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## **DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

# **PROGRAM REVIEW & POLICIES SEWAGE TREATMENT & WATER SUPPLY FACILITIES FOR COMMERCIAL & MULTI-FAMILY RESIDENTIAL PROJECTS**

## **BULLETIN CS-31**

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## TABLE OF CONTENTS

	<b>PAGE</b>
1.0 INTRODUCTION.....	1
2.0 DESIGN DOCUMENTS.....	2
3.0 SEWAGE TREATMENT SYSTEM DESIGN REQUIREMENTS & PARAMETERS.....	5
4.0 PROJECT APPRAISAL PROCESS.....	11
5.0 CONSTRUCTION PERMIT RENEWALS.....	17
6.0 CERTIFICATE OF CONSTRUCTION COMPLIANCE.....	17

## APPENDIX

A. PROCEDURE FOR PERFORMING PERCOLATION TEST.....	21
B. DIRECT LINE OF DRAINAGE DETERMINATION.....	22
C. CONSTRUCTION NOTES.....	23
D. FILL SECTION DETAIL.....	26
E. REQUIRED HYDRAULIC LOADING RATES.....	27
F. PROCEDURE FOR PERFORMING 24-HOUR PUMP TEST ON WELLS WITH REPORTED YIELDS LESS THAN 5 GPM.....	28
G. MINIMUM STORAGE REQUIREMENTS FOR WELLS WITH YIELDS LESS THAN 5 GPM.....	29
H. FEE SCHEDULE.....	30
I. DELEGATION AGREEMENT.....	31
J. APPLICATION FORMS.....	37

## **PUTNAM COUNTY DEPARTMENT OF HEALTH DIVISION OF ENVIRONMENTAL HEALTH SERVICES**

### **1.0 INTRODUCTION**

The Putnam County Department of Health (the "Department"), Division of Environmental Health service has developed this detailed guide for submission requirements, policies and procedures relative to approval of plans for commercial and multi-family residential projects.

The Department, in review and approval of commercial and multi-family type projects, addresses community needs and potential adverse impacts for the purpose of insuring the provisions of adequate water and sewage facilities. Generally, smaller projects are served by individual wells and subsurface sewage treatment systems (SSTS) and larger developments involving greater than 30,000 gallons per day of sewage discharge, may require central sewage facilities. Projects serving at least 25 people or containing at least 5 service connections require a public water system.

When a central water system is planned for a project, New York State Department of Health (DOH) construction plans, and New York State Department of Environmental Conservation (DEC) water supply application approvals are required prior to the Department's approval of a project. A SPDES (State Pollutant Discharge Elimination System) permit for the sewage discharge must be obtained from the DEC for a surface discharge or when the subsurface discharge is greater than or equal to 1,000 gallons per day. Construction plans for the sewage collection system and sewage treatment system must be approved by the Department and/or the DEC and NYC Department of Environmental Protection (DEP), if required, prior to the approval of a project. Other DEC permits may be required such as wetlands or protection of waters, depending on the individual requirements of each project.

This document describes the requirements of the Department for submission of an application for a Construction Permit and/or Certificate of Construction Compliance Permit for sewage treatment systems and public/individual water supply facilities to serve commercial and, multi-family type projects. This document is not meant to substitute for the design standards of the New York State Department of Health, NYS Department of Environmental Conservation and NYC Department of Environmental Protection, as applicable, as set forth in documents listed below, but should serve as a guide to Department requirements and procedures. The Department may require additional information or procedures as considered necessary based upon detailed engineering review of a project.

All projects located within the NYC Watershed in Putnam County are also subject to the NYC Department of Environmental Protection Watershed Regulations. Certain projects within the NYC Watershed have been delegated to the Department for review and approval of new SSTS per the Delegation Agreement located in Appendix I.

All applications for review of approval of new SSTS to be located within the NYC Watershed shall be sent to the Department, and need not be sent in duplicate to the DEP, although the project may require DEP approval of the SSTS prior to final approval by the Department. Such approval will be coordinated internally between the Department and the DEP. The DEP is also an involved agency pursuant to SEQRA and projects within the watershed may also require DEP review and approval of other aspects of a project, such as stormwater plans or the creation of impervious surfaces, and the project applicant should obtain the appropriate forms for such activities from DEP and submit those forms to DEP for review and approval.

## 2.0 DESIGN DOCUMENTS AND PARAMETERS

The following documents will be utilized during the review of projects by the Department.

### A. Projects with Individual Subsurface Sewage Treatment & Individual Water Supply

1. NYSDEC Publication, "Design Standards For Wastewater Treatment Works."
2. Article III, "Individual Sewage Treatment", Putnam County Sanitary Code.
3. 10 NYCRR Appendix 5-B, Standards for Water Wells
4. 10 NYCRR NYS Sanitary Code, Subpart 5-2, Water Well Construction.
5. Article X, "Water Well Construction", Putnam County Sanitary Code.

### B. Projects With Central Sewage Facilities

1. NYSDEC Publication, "Design Standards For Wastewater Treatment Works."
2. GLUMRB "Recommended Standards For Sewage Works" (Ten State Standards).
3. Article VIII, "Central Wastewater Collection, Treatment or Disposal Systems," Putnam County Sanitary Code.
4. NYSDEC, Technical Information Pamphlets (TIP's).

C. **Projects With Central Water Facilities**

1. 10 NYCRR NYS Sanitary Code, Subpart 5-1, Public Water Systems.
2. 10 NYCRR NYS Sanitary Code, Subpart 5-2, Water Well Construction.
3. GLUMRD "Recommended Standards For Water Works" (Ten State Standards).
4. NYSDOH Publication, "Designing Community Water Systems."
5. Article X, "Water Well Construction", Putnam County Sanitary Code.

The Putnam County Health Department has adopted the following design requirements which are more stringent than those in the above documents.

1. Subsurface Sewage Treatment:

- Putnam County Department of Health Department, "Procedure For Running Soil Percolation Tests" (Appendix A)
- Hydraulic design loading rates specified in Appendix E.
- Maximum application rate of 1.0 gpd/sq.ft for percolation rates 1 to 7 min/inch outside NYC Watershed and 3 to 7 min/inch for projects within NYC Watershed.
- Percolation rates slower than 60 min/inch unacceptable.
- Minimum 5 feet of useable soil required between bottom of absorption system and ledge rock/impervious layer.
- Minimum 4 feet of unsaturated useable soil required between bottom of absorption system and groundwater.
- Minimum of one-half of the total soil depth required to be in situ over ledge rock or impervious layer for entertaining fill systems.
- Minimum 100 percent reserve area required.
- Gravelless absorption systems, mounds, evaporation transpiration (ET), evapo-transpiration absorption (ETA) and raised system are not allowed for new construction.
- Distance from a SSTS to a non-regulated NYC Water Supply pond, lake, reservoir stem or reservoir utilized as a source of potable water for a public water supply system and/or Putnam County Health Department permitted bathing beach is 200 feet.
- Minimum separation distance of 25 feet from a SSTS to a retaining wall.
- Minimum separation distance of 50 feet from a SSTS uphill of a building, in addition to, an impermeable barrier which extends below the footing drains, between the building and SSTS.
- Minimum horizontal separation distance of 5 feet from ledge to a SSTS designed for no fill or 2 feet less of fill.
- For fill systems greater than 2 feet, the toe of the fill pad is to be keyed into existing soil and maintain a minimum horizontal separation distance of 5 feet to ledge.
- All galley systems (flow diffusers, tri-galleys, and 4 x 4s) are to be considered as seepage pits and the following design criteria shall apply:

Galley Type	Center-to-Center Spacing (ft)	Gravel Requirement	Effective Sidewall Area Credit	Effective Sidewall Area Credit For End Sections*	Depth of Percolation Tests (inches below grade)
Flow diffusers	24	12" sides & bottom	4.0 SF/LF	12 SF	24 & 36
Tri-Galleys	24	12" sides & bottoms	5.2 SF/LF	15.5 SF	28 & 44
4 x 4 galleys	24	12" sides & bottoms	8.67 SF/LF	26 SF	36 & 60

\*The effective sidewall area credit for end sections shall apply to the exterior ends of rows only (i.e., sidewall ends within the interior of the sewage system do not receive credit).

- Flow diffusers and galley-type systems allowed under pavement provided they are designed for the anticipated traffic loadings and the downstream portion of the absorption facility is equipped with a downward facing screened vent riser to assure access for air to the absorption facility. An access to grade manhole is required on each row.
- The center-to-center spacing of rows of flow diffusers, tri-galleys and 4 x 4 leaching galleys shall be 24 feet. A minimum of 18 feet of undisturbed soil shall be provided between parallel trench sidewalls.
- Minimum separation distance of 150 feet from flow diffusers, tri-galleys and 4 x 4 leaching galleys to wells.
- Galley-type systems are no longer permitted in the NYCDEP Watershed.

## 2. Water Supply:

- Only drilled wells permitted.
- Top of well casing minimum 18 inches above finished grade.
- Well casing to be a minimum of 10 feet into solid rock or 20 feet minimum, which ever is greater.
- Well casing to be cement grouted a minimum of 10 feet into solid rock.
- Direct line of drainage determination. (Appendix B).

### 3.0 **SUBSURFACE SEWAGE TREATMENT SYSTEM (SSTS) DESIGN REQUIREMENTS AND PARAMETERS**

#### A. **Site Plan** (General)

All plans submitted for review are to be prepared by a Design Professional (i.e., Professional Engineer, Registered Architect, or Land Surveyor with exemption under Section 7208(n) of the NYS Education Law) licensed to practice in New York State. Every plan submitted must have existing and proposed topographic contours shown at 2-foot intervals. The plans must provide a note disclosing the source and/or certification as to accuracy of the topographic contours. On-site or off-site drainage must be shown adequately diverted from the SSTS area. Dimensions from property lines to the well must be specified, as must minimum or maximum building setbacks, where applicable. All streams, wetlands, drainage courses, etc., within 200 feet of a property line must be shown. The Design Professional may be asked to have the proposed SSTS location and/or property lines staked by a land surveyor where conditions warrant such information.

As a reminder, FEMA Flood Plain Maps and State/local/Federal wetlands maps must be consulted for all projects, as appropriate. The 100-year flood elevation, and State/local/Federal wetland boundaries must be shown on all plans.

#### B. **Deep Test Holes**

The design of a SSTS is predicated upon site conditions, percolation test results, observation of soil strata in deep test holes and the location of adjacent wells and SSTS. One segment of the Department's review of a proposed SSTS is the inspection of deep test holes. The Department will inspect deep test holes prior to receipt of a formal submission; however, a plan shall be submitted, which includes as a minimum, the following items:

- Property survey with metes and bounds descriptions and major physical features. The plan shall make reference, by note, of the survey source and in the case of lots not subject to a filed map, a certified copy of a survey shall be provided.
- A datum reference is to be provided (i.e., National Geodetic Vertical Datum 1929, or assumed/other).
- Proposed house or building, driveway(s) or road(s), well, SSTS, and all other proposed improvements.
- Two-foot contours of property. If ground is to be cut or filled, both existing and proposed contours must be shown.
- Location of any water courses, ponds, lakes or wetlands on, or within 200 feet of property.
- Delineation of United States Department of Agriculture Soil Conservation Service soil type boundaries.
- Location map (minimum scale of 1" = 2,000').
- Title box indicating name and address of property owner; parcel tax map identification number; property location, including street and municipality; name, address and phone number of Design Professional; date of drawing, including dates of any revisions; and scale.
- All existing and/or proposed SSTS and wells within 200 feet of the proposed SSTS and well

The Department will not schedule field testing without an engineering plan as specified above. Property corners staked by a Licensed Land Surveyor, where warranted, must be visible to the Department inspector at the time of the initial inspection. All projects which will require the witnessing of soil testing by this Department, must first be submitted to the local town wetland board for review. This Department will **not** schedule field testing for projects in any Town until the Town wetland board has reviewed the submitted site plans and provides this Department with either a:

- Letter of Permission stating that the wetland board has reviewed the site and that no wetlands exist and, therefore, test holes can be dug.

Or:

- Letter indicating that the project will require a wetlands application and, therefore, no test holes can be dug until a permit is granted.

Deep test holes must be excavated to a depth at least 5 feet below the bottom of the proposed absorption system. Normal absorption trench systems require 7 feet deep holes. Seepage pits require holes equal to the pit depth dimension plus 6 feet. Tri-galleys require 9-foot deep holes, 4 X 4 leaching galleys require 11-foot deep holes and flow diffusers require 8-foot deep holes. The Department may require the excavation of deep test holes to verify curtain drain installation.

A minimum of four (4) deep test holes are required for each SSTS area (minimum of two (2) in the primary area and two (2) in the reserve area). Additional deep test holes may be required for larger systems or to adequately define boundary conditions within the SSTS area if ledge rock and/or groundwater are encountered. Visual observation of the deep test, such as soil mottling, silt and clay content, soil density, etc., shall be considered in the design evaluation and sizing of the absorption area. Deep test holes are to be backfilled immediately upon inspection by the Department. Construction equipment for excavating deep test holes should be on-site during the inspection. The Department strongly recommends excavation of deep test holes on the day of the Department's inspection and no more than two (2) days prior to the date of the inspection. Any inspection of deep test holes resulting in the Department not being able to accurately observe/classify soils may result in the Department requiring re-excavation of the deep test holes.

Soil testing conducted during dry weather conditions is frequently misleading and, therefore, during the period from July 15<sup>th</sup> through September 15<sup>th</sup>, deep hole testing for any new project will not be considered by the Department. The Department will observe deep test holes and/or entertain deep test hole data during July 15<sup>th</sup> through September 15<sup>th</sup> only for those lots which have previous documented deep test hole data (i.e., subdivision filed map or approved construction permit.) In addition, soil testing will not be conducted during inclement weather and/or when there is snow cover on the ground surface.

#### C. **Percolation Tests**

Soil percolation test results are indicative of the ability of a soil to absorb wastewater and percolation tests are one of the most important factors in determining the size of a SSTS. The tests shall be performed in natural soil within the area planned to be utilized for sewage treatment. A minimum of four (4) percolation tests, spaced uniformly throughout the SSTS area, shall be conducted for each proposed individual SSTS (minimum of two (2) in the primary area and two (2) in the reserve area). Larger SSTS may require additional percolation tests, as



necessary, to determine the site's suitability for subsurface sewage treatment. The slowest stabilized percolation test result shall be utilized to design the SSTS. If the soil conditions are highly variable, more tests may be required. The percolation tests must be used in conjunction with the deep test soil observations and should be consistent with the deep test soil observations. As a minimum, new soil percolation tests will be required on previously approved projects that are ten (10) or more years old.

Soil percolation tests must be performed in accordance with Appendix A, "Procedure for Performing Soil Percolation Tests." The design data sheet must indicate the depths of the percolation test holes and shall verify that pre-soaking of the percolation holes was done, as prescribed by the procedure in the standards.

The following table specifies the required depths for percolation tests to be conducted for various types of SSTS.

Types of Sewage Systems	Required Depth for Percolation Tests (all depths are inches below grade)
Conventional absorption trench	24 to 30
Seepage pit	One-half & full-pit depth
4 x 4 leaching galley	36 and 60
Tri-galley	28 and 44
Flow diffuser	24 and 36

Sites where the standard soil percolation test cannot be performed in the natural soils due to the presence of ledge rock, impervious strata, groundwater, or other circumstances, are not considered suitable for a SSTS.

Percolation tests may be conducted anytime except when the ground is frozen or precipitation interferes with the test (i.e., adds water to the test hole). It should be noted that soil tests made during dry weather conditions are frequently misleading and therefore, from July 15th through September 15<sup>th</sup>, percolation testing for any new project will not be considered by the Department. The Department will witness percolation test and/or entertain percolation test data during July 15th through September 15th only for those lots which have previous documented percolation test data (i.e., subdivision filed map or approved construction permit).

The Department reserves the right to require additional tests during a wet time of the year when it is deemed necessary. The Department may also require adjustment to percolation test results performed in dry weather as experience may indicate to be necessary. Wet weather testing is strongly recommended.

The Department will require the witnessing of soil percolation tests as follows:

1. Any lot less than 0.5 acres in size.
2. Any lot where all or most of the lot area is utilized for the primary and reserve SSTS area.
3. Any lot where Department engineering review indicates a concern relative to the soil rate.
4. Any lot within the NYC Watershed as per Delegation Agreement. (Appendix I)

The Department representative will observe a minimum of three (3) runs or until the percolation rates have stabilized in each percolation test hole. This will be performed after the holes have been presoaked.

D. **Fill Sections**

Fill is viewed by the Department as a supplement to existing in-situ soil. In order for the Department to entertain fill systems over ledge rock or an impervious layer, a minimum of one-half of the total required soil depth must be naturally in place. Therefore, 42 inches (3.5 ft.) of useable in-situ soil must exist over ledge rock or impervious layer in the SSTS area for the design of a conventional absorption trench fill system. A minimum of 54 inches of in-situ soil must be present for tri-galleys, 66 inches for 4 x 4 leaching galleys and 48 inches for flow diffuser fill systems. If the seasonal high groundwater level is no less than 30 inches (2.5 ft.) below original grade, the Department may entertain a fill system for conventional absorption trenches, provided acceptable percolation rates at 24 inches (2 ft.) are obtained.

The design of systems in fill sections must be based upon the soil percolation rate of the original soil. The fill material shall meet the specification requirements contained in Notes # 4 and # 5 in Appendix C. After the placement of fill, percolation tests are to be conducted in stabilized fill which has been allowed to settle naturally for a period of at least six months, including one freeze-thaw cycle. Fill stabilization may also be achieved by mechanical compaction as stated in Note # 1, located in Appendix C, prior to installation of the absorption system. The stabilized fill percolation rate is to be equal to or less than the soil percolation rate upon which the design is base. The adequacy of the fill material is the responsibility of the Design Professional and the validity of the issued Construction Permit depends on satisfactory quality and quantity of fill. Please refer to Section 4.0 for additional requirements.

The SSTS reserve area fill will be required to be installed during construction of the primary system. A typical fill section detail is provided in Appendix D.

Generally, fill is to be placed over existing grade including top soil. Unless the design is approved differently, approval will infer no existing soil is to be removed. Stripping of topsoil followed by placement of fill may, unless specified on the approved plans, result in rejection of

the construction.

E. **Curtain Drains**

When groundwater dewatering is needed to make a site suitable for a conventional shallow absorption trench system (i.e., where high groundwater is less than 30 inches below grade) an acceptable method of determining absorption area dewatering effectiveness is to be followed.

Acceptable methods of determining proposed wastewater absorption area dewatering effectiveness, including monitoring groundwater elevation upgradient from and within a proposed wastewater absorption area during a normal high groundwater period, are outlined below.

1. Installation of a permanent curtain drain upgradient from a proposed wastewater absorption area with a non-perforated outlet pipe discharging intercepted groundwater at least 20 feet downgradient from the proposed wastewater absorption area.
2. Installation of a temporary open test trench upgradient from a proposed wastewater absorption area with the collected water conveyed to a discharge point at least 20 feet downgradient from the proposed wastewater absorption area by means of a nonperforated gravity outlet pipe installed in a trench and backfilled with native soil to grade between the inlet and outlet.
3. Installation of a 7-foot deep temporary open trench upgradient from a proposed wastewater absorption area and extending to grade at least 20 feet downgradient from the proposed wastewater absorption area, provided all of the following conditions are met: (a) Slope of in situ soil shall be  $\geq 5$  percent to  $\leq 20$  percent. (b) In situ soil percolation rate at 24 to 30 inches below grade, shall be 1 to 30 min/inch, and (c) A 4 feet minimum vertical separation shall be provided between the bottom of proposed absorption trenches and high groundwater (i.e., following dewatering).
4. The minimum frequency of groundwater monitoring shall be weekly readings and after rain events. Reports summarizing the groundwater monitoring data are to be submitted to the Department monthly.

Where a curtain drain is required to lower the groundwater within the SSTS area, its discharge should be shown preferably to an existing watercourse on the subject parcel or a stormwater drainage system. In the event a curtain drain cannot discharge to a watercourse or storm sewer, a level-spreader or flow-diffuser for the curtain drain discharge outlet shall be designed. If discharging to an adjacent property not owned by the applicant, a written easement must be obtained from the property owner. In order to verify that a permanent curtain drain has been constructed to a proper depth and is serving to lower the groundwater table in the SSTS area, all curtain drain installations will be required to be provided with permanent vertical standpipes of 4" perforated PVC pipe installed to a depth of at least five feet below the bottom of the absorption system, installed five feet from the curtain drain on the upgradient and downgradient sides for groundwater monitoring purposes. These standpipes must be shown on the plan along with construction details.

F. **State Wetlands**

All NYS Department of Environmental Conservation mapped freshwater wetlands and the control areas adjacent to these wetlands for a distance of 100 feet are protected. Certain activities are exempt from regulations while others that may have a negative impact on the wetland are regulated. To conduct any activity in a protected wetland or its control area, a permit is required from the DEC.

The State DEC wetlands maps should be reviewed to determine if any portion of the property being developed is in or within 100 feet of a State wetland and, therefore, requires a DEC permit. All wetlands shown on submitted plans shall indicate the source of identification and certification by a licensed land surveyor as to the accuracy of the wetlands delineation.

A wetlands permit, if required, is to be obtained from the NYSDEC prior to project approval by the Department.

G. **Local Wetlands**

Several municipalities in Putnam County have adopted local wetlands ordinances and maps. The local municipalities should be contacted to determine if the property being developed is regulated locally.

All wetlands must be shown on the plan along with the extent of the protected area around the wetland. All wetlands shown on submitted plans shall indicate the source of identification and certification by a licensed land surveyor as to the accuracy of the wetlands delineation.

If the project property contains a locally regulated wetland and a wetland permit is required, it is to be obtained from the municipality prior to project approval by the Department.

H. **Pump Systems**

Gravity flow systems are the preferred design for SSTS installations, although pump systems will be allowed where lot constraints prohibit a gravity system.

I. **Other Required Permits**

If the proposed project requires permits by other agencies, i.e., stream protection (NYSDEC), wetlands (Army Corps of Engineers), etc., the Department will require all other agency approvals to be secured prior to project approval.

J. **Final Inspection**

The Department must be notified prior to backfilling of the SSTS in order to schedule an inspection of the work. The "Request for Final Inspection" form (FIR-99), is to be provided to this Department by the Design Professional prior to the Department performing a final SSTS inspection. Final inspections will not be scheduled until such time as form FIR-99 is received. No completed work is to be backfilled until authorization to do so has been obtained from the Department. Final grades of trenches, length of trench or other field conditions may or may not be checked, as the prime responsibility for this rests with the Design Professional supervising construction.

**4.0 PROJECT APPROVAL PROCESS**

The conception, design, approval and construction of a commercial or multi-family residential project may take place over a period of time which may vary from several months to several years. The various stages in the review and approval process by the Department are described below.

**A. Pre-Application Conference**

Informal pre-application conferences have demonstrated their value in that they result in a smooth-running process and line of communication between the owner, the owner's Design Professional(s), and this Department. Furthermore, the owner and Design Professional(s) will be informed of Department rules, regulations, policies and requirements. At this pre-application conference, the main topics to be discussed are as follows:

1. General requirements of the Department.
2. The type of sewage system and water supply proposed.
3. DEC Permits and/or DOH and DEP approvals required.
4. General physical characteristics of the area, (i.e., topography, soil type, rock and water elevations and wetlands).

The pre-application conference should take place in conjunction with preliminary local Planning Board discussions in order that the requirements of the Department be considered in the conception of the project.

**B. Construction Permits – General**

Prior to any construction of a sewage treatment system, plans for such system must first be approved by the Department. There are generally two types of SSTS construction permits reviewed by the Department; those requiring fill in conjunction with a preliminary design plan for fill placement and those not requiring fill.

The following criteria shall be utilized to determine if a preliminary design plan for fill placement is required for a particular SSTS.

<b>Type of System</b>	<b>Fill Less Than or Equal to Depth Specified Below Does Not Require A Fill Placement Plan</b>
Absorption trench	2'
Flow diffuser	2.5'
Tri-galley	3.5'
4 x 4 leaching galley	5.0'

The submission requirements for each of the two types of construction permits are specified below.

C. **SSTS Construction Permit Submission Requirements for Projects Not Requiring a Fill Placement Plan**

Note: All submitted Department application forms are to contain original signatures.  
(no photo copies)

1. Construction Permit Application. (Appendix J)
2. Letter of Authorization for Design Professional. (Appendix J)
3. Application for Approval of Plans for a Wastewater Treatment System. (Appendix J)
4. Corporate Resolution (if Corporate Ownership). (Appendix J)
5. Design Data Sheet. (Appendix J)
6. Well Permit application, if required. (Appendix J)
7. Short Environmental Assessment Form (EAF). (Appendix J)
8. Engineering report for sewage treatment and water supply facilities.
9. Technical specifications for installation and testing of water and sewage mains and appurtenances, if required.
10. Proof that preliminary approval has been granted by the Planning Board of the municipality in which the project is located.
11. Proof is required to be provided showing that the requirements of SEQR have been satisfied for projects requiring a coordinated review. This proof can be in the form of a negative declaration or a findings statement if a positive declaration was issued.
12. Documentation for the formation of water and sewer districts, if applicable.
13. All applicable DEC and DOH permits and plan approvals, if applicable.
14. If the project is to be served water and/or sewage by an extension of an existing water main or sewer line, the applicant must submit a letter and/or engineering report from the officials in charge of the water supply and/or sewage system indicating that there is sufficient water available at an adequate pressure and/or sewage capacity to service the proposed project.
15. Four (4) sets of plans bearing the seal and signature of a Design Professional licensed and registered to practice in New York State. For initial submission, two (2) sets of plans are to be submitted for projects within the NYC Watershed and one (1) set for projects outside the NYC Watershed. These plans shall be to scale (minimum 1 inch to 50 feet horizontal and 1 inch to 10 feet vertical) and shall include, as a minimum, the following:

- a. Property survey with metes and bounds descriptions and major physical features and north arrow. The plan shall make reference, by note, of the survey source and in the case of lots not subject to a filed map, a certified copy of a survey shall be provided.
- b. Building location(s) with proposed basement and finished first floor elevations and floor area(s) (square footage).
- c. A datum reference is to be provided (i.e., National Geodetic Vertical Datum 1929, or assumed/other).
- d. Plan and profile of the SSTS, to include 100 percent reserve area, construction details of absorption system and components including septic tank, distribution or junction boxes, pump pit, dosing siphon, etc.
- e. Profile of SSTS shall include, as a minimum, the following:
  - First floor elevation of building being served.
  - Sewer invert at the point where it leaves the building.
  - Size and slope of pipe from the building to the septic tank, and/or other tankage to the junction box or distribution box.
  - Septic tank inlet and outlet inverts.
  - Septic tank and size.
  - Inverts at distribution box or junction box.
  - Ledge rock and/or ground water profile.
  - Bottom of curtain drain to point of discharge.
  - Profile of existing and proposed grade.
- f. For septic tanks, pump pits, galleys, grease traps and like structures under areas subject to vehicular traffic, a minimum H-20 design load is required.
- g. When a septic tank, grease trap, pump pit, galley or like structure is located under pavement, access to grade manhole frames and covers are to be provided.
- h. When a pump pit is proposed due to insufficient elevation for gravity flow or for dosing purposes, the pump pit design/detail shall include, as a minimum, the following:
  - Make and model of pumps to be used and operational characteristics.
  - One-day storage past the high-level alarm within the pump chamber.
  - Check Valve(s).
  - Gate Valve(s).
  - Unions.
  - Operating and alarm levels for pumps.
  - Means for pump removal for maintenance.
  - All weather junction box with an outlet and screwed cover at or above grade at the pump chamber to allow for a plug in connection for the pump(s).
  - Pump curve should be supplied with the engineering report.
  - The pump operating range should be indicated on the pump curve.
  - Trench detail for force main, specify pipe type and rating, bedding and cover.
  - Baffled distribution box to be utilized for SSTS.

- Note stating, *"All electrical work and material for pump installation shall comply with the National Electrical Code."*
  - Note stating, *"An electrical Underwriter's Certificate for the pump chamber must be provided to the Department prior to the Department conducting a final inspection on the pump chamber."*
  - Note stating, *"The pump control panel and alarms shall be located inside the house or building."*
- i. Location of driveways, roads, parking lots, storm drainage system, etc.
  - j. Location of well or water main and building service connection.
  - k. Two-foot contours of the property. If ground is to be cut or filled, both existing and proposed contours must be shown.
  - l. Locations of any watercourses, ponds, lakes or wetlands on, or within 200 feet of property. The jurisdiction of wetlands (i.e., State, Federal, Town, etc.) is to be specified on the plan.
  - m. Accurate location of all deep test holes and percolation test holes.
  - n. Location of all wells and SSTS within 200 feet of proposed systems, or a note stating that none exist within 200 feet.
  - o. Title box indicating owner of property; parcel tax map identification number; project location including street and municipality; name, address and phone number of Design Professional; date of drawing, including dates of any revisions; and scale.
  - p. Location and discharge points for gutter, footing, storm and curtain drains.
  - q. Retaining walls greater than 4 feet in height for an SSTS design shall be designed and certified by a NYS Licensed Professional Engineer.
  - r. Design criteria on plans to include design flow, soil percolation rate and deep test hole soil information, tank sizes, absorption system requirements, fill depth, curtain drain depth, etc.
  - s. Construction notes pursuant to Appendix C.
  - t. Space for Putnam County Health Department Approval Stamp (minimum 3" x 5"), preferably in the lower, right-hand corner of the design plan.
  - u. Location map (minimum scale of 1" = 2,000').
  - v. Erosion control measures for building(s), well(s) and SSTS.
  - w. Delineation of United States Dept. of Agriculture Soil Conservation Service soil type boundaries.
16. One (1) set of building floor plans with title block as specified in 15.o. above.
  17. Fee – See Appendix H.



**D. Construction Permit Submission Requirements for Projects Requiring Preliminary Design Plan for Fill Placement**

1 – 14. Same as Section 4.0 C.

15. Same as Section 4.0 C., except for d.

d. Two Separate plans will be required; the title box for both plans must contain the statement, "Preliminary Design For Fill Placement Only."

i. Plan and Profile of Fill Section – Four (4) copies of this plan will be required showing the dimensions of the fill pad (i.e., length, width and depth, top and bottom slopes of periphery of the fill) depth gauge locations, well, septic tank, buildings(s), driveways, roads and/or parking lots. For the initial submission, two (2) sets of plans are to be submitted for projects within the NYC Watershed and one (1) set for projects outside the NYC Watershed. This plan shall not show the design of the trenches, distribution box, etc. and this plan will be approved by the Department to allow placement of fill. The Department must be notified of the date of placement of fill. The estimated volume of fill in cubic yards must be specified on the plan for ROB, unclassified and impervious soil materials. An equal distribution box rather than drop or junction boxes should be utilized in fill sections, with its foundation set below frost. Depth gauges will be required in the fill section (i.e., one (1) at each corner and one (1) in the center of the fill pad). The SSTS reserve area fill is required to be installed at the time of primary fill placement.

ii. Plan and Profile of the Fill Pad Absorption System – One (1) copy of this plan for projects outside the NYC Watershed and two (2) copies for projects within the NYC Watershed will be required showing the design of the absorption trenches in the fill area. Such design must show that a reserve area of 100 percent can be placed on the lot conforming to all applicable restrictive distances. This plan will be retained for the Department's files for future reference.

A Design Professional is responsible to assure that the system is constructed in accordance with the approved plans. If any significant departures from the approved plans are proposed because of field conditions encountered during construction, they must first be approved by the Department.

16 – 17. Same as Section 4.0 C.

18. Fill must be allowed to settle in accordance with fill Note #1, located in Appendix C, after which time a second application for a Construction Permit must be made to the Department and shall include:

a. Results of a minimum of two (2) soil percolation tests in the settled fill. Additional percolation tests may be required based on the size of the system.

b. Four (4) sets of plans pursuant to Item 4.0 C. 15.

c. The following certification statement is to be added to the construction (trench

layout) plan. *“The Design Professional has inspected the ROB fill material on \_\_\_\_\_ (date) and does hereby certify that such material has been placed and stabilized in accordance with the requirements of the Putnam County Department of Health and the approved fill plan. The material itself has been tested and at this time is considered suitable for use in a subsurface sewage treatment. The soil percolation rate in the settled fill based on percolation tests after stabilization is \_\_\_\_\_ min/inch.”*

Signed: \_\_\_\_\_  
Design Professional

19. All minimum horizontal separation distances are to be measured from the toe of the fill pad, not from the absorption trench.

**E. Submission Requirements For Projects Utilizing a Wastewater Collection & Treatment Facility With A Surface Discharge and Public Water Supply**

1. Items # 2, 3, 4, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16 and 17, as applicable – Same as Section 4.0 C.
2. Four (4) sets of plans bearing the signature and seal of a Design Professional, licensed and registered to practice in NYS for the wastewater treatment and/or water supply facilities. The plans shall show the proposed wastewater treatment and/or water supply system layout, hydraulic profiles, cross sections, and construction details, as appropriate.
3. Technical specifications for the wastewater treatment and/or water supply system including proposed equipment, construction requirements, testing, certification's, etc.

If a project requires a SPDES Permit (surface discharge of any flow rate or subsurface sewage discharge of 1,000 gallons per day or greater) from the DEC, a flow confirmation letter, if required, may be issued by the Department after review and concurrence with the following:

- Engineer's report which derives the anticipated design flow from all of the proposed facilities (surface and subsurface discharge) and results of all soil testing (i.e., deep and percolation test hole) results (subsurface discharge).
- Site plan which shows discharge point (surface) or sufficient area for sewage treatment including primary and reserve (subsurface).
- Inspection of receiving waters (surface) or deep test holes and SSTS area (subsurface) by the Department.

Approval of plans cannot be issued by the Department until such time as a SPDES permit is issued by the DEC.

All Construction Permit approvals are valid for a period of two (2) years from the date of issuance. Construction Permits are required to be renewed when a permit is over two (2) years old, regardless of whether the same or a new owner is involved.

## 5.0 CONSTRUCTION PERMIT RENEWALS

The purpose of issuing permits with expiration dates is to provide the Department with flexibility should standards or site conditions change in the future. In addition, the Department must be assured that a Design Professional is employed to assume responsibility of the proposed design and to supervise and inspect construction.

Approval of renewals will not be granted until the Department makes a site inspection and the following items are submitted.

- A. Construction Permits being renewed by the Design Professional who obtained the original permit (original or new owner).

### SUBMIT:

1. Letter of Authorization.
2. Construction Permit Application.
3. The Design Professional provides a note on the plan indicating present site conditions with respect to the well and sewage treatment system area are comparable to those at the time of the original approval, (i.e., site conditions have not been altered).
4. Well Permit Application, if applicable.

- B. Construction Permits being renewed by a Design Professional other than the one who obtained the original permit (original or new owner).

### SUBMIT:

1. Letter of Authorization
2. Construction Permit Application
3. New plans signed and sealed by the new Design Professional.
4. Soil Data Sheet (if applicable)
5. Same as Section 5.0 A.3
6. Well Permit Application, if applicable.

- C. A complete new application for a Construction Permit, including plans signed and sealed by a Design Professional will be required as follows:

1. Where the Department determines that the sewage system design, as approved, is no longer adequate due to altered site conditions or revised standards.
2. If the proposed design flow is increased.
3. If the design professional has changed from the previously issued permit.

## 6.0 CERTIFICATE OF CONSTRUCTION COMPLIANCE

Before a Certificate of Occupancy for a building is issued by the local Building Inspector, a Certificate of Construction Compliance for the subsurface sewage treatment system and/or water supply must first be issued by the Department.

The Department must be notified before the system is backfilled in order that an inspection of the completed system can be made. Open work inspections may be omitted only at the discretion of the Director or his designated representative.

In order for the Department to issue a Certificate of Construction Compliance, the following must be submitted: (Note: All submitted Department application forms must contain original signatures (no photo copies)).

1. Certificate of Construction Compliance. (See Appendix J)
  - a. The Construction Compliance Permit is to contain "E 911" address issued by the respective municipality. The "E 911" address is to be provided at the "located at \_\_\_\_\_" section on the permit form. The following telephone numbers are offered for the agency assigning the "E 911" addresses within the municipality:

Carmel:	Building Dept. 628-1500	Philipstown:	Building Dept. 265-3929
Kent:	Building Dept. 225-3943	Putnam Valley:	Town Planning 526-3740
Patterson:	Town Planning 878-6319	Southeast:	Building Dept. 279-5698

A Construction Compliance permit will not be issued without the current "E 911" address.

2. Three (3) copies of a two (2) year guarantee, signed by the installer, and/or general contractor or the owner. (See Appendix J)
3. If the drilled well water supply is not considered a public water supply by definition in Part 5-1:10 NYCRR, NYS Sanitary Code:
  - a. Satisfactory results of a water analysis, for the parameters in Table 1 below, conducted and reported by a NYSDOH approved laboratory under the "Environmental Laboratory Approval Program" (ELAP).

TABLE 1	
CONTAMINANT	MCL (1) (4) (5)
Coliform bacteria	Any positive result is unsatisfactory
Lead	0.015 mg/l (15 ug/l)
Nitrates	10 mg/l as N
Nitrites	1 mg/l as N
Iron	0.3 mg/l
Manganese	0.3 mg/l
Iron plus manganese	0.5 mg/l
Sodium	No designated limit (2)
pH	No designated limit
Hardness	No designated limit
Alkalinity	No designated limit
Turbidity	5 NTU (3)

- Notes: (1) Maximum contaminant level  
 (2) Water containing more than 20 mg/l of sodium should not be used for drinking by people on severely restricted sodium diets. Water containing more than 270 mg/l of sodium should not be used by people on moderately restricted sodium diets.  
 (3) NTU means Nephelometric Turbidity Units  
 (4) mg/l means milligram per liter  
 (5) ug/l means microgram per liter

- b. A Well Completion Report (PCHD Form) signed by the well driller, including the results of at least a 6-hour pump test. (Appendix J)

A minimum well yield of 5 gpm is required. For yields less than 5 gpm, see Appendix F for procedures on performing a 24-hour well pumping test. The results of the 24-hour pump test are to be submitted to the Department for review and a determination will be made regarding utilization of the well for supplying potable water to the building. If the new well is found acceptable, then the procedures for determining the minimum potable water storage requirements, located in Appendix G, are to be utilized.

4. If the water supply is from an existing public water supply, satisfactory results of a bacteriological analysis of the water, from the service connection, performed by a laboratory approved by the NYS Health Department "Environmental Laboratory Approval Program.
5. Four (4) sets of "as-built" plans, signed and sealed by a Design Professional, licensed and registered to practice in New York State. These plans shall be to scale (minimum 1 inch to 50 feet) and shall include:
- a. Surveyed building locations(s) with respect to property lines. The plan shall make reference, by note, to the source of survey.
  - b. Metes and bounds description of property lines.
  - c. Actual locations of installed sewage treatment system and water supply improvements.
  - d. The distances necessary to locate the septic tank, distribution boxes, junction boxes, and ends of the absorption system from two fixed points, preferably the corners of the building.
  - e. The plan must include a legend, which reads as follows: *"This is to certify that the sewage treatment system was constructed as indicated on this plan and that the system was inspected by me before it was covered over. The system was constructed in accordance with all standard rules and regulations of the Putnam County Department of Health and the New York State Department of Environmental Conservation"*.
  - f. The "as-built" plans must also include a title box, giving the information required on the original design drawings. Minimum acceptable size of "as-built" plans will be 11" by 17".

- g. Space for Putnam County Health Department Approval Stamp (minimum 3" x 5") preferable at the lower right-hand portion of the plan.

6. Fee – See Appendix H.

After the Certificate of Construction Compliance Permit is issued by the Department, a copy of the Certificate of Construction Compliance Permit, Well Completion Report and approved "as-built" plans should be brought to the local Building Inspector so that he/she may process the Certificate of Occupancy. The local municipality should be contacted for their particular requirements for a Certificate of Occupancy.

# APPENDICES

**APPENDIX A**  
**PROCEDURE FOR PERFORMING SOIL PERCOLATION TESTS**

The following procedure shall be used for conducting soil percolation tests:

Step 1: Dig a hole with vertical sides 12 inches in diameter or square to the projected depth of the bottom of the proposed trench, pit or galley. Percolation tests shall be conducted at the following depths depending on the type of sewage system proposed.

Type of Sewage System	Required Depth For Percolation Tests (all depth are inches below grade)
Conventional absorption trench	24 to 30
Seepage pit	One-half & full-pit depth
4 x 4 leaching galley	36 and 60
Tri-galley	28 and 44
Flow diffuser	24 and 36

Step 2: Record all percolation test data onto Putnam County Health Department Form, "Design Data Sheet."

Step 3: Place washed gravel/stones in the lower 2 inches of each percolation test hole to reduce scouring and silting action when water is poured into the hole. The sides of percolation holes should be scraped to avoid smearing.

Step 4: Establish a fixed reference point at the top of the hole from which all measurements are to be taken.

**PRE-SOAKING**

Step 5: Pre-soak the test hole by periodically filling the entire hole with water and allowing the water to drain completely. This procedure should be performed for at least four hours and should begin one day before the test, except in clean coarse sand and gravel. After the water from the final pre-soaking has drained, remove any loose soil that has fallen from the sides of the hole.

**PERCOLATION TEST**

Step 6: Refill hole to a depth not to exceed 6 inches, measured from bottom of hole.

Step 7: Measure: a) the time for the water level to drop exactly 3 inches; or, b) the water level drop from 30 minutes, whichever comes first. Refill to original level and repeat the test a minimum of three (3) times until results of approximately equal magnitude are obtained on successive tests. (i.e.,  $\leq$  min. For 1-30 min/inch,  $\leq$  2 min. For 31-60 min/inch).

All soil percolation tests resulting in rates equal to or greater than 30 minutes per inch will require the tests to be conducted with a minimum of three (3) 1-hour runs or until the rate stabilizes, whichever comes first.

Step 8: Calculate time per inch of drop in water level for each run. The last measurement shall be utilized as **THE SOIL PERCOLATION RATE**.

August 1997



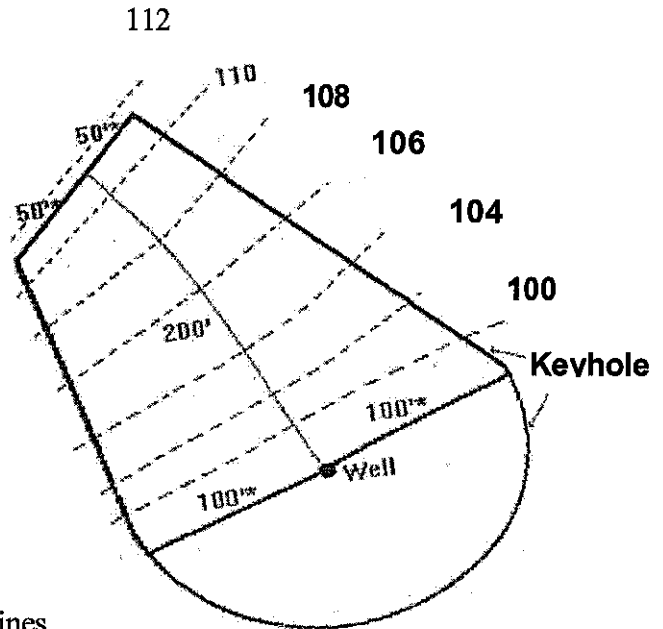
## APPENDIX B

### DIRECT LINE OF DRAINAGE DETERMINATION

#### Purpose:

The minimum separation distance between a well and a SSTS is 100 (150)\* feet when the well is located upgrade or at the same elevation as the SSTS. When the well is downgrade and in direct line of drainage, increased distances are necessary. Such increased distance is determined as follows:

1. Draw two 100 (150)\* ft. lines, one on each side of the well, parallel to the contours.
2. Draw a 200 ft. line uphill from the well and perpendicular to the contours. In some cases, this may be skewed due to the topography.
3. At the end of the 200 ft. line, draw two 50 (75)\* ft. lines parallel to the contours.
4. Connect the ends of the 50 (75)\* and 100 (150)\* ft. lines.
5. Draw a semi-circle with radius of 100 (150)\* ft. around the well.



No portion of the SSTS can be located within the boundaries of the direct line-of drainage keyhole figure created.

( )\* for seepage pits, leaching galleys or flow diffusers.

**APPENDIX C****CONSTRUCTION NOTES FOR SUBSURFACE SEWAGE TREATMENT SYSTEMS AND  
INDIVIDUAL WELL WATER SUPPLIES**

The following notes shall be provided on all plans for commercial and/or multi-family residential type sewage treatment systems and well water supplies.

**Standard Notes**

1. SSTS area to be field staked and cordoned to prevent the operation of trucks and/or machinery or storage of heavy equipment, building equipment, or excavated earth in this area.
2. SSTS system to be inspected by the Design Professional and the Putnam County Health Department after installation and prior to backfill.
3. The well is to be a drilled well, constructed in accordance with New York State Health Department 10NYCRR Appendix 5B, Standards for Water Wells, pump tested for a minimum of 6 hours and have a minimum safe yield of 5 gpm.
4. Putnam County Health Department approval is based on the location of the sewage system, well, building, setbacks, roads and driveways, as well as, building size and use as shown on the approved drawing. Any modifications or revisions are to have prior Putnam County Health Department approval.
5. Unauthorized modifications made to this drawing after the date of Putnam County Health Department approval voids said approval.
6. Putnam County Health Department approval is based on a maximum flow of \_\_\_\_\_ gallons per day. An increase in the flow will require prior approval from the Department.
7. A water meter shall be installed and daily readings furnished to the Putnam County Health Department each month.
8. The SSTS is to receive sanitary wastes only. The discharge of industrial wastes, contaminated cooling water, or other deleterious substances into or onto the surface of the ground is prohibited. The Putnam County Health Department reserves the right of inspection of the premises to insure compliance with these requirements.
9. Putnam County Health Department shall be promptly notified in the event that any wastes other than strictly domestic sanitary wastes are produced at this facility.

**APPENDIX C** (continued)

10. Occupancy of the building(s) will not be permitted until the Construction Compliance Application has been received and approved by the Putnam County Health Department and forwarded to the building inspector of the respective municipality as part of the Certificate of Occupancy application.
11. After backfilling the system, the SSTS area shall be covered with a minimum of 6 inches of top soil, seeded and mulched.
12. Remove all trees within 10 feet of the absorption system.
13. All existing and/or proposed subsurface sewage treatment systems and wells on neighboring properties within 200 feet of proposed SSTS and well are shown on this plan.
14. Approximately \_\_\_\_\_ feet of fill is required over the absorption system area.
15. Cut or fill is not permitted in the sewage treatment area(s), except as so specified on this plan.
16. All stonewalls in and within 10 feet of the SSTS area shall be removed to their entire depth and the resulting void replaced with similar on site soil.
17. If any pre-cast concrete tank is delivered to the site in sections, then it shall be demonstrated to the Department and/or certifying Design Professional that the tank is sealed, watertight and acceptable for use. This shall require, as a minimum, the filling of the tank with water and observing the water level after a 24-hour period to demonstrate if it is in fact sealed, watertight and acceptable for use.
18. All erosion control measures for buildings(s), well(s) and SSTS(s) are to be installed prior to any construction.
19. The conditions noted on the Putnam County Department of Health Letter of Approval are an integral part of this approval and compliance is required.
20. This plan is approved for sewage treatment and/or water supply only, and all other permits and/or approvals are the responsibility of the permittee.
21. The Putnam County Health Department Approval expires two (2) years from the date on the approval stamp and is required to be renewed on or before the expiration date. The approval is revocable for cause or may be amended or modified when considered necessary by the Department.

**CONSTRUCTION NOTES FOR SUBSURFACE  
SEWAGE TREATMENT SYSTEMS REQUIRING FILL**

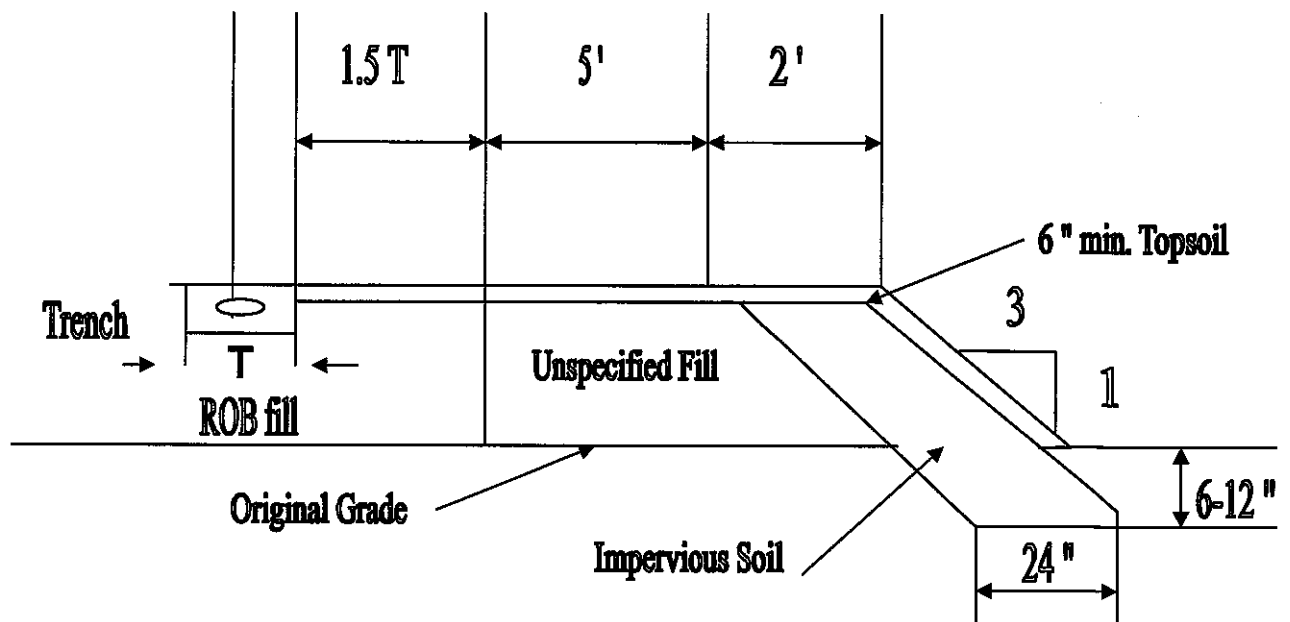
The following notes shall be provided on all plans for sewage systems requiring fill in addition to the Standard Notes.

**Notes Required When Fill Proposed**

1. Fill must be stabilized by allowing the fill material to settle naturally for a period of at least 6 months and include and least one freeze-thaw cycle or fill stabilization may be achieved by mechanical compaction in approximately 6 inch lifts to the approximate density of the undisturbed underlying granular soil.
2. The required depth of fill within the sewage treatment area is \_\_\_\_\_ feet which approximates to \_\_\_\_\_ cubic yards.
3. Site modification activities involving placement of fill are to be conducted during relatively dry periods to minimize soil smearing and excessive soil compaction.
4. Fill shall be run of bank gravel suitable for sewage absorption, be free of fines or other unsuitable material and shall have an in-place percolation rate at least equal to the natural soil after the required stabilization period. The Design Professional shall perform final percolation tests in the fill after stabilization.
5. Fill suitable for sewage absorption should contain no more than 5 percent and preferably no more than 2 percent fines by weight. Fines are clay and silt particles that pass a #200 sieve. No more than 10 percent by weight of the fill material should pass a #100 sieve.
6. The impervious fill, clay barrier, shall be a dense clayey soil with little or no sewage absorption capacity.

Aug. 1997

## APPENDIX D

FILL SECTION DETAIL(N.T.S.)

Fill pad material (ROB gravel) must extend a minimum distance equal to or greater than 1.5 times the trench width beyond the sidewall of the trench. After fill pad material, there must be 5 feet of additional soil, with the final 2 feet being impervious soil with a one (1) vertical to three (3) horizontal slope. The toe of the slope shall extend into the virgin soil 6 to 12 inches deep and 24 inches wide. A minimum of six inches of topsoil shall be applied over the entire surface of the absorption system including the side slopes, mounded to enhance the runoff of rainwater from the system, and seeded to grass.

Aug. 1997

**APPENDIX E****PUTNAM COUNTY DEPARTMENT OF HEALTH****REQUIRED HYDRAULIC LOADING RATES**1. **RESIDENTIAL WASTEWATER****Sewage Treatment Plant (Surface Discharge) & Central Subsurface Sewage Treatment**

Pursuant to Department of Environmental Conservation publication, entitled, "Design Standards For Wastewater Treatment Works."

2. **RESIDENTIAL WATER – (PUBLIC WATER SUPPLY SYSTEMS)**

Pursuant to Department of Environmental Conservation publication, entitled, "Design Standards For Wastewater Treatment Works."

## APPENDIX F

**PROCEDURE FOR PERFORMING 24-HOUR WELL PUMPING TESTS FOR WELLS SERVING INDIVIDUAL BUILDING LOTS WHERE INITIAL REPORTED YIELD IS LESS THAN 5 GPM**

1. All wells which have reported yields less than 5 gpm after the initial 6-hour pump test shall be subject to a minimum 24-hour pump test, as described below.
2. The pumping test shall be performed utilizing a pump capable of delivering the reported yield at the ground elevation of the wellhead at a pumping level as set forth in 4. below, and an instrument capable of reading water depth in the well.
3. Record initial static water level.
4. The water in the well shall be removed to a depth of 50 feet above the bottom of the well.
5. When the water level reaches the 50-foot level, in 4. above, the pumping test begins.
6. Depth and yield readings must be taken at a maximum interval of once every half hour for a minimum period of 6 hours and hourly thereafter.
7. The well shall be pump tested for a minimum of 24 hours or longer until such time as drawdown stabilization is achieved for a minimum of 6-hour time interval at the end of the test. The yield at the end of the drawdown stabilization period is the well yield. At the end of the yield test, the pump is turned off and well recovery monitored by recording water depth at half-hour intervals until water level returns to near static level.
8. All drawdown, yield and recovery data must be provided to the Department.
9. The Department must be notified 48 hours in advance of the pump test in order that a representative may be present during the test.
10. The yield tester shall attest to the results of the 24-hour yield testing by providing a signed certification statement similar to the following:

***“I, (name), do hereby state that to the best of my knowledge, belief, and professional judgement, that the well-yield testing was performed in accordance with Putnam County Health Department procedures and the results are an accurate and true representation of the yield testing.”***

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(Signature)

August 1997

## APPENDIX G

### MINIMUM STORAGE REQUIREMENTS FOR WELLS WITH YIELDS LESS THAN 5 GALLONS PER MINUTE

POLICY: Determination of minimum storage requirements when well yields less than 5 gallons per minute are encountered and accepted by the Department.

#### DESIGN CRITERIA:

$Q_{avg}$  = average daily demand

1. For three-bedroom house:  $600\text{gpd} \div 1,440 = 0.42 \text{ gpm}$   
For four-bedroom house:  $800 \text{ gpd} = 0.56 \text{ gpm}$
2.  $Q_{pk}$  = peak demand =  $10 \times Q_{avg}$
3. Peak demand deficit =  $Q_{pk} \text{ (gpm)} - 24\text{-hour pump test well yield (gpm)}$
4.  $V_m$  = required effective storage = 15 minutes x peak demand deficit (gpm)

$$5. \quad V_{st} = \text{required minimum storage tank volume} = \frac{V_m}{1 - \frac{P_1}{P_2}}$$

#### WHERE:

$P_1$  = minimum absolute (gage & atmospheric) operating pressure

(normally 30 psi) + 14.7 = 44.7 psi

$P_2$  = maximum absolute (gage & atmospheric) operating pressure

(normally 50 psi) + 14.7 = 64.7 psi

#### EXAMPLE: Three bedroom house and 1 gpm well

$P_1$  = minimum absolute operating pressure = 44.7 psi

$P_2$  = maximum absolute operating pressure = 64.7 psi

$Q_{avg} = 0.42\text{gpm}$

$Q_{pk} = 10 \times 0.42 = 4.2 \text{ gpm}$  say 5 gpm

Peak demand deficit =  $(5-1) \text{ gpm} = 4 \text{ gpm}$

$$V_m = 15 \text{ minutes} \times 4 \text{ gpm} = 60 \text{ gal} \quad V_{st} = \frac{60}{1 - \frac{44.7}{64.7}} = \frac{60}{0.31} = 194 \text{ GAL}$$

Therefore, a minimum 194 gallon storage tank is required.



APPENDIX H

**APPLICATION FEE FOR REVIEW AND APPROVAL OF CONSTRUCTION PERMITS FOR COMMERCIAL OR MULTI-FAMILY RESIDENTIAL PROJECTS**

	<b><u>FEE</u></b>
Projects utilizing subsurface or surface sewage treatment system with collection system and/or central or individual water supply system with distribution system.....	\$30.00 per 100 gallons (Sewage design flow)
Minimum fee.....	\$500.00
Any project where modification or revision of the approved water supply or sewage treatment facilities are proposed.....	\$250.00
Renewal of previously issued Construction Permits.....	\$500.00

**APPLICATION FEE FOR REVIEW AND APPROVAL OF CERTIFICATE OF CONSTRUCTION COMPLIANCE PERMITS FOR COMMERCIAL OR MULTI-FAMILY RESIDENTIAL PROJECTS**

Any project submission with a surface or subsurface sewage treatment system for which a Certificate of Construction Compliance is required.....	\$300.00
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**Payment of Fees**

Payment of all fees required by the Putnam County Sanitary Code shall be by **CERTIFIED CHECK OR MONEY ORDER** payable to the Putnam County Health Department. Cash or personal check payments will not be accepted.

Fee shall be payable at the time an application is made. Applications will not be processed unless they are accompanied by the proper fees.

## APPENDIX I

### Summary of Delegation Agreement between NYC Department of Environmental Protection & Putnam County Department of Health

This document is intended to serve both as a summary of the delegation agreement between the DEP and the Department for SSTS review and approval and as a guide to the Design Professional submitting SSTS projects to the Department for approval.

Applicable Regulations: include NYSHD Appendix 75-A, the NYCDEP Watershed Rules and Regulations, PCHD Bulletins ST-19, RS-21, RP-1 and CS-31, and NYSDEC standards for Intermediate Sized Wastewater Treatment Works.

#### DEFINITIONS:

- a. Alteration or Modification with respect to an SSTS shall mean any change in the physical configuration, intensity of use, location, plans, design, site, capacity, or treatment standard or method of the SSTS, other than as a result of a failure. Activities that are considered alterations or modifications include, but are not limited to : increasing flow to a previously approved system, changing the nature of the waste to be treated, adding new laterals outside the previously approved replacement area, and any other alteration or modification to a septic system that does not constitute a repair or remediation as defined below.
- b. City shall mean the City of New York.
- c. County shall mean the County of Putnam.
- d. NYCDEP shall mean the New York City Department of Environmental Protection.
- e. PCHD shall mean the Putnam County Department of Health.
- f. Remediation, with respect to an SSTS, shall mean the non-routine repair or replacement of the SSTS to address its failure. Activities that are considered remediation include, but are not limited to, installation of a new septic tank of a different size or in a different location, adding new laterals outside of the previously approved replacement area, and installing a new absorption field, provided, however, that for purposes of this Delegation Agreement only, the following shall be deemed a “repair” and not a “remediation”:

For an SSTS which was installed with an undersized septic tank (i.e., not compliant with the standards in 10 NYCRR Appendix 75-A) prior to December 1, 1990 – replacement of the tank with a larger tank that is compliant with the standards in 10 NYCRR Appendix 75-A.

- g. Repair, with respect to an SSTS, shall mean the routine repair, maintenance, and replacement in kind of broken, damaged, or worn part(s) of an SSTS, of the type that

would not require approval from NYCDEP under Section 18-38(a)(9)(iii) of the Watershed Regulations. Activities that are considered repairs include, but are not limited to: the placement in kind of laterals, septic tanks, pumps or siphons, and installation of new laterals within the previously approved replacement area; leveling of distribution boxes (“d-boxes”) or junction boxes (“j-boxes”), and removal of a blockage.

- h. SSTS failure shall mean the discharge of sewage from an SSTS to the surface of the ground or to groundwater.
- i. SSTS shall have the same meaning as set forth in Section 18-16(a)(104) of the Watershed Regulations.
- j. Watershed/Watershed area shall mean those portions of the County lying within the watershed of the New York City water supply system.
- k. Watershed Regulations shall mean the *Rules and Regulations for the Protection from Contamination, Degradation and Pollution of the New York City Water Supply and its Sources*, 15 Rules of the City of New York, Chapter 18.

Application Procedures: All applications will be submitted to the Department and the Department will be responsible for forwarding a copy of each application received to the DEP. The Department will be the primary contact for scheduling field inspections and for transmitting comments/receiving responses to comments. These procedures will be followed for both delegated and non-delegated lots. The Department has agreed to abide by the time frames as set forth in the DEP Watershed Rules & Regulations.

#### Joint and Delegated Review and Approval

NYCDEP has delegated to PCHD administration of Section 18-38 of the Watershed Regulations with respect to the review and approval of all new, altered, modified, and remediated SSTSs proposed to be located in the Watershed within Putnam County, whether proposed for a realty subdivision or not, except NYCDEP will or may, as the case may be, exercise joint authority with PCHD in the following instances:

- a. NYCDEP and PCHD will have joint review and approval of the following new, altered, modified, and remediated SSTSs:
  - i. All SSTSs which are proposed for a lot within a realty subdivision and which are proposed to be located within 200 feet of either a watercourse, as defined in the Watershed Regulations, or a DEC mapped wetland;
  - ii. All SSTSs which are proposed to be located within 500 feet of a reservoir, reservoir stem or controlled lake, as defined in the Watershed Regulations;
  - iii. All SSTSs which are proposed to be located within the drainage basins of Boyds Corner Reservoir, Croton Falls Reservoir or West Branch Reservoir;
  - iv. All SSTSs with a design flow greater than 1000 gpd (based on Appendix 75-A or NYSDEC standards, as applicable), all commercial systems or “other” systems, as defined in the Watershed Regulations, or any system which requires a State Pollutant Discharge Elimination System permit; and

- v. All failed SSTs for which a repair permit was issued by PCDH for either the repair or remediation of that system within the past five (5) years.
- b. NYCDEP may exercise joint review and approval with PCHD of all SSTs which are proposed for a lot not within a realty subdivision and which are proposed to be located within 200 feet of either a watercourse, as defined in the Watershed Regulations, or a DEC mapped wetland.
- c. NYCDEP may exercise joint inspection, as part of a joint review and approval with PCHD of the following SSTs:
  - i. All SSTs which are proposed to be located within 200 feet of a wetland shown on the Fish and Wildlife Service Maps dated 1994 and on file with NYCDEP and PCHD; and
  - ii. All SSTs which are proposed for an area of a lot which has been modified to meet the minimum standards set forth in Appendix 75-A.

NYCDEP recognizes that in issuing approvals for all SSTs located in the portion of Putnam County within the Watershed, PCHD will require that all SSTs in previously approved subdivisions be designed to meet all current standards, to the extent PCHD determines possible. NYCDEP agrees to accept realty subdivision approvals issued by PCHD or NYSDOH prior to May 1, 1997, except as follows:

- a. All SSTs which are proposed to be located either within the drainage basin of Boyd's Corner Reservoir, Croton Falls Reservoir, or West Branch Reservoir or within 500 feet of a reservoir, reservoir stem or controlled lake, and which have not been approved by DEP shall require NYCDEP approval.
- b. All SSTs which are proposed to be located within 200 feet of either a watercourse, as defined in the Watershed Regulations, or a DEC mapped wetland, and which received final realty subdivision approval after December 31, 1992 but which have not been approved by NYCDEP shall require NYCDEP approval; and
- c. NYCDEP and PCHD shall work together to require all SSTs which are proposed to be located within 200 feet of either a watercourse, as defined in the Watershed Regulations, or a DEC mapped wetland, and which received final realty subdivision approval on or before December 31, 1992 but which have not been approved by NYCDEP to meet all current standards, including the Watershed Regulations to the extent possible.

#### Uniform Procedures

- a. In Reviewing and making determinations on SSTs pursuant to this Agreement, PCHD shall comply with the procedures and time frames set forth in section 18-23 of the Watershed Regulations and shall be responsible for issuing notices that applications are complete or incomplete and final determinations in a timely manner.
- b. PCHD's application packet for any project in the Watershed involving an SST shall have a cover sheet stating that although the application for review and approval of a new, altered, modified or remediated SST to be located within the Watershed shall be sent to PCHD, and need not be sent in duplicate to NYCDEP, the project may also require NYCDEP approval of the SST prior to final approval by PCHD. The application cover sheet shall further state

the NYCDEP is an involved agency pursuant to SEQRA and that the project may also require NYCDEP's review and approval of other aspects of the project, such as stormwater plans or the creation of impervious surfaces, and that the applicant should obtain the appropriate forms for such activities from NYCDEP and submit those forms to NYCDEP for review and approval.

- c. PCHD shall notify NYCDEP of all applications sent to PCHD for review for projects involving new, altered, modified or remediated SSTSs proposed for the portion of Putnam County located within the Watershed, by forwarding copies of all such applications and accompanying plans to NYCDEP within two (2) business days after PCDH accepts the application for processing. PCHD shall also promptly forward to NYCDEP copies of any amended applications and plans and any correspondence relating to projects subject to joint review. NYCDEP shall promptly forward to PCHD copies of any materials submitted by an applicant seeking approval of an SSTS which appear not to have also been submitted to PCHD.

#### Procedures for Review of Delegated SSTSs

For all SSTSs delegated to PCHD that are not subject to joint review, an employee of PCHD shall:

- a. Witness percolation tests and inspect the deep hole tests for the primary and reserve field site as part of the review and approval process for any SSTS. All soil test results are to be entered onto a Soils Test Report, Site Inspection Report, or other similar report, and signed by the PCHD employee who observed the tests. A copy of the signed soils tests report shall be included with the materials forwarded to NYCDEP each quarter;
- b. Visually inspect construction and installation of the SSTS for all new construction after completion of construction and prior to backfilling the site, including the size, bedding and levelness of the septic tank; the size, bedding and levelness of the distribution box; the slope of the sewer pipe from the house to the septic tank, the distribution tank, and headers and laterals; and the setbacks to dwellings, property lines, watercourses, wetlands, reservoir stems and controlled lakes; and
- c. Forward to NYCDEP a copy of the as-built construction compliance diagram, signed by the design engineer and accepted by an employee of PCHD, with the materials forwarded to NYCDEP each quarter, or sooner. Where PCHD accepts the design Engineer's certification that the system was installed in accordance with the approved design, a copy of that certification shall be forwarded to NYCDEP each quarter or sooner. For SSTS repairs, the PCHD shall forward as-built installation sketch layouts, after they are submitted by the septic system installer, to NYCDEP.

#### Procedures for Joint Review and Inspection of SSTSs

For all new, altered, modified or remediated SSTSs subject to joint review and inspection, PCHD shall follow the same procedures set for the for review of delegated SSTSs. In addition, PCHD shall notify NYCDEP of the times and locations for all required soil tests. NYCDEP, in its discretion, may witness

percolation tests and inspect deep holes. NYCDEP will inform PCHD, by the date the soil tests occur, whether NYCDEP intends to exercise its right of joint review and inspection of an SSTs.

#### Procedures for Joint Review and Approval of SSTs

- a. For all SSTs which are subject to joint review and approval, PCHD shall schedule all required soil testing and shall notify NYCDEP of the times and locations for such tests. NYCDEP will inform PCHD, by the date the soil tests occur, whether NYCDEP intends to exercise its right of joint review and approval of an SSTs.
- b. For all SSTs which are subject joint review and approval, PCHD shall inspect all deep holes for the primary and reserve field sites and NYCDEP may exercise its options to inspect deep test holes. PCDOH shall witness percolation tests, and NYCDEP may exercise its option to witness percolation test as it deems appropriate. The agency witnessing the soil percolation tests shall enter all soils test results onto Soils Test Report, Site Inspection Report, or other similar report signed by the NYCDEP or PCHD employee who observed tests. NYCDEP and PCHD must each approve the plans for all SSTs which are subject to joint review and approval prior to the commencement of all such work.
- c. PCHD will not issue its determination until NYCDEP has issued its determination to PCHD or the parties have attempted to resolve any disagreement in accordance with the procedures set forth in paragraphs 11(a)-(c). If PCHD and NYCDEP agree on whether to approve or disapprove an SSTs, PCHD shall issue the approval or disapproval, as the case may be, on behalf of both agencies, to the applicant. If PCHD and NYCDEP disagree as to the appropriate determination, even after dispute resolution by NYSDOH or NYSDEC pursuant to paragraphs 11(a)-(c), then each agency shall issue its own determination and each determination shall state that NYCDEP and PCHD are issuing separate determinations and that the approval of both NYCDEP and PCHD is necessary before the SSTs can be constructed.
- d. For all SSTs which are subject to joint review and approval PCHD shall require the responsible design professional to notify PCDOH and NYCDEP at least 48 hours prior to the commencement of work. NYCDEP may conduct inspections during the performance of such work as it deems appropriate, and shall enter its observations into a Site Inspection Report signed by a NYCDEP employee who conducted the inspection.
- e. For all SSTs which are subject to joint review and approval, PCHD and NYCDEP will provide each other copies of all NOVs, inspection reports, site plans, final determinations, and stipulations relating to such SSTs.

#### Procedures for Remediation of SSTs

- a. PCHD will review its repair permit records to determine if a repair permit has been issued for this system within the past five (5) years. If a permit had been issued within such five-year period, and if the proposed solution is determined by either PCHD or NYCDEP to be a remediation, the liaisons will notify each other, and the remediation will be subject to joint PCHD/NYCDEP review and approval.
- b. If the failure was detected as a result of a complaint, PCHD will visit the site and conduct the appropriate testing to confirm the failure on the next business day. PCHD liaison will

notify NYCDEP that a dye test is being performed to permit the opportunity for NYCDEP to observe the dye test results. If the test confirms a failure, PCHD shall issue a Notice of Violation.

- c. All remediations in the Watershed Area must have a repair permit issued by PCHD. Copies of all repair permits will be faxed to NYCDEP on the date of issuance. Repair permits shall include, as a minimum, name of property owner, address of property, a description of the repair work approved, and the name, address, and telephone number of the contractor. Each agency shall review the plans and exchange comments within three (3) business days for residential SSTs and five (5) business days for non-residential SSTs.
- d. All remediations must be completed by a County-registered, licensed or certified installer. PCHD shall be responsible for issuing licenses, registrations and/or certifications to installers who will be performing work pursuant to this Agreement. PCHD shall also provide installers with initial training and continuing education in accordance with such licenses, registrations and/or certifications.
- e. PCHD will provide the property owner ten (10) days from issuance of the Notice of Violation to determine the cause and remedy the failure. During this period, the septic tank is to be pumped out as needed in order to prevent continuing and future failures, and the applicant is to complete the PCHD preprinted repair form that details the proposed remediation. PCHD will fax to NYCDEP copies of all repair forms received on any day to NYCDEP daily. The remediation will be subject to either PCHD or joint PCHD/NYCDEP review and approval as provided in Paragraph 3, depending on the type and location of the system.
- f. Each agency shall review the plans and exchange comments within three (3) business days for residential SSTs and five (5) business days for non-residential SSTs.
- g. PCDOH is to inspect the system at the end of the ten-day period to determine that the approved remediation has been made as approved and described in the repair permit. If the system is not found to be corrected, PCDOH will issue a second Notice of Violation and fax a copy to NYCDEP.
- h. An adjudicatory hearing will be conducted by PCHD if the remediation is not completed in the five-day period following the issuance of the second Notice of Violation. PCHD's liaison will send copies of the hearing notice and charges to NYCDEP's liaison within 24 hours of issuance.

**APPENDIX J****APPLICATION FORMS**

1. Letter of Authorization (LA-97)
2. Corporate Affidavit (CA-97)
3. Application for Approval of Plans for a Wastewater Treatment System(PC-97)
4. Design Data Sheet – Subsurface Sewage Treatment (DD-97)
5. Construction Permit for Sewage Treatment System (CP-97)
6. Certificate of Construction Compliance for Sewage Treatment System (CC-97)
7. Application to Construct a Water Well (WP-97)
8. Application to Abandon a Water Well (WA-97)
9. Well Completion Report (WC-97)
10. Well Abandonment Report (WAR-97)
11. Guarantee of Subsurface Sewage Treatment System (GS-97)
12. Application for Approval of Plans for Public Water Supply Improvement (DOH-348)
13. Short Environmental Assessment Form (EAF)
14. Request for Final Inspection (FIR-99)
15. E-911 Form