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BUREAU OF MATERIALS MANAGEMENT  
& COMPLIANCE ASSURANCE

**THE RED BARN RESTAURANT**

**292 WILTON ROAD  
WESTPORT, CONNECTICUT**

**PRELIMINARY ENGINEERING REPORT  
WASTEWATER DISPOSAL FACILITIES**

Prepared for

**THE RED BARN RESTAURANT**

September 2008



**NATHAN L. JACOBSON & ASSOCIATES, INC.  
CONSULTING CIVIL AND ENVIRONMENTAL ENGINEERS  
CHESTER, CONNECTICUT**

**THE RED BARN RESTAURANT**  
**WESTPORT, CONNECTICUT**

**PRELIMINARY ENGINEERING REPORT**  
**WASTEWATER DISPOSAL FACILITIES**

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A. Introduction and Background

The Red Barn Restaurant is located on the east side of Wilton Road (Conn. Route 33) and south of Sunny Lane in the Town of Westport, Connecticut (see Figure 1). The facility provides daily lunch and dinner service, as well as a Sunday brunch meal. The restaurant is served by public water supply provided by the Aquarion Water Company and wastewater is disposed of on-site by means of a subsurface sewage disposal system. Facilities on the property include a 270 seat restaurant building at the west end of the site near Wilton Road, an outdoor patio area located south of the restaurant building, parking areas in the northwest and north central portion of the site, a single family residence in the center of the property and subsurface sewage disposal facilities located in a lawn area at the east end of the property. Poplar Plains Brook is located all along the southerly boundary of the subject property, which is a tributary to the Saugatuck River located approximately 2,000 feet to the east.

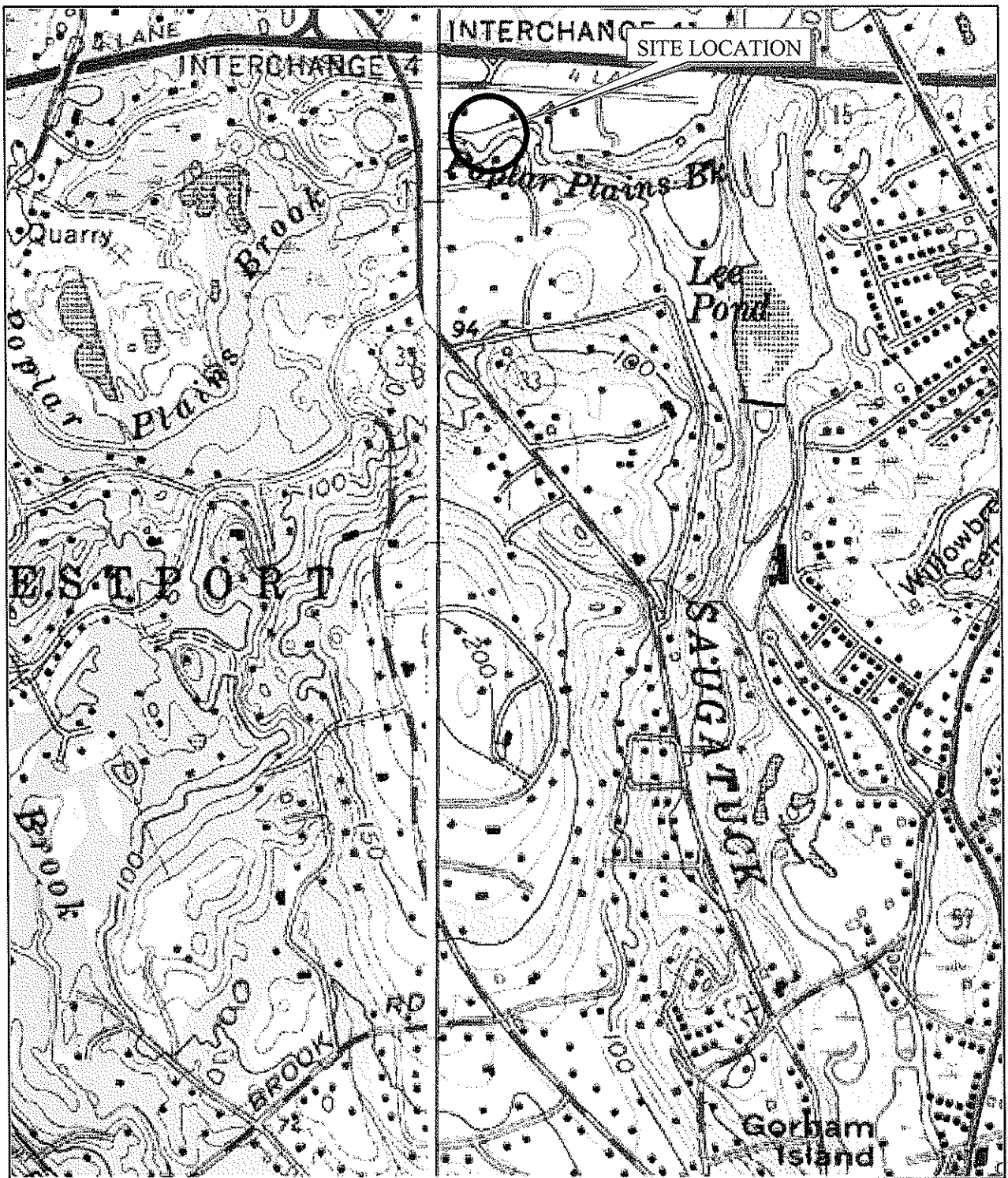
Over the years the restaurant has installed and expanded its subsurface sewage disposal facilities and at times experienced occasional problems with the sewage disposal system, which has led to a number of system repairs, renovations and additions. In more recent times wastewater disposal problems have become more pronounced, requiring the Owner to contract with a waste hauler to provide semi-weekly pumping of wastewater from the system for off-site disposal in order to provide an adequate level of control. In August of 2008 the Owner of the Red Barn Restaurant retained the services of Nathan L. Jacobson & Associates, Inc. to provide consulting engineering services for a preliminary analysis of the existing subsurface sewage disposal system and determine wastewater disposal alternatives for the subject property.

B. Regulatory Agency Jurisdiction over Wastewater Disposal Facilities

In Connecticut on-site wastewater disposal facilities are regulated by either the Local Director of Health under the provisions of the Connecticut Public Health Code, or by the Connecticut Department of Environmental Protection (CTDEP). Conventional subsurface sewage disposal systems with a design flow capacity of 5,000 or less are categorized as Household and Small Commercial sewage disposal systems and these are regulated by the Local Director of Health. Systems with a design flow capacity of greater than 5,000 gallons per day are categorized as large systems and these are regulated by the CTDEP under the State Discharge Permit program. The CTDEP also regulates any systems that provide advanced levels of wastewater treatment, or any "Community" sewerage systems, regardless of design flow rate.

C. Wastewater Flow Rate

In order to determine regulatory agency jurisdiction over wastewater disposal facilities at the Red Barn Restaurant, a review of water meter readings was conducted for recent years of record to determine the approximate wastewater flow rate. The Owner provided our office with invoices from the Aquarion Water Company for 2005 through 2008, which



Reference: USGS Norwalk North & Westport, Connecticut, CTDEP EGIS Digital Datalayer



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 Consulting Civil & Environmental Engineers Since 1972

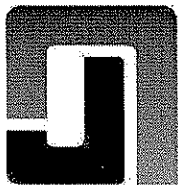
The Red Barn Restaurant  
 292 Wilton Road  
 Westport, Connecticut  
**SITE LOCATION MAP**

PROJECT No.:  
 1000-0001

SCALE:  
 1" = 1,000'

DATE:  
 September 23, 2008

FIGURE No.:  
 1



Jacobson

Nathan L. Jacobson & Associates, Inc.
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BUREAU OF MATERIALS MANAGEMENT
& COMPLIANCE ASSURANCE

LETTER OF TRANSMITTAL

To: Ms. Antoanela Daha, Sanitary Engineer
Connecticut Department of Environmental Protection
Bureau of Water Management
Permitting, Enforcement & Remediation
79 Elm Street
Hartford, Connecticut 06106-5127

Date: December 11, 2008 Project No.: 1000-0001

Re: The Red Barn Restaurant
Westport, Connecticut
Preliminary Engineering Report
Wastewater Disposal Facilities

We are sending you this date the following:

[X] Attached [ ] Under separate cover via:

- [ ] Prints [ ] Letter [ ] Catalogue Cuts
[ ] Specifications [ ] Shop Drawings [ ] Samples
[X] Reports [ ] Booklets [ ]

Sent for the following reason:

- [X] As requested [ ] For approval [ ] Revise and resubmit
[ ] For your use [ ] Approved [ ] Returned after loan to us
[ ] For review and comment [ ] Approved as noted [ ]

Table with 4 columns: Copies, Drawing No., Date, Description. Row 1: 1, [ ], Sept 2008, The Red Barn Restaurant, Preliminary Engineering Report, Wastewater Disposal Facilities.

Remarks:

cc: Leo Nevas, Esq.

Signed:

[Signature]

Brian C. Curtis, P.E.

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include metered water use data (Appendix A). Water use data is summarized in Table 1 below.

**TABLE 1**

THE RED BARN RESTAURANT  
WATER USE DATA  
2005 - 2008  
AQUARION WATER COMPANY

WATER METER READINGS IN CUBIC FEET X 100

<u>DATE</u>	<u>METER READING</u>	<u>WATER USE 100 CU.FT.</u>	<u>WATER USE GALLONS</u>	<u>DAYS IN CYCLE</u>	<u>AVE. GAL. PER DAY</u>
2/23/2005	-	605	452,540	92	4,919
5/20/2005	-	637	476,476	86	5,540
8/22/2005	-	839	627,572	94	6,676
11/22/2005	-	672	502,656	92	5,464
2/17/2006	-	595	445,060	87	5,116
5/19/2006	-	625	467,500	91	5,137
8/22/2006	-	866	647,768	95	6,819
2/15/2007	8,431				
5/16/2007*	9,159	728	544,544	91	5,984
6/19/2007	9,260	101	75,548	30	2,518
6/27/2007	9,352	92	68,816	8	8,602
6/28/2007**	0				
8/27/2007	560	560	418,880	61	6,867
11/20/2007	1,246	686	513,128	85	6,037
12/11/2007*	1,355	109	81,532	21	3,882
2/21/2008	1,727	372	278,256	72	3,865
5/22/2008	2,190	463	346,324	91	3,806

\* Estimated meter reading

\*\*Change of water meter

Note: Restaurant installed low flow dishwasher and restroom fixtures November 2007

A review of water use data reveals a substantial reduction in water use beginning with the December 11, 2007 water meter reading. Information provided by the Owner indicates that the flow reduction was a result of water conservation measures that were implemented at the restaurant in November of 2007, including installation of a low flow dishwasher and low flow restroom fixtures. For determination of design wastewater flow rate the Public Health Code allows the use of average water meter readings, but requires that a peaking factor of 1.5 be applied to the average flow to account for peak day usage as opposed to average daily water use. For the period of record provided in Table 1, average water use prior to November 2007 varied from 4,919 gpd to 8,602 gpd (values of 2,518 and 8,802 were felt to be anomalies). From November 20, 2007 through May 22,

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2008 average water use equaled a fairly consistent rate of 3,806 to 3,882 gpd. Applying the Public Health Code peaking factor of 1.5 to the average quarterly water use of approximately 3900 gpd, results in a design wastewater flow rate of 5,850 gpd. This analysis indicates that regulatory agency jurisdiction over wastewater disposal facilities falls with the CTDEP.

D. Connecticut Water Quality Standards

Surface waters in Poplar Plains Brook located at the south end of the subject site have been classified as Class A by the CTDEP. The CTDEP "Connecticut Water Quality Standards" prohibit the point source discharge of treated domestic wastewater directly to Class A surface waters. Consequently, wastewater generated at the restaurant must be discharged into a CTDEP approved on-site subsurface wastewater absorption system, or to a municipal sewerage system.

The groundwater in the vicinity of the project site has been designated Class GA by the CTDEP. Under state policy, discharges to a subsurface wastewater absorption system in a Class GA area are limited to wastewaters of predominantly human, animal or natural origin which pose no threat to untreated drinking water supplies. Since wastewater discharged from the restaurant is predominantly of human origin, it can be discharged to a subsurface wastewater absorption system provided that the wastewater, after suitable treatment (either natural, artificial, or both), will be of a quality consistent with the applicable groundwater quality goals.

E. CTDEP Design Criteria for On-Site Wastewater Disposal Facilities

Following is a summary of CTDEP design criteria for on-site wastewater disposal facilities.

1. The subsurface wastewater absorption system must be sized on the basis of conservative wastewater design flows and representative wastewater characteristics.
2. The soils in which the proposed soil absorption system will be installed must have sufficient hydraulic capacity, including application of an appropriate factor of safety, to transmit the pretreated wastewater for a sufficient distance to permit renovation of the wastewater before it reaches the closest point of concern. Points of concern include potable water supply wells, wetlands, surface water bodies and property boundaries.
3. The soils in which the proposed soil absorption system will be installed must have sufficient hydraulic capacity to provide a minimum of two feet of unsaturated soil, under design flow conditions and during high groundwater periods, for removal of pathogenic bacteria and viruses remaining in the pretreated wastewater.

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4. Any remaining bacteria and virus that were not removed in the unsaturated zone beneath the subsurface wastewater absorption system must be removed by natural die-off in the saturated soils downgradient of the point of wastewater disposal before the commingled effluent/groundwater reaches a point of concern. This removal mechanism is the basis for the CTDEP requirement that the time of travel of the wastewater through the soil, from the point of disposal to the closest point of concern, must exceed the survival time for pathogenic bacteria that may be carried in the wastewater. The time of travel of the wastewater from the point of disposal to the closest point of concern must meet a minimum of 21 days.
5. Application rates of pretreated wastewater should not exceed soil capacity for virus attenuation.
6. The concentration of nitrogen in the pretreated and renovated wastewater at the closest point of concern should not exceed the drinking water standard of 10 milligrams per liter (mg/l).
7. The phosphorus in the pretreated wastewater should be removed by the soil before the renovated wastewater reaches the closest point of concern, with no discharge of phosphorus of other than natural origin permitted to any surface water body.

F. Description of Existing Wastewater Collection, Treatment and Disposal Facilities

File information obtained from the Westport Weston Health District was reviewed to provide information on existing subsurface sewage disposal facilities.

The earliest Health District file information for the subject property dates back to 1941 when the facility was named the Red Barn Inn. Plans prepared by The Pease Company, Sanitary Engineers of Stamford Connecticut, show a cast-in-place concrete grease trap/septic tank/pump chamber located just south of the restaurant building. The pump chamber from the 1941 system is shown discharging to a leachfield system located in the eastern portion of the property consisting of 3 rows of 100 ft. long leaching trenches. The south ends of the leaching trenches are shown approximately 90 feet north of Poplar Plains Brook. A second septic tank was added to the system on August 11, 1955 to serve the "garbage yard" area located south of the restaurant building. On March 25, 1955 a series of 7 drywells (leaching pits) were added to the system, with 3 located to the north of the leaching trenches, 2 to the east and 2 to the southeast. The 2 southerly drywells were located 50 ft. and 22 ft. from Poplar Plains Brook, with a notation that the drywell located 22 ft. from the brook was disconnected because it was situated too close to the brook.



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On March 13, 1958 application was made to the Westport Health Department to add 225 ft. of leaching trench and three 7 ft. diameter cesspools to the restaurant subsurface sewage disposal system. Soil test information from 1958 indicates gravel soil to be present in the area, with groundwater at a depth of 5 ft. below ground surface. It was also noted that groundwater was 3 ft. below the cesspool inlet. It is believed that these trenches were added in the same general area as the original leaching trenches and the cesspools, or drywells, were added at the south end of some of the leaching trenches.

In 1983 the pretreatment facilities were updated by eliminating the original grease trap/septic tank/pump chamber and providing a new 1,250 gallon grease trap, two 2,000 gallon septic tanks and a 2,000 gallon pump chamber. These are located near the area of the original septic tank. As-built drawings dated March 15, 1984 indicate 6 leaching trenches, 4 drywells at the south ends of the leaching trenches, 16 ft. of 4' x 4' leaching gallery immediately south of the drywells and a separate 56 ft. of 4' x 4' leaching gallery situated between the above described system and Poplar Plains Brook.

In October 1985 a septic system was constructed for the 3 bedroom single family residence and it consists of a 1,000 gallon septic tank, a 62 ft. leaching trench and a 54 ft. leaching trench. The system is located in the lawn area just east of the house and partially under the eastern edge of the parking lot. Soil test information indicates gravelly soils with a percolation rate of 5 minutes/inch.

For the period 1997 to date, Health Department files indicate intermittent problems with the subsurface sewage disposal system and corrective actions that were taken when septic tank effluent surfaced in the leachfield system area. In July 2004 it was noted that 3 ice machine discharges and a sump pump discharge were removed from the system, resulting in positive effects due to the corresponding reduction in flow discharged to the system. Currently effluent is pumped from the system and hauled off site twice per week to keep system operation under control and prevent surfacing of effluent in the leachfield system area.

On January 26, 2006 a series of 4 deep test pits were conducted in the area surrounding the existing restaurant subsurface sewage disposal system and logged by the Westport Weston Health District. The test pits logs indicate substrata soils of brown coarse sand and gravel, underlain by gray sand or gray sand and gravel. Depth to groundwater at the time was recorded at depths of 50 inches to 72 inches below ground surface (Appendix B).

On February 28, 2007 a series of 5 deep test pits were conducted in the vicinity of the subsurface sewage disposal system and logged by Chappa and Paolini Consulting Engineers & Site Planners (Appendix B). An existing conditions plan was prepared by Chappa and Paolini showing the location of this series of test pits as well as the location of existing subsurface sewage disposal facilities. A copy of the referenced plan is included with this report. The test pits were witnessed by representatives of the Westport Weston Health District as well as Antoanela Daha, Sanitary Engineer with the CTDEP.

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This series of test pits also indicated substrata soils of gray brown coarse sand and gravel, underlain by medium to coarse sand. Groundwater monitoring was conducted by Chappa and Paolini for groundwater monitoring wells installed in the test pits. Depth to groundwater measurements were obtained on 14 separate dates between March 9, 2007 and June 15, 2007 (Appendix C). In general, average depth to seasonal high groundwater in the area of the subsurface sewage disposal system was noted as follows:

Depth to Seasonal High Groundwater in Subsurface Soil Absorption System Area  
Spring 2007

Northwest	53 inches below ground surface
West	64 inches below ground surface
Northeast	63 inches below ground surface
Southeast	88 inches below ground surface

Given these relative depths to groundwater, it is likely that some of the deeper structures in the existing subsurface sewage disposal system (leaching galleries and drywells) may not meet current requirements for vertical separation to groundwater, or seasonally the structures may be situated close to or partially in groundwater. Records of system operational problems indicate that the current problems are likely to be caused by clogging of the system's stone-soil interface, rather than being caused by hydraulic limitations of the soil. Interface clogging may be caused by accumulated solids and organic matter from years of use, grease migration into the system, high organic strength of the restaurant wastewater, undersized system area, or likely a combination of the above factors.

G. Application of CTDEP Design Criteria to the Subject Site

A preliminary evaluation was conducted to determine the suitability of the subject site to meet current CTDEP design criteria for large scale land disposal systems. A summary of the evaluation is provided below.

1. Soil Hydraulic Capacity - It is our understanding that no actual soil samples were collected from the test pits during previous soils testing conducted on the site and tested by a laboratory for soil hydraulic conductivity. This type of information could be used in calculation of site hydraulic capacity to accept design wastewater flow rate. It is significant to note, however, that groundwater monitoring conducted during the seasonal high groundwater period of 2007 actually measured site hydraulic response to loading the subsurface sewage disposal system area with the effluent discharge. It is also significant to note that during this time period wastewater flows generated by the restaurant were significantly higher than current flow levels. The groundwater monitoring data indicates that the site has sufficient hydraulic capacity to transmit applied wastewater

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flows and maintain the groundwater table well below ground surface (groundwater levels ranged from 4.4 ft. to 7.3 ft. below ground surface).

2. Nitrogen Renovation - As discussed previously, the nitrogen content of a wastewater discharge must be renovated and diluted by the soil/groundwater system on the Owner's property, or areas under the Owner's control, in order to meet the CTDEP criteria of 10 mg/l prior to crossing any property boundary or entering any Class A surface waters. Actual wastewater samples from the restaurant were not characterized for nitrogen content as part of this preliminary study, however, typical restaurant wastewater characteristics were considered for evaluating the nitrogen impact from the subsurface sewage disposal system. Using a grease trap/septic tank effluent nitrogen concentration of 50 mg/l and considering a 20% reduction of nitrogen concentration by action of the subsurface wastewater absorption system, the effluent nitrogen concentration discharging to groundwater will equal approximately 40 mg/l. The on-site area available for precipitation to infiltrate into the ground, mix with and dilute the nitrogen contained in the subsurface wastewater absorption system effluent is approximately 1.2 acres. The resultant nitrogen concentration in the effluent/groundwater mix discharged across the adjacent property boundary to the east and into Poplar Plains brook to the south is calculated to be in the range of 27 to 30 mg/l. This concentration does not meet the CTDEP design criteria of 10 mg/l and therefore advanced biological treatment of the wastewater will be required in order to reduce the nitrogen content prior to discharge into the ground.
  
3. Pathogen Renovation - CTDEP design criteria require that wastewater effluent flow through the soil/groundwater system for a minimum of 21 days prior to crossing any property boundary or entering any Class A surface waters. The hydrogeologic factors that affect the rate of water movement through soil include hydraulic conductivity of the soil (measure of how easily water moves through the soil), hydraulic gradient (slope) of the groundwater table and soil porosity (volume of soil void space relative to total soil volume). An evaluation was conducted of the groundwater monitoring data collected during the spring of 2007 and it was determined that the water table has a hydraulic gradient of approximately 2% to 3% across the subsurface wastewater absorption system area, with groundwater flowing in a general southeasterly direction. The easterly edge of the existing subsurface wastewater absorption system is located approximately 75 ft. from the easterly property boundary. This distance would require a maximum groundwater flow rate of approximately 3.6 feet per day in order to meet the 21 day travel time criteria. Given the observed 3% hydraulic gradient of the water table on this portion of the site, the soil would be limited to a maximum hydraulic conductivity value

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of approximately 40 ft. per day in order to meet the 21 day travel time. If the layout of any system repair happens to be located closer to the property boundary, the maximum allowable soil hydraulic conductivity would be less than 40 ft. per day.

The medium to coarse sand and gravel soils observed in test pits in the subsurface wastewater absorption system area would be expected to have a hydraulic conductivity value significantly greater than 40 ft. per day. This would mean that the 21 day travel time criteria would likely not be met for this area of the site. Sufficient hydraulic gradient data is not currently available to determine approximate travel time from the subsurface wastewater absorption system area to Poplar Plains Brook. Actual soil sampling for determination of hydraulic conductivity would be necessary in order to determine the required setback distance from the points of concern to meet the 21 day travel time criteria.

4. Long Term Acceptance Rate Sizing of Wastewater Absorption System - Due to the requirement for advanced wastewater treatment for nitrogen removal as discussed above, the effluent application rate for a subsurface wastewater absorption system will be much higher than that used for a conventional system receiving normal septic tank effluent. The higher application rate is permissible because the high quality of treated effluent (low concentrations of biochemical oxygen demand and suspended solids) will not form a typical restrictive biological growth layer at the system's stone/soil interface. Sizing of a subsurface wastewater absorption system is typically based on the peak daily flow rate. If peak flow is 1.5 times the average daily flow, this will equal  $1.5 \times 3,900 \text{ gpd} = 5,850 \text{ gpd}$ . Using the maximum permissible effluent application rate of 1.2 gallons per day per sq. ft. for pretreated effluent, this would require a system effective size of 4,875 sq.ft. Various subsurface wastewater absorption system configurations can be used for system layout. For example, the area of 4,875 sq.ft. could be provided by an absorption bed with dimensions of 50 ft. x 100 ft., or by eight-100 ft. rows of 1 ft. high x 4 ft. wide leaching gallery surrounded with 1 ft. of crushed stone on each side. A pressurized effluent distribution system would be required for application of treated effluent to the subsurface wastewater absorption system. For purposes of comparison, a subsurface wastewater absorption system sized to receive normal grease trap/septic tank effluent with much higher organic and suspended solids strength for the same design flow would equal 14,625 sq.ft., which is 3 times larger than the system required for pretreated effluent.

The following summary is provided for application of CTDEP design criteria to the subject site.

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- The existing subsurface wastewater absorption system area appears to have soils with sufficient hydraulic capacity to accept the wastewater discharge flow rate from the restaurant and maintain groundwater flow below the ground surface.
- The existing periodic failure problems are likely to be due to clogging of the subsurface wastewater absorption system's stone/soil interface due to years of use, high strength of applied wastewater effluent and undersized leachfield system area.
- A wastewater treatment plant designed for nitrogen removal would be required for disposal of treated effluent in the area available on the subject property in order to meet requirements of the Connecticut Water Quality Standards at the adjacent property boundary and at Poplar Plains Brook.
- Meeting the CTDEP 21 day travel time criteria to the adjacent property boundary appears to be problematic for the available subsurface wastewater absorption system area and may also be a problem for travel time to Poplar Plains Brook.

H. Wastewater Disposal Alternatives

An alternative to on-site wastewater disposal at the Red Barn Restaurant would be a sewer connection to the Town of Westport municipal sewerage system. The Town of Westport has a municipal sewerage system, with the closest point of the collection system being located near the King's Highway and Route 33 intersection, which is approximately 6,000+/- feet south on Route 33 from the restaurant site. An existing private extension of the municipal sewerage system is located much closer to the restaurant site on Patrick Road. This system serves the "Reserve at Poplar Plains" residential development and was approved by the Town of Westport Water Pollution Control Authority (WPCA) in November 2005. The Reserve at Poplar Plains residential development is provided with a wastewater collection system which discharges to a wastewater pump station located on Patrick Road. The pump station is located approximately 1,650 ft. from the Red Barn Restaurant site. The existing pump station is connected to the Town of Westport municipal sewerage system via a force main sewer extending approximately 6,000 ft. from the Patrick Road pump station down Route 33 to the King's Highway area.

The Town of Westport Facilities Plan prepared by the Town of Westport WPCA includes a sewer service area map delineating current and planned areas of municipal sewer service (Appendix D). The Facility Plan also includes a Sewer Avoidance Policy which states as follows:

*Section 3 Sewer Avoidance - Sewer avoidance in all areas outside the Sewer Limit Line on the Facilities Plan. The WPCA will not extend, nor permit the extension of, its sanitary sewer infrastructure to serve areas or individual properties outside the boundaries of the Sewer Service Area, except as stated below in Paragraph 3.1.*

*3.1 - The exception to this sewer avoidance policy is:*

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*3.1.1 - when municipal sewers are the only reasonable means of mitigating water pollution problems or health or safety problems caused by the failure of subsurface disposal system(s) in the same geographic area. Any such exception must be supported by substantial evidence satisfactory to the WPCA. In reviewing any exception, the WPCA shall consider relevant State of Connecticut Department of Environmental Protection guidelines, Town of Westport department reports, recommendations from the Westport Weston Health District, and professional reports or other materials presented.*

Brian Curtis of Nathan L. Jacobson & Associates spoke with Antoanela Daha of the CTDEP on August 11, 2008 and September 23, 2008 regarding the status of our preliminary engineering analysis of the Red Barn Restaurant wastewater disposal system. Antoanela Daha is a Sanitary Engineer with the Department who works in the large scale on-site wastewater disposal program. The results of the preliminary engineering analysis presented above were discussed with Ms. Daha, in particular the apparent problems with the site meeting the CTDEP 21 day travel time criteria, as well as the need for an on-site wastewater treatment plant to meet nitrogen removal requirements. The complexities of the restaurant operating an advanced wastewater treatment plant were also discussed. Ms. Daha indicated that the CTDEP position favors connection of the Red Barn Restaurant to the municipal sewerage system rather than allowing any variance or relaxed standard in terms of the Department's 21 day travel time criteria for pathogen renovation. Ms. Daha indicated that she also discussed this situation with William R. Hogan, P.E., Engineer of Water Pollution Control Facilities at the CTDEP, and Mr. Hogan agreed with Ms. Daha that the CTDEP's position would require the Owner to connect to the municipal sewerage system rather than relaxing Department standards for pathogen renovation standards.

I. Conclusions and Recommendations

Based on the results of this preliminary engineering evaluation of wastewater disposal alternatives for the Red Barn Restaurant as presented above, the following conclusions and recommendations are provided for consideration.

1. On-site wastewater disposal facilities at the Red Barn Restaurant fall under the jurisdiction of the CTDEP because the design wastewater flow rate exceeds 5,000 gallons per day.
2. The results of the engineering analysis conducted as part of this study indicate that:
  - a. The existing subsurface sewage disposal system area at the Red Barn Restaurant will not meet the CTDEP pathogen renovation criteria of 21 days travel time to the adjacent property boundary.

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- b. Wastewater from the Red Barn Restaurant will require advanced levels of biological treatment by use of an on-site wastewater treatment plant in order to meet CTDEP criteria for renovation of nitrogen discharges to the groundwater.
  - c. On-site soils in the existing subsurface sewage disposal system area have adequate hydraulic capacity to transmit design wastewater flows.
3. It is recommended that a meeting be arranged between representatives of the Red Barn Restaurant, Town of Westport Water Pollution Control Authority, Westport Weston Health District and Connecticut Department of Environmental Protection. The purpose of the meeting would be to discuss the findings of this preliminary engineering evaluation and determine if adequate documentation has been provided to document that connection to the municipal sewerage system is the only reasonable means of mitigating water pollution problems or health or safety problems caused by the failure of subsurface disposal system at the Red Barn Restaurant.

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## **APPENDIX A**

### **WATER METER READINGS**



\*072613101\*21\*

Account Number: 200085350  
 Total Charges: \$3086.20  
 Statement Date: 05/22/08  
 Service for: 292 WILTON RD  
 WESTPORT CT 06880-1908



Contact Us: (800) 732-9678

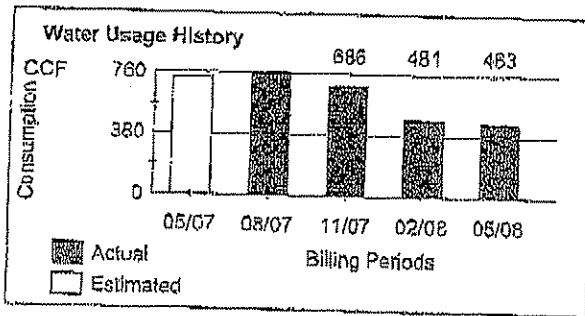
Website: [www.aquarionwater.com](http://www.aquarionwater.com)

Meter #	Billing Period	Days	Meter Reading	Reading Type	Usage	Next Billing
1028781 (1')	02/22/08 - 05/22/08	91	From / To 1727 / 2190	Actual	463 hundred cubic feet (348 thou. g)	Approximately 08/20/08

**Account Detail**

Outstanding Balance 1558.84  
 Late Payment Charge 0.22  
 Outstanding Balance Due Immediately 1558.86

Current Charges  
 Service Charge 76.71  
 Usage Charge 1450.63  
 Total Current Charges Due By 06/23/2008 1527.34



**Total Balance \$3086.20**

Any outstanding balance is due immediately and may be subject to a 1.5% late fee or further collection activity.

**SPECIAL NOTES**

**AQUARION WATER:** Our new rates can be viewed on our website, [aquarionwater.com](http://aquarionwater.com), or you may contact us with any questions about your account.

**CONTACT INFORMATION:** Please contact our office for any questions about your account, payment locations or rate schedules at (203) 445 7310 (local) or (800) 732-9678 (toll free). Visit our website at [www.aquarionwater.com](http://www.aquarionwater.com)

346,324 gal. ÷ 91 DAYS  
 = 3805 GAL PER DAY

Please detach and return this stub with your check payable to Aquarion Water Company. Do not send cash. Thank you!



Aquarion Water Company of Connecticut  
 P.O. BOX 702  
 BRIDGEPORT, CT 06601-2954

ACCOUNT NUMBER	TOTAL	PAYMENT ENCLOSED
200085350	\$ 3086.20	

Pay Current Charges By 06/23/2008

Please indicate account number and amount enclosed to ensure prompt credit to your account.

002000853500000003086202

\*072613101\*21\*\*\*\*\*SCH\*5-DIGIT\*06880  
 FRANK NISTICO JR  
 292 WILTON RD  
 WESTPORT CT 06880-1911

Aquarion Water Company of CT  
 PO Box 10010  
 LEWISTON ME 04243-9427

Check here for address or telephone number changes. See reverse side.



Account Number: 200085350  
 Total Charges: \$1558.64  
 Statement Date: 02/21/08  
 Service for: 292 WILTON RD  
 WESTPORT CT 06880-1908



**AQUARION**  
 Water Company

Contact Us: (800) 732-9678

Website: [www.aquarionwater.com](http://www.aquarionwater.com)

Meter #	Billing Period	Days	Meter Reading	Reading Type	Usage	Next Billing
51329791 (1) (1")	11/21/07 - 12/11/07	21	From / To 1245 / 1355	Estimated	109 hundred cubic feet (82 thou. g)	Approximately 02/14/08
51329791 (1) (1")	12/12/07 - 02/21/08	72	From / To 1355 / 1727	Actual	372 hundred cubic feet (278 thou. g)	Approximately 05/21/08

*L. PAE*  
*9-3*

\*125026071\*21\*

Account Number: 200085350

Total Charges: \$2588.33

Statement Date: 11/20/07

Service for: 292 WILTON RD WESTPORT CT 06880-1908



AQUARION Water Company

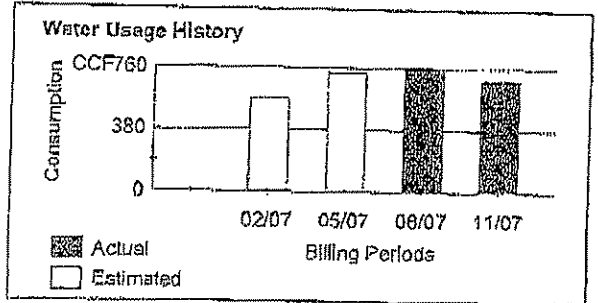
Contact Us: (800) 732-9678

Website: www.aquarionwater.com

Meter #	Billing Period	Days	Meter Reading	Reading Type	Usage	Next Billing
1028791 (1")	08/28/07 - 11/20/07	85	From / To 560 / 1246	Actual	688 hundred cubic feet (513 thou. g)	Approximately 02/18/08

Account Detail

Outstanding Balance	3445.68
Payment Received (10/24/2007), Thank You	- 2495.06
Collect at Door Fee	30.00
Late Payment Charge	24.69
Late Payment Charge	14.63
Late Payment Charge	24.69
<b>Outstanding Balance Due Immediately</b>	<b>1044.63</b>



Current Charges	
Service Charge	58.22
Usage Charge	1485.48
<b>Total Current Charges Due By 12/20/2007</b>	<b>1543.70</b>

**SPECIAL NOTES**

**CONTACT INFORMATION:** Please contact our office for any questions about your account, payment locations or rate schedules at (203) 445 7310 (local) or (800) 732-9678 (toll free). Visit our website at www.aquarionwater.com

Total Balance \$2588.33

Any outstanding balance is due immediately and may be subject to a 1.5% late fee or further collection activity.

513,128 gal. ÷ 85 DAYS = 6036

Please detach and return this stub with your check payable to Aquarion Water Company. Do not send cash. Thank you!



AQUARION Water Company

Aquarion Water Company of Connecticut P.O. Box 702 BRIDGEPORT, CT 06601-2354

ACCOUNT NUMBER	TOTAL	PAYMENT ENCLOSED
200085350	\$ 2588.33	

Pay Current Charges By 12/20/2007

Please indicate account number and amount enclosed to ensure prompt credit to your account.

002000853500000002588332

\*125026071\*21\*\*\*\*\*SCH\*5-DIGIT\*06880 FRANK NISTICO JR 292 WILTON RD WESTPORT CT 06880-1911

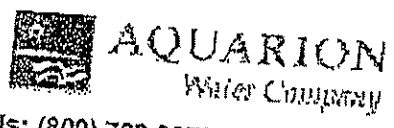
Aquarion Water Company of CT PO Box 10010 LEWISTON ME 04243-9427

Check here for address or telephone number changes. See reverse side.



AQUARION WATER CO

0802 2007



Contact Us: (800) 732-9678  
Website: [www.aquarionwater.com](http://www.aquarionwater.com)

Account Number: 208063350  
Total Charges: \$3445.68  
Statement Date: 08/28/07  
Service for: 292 WILTON RD  
WESTPORT CT 06880-1908

Meter #	Billing Period	Days	Meter Reading	Reading Type	Usage	Next Billing
3:126924 (1) (1")	05/17/07 - 06/19/07	31	From / To 9159 / 9280	Actual	101 hundred cubic feet (76 thou. g)	Approximately 08/15/07
3:126924 (1) (1")	06/20/07 - 06/27/07	8	From / To 9280 / 9352	Actual	92 hundred cubic feet (69 thou. g)	Approximately 08/15/07
3:1029791 (1")	06/28/07 - 08/27/07	61	From / To 0 / 560	Actual	660 hundred cubic feet (419 thou. g)	Approximately 11/25/07

NEW

6/27/07 METER CHANGE

103

\*103819051\*01\*

01520043604-0



**AQUARION**  
Water Company

Account Number: 200085350

Total Charges: \$2949.57

Statement Date: 06/14/07

Service for: 292 WILTON RD  
WESTPORT CT 06380-1908

Contact Us: (800) 732-9678

Website: [www.aquarionwater.com](http://www.aquarionwater.com)

*AVERAGE of  
10K per DMV*

Meter #	Billing Period	Days	Meter Reading	Reading Type	Usage	Next Billing
3326924 (1")	02/15/07 - 05/16/07	91	From / To 8431 / 9159	Estimated	728 hundred cubic feet (545 thou. g)	Approximately 08/14/07

**Account Detail**

**Outstanding Balance**

Late Payment Charge

Outstanding Balance Due Immediately

1284.36

19.27

1303.63

**Current Charges**

Service Charge

62.33

Usage Charge

1583.61

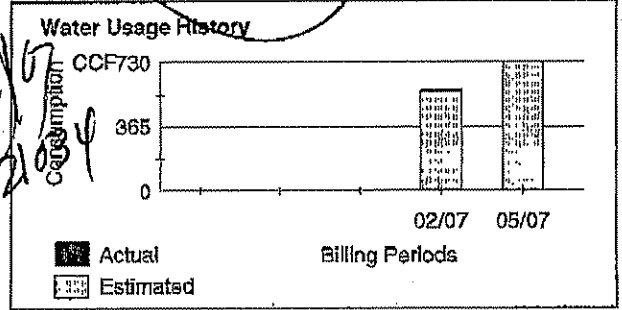
Total Current Charges Due By 07/16/2007

1645.94

**Total Balance**

**\$2949.57**

Any outstanding balance is due immediately and may be subject to a 1.5% late fee or further collection activity.



**SPECIAL NOTES**

**ESTIMATED BILL:** This is an estimated bill based on historical usage. Two or more consecutive estimates could result in a hardship if there is a leak that goes undetected during the estimated period(s). Please contact the company with an actual read of your meter or to schedule an appointment.

**CONTACT INFORMATION:** Please contact our office for any questions about your account, payment locations or rate schedules at (203) 445 7310 (local) or (800) 732-9678 (toll free). Visit our website at [www.aquarionwater.com](http://www.aquarionwater.com)

CONSUMPTION SUMMARY

Customer Code	3557788	FRANK NISTICO JR
Inst Code	5995284	292 WILTON RD
		WESTPORT

Consumption Details

RDate	Typ	Sp	Meter	Reg	TARF	RDays	Quantity	DyAvQty	Usage
22AUG06	n	1	03326924	0	BQC	95	966.000	9.116	1775.48
19MAY06	n	1	03326924	0	BQC	91	625.000	6.868	1464.28
17FEB06	n	1	03326924	0	BQC	87	595.000	6.839	1396.99
22NOV05	n	1	03326924	0	BQC	92	672.000	7.304	1526.76
22AUG05	n	1	03326924	0	BQC	94	839.000	8.926	1736.12
20MAY05	n	1	03326924	0	BQC	86	637.000	7.407	1437.40
23FEB05	n	1	03326924	0	BQC	92	605.000	6.576	1449.31

per 12/20/05  
WILTON RD?

per  
91  
DNR

Go (ScrLck) LineSel (F5) Window (F6) Search (F7) Enq (F9) >

100 cu ft of H<sub>2</sub>O = 7.48 gallons  
x by Rate

RATE 292

6.87



16NOV06 01:42PM

TION SUMMARY

ISTICO JR  
TON RD  
T

ils			Charges			
Days	Quantity	DyAvQty	Usage	Service	Other	Total
95	866.000	9.116	1775.48	65.07		1840.55
91	625.000	6.868	1464.28	62.33		1526.61
87	595.000	6.839	1396.99	59.59		1456.58
92	672.000	7.304	1526.76	63.01		1589.77
94	839.000	8.926	1736.12	64.38		1800.50
86	637.000	7.407	1437.40	58.90		1496.30
92	605.000	6.576	1449.31	63.01		1512.32

Go(ScrLck) LineSel(F5) Window(F6) Search(F7) Enq(F9) >

THE RED BARN RESTAURANT  
WESTPORT, CONNECTICUT

PRELIMINARY ENGINEERING REPORT - WASTEWATER DISPOSAL FACILITIES

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## **APPENDIX B**

### **SOIL TEST PIT DATA**

WESTPORT WESTON HEALTH DISTRICT  
 APPLICATION FOR TEST HOLES & PERCOLATION TESTS

**A-2 Survey Require  
 with Application**  
 (Includes 4 test holes  
 and 2 percs).

Fee is Non-Refundable  New building lot ... \$175  Septic alteration... \$175  Building addition/  
 New construction. \$175  Septic repair..... \$125  Feasibility (B-100A). \$175

Location: 292 Wilton Rd - (Red Barn Rest.)  Westport  Weston

Owner: NISTICO'S Date: 1/26/06

Excavator  Installer: Kaiser Butts Home Tel ( ) 838-7000

Subdivision Name: \_\_\_\_\_ Lot No.: \_\_\_\_\_ Lot Area: 2+ Acres

Testing Witness: DAVE ROGERS RESID.  No. Bedrooms: \_\_\_\_\_ NON-RESID:  Type: REST.

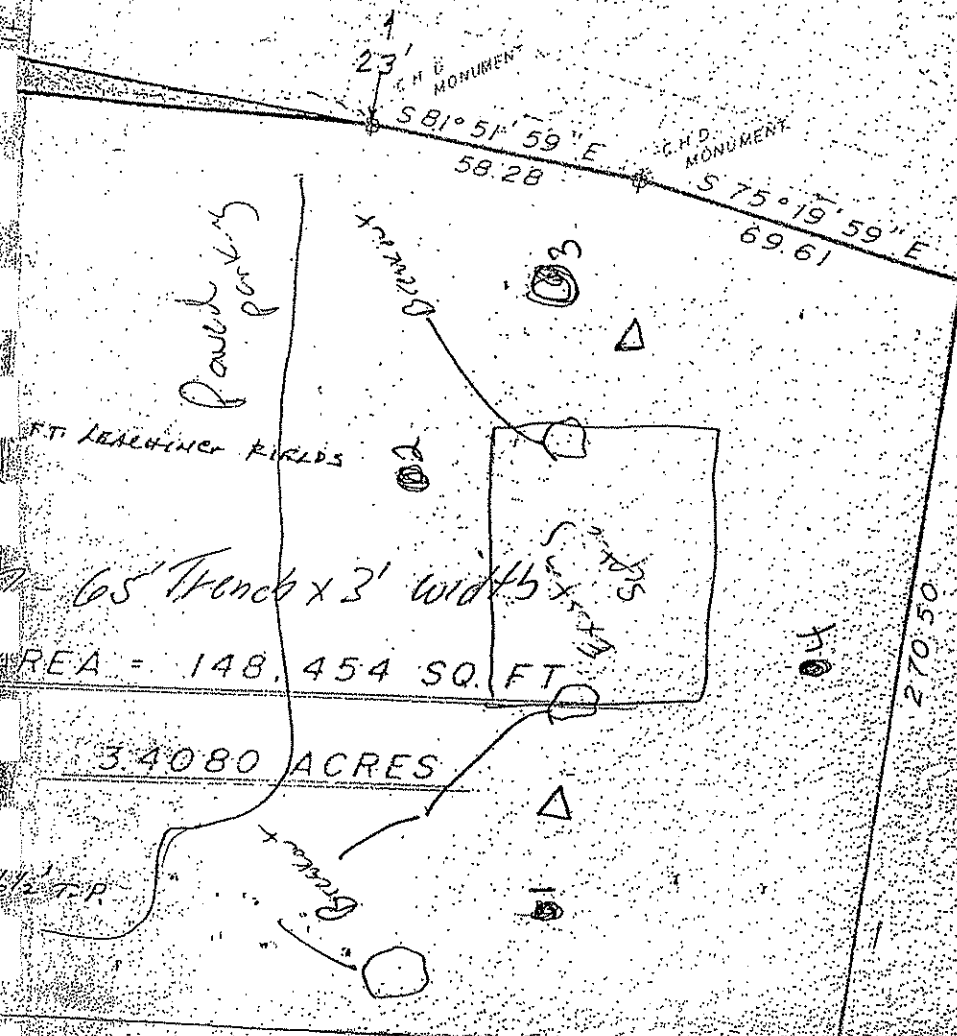
Depth (in.)	1	2	3	4	5
0	Top Soil	Top Soil	Top Soil	Top Soil	2 deep perc's ran by Kaiser Butts Home while I logged in the deep holes.
12	12	10	9	12	
24	24	27	16	21	
36	Brown Course Sand & gravel	Brown Course Sand & gravel	Brown Course Sand & gravel	Brown Course Sand & gravel	
48					
60	60	63	60	60	
72	gray sand	gray sand & gravel	rocks 48"	gray sand	
84	84	79		84	
96	Roots 60"			Roots 43	
108					
120					
132					
144					

**PAID**  
 JAN 26 2006  
 175.0000  
 WWHD

Mottling	NO	NO	NO	NO
Water	72	63	50	72
Ledge	NO	NO	NO	NO
Restrictive Layer	60	63	50	60

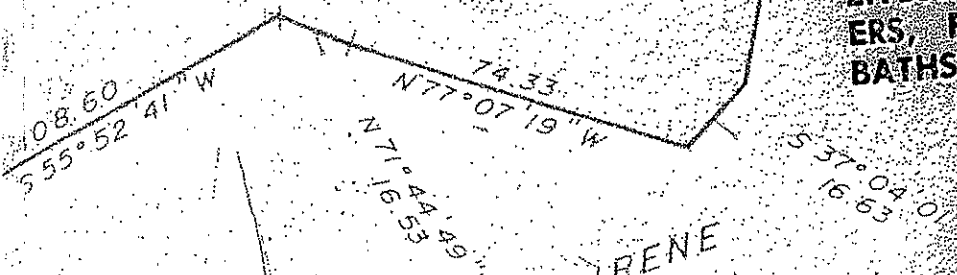
Approx. Slope of Tested Area: ~0-1% General Conditions: Sunny & Cold. Level area on river bank w/ gravel type soil. Engineer shall design repair.

Sanitarian: JWH Date: 2-9-06



APPROVED  
 DATE *Aug 22 1980*  
 BY *[Signature]*

**WESTPORT/WESTON HEALTH DISTRICT**  
 THIS SYSTEM IS NOT DESIGNED TO  
 ACCEPT WASTES FROM GARBAGE  
 DISPOSAL UNITS OR BACKWASH  
 EFFLUENT FROM WATER SOFTEN-  
 ERS, FILTERS OR JACUZZI TYPE  
 BATHS.



REVISED

DOCUMENTED STATE HIGHWAY

WESTBOUND ENTRANCE & EXIT

AREA TO BE LEASED  
30 FT

205'

30'

ASPHALT PAVEMENT

ASPHALT PAVEMENT

GRAVEL AREA

FLAG POLE

BRICK WALK

WELL

FRAME BUILDING

WATER LINE

FRAME GARAGE

30'

15'

285.17'

N 2° 59' 31" E

2417.50  
5.00

1005.06  
S 85° 31' 11" W

101.20  
6° 14' 19" W

85.00  
N 63° 15' 29" W

JOHN A. & HELEN M.

SPARROW

45.82  
N 45° 25' 19" W

<i>Client</i>	<i>Address</i>	<i>Project #</i>
Red Barn Restaurant	292 Wilton Road; Westport, CT	98733

**Test Pits**

February 28, 2007

**Test Pit #101**

- 00 - 12" TOPSOIL/ROOTS
- 12 - 37" BROWN FINE SANDY LOAM
- 37 - 74" GREY/BROWN MEDIUM COARSE SAND
- \* GROUND WATER AT 55"
- \* NO MOTTLES
- \* NO LEDGE
- \* ROOTS TO 32"

**Test Pit #102**

- 00 - 12" TOPSOIL
- 12 - 24" BROWN FINE SANDY LOAM
- 24 - 84" GREY/BROWN COARSE SAND & GRAVEL
- \* GROUND WATER AT 72"
- \* NO MOTTLES
- \* NO LEDGE
- \* ROOTS TO 44"

**Test Pit #103**

- 00 - 13" TOPSOIL
- 13 - 15" BROWN FINE SANDY LOAM
- 15 - 84" GREY/BROWN COARSE SAND & GRAVEL
- \* GROUND WATER AT 74"
- \* NO MOTTLES
- \* NO LEDGE
- \* ROOTS TO 48"

**Chappa and Fromm**  
Consulting Engineers & Site Planners  
3255 Fairfield Avenue; Bridgeport, CT 06605

<i>Client</i>	<i>Address</i>	<i>Project #</i>
Red Barn Restaurant	292 Wilton Road; Westport, CT	98733

**Test Pit #104**

- 00 - 07" TOPSOIL
- 07 - 18" BROWN FINE SANDY LOAM
- 18 - 72" GREY/BROWN COARSE SAND & GRAVEL
- \* GROUND WATER AT 72"
- \* NO MOTTLES
- \* NO LEDGE

**Test Pit #105**

- 00 - 12" TOPSOIL
- 12 - 19" BROWN FINE SANDY LOAM
- 19 - 79" GREY/BROWN COARSE SAND & GRAVEL
- 79 - 104" BROWN MEDIUM COARSE SAND
- \* GROUND WATER AT 96"
- \* NO MOTTLES
- \* NO LEDGE

THE RED BARN RESTAURANT  
WESTPORT, CONNECTICUT

PRELIMINARY ENGINEERING REPORT - WASTEWATER DISPOSAL FACILITIES

---

## **APPENDIX C**

### **GROUNDWATER MONITORING DATA**



**THE RED BARN RESTAURANT  
292 WILTON ROAD, WESTPORT, CONNECTICUT**

**DEPTH TO GROUNDWATER MONITORING DATA - 2007**

MW No.	Top Plastic Casing to Ground (in)	Top Plastic Casing to Groundwater (in)	Groundwater Depth B.G.S.* (in)	Top Plastic Casing to Groundwater (in)	Groundwater Depth B.G.S. (in)	Top Plastic Casing to Groundwater (in)	Groundwater Depth B.G.S. (in)
--------	-----------------------------------	--	--------------------------------	--	-------------------------------	--	-------------------------------

		3/9/07		3/15/07		3/21/07	
102	24	77	53	78	54	78	54
103	29	94	65	97	68	94	65
104	29	93	64	96	67	92	63
105	12	100	88	102	90	100	88

		3/28/07		4/4/07		4/13/07	
102	24	78	54	78	54	76	52
103	29	91	62	94	65	91	62
104	29	92	63	94	65	90	61
105	12	97	85	101	89	99	87

		4/20/07		5/1/07		5/7/07	
102	24	51	27	70	46	76	52
103	29	67	38	87	58	92	63
104	29	73	44	87	58	89	60
105	12	84	72	94	82	99	87

		5/17/07		5/23/07		5/30/07	
102	24	78	54	78	54	78	54
103	29	100	71	104	75	105	76
104	29	96	67	99	70	100	71
105	12	106	94	107	95	109	97

		6/6/07		6/15/07	
102	24	78	54	78	54
103	29	102	73	107	78
104	29	95	66	99	70
105	12	105	93	108	96

\*B.G.S. Below Ground Surface

Notes: *Darkened Top Plastic Casing to Groundwater values indicate no groundwater was encountered.*

<i>Client</i>	<i>Address</i>	<i>Project #</i>
Red Barn Restaurant	292 Wilton Road; Westport, CT	98733

**Ground Water Readings - March 9, 2007**

**Test Pit #101**

APPROX. PIPE HEIGHT = 34.5" (8 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = NO READING - PIPE SILTED IN TO 46"

**Test Pit #102**

APPROX. PIPE HEIGHT = 24.0" (6 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 77.0"

**Test Pit #103**

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 94.0"

**Test Pit #104**

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 93.0"

**Test Pit #105**

APPROX. PIPE HEIGHT = 12.0" (3 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 100.0"

<i>Client</i>	<i>Address</i>	<i>Project #</i>
Red Barn Restaurant	292 Wilton Road; Westport, CT	98733

**Ground Water Readings - March 15, 2007**

**Test Pit #101**

APPROX. PIPE HEIGHT = 34.5" (8 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = NO READING - PIPE SILTED IN TO 44"

**Test Pit #102**

APPROX. PIPE HEIGHT = 24.0" (6 HOLES)

DRY TO PIPE BOTTOM = 78.0" - Wet silt

**Test Pit #103**

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 97.0"

**Test Pit #104**

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 96.0"

**Test Pit #105**

APPROX. PIPE HEIGHT = 12.0" (3 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 102.0"

**Chappa and Paolini**  
*Consulting Engineers & Site Planners*  
3255 Fairfield Avenue; Bridgeport, CT 06605

<i>Client</i>	<i>Address</i>	<i>Project #</i>
Red Barn Restaurant	292 Wilton Road; Westport, CT	98733

**Ground Water Readings - March 21, 2007**

**Test Pit #101**

APPROX. PIPE HEIGHT = 34.5" (8 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = NO READING - PIPE SILTED IN TO 44"

**Test Pit #102**

APPROX. PIPE HEIGHT = 24.0" (6 HOLES)

DRY TO PIPE BOTTOM = 78.0"

**Test Pit #103**

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 94.0"

**Test Pit #104**

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 92.0"

**Test Pit #105**

APPROX. PIPE HEIGHT = 12.0" (3 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 100.0"

<i>Client</i>	<i>Address</i>	<i>Project #</i>
Red Barn Restaurant	292 Wilton Road; Westport, CT	98733

Ground Water Readings - March 28, 2007

Test Pit #101

APPROX. PIPE HEIGHT = 34.5" (8 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = NO READING - PIPE SILTED IN TO 44"

Test Pit #102

APPROX. PIPE HEIGHT = 24.0" (6 HOLES)

DRY TO PIPE BOTTOM = 78.0"

Test Pit #103

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 91.0"

Test Pit #104

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 92.0"

Test Pit #105

APPROX. PIPE HEIGHT = 12.0" (3 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 97.0"

<i>Client</i>	<i>Address</i>	<i>Project #</i>
Red Barn Restaurant	292 Wilton Road; Westport, CT	98733

Ground Water Readings - May 17, 2007

Test Pit #101

APPROX. PIPE HEIGHT = 34.5" (8 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = NO READING - PIPE SILTED IN TO 44"

Test Pit #102

APPROX. PIPE HEIGHT = 24.0" (6 HOLES)

DRY TO PIPE BOTTOM = 78.0"

Test Pit #103

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 100.0"

Test Pit #104

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 96.0"

Test Pit #105

APPROX. PIPE HEIGHT = 12.0" (3 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 106.0"

<i>Client</i>	<i>Address</i>	<i>Project #</i>
Red Barn Restaurant	292 Wilton Road; Westport, CT	98733

Ground Water Readings - May 22, 2007

Test Pit #101

APPROX. PIPE HEIGHT = 34.5" (8 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = NO READING - PIPE SILTED IN TO 44"

Test Pit #102

APPROX. PIPE HEIGHT = 24.0" (6 HOLES)

DRY TO PIPE BOTTOM = 78.0"

Test Pit #103

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 104.0"

Test Pit #104

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 99.0"

Test Pit #105

APPROX. PIPE HEIGHT = 12.0" (3 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 107.0"

<i>Client</i>	<i>Address</i>	<i>Project #</i>
Red Barn Restaurant	292 Wilton Road; Westport, CT	98733

Ground Water Readings - May 30, 2007

Test Pit #101

APPROX. PIPE HEIGHT = 34.5" (8 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = NO READING - PIPE SILTED IN TO 44"

Test Pit #102

APPROX. PIPE HEIGHT = 24.0" (6 HOLES)

DRY TO PIPE BOTTOM = 78.0"

Test Pit #103

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 105.0"

Test Pit #104

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 100.0"

Test Pit #105

APPROX. PIPE HEIGHT = 12.0" (3 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 109.0"



<i>Client</i>	<i>Address</i>	<i>Project #</i>
Red Barn Restaurant	292 Wilton Road; Westport, CT	98733

Ground Water Readings - June 6, 2007

Test Pit #101

APPROX. PIPE HEIGHT = 34.5" (8 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = NO READING - PIPE SILTED IN TO 44"

Test Pit #102

APPROX. PIPE HEIGHT = 24.0" (6 HOLES)

DRY TO PIPE BOTTOM = 78.0"

Test Pit #103

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 102.0"

Test Pit #104

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 95.0"

Test Pit #105

APPROX. PIPE HEIGHT = 12.0" (3 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 105.0"

<i>Client</i>	<i>Address</i>	<i>Project #</i>
Red Barn Restaurant	292 Wilton Road; Westport, CT	98733

Ground Water Readings - June 15, 2007

Test Pit #101

APPROX. PIPE HEIGHT = 34.5" (8 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = NO READING - PIPE SILTED IN TO 44"

Test Pit #102

APPROX. PIPE HEIGHT = 24.0" (6 HOLES)

DRY TO PIPE BOTTOM = 78.0"

Test Pit #103

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 107.0"

Test Pit #104

APPROX. PIPE HEIGHT = 29.0" (7 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 99.0"

Test Pit #105

APPROX. PIPE HEIGHT = 12.0" (3 HOLES)

DEPTH TO GROUND WATER  
FROM TOP OF PIPE = 108.0"

THE RED BARN RESTAURANT  
WESTPORT, CONNECTICUT

PRELIMINARY ENGINEERING REPORT - WASTEWATER DISPOSAL FACILITIES

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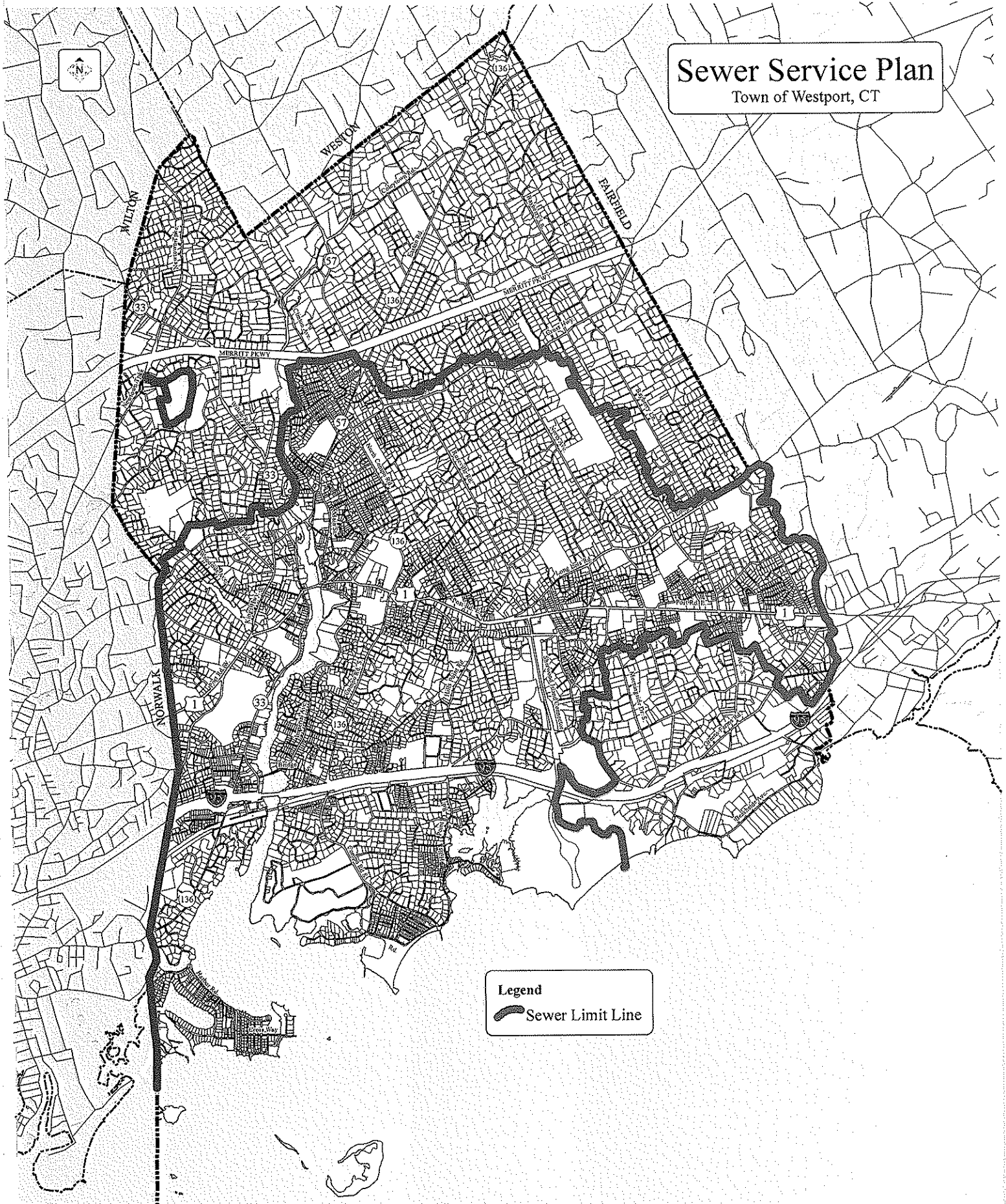
## **APPENDIX D**

### **SEWER SERVICE PLAN**


### **WESTPORT WATER POLLUTION CONTROL AUTHORITY**

# Sewer Service Plan

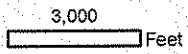
Town of Westport, CT



**Legend**

 Sewer Limit Line

 **Planimetrics**  
31 Eagle Drive, Avon, CT 06001 860 677-5703



This map was compiled from multiple data sources with different scales and projections. This map does not meet National Map Accuracy Standards and should only be used for general planning purposes.