnished at no cost, to either agency.

Section 14 - Effective Date/Modifications

This agreement shall take effect upon signing by both parties. Six months after the execution of the Agreement, there shall be opportunity for Department of Environmental Protection/Department of Agriculture consultation for the purpose of refining the Agreement based on the need for additional clarification/interpretation identified through initial implementation. It may be terminated by either party by providing notice to the other party sixty days prior to termination.

Approved

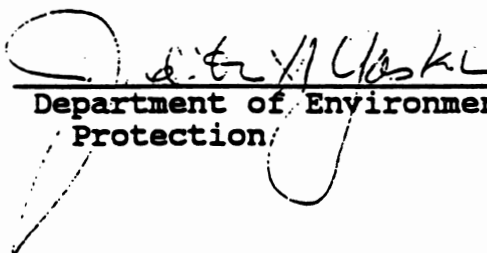
12/27/90
Date



Chairman
State Soil Conservation Committee
New Jersey Department of Agriculture

Approved

12/27/90
Date



Commissioner
Department of Environmental
Protection