



ISSUANCE #594

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**TECHNICAL
POLICY AND PROCEDURE NOTICE #6/00**

TO: Distribution

FROM: Nicholas J. Grecco, PE *NJG*

DATE: November 6, 2000

SUBJECT: Burial of Underground Storage Tanks for Motor Fuel

EFFECTIVE: Immediately

REFERENCE: Administrative Code Sections 27-440(b) and (d)

PURPOSE: To clarify the responsibilities of the professional for design of the support of the underground tank and of the support of the traffic slab above it.

BACKGROUND: Soil and groundwater conditions must be taken into account regarding their effect on the support of underground storage tanks for motor fuel and the traffic slabs over them. Conditions include soil type, allowable bearing pressure, liquefiability, depth of water table, tank flotation, and location with respect to Special Flood Hazard Areas and tidal or freshwater wetlands.

SPECIFICS: The following criteria may be used as an alternative to the present practice of providing a slab below the tank and piers below the traffic slab:

REQUIREMENTS:

- 1) The appropriate soil investigation must be performed. There must be notes on the drawings indicating the assumed allowable bearing capacity of the soil, and, for tanks and their supports that will not be situated at least two feet (610 mm) above the water table, indicating whether or not the soil is liquefiable. If the tank excavation will be used as a test pit after approval of the design drawings and issuance of a work permit, then there must also be a note stating that if, upon further investigation, the soil is found to be liquefiable or otherwise unsatisfactory, the design drawings will be amended to address the unsatisfactory soil condition.

If the tank and its supports will not be situated at least two feet (610 mm) above the water table, the liquefiability of sand, clays and clay soils, silts and silt soils shall be investigated. If a cone penetrometer is used, it shall be used upon undisturbed soil in the excavation. In order to test undisturbed soil, soil that has been in contact with equipment or has been walked on shall be hand shoveled away, or soil in the side of the excavation shall be tested in place. Otherwise, the appropriate number of borings shall be taken in order to determine the liquefiability of those soils.

- 2) The following procedure must be followed if liquefaction of soil need not be investigated or if the tank and its supports will be at least two feet (610 mm) above the water table:
 - a) The professional must determine whether or not support in addition to the underlying undisturbed soil must be provided. Such support may consist of a bottom slab, footings, and/or piles.
 - b) The professional must determine whether or not anchorage against flotation is required. If anchorage is required, the tank and/or traffic slab must either be anchored to the undisturbed soil, to deadmen, or to a bottom slab, as appropriate.
 - c) If the tank will be installed either within an "A" or "V" Special Flood Hazard Area as shown on the current Flood Insurance Rate Map, or within 100 feet (30.480 m) of a freshwater or tidal wetland, the tank must be anchored to a bottom slab capable of resisting flotation. Only pea gravel or No. 8 crushed stone may be used as backfill. The professional must consider the effects of scour on the tank and traffic slab if located in a "V" Special Flood Hazard Area. The approval of the New York State Division of Environmental Conservation must be obtained prior to Department of Buildings approval, or professional certification, of tanks to be installed within 100 feet (30.480 m) of a freshwater or tidal wetland.

- d) An 8 inch (203 mm) thick reinforced concrete traffic slab must extend over and at least 2 feet (610 mm) beyond the horizontal outlines of the tanks, and be placed upon a coverage of suitable backfill material as specified by the tank manufacturer, such as pea gravel, No. 8 crushed stone, clean sand, or equivalent, within the confines of the excavation and upon a 6 inch (152 mm) thick crushed stone base if the slab will extend beyond the edges of the excavation.
 - e) Prior to backfilling, the excavation must be lined with geotextile filter fabric of the type and minimum specification as recommended by the tank manufacturer.
- 3) The following procedure must be followed if the soil that will support the tank is required to be investigated for and found to be liquefiable:
- a) The professional shall design a system to ensure site stability, traffic slab stability and tank stability.
 - b) An 8 inch (203 mm) thick reinforced concrete traffic slab must extend over and at least 2 feet (610 mm) beyond the horizontal outlines of the tanks, and be placed upon a coverage of suitable backfill material within the confines of the excavation and upon a 6 inch (152 mm) thick crushed stone base if the slab will extend beyond the edges of the excavation.
 - c) If the tank will be installed either within an "A" or "V" Special Flood Hazard Area as shown on the current Flood Insurance Rate Map, or within 100 feet (30.480 m) of a freshwater or tidal wetland, the professional must consider the effects of flotation on the tank and/or traffic slab. If the tank will be installed in a "V" Special Flood Hazard Area, the professional must also consider the effects of scour on the tank and/or traffic slab. The approval of the New York State Division of Environmental Conservation must be obtained prior to Department of Buildings approval, or professional certification, of tanks to be installed within 100 feet (30.480 m) of a freshwater or tidal wetland.
- 4) These requirements are in addition to those contained in sections 27-440(a) and (e) of the Administrative Code, and are deemed to be in compliance with sections 27-440(b) and (d) of the Administrative Code.